Appendix A

NOP and Public Scoping Comments

NOTICE OF PREPARATION
City of Oceanside, California

To: Office of Planning and Research
Responsible and Trustee Agencies
Other Interested Parties

Subject: Notice of Preparation of an Environmental Impact Report

Project: Modera Melrose Project (APNs 161-030-23 and 161-030-24), Located at Southeast Corner of Melrose Drive and Bobier Drive; Development Plan (D21-00011) and Density Bonus (DB21-00005)

Lead Agency: City of Oceanside

Date: March 1, 2022

Pursuant to Section 15082(a) of the California Environmental Quality Act (1970) (CEQA), the City of Oceanside will be the lead agency and will require preparation of an Environmental Impact Report (EIR) for the Modera Melrose Project (project), which is described below. Consistent with your agency's statutory authority, the City of Oceanside requests input regarding the scope and content of the EIR. The City of Oceanside has concluded that the project could result in potentially significant environmental impacts, and therefore an EIR is required. The project description and location are included herein.

Pursuant to Section 15103 of the CEQA Guidelines, response must be sent at the earliest date and received by our agency no later than 30 days after receipt of this notice. Should you have any questions regarding the project or Notice of Preparation, please call Patty Anders, Planning Consultant, at (760) 435-3529. Please mail your written response by March 31, 2022, to the following:

Development Services Department
Attn: Patty Anders, Planning Consultant
300 North Coast Highway
Oceanside, CA 92054
Fax: (760) 435-2958
Email: panders@oceansideca.org

City/County Location: City of Oceanside, County of San Diego

Applicant: MRCT Investments, LLC

Project Location: The project site is located at the southeast corner of the intersection of Melrose Drive and Bobier Drive (Figure 1, Project Location). The site consists of two vacant parcels (Assessor's Parcel Number [APN] 161-030-23 and APN 161-030-24) that collectively cover approximately 7.4 acres. The property is zoned CN-Neighborhood Commercial, corresponding with the General Plan designation of NC (Neighborhood Commercial). The project site is located along the eastern boundary of the City of Oceanside and is immediately adjacent to the City of Vista. Surrounding properties are zoned by the City of Oceanside as CG-General Commercial to the west, CP-Commercial Professional to the northwest, and PD-Planned Development (residential) to the north. The City of Vista properties that surround the project site to the east and south and are zoned R-1-B-Single Family Residential and SPI-Specific Plan Implementation, respectively. The project site is also in proximity to a light rail line to the south, with an open space corridor and community park located to the north.

Project Description: The project would involve a request for approval of a Development Plan (D21-00011) and Density Bonus (DB21-00005) to allow the construction of 323 residential apartment units; 290 units are proposed as market rate and 33 units are proposed as very low-income affordable. The project would also include 2,365 square feet of commercial space, 1,746 square feet of leasing office space, open space, and amenity areas (Figure 2, Site Plan). The project is subject to State Density Bonus Law (Government Code Section 65915) and local Density Bonus provisions (Section 3032 of the Zoning Ordinance).

The proposed development would be composed of six separate mixed-use apartment buildings that would be four and five stories, varying from 45 feet to 62 feet in height. The 7.4-acre (323,650-square-foot) lot would be covered by approximately 104,000 square feet of building footprint. The proposed apartment buildings would be set back from existing residential homes to the southeast by approximately 95 feet to provide privacy and visual relief. Parking would be provided as surface spaces (381 spaces, 39 of which would be individual garage spaces) and as a below-ground garage (145 spaces) (Figure 2). The approvals required for the project include a Development Plan and a Density Bonus application with waivers for development standards involving setbacks, floor area ratio, building height, usable open space per unit, width of certain parking stalls, and retaining wall height and material.

Project landscaping and greenspace would cover approximately 96,000 square feet. The interior of the project site would include a recreation area, fitness center, outdoor pool, and barbeque area. Access to the project would be provided via Bobier Drive along the northeast corner of the site. The proposed development would connect to an existing sidewalk system along Bobier Drive, providing pedestrian access to and from the project site. The project would require grading work that involves approximately 20,500 cubic yards of cut soil and approximately 63,700 cubic yards of filled soil. The project would connect to existing water and sewer facilities in the surrounding area.

Potential Environmental Effects: Pursuant to Section 15060(d) of the CEQA Guidelines, the project may potentially result in significant impacts related to aesthetics, air quality, biological resources, cultural resources, energy, geology/soils, greenhouse gas emissions, hydrology/water quality, land use/planning, noise, population/housing, public services, recreation, transportation, tribal cultural resources, and utilities/service systems. An EIR will be prepared to evaluate the proposed project's potential impacts on the environment, outline mitigation measures, and analyze potential project alternatives.

PUBLIC SCOPING MEETING

The City of Oceanside will hold a public scoping meeting to obtain information regarding the content and scope of the Draft EIR. This scoping meeting will take place on **Tuesday, March 15, 2022, at 6:00 p.m. at the Civic Center Library Community Room, located at 300 North Coast Highway in the City of Oceanside**. The scoping meeting format will consist of a brief project presentation followed by a public comment period and open forum with City staff and applicant representatives. All public agencies, organizations, and interested parties are encouraged to attend and participate in this meeting. Written comments can be made to the Development Services Department contact listed above.

Signature: Patty Anders
Patty Anders, Planning Consultant

Date: March 1, 2022

Attachments: Figure 1, Project Location
Figure 2, Site Plan



SOURCE: SANGIS 2019

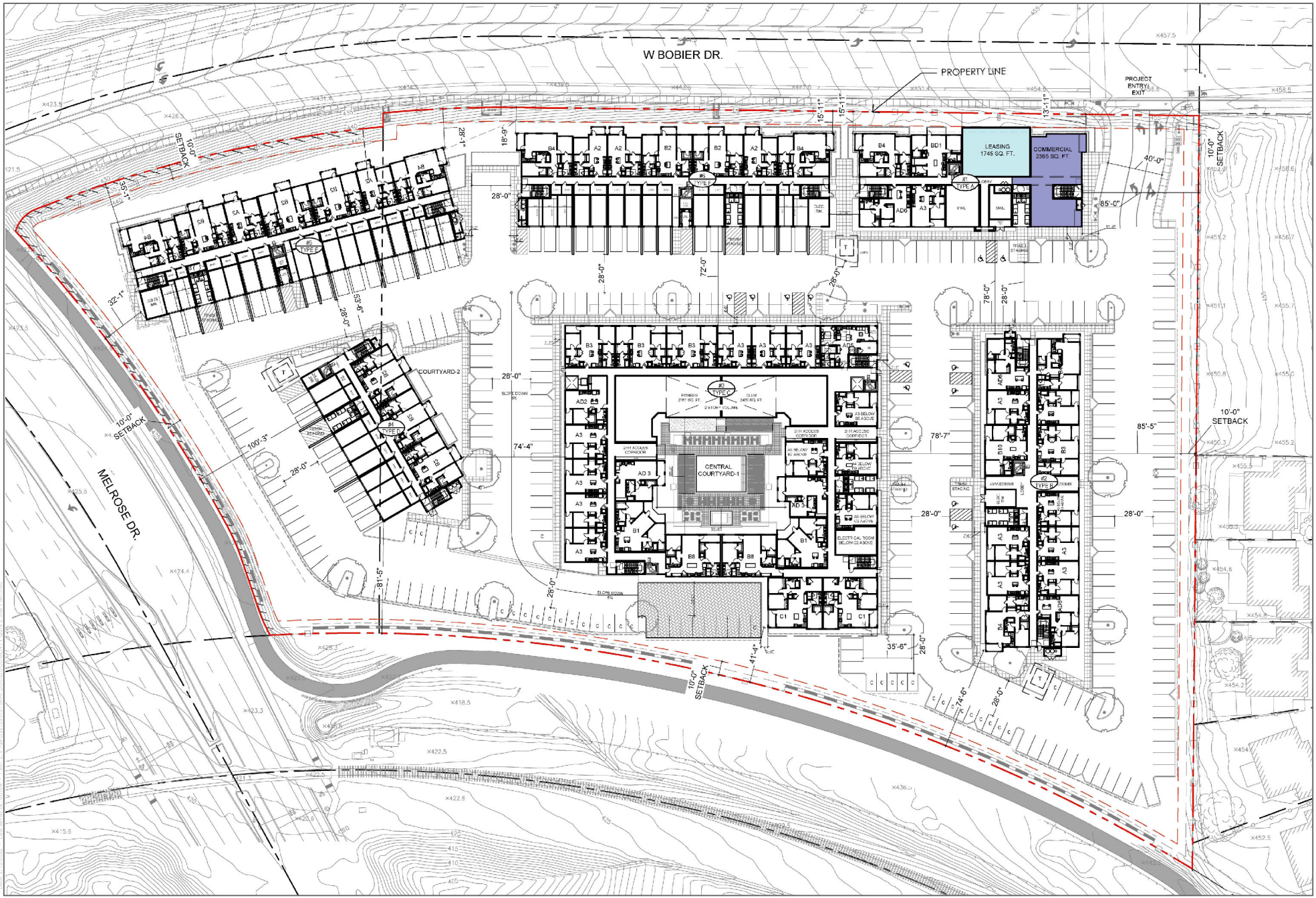
DUDEK

0 500 1,000 Feet

FIGURE 1

Project Location

Modera Melrose Project



SOURCE: AO Architects 2021

DUDEK

0 45 90 Feet

FIGURE 2

Site Plan

Modera Melrose Project

Modera Melrose Project
Public Comments to Notice of Preparation Matrix

#	Comment Letter Contact	Comments / Concerns	Considered in EIR or Planning Documents	Applicable EIR Section	Date Dated or Received
Federal Agencies					
1	U.S. Fish and Wildlife Service	The federally and state threatened thread-leaved brodiaea is known to occur in clay or semi-sandy soils in the vicinity of the project site, which also has soils that may support this species. It is recommended that protocol-level surveys be conducted for brodiaea at the project site. If brodiaea is found at the project site, the EIR should include alternatives that avoid, minimize and/or mitigate potential impacts to this species.	Yes	Biological Resources	March 30, 2022
State Agencies					
2	Caltrans – Maurice A. Eaton, Branch Chief	A VMT based TIS should be provided for this project. Caltrans requests the project take into consideration the Complete Streets and Climate Change policies, smart growth planning, land use pattern impacts on transportation, high speed broadband for teleworking, and right-of-way coordination. Caltrans welcomes the opportunity to be a Responsible Agency under CEQA, as they have some discretionary authority of a portion of the project that is in Caltrans' right-of-way through the form of an encroachment permit process. As part of the encroachment permit process, all approved final environmental documents for the project must be provided to Caltrans. It is recommended that the project identify and assess potential impacts caused by the project or impacts from mitigation efforts that occur within Caltrans' right-of-way that includes impacts to the natural environment and infrastructure.	Yes	Traffic and Transportation, Land Use and Planning	March 30, 2022
Local Agencies					
3	North County Transit District (NCTD) – Katie Persons, Director of Service Planning	NCTD requests that at least two weeks prior to starting work, the City or approved contractor, notify NCTD to determine if traffic control methods affect stops at BREEZE Route 318. Due to the proximity of existing bus stops at the Melrose SPRINTER station, NCTD will not request the installation of a new bus stop at this time. NCTD recommends that the project site design allow for sufficient ADA paths for connecting pedestrians from within the development to access nearby bus stops, sidewalks, crosswalks, and the adjacent SPRINTER station. NCTD recommends providing shading from trees or structures, lighting, bike racks, and seating. The project should comply with applicable NCTD Bus Stop Development Handbook design guidelines, Smart Growth Opportunity Area goals, and the City's Climate Action Plan. All construction activities that occur in or near the NCTD right of way must be reviewed and permitted by NCTD.	Yes	Traffic and Transportation	March 16, 2022

#	Comment Letter Contact	Comments / Concerns	Considered in EIR or Planning Documents	Applicable EIR Section	Date Dated or Received
4	Vista Irrigation District – Robert Scholl, Engineering Services Manager	The Vista Irrigation District understands that water service for the project will be provided by the City of Oceanside; however, the district does have a reserved easement within the area that overlaps the project site. The project applicant has inquired about quitclaiming this easement since the District would not be the water purveyor for the development. The District is currently evaluating if this easement should be considered a District asset with appropriate value. Until this evaluation is completed, the District intends to retain its easement rights on this property.	Yes	Land Use and Planning, Hydrology and Water Quality, Utilities and Service Systems	March 30, 2022
Tribes					
5	Pechanga Band of Indians – Juan Ochoa, Assistant Tribal Historic Preservation Officer	This email serves as the Tribe's formal request to begin consultation under AB 52 for this Project. The Tribe intends to assist the City in determining the type of environmental document that should be prepared; with identifying potential tribal cultural resources (TCRs); determining whether potential substantial adverse effects will occur to them; and to develop appropriate preservation, avoidance and/or mitigation measures, as appropriate. The preferred TCR mitigation is complete avoidance and the Tribe requests that all efforts to preserve sensitive TCRs be made as early in the development process as possible. This culturally sensitive area is affiliated with the Pechanga Band of Luiseño Indians because of the Tribe's cultural ties to this area as well as our extensive history with the City and other projects within the area. The Tribe requests notification of all project documents circulated, and requests to be directly notified of all public hearings and scheduled approvals concerning this Project, and that these comments be incorporated into the record of approval for this Project.	Yes	Cultural Resources/Tribal Cultural Resources	March 15, 2022
6	San Luis Rey Band of Mission Indians – Cami Mojado, Cultural Resources Manager	Concerns of tribal cultural resources, including traditional cultural landscapes and sacred sites, within the project impact area. The Tribe strongly urges caution in assessing the land encompassing the project for development and zoning purposes, as well as incorporating the presence of a Luiseño Native American monitor during all ground disturbing activities and tribal cultural resource assessment surveys.	Yes	Cultural Resources/Tribal Cultural Resources	March 23, 2022
Individuals					
7	Kristen Qattan	In opposition to the project due to traffic, increased use of existing parks and trail system, decrease in property values for surrounding homes, economic and environmental impacts, inappropriate land use for the site.	Yes	Traffic and Circulation, Recreation, Public Services, Population and Housing, Land Use, Other CEQA Considerations	March 5, 2022
8	M C Watt	Concerns regarding traffic along Sports Park Way in both existing and proposed conditions, and concerns regarding parking at the sports park with development of the adjacent Melrose Heights project. The commenter also voices concerns related to the volume of housing in the area and the traffic at the intersection of Bobier and Melrose Drive.	Yes	Traffic and Circulation, Land Use, Population and Housing	March 14, 2022
9	Edward Richardson	In general favor of the project with a few recommendations and requests: 1. Add pedestrian access to the apartment complex on the west side of the development to encourage use of the nearby Sprinter station. The proposed design has tenants walk east to	Yes	Traffic and Circulation, Recreation, Project	March 23, 2022

#	Comment Letter Contact	Comments / Concerns	Considered in EIR or Planning Documents	Applicable EIR Section	Date Dated or Received
		Sports Park Way in order to exit the community, then reverse course along Oceanside Blvd going west to get to the Sprinter station. This could easily add 10 minutes to the trip vs. exiting on the west side of the complex nearest to the station, reducing use of transit. 2. Add physical protection to the existing bike path on the south side of Oceanside Blvd. Please see the attached photo for an example of one type of this. though there are many similar options. This will tie in nicely to the existing bike path along Melrose on the west side of the project and offer much needed protection for bikers riding alongside 50 mph traffic on Oceanside Blvd. and those drivers turning right from Melrose who frequently veer into the bike lane. Similar to the first item, this will serve to encourage residents to use transit options that reduce the environmental and traffic impact on the community. 3. Include adequate resources for residents who own or are considering the purchase of an electric vehicle. From my understanding of Oceanside guidelines, 7.5% of the parking spots at Modera Melrose will have charging stations. In 2021, electric vehicles were over 12% of new vehicle registrations in California and this number is expected to increase significantly in the upcoming years. Additionally, sales of new gasoline powered vehicles will end by 2035 and substantially be replaced by electric vehicles. The number of parking spots with charging infrastructure seems insufficient to meet long term goals and will make adoption of zero emission vehicles less attractive to tenants.		Description, Population and Housing	
Organizations					
10	San Diego County Archaeological Society, Inc. (SDCAS)	The letter acknowledges the organization received the NOP for the project and states the organization will be reviewing the Draft EIR, and in particular, the Cultural Resources section. The organization requests future notification of public review for the Draft EIR and availability of cultural resource technical reports.	Yes	Cultural Resources	March 30, 2022
11	Southwest Regional Council of Carpenters (SWRCC)	The letter introduces the organization as a labor union that represents over 50,000 carpenters in six states, including California. SWRCC requests that the City provide notice to their organization for any notices issued under CEQA. The organization also requests that the City consider community benefits for the project, specifically related to local hiring practices and the use of a skilled and trained workforce. The SWRCC makes the claim that using local and skilled/trained workforce would reduce environmental impacts and positively impact the local economy. Specifically, the organization claims that doing so would reduce the length of vendor trips, vehicle miles traveled, and greenhouse gas emissions. SWRCC claims that promoting the use of skilled/trained labor would also yield sustainable economic development and localized economic benefits which would align with goals and policies of the City's general plan and municipal code. Furthermore, the organization requests that the project be bult to standards exceeding the 2019 California Green Building Code and 2020 County of Los Angeles Green Building Standards Code. The SWRCC also recommends that the City adopt additional CEQA mitigation measure related to COVID-19 public health risks; specifically, the organization requests these	No	Air Quality, Greenhouse Gas Emissions, Transportation	May 26, 2022

#	Comment Letter Contact	Comments / Concerns	Considered in EIR or Planning Documents	Applicable EIR Section	Date Dated or Received
		mitigation measures cover on-site construction work practices, training and certifications, and testing procedures.			

United States Department of the Interior
U.S. FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

In Reply Refer to:
FWS-SDG-2022-0018746

March 30, 2022
Sent Electronically

Patty Anders
Planning Consultant
300 North Coast Highway
Oceanside, California 92054

Subject: Comments on the Notice of Preparation of an Environmental lmpact Report for the Modera Melrose Project, City of Oceanside, San Diego County, California

Dear Patty Anders:

The U.S. Fish and Wildlife Service (Service) has reviewed the Notice of Preparation (NOP) of an Environmental Impact Report (EIR) for the Modera Melrose Project (project), in the City of Oceanside (City), California. Our comments and recommendations are based on the information provided in the NOP, our knowledge of sensitive and declining vegetation communities in San Diego County, our participation in the Multiple Habitat Conservation Program (MHCP), and the City's draft MHCP Subarea Plan (SAP).

The primary concern and mandate of the Service is the protection of public fish and wildlife resources and their habitats. The Service has legal responsibility for the welfare of migratory birds, anadromous fish, and threatened and endangered animals and plants occurring in the United States. The Service is also responsible for administering the Federal Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq*.), including habitat conservation plans developed under section 10(a)(1) of the Act.

The proposed 7.4-acre project site consists of two vacant parcels located at the southeast corner of the intersection of Melrose Drive and Bobier Drive in the eastern portion of the City, and is surrounded by existing development. The proposed project includes development of 320 residential apartment units on the project site.

The federally and state threatened thread-leaved brodiaea (*Brodiaea filifolia*; brodiaea) is known to occur in clay or semi-sandy soils in the vicinity of the project site, which also has soils that may support this species (Web Soil Survey 2022). Therefore, we recommend that protocol-level surveys be conducted for brodiaea at the project site. If brodiaea is found at the project site, the EIR should include alternatives that avoid, minimize and/or mitigate potential impacts to this species.

We appreciate the opportunity to comment on this NOP. If you have any questions regarding our comments, please contact Taylor Curtis[1] at 760-431-9440, extension 371.

Sincerely,

for Jonathan D. Snyder
Assistant Field Supervisor

LITERATURE CITED

Web Soil Surveys. 2022. www.WebSoilSurveys.ncrs.usda.gov. Accessed 29 March 2022.

[1] Taylor_Curtis@fws.gov

California Department of Transportation

DISTRICT 11
4050 TAYLOR STREET, MS-240
SAN DIEGO, CA 92110
(619) 709-5152 | FAX (619) 688-4299 TTY 711
www.dot.ca.gov

March 30, 2022

11-SD-76, 78
PM VAR
Modera Melrose
NOP/SCH#2022030032

Ms. Patty Anders
Planning Consultant
City of Oceanside
300 North Coast Highway
Oceanside, CA 92054

Dear Ms. Anders:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the Notice of Preparation for the Modera Melrose Project located near State Routes 76 (SR-76) and 78 (SR-78). The mission of Caltrans is to provide a safe and reliable transportation network that serves all people and respects the environment. The Local Development Review (LDR) Program reviews land use projects and plans to ensure consistency with our mission and state planning priorities.

Safety is one of Caltrans' strategic goals. Caltrans strives to make the year 2050 the first year without a single death or serious injury on California's roads. We are striving for more equitable outcomes for the transportation network's diverse users. To achieve these ambitious goals, we will pursue meaningful collaboration with our partners. We encourage the implementation of new technologies, innovations, and best practices that will enhance the safety on the transportation network. These pursuits are both ambitious and urgent, and their accomplishment involves a focused departure from the status quo as we continue to institutionalize safety in all our work.

Caltrans is committed to prioritizing projects that are equitable and provide meaningful benefits to historically underserved communities, to ultimately improve transportation accessibility and quality of life for people in the communities we serve.

We look forward to working with the City of Oceanside in areas where the City and Caltrans have joint jurisdiction to improve the transportation network and connections

between various modes of travel, with the goal of improving the experience of those who use the transportation system.

Caltrans has the following comments:

Traffic Impact Study

- A Vehicle Miles of Travel (VMT) based Traffic Impact Study (TIS) should be provided for this project. Please use the Governor's Office of Planning and Research Guidance to identify VMT related impacts.[1]

- The TIS may also need to identify the proposed project's near-term and long-term safety or operational issues, on or adjacent any existing or proposed State facilities.

Complete Streets and Mobility Network

Caltrans views all transportation improvements as opportunities to improve safety, access and mobility for all travelers in California and recognizes bicycle, pedestrian and transit modes as integral elements of the transportation network. Caltrans supports improved transit accommodation through the provision of Park and Ride facilities, improved bicycle and pedestrian access and safety improvements, signal prioritization for transit, bus on shoulders, ramp improvements, or other enhancements that promotes a complete and integrated transportation network. Early coordination with Caltrans, in locations that may affect both Caltrans and the City of Oceanside is encouraged.

To reduce greenhouse gas emissions and achieve California's Climate Change target, Caltrans is implementing Complete Streets and Climate Change policies into State Highway Operations and Protection Program (SHOPP) projects to meet multi-modal mobility needs. Caltrans looks forward to working with the City to evaluate potential Complete Streets projects.

Bicycle, pedestrian, and public transit access during construction is important. Mitigation to maintain bicycle, pedestrian, and public transit access during construction is in accordance with Caltrans' goals and policies.

[1] California Governor's Office of Planning and Research (OPR) 2018. "Technical Advisory on Evaluating Transportation Impacts in CEQA." http://opr.ca.gov/docs/20190 122-743_Technical_Advisory.pdf

Land Use and Smart Growth

Caltrans recognizes there is a strong link between transportation and land use. Development can have a significant impact on traffic and congestion on State transportation facilities. In particular, the pattern of land use can affect both local vehicle miles traveled and the number of trips. Caltrans supports collaboration with local agencies to work towards a safe, functional, interconnected, multi-modal transportation network integrated through applicable "smart growth" type land use planning and policies.

The City should continue to coordinate with Caltrans to implement necessary improvements at intersections and interchanges where the agencies have joint jurisdiction.

Environmental

Caltrans welcomes the opportunity to be a Responsible Agency under the California Environmental Quality Act (CEQA), as we have some discretionary authority of a portion of the project that is in Caltrans' R/W through the form of an encroachment permit process. We look forward to the coordination of our efforts to ensure that Caltrans can adopt the alternative and/or mitigation measure for our R/W. We would appreciate meeting with you to discuss the elements of the EIR that Caltrans will use for our subsequent environmental compliance.

An encroachment permit will be required for any work within the Caltrans' R/W prior to construction. As part of the encroachment permit process, the applicant must provide approved final environmental documents for this project, corresponding technical studies, and necessary regulatory and resource agency permits. Specifically, CEQA determination or exemption. The supporting documents must address all environmental impacts within the Caltrans' R/W and address any impacts from avoidance and/or mitigation measures.

We recommend that this project specifically identifies and assesses potential impacts caused by the project or impacts from mitigation efforts that occur within Caltrans' R/W that includes impacts to the natural environment, infrastructure including but not limited to highways, roadways, structures, intelligent transportation systems elements, on-ramps and off-ramps, and appurtenant features including but not limited to lighting, signage, drainage, guardrail, slopes and landscaping. Caltrans is interested in any additional mitigation measures identified for the project's draft Environmental Document.

Broadband

Caltrans recognizes that teleworking and remote learning lessen the impacts of traffic on our roadways and surrounding communities. This reduces the amount of VMT and decreases the amount of greenhouse gas (GHG) emissions and other pollutants. The availability of affordable and reliable, high speed broadband is a key component in supporting travel demand management and reaching the state's transportation and climate action goals.

Right-of-Way

- Per Business and Profession Code 8771, perpetuation of survey monuments by a licensed land surveyor is required, if they are being destroyed by any construction.
- Any work performed within Caltrans' R/W will require discretionary review and approval by Caltrans and an encroachment permit will be required for any work within the Caltrans' R/W prior to construction.

Additional information regarding encroachment permits may be obtained by contacting the Caltrans Permits Office at (619) 688-6158 or emailing D11.Permits@dot.ca.gov or by visiting the website at https://dot.ca.gov/programs/traffic-operations/ep. Early coordination with Caltrans is strongly advised for all encroachment permits.

If you have any questions or concerns, please contact Kimberly Dodson, LDR Coordinator, at (619) 985-1587 or by e-mail sent to Kimberly.Dodson@dot.ca.gov .

Sincerely,

Maurice A. Eaton

MAURICE EATON
Branch Chief
Local Development Review

NORTH COUNTY TRANSIT DISTRICT

810 Mission Avenue
Oceanside, CA 92054
(760) 966-6500
(760) 967-2001 (fax)
GoNCTD.com

March 16, 2022

Ms. Patty Anders
Planning Consultant
City of Oceanside
300 North Coast Highway
Oceanside, CA 92054
Sent Via Electronic Mail: panders@oceansideca.org

Re: NCTD Response – Oceanside Modera Melrose Project

Dear Ms. Anders:

The North County Transit District (NCTD) received a notice on March 2, 2022 regarding a Notice of Preparation for a development near our transit services and NCTD-owned parcels. Thank you for the opportunity to review the Modera Melrose Project, located at the southeast corner of Melrose Drive and Bobier Drive (which becomes Oceanside Blvd).

Upon review of the notice, NCTD has determined the following:

Services

- The BREEZE Route 318 is the nearest impacted route due to construction for this development. NCTD requests that at least two (2) weeks prior to starting work, the City or its approved contractor, notify NCTD via e-mail at detours@nctd.org so that we may send a supervisor to meet with your construction crew to determine if your traffic control methods affect our stops.
- There are no bus stops on the project site that would be impacted. Due to the proximity of existing bus stops at the Melrose SPRINTER station, NCTD will not request the installation of a new bus stop at this time.

Design

- NCTD highly recommends that the project site design allow for sufficient ADA paths for connecting pedestrians from within your future development to access nearby bus stops, sidewalks, crosswalks, and especially the adjacent SPRINTER station. To make your development pedestrian and bike friendly,

NCTD highly encourages you to provide shading from trees or structures, lighting, bike racks, and seating.

- As described in NCTD's Bus Stop Development Handbook (2018), new developments should be designed to provide clear and direct access to bus stops (existing or new), and should emphasize pedestrian access, activity, and safety.
    - Gated or walled developments should provide openings through walls to minimize the walking distance and provide a more direct route to bus stops.
    - Developments with parking lots should be designed with clear pedestrian walkways.
    - Distinct walkway networks should be provided where bus stops and/or transit centers can be linked with building entrances.
    - Entrances to buildings should face the street with pedestrian access located close to the nearest bus stop.
- Below is a sample of Guidelines for design supported by NCTD, as found in our Bus Stop Development Handbook (2018).

Key Transit Supportive Design and Development Guidelines Supported by NCTD
• Orient developments towards the street, with parking located to the rear of buildings rather than along the street frontage.
• Building design and circulation plans should minimize the need for parking and increase the opportunity for transit and active transportation.
• Bus stop and station elements should be incorporated into the design, in addition to other public spaces like walkways, bicycle paths, and street furniture.
• Emphasize compatible and compact land uses that enable convenient access to and from bus routes, and that are designed to provide connections to a variety of uses (i.e., residential, employment, educational, and commercial).
• Minimize walk distances through developments to bus stops, especially those with walls or gates, so that transit is accessible to most patrons or residents.

- Enhanced transit access will help fulfill City climate action goals, especially as this project site is within a regional Smart Growth Opportunity Area. The City of Oceanside's Climate Action Plan outlines measures to reduce emissions and increase opportunities for smart growth initiatives by "*furthering automotive alternatives–including options for biking, walking, and public transit*" (pg. 3-23). The "*community center centered within 1/4-mile of*

the intersection of Oceanside Boulevard and Melrose Drive" is identified as a potential SANDAG Smart Growth Opportunity Area (SGOA) (pg. 3-25) and Oceanside Boulevard is identified as a key "*transit-served commercial corridor*" (pg. ES-3). Preserving transit access at this site will help fulfill the purpose of these existing goals.

Property & Safety

- This project site is within an NCTD-adjacent parcel. Any construction activities that occur in or near the NCTD right of way must be reviewed and permitted by NCTD. Please visit https://gonctd.com/about-nctd/accountability/working-around-the-rails or contact ROW@nctd.org for more information.

Thank you again for allowing NCTD to review and comment on this project. Should you have any questions related to this review, feel free to contact me at (760) 966-6683 or via e-mail at kpersons@nctd.org.

Sincerely,

Katie Persons
Director of Service Planning

cc: Sarah Bottom, Manager of Real Estate, NCTD
Mary Balderrama, Transit Planner, NCTD

VISTA IRRIGATION DISTRICT

1391 Engineer Street • Vista, California 92081-8840
Phone (760) 597-3100 • Fax: (760) 598-8757
www.vidwater.org

Board of Directors

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Board Secretary
Elizabeth A. Mitchell
General Counsel

March 30, 2022

Development Services Department
Attn: Patty Anders, Planning Consultant
300 North Coast Highway
Oceanside, CA 92054

Re: Modera Melrose Project Notice of Preparation of an Environmental Impact Report

Dear Ms. Anders:

Thank you for the opportunity to comment on the Notice of Preparation of an Environmental Impact Report for the above-mentioned project. The Modera Melrose Project would involve the construction of 323 multi-family residential units on approximately 7.4 acres of vacant land (APNs 161-030-23 and 24). Approximately 2,365 square feet of commercial space, 1,746 square feet of office space, open space and amenity areas will also be included in the building footprint.

The Vista Irrigation District (District) understands that water service for the project will be provided by the City of Oceanside for this project. However, the District does have a reserved easement within the area that overlaps the project site (see enclosed). The project applicant has inquired about quitclaiming this easement since the District would not be the water purveyor for the development. The District is currently evaluating if this easement should be considered a District asset with appropriate value. Until this evaluation is completed, the District intends to retain its easement rights on this property.

Should you have any questions, please do not hesitate to contact me at (760) 597-3100.

Sincerely,

Robert Scholl

Robert Scholl, P.E.
Engineering Services Manager
VISTA IRRIGATION DISTRICT

300-0235

ORBook 1571
Page 346

AFFIX U.S.I.R. STAMPS: $_

VISTA IRRIGATION DISTRICT, a quasi-municipal corporation, a corporation, of the City of San Diego, County of San Diego, State of California, For and in consideration of the sum of TEN AND 00/100 DOLLARS, DOES HEREBY GRANT TO EARL RICHARDSON, a single man, ALL THAT REAL PROPERTY situated in the County of San Diego, State of California, bounded and described as follows:

PARCEL 1.
That portion of the Northwest Quarter of Section 18, Township 11 South, Range 3 West, S.B.B. & M., according to United States Government Survey approved December 14, 1885, described as follows:

Beginning at the Northwest corner of Lot 1 (NW¼ of NW¼) of said Section 18 as monumented on the ground and shown on licensed Survey Map No. 369 records of said San Diego County, thence South 89°07'40" East along the North line of said Lot 1 a distance of 1655.54 feet to the Northwest corner of the parcel of land described in deed to William Schreider, recorded May 10, 1935 in Book 409, Page 9 of Official Records in the office of the County Recordor of said San Diego County; thence South 0°03'40" East along the Westerly line of said Schreiders land a distance of 665.48 feet to the Southwest corner thereof; thence South 89°10'55" East along the Southerly line of Schreiders land 100 feet to the East line of said lot 1; thence South along the East line of said Lot 1 to the Southeast corner thereof, said point being also the Northeast corner of Lot 8 (SW¼ of NW¼) of said Section 18 as shown on Licensed Survey No. 369; thence North 89°14'10" West along the dividing line between Lots 1 and 2 a distance of 895.33 feet, more or less, to the Northwest corner of the parcel of land described in deed to Tim Donahoe, recorded March 30, 1931, in Book 1865, Page 474 of Deeds in the office of the County Recordor of said San Diego County; thence South 0°08' East along the West line of said Donahoe's land to an intersection with the center line of that certain easement granted to the County of San Diego by Cave J. Couts and recorded August 9, 1934 in Book 308, page 444 of Official Records; thence along the center line of said easement in a westerly direction to the West line of said Section 18; thence North along the West line of said Section to the point of beginning.

Parcel 2.
Lot 5 (SW¼ of NW¼) Except Atchison, Topeka & Santa Fe Railroad Right of Way.

South 1/2 of Lot 6 (SE¼ of SW¼) Except Atchison, Topeka & Santa Fe Railroad Right of Way.

Northwest 1/4 of Lot 6 (SE¼ of SW¼) EXCEPT East 70 feet.

All in Section 13, Township 11 South, Range 4 West, according to United States Government Survey approved _

SUBJECT TO:
1. Reserving unto the Vista Irrigation District the right of ingress and egress at all times to, over and across the above described property for the purpose of constructing, maintaining, operating, repairing and rebuilding or inspecting all pipe lines and necessary appurtenances and measuring devises.

2. All other conditions, restrictions, reservations and easements of record.

3. Reserving an easement over the West 20 feet of the South 1/2 of Lot 5 (SW¼ of NW¼) of Section 13, Township 11 South, Range 4 West for road purposes, with the right to dedicate the same to public use.

WITNESSETH: That said corporation has caused this deed to be signed by its President and Secretary and its corporate seal to be affixed hereto this 15th day of October, 1943.

Vista Irrigation District,
By James W. Sutton, President
By Chas. H. Mull, Secretary

VISTA IRRIGATION DISTRICT SAN DIEGO COUNTY, CALIF. ORGANIZED SEPTEMBER 1923

STATE OF CALIFORNIA,)
County of San Diego,) ss. On this 15th day of October, 1943, before me, Chas H. Mull, Jr., a Notary Public in and for said County, personally appeared James W. Sutton known to me to be President, and Chas. H. Mull known to me to be the Secretary of the corporation that executed the within instrument, known to me to be the persons who executed the within instrument on behalf of the corporation therein named, and acknowledged to me that such corporation executed the same.

Chas H. Mull Jr.
Notary Public in and for said County and State.
My Commission Expires April 2, 1946

Chas H. Mull Jr.

Recorded at request of UNION TITLE INSURANCE & TRUST CO
Nov 16 1943 9 A.M.
1,40-10 ROGER N. ROWE, County Recorder
75271 By Deputy H. Zervas

.....

From: Juan Ochoa <jochoa@pechanga-nsn.gov>
Sent: Tuesday, March 15, 2022 9:07 AM
To: Patricia Anders <PAnders@oceansideca.org>
Cc: Andrea Fernandez <afernandez@pechanga-nsn.gov>; Ebru Ozdil <eozdil@pechanga-nsn.gov>; Molly Earp <mearp@pechanga-nsn.gov>
Subject: Pechanga Tribe AB52 Comments on Modera Melrose Project

Warning: External Source

Dear Patty Anders,

This letter is written on behalf of the Pechanga Band of Indians (hereinafter, "the Tribe") a federally recognized Indian tribe and sovereign government in response to the Notice of Preparation (NOP) notice provided by the City of Oceanside March 1, 2022 and received at our office March 8, 2022. The Tribe has not received a notice for consultation under AB 52 and is submitting the request for consultation at this time. In addition, the Tribe will provide direct comments to the NOP in a separate email.

This email serves as the Tribe's formal request to begin consultation under AB 52 for this Project. Per AB 52, we intend to assist the City in determining the type of environmental document that should be prepared for this Project (i.e. EIR, MND, ND); with identifying potential tribal cultural resources (TCRs); determining whether potential substantial adverse effects will occur to them; and to develop appropriate preservation, avoidance and/or mitigation measures, as appropriate. CEQA, as amended by AB 52, requires the City to avoid damaging effects to the significance of a tribal cultural resource. As such, the preferred TCR mitigation is complete avoidance and the Tribe requests that all efforts to preserve sensitive TCRs be made as early in the development process as possible.

Please add the Tribe to your distribution list(s) for public notices and circulation of all documents, including environmental review documents, archaeological reports, development plans, conceptual grading plans (if available), and all other applicable documents pertaining to this Project. The Tribe further requests to be directly notified of all public hearings and scheduled approvals concerning this Project, and that these comments be incorporated into the record of approval for this Project.

The Pechanga Tribe asserts that the Undertaking is a part of '*Atáaxum* (Luiseño) territory, and therefore the Tribe's aboriginal territory as evidenced by the existence of cultural features associated with religious practice and an extensive artifact record in the vicinity of the Project. This culturally sensitive area is affiliated with the Pechanga Band of Luiseño Indians because of the Tribe's cultural ties to this area as well as our extensive history with the City and other projects within the area.

As you know, the AB 52 consultation process is ongoing and continues until appropriate mitigation has been agreed upon for the TCRs that may be impacted by the Project. As such, under both AB 52 and CEQA, we look forward to working closely with the City on ensuring that a full, comprehensive environmental review of the Project's impacts is completed.

In addition to those rights granted to the Tribe under AB 52, the Tribe reserves the right to fully participate in the environmental review process, as well as to provide further comment on the Project's impacts to cultural resources and potential mitigation for such impacts.

The Pechanga Tribe looks forward to working together with the City of Oceanside in protecting the invaluable Pechanga cultural resources found in the Project area. The formal contact person for this Project will be Ebru Ozdil. Please contact her at 951-770-6313 or at eozdil@pechanga-nsn.gov within 30 days of receiving this consultation request so that we can begin the consultation process. Thank you.

Juan Ochoa, MLIS
Assistant Tribal Historic Preservation Officer
Pechanga Cultural Resources Department
P.O. Box 2183
Temecula, CA 92593
Office:(951)-770-6308
jochoa@pechanga-nsn.gov

CONFIDENTIALITY NOTE: "*This message and any documents or files attached to it contains confidential information and may be legally privileged. Recipients should not file copies of this message and/or attachments with publicly accessible records. If you are not the intended recipient or authorized agent for the intended recipient, you have received this message and attachments in error, and any review, dissemination, or reproduction is strictly prohibited. If you are not the intended recipient, please immediately notify us by reply email or by telephone at 951-770-6308, and destroy the original transmission and its attachments without reading them or saving them.*"

SAN LUIS REY BAND OF MISSION INDIANS

1889 Sunset Drive • Vista, California 92081
760-724-8505 • FAX 760-724-2172
www.slrmissionindians.org

March 23, 2022

Patty Anders
Planning Consultant
Development Services Dept.
City of Oceanside
300 North Coast Highway
Oceanside, CA 92054

VIA ELECTRONIC MAIL
panders@oceansideca.org

RE: SLR RESPONSE REGARDING THE NOTICE OF PREPARATION OF A SUPPLMENTAL ENVIRONMENTAL IMPACT REPORT FOR THE MODERA MELROSE PROJECT (APNS 161-030-23)

Dear Ms. Anders:

We, the San Luis Rey Band of Mission Indians ("Tribe") have received and reviewed the City of Oceanside's Notice of Preparation ("NOP") of a Supplemental Environmental Impact Report ("SEIR") for the Modera Melrose Project Dated, March 1, 2022 and inquiry whether the Tribe has any knowledge of tribal cultural resources or sacred places that may be impacted by the proposed Project. The Tribe concurs with City's determination that CEQA Guidelines Section 15163 applies and that an SEIR should be prepared to evaluate whether new significant effects would result from implementation of the Project.

Our Tribe is aware of a multitude of tribal cultural resources, including traditional cultural landscapes and sacred sites, within the Project impact area that may be potentially significantly impacted. The Tribe strongly urges caution in assessing the land encompassing the Project for development and zoning purposes, as well as incorporating the presence of a Luiseño Native American monitor during all ground disturbing activities (including any geotechnical and/or exploratory excavations) and tribal cultural resource assessment surveys.

The Tribe has enjoyed a mutually respectful relationship with the City over the years and would appreciate an opportunity to continue to discuss this Project's potential negative impact on our Luiseño cultural resources through confidential, government to government consultation as provided for by AB 52.

We appreciate the opportunity to share with the City of Oceanside regarding this Project and thank you for your assistance in protecting our invaluable Luiseño Native American cultural resources.

Sincerely,

Cami Mojado
Cultural Resource Manager
San Luis Rey Band of Mission Indians

RECEIVED
MAR 0 7 2022
NEIGHBORHOOD SERVICES
HOUSING DIVISION

Development Services Department
Attn: Patty Anders, Planning Consultant
300 North Coast Highway
Oceanside, CA 92054
(760)435-2958

March 5, 2022

Dear Ms. Anders,

I am writing regarding a notice of preparation I received detailing the Modera Melrose Project (APNs 161-030-23 and 161-030-24) and an Environmental Impact Report in preparation thereof. As a current homeowner living in the immediate vicinity of this anticipated project, I am vehemently opposed to this project for the following reasons:

1) Traffic at the intersection of Oceanside Blvd. and Melrose Dr. is already dense. During morning rush hour, lines of cars gridlock at this intersection, back up down W. Bobier Dr., and gridlock again at the intersection of W. Bobier Dr. and Sports Park Way. The proposed project would add a 323-unit apartment complex with a single entrance at exactly this intersection, dramatically compounding this problem. Of course, this would also compound associated greenhouse gas emissions, traffic safety concerns, and noise pollution in the area.
2) As the intersection of Oceanside Blvd. and Melrose Dr. houses a station for the Sprinter with associated public parking, the increase in traffic would discourage Sprinter ridership due to challenges of reaching the Sprinter station in a timely fashion by car. This would further compound the environmental impact.
3) The Vista Sports Park, directly down Sports Park Way from the proposed complex, is currently a popular, well-maintained, clean, family environment that encourages healthy extracurricular activities among young people in our community. Bringing stifling traffic to the single entrance to the Sports Park will dramatically decrease accessibility to this youth-focused community park. All of these factors may decrease healthy use of the Sports Park and, absenting that, may encourage less-desirable activities in the area.
4) As the Sports Park connects with the Santa Fe Trail system and the historic Rancho Guajome Adobe, discouraging healthy family use of the Sports Park also invites less desirable activity into the adjacent trails and around the Adobe.
5) The Laurel Estates complex on Sports Park Way and the Melrose Heights complex currently in construction are luxury homes, mostly inhabited by homeowners who contribute significantly to the local economy. Addition of a dense low-income rental apartment complex immediate adjacent to these homes would decrease property values throughout the area. This would encourage current and prospective homeowners to exit the area and the local economy.

6) Several other areas of Vista and Oceanside are more suitable for this project and the demographic it is intended to house. Placing it at this site would damage the area both economically and environmentally.
7) A more suitable project for this site would be a small, higher-end retail complex with associated landscaping. A project of this scope would have several advantages:
    a. It would improve the area's overall walkability drastically by providing walkable restaurants and shopping for local residents, including existing homeowners of the Laurel Estates complex, existing residents of the Skye apartments, the incoming homeowners of the Melrose Heights complex, and patrons of the Sports Park.
    b. It would improve the visual appeal of this key intersection between Vista and Oceanside, thus drawing visitors to the area and stimulating the local economy.
    c. It would encourage Sprinter ridership due to easy accessibility from the existing Sprinter station.
    d. It would provide an economic and environmental rationale to complete the extension of the bike path on Melrose Dr., which currently stops and starts within a half mile along the presently empty site. Thus, it could offer a walkable and bikeable connection with the newly-renovated downtown Vista area as well.

Thank you for considering my opinion on this matter. If there is more I can do to support an alternative development plan for this site, please don't hesitate to contact me.

Best regards,

Kristen Qattan, Ph.D.
529 Adobe Estates Dr
Vista, CA 92083
(619)888-1559

March 14, 2022

Patty Anders, Planning Consultant

City of Oceanside

Attn: Patty Anders

Response to: NOTICE OF PREPARATION: MODERA MELROSE PROJECT

I am a resident of the Laurel Pointe development in Vista. My neighborhood uses Sports Park Way for egress and ingress. This road is always impacted for travel. The Skye Apartment complex, which borders Sports Park Way, has limited parking for its residents. They all park along both sides of the afore-mentioned road, which makes it difficult to navigate. Also, there is insufficient parking at the sports park. On game days, Sports Park Way is congested and heavily traveled. Many going to the park also use Sports Park Way for parking.

The new Melrose Heights development is nearing completion on Sports Park Way. I'm sure the residents of these new apartments and townhouses will need additional parking. Where will they park? Sports Park Way, of course!

The construction of the Modera Melrose Project will only add to the parking and congestion problem on Sports Park Way. Invariably, any overflow parking from the project will be across the street on Sports Park Way. Too many housing units are being situated in a location that cannot support the need for parking. The developers have not considered the effect on the surrounding neighborhoods.

In addition, the traffic situation at the Bobier/Melrose/Oceanside Blvd intersection is a nightmare. The increase in traffic volume the past few years is obvious. When all three of the developments are complete, traffic flow will be a major concern. Throw in the train crossing situation on Melrose, and it's bordering on untenable.

Please consider the number of units to be built at the Modera site. Quality of life is important to all citizens.

Sincerely,

M C Watt

Concerned taxpayer

From: purline <purline10@gmail.com>
Sent: Wednesday, March 23, 2022 1:28 PM
To: Patricia Anders <PAnders@oceansideca.org>
Subject: Comments from Modera Melrose EIR scoping meeting

Warning: External Source

Hello Patty,

Thank you for attending the meeting and reaching out to us about the upcoming Modera Melrose apartment project. This housing will be a welcome addition to our community. There are a few things that I would like to see addressed in the EIR that can help this project work better and minimize impact without creating undue challenges to the success of this project.

1. Add pedestrian access to the apartment complex on the west side of the development to encourage use of the nearby Sprinter station. The proposed design has tenants walk east to Sports Park Way in order to exit the community, then reverse course along Oceanside Blvd going west to get to the Sprinter station. This could easily add 10 minutes to the trip vs. exiting on the west side of the complex nearest to the station, reducing use of transit.
2. Add physical protection to the existing bike path on the south side of Oceanside Blvd. Please see the attached photo for an example of one type of this. though there are many similar options. This will tie in nicely to the existing bike path along Melrose on the west side of the project and offer much needed protection for bikers riding alongside 50 mph traffic on Oceanside Blvd. and those drivers turning right from Melrose who frequently veer into the bike lane. Similar to the first item, this will serve to encourage residents to use transit options that reduce the environmental and traffic impact on the community.
3. Include adequate resources for residents who own or are considering the purchase of an electric vehicle. From my understanding of Oceanside guidelines, 7.5% of the parking spots at Modera Melrose will have charging stations. In 2021, electric vehicles were over 12% of new vehicle registrations in California and this number is expected to increase significantly in the upcoming years. Additionally, sales of new gasoline powered vehicles will end by 2035 and substantially be replaced by electric vehicles. The number of parking spots with charging infrastructure seems insufficient to meet long term goals and will make adoption of zero emission vehicles less attractive to tenants.

Thank you for your attention to this matter.

Edward Richardson

1. 

https://www.gov.ca.gov/2022/02/25/california-leads-the-nations-zev-market-surpassing-1-million-electric-vehicles-sold/

San Diego County Archaeological Society, Inc.

Environmental Review Committee

30 March 2022

To: Ms. Patty Anders, Planning Consultant
Development Services Department
City of Oceanside
300 North Coast Highway
Oceanside, California 92054

Subject: Notice of Preparation of a Draft Environmental Impact Report
Modera Melrose Project
D21-00011, DB21-00005

Dear Ms. Anders:

Thank you for the Notice of Preparation for the subject project, which was received by this Society earlier this month.

We are pleased to note the inclusion of cultural resources in the list of subject areas to be addressed in the DEIR and look forward to reviewing it during the upcoming public comment period. To that end, please include us in notification of the public review of the DEIR and ensure availability of a copy of the cultural resources technical report(s).

SDCAS appreciates being included in the environmental review process for this project.

Sincerely,

James W. Royle, Jr., Chairperson
Environmental Review Committee

cc: SDCAS President
File

P: (626) 381-9248
F: (626) 389-5414
E: info@mitchtsailaw.com

Mitchell M. Tsai
Attorney At Law

139 South Hudson Avenue
Suite 200
Pasadena, California 91101

VIA E-MAIL ONLY

May 26, 2022

Patty Anders, Planning Consultant
City of Oceanside
300 North Coast Highway
Oceanside, CA 92054
Em: panders@oceansideca.org

Dr. Zeb Navarro, Ed.D., City Clerk
City of Oceanside
300 North Coast Highway
Oceanside, CA 92054
Em: cityclerk@oceansideca.org

RE: City of Oceanside's Modera Melrose Project SCH# 2022030032

Dear Patty Anders and Zeb Navarro,

On behalf of the Southwest Regional Council of Carpenters ("**SWRCC**" or "**Southwest Carpenters**"), my Office is submitting these comments on the City of Oceanside's ("**City**") Notice of Preparation of a Draft Environmental Impact Report ("**NOP**") for the Modera Melrose Project (SCH#: 2022030032 ("**Project**").

The Southwest Carpenters is a labor union representing more than 50,000 union carpenters in six states, including California, and has a strong interest in well-ordered land use planning, addressing the environmental impacts of development projects and equitable economic development.

Individual members of the Southwest live, work and recreate in the area and surrounding communities and would be directly affected by the Project's environmental impacts.

SWRCC expressly reserve the right to supplement these comments at or prior to hearings on the Project, and at any later hearings and proceedings related to this Project. Cal. Gov. Code § 65009(b); Cal. Pub. Res. Code § 21177(a); *Bakersfield Citizens*

for Local Control v. Bakersfield (2004) 124 Cal. App. 4th 1184, 1199-1203; see *Galante Vineyards v. Monterey Water Dist.* (1997) 60 Cal. App. 4th 1109, 1121.

SWRCC incorporate by reference all comments raising issues regarding the environmental impact report ("**EIR**") submitted prior to certification of the EIR for the Project. *Citizens for Clean Energy v City of Woodland* (2014) 225 Cal. App. 4th 173, 191 (finding that any party who has objected to the Project's environmental documentation may assert any issue timely raised by other parties).

Moreover, SWRCC request that the Lead Agency provide notice for any and all notices referring or related to the Project issued under the California Environmental Quality Act ("**CEQA**"), Cal Public Resources Code ("**PRC**") § 21000 *et seq*, and the California Planning and Zoning Law ("**Planning and Zoning Law**"), Cal. Gov't Code §§ 65000–65010. California Public Resources Code Sections 21092.2, and 21167(f) and Government Code Section 65092 require agencies to mail such notices to any person who has filed a written request for them with the clerk of the agency's governing body.

The City should require community benefits such as requiring local hire and use of a skilled and trained workforce to build the Project. The City should require the use of workers who have graduated from a Joint Labor Management apprenticeship training program approved by the State of California, or have at least as many hours of on-the-job experience in the applicable craft which would be required to graduate from such a state approved apprenticeship training program or who are registered apprentices in an apprenticeship training program approved by the State of California.

Community benefits such as local hire and skilled and trained workforce requirements can also be helpful to reduce environmental impacts and improve the positive economic impact of the Project. Local hire provisions requiring that a certain percentage of workers reside within 10 miles or less of the Project Site can reduce the length of vendor trips, reduce greenhouse gas emissions and providing localized economic benefits. As environmental consultants Matt Hagemann and Paul E. Rosenfeld note:

> [A]ny local hire requirement that results in a decreased worker trip length from the default value has the potential to result in a reduction of construction-related GHG emissions, though the significance of the reduction would vary based on the location and urbanization level of the project site.

March 8, 2021 SWAPE Letter to Mitchell M. Tsai re Local Hire Requirements and Considerations for Greenhouse Gas Modeling.

Skilled and trained workforce requirements promote the development of skilled trades that yield sustainable economic development. As the California Workforce Development Board and the UC Berkeley Center for Labor Research and Education concluded:

> . . . labor should be considered an investment rather than a cost – and investments in growing, diversifying, and upskilling California's workforce can positively affect returns on climate mitigation efforts. In other words, well trained workers are key to delivering emissions reductions and moving California closer to its climate targets.[1]

Recently, on May 7, 2021, the South Coast Air Quality Management District found that that the "[u]se of a local state-certified apprenticeship program or a skilled and trained workforce with a local hire component" can result in air pollutant reductions.[2]

Cities are increasingly adopting local skilled and trained workforce policies and requirements into general plans and municipal codes. For example, the City of Hayward 2040 General Plan requires the City to "promote local hiring . . . to help achieve a more positive jobs-housing balance, and reduce regional commuting, gas consumption, and greenhouse gas emissions."[3]

In fact, the City of Hayward has gone as far as to adopt a Skilled Labor Force policy into its Downtown Specific Plan and municipal code, requiring developments in its Downtown area to requiring that the City "[c]ontribute to the stabilization of regional construction markets by spurring applicants of housing and nonresidential developments to require contractors to utilize apprentices from state-approved, joint

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[1] California Workforce Development Board (2020) Putting California on the High Road: A Jobs and Climate Action Plan for 2030 at p. ii, *available at* https://laborcenter.berkeley.edu/wp-content/uploads/2020/09/Putting-California-on-the-High-Road.pdf

[2] South Coast Air Quality Management District (May 7, 2021) Certify Final Environmental Assessment and Adopt Proposed Rule 2305 – Warehouse Indirect Source Rule – Warehouse Actions and Investments to Reduce Emissions Program, and Proposed Rule 316 – Fees for Rule 2305, Submit Rule 2305 for Inclusion Into the SIP, and Approve Supporting Budget Actions, *available at* http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-May7-027.pdf?sfvrsn=10

[3] City of Hayward (2014) Hayward 2040 General Plan Policy Document at p. 3-99, *available at* https://www.hayward-ca.gov/sites/default/files/documents/General_Plan_FINAL.pdf.

labor-management training programs, . . ."[4] In addition, the City of Hayward requires all projects 30,000 square feet or larger to "utilize apprentices from state-approved, joint labor-management training programs."[5]

Locating jobs closer to residential areas can have significant environmental benefits. As the California Planning Roundtable noted in 2008:

> People who live and work in the same jurisdiction would be more likely to take transit, walk, or bicycle to work than residents of less balanced communities and their vehicle trips would be shorter. Benefits would include potential reductions in both vehicle miles traveled and vehicle hours traveled.[6]

In addition, local hire mandates as well as skill training are critical facets of a strategy to reduce vehicle miles traveled. As planning experts Robert Cervero and Michael Duncan noted, simply placing jobs near housing stock is insufficient to achieve VMT reductions since the skill requirements of available local jobs must be matched to those held by local residents.[7] Some municipalities have tied local hire and skilled and trained workforce policies to local development permits to address transportation issues. As Cervero and Duncan note:

> In nearly built-out Berkeley, CA, the approach to balancing jobs and housing is to create local jobs rather than to develop new housing." The city's First Source program encourages businesses to hire local residents, especially for entry- and intermediate-level jobs, and sponsors vocational training to ensure residents are employment-ready. While the program is voluntary, some 300 businesses have used it to date, placing more than 3,000 city residents in local jobs since it was launched in 1986. When

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[4] City of Hayward (2019) Hayward Downtown Specific Plan at p. 5-24, *available at* https://www.hayward-ca.gov/sites/default/files/Hayward%20Downtown%20Specific%20Plan.pdf.

[5] City of Hayward Municipal Code, Chapter 10, § 28.5.3.020(C).

[6] California Planning Roundtable (2008) Deconstructing Jobs-Housing Balance at p. 6, *available at* https://cproundtable.org/static/media/uploads/publications/cpr-jobs-housing.pdf

[7] Cervero, Robert and Duncan, Michael (2006) Which Reduces Vehicle Travel More: Jobs-Housing Balance or Retail-Housing Mixing? Journal of the American Planning Association 72 (4), 475-490, 482, *available at* http://reconnectingamerica.org/assets/Uploads/UTCT-825.pdf.

> needed, these carrots are matched by sticks, since the city is not shy about negotiating corporate participation in First Source as a condition of approval for development permits.

The City should consider utilizing skilled and trained workforce policies and requirements to benefit the local area economically and mitigate greenhouse gas, air quality and transportation impacts.

Also, the City should require the Project to be built to standards exceeding the current 2019 California Green Building Code and 2020 County of Los Angeles Green Building Standards Code to mitigate the Project's environmental impacts and to advance progress towards the State of California's environmental goals.

I. THE CALIFORNIA ENVIRONMENTAL QUALITY ACT

A. Background Concerning the California Environmental Quality Act

CEQA has two basic purposes. First, CEQA is designed to inform decision makers and the public about the potential, significant environmental effects of a project. CEQA Guidelines § 15002(a)(1). "Its purpose is to inform the public and its responsible officials of the environmental consequences of their decisions *before* they are made. Thus, the EIR 'protects not only the environment but also informed self-government.' [Citation.]" *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal. 3d 553, 564. The EIR has been described as "an environmental 'alarm bell' whose purpose it is to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return." *Berkeley Keep Jets Over the Bay v. Bd. of Port Comm'rs.* (2001) 91 Cal. App. 4th 1344, 1354 ("*Berkeley Jets")*; *County of Inyo v. Yorty* (1973) 32 Cal. App. 3d 795, 810.

Second, CEQA directs public agencies to avoid or reduce environmental damage when possible by requiring alternatives or mitigation measures. CEQA Guidelines § 15002(a)(2) and (3). *See also, Berkeley Jets,* 91 Cal. App. 4th 1344, 1354; *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal. 3d 553; *Laurel Heights Improvement Ass'n v. Regents of the University of California* (1988) 47 Cal. 3d 376, 400. The EIR serves to provide public agencies and the public in general with information about the effect that a proposed project is likely to have on the environment and to "identify ways that environmental damage can be avoided or significantly reduced." CEQA Guidelines § 15002(a)(2). If the project has a significant effect on the environment, the agency may approve the project only upon finding that it has "eliminated or substantially lessened

all significant effects on the environment where feasible" and that any unavoidable significant effects on the environment are "acceptable due to overriding concerns" specified in CEQA section 21081. CEQA Guidelines § 15092(b)(2)(A–B).

While the courts review an EIR using an "abuse of discretion" standard, "the reviewing court is not to 'uncritically rely on every study or analysis presented by a project proponent in support of its position.' A 'clearly inadequate or unsupported study is entitled to no judicial deference.'" *Berkeley Jets*, 91 Cal. App. 4th 1344, 1355 (emphasis added) (quoting *Laurel Heights,* 47 Cal. 3d at 391, 409 fn. 12). Drawing this line and determining whether the EIR complies with CEQA's information disclosure requirements presents a question of law subject to independent review by the courts. (*Sierra Club v. Cnty. of Fresno* (2018) 6 Cal. 5th 502, 515; *Madera Oversight Coalition, Inc. v. County of Madera* (2011) 199 Cal. App. 4th 48, 102, 131.) As the court stated in *Berkeley Jets*, 91 Cal. App. 4th at 1355:

> A prejudicial abuse of discretion occurs "if the failure to include relevant information precludes informed decision-making and informed public participation, thereby thwarting the statutory goals of the EIR process.

The preparation and circulation of an EIR is more than a set of technical hurdles for agencies and developers to overcome. The EIR's function is to ensure that government officials who decide to build or approve a project do so with a full understanding of the environmental consequences and, equally important, that the public is assured those consequences have been considered. For the EIR to serve these goals it must present information so that the foreseeable impacts of pursuing the project can be understood and weighed, and the public must be given an adequate opportunity to comment on that presentation before the decision to go forward is made. *Communities for a Better Environment v. Richmond* (2010) 184 Cal. App. 4th 70, 80 (quoting *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal. 4th 412, 449–450).

B. <u>Due to the COVID-19 Crisis, the District Must Adopt a Mandatory Finding of Significance that the Project May Cause a Substantial Adverse Effect on Human Beings and Mitigate COVID-19 Impacts</u>

CEQA requires that an agency make a finding of significance when a Project may cause a significant adverse effect on human beings. PRC § 21083(b)(3); CEQA Guidelines § 15065(a)(4).

Public health risks related to construction work requires a mandatory finding of significance under CEQA. Construction work has been defined as a Lower to High-risk activity for COVID-19 spread by the Occupations Safety and Health Administration. Recently, several construction sites have been identified as sources of community spread of COVID-19.[8]

Southwest Carpenters recommend that the Lead Agency adopt additional CEQA mitigation measures to mitigate public health risks from the Project's construction activities. Southwest Carpenters requests that the Lead Agency require safe on-site construction work practices as well as training and certification for any construction workers on the Project Site.

In particular, based upon Southwest Carpenters' experience with safe construction site work practices, Southwest Carpenters recommends that the Lead Agency require that while construction activities are being conducted at the Project Site:

Construction Site Design:

- The Project Site will be limited to two controlled entry points.
- Entry points will have temperature screening technicians taking temperature readings when the entry point is open.
- The Temperature Screening Site Plan shows details regarding access to the Project Site and Project Site logistics for conducting temperature screening.
- A 48-hour advance notice will be provided to all trades prior to the first day of temperature screening.
- The perimeter fence directly adjacent to the entry points will be clearly marked indicating the appropriate 6-foot social distancing position for when you approach the screening area. Please reference the Apex temperature screening site map for additional details.

[8] Santa Clara County Public Health (June 12, 2020) COVID-19 CASES AT CONSTRUCTION SITES HIGHLIGHT NEED FOR CONTINUED VIGILANCE IN SECTORS THAT HAVE REOPENED, *available at* https://www.sccgov.org/sites/covid19/Pages/press-release-06-12-2020-cases-at-construction-sites.aspx.

- There will be clear signage posted at the project site directing you through temperature screening.
- Provide hand washing stations throughout the construction site.

Testing Procedures:

- The temperature screening being used are non-contact devices.
- Temperature readings will not be recorded.
- Personnel will be screened upon entering the testing center and should only take 1-2 seconds per individual.
- Hard hats, head coverings, sweat, dirt, sunscreen or any other cosmetics must be removed on the forehead before temperature screening.
- Anyone who refuses to submit to a temperature screening or does not answer the health screening questions will be refused access to the Project Site.
- Screening will be performed at both entrances from 5:30 am to 7:30 am.; main gate [ZONE 1] and personnel gate [ZONE 2]
- After 7:30 am only the main gate entrance [ZONE 1] will continue to be used for temperature testing for anybody gaining entry to the project site such as returning personnel, deliveries, and visitors.
- If the digital thermometer displays a temperature reading above 100.0 degrees Fahrenheit, a second reading will be taken to verify an accurate reading.
- If the second reading confirms an elevated temperature, DHS will instruct the individual that he/she will not be allowed to enter the Project Site. DHS will also instruct the individual to promptly notify his/her supervisor and his/her

human resources (HR) representative and provide them with a copy of Annex A.

Planning

- Require the development of an Infectious Disease Preparedness and Response Plan that will include basic infection prevention measures (requiring the use of personal protection equipment), policies and procedures for prompt identification and isolation of sick individuals, social distancing (prohibiting gatherings of no more than 10 people including all-hands meetings and all-hands lunches) communication and training and workplace controls that meet standards that may be promulgated by the Center for Disease Control, Occupational Safety and Health Administration, Cal/OSHA, California Department of Public Health or applicable local public health agencies.[9]

The United Brotherhood of Carpenters and Carpenters International Training Fund has developed COVID-19 Training and Certification to ensure that Carpenter union members and apprentices conduct safe work practices. The Agency should require that all construction workers undergo COVID-19 Training and Certification before being allowed to conduct construction activities at the Project Site.

Southwest Carpenters has also developed a rigorous Infection Control Risk Assessment ("**ICRA**") training program to ensure it delivers a workforce that understands how to identify and control infection risks by implementing protocols to protect themselves and all others during renovation and construction projects in healthcare environments.[10]

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[9] *See also* The Center for Construction Research and Training, North America's Building Trades Unions (April 27 2020) NABTU and CPWR COVIC-19 Standards for U.S Constructions Sites, *available at* https://www.cpwr.com/sites/default/files/NABTU_CPWR_Standards_COVID-19.pdf; Los Angeles County Department of Public Works (2020) Guidelines for Construction Sites During COVID-19 Pandemic, *available at* https://dpw.lacounty.gov/building-and-safety/docs/pw_guidelines-construction-sites.pdf.

[10] For details concerning Southwest Carpenters's ICRA training program, *see* https://icrahealthcare.com/.

ICRA protocols are intended to contain pathogens, control airflow, and protect patients during the construction, maintenance and renovation of healthcare facilities. ICRA protocols prevent cross contamination, minimizing the risk of secondary infections in patients at hospital facilities.

The City should require the Project to be built using a workforce trained in ICRA protocols.

If the City has any questions or concerns, feel free to contact my Office.

Sincerely,

Mitchell M. Tsai
Attorneys for Southwest Regional
Council of Carpenters

Attached:

March 8, 2021 SWAPE Letter to Mitchell M. Tsai re Local Hire Requirements and Considerations for Greenhouse Gas Modeling (Exhibit A);

Air Quality and GHG Expert Paul Rosenfeld CV (Exhibit B); and

Air Quality and GHG Expert Matt Hagemann CV (Exhibit C).

EXHIBIT A

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

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March 8, 2021

Mitchell M. Tsai
155 South El Molino, Suite 104
Pasadena, CA 91101

Subject: Local Hire Requirements and Considerations for Greenhouse Gas Modeling

Dear Mr. Tsai,

Soil Water Air Protection Enterprise ("SWAPE") is pleased to provide the following draft technical report explaining the significance of worker trips required for construction of land use development projects with respect to the estimation of greenhouse gas ("GHG") emissions. The report will also discuss the potential for local hire requirements to reduce the length of worker trips, and consequently, reduced or mitigate the potential GHG impacts.

Worker Trips and Greenhouse Gas Calculations

The California Emissions Estimator Model ("CalEEMod") is a "statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and greenhouse gas (GHG) emissions associated with both construction and operations from a variety of land use projects."[1] CalEEMod quantifies construction-related emissions associated with land use projects resulting from off-road construction equipment; on-road mobile equipment associated with workers, vendors, and hauling; fugitive dust associated with grading, demolition, truck loading, and on-road vehicles traveling along paved and unpaved roads; and architectural coating activities; and paving.[2]

The number, length, and vehicle class of worker trips are utilized by CalEEMod to calculate emissions associated with the on-road vehicle trips required to transport workers to and from the Project site during construction.[3]

[1] "California Emissions Estimator Model." CAPCOA, 2017, *available at:* http://www.aqmd.gov/caleemod/home.
[2] "California Emissions Estimator Model." CAPCOA, 2017, *available at:* http://www.aqmd.gov/caleemod/home.
[3] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 34.

Specifically, the number and length of vehicle trips is utilized to estimate the vehicle miles travelled ("VMT") associated with construction. Then, utilizing vehicle-class specific EMFAC 2014 emission factors, CalEEMod calculates the vehicle exhaust, evaporative, and dust emissions resulting from construction-related VMT, including personal vehicles for worker commuting.[4]

Specifically, in order to calculate VMT, CalEEMod multiplies the average daily trip rate by the average overall trip length (see excerpt below):

> "$VMT_d = \Sigma(\text{Average Daily Trip Rate}_i * \text{Average Overall Trip Length}_i)_n$
>
> Where:
>
> n = Number of land uses being modeled."[5]

Furthermore, to calculate the on-road emissions associated with worker trips, CalEEMod utilizes the following equation (see excerpt below):

> "$\text{Emissions}_{pollutant} = VMT * EF_{running,pollutant}$
>
> Where:
>
> $\text{Emissions}_{pollutant}$ = emissions from vehicle running for each pollutant
>
> VMT = vehicle miles traveled
>
> $EF_{running,pollutant}$ = emission factor for running emissions."[6]

Thus, there is a direct relationship between trip length and VMT, as well as a direct relationship between VMT and vehicle running emissions. In other words, when the trip length is increased, the VMT and vehicle running emissions increase as a result. Thus, vehicle running emissions can be reduced by decreasing the average overall trip length, by way of a local hire requirement or otherwise.

Default Worker Trip Parameters and Potential Local Hire Requirements

As previously discussed, the number, length, and vehicle class of worker trips are utilized by CalEEMod to calculate emissions associated with the on-road vehicle trips required to transport workers to and from the Project site during construction.[7] In order to understand how local hire requirements and associated worker trip length reductions impact GHG emissions calculations, it is important to consider the CalEEMod default worker trip parameters. CalEEMod provides recommended default values based on site-specific information, such as land use type, meteorological data, total lot acreage, project type and typical equipment associated with project type. If more specific project information is known, the user can change the default values and input project-specific values, but the California Environmental Quality Act ("CEQA") requires that such changes be justified by substantial evidence.[8] The default number of construction-related worker trips is calculated by multiplying the

[4] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 14-15.
[5] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 23.
[6] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 15.
[7] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 34.
[8] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 1, 9.

number of pieces of equipment for all phases by 1.25, with the exception of worker trips required for the building construction and architectural coating phases.[9] Furthermore, the worker trip vehicle class is a 50/25/25 percent mix of light duty autos, light duty truck class 1 and light duty truck class 2, respectively."[10] Finally, the default worker trip length is consistent with the length of the operational home-to-work vehicle trips.[11] The operational home-to-work vehicle trip lengths are:

> "[B]ased on the *location* and *urbanization* selected on the project characteristic screen. These values were *supplied by the air districts or use a default average for the state*. Each district (or county) also assigns trip lengths for urban and rural settings" (emphasis added). [12]

Thus, the default worker trip length is based on the location and urbanization level selected by the User when modeling emissions. The below table shows the CalEEMod default rural and urban worker trip lengths by air basin (see excerpt below and Attachment A).[13]

Worker Trip Length by Air Basin		
Air Basin	**Rural (miles)**	**Urban (miles)**
Great Basin Valleys	16.8	10.8
Lake County	16.8	10.8
Lake Tahoe	16.8	10.8
Mojave Desert	16.8	10.8
Mountain Counties	16.8	10.8
North Central Coast	17.1	12.3
North Coast	16.8	10.8
Northeast Plateau	16.8	10.8
Sacramento Valley	16.8	10.8
Salton Sea	14.6	11
San Diego	16.8	10.8
San Francisco Bay Area	10.8	10.8
San Joaquin Valley	16.8	10.8
South Central Coast	16.8	10.8
South Coast	19.8	14.7
Average	**16.47**	**11.17**
Minimum	**10.80**	**10.80**
Maximum	**19.80**	**14.70**
Range	**9.00**	**3.90**

[9] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 34.
[10] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 15.
[11] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 14.
[12] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 21.
[13] "Appendix D Default Data Tables." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/05_appendix-d2016-3-2.pdf?sfvrsn=4, p. D-84 – D-86.

As demonstrated above, default rural worker trip lengths for air basins in California vary from 10.8- to 19.8-miles, with an average of 16.47 miles. Furthermore, default urban worker trip lengths vary from 10.8- to 14.7-miles, with an average of 11.17 miles. Thus, while default worker trip lengths vary by location, default urban worker trip lengths tend to be shorter in length. Based on these trends evident in the CalEEMod default worker trip lengths, we can reasonably assume that the efficacy of a local hire requirement is especially dependent upon the urbanization of the project site, as well as the project location.

Practical Application of a Local Hire Requirement and Associated Impact

To provide an example of the potential impact of a local hire provision on construction-related GHG emissions, we estimated the significance of a local hire provision for the Village South Specific Plan ("Project") located in the City of Claremont ("City"). The Project proposed to construct 1,000 residential units, 100,000-SF of retail space, 45,000-SF of office space, as well as a 50-room hotel, on the 24-acre site. The Project location is classified as Urban and lies within the Los Angeles-South Coast County. As a result, the Project has a default worker trip length of 14.7 miles.[14] In an effort to evaluate the potential for a local hire provision to reduce the Project's construction-related GHG emissions, we prepared an updated model, reducing all worker trip lengths to 10 miles (see Attachment B). Our analysis estimates that if a local hire provision with a 10-mile radius were to be implemented, the GHG emissions associated with Project construction would decrease by approximately 17% (see table below and Attachment C).

Local Hire Provision Net Change	
Without Local Hire Provision	
Total Construction GHG Emissions (MT CO_2e)	3,623
Amortized Construction GHG Emissions (MT CO_2e/year)	120.77
With Local Hire Provision	
Total Construction GHG Emissions (MT CO2e)	3,024
Amortized Construction GHG Emissions (MT CO_2e/year)	100.80
% Decrease in Construction-related GHG Emissions	***17%***

As demonstrated above, by implementing a local hire provision requiring 10 mile worker trip lengths, the Project could reduce potential GHG emissions associated with construction worker trips. More broadly, any local hire requirement that results in a decreased worker trip length from the default value has the potential to result in a reduction of construction-related GHG emissions, though the significance of the reduction would vary based on the location and urbanization level of the project site.

This serves as an example of the potential impacts of local hire requirements on estimated project-level GHG emissions, though it does not indicate that local hire requirements would result in reduced construction-related GHG emission for all projects. As previously described, the significance of a local hire requirement depends on the worker trip length enforced and the default worker trip length for the project's urbanization level and location.

[14] "Appendix D Default Data Tables." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/05_appendix-d2016-3-2.pdf?sfvrsn=4, p. D-85.

Disclaimer

SWAPE has received limited discovery. Additional information may become available in the future; thus, we retain the right to revise or amend this report when additional information becomes available. Our professional services have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable environmental consultants practicing in this or similar localities at the time of service. No other warranty, expressed or implied, is made as to the scope of work, work methodologies and protocols, site conditions, analytical testing results, and findings presented. This report reflects efforts which were limited to information that was reasonably accessible at the time of the work, and may contain informational gaps, inconsistencies, or otherwise be incomplete due to the unavailability or uncertainty of information obtained or provided by third parties.

Sincerely,



Matt Hagemann, P.G., C.Hg.



Paul E. Rosenfeld, Ph.D.

Location Type	Location Name	Rural H-W (miles)	Urban H-W (miles)
Air Basin	Great Basin	16.8	10.8
Air Basin	Lake County	16.8	10.8
Air Basin	Lake Tahoe	16.8	10.8
Air Basin	Mojave Desert	16.8	10.8
Air Basin	Mountain	16.8	10.8
Air Basin	North Central	17.1	12.3
Air Basin	North Coast	16.8	10.8
Air Basin	Northeast	16.8	10.8
Air Basin	Sacramento	16.8	10.8
Air Basin	Salton Sea	14.6	11
Air Basin	San Diego	16.8	10.8
Air Basin	San Francisco	10.8	10.8
Air Basin	San Joaquin	16.8	10.8
Air Basin	South Central	16.8	10.8
Air Basin	South Coast	19.8	14.7
Air District	Amador County	16.8	10.8
Air District	Antelope Valley	16.8	10.8
Air District	Bay Area AQMD	10.8	10.8
Air District	Butte County	12.54	12.54
Air District	Calaveras	16.8	10.8
Air District	Colusa County	16.8	10.8
Air District	El Dorado	16.8	10.8
Air District	Feather River	16.8	10.8
Air District	Glenn County	16.8	10.8
Air District	Great Basin	16.8	10.8
Air District	Imperial County	10.2	7.3
Air District	Kern County	16.8	10.8
Air District	Lake County	16.8	10.8
Air District	Lassen County	16.8	10.8
Air District	Mariposa	16.8	10.8
Air District	Mendocino	16.8	10.8
Air District	Modoc County	16.8	10.8
Air District	Mojave Desert	16.8	10.8
Air District	Monterey Bay	16.8	10.8
Air District	North Coast	16.8	10.8
Air District	Northern Sierra	16.8	10.8
Air District	Northern	16.8	10.8
Air District	Placer County	16.8	10.8
Air District	Sacramento	15	10

Air District	San Diego	16.8	10.8
Air District	San Joaquin	16.8	10.8
Air District	San Luis Obispo	13	13
Air District	Santa Barbara	8.3	8.3
Air District	Shasta County	16.8	10.8
Air District	Siskiyou County	16.8	10.8
Air District	South Coast	19.8	14.7
Air District	Tehama County	16.8	10.8
Air District	Tuolumne	16.8	10.8
Air District	Ventura County	16.8	10.8
Air District	Yolo/Solano	15	10
County	Alameda	10.8	10.8
County	Alpine	16.8	10.8
County	Amador	16.8	10.8
County	Butte	12.54	12.54
County	Calaveras	16.8	10.8
County	Colusa	16.8	10.8
County	Contra Costa	10.8	10.8
County	Del Norte	16.8	10.8
County	El Dorado-Lake	16.8	10.8
County	El Dorado-	16.8	10.8
County	Fresno	16.8	10.8
County	Glenn	16.8	10.8
County	Humboldt	16.8	10.8
County	Imperial	10.2	7.3
County	Inyo	16.8	10.8
County	Kern-Mojave	16.8	10.8
County	Kern-San	16.8	10.8
County	Kings	16.8	10.8
County	Lake	16.8	10.8
County	Lassen	16.8	10.8
County	Los Angeles-	16.8	10.8
County	Los Angeles-	19.8	14.7
County	Madera	16.8	10.8
County	Marin	10.8	10.8
County	Mariposa	16.8	10.8
County	Mendocino-	16.8	10.8
County	Mendocino-	16.8	10.8
County	Mendocino-	16.8	10.8
County	Mendocino-	16.8	10.8
County	Merced	16.8	10.8
County	Modoc	16.8	10.8
County	Mono	16.8	10.8
County	Monterey	16.8	10.8
County	Napa	10.8	10.8

County	Nevada	16.8	10.8
County	Orange	19.8	14.7
County	Placer-Lake	16.8	10.8
County	Placer-Mountain	16.8	10.8
County	Placer-	16.8	10.8
County	Plumas	16.8	10.8
County	Riverside-	16.8	10.8
County	Riverside-	19.8	14.7
County	Riverside-Salton	14.6	11
County	Riverside-South	19.8	14.7
County	Sacramento	15	10
County	San Benito	16.8	10.8
County	San Bernardino-	16.8	10.8
County	San Bernardino-	19.8	14.7
County	San Diego	16.8	10.8
County	San Francisco	10.8	10.8
County	San Joaquin	16.8	10.8
County	San Luis Obispo	13	13
County	San Mateo	10.8	10.8
County	Santa Barbara-	8.3	8.3
County	Santa Barbara-	8.3	8.3
County	Santa Clara	10.8	10.8
County	Santa Cruz	16.8	10.8
County	Shasta	16.8	10.8
County	Sierra	16.8	10.8
County	Siskiyou	16.8	10.8
County	Solano-	15	10
County	Solano-San	16.8	10.8
County	Sonoma-North	16.8	10.8
County	Sonoma-San	10.8	10.8
County	Stanislaus	16.8	10.8
County	Sutter	16.8	10.8
County	Tehama	16.8	10.8
County	Trinity	16.8	10.8
County	Tulare	16.8	10.8
County	Tuolumne	16.8	10.8
County	Ventura	16.8	10.8
County	Yolo	15	10
County	Yuba	16.8	10.8
Statewide	Statewide	16.8	10.8

Worker Trip Length by Air Basin		
Air Basin	**Rural (miles)**	**Urban (miles)**
Great Basin Valleys	16.8	10.8
Lake County	16.8	10.8
Lake Tahoe	16.8	10.8
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Sacramento Valley	16.8	10.8
Salton Sea	14.6	11
San Diego	16.8	10.8
San Francisco Bay Area	10.8	10.8
San Joaquin Valley	16.8	10.8
South Central Coast	16.8	10.8
South Coast	19.8	14.7
Average	**16.47**	**11.17**
Mininum	**10.80**	**10.80**
Maximum	**19.80**	**14.70**
Range	**9.00**	**3.90**

Village South Specific Plan (Proposed)

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	45.00	1000sqft	1.03	45,000.00	0
High Turnover (Sit Down Restaurant)	36.00	1000sqft	0.83	36,000.00	0
Hotel	50.00	Room	1.67	72,600.00	0
Quality Restaurant	8.00	1000sqft	0.18	8,000.00	0
Apartments Low Rise	25.00	Dwelling Unit	1.56	25,000.00	72
Apartments Mid Rise	975.00	Dwelling Unit	25.66	975,000.00	2789
Regional Shopping Center	56.00	1000sqft	1.29	56,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2028
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

Project Characteristics - Consistent with the DEIR's model.

Land Use - See SWAPE comment regarding residential and retail land uses.

Construction Phase - See SWAPE comment regarding individual construction phase lengths.

Demolition - Consistent with the DEIR's model. See SWAPE comment regarding demolition.

Vehicle Trips - Saturday trips consistent with the DEIR's model. See SWAPE comment regarding weekday and Sunday trips.

Woodstoves - Woodstoves and wood-burning fireplaces consistent with the DEIR's model. See SWAPE comment regarding gas fireplaces.

Energy Use -

Construction Off-road Equipment Mitigation - See SWAPE comment on construction-related mitigation.

Area Mitigation - See SWAPE comment regarding operational mitigation measures.

Water Mitigation - See SWAPE comment regarding operational mitigation measures.

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberWood	1.25	0.00
tblFireplaces	NumberWood	48.75	0.00
tblVehicleTrips	ST_TR	7.16	6.17
tblVehicleTrips	ST_TR	6.39	3.87
tblVehicleTrips	ST_TR	2.46	1.39
tblVehicleTrips	ST_TR	158.37	79.82
tblVehicleTrips	ST_TR	8.19	3.75
tblVehicleTrips	ST_TR	94.36	63.99
tblVehicleTrips	ST_TR	49.97	10.74
tblVehicleTrips	SU_TR	6.07	6.16
tblVehicleTrips	SU_TR	5.86	4.18
tblVehicleTrips	SU_TR	1.05	0.69
tblVehicleTrips	SU_TR	131.84	78.27

tblVehicleTrips	SU_TR	5.95	3.20
tblVehicleTrips	SU_TR	72.16	57.65
tblVehicleTrips	SU_TR	25.24	6.39
tblVehicleTrips	WD_TR	6.59	5.83
tblVehicleTrips	WD_TR	6.65	4.13
tblVehicleTrips	WD_TR	11.03	6.41
tblVehicleTrips	WD_TR	127.15	65.80
tblVehicleTrips	WD_TR	8.17	3.84
tblVehicleTrips	WD_TR	89.95	62.64
tblVehicleTrips	WD_TR	42.70	9.43
tblWoodstoves	NumberCatalytic	1.25	0.00
tblWoodstoves	NumberCatalytic	48.75	0.00
tblWoodstoves	NumberNoncatalytic	1.25	0.00
tblWoodstoves	NumberNoncatalytic	48.75	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1713	1.8242	1.1662	2.4000e-003	0.4169	0.0817	0.4986	0.1795	0.0754	0.2549	0.0000	213.1969	213.1969	0.0601	0.0000	214.6993
2022	0.6904	4.1142	6.1625	0.0189	1.3058	0.1201	1.4259	0.3460	0.1128	0.4588	0.0000	1,721.6826	1,721.6826	0.1294	0.0000	1,724.9187
2023	0.6148	3.3649	5.6747	0.0178	1.1963	0.0996	1.2959	0.3203	0.0935	0.4138	0.0000	1,627.5295	1,627.5295	0.1185	0.0000	1,630.4925
2024	4.1619	0.1335	0.2810	5.9000e-004	0.0325	6.4700e-003	0.0390	8.6300e-003	6.0400e-003	0.0147	0.0000	52.9078	52.9078	8.0200e-003	0.0000	53.1082
Maximum	**4.1619**	**4.1142**	**6.1625**	**0.0189**	**1.3058**	**0.1201**	**1.4259**	**0.3460**	**0.1128**	**0.4588**	**0.0000**	**1,721.6826**	**1,721.6826**	**0.1294**	**0.0000**	**1,724.9187**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1713	1.8242	1.1662	2.4000e-003	0.4169	0.0817	0.4986	0.1795	0.0754	0.2549	0.0000	213.1967	213.1967	0.0601	0.0000	214.6991
2022	0.6904	4.1142	6.1625	0.0189	1.3058	0.1201	1.4259	0.3460	0.1128	0.4588	0.0000	1,721.6823	1,721.6823	0.1294	0.0000	1,724.9183
2023	0.6148	3.3648	5.6747	0.0178	1.1963	0.0996	1.2959	0.3203	0.0935	0.4138	0.0000	1,627.5291	1,627.5291	0.1185	0.0000	1,630.4921
2024	4.1619	0.1335	0.2810	5.9000e-004	0.0325	6.4700e-003	0.0390	8.6300e-003	6.0400e-003	0.0147	0.0000	52.9077	52.9077	8.0200e-003	0.0000	53.1082
Maximum	**4.1619**	**4.1142**	**6.1625**	**0.0189**	**1.3058**	**0.1201**	**1.4259**	**0.3460**	**0.1128**	**0.4588**	**0.0000**	**1,721.6823**	**1,721.6823**	**0.1294**	**0.0000**	**1,724.9183**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**9-1-2021**	**11-30-2021**	1.4103	1.4103
2	**12-1-2021**	**2-28-2022**	1.3613	1.3613
3	**3-1-2022**	**5-31-2022**	1.1985	1.1985
4	**6-1-2022**	**8-31-2022**	1.1921	1.1921
5	**9-1-2022**	**11-30-2022**	1.1918	1.1918
6	**12-1-2022**	**2-28-2023**	1.0774	1.0774
7	**3-1-2023**	**5-31-2023**	1.0320	1.0320
8	**6-1-2023**	**8-31-2023**	1.0260	1.0260

9	**9-1-2023**	**11-30-2023**	1.0265	1.0265
10	**12-1-2023**	**2-29-2024**	2.8857	2.8857
11	**3-1-2024**	**5-31-2024**	1.6207	1.6207
		Highest	2.8857	2.8857

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	5.1437	0.2950	10.3804	1.6700e-003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e-003	222.5835
Energy	0.1398	1.2312	0.7770	7.6200e-003		0.0966	0.0966		0.0966	0.0966	0.0000	3,896.0732	3,896.0732	0.1303	0.0468	3,913.2833
Mobile	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.4986	7,620.4986	0.3407	0.0000	7,629.0162
Waste						0.0000	0.0000		0.0000	0.0000	207.8079	0.0000	207.8079	12.2811	0.0000	514.8354
Water						0.0000	0.0000		0.0000	0.0000	29.1632	556.6420	585.8052	3.0183	0.0755	683.7567
Total	**6.8692**	**9.5223**	**30.3407**	**0.0914**	**7.7979**	**0.2260**	**8.0240**	**2.0895**	**0.2219**	**2.3114**	**236.9712**	**12,294.1807**	**12,531.1519**	**15.7904**	**0.1260**	**12,963.4751**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	5.1437	0.2950	10.3804	1.6700e-003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e-003	222.5835
Energy	0.1398	1.2312	0.7770	7.6200e-003		0.0966	0.0966		0.0966	0.0966	0.0000	3,896.0732	3,896.0732	0.1303	0.0468	3,913.2833
Mobile	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.4986	7,620.4986	0.3407	0.0000	7,629.0162
Waste						0.0000	0.0000		0.0000	0.0000	207.8079	0.0000	207.8079	12.2811	0.0000	514.8354
Water						0.0000	0.0000		0.0000	0.0000	29.1632	556.6420	585.8052	3.0183	0.0755	683.7567
Total	**6.8692**	**9.5223**	**30.3407**	**0.0914**	**7.7979**	**0.2260**	**8.0240**	**2.0895**	**0.2219**	**2.3114**	**236.9712**	**12,294.1807**	**12,531.1519**	**15.7904**	**0.1260**	**12,963.4751**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2021	10/12/2021	5	30	
2	Site Preparation	Site Preparation	10/13/2021	11/9/2021	5	20	
3	Grading	Grading	11/10/2021	1/11/2022	5	45	
4	Building Construction	Building Construction	1/12/2022	12/12/2023	5	500	
5	Paving	Paving	12/13/2023	1/30/2024	5	35	
6	Architectural Coating	Architectural Coating	1/31/2024	3/19/2024	5	35	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 112.5

Acres of Paving: 0

Residential Indoor: 2,025,000; Residential Outdoor: 675,000; Non-Residential Indoor: 326,400; Non-Residential Outdoor: 108,800; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	458.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	801.00	143.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	160.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0496	0.0000	0.0496	7.5100e-003	0.0000	7.5100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0475	0.4716	0.3235	5.8000e-004		0.0233	0.0233		0.0216	0.0216	0.0000	51.0012	51.0012	0.0144	0.0000	51.3601
Total	**0.0475**	**0.4716**	**0.3235**	**5.8000e-004**	**0.0496**	**0.0233**	**0.0729**	**7.5100e-003**	**0.0216**	**0.0291**	**0.0000**	**51.0012**	**51.0012**	**0.0144**	**0.0000**	**51.3601**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9300e-003	0.0634	0.0148	1.8000e-004	3.9400e-003	1.9000e-004	4.1300e-003	1.0800e-003	1.8000e-004	1.2600e-003	0.0000	17.4566	17.4566	1.2100e-003	0.0000	17.4869
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.7000e-004	7.5000e-004	8.5100e-003	2.0000e-005	2.4700e-003	2.0000e-005	2.4900e-003	6.5000e-004	2.0000e-005	6.7000e-004	0.0000	2.2251	2.2251	7.0000e-005	0.0000	2.2267
Total	**2.9000e-003**	**0.0641**	**0.0233**	**2.0000e-004**	**6.4100e-003**	**2.1000e-004**	**6.6200e-003**	**1.7300e-003**	**2.0000e-004**	**1.9300e-003**	**0.0000**	**19.6816**	**19.6816**	**1.2800e-003**	**0.0000**	**19.7136**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0496	0.0000	0.0496	7.5100e-003	0.0000	7.5100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0475	0.4716	0.3235	5.8000e-004		0.0233	0.0233		0.0216	0.0216	0.0000	51.0011	51.0011	0.0144	0.0000	51.3600
Total	**0.0475**	**0.4716**	**0.3235**	**5.8000e-004**	**0.0496**	**0.0233**	**0.0729**	**7.5100e-003**	**0.0216**	**0.0291**	**0.0000**	**51.0011**	**51.0011**	**0.0144**	**0.0000**	**51.3600**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9300e-003	0.0634	0.0148	1.8000e-004	3.9400e-003	1.9000e-004	4.1300e-003	1.0800e-003	1.8000e-004	1.2600e-003	0.0000	17.4566	17.4566	1.2100e-003	0.0000	17.4869
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.7000e-004	7.5000e-004	8.5100e-003	2.0000e-005	2.4700e-003	2.0000e-005	2.4900e-003	6.5000e-004	2.0000e-005	6.7000e-004	0.0000	2.2251	2.2251	7.0000e-005	0.0000	2.2267
Total	**2.9000e-003**	**0.0641**	**0.0233**	**2.0000e-004**	**6.4100e-003**	**2.1000e-004**	**6.6200e-003**	**1.7300e-003**	**2.0000e-004**	**1.9300e-003**	**0.0000**	**19.6816**	**19.6816**	**1.2800e-003**	**0.0000**	**19.7136**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1807	0.0000	0.1807	0.0993	0.0000	0.0993	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4050	0.2115	3.8000e-004		0.0204	0.0204		0.0188	0.0188	0.0000	33.4357	33.4357	0.0108	0.0000	33.7061
Total	**0.0389**	**0.4050**	**0.2115**	**3.8000e-004**	**0.1807**	**0.0204**	**0.2011**	**0.0993**	**0.0188**	**0.1181**	**0.0000**	**33.4357**	**33.4357**	**0.0108**	**0.0000**	**33.7061**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.7000e-004	6.0000e-004	6.8100e-003	2.0000e-005	1.9700e-003	2.0000e-005	1.9900e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.7801	1.7801	5.0000e-005	0.0000	1.7814
Total	**7.7000e-004**	**6.0000e-004**	**6.8100e-003**	**2.0000e-005**	**1.9700e-003**	**2.0000e-005**	**1.9900e-003**	**5.2000e-004**	**1.0000e-005**	**5.4000e-004**	**0.0000**	**1.7801**	**1.7801**	**5.0000e-005**	**0.0000**	**1.7814**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1807	0.0000	0.1807	0.0993	0.0000	0.0993	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4050	0.2115	3.8000e-004		0.0204	0.0204		0.0188	0.0188	0.0000	33.4357	33.4357	0.0108	0.0000	33.7060
Total	**0.0389**	**0.4050**	**0.2115**	**3.8000e-004**	**0.1807**	**0.0204**	**0.2011**	**0.0993**	**0.0188**	**0.1181**	**0.0000**	**33.4357**	**33.4357**	**0.0108**	**0.0000**	**33.7060**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.7000e-004	6.0000e-004	6.8100e-003	2.0000e-005	1.9700e-003	2.0000e-005	1.9900e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.7801	1.7801	5.0000e-005	0.0000	1.7814
Total	**7.7000e-004**	**6.0000e-004**	**6.8100e-003**	**2.0000e-005**	**1.9700e-003**	**2.0000e-005**	**1.9900e-003**	**5.2000e-004**	**1.0000e-005**	**5.4000e-004**	**0.0000**	**1.7801**	**1.7801**	**5.0000e-005**	**0.0000**	**1.7814**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1741	0.0000	0.1741	0.0693	0.0000	0.0693	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0796	0.8816	0.5867	1.1800e-003		0.0377	0.0377		0.0347	0.0347	0.0000	103.5405	103.5405	0.0335	0.0000	104.3776
Total	**0.0796**	**0.8816**	**0.5867**	**1.1800e-003**	**0.1741**	**0.0377**	**0.2118**	**0.0693**	**0.0347**	**0.1040**	**0.0000**	**103.5405**	**103.5405**	**0.0335**	**0.0000**	**104.3776**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6400e-003	1.2700e-003	0.0144	4.0000e-005	4.1600e-003	3.0000e-005	4.2000e-003	1.1100e-003	3.0000e-005	1.1400e-003	0.0000	3.7579	3.7579	1.1000e-004	0.0000	3.7607
Total	**1.6400e-003**	**1.2700e-003**	**0.0144**	**4.0000e-005**	**4.1600e-003**	**3.0000e-005**	**4.2000e-003**	**1.1100e-003**	**3.0000e-005**	**1.1400e-003**	**0.0000**	**3.7579**	**3.7579**	**1.1000e-004**	**0.0000**	**3.7607**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1741	0.0000	0.1741	0.0693	0.0000	0.0693	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0796	0.8816	0.5867	1.1800e-003		0.0377	0.0377		0.0347	0.0347	0.0000	103.5403	103.5403	0.0335	0.0000	104.3775
Total	**0.0796**	**0.8816**	**0.5867**	**1.1800e-003**	**0.1741**	**0.0377**	**0.2118**	**0.0693**	**0.0347**	**0.1040**	**0.0000**	**103.5403**	**103.5403**	**0.0335**	**0.0000**	**104.3775**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6400e-003	1.2700e-003	0.0144	4.0000e-005	4.1600e-003	3.0000e-005	4.2000e-003	1.1100e-003	3.0000e-005	1.1400e-003	0.0000	3.7579	3.7579	1.1000e-004	0.0000	3.7607
Total	**1.6400e-003**	**1.2700e-003**	**0.0144**	**4.0000e-005**	**4.1600e-003**	**3.0000e-005**	**4.2000e-003**	**1.1100e-003**	**3.0000e-005**	**1.1400e-003**	**0.0000**	**3.7579**	**3.7579**	**1.1000e-004**	**0.0000**	**3.7607**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0807	0.0000	0.0807	0.0180	0.0000	0.0180	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0127	0.1360	0.1017	2.2000e-004		5.7200e-003	5.7200e-003		5.2600e-003	5.2600e-003	0.0000	19.0871	19.0871	6.1700e-003	0.0000	19.2414
Total	**0.0127**	**0.1360**	**0.1017**	**2.2000e-004**	**0.0807**	**5.7200e-003**	**0.0865**	**0.0180**	**5.2600e-003**	**0.0233**	**0.0000**	**19.0871**	**19.0871**	**6.1700e-003**	**0.0000**	**19.2414**

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.1000e-004	2.4400e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.7000e-004	2.0000e-004	1.0000e-005	2.1000e-004	0.0000	0.6679	0.6679	2.0000e-005	0.0000	0.6684
Total	**2.8000e-004**	**2.1000e-004**	**2.4400e-003**	**1.0000e-005**	**7.7000e-004**	**1.0000e-005**	**7.7000e-004**	**2.0000e-004**	**1.0000e-005**	**2.1000e-004**	**0.0000**	**0.6679**	**0.6679**	**2.0000e-005**	**0.0000**	**0.6684**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0807	0.0000	0.0807	0.0180	0.0000	0.0180	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0127	0.1360	0.1017	2.2000e-004		5.7200e-003	5.7200e-003		5.2600e-003	5.2600e-003	0.0000	19.0871	19.0871	6.1700e-003	0.0000	19.2414
Total	**0.0127**	**0.1360**	**0.1017**	**2.2000e-004**	**0.0807**	**5.7200e-003**	**0.0865**	**0.0180**	**5.2600e-003**	**0.0233**	**0.0000**	**19.0871**	**19.0871**	**6.1700e-003**	**0.0000**	**19.2414**

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.1000e-004	2.4400e-003	1.0000e-005	7.7000e-004	1.0000e-005	7.7000e-004	2.0000e-004	1.0000e-005	2.1000e-004	0.0000	0.6679	0.6679	2.0000e-005	0.0000	0.6684
Total	**2.8000e-004**	**2.1000e-004**	**2.4400e-003**	**1.0000e-005**	**7.7000e-004**	**1.0000e-005**	**7.7000e-004**	**2.0000e-004**	**1.0000e-005**	**2.1000e-004**	**0.0000**	**0.6679**	**0.6679**	**2.0000e-005**	**0.0000**	**0.6684**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2158	1.9754	2.0700	3.4100e-003		0.1023	0.1023		0.0963	0.0963	0.0000	293.1324	293.1324	0.0702	0.0000	294.8881
Total	**0.2158**	**1.9754**	**2.0700**	**3.4100e-003**		**0.1023**	**0.1023**		**0.0963**	**0.0963**	**0.0000**	**293.1324**	**293.1324**	**0.0702**	**0.0000**	**294.8881**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0527	1.6961	0.4580	4.5500e-003	0.1140	3.1800e-003	0.1171	0.0329	3.0400e-003	0.0359	0.0000	441.9835	441.9835	0.0264	0.0000	442.6435
Worker	0.4088	0.3066	3.5305	0.0107	1.1103	8.8700e-003	1.1192	0.2949	8.1700e-003	0.3031	0.0000	966.8117	966.8117	0.0266	0.0000	967.4773
Total	**0.4616**	**2.0027**	**3.9885**	**0.0152**	**1.2243**	**0.0121**	**1.2363**	**0.3278**	**0.0112**	**0.3390**	**0.0000**	**1,408.7952**	**1,408.7952**	**0.0530**	**0.0000**	**1,410.1208**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2158	1.9754	2.0700	3.4100e-003		0.1023	0.1023		0.0963	0.0963	0.0000	293.1321	293.1321	0.0702	0.0000	294.8877
Total	**0.2158**	**1.9754**	**2.0700**	**3.4100e-003**		**0.1023**	**0.1023**		**0.0963**	**0.0963**	**0.0000**	**293.1321**	**293.1321**	**0.0702**	**0.0000**	**294.8877**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0527	1.6961	0.4580	4.5500e-003	0.1140	3.1800e-003	0.1171	0.0329	3.0400e-003	0.0359	0.0000	441.9835	441.9835	0.0264	0.0000	442.6435
Worker	0.4088	0.3066	3.5305	0.0107	1.1103	8.8700e-003	1.1192	0.2949	8.1700e-003	0.3031	0.0000	966.8117	966.8117	0.0266	0.0000	967.4773
Total	**0.4616**	**2.0027**	**3.9885**	**0.0152**	**1.2243**	**0.0121**	**1.2363**	**0.3278**	**0.0112**	**0.3390**	**0.0000**	**1,408.7952**	**1,408.7952**	**0.0530**	**0.0000**	**1,410.1208**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1942	1.7765	2.0061	3.3300e-003		0.0864	0.0864		0.0813	0.0813	0.0000	286.2789	286.2789	0.0681	0.0000	287.9814
Total	**0.1942**	**1.7765**	**2.0061**	**3.3300e-003**		**0.0864**	**0.0864**		**0.0813**	**0.0813**	**0.0000**	**286.2789**	**286.2789**	**0.0681**	**0.0000**	**287.9814**

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0382	1.2511	0.4011	4.3000e-003	0.1113	1.4600e-003	0.1127	0.0321	1.4000e-003	0.0335	0.0000	417.9930	417.9930	0.0228	0.0000	418.5624
Worker	0.3753	0.2708	3.1696	0.0101	1.0840	8.4100e-003	1.0924	0.2879	7.7400e-003	0.2957	0.0000	909.3439	909.3439	0.0234	0.0000	909.9291
Total	**0.4135**	**1.5218**	**3.5707**	**0.0144**	**1.1953**	**9.8700e-003**	**1.2051**	**0.3200**	**9.1400e-003**	**0.3292**	**0.0000**	**1,327.3369**	**1,327.3369**	**0.0462**	**0.0000**	**1,328.4916**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1942	1.7765	2.0061	3.3300e-003		0.0864	0.0864		0.0813	0.0813	0.0000	286.2785	286.2785	0.0681	0.0000	287.9811
Total	**0.1942**	**1.7765**	**2.0061**	**3.3300e-003**		**0.0864**	**0.0864**		**0.0813**	**0.0813**	**0.0000**	**286.2785**	**286.2785**	**0.0681**	**0.0000**	**287.9811**

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0382	1.2511	0.4011	4.3000e-003	0.1113	1.4600e-003	0.1127	0.0321	1.4000e-003	0.0335	0.0000	417.9930	417.9930	0.0228	0.0000	418.5624
Worker	0.3753	0.2708	3.1696	0.0101	1.0840	8.4100e-003	1.0924	0.2879	7.7400e-003	0.2957	0.0000	909.3439	909.3439	0.0234	0.0000	909.9291
Total	**0.4135**	**1.5218**	**3.5707**	**0.0144**	**1.1953**	**9.8700e-003**	**1.2051**	**0.3200**	**9.1400e-003**	**0.3292**	**0.0000**	**1,327.3369**	**1,327.3369**	**0.0462**	**0.0000**	**1,328.4916**

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.7100e-003	0.0663	0.0948	1.5000e-004		3.3200e-003	3.3200e-003		3.0500e-003	3.0500e-003	0.0000	13.0175	13.0175	4.2100e-003	0.0000	13.1227
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.7100e-003**	**0.0663**	**0.0948**	**1.5000e-004**		**3.3200e-003**	**3.3200e-003**		**3.0500e-003**	**3.0500e-003**	**0.0000**	**13.0175**	**13.0175**	**4.2100e-003**	**0.0000**	**13.1227**

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7000e-004	2.7000e-004	3.1200e-003	1.0000e-005	1.0700e-003	1.0000e-005	1.0800e-003	2.8000e-004	1.0000e-005	2.9000e-004	0.0000	0.8963	0.8963	2.0000e-005	0.0000	0.8968
Total	**3.7000e-004**	**2.7000e-004**	**3.1200e-003**	**1.0000e-005**	**1.0700e-003**	**1.0000e-005**	**1.0800e-003**	**2.8000e-004**	**1.0000e-005**	**2.9000e-004**	**0.0000**	**0.8963**	**0.8963**	**2.0000e-005**	**0.0000**	**0.8968**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.7100e-003	0.0663	0.0948	1.5000e-004		3.3200e-003	3.3200e-003		3.0500e-003	3.0500e-003	0.0000	13.0175	13.0175	4.2100e-003	0.0000	13.1227
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.7100e-003**	**0.0663**	**0.0948**	**1.5000e-004**		**3.3200e-003**	**3.3200e-003**		**3.0500e-003**	**3.0500e-003**	**0.0000**	**13.0175**	**13.0175**	**4.2100e-003**	**0.0000**	**13.1227**

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.7000e-004	2.7000e-004	3.1200e-003	1.0000e-005	1.0700e-003	1.0000e-005	1.0800e-003	2.8000e-004	1.0000e-005	2.9000e-004	0.0000	0.8963	0.8963	2.0000e-005	0.0000	0.8968
Total	**3.7000e-004**	**2.7000e-004**	**3.1200e-003**	**1.0000e-005**	**1.0700e-003**	**1.0000e-005**	**1.0800e-003**	**2.8000e-004**	**1.0000e-005**	**2.9000e-004**	**0.0000**	**0.8963**	**0.8963**	**2.0000e-005**	**0.0000**	**0.8968**

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0109	0.1048	0.1609	2.5000e-004		5.1500e-003	5.1500e-003		4.7400e-003	4.7400e-003	0.0000	22.0292	22.0292	7.1200e-003	0.0000	22.2073
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0109**	**0.1048**	**0.1609**	**2.5000e-004**		**5.1500e-003**	**5.1500e-003**		**4.7400e-003**	**4.7400e-003**	**0.0000**	**22.0292**	**22.0292**	**7.1200e-003**	**0.0000**	**22.2073**

3.6 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.9000e-004	4.1000e-004	4.9200e-003	2.0000e-005	1.8100e-003	1.0000e-005	1.8200e-003	4.8000e-004	1.0000e-005	4.9000e-004	0.0000	1.4697	1.4697	4.0000e-005	0.0000	1.4706
Total	**5.9000e-004**	**4.1000e-004**	**4.9200e-003**	**2.0000e-005**	**1.8100e-003**	**1.0000e-005**	**1.8200e-003**	**4.8000e-004**	**1.0000e-005**	**4.9000e-004**	**0.0000**	**1.4697**	**1.4697**	**4.0000e-005**	**0.0000**	**1.4706**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0109	0.1048	0.1609	2.5000e-004		5.1500e-003	5.1500e-003		4.7400e-003	4.7400e-003	0.0000	22.0292	22.0292	7.1200e-003	0.0000	22.2073
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0109**	**0.1048**	**0.1609**	**2.5000e-004**		**5.1500e-003**	**5.1500e-003**		**4.7400e-003**	**4.7400e-003**	**0.0000**	**22.0292**	**22.0292**	**7.1200e-003**	**0.0000**	**22.2073**

3.6 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.9000e-004	4.1000e-004	4.9200e-003	2.0000e-005	1.8100e-003	1.0000e-005	1.8200e-003	4.8000e-004	1.0000e-005	4.9000e-004	0.0000	1.4697	1.4697	4.0000e-005	0.0000	1.4706
Total	**5.9000e-004**	**4.1000e-004**	**4.9200e-003**	**2.0000e-005**	**1.8100e-003**	**1.0000e-005**	**1.8200e-003**	**4.8000e-004**	**1.0000e-005**	**4.9000e-004**	**0.0000**	**1.4697**	**1.4697**	**4.0000e-005**	**0.0000**	**1.4706**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.1372					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1600e-003	0.0213	0.0317	5.0000e-005		1.0700e-003	1.0700e-003		1.0700e-003	1.0700e-003	0.0000	4.4682	4.4682	2.5000e-004	0.0000	4.4745
Total	**4.1404**	**0.0213**	**0.0317**	**5.0000e-005**		**1.0700e-003**	**1.0700e-003**		**1.0700e-003**	**1.0700e-003**	**0.0000**	**4.4682**	**4.4682**	**2.5000e-004**	**0.0000**	**4.4745**

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0101	6.9900e-003	0.0835	2.8000e-004	0.0307	2.3000e-004	0.0309	8.1500e-003	2.2000e-004	8.3700e-003	0.0000	24.9407	24.9407	6.1000e-004	0.0000	24.9558
Total	**0.0101**	**6.9900e-003**	**0.0835**	**2.8000e-004**	**0.0307**	**2.3000e-004**	**0.0309**	**8.1500e-003**	**2.2000e-004**	**8.3700e-003**	**0.0000**	**24.9407**	**24.9407**	**6.1000e-004**	**0.0000**	**24.9558**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.1372					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1600e-003	0.0213	0.0317	5.0000e-005		1.0700e-003	1.0700e-003		1.0700e-003	1.0700e-003	0.0000	4.4682	4.4682	2.5000e-004	0.0000	4.4745
Total	**4.1404**	**0.0213**	**0.0317**	**5.0000e-005**		**1.0700e-003**	**1.0700e-003**		**1.0700e-003**	**1.0700e-003**	**0.0000**	**4.4682**	**4.4682**	**2.5000e-004**	**0.0000**	**4.4745**

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0101	6.9900e-003	0.0835	2.8000e-004	0.0307	2.3000e-004	0.0309	8.1500e-003	2.2000e-004	8.3700e-003	0.0000	24.9407	24.9407	6.1000e-004	0.0000	24.9558
Total	**0.0101**	**6.9900e-003**	**0.0835**	**2.8000e-004**	**0.0307**	**2.3000e-004**	**0.0309**	**8.1500e-003**	**2.2000e-004**	**8.3700e-003**	**0.0000**	**24.9407**	**24.9407**	**6.1000e-004**	**0.0000**	**24.9558**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.4986	7,620.4986	0.3407	0.0000	7,629.0162
Unmitigated	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.4986	7,620.4986	0.3407	0.0000	7,629.0162

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	145.75	154.25	154.00	506,227	506,227
Apartments Mid Rise	4,026.75	3,773.25	4075.50	13,660,065	13,660,065
General Office Building	288.45	62.55	31.05	706,812	706,812
High Turnover (Sit Down Restaurant)	2,368.80	2,873.52	2817.72	3,413,937	3,413,937
Hotel	192.00	187.50	160.00	445,703	445,703
Quality Restaurant	501.12	511.92	461.20	707,488	707,488
Regional Shopping Center	528.08	601.44	357.84	1,112,221	1,112,221
Total	8,050.95	8,164.43	8,057.31	20,552,452	20,552,452

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Apartments Mid Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
General Office Building	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
High Turnover (Sit Down Restaurant)	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Hotel	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Quality Restaurant	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Regional Shopping Center	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,512.6465	2,512.6465	0.1037	0.0215	2,521.6356
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,512.6465	2,512.6465	0.1037	0.0215	2,521.6356
NaturalGas Mitigated	0.1398	1.2312	0.7770	7.6200e-003		0.0966	0.0966		0.0966	0.0966	0.0000	1,383.4267	1,383.4267	0.0265	0.0254	1,391.6478
NaturalGas Unmitigated	0.1398	1.2312	0.7770	7.6200e-003		0.0966	0.0966		0.0966	0.0966	0.0000	1,383.4267	1,383.4267	0.0265	0.0254	1,391.6478

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	408494	2.2000e-003	0.0188	8.0100e-003	1.2000e-004		1.5200e-003	1.5200e-003		1.5200e-003	1.5200e-003	0.0000	21.7988	21.7988	4.2000e-004	4.0000e-004	21.9284
Apartments Mid Rise	1.30613e+007	0.0704	0.6018	0.2561	3.8400e-003		0.0487	0.0487		0.0487	0.0487	0.0000	696.9989	696.9989	0.0134	0.0128	701.1408
General Office Building	468450	2.5300e-003	0.0230	0.0193	1.4000e-004		1.7500e-003	1.7500e-003		1.7500e-003	1.7500e-003	0.0000	24.9983	24.9983	4.8000e-004	4.6000e-004	25.1468
High Turnover (Sit Down Restaurant)	8.30736e+006	0.0448	0.4072	0.3421	2.4400e-003		0.0310	0.0310		0.0310	0.0310	0.0000	443.3124	443.3124	8.5000e-003	8.1300e-003	445.9468
Hotel	1.74095e+006	9.3900e-003	0.0853	0.0717	5.1000e-004		6.4900e-003	6.4900e-003		6.4900e-003	6.4900e-003	0.0000	92.9036	92.9036	1.7800e-003	1.7000e-003	93.4557
Quality Restaurant	1.84608e+006	9.9500e-003	0.0905	0.0760	5.4000e-004		6.8800e-003	6.8800e-003		6.8800e-003	6.8800e-003	0.0000	98.5139	98.5139	1.8900e-003	1.8100e-003	99.0993
Regional Shopping Center	91840	5.0000e-004	4.5000e-003	3.7800e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.9009	4.9009	9.0000e-005	9.0000e-005	4.9301
Total		**0.1398**	**1.2312**	**0.7770**	**7.6200e-003**		**0.0966**	**0.0966**		**0.0966**	**0.0966**	**0.0000**	**1,383.4268**	**1,383.4268**	**0.0265**	**0.0254**	**1,391.6478**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	408494	2.2000e-003	0.0188	8.0100e-003	1.2000e-004		1.5200e-003	1.5200e-003		1.5200e-003	1.5200e-003	0.0000	21.7988	21.7988	4.2000e-004	4.0000e-004	21.9284
Apartments Mid Rise	1.30613e+007	0.0704	0.6018	0.2561	3.8400e-003		0.0487	0.0487		0.0487	0.0487	0.0000	696.9989	696.9989	0.0134	0.0128	701.1408
General Office Building	468450	2.5300e-003	0.0230	0.0193	1.4000e-004		1.7500e-003	1.7500e-003		1.7500e-003	1.7500e-003	0.0000	24.9983	24.9983	4.8000e-004	4.6000e-004	25.1468
High Turnover (Sit Down Restaurant)	8.30736e+006	0.0448	0.4072	0.3421	2.4400e-003		0.0310	0.0310		0.0310	0.0310	0.0000	443.3124	443.3124	8.5000e-003	8.1300e-003	445.9468
Hotel	1.74095e+006	9.3900e-003	0.0853	0.0717	5.1000e-004		6.4900e-003	6.4900e-003		6.4900e-003	6.4900e-003	0.0000	92.9036	92.9036	1.7800e-003	1.7000e-003	93.4557
Quality Restaurant	1.84608e+006	9.9500e-003	0.0905	0.0760	5.4000e-004		6.8800e-003	6.8800e-003		6.8800e-003	6.8800e-003	0.0000	98.5139	98.5139	1.8900e-003	1.8100e-003	99.0993
Regional Shopping Center	91840	5.0000e-004	4.5000e-003	3.7800e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.9009	4.9009	9.0000e-005	9.0000e-005	4.9301
Total		**0.1398**	**1.2312**	**0.7770**	**7.6200e-003**		**0.0966**	**0.0966**		**0.0966**	**0.0966**	**0.0000**	**1,383.4268**	**1,383.4268**	**0.0265**	**0.0254**	**1,391.6478**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	106010	33.7770	1.3900e-003	2.9000e-004	33.8978
Apartments Mid Rise	3.94697e+006	1,257.5879	0.0519	0.0107	1,262.0869
General Office Building	584550	186.2502	7.6900e-003	1.5900e-003	186.9165
High Turnover (Sit Down Restaurant)	1.58904e+006	506.3022	0.0209	4.3200e-003	508.1135
Hotel	550308	175.3399	7.2400e-003	1.5000e-003	175.9672
Quality Restaurant	353120	112.5116	4.6500e-003	9.6000e-004	112.9141
Regional Shopping Center	756000	240.8778	9.9400e-003	2.0600e-003	241.7395
Total		**2,512.6465**	**0.1037**	**0.0215**	**2,521.6356**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	106010	33.7770	1.3900e-003	2.9000e-004	33.8978
Apartments Mid Rise	3.94697e+006	1,257.5879	0.0519	0.0107	1,262.0869
General Office Building	584550	186.2502	7.6900e-003	1.5900e-003	186.9165
High Turnover (Sit Down Restaurant)	1.58904e+006	506.3022	0.0209	4.3200e-003	508.1135
Hotel	550308	175.3399	7.2400e-003	1.5000e-003	175.9672
Quality Restaurant	353120	112.5116	4.6500e-003	9.6000e-004	112.9141
Regional Shopping Center	756000	240.8778	9.9400e-003	2.0600e-003	241.7395
Total		**2,512.6465**	**0.1037**	**0.0215**	**2,521.6356**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	5.1437	0.2950	10.3804	1.6700e-003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e-003	222.5835
Unmitigated	5.1437	0.2950	10.3804	1.6700e-003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e-003	222.5835

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4137					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.3998					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0206	0.1763	0.0750	1.1200e-003		0.0143	0.0143		0.0143	0.0143	0.0000	204.1166	204.1166	3.9100e-003	3.7400e-003	205.3295
Landscaping	0.3096	0.1187	10.3054	5.4000e-004		0.0572	0.0572		0.0572	0.0572	0.0000	16.8504	16.8504	0.0161	0.0000	17.2540
Total	**5.1437**	**0.2950**	**10.3804**	**1.6600e-003**		**0.0714**	**0.0714**		**0.0714**	**0.0714**	**0.0000**	**220.9670**	**220.9670**	**0.0201**	**3.7400e-003**	**222.5835**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4137					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.3998					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0206	0.1763	0.0750	1.1200e-003		0.0143	0.0143		0.0143	0.0143	0.0000	204.1166	204.1166	3.9100e-003	3.7400e-003	205.3295
Landscaping	0.3096	0.1187	10.3054	5.4000e-004		0.0572	0.0572		0.0572	0.0572	0.0000	16.8504	16.8504	0.0161	0.0000	17.2540
Total	**5.1437**	**0.2950**	**10.3804**	**1.6600e-003**		**0.0714**	**0.0714**		**0.0714**	**0.0714**	**0.0000**	**220.9670**	**220.9670**	**0.0201**	**3.7400e-003**	**222.5835**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	585.8052	3.0183	0.0755	683.7567
Unmitigated	585.8052	3.0183	0.0755	683.7567

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	1.62885 / 1.02688	10.9095	0.0535	1.3400e-003	12.6471
Apartments Mid Rise	63.5252 / 40.0485	425.4719	2.0867	0.0523	493.2363
General Office Building	7.99802 / 4.90201	53.0719	0.2627	6.5900e-003	61.6019
High Turnover (Sit Down Restaurant)	10.9272 / 0.697482	51.2702	0.3580	8.8200e-003	62.8482
Hotel	1.26834 / 0.140927	6.1633	0.0416	1.0300e-003	7.5079
Quality Restaurant	2.42827 / 0.154996	11.3934	0.0796	1.9600e-003	13.9663
Regional Shopping Center	4.14806 / 2.54236	27.5250	0.1363	3.4200e-003	31.9490
Total		**585.8052**	**3.0183**	**0.0755**	**683.7567**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	1.62885 / 1.02688	10.9095	0.0535	1.3400e-003	12.6471
Apartments Mid Rise	63.5252 / 40.0485	425.4719	2.0867	0.0523	493.2363
General Office Building	7.99802 / 4.90201	53.0719	0.2627	6.5900e-003	61.6019
High Turnover (Sit Down Restaurant)	10.9272 / 0.697482	51.2702	0.3580	8.8200e-003	62.8482
Hotel	1.26834 / 0.140927	6.1633	0.0416	1.0300e-003	7.5079
Quality Restaurant	2.42827 / 0.154996	11.3934	0.0796	1.9600e-003	13.9663
Regional Shopping Center	4.14806 / 2.54236	27.5250	0.1363	3.4200e-003	31.9490
Total		**585.8052**	**3.0183**	**0.0755**	**683.7567**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	207.8079	12.2811	0.0000	514.8354
Unmitigated	207.8079	12.2811	0.0000	514.8354

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	11.5	2.3344	0.1380	0.0000	5.7834
Apartments Mid Rise	448.5	91.0415	5.3804	0.0000	225.5513
General Office Building	41.85	8.4952	0.5021	0.0000	21.0464
High Turnover (Sit Down Restaurant)	428.4	86.9613	5.1393	0.0000	215.4430
Hotel	27.38	5.5579	0.3285	0.0000	13.7694
Quality Restaurant	7.3	1.4818	0.0876	0.0000	3.6712
Regional Shopping Center	58.8	11.9359	0.7054	0.0000	29.5706
Total		**207.8079**	**12.2811**	**0.0000**	**514.8354**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	11.5	2.3344	0.1380	0.0000	5.7834
Apartments Mid Rise	448.5	91.0415	5.3804	0.0000	225.5513
General Office Building	41.85	8.4952	0.5021	0.0000	21.0464
High Turnover (Sit Down Restaurant)	428.4	86.9613	5.1393	0.0000	215.4430
Hotel	27.38	5.5579	0.3285	0.0000	13.7694
Quality Restaurant	7.3	1.4818	0.0876	0.0000	3.6712
Regional Shopping Center	58.8	11.9359	0.7054	0.0000	29.5706
Total		**207.8079**	**12.2811**	**0.0000**	**514.8354**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Village South Specific Plan (Proposed)

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	45.00	1000sqft	1.03	45,000.00	0
High Turnover (Sit Down Restaurant)	36.00	1000sqft	0.83	36,000.00	0
Hotel	50.00	Room	1.67	72,600.00	0
Quality Restaurant	8.00	1000sqft	0.18	8,000.00	0
Apartments Low Rise	25.00	Dwelling Unit	1.56	25,000.00	72
Apartments Mid Rise	975.00	Dwelling Unit	25.66	975,000.00	2789
Regional Shopping Center	56.00	1000sqft	1.29	56,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2028
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Summer

Project Characteristics - Consistent with the DEIR's model.

Land Use - See SWAPE comment regarding residential and retail land uses.

Construction Phase - See SWAPE comment regarding individual construction phase lengths.

Demolition - Consistent with the DEIR's model. See SWAPE comment regarding demolition.

Vehicle Trips - Saturday trips consistent with the DEIR's model. See SWAPE comment regarding weekday and Sunday trips.

Woodstoves - Woodstoves and wood-burning fireplaces consistent with the DEIR's model. See SWAPE comment regarding gas fireplaces.

Energy Use -

Construction Off-road Equipment Mitigation - See SWAPE comment on construction-related mitigation.

Area Mitigation - See SWAPE comment regarding operational mitigation measures.

Water Mitigation - See SWAPE comment regarding operational mitigation measures.

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberWood	1.25	0.00
tblFireplaces	NumberWood	48.75	0.00
tblVehicleTrips	ST_TR	7.16	6.17
tblVehicleTrips	ST_TR	6.39	3.87
tblVehicleTrips	ST_TR	2.46	1.39
tblVehicleTrips	ST_TR	158.37	79.82
tblVehicleTrips	ST_TR	8.19	3.75
tblVehicleTrips	ST_TR	94.36	63.99
tblVehicleTrips	ST_TR	49.97	10.74
tblVehicleTrips	SU_TR	6.07	6.16
tblVehicleTrips	SU_TR	5.86	4.18
tblVehicleTrips	SU_TR	1.05	0.69
tblVehicleTrips	SU_TR	131.84	78.27

tblVehicleTrips	SU_TR	5.95	3.20
tblVehicleTrips	SU_TR	72.16	57.65
tblVehicleTrips	SU_TR	25.24	6.39
tblVehicleTrips	WD_TR	6.59	5.83
tblVehicleTrips	WD_TR	6.65	4.13
tblVehicleTrips	WD_TR	11.03	6.41
tblVehicleTrips	WD_TR	127.15	65.80
tblVehicleTrips	WD_TR	8.17	3.84
tblVehicleTrips	WD_TR	89.95	62.64
tblVehicleTrips	WD_TR	42.70	9.43
tblWoodstoves	NumberCatalytic	1.25	0.00
tblWoodstoves	NumberCatalytic	48.75	0.00
tblWoodstoves	NumberNoncatalytic	1.25	0.00
tblWoodstoves	NumberNoncatalytic	48.75	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2769	46.4588	31.6840	0.0643	18.2675	2.0461	20.3135	9.9840	1.8824	11.8664	0.0000	6,234.7974	6,234.7974	1.9495	0.0000	6,283.5352
2022	5.3304	38.8967	49.5629	0.1517	9.8688	1.6366	10.7727	3.6558	1.5057	5.1615	0.0000	15,251.5674	15,251.5674	1.9503	0.0000	15,278.5288
2023	4.8957	26.3317	46.7567	0.1472	9.8688	0.7794	10.6482	2.6381	0.7322	3.3702	0.0000	14,807.5269	14,807.5269	1.0250	0.0000	14,833.1521
2024	237.1630	9.5575	15.1043	0.0244	1.7884	0.4698	1.8628	0.4743	0.4322	0.5476	0.0000	2,361.3989	2,361.3989	0.7177	0.0000	2,379.3421
Maximum	**237.1630**	**46.4588**	**49.5629**	**0.1517**	**18.2675**	**2.0461**	**20.3135**	**9.9840**	**1.8824**	**11.8664**	**0.0000**	**15,251.5674**	**15,251.5674**	**1.9503**	**0.0000**	**15,278.5288**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2769	46.4588	31.6840	0.0643	18.2675	2.0461	20.3135	9.9840	1.8824	11.8664	0.0000	6,234.7974	6,234.7974	1.9495	0.0000	6,283.5352
2022	5.3304	38.8967	49.5629	0.1517	9.8688	1.6366	10.7727	3.6558	1.5057	5.1615	0.0000	15,251.5674	15,251.5674	1.9503	0.0000	15,278.5288
2023	4.8957	26.3317	46.7567	0.1472	9.8688	0.7794	10.6482	2.6381	0.7322	3.3702	0.0000	14,807.5269	14,807.5269	1.0250	0.0000	14,833.1520
2024	237.1630	9.5575	15.1043	0.0244	1.7884	0.4698	1.8628	0.4743	0.4322	0.5476	0.0000	2,361.3989	2,361.3989	0.7177	0.0000	2,379.3421
Maximum	**237.1630**	**46.4588**	**49.5629**	**0.1517**	**18.2675**	**2.0461**	**20.3135**	**9.9840**	**1.8824**	**11.8664**	**0.0000**	**15,251.5674**	**15,251.5674**	**1.9503**	**0.0000**	**15,278.5288**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
Mobile	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.6034	50,306.6034	2.1807		50,361.1208
Total	**41.1168**	**67.2262**	**207.5497**	**0.6278**	**45.9592**	**2.4626**	**48.4217**	**12.2950**	**2.4385**	**14.7336**	**0.0000**	**76,811.1816**	**76,811.1816**	**2.8282**	**0.4832**	**77,025.8786**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
Mobile	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.6034	50,306.6034	2.1807		50,361.1208
Total	**41.1168**	**67.2262**	**207.5497**	**0.6278**	**45.9592**	**2.4626**	**48.4217**	**12.2950**	**2.4385**	**14.7336**	**0.0000**	**76,811.1816**	**76,811.1816**	**2.8282**	**0.4832**	**77,025.8786**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2021	10/12/2021	5	30	
2	Site Preparation	Site Preparation	10/13/2021	11/9/2021	5	20	
3	Grading	Grading	11/10/2021	1/11/2022	5	45	
4	Building Construction	Building Construction	1/12/2022	12/12/2023	5	500	
5	Paving	Paving	12/13/2023	1/30/2024	5	35	
6	Architectural Coating	Architectural Coating	1/31/2024	3/19/2024	5	35	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 112.5

Acres of Paving: 0

Residential Indoor: 2,025,000; Residential Outdoor: 675,000; Non-Residential Indoor: 326,400; Non-Residential Outdoor: 108,800; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	458.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	801.00	143.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	160.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3074	0.0000	3.3074	0.5008	0.0000	0.5008			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**3.3074**	**1.5513**	**4.8588**	**0.5008**	**1.4411**	**1.9419**		**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1273	4.0952	0.9602	0.0119	0.2669	0.0126	0.2795	0.0732	0.0120	0.0852		1,292.2413	1,292.2413	0.0877		1,294.4337
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0643	0.0442	0.6042	1.7100e-003	0.1677	1.3500e-003	0.1690	0.0445	1.2500e-003	0.0457		170.8155	170.8155	5.0300e-003		170.9413
Total	**0.1916**	**4.1394**	**1.5644**	**0.0136**	**0.4346**	**0.0139**	**0.4485**	**0.1176**	**0.0133**	**0.1309**		**1,463.0568**	**1,463.0568**	**0.0927**		**1,465.3750**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3074	0.0000	3.3074	0.5008	0.0000	0.5008			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**3.3074**	**1.5513**	**4.8588**	**0.5008**	**1.4411**	**1.9419**	**0.0000**	**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1273	4.0952	0.9602	0.0119	0.2669	0.0126	0.2795	0.0732	0.0120	0.0852		1,292.2413	1,292.2413	0.0877		1,294.4337
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0643	0.0442	0.6042	1.7100e-003	0.1677	1.3500e-003	0.1690	0.0445	1.2500e-003	0.0457		170.8155	170.8155	5.0300e-003		170.9413
Total	**0.1916**	**4.1394**	**1.5644**	**0.0136**	**0.4346**	**0.0139**	**0.4485**	**0.1176**	**0.0133**	**0.1309**		**1,463.0568**	**1,463.0568**	**0.0927**		**1,465.3750**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0772	0.0530	0.7250	2.0600e-003	0.2012	1.6300e-003	0.2028	0.0534	1.5000e-003	0.0549		204.9786	204.9786	6.0400e-003		205.1296
Total	**0.0772**	**0.0530**	**0.7250**	**2.0600e-003**	**0.2012**	**1.6300e-003**	**0.2028**	**0.0534**	**1.5000e-003**	**0.0549**		**204.9786**	**204.9786**	**6.0400e-003**		**205.1296**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0772	0.0530	0.7250	2.0600e-003	0.2012	1.6300e-003	0.2028	0.0534	1.5000e-003	0.0549		204.9786	204.9786	6.0400e-003		205.1296
Total	**0.0772**	**0.0530**	**0.7250**	**2.0600e-003**	**0.2012**	**1.6300e-003**	**0.2028**	**0.0534**	**1.5000e-003**	**0.0549**		**204.9786**	**204.9786**	**6.0400e-003**		**205.1296**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0857	0.0589	0.8056	2.2900e-003	0.2236	1.8100e-003	0.2254	0.0593	1.6600e-003	0.0610		227.7540	227.7540	6.7100e-003		227.9217
Total	**0.0857**	**0.0589**	**0.8056**	**2.2900e-003**	**0.2236**	**1.8100e-003**	**0.2254**	**0.0593**	**1.6600e-003**	**0.0610**		**227.7540**	**227.7540**	**6.7100e-003**		**227.9217**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0857	0.0589	0.8056	2.2900e-003	0.2236	1.8100e-003	0.2254	0.0593	1.6600e-003	0.0610		227.7540	227.7540	6.7100e-003		227.9217
Total	**0.0857**	**0.0589**	**0.8056**	**2.2900e-003**	**0.2236**	**1.8100e-003**	**0.2254**	**0.0593**	**1.6600e-003**	**0.0610**		**227.7540**	**227.7540**	**6.7100e-003**		**227.9217**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0803	0.0532	0.7432	2.2100e-003	0.2236	1.7500e-003	0.2253	0.0593	1.6100e-003	0.0609		219.7425	219.7425	6.0600e-003		219.8941
Total	**0.0803**	**0.0532**	**0.7432**	**2.2100e-003**	**0.2236**	**1.7500e-003**	**0.2253**	**0.0593**	**1.6100e-003**	**0.0609**		**219.7425**	**219.7425**	**6.0600e-003**		**219.8941**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0803	0.0532	0.7432	2.2100e-003	0.2236	1.7500e-003	0.2253	0.0593	1.6100e-003	0.0609		219.7425	219.7425	6.0600e-003		219.8941
Total	**0.0803**	**0.0532**	**0.7432**	**2.2100e-003**	**0.2236**	**1.7500e-003**	**0.2253**	**0.0593**	**1.6100e-003**	**0.0609**		**219.7425**	**219.7425**	**6.0600e-003**		**219.8941**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4079	13.2032	3.4341	0.0364	0.9155	0.0248	0.9404	0.2636	0.0237	0.2873		3,896.5482	3,896.5482	0.2236		3,902.1384
Worker	3.2162	2.1318	29.7654	0.0883	8.9533	0.0701	9.0234	2.3745	0.0646	2.4390		8,800.6857	8,800.6857	0.2429		8,806.7582
Total	**3.6242**	**15.3350**	**33.1995**	**0.1247**	**9.8688**	**0.0949**	**9.9637**	**2.6381**	**0.0883**	**2.7263**		**12,697.2339**	**12,697.2339**	**0.4665**		**12,708.8966**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4079	13.2032	3.4341	0.0364	0.9155	0.0248	0.9404	0.2636	0.0237	0.2873		3,896.5482	3,896.5482	0.2236		3,902.1384
Worker	3.2162	2.1318	29.7654	0.0883	8.9533	0.0701	9.0234	2.3745	0.0646	2.4390		8,800.6857	8,800.6857	0.2429		8,806.7582
Total	**3.6242**	**15.3350**	**33.1995**	**0.1247**	**9.8688**	**0.0949**	**9.9637**	**2.6381**	**0.0883**	**2.7263**		**12,697.2339**	**12,697.2339**	**0.4665**		**12,708.8966**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3027	10.0181	3.1014	0.0352	0.9156	0.0116	0.9271	0.2636	0.0111	0.2747		3,773.8762	3,773.8762	0.1982		3,778.8300
Worker	3.0203	1.9287	27.4113	0.0851	8.9533	0.0681	9.0214	2.3745	0.0627	2.4372		8,478.4408	8,478.4408	0.2190		8,483.9160
Total	**3.3229**	**11.9468**	**30.5127**	**0.1203**	**9.8688**	**0.0797**	**9.9485**	**2.6381**	**0.0738**	**2.7118**		**12,252.3170**	**12,252.3170**	**0.4172**		**12,262.7460**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3027	10.0181	3.1014	0.0352	0.9156	0.0116	0.9271	0.2636	0.0111	0.2747		3,773.8762	3,773.8762	0.1982		3,778.8300
Worker	3.0203	1.9287	27.4113	0.0851	8.9533	0.0681	9.0214	2.3745	0.0627	2.4372		8,478.4408	8,478.4408	0.2190		8,483.9160
Total	**3.3229**	**11.9468**	**30.5127**	**0.1203**	**9.8688**	**0.0797**	**9.9485**	**2.6381**	**0.0738**	**2.7118**		**12,252.3170**	**12,252.3170**	**0.4172**		**12,262.7460**

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0566	0.0361	0.5133	1.5900e-003	0.1677	1.2800e-003	0.1689	0.0445	1.1700e-003	0.0456		158.7723	158.7723	4.1000e-003		158.8748
Total	**0.0566**	**0.0361**	**0.5133**	**1.5900e-003**	**0.1677**	**1.2800e-003**	**0.1689**	**0.0445**	**1.1700e-003**	**0.0456**		**158.7723**	**158.7723**	**4.1000e-003**		**158.8748**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0566	0.0361	0.5133	1.5900e-003	0.1677	1.2800e-003	0.1689	0.0445	1.1700e-003	0.0456		158.7723	158.7723	4.1000e-003		158.8748
Total	**0.0566**	**0.0361**	**0.5133**	**1.5900e-003**	**0.1677**	**1.2800e-003**	**0.1689**	**0.0445**	**1.1700e-003**	**0.0456**		**158.7723**	**158.7723**	**4.1000e-003**		**158.8748**

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9882**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**		**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

3.6 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0535	0.0329	0.4785	1.5400e-003	0.1677	1.2600e-003	0.1689	0.0445	1.1600e-003	0.0456		153.8517	153.8517	3.7600e-003		153.9458
Total	**0.0535**	**0.0329**	**0.4785**	**1.5400e-003**	**0.1677**	**1.2600e-003**	**0.1689**	**0.0445**	**1.1600e-003**	**0.0456**		**153.8517**	**153.8517**	**3.7600e-003**		**153.9458**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9882**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**	**0.0000**	**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

3.6 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0535	0.0329	0.4785	1.5400e-003	0.1677	1.2600e-003	0.1689	0.0445	1.1600e-003	0.0456		153.8517	153.8517	3.7600e-003		153.9458
Total	**0.0535**	**0.0329**	**0.4785**	**1.5400e-003**	**0.1677**	**1.2600e-003**	**0.1689**	**0.0445**	**1.1600e-003**	**0.0456**		**153.8517**	**153.8517**	**3.7600e-003**		**153.9458**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	236.4115					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**236.5923**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.5707	0.3513	5.1044	0.0165	1.7884	0.0134	1.8018	0.4743	0.0123	0.4866		1,641.0852	1,641.0852	0.0401		1,642.0886
Total	**0.5707**	**0.3513**	**5.1044**	**0.0165**	**1.7884**	**0.0134**	**1.8018**	**0.4743**	**0.0123**	**0.4866**		**1,641.0852**	**1,641.0852**	**0.0401**		**1,642.0886**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	236.4115					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**236.5923**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.5707	0.3513	5.1044	0.0165	1.7884	0.0134	1.8018	0.4743	0.0123	0.4866		1,641.0852	1,641.0852	0.0401		1,642.0886
Total	**0.5707**	**0.3513**	**5.1044**	**0.0165**	**1.7884**	**0.0134**	**1.8018**	**0.4743**	**0.0123**	**0.4866**		**1,641.0852**	**1,641.0852**	**0.0401**		**1,642.0886**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.6034	50,306.6034	2.1807		50,361.1208
Unmitigated	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.6034	50,306.6034	2.1807		50,361.1208

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	145.75	154.25	154.00	506,227	506,227
Apartments Mid Rise	4,026.75	3,773.25	4075.50	13,660,065	13,660,065
General Office Building	288.45	62.55	31.05	706,812	706,812
High Turnover (Sit Down Restaurant)	2,368.80	2,873.52	2817.72	3,413,937	3,413,937
Hotel	192.00	187.50	160.00	445,703	445,703
Quality Restaurant	501.12	511.92	461.20	707,488	707,488
Regional Shopping Center	528.08	601.44	357.84	1,112,221	1,112,221
Total	8,050.95	8,164.43	8,057.31	20,552,452	20,552,452

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Apartments Mid Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
General Office Building	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
High Turnover (Sit Down Restaurant)	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Hotel	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Quality Restaurant	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Regional Shopping Center	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
NaturalGas Unmitigated	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	1119.16	0.0121	0.1031	0.0439	6.6000e-004		8.3400e-003	8.3400e-003		8.3400e-003	8.3400e-003		131.6662	131.6662	2.5200e-003	2.4100e-003	132.4486
Apartments Mid Rise	35784.3	0.3859	3.2978	1.4033	0.0211		0.2666	0.2666		0.2666	0.2666		4,209.9164	4,209.9164	0.0807	0.0772	4,234.9339
General Office Building	1283.42	0.0138	0.1258	0.1057	7.5000e-004		9.5600e-003	9.5600e-003		9.5600e-003	9.5600e-003		150.9911	150.9911	2.8900e-003	2.7700e-003	151.8884
High Turnover (Sit Down Restaurant)	22759.9	0.2455	2.2314	1.8743	0.0134		0.1696	0.1696		0.1696	0.1696		2,677.6342	2,677.6342	0.0513	0.0491	2,693.5460
Hotel	4769.72	0.0514	0.4676	0.3928	2.8100e-003		0.0355	0.0355		0.0355	0.0355		561.1436	561.1436	0.0108	0.0103	564.4782
Quality Restaurant	5057.75	0.0545	0.4959	0.4165	2.9800e-003		0.0377	0.0377		0.0377	0.0377		595.0298	595.0298	0.0114	0.0109	598.5658
Regional Shopping Center	251.616	2.7100e-003	0.0247	0.0207	1.5000e-004		1.8700e-003	1.8700e-003		1.8700e-003	1.8700e-003		29.6019	29.6019	5.7000e-004	5.4000e-004	29.7778
Total		**0.7660**	**6.7463**	**4.2573**	**0.0418**		**0.5292**	**0.5292**		**0.5292**	**0.5292**		**8,355.9832**	**8,355.9832**	**0.1602**	**0.1532**	**8,405.6387**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	1.11916	0.0121	0.1031	0.0439	6.6000e-004		8.3400e-003	8.3400e-003		8.3400e-003	8.3400e-003		131.6662	131.6662	2.5200e-003	2.4100e-003	132.4486
Apartments Mid Rise	35.7843	0.3859	3.2978	1.4033	0.0211		0.2666	0.2666		0.2666	0.2666		4,209.9164	4,209.9164	0.0807	0.0772	4,234.9339
General Office Building	1.28342	0.0138	0.1258	0.1057	7.5000e-004		9.5600e-003	9.5600e-003		9.5600e-003	9.5600e-003		150.9911	150.9911	2.8900e-003	2.7700e-003	151.8884
High Turnover (Sit Down Restaurant)	22.7599	0.2455	2.2314	1.8743	0.0134		0.1696	0.1696		0.1696	0.1696		2,677.6342	2,677.6342	0.0513	0.0491	2,693.5460
Hotel	4.76972	0.0514	0.4676	0.3928	2.8100e-003		0.0355	0.0355		0.0355	0.0355		561.1436	561.1436	0.0108	0.0103	564.4782
Quality Restaurant	5.05775	0.0545	0.4959	0.4165	2.9800e-003		0.0377	0.0377		0.0377	0.0377		595.0298	595.0298	0.0114	0.0109	598.5658
Regional Shopping Center	0.251616	2.7100e-003	0.0247	0.0207	1.5000e-004		1.8700e-003	1.8700e-003		1.8700e-003	1.8700e-003		29.6019	29.6019	5.7000e-004	5.4000e-004	29.7778
Total		**0.7660**	**6.7463**	**4.2573**	**0.0418**		**0.5292**	**0.5292**		**0.5292**	**0.5292**		**8,355.9832**	**8,355.9832**	**0.1602**	**0.1532**	**8,405.6387**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Unmitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.2670					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.1085					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.6500	14.1000	6.0000	0.0900		1.1400	1.1400		1.1400	1.1400	0.0000	18,000.0000	18,000.0000	0.3450	0.3300	18,106.9650
Landscaping	2.4766	0.9496	82.4430	4.3600e-003		0.4574	0.4574		0.4574	0.4574		148.5950	148.5950	0.1424		152.1542
Total	**30.5020**	**15.0496**	**88.4430**	**0.0944**		**1.5974**	**1.5974**		**1.5974**	**1.5974**	**0.0000**	**18,148.5950**	**18,148.5950**	**0.4874**	**0.3300**	**18,259.1192**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.2670					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.1085					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.6500	14.1000	6.0000	0.0900		1.1400	1.1400		1.1400	1.1400	0.0000	18,000.0000	18,000.0000	0.3450	0.3300	18,106.9650
Landscaping	2.4766	0.9496	82.4430	4.3600e-003		0.4574	0.4574		0.4574	0.4574		148.5950	148.5950	0.1424		152.1542
Total	**30.5020**	**15.0496**	**88.4430**	**0.0944**		**1.5974**	**1.5974**		**1.5974**	**1.5974**	**0.0000**	**18,148.5950**	**18,148.5950**	**0.4874**	**0.3300**	**18,259.1192**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Village South Specific Plan (Proposed)

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	45.00	1000sqft	1.03	45,000.00	0
High Turnover (Sit Down Restaurant)	36.00	1000sqft	0.83	36,000.00	0
Hotel	50.00	Room	1.67	72,600.00	0
Quality Restaurant	8.00	1000sqft	0.18	8,000.00	0
Apartments Low Rise	25.00	Dwelling Unit	1.56	25,000.00	72
Apartments Mid Rise	975.00	Dwelling Unit	25.66	975,000.00	2789
Regional Shopping Center	56.00	1000sqft	1.29	56,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2028
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Winter

Project Characteristics - Consistent with the DEIR's model.

Land Use - See SWAPE comment regarding residential and retail land uses.

Construction Phase - See SWAPE comment regarding individual construction phase lengths.

Demolition - Consistent with the DEIR's model. See SWAPE comment regarding demolition.

Vehicle Trips - Saturday trips consistent with the DEIR's model. See SWAPE comment regarding weekday and Sunday trips.

Woodstoves - Woodstoves and wood-burning fireplaces consistent with the DEIR's model. See SWAPE comment regarding gas fireplaces.

Energy Use -

Construction Off-road Equipment Mitigation - See SWAPE comment on construction-related mitigation.

Area Mitigation - See SWAPE comment regarding operational mitigation measures.

Water Mitigation - See SWAPE comment regarding operational mitigation measures.

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberWood	1.25	0.00
tblFireplaces	NumberWood	48.75	0.00
tblVehicleTrips	ST_TR	7.16	6.17
tblVehicleTrips	ST_TR	6.39	3.87
tblVehicleTrips	ST_TR	2.46	1.39
tblVehicleTrips	ST_TR	158.37	79.82
tblVehicleTrips	ST_TR	8.19	3.75
tblVehicleTrips	ST_TR	94.36	63.99
tblVehicleTrips	ST_TR	49.97	10.74
tblVehicleTrips	SU_TR	6.07	6.16
tblVehicleTrips	SU_TR	5.86	4.18
tblVehicleTrips	SU_TR	1.05	0.69
tblVehicleTrips	SU_TR	131.84	78.27

tblVehicleTrips	SU_TR	5.95	3.20
tblVehicleTrips	SU_TR	72.16	57.65
tblVehicleTrips	SU_TR	25.24	6.39
tblVehicleTrips	WD_TR	6.59	5.83
tblVehicleTrips	WD_TR	6.65	4.13
tblVehicleTrips	WD_TR	11.03	6.41
tblVehicleTrips	WD_TR	127.15	65.80
tblVehicleTrips	WD_TR	8.17	3.84
tblVehicleTrips	WD_TR	89.95	62.64
tblVehicleTrips	WD_TR	42.70	9.43
tblWoodstoves	NumberCatalytic	1.25	0.00
tblWoodstoves	NumberCatalytic	48.75	0.00
tblWoodstoves	NumberNoncatalytic	1.25	0.00
tblWoodstoves	NumberNoncatalytic	48.75	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2865	46.4651	31.6150	0.0642	18.2675	2.0461	20.3135	9.9840	1.8824	11.8664	0.0000	6,221.4937	6,221.4937	1.9491	0.0000	6,270.2214
2022	5.7218	38.9024	47.3319	0.1455	9.8688	1.6366	10.7736	3.6558	1.5057	5.1615	0.0000	14,630.3099	14,630.3099	1.9499	0.0000	14,657.2663
2023	5.2705	26.4914	44.5936	0.1413	9.8688	0.7800	10.6488	2.6381	0.7328	3.3708	0.0000	14,210.3424	14,210.3424	1.0230	0.0000	14,235.9160
2024	237.2328	9.5610	15.0611	0.0243	1.7884	0.4698	1.8628	0.4743	0.4322	0.5476	0.0000	2,352.4178	2,352.4178	0.7175	0.0000	2,370.3550
Maximum	**237.2328**	**46.4651**	**47.3319**	**0.1455**	**18.2675**	**2.0461**	**20.3135**	**9.9840**	**1.8824**	**11.8664**	**0.0000**	**14,630.3099**	**14,630.3099**	**1.9499**	**0.0000**	**14,657.2663**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2865	46.4651	31.6150	0.0642	18.2675	2.0461	20.3135	9.9840	1.8824	11.8664	0.0000	6,221.4937	6,221.4937	1.9491	0.0000	6,270.2214
2022	5.7218	38.9024	47.3319	0.1455	9.8688	1.6366	10.7736	3.6558	1.5057	5.1615	0.0000	14,630.3099	14,630.3099	1.9499	0.0000	14,657.2663
2023	5.2705	26.4914	44.5936	0.1413	9.8688	0.7800	10.6488	2.6381	0.7328	3.3708	0.0000	14,210.3424	14,210.3424	1.0230	0.0000	14,235.9160
2024	237.2328	9.5610	15.0611	0.0243	1.7884	0.4698	1.8628	0.4743	0.4322	0.5476	0.0000	2,352.4178	2,352.4178	0.7175	0.0000	2,370.3550
Maximum	**237.2328**	**46.4651**	**47.3319**	**0.1455**	**18.2675**	**2.0461**	**20.3135**	**9.9840**	**1.8824**	**11.8664**	**0.0000**	**14,630.3099**	**14,630.3099**	**1.9499**	**0.0000**	**14,657.2663**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
Mobile	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.8005	47,917.8005	2.1953		47,972.6839
Total	**40.7912**	**67.7872**	**202.7424**	**0.6043**	**45.9592**	**2.4640**	**48.4231**	**12.2950**	**2.4399**	**14.7349**	**0.0000**	**74,422.3787**	**74,422.3787**	**2.8429**	**0.4832**	**74,637.4417**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
Mobile	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.8005	47,917.8005	2.1953		47,972.6839
Total	**40.7912**	**67.7872**	**202.7424**	**0.6043**	**45.9592**	**2.4640**	**48.4231**	**12.2950**	**2.4399**	**14.7349**	**0.0000**	**74,422.3787**	**74,422.3787**	**2.8429**	**0.4832**	**74,637.4417**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2021	10/12/2021	5	30	
2	Site Preparation	Site Preparation	10/13/2021	11/9/2021	5	20	
3	Grading	Grading	11/10/2021	1/11/2022	5	45	
4	Building Construction	Building Construction	1/12/2022	12/12/2023	5	500	
5	Paving	Paving	12/13/2023	1/30/2024	5	35	
6	Architectural Coating	Architectural Coating	1/31/2024	3/19/2024	5	35	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 112.5

Acres of Paving: 0

Residential Indoor: 2,025,000; Residential Outdoor: 675,000; Non-Residential Indoor: 326,400; Non-Residential Outdoor: 108,800; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	458.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	801.00	143.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	160.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3074	0.0000	3.3074	0.5008	0.0000	0.5008			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**3.3074**	**1.5513**	**4.8588**	**0.5008**	**1.4411**	**1.9419**		**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1304	4.1454	1.0182	0.0117	0.2669	0.0128	0.2797	0.0732	0.0122	0.0854		1,269.8555	1,269.8555	0.0908		1,272.1252
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0715	0.0489	0.5524	1.6100e-003	0.1677	1.3500e-003	0.1690	0.0445	1.2500e-003	0.0457		160.8377	160.8377	4.7300e-003		160.9560
Total	**0.2019**	**4.1943**	**1.5706**	**0.0133**	**0.4346**	**0.0141**	**0.4487**	**0.1176**	**0.0135**	**0.1311**		**1,430.6932**	**1,430.6932**	**0.0955**		**1,433.0812**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3074	0.0000	3.3074	0.5008	0.0000	0.5008			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**3.3074**	**1.5513**	**4.8588**	**0.5008**	**1.4411**	**1.9419**	**0.0000**	**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1304	4.1454	1.0182	0.0117	0.2669	0.0128	0.2797	0.0732	0.0122	0.0854		1,269.8555	1,269.8555	0.0908		1,272.1252
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0715	0.0489	0.5524	1.6100e-003	0.1677	1.3500e-003	0.1690	0.0445	1.2500e-003	0.0457		160.8377	160.8377	4.7300e-003		160.9560
Total	**0.2019**	**4.1943**	**1.5706**	**0.0133**	**0.4346**	**0.0141**	**0.4487**	**0.1176**	**0.0135**	**0.1311**		**1,430.6932**	**1,430.6932**	**0.0955**		**1,433.0812**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0858	0.0587	0.6629	1.9400e-003	0.2012	1.6300e-003	0.2028	0.0534	1.5000e-003	0.0549		193.0052	193.0052	5.6800e-003		193.1472
Total	**0.0858**	**0.0587**	**0.6629**	**1.9400e-003**	**0.2012**	**1.6300e-003**	**0.2028**	**0.0534**	**1.5000e-003**	**0.0549**		**193.0052**	**193.0052**	**5.6800e-003**		**193.1472**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0858	0.0587	0.6629	1.9400e-003	0.2012	1.6300e-003	0.2028	0.0534	1.5000e-003	0.0549		193.0052	193.0052	5.6800e-003		193.1472
Total	**0.0858**	**0.0587**	**0.6629**	**1.9400e-003**	**0.2012**	**1.6300e-003**	**0.2028**	**0.0534**	**1.5000e-003**	**0.0549**		**193.0052**	**193.0052**	**5.6800e-003**		**193.1472**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0954	0.0652	0.7365	2.1500e-003	0.2236	1.8100e-003	0.2254	0.0593	1.6600e-003	0.0610		214.4502	214.4502	6.3100e-003		214.6080
Total	**0.0954**	**0.0652**	**0.7365**	**2.1500e-003**	**0.2236**	**1.8100e-003**	**0.2254**	**0.0593**	**1.6600e-003**	**0.0610**		**214.4502**	**214.4502**	**6.3100e-003**		**214.6080**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0954	0.0652	0.7365	2.1500e-003	0.2236	1.8100e-003	0.2254	0.0593	1.6600e-003	0.0610		214.4502	214.4502	6.3100e-003		214.6080
Total	**0.0954**	**0.0652**	**0.7365**	**2.1500e-003**	**0.2236**	**1.8100e-003**	**0.2254**	**0.0593**	**1.6600e-003**	**0.0610**		**214.4502**	**214.4502**	**6.3100e-003**		**214.6080**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0896	0.0589	0.6784	2.0800e-003	0.2236	1.7500e-003	0.2253	0.0593	1.6100e-003	0.0609		206.9139	206.9139	5.7000e-003		207.0563
Total	**0.0896**	**0.0589**	**0.6784**	**2.0800e-003**	**0.2236**	**1.7500e-003**	**0.2253**	**0.0593**	**1.6100e-003**	**0.0609**		**206.9139**	**206.9139**	**5.7000e-003**		**207.0563**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0896	0.0589	0.6784	2.0800e-003	0.2236	1.7500e-003	0.2253	0.0593	1.6100e-003	0.0609		206.9139	206.9139	5.7000e-003		207.0563
Total	**0.0896**	**0.0589**	**0.6784**	**2.0800e-003**	**0.2236**	**1.7500e-003**	**0.2253**	**0.0593**	**1.6100e-003**	**0.0609**		**206.9139**	**206.9139**	**5.7000e-003**		**207.0563**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4284	13.1673	3.8005	0.0354	0.9155	0.0256	0.9412	0.2636	0.0245	0.2881		3,789.0750	3,789.0750	0.2381		3,795.0283
Worker	3.5872	2.3593	27.1680	0.0832	8.9533	0.0701	9.0234	2.3745	0.0646	2.4390		8,286.9013	8,286.9013	0.2282		8,292.6058
Total	**4.0156**	**15.5266**	**30.9685**	**0.1186**	**9.8688**	**0.0957**	**9.9645**	**2.6381**	**0.0891**	**2.7271**		**12,075.9763**	**12,075.9763**	**0.4663**		**12,087.6341**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4284	13.1673	3.8005	0.0354	0.9155	0.0256	0.9412	0.2636	0.0245	0.2881		3,789.0750	3,789.0750	0.2381		3,795.0283
Worker	3.5872	2.3593	27.1680	0.0832	8.9533	0.0701	9.0234	2.3745	0.0646	2.4390		8,286.9013	8,286.9013	0.2282		8,292.6058
Total	**4.0156**	**15.5266**	**30.9685**	**0.1186**	**9.8688**	**0.0957**	**9.9645**	**2.6381**	**0.0891**	**2.7271**		**12,075.9763**	**12,075.9763**	**0.4663**		**12,087.6341**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3183	9.9726	3.3771	0.0343	0.9156	0.0122	0.9277	0.2636	0.0116	0.2752		3,671.4007	3,671.4007	0.2096		3,676.6417
Worker	3.3795	2.1338	24.9725	0.0801	8.9533	0.0681	9.0214	2.3745	0.0627	2.4372		7,983.7318	7,983.7318	0.2055		7,988.8683
Total	**3.6978**	**12.1065**	**28.3496**	**0.1144**	**9.8688**	**0.0803**	**9.9491**	**2.6381**	**0.0743**	**2.7124**		**11,655.1325**	**11,655.1325**	**0.4151**		**11,665.5099**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3183	9.9726	3.3771	0.0343	0.9156	0.0122	0.9277	0.2636	0.0116	0.2752		3,671.4007	3,671.4007	0.2096		3,676.6417
Worker	3.3795	2.1338	24.9725	0.0801	8.9533	0.0681	9.0214	2.3745	0.0627	2.4372		7,983.7318	7,983.7318	0.2055		7,988.8683
Total	**3.6978**	**12.1065**	**28.3496**	**0.1144**	**9.8688**	**0.0803**	**9.9491**	**2.6381**	**0.0743**	**2.7124**		**11,655.1325**	**11,655.1325**	**0.4151**		**11,665.5099**

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0633	0.0400	0.4677	1.5000e-003	0.1677	1.2800e-003	0.1689	0.0445	1.1700e-003	0.0456		149.5081	149.5081	3.8500e-003		149.6043
Total	**0.0633**	**0.0400**	**0.4677**	**1.5000e-003**	**0.1677**	**1.2800e-003**	**0.1689**	**0.0445**	**1.1700e-003**	**0.0456**		**149.5081**	**149.5081**	**3.8500e-003**		**149.6043**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0633	0.0400	0.4677	1.5000e-003	0.1677	1.2800e-003	0.1689	0.0445	1.1700e-003	0.0456		149.5081	149.5081	3.8500e-003		149.6043
Total	**0.0633**	**0.0400**	**0.4677**	**1.5000e-003**	**0.1677**	**1.2800e-003**	**0.1689**	**0.0445**	**1.1700e-003**	**0.0456**		**149.5081**	**149.5081**	**3.8500e-003**		**149.6043**

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9882**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**		**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

3.6 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0601	0.0364	0.4354	1.4500e-003	0.1677	1.2600e-003	0.1689	0.0445	1.1600e-003	0.0456		144.8706	144.8706	3.5300e-003		144.9587
Total	**0.0601**	**0.0364**	**0.4354**	**1.4500e-003**	**0.1677**	**1.2600e-003**	**0.1689**	**0.0445**	**1.1600e-003**	**0.0456**		**144.8706**	**144.8706**	**3.5300e-003**		**144.9587**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9882**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**	**0.0000**	**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

3.6 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0601	0.0364	0.4354	1.4500e-003	0.1677	1.2600e-003	0.1689	0.0445	1.1600e-003	0.0456		144.8706	144.8706	3.5300e-003		144.9587
Total	**0.0601**	**0.0364**	**0.4354**	**1.4500e-003**	**0.1677**	**1.2600e-003**	**0.1689**	**0.0445**	**1.1600e-003**	**0.0456**		**144.8706**	**144.8706**	**3.5300e-003**		**144.9587**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	236.4115					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**236.5923**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.6406	0.3886	4.6439	0.0155	1.7884	0.0134	1.8018	0.4743	0.0123	0.4866		1,545.2860	1,545.2860	0.0376		1,546.2262
Total	**0.6406**	**0.3886**	**4.6439**	**0.0155**	**1.7884**	**0.0134**	**1.8018**	**0.4743**	**0.0123**	**0.4866**		**1,545.2860**	**1,545.2860**	**0.0376**		**1,546.2262**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	236.4115					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**236.5923**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.6406	0.3886	4.6439	0.0155	1.7884	0.0134	1.8018	0.4743	0.0123	0.4866		1,545.2860	1,545.2860	0.0376		1,546.2262
Total	**0.6406**	**0.3886**	**4.6439**	**0.0155**	**1.7884**	**0.0134**	**1.8018**	**0.4743**	**0.0123**	**0.4866**		**1,545.2860**	**1,545.2860**	**0.0376**		**1,546.2262**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.8005	47,917.8005	2.1953		47,972.6839
Unmitigated	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.8005	47,917.8005	2.1953		47,972.6839

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	145.75	154.25	154.00	506,227	506,227
Apartments Mid Rise	4,026.75	3,773.25	4075.50	13,660,065	13,660,065
General Office Building	288.45	62.55	31.05	706,812	706,812
High Turnover (Sit Down Restaurant)	2,368.80	2,873.52	2817.72	3,413,937	3,413,937
Hotel	192.00	187.50	160.00	445,703	445,703
Quality Restaurant	501.12	511.92	461.20	707,488	707,488
Regional Shopping Center	528.08	601.44	357.84	1,112,221	1,112,221
Total	8,050.95	8,164.43	8,057.31	20,552,452	20,552,452

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Apartments Mid Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
General Office Building	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
High Turnover (Sit Down Restaurant)	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Hotel	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Quality Restaurant	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Regional Shopping Center	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
NaturalGas Unmitigated	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	1119.16	0.0121	0.1031	0.0439	6.6000e-004		8.3400e-003	8.3400e-003		8.3400e-003	8.3400e-003		131.6662	131.6662	2.5200e-003	2.4100e-003	132.4486
Apartments Mid Rise	35784.3	0.3859	3.2978	1.4033	0.0211		0.2666	0.2666		0.2666	0.2666		4,209.9164	4,209.9164	0.0807	0.0772	4,234.9339
General Office Building	1283.42	0.0138	0.1258	0.1057	7.5000e-004		9.5600e-003	9.5600e-003		9.5600e-003	9.5600e-003		150.9911	150.9911	2.8900e-003	2.7700e-003	151.8884
High Turnover (Sit Down Restaurant)	22759.9	0.2455	2.2314	1.8743	0.0134		0.1696	0.1696		0.1696	0.1696		2,677.6342	2,677.6342	0.0513	0.0491	2,693.5460
Hotel	4769.72	0.0514	0.4676	0.3928	2.8100e-003		0.0355	0.0355		0.0355	0.0355		561.1436	561.1436	0.0108	0.0103	564.4782
Quality Restaurant	5057.75	0.0545	0.4959	0.4165	2.9800e-003		0.0377	0.0377		0.0377	0.0377		595.0298	595.0298	0.0114	0.0109	598.5658
Regional Shopping Center	251.616	2.7100e-003	0.0247	0.0207	1.5000e-004		1.8700e-003	1.8700e-003		1.8700e-003	1.8700e-003		29.6019	29.6019	5.7000e-004	5.4000e-004	29.7778
Total		**0.7660**	**6.7463**	**4.2573**	**0.0418**		**0.5292**	**0.5292**		**0.5292**	**0.5292**		**8,355.9832**	**8,355.9832**	**0.1602**	**0.1532**	**8,405.6387**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	1.11916	0.0121	0.1031	0.0439	6.6000e-004		8.3400e-003	8.3400e-003		8.3400e-003	8.3400e-003		131.6662	131.6662	2.5200e-003	2.4100e-003	132.4486
Apartments Mid Rise	35.7843	0.3859	3.2978	1.4033	0.0211		0.2666	0.2666		0.2666	0.2666		4,209.9164	4,209.9164	0.0807	0.0772	4,234.9339
General Office Building	1.28342	0.0138	0.1258	0.1057	7.5000e-004		9.5600e-003	9.5600e-003		9.5600e-003	9.5600e-003		150.9911	150.9911	2.8900e-003	2.7700e-003	151.8884
High Turnover (Sit Down Restaurant)	22.7599	0.2455	2.2314	1.8743	0.0134		0.1696	0.1696		0.1696	0.1696		2,677.6342	2,677.6342	0.0513	0.0491	2,693.5460
Hotel	4.76972	0.0514	0.4676	0.3928	2.8100e-003		0.0355	0.0355		0.0355	0.0355		561.1436	561.1436	0.0108	0.0103	564.4782
Quality Restaurant	5.05775	0.0545	0.4959	0.4165	2.9800e-003		0.0377	0.0377		0.0377	0.0377		595.0298	595.0298	0.0114	0.0109	598.5658
Regional Shopping Center	0.251616	2.7100e-003	0.0247	0.0207	1.5000e-004		1.8700e-003	1.8700e-003		1.8700e-003	1.8700e-003		29.6019	29.6019	5.7000e-004	5.4000e-004	29.7778
Total		**0.7660**	**6.7463**	**4.2573**	**0.0418**		**0.5292**	**0.5292**		**0.5292**	**0.5292**		**8,355.9832**	**8,355.9832**	**0.1602**	**0.1532**	**8,405.6387**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Unmitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.2670					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.1085					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.6500	14.1000	6.0000	0.0900		1.1400	1.1400		1.1400	1.1400	0.0000	18,000.0000	18,000.0000	0.3450	0.3300	18,106.9650
Landscaping	2.4766	0.9496	82.4430	4.3600e-003		0.4574	0.4574		0.4574	0.4574		148.5950	148.5950	0.1424		152.1542
Total	**30.5020**	**15.0496**	**88.4430**	**0.0944**		**1.5974**	**1.5974**		**1.5974**	**1.5974**	**0.0000**	**18,148.5950**	**18,148.5950**	**0.4874**	**0.3300**	**18,259.1192**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.2670					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.1085					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.6500	14.1000	6.0000	0.0900		1.1400	1.1400		1.1400	1.1400	0.0000	18,000.0000	18,000.0000	0.3450	0.3300	18,106.9650
Landscaping	2.4766	0.9496	82.4430	4.3600e-003		0.4574	0.4574		0.4574	0.4574		148.5950	148.5950	0.1424		152.1542
Total	**30.5020**	**15.0496**	**88.4430**	**0.0944**		**1.5974**	**1.5974**		**1.5974**	**1.5974**	**0.0000**	**18,148.5950**	**18,148.5950**	**0.4874**	**0.3300**	**18,259.1192**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Village South Specific Plan (Proposed)

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	45.00	1000sqft	1.03	45,000.00	0
High Turnover (Sit Down Restaurant)	36.00	1000sqft	0.83	36,000.00	0
Hotel	50.00	Room	1.67	72,600.00	0
Quality Restaurant	8.00	1000sqft	0.18	8,000.00	0
Apartments Low Rise	25.00	Dwelling Unit	1.56	25,000.00	72
Apartments Mid Rise	975.00	Dwelling Unit	25.66	975,000.00	2789
Regional Shopping Center	56.00	1000sqft	1.29	56,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2028
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

Project Characteristics - Consistent with the DEIR's model.

Land Use - See SWAPE comment regarding residential and retail land uses.

Construction Phase - See SWAPE comment regarding individual construction phase lengths.

Demolition - Consistent with the DEIR's model. See SWAPE comment regarding demolition.

Vehicle Trips - Saturday trips consistent with the DEIR's model. See SWAPE comment regarding weekday and Sunday trips.

Woodstoves - Woodstoves and wood-burning fireplaces consistent with the DEIR's model. See SWAPE comment regarding gas fireplaces.

Energy Use -

Construction Off-road Equipment Mitigation - See SWAPE comment on construction-related mitigation.

Area Mitigation - See SWAPE comment regarding operational mitigation measures.

Water Mitigation - See SWAPE comment regarding operational mitigation measures.

Trips and VMT - Local hire provision

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberWood	1.25	0.00
tblFireplaces	NumberWood	48.75	0.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblVehicleTrips	ST_TR	7.16	6.17
tblVehicleTrips	ST_TR	6.39	3.87
tblVehicleTrips	ST_TR	2.46	1.39
tblVehicleTrips	ST_TR	158.37	79.82

tblVehicleTrips	ST_TR	8.19	3.75
tblVehicleTrips	ST_TR	94.36	63.99
tblVehicleTrips	ST_TR	49.97	10.74
tblVehicleTrips	SU_TR	6.07	6.16
tblVehicleTrips	SU_TR	5.86	4.18
tblVehicleTrips	SU_TR	1.05	0.69
tblVehicleTrips	SU_TR	131.84	78.27
tblVehicleTrips	SU_TR	5.95	3.20
tblVehicleTrips	SU_TR	72.16	57.65
tblVehicleTrips	SU_TR	25.24	6.39
tblVehicleTrips	WD_TR	6.59	5.83
tblVehicleTrips	WD_TR	6.65	4.13
tblVehicleTrips	WD_TR	11.03	6.41
tblVehicleTrips	WD_TR	127.15	65.80
tblVehicleTrips	WD_TR	8.17	3.84
tblVehicleTrips	WD_TR	89.95	62.64
tblVehicleTrips	WD_TR	42.70	9.43
tblWoodstoves	NumberCatalytic	1.25	0.00
tblWoodstoves	NumberCatalytic	48.75	0.00
tblWoodstoves	NumberNoncatalytic	1.25	0.00
tblWoodstoves	NumberNoncatalytic	48.75	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1704	1.8234	1.1577	2.3800e-003	0.4141	0.0817	0.4958	0.1788	0.0754	0.2542	0.0000	210.7654	210.7654	0.0600	0.0000	212.2661
2022	0.5865	4.0240	5.1546	0.0155	0.9509	0.1175	1.0683	0.2518	0.1103	0.3621	0.0000	1,418.6554	1,418.6554	0.1215	0.0000	1,421.6925
2023	0.5190	3.2850	4.7678	0.0147	0.8497	0.0971	0.9468	0.2283	0.0912	0.3195	0.0000	1,342.4412	1,342.4412	0.1115	0.0000	1,345.2291
2024	4.1592	0.1313	0.2557	5.0000e-004	0.0221	6.3900e-003	0.0285	5.8700e-003	5.9700e-003	0.0118	0.0000	44.6355	44.6355	7.8300e-003	0.0000	44.8311
Maximum	**4.1592**	**4.0240**	**5.1546**	**0.0155**	**0.9509**	**0.1175**	**1.0683**	**0.2518**	**0.1103**	**0.3621**	**0.0000**	**1,418.6554**	**1,418.6554**	**0.1215**	**0.0000**	**1,421.6925**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1704	1.8234	1.1577	2.3800e-003	0.4141	0.0817	0.4958	0.1788	0.0754	0.2542	0.0000	210.7651	210.7651	0.0600	0.0000	212.2658
2022	0.5865	4.0240	5.1546	0.0155	0.9509	0.1175	1.0683	0.2518	0.1103	0.3621	0.0000	1,418.6550	1,418.6550	0.1215	0.0000	1,421.6921
2023	0.5190	3.2850	4.7678	0.0147	0.8497	0.0971	0.9468	0.2283	0.0912	0.3195	0.0000	1,342.4409	1,342.4409	0.1115	0.0000	1,345.2287
2024	4.1592	0.1313	0.2557	5.0000e-004	0.0221	6.3900e-003	0.0285	5.8700e-003	5.9700e-003	0.0118	0.0000	44.6354	44.6354	7.8300e-003	0.0000	44.8311
Maximum	**4.1592**	**4.0240**	**5.1546**	**0.0155**	**0.9509**	**0.1175**	**1.0683**	**0.2518**	**0.1103**	**0.3621**	**0.0000**	**1,418.6550**	**1,418.6550**	**0.1215**	**0.0000**	**1,421.6921**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**9-1-2021**	**11-30-2021**	1.4091	1.4091
2	**12-1-2021**	**2-28-2022**	1.3329	1.3329
3	**3-1-2022**	**5-31-2022**	1.1499	1.1499
4	**6-1-2022**	**8-31-2022**	1.1457	1.1457
5	**9-1-2022**	**11-30-2022**	1.1415	1.1415
6	**12-1-2022**	**2-28-2023**	1.0278	1.0278
7	**3-1-2023**	**5-31-2023**	0.9868	0.9868
8	**6-1-2023**	**8-31-2023**	0.9831	0.9831

9	**9-1-2023**	**11-30-2023**	0.9798	0.9798
10	**12-1-2023**	**2-29-2024**	2.8757	2.8757
11	**3-1-2024**	**5-31-2024**	1.6188	1.6188
		Highest	2.8757	2.8757

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	5.1437	0.2950	10.3804	1.6700e-003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e-003	222.5835
Energy	0.1398	1.2312	0.7770	7.6200e-003		0.0966	0.0966		0.0966	0.0966	0.0000	3,896.0732	3,896.0732	0.1303	0.0468	3,913.2833
Mobile	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.4986	7,620.4986	0.3407	0.0000	7,629.0162
Waste						0.0000	0.0000		0.0000	0.0000	207.8079	0.0000	207.8079	12.2811	0.0000	514.8354
Water						0.0000	0.0000		0.0000	0.0000	29.1632	556.6420	585.8052	3.0183	0.0755	683.7567
Total	**6.8692**	**9.5223**	**30.3407**	**0.0914**	**7.7979**	**0.2260**	**8.0240**	**2.0895**	**0.2219**	**2.3114**	**236.9712**	**12,294.1807**	**12,531.1519**	**15.7904**	**0.1260**	**12,963.4751**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	5.1437	0.2950	10.3804	1.6700e-003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e-003	222.5835
Energy	0.1398	1.2312	0.7770	7.6200e-003		0.0966	0.0966		0.0966	0.0966	0.0000	3,896.0732	3,896.0732	0.1303	0.0468	3,913.2833
Mobile	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.4986	7,620.4986	0.3407	0.0000	7,629.0162
Waste						0.0000	0.0000		0.0000	0.0000	207.8079	0.0000	207.8079	12.2811	0.0000	514.8354
Water						0.0000	0.0000		0.0000	0.0000	29.1632	556.6420	585.8052	3.0183	0.0755	683.7567
Total	**6.8692**	**9.5223**	**30.3407**	**0.0914**	**7.7979**	**0.2260**	**8.0240**	**2.0895**	**0.2219**	**2.3114**	**236.9712**	**12,294.1807**	**12,531.1519**	**15.7904**	**0.1260**	**12,963.4751**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2021	10/12/2021	5	30	
2	Site Preparation	Site Preparation	10/13/2021	11/9/2021	5	20	
3	Grading	Grading	11/10/2021	1/11/2022	5	45	
4	Building Construction	Building Construction	1/12/2022	12/12/2023	5	500	
5	Paving	Paving	12/13/2023	1/30/2024	5	35	
6	Architectural Coating	Architectural Coating	1/31/2024	3/19/2024	5	35	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 112.5

Acres of Paving: 0

Residential Indoor: 2,025,000; Residential Outdoor: 675,000; Non-Residential Indoor: 326,400; Non-Residential Outdoor: 108,800; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	458.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	801.00	143.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	160.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0496	0.0000	0.0496	7.5100e-003	0.0000	7.5100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0475	0.4716	0.3235	5.8000e-004		0.0233	0.0233		0.0216	0.0216	0.0000	51.0012	51.0012	0.0144	0.0000	51.3601
Total	**0.0475**	**0.4716**	**0.3235**	**5.8000e-004**	**0.0496**	**0.0233**	**0.0729**	**7.5100e-003**	**0.0216**	**0.0291**	**0.0000**	**51.0012**	**51.0012**	**0.0144**	**0.0000**	**51.3601**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9300e-003	0.0634	0.0148	1.8000e-004	3.9400e-003	1.9000e-004	4.1300e-003	1.0800e-003	1.8000e-004	1.2600e-003	0.0000	17.4566	17.4566	1.2100e-003	0.0000	17.4869
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2000e-004	5.3000e-004	6.0900e-003	2.0000e-005	1.6800e-003	1.0000e-005	1.6900e-003	4.5000e-004	1.0000e-005	4.6000e-004	0.0000	1.5281	1.5281	5.0000e-005	0.0000	1.5293
Total	**2.6500e-003**	**0.0639**	**0.0209**	**2.0000e-004**	**5.6200e-003**	**2.0000e-004**	**5.8200e-003**	**1.5300e-003**	**1.9000e-004**	**1.7200e-003**	**0.0000**	**18.9847**	**18.9847**	**1.2600e-003**	**0.0000**	**19.0161**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0496	0.0000	0.0496	7.5100e-003	0.0000	7.5100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0475	0.4716	0.3235	5.8000e-004		0.0233	0.0233		0.0216	0.0216	0.0000	51.0011	51.0011	0.0144	0.0000	51.3600
Total	**0.0475**	**0.4716**	**0.3235**	**5.8000e-004**	**0.0496**	**0.0233**	**0.0729**	**7.5100e-003**	**0.0216**	**0.0291**	**0.0000**	**51.0011**	**51.0011**	**0.0144**	**0.0000**	**51.3600**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9300e-003	0.0634	0.0148	1.8000e-004	3.9400e-003	1.9000e-004	4.1300e-003	1.0800e-003	1.8000e-004	1.2600e-003	0.0000	17.4566	17.4566	1.2100e-003	0.0000	17.4869
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2000e-004	5.3000e-004	6.0900e-003	2.0000e-005	1.6800e-003	1.0000e-005	1.6900e-003	4.5000e-004	1.0000e-005	4.6000e-004	0.0000	1.5281	1.5281	5.0000e-005	0.0000	1.5293
Total	**2.6500e-003**	**0.0639**	**0.0209**	**2.0000e-004**	**5.6200e-003**	**2.0000e-004**	**5.8200e-003**	**1.5300e-003**	**1.9000e-004**	**1.7200e-003**	**0.0000**	**18.9847**	**18.9847**	**1.2600e-003**	**0.0000**	**19.0161**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1807	0.0000	0.1807	0.0993	0.0000	0.0993	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4050	0.2115	3.8000e-004		0.0204	0.0204		0.0188	0.0188	0.0000	33.4357	33.4357	0.0108	0.0000	33.7061
Total	**0.0389**	**0.4050**	**0.2115**	**3.8000e-004**	**0.1807**	**0.0204**	**0.2011**	**0.0993**	**0.0188**	**0.1181**	**0.0000**	**33.4357**	**33.4357**	**0.0108**	**0.0000**	**33.7061**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.8000e-004	4.3000e-004	4.8700e-003	1.0000e-005	1.3400e-003	1.0000e-005	1.3500e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.2225	1.2225	4.0000e-005	0.0000	1.2234
Total	**5.8000e-004**	**4.3000e-004**	**4.8700e-003**	**1.0000e-005**	**1.3400e-003**	**1.0000e-005**	**1.3500e-003**	**3.6000e-004**	**1.0000e-005**	**3.7000e-004**	**0.0000**	**1.2225**	**1.2225**	**4.0000e-005**	**0.0000**	**1.2234**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1807	0.0000	0.1807	0.0993	0.0000	0.0993	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4050	0.2115	3.8000e-004		0.0204	0.0204		0.0188	0.0188	0.0000	33.4357	33.4357	0.0108	0.0000	33.7060
Total	**0.0389**	**0.4050**	**0.2115**	**3.8000e-004**	**0.1807**	**0.0204**	**0.2011**	**0.0993**	**0.0188**	**0.1181**	**0.0000**	**33.4357**	**33.4357**	**0.0108**	**0.0000**	**33.7060**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.8000e-004	4.3000e-004	4.8700e-003	1.0000e-005	1.3400e-003	1.0000e-005	1.3500e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.2225	1.2225	4.0000e-005	0.0000	1.2234
Total	**5.8000e-004**	**4.3000e-004**	**4.8700e-003**	**1.0000e-005**	**1.3400e-003**	**1.0000e-005**	**1.3500e-003**	**3.6000e-004**	**1.0000e-005**	**3.7000e-004**	**0.0000**	**1.2225**	**1.2225**	**4.0000e-005**	**0.0000**	**1.2234**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1741	0.0000	0.1741	0.0693	0.0000	0.0693	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0796	0.8816	0.5867	1.1800e-003		0.0377	0.0377		0.0347	0.0347	0.0000	103.5405	103.5405	0.0335	0.0000	104.3776
Total	**0.0796**	**0.8816**	**0.5867**	**1.1800e-003**	**0.1741**	**0.0377**	**0.2118**	**0.0693**	**0.0347**	**0.1040**	**0.0000**	**103.5405**	**103.5405**	**0.0335**	**0.0000**	**104.3776**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2200e-003	9.0000e-004	0.0103	3.0000e-005	2.8300e-003	2.0000e-005	2.8600e-003	7.5000e-004	2.0000e-005	7.8000e-004	0.0000	2.5808	2.5808	8.0000e-005	0.0000	2.5828
Total	**1.2200e-003**	**9.0000e-004**	**0.0103**	**3.0000e-005**	**2.8300e-003**	**2.0000e-005**	**2.8600e-003**	**7.5000e-004**	**2.0000e-005**	**7.8000e-004**	**0.0000**	**2.5808**	**2.5808**	**8.0000e-005**	**0.0000**	**2.5828**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1741	0.0000	0.1741	0.0693	0.0000	0.0693	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0796	0.8816	0.5867	1.1800e-003		0.0377	0.0377		0.0347	0.0347	0.0000	103.5403	103.5403	0.0335	0.0000	104.3775
Total	**0.0796**	**0.8816**	**0.5867**	**1.1800e-003**	**0.1741**	**0.0377**	**0.2118**	**0.0693**	**0.0347**	**0.1040**	**0.0000**	**103.5403**	**103.5403**	**0.0335**	**0.0000**	**104.3775**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2200e-003	9.0000e-004	0.0103	3.0000e-005	2.8300e-003	2.0000e-005	2.8600e-003	7.5000e-004	2.0000e-005	7.8000e-004	0.0000	2.5808	2.5808	8.0000e-005	0.0000	2.5828
Total	**1.2200e-003**	**9.0000e-004**	**0.0103**	**3.0000e-005**	**2.8300e-003**	**2.0000e-005**	**2.8600e-003**	**7.5000e-004**	**2.0000e-005**	**7.8000e-004**	**0.0000**	**2.5808**	**2.5808**	**8.0000e-005**	**0.0000**	**2.5828**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0807	0.0000	0.0807	0.0180	0.0000	0.0180	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0127	0.1360	0.1017	2.2000e-004		5.7200e-003	5.7200e-003		5.2600e-003	5.2600e-003	0.0000	19.0871	19.0871	6.1700e-003	0.0000	19.2414
Total	**0.0127**	**0.1360**	**0.1017**	**2.2000e-004**	**0.0807**	**5.7200e-003**	**0.0865**	**0.0180**	**5.2600e-003**	**0.0233**	**0.0000**	**19.0871**	**19.0871**	**6.1700e-003**	**0.0000**	**19.2414**

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	1.5000e-004	1.7400e-003	1.0000e-005	5.2000e-004	0.0000	5.3000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4587	0.4587	1.0000e-005	0.0000	0.4590
Total	**2.1000e-004**	**1.5000e-004**	**1.7400e-003**	**1.0000e-005**	**5.2000e-004**	**0.0000**	**5.3000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.4587**	**0.4587**	**1.0000e-005**	**0.0000**	**0.4590**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0807	0.0000	0.0807	0.0180	0.0000	0.0180	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0127	0.1360	0.1017	2.2000e-004		5.7200e-003	5.7200e-003		5.2600e-003	5.2600e-003	0.0000	19.0871	19.0871	6.1700e-003	0.0000	19.2414
Total	**0.0127**	**0.1360**	**0.1017**	**2.2000e-004**	**0.0807**	**5.7200e-003**	**0.0865**	**0.0180**	**5.2600e-003**	**0.0233**	**0.0000**	**19.0871**	**19.0871**	**6.1700e-003**	**0.0000**	**19.2414**

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	1.5000e-004	1.7400e-003	1.0000e-005	5.2000e-004	0.0000	5.3000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4587	0.4587	1.0000e-005	0.0000	0.4590
Total	**2.1000e-004**	**1.5000e-004**	**1.7400e-003**	**1.0000e-005**	**5.2000e-004**	**0.0000**	**5.3000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.4587**	**0.4587**	**1.0000e-005**	**0.0000**	**0.4590**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2158	1.9754	2.0700	3.4100e-003		0.1023	0.1023		0.0963	0.0963	0.0000	293.1324	293.1324	0.0702	0.0000	294.8881
Total	**0.2158**	**1.9754**	**2.0700**	**3.4100e-003**		**0.1023**	**0.1023**		**0.0963**	**0.0963**	**0.0000**	**293.1324**	**293.1324**	**0.0702**	**0.0000**	**294.8881**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0527	1.6961	0.4580	4.5500e-003	0.1140	3.1800e-003	0.1171	0.0329	3.0400e-003	0.0359	0.0000	441.9835	441.9835	0.0264	0.0000	442.6435
Worker	0.3051	0.2164	2.5233	7.3500e-003	0.7557	6.2300e-003	0.7619	0.2007	5.7400e-003	0.2065	0.0000	663.9936	663.9936	0.0187	0.0000	664.4604
Total	**0.3578**	**1.9125**	**2.9812**	**0.0119**	**0.8696**	**9.4100e-003**	**0.8790**	**0.2336**	**8.7800e-003**	**0.2424**	**0.0000**	**1,105.9771**	**1,105.9771**	**0.0451**	**0.0000**	**1,107.1039**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2158	1.9754	2.0700	3.4100e-003		0.1023	0.1023		0.0963	0.0963	0.0000	293.1321	293.1321	0.0702	0.0000	294.8877
Total	**0.2158**	**1.9754**	**2.0700**	**3.4100e-003**		**0.1023**	**0.1023**		**0.0963**	**0.0963**	**0.0000**	**293.1321**	**293.1321**	**0.0702**	**0.0000**	**294.8877**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0527	1.6961	0.4580	4.5500e-003	0.1140	3.1800e-003	0.1171	0.0329	3.0400e-003	0.0359	0.0000	441.9835	441.9835	0.0264	0.0000	442.6435
Worker	0.3051	0.2164	2.5233	7.3500e-003	0.7557	6.2300e-003	0.7619	0.2007	5.7400e-003	0.2065	0.0000	663.9936	663.9936	0.0187	0.0000	664.4604
Total	**0.3578**	**1.9125**	**2.9812**	**0.0119**	**0.8696**	**9.4100e-003**	**0.8790**	**0.2336**	**8.7800e-003**	**0.2424**	**0.0000**	**1,105.9771**	**1,105.9771**	**0.0451**	**0.0000**	**1,107.1039**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1942	1.7765	2.0061	3.3300e-003		0.0864	0.0864		0.0813	0.0813	0.0000	286.2789	286.2789	0.0681	0.0000	287.9814
Total	**0.1942**	**1.7765**	**2.0061**	**3.3300e-003**		**0.0864**	**0.0864**		**0.0813**	**0.0813**	**0.0000**	**286.2789**	**286.2789**	**0.0681**	**0.0000**	**287.9814**

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0382	1.2511	0.4011	4.3000e-003	0.1113	1.4600e-003	0.1127	0.0321	1.4000e-003	0.0335	0.0000	417.9930	417.9930	0.0228	0.0000	418.5624
Worker	0.2795	0.1910	2.2635	6.9100e-003	0.7377	5.9100e-003	0.7436	0.1960	5.4500e-003	0.2014	0.0000	624.5363	624.5363	0.0164	0.0000	624.9466
Total	**0.3177**	**1.4420**	**2.6646**	**0.0112**	**0.8490**	**7.3700e-003**	**0.8564**	**0.2281**	**6.8500e-003**	**0.2349**	**0.0000**	**1,042.5294**	**1,042.5294**	**0.0392**	**0.0000**	**1,043.5090**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1942	1.7765	2.0061	3.3300e-003		0.0864	0.0864		0.0813	0.0813	0.0000	286.2785	286.2785	0.0681	0.0000	287.9811
Total	**0.1942**	**1.7765**	**2.0061**	**3.3300e-003**		**0.0864**	**0.0864**		**0.0813**	**0.0813**	**0.0000**	**286.2785**	**286.2785**	**0.0681**	**0.0000**	**287.9811**

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0382	1.2511	0.4011	4.3000e-003	0.1113	1.4600e-003	0.1127	0.0321	1.4000e-003	0.0335	0.0000	417.9930	417.9930	0.0228	0.0000	418.5624
Worker	0.2795	0.1910	2.2635	6.9100e-003	0.7377	5.9100e-003	0.7436	0.1960	5.4500e-003	0.2014	0.0000	624.5363	624.5363	0.0164	0.0000	624.9466
Total	**0.3177**	**1.4420**	**2.6646**	**0.0112**	**0.8490**	**7.3700e-003**	**0.8564**	**0.2281**	**6.8500e-003**	**0.2349**	**0.0000**	**1,042.5294**	**1,042.5294**	**0.0392**	**0.0000**	**1,043.5090**

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.7100e-003	0.0663	0.0948	1.5000e-004		3.3200e-003	3.3200e-003		3.0500e-003	3.0500e-003	0.0000	13.0175	13.0175	4.2100e-003	0.0000	13.1227
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.7100e-003**	**0.0663**	**0.0948**	**1.5000e-004**		**3.3200e-003**	**3.3200e-003**		**3.0500e-003**	**3.0500e-003**	**0.0000**	**13.0175**	**13.0175**	**4.2100e-003**	**0.0000**	**13.1227**

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	1.9000e-004	2.2300e-003	1.0000e-005	7.3000e-004	1.0000e-005	7.3000e-004	1.9000e-004	1.0000e-005	2.0000e-004	0.0000	0.6156	0.6156	2.0000e-005	0.0000	0.6160
Total	**2.8000e-004**	**1.9000e-004**	**2.2300e-003**	**1.0000e-005**	**7.3000e-004**	**1.0000e-005**	**7.3000e-004**	**1.9000e-004**	**1.0000e-005**	**2.0000e-004**	**0.0000**	**0.6156**	**0.6156**	**2.0000e-005**	**0.0000**	**0.6160**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.7100e-003	0.0663	0.0948	1.5000e-004		3.3200e-003	3.3200e-003		3.0500e-003	3.0500e-003	0.0000	13.0175	13.0175	4.2100e-003	0.0000	13.1227
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.7100e-003**	**0.0663**	**0.0948**	**1.5000e-004**		**3.3200e-003**	**3.3200e-003**		**3.0500e-003**	**3.0500e-003**	**0.0000**	**13.0175**	**13.0175**	**4.2100e-003**	**0.0000**	**13.1227**

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	1.9000e-004	2.2300e-003	1.0000e-005	7.3000e-004	1.0000e-005	7.3000e-004	1.9000e-004	1.0000e-005	2.0000e-004	0.0000	0.6156	0.6156	2.0000e-005	0.0000	0.6160
Total	**2.8000e-004**	**1.9000e-004**	**2.2300e-003**	**1.0000e-005**	**7.3000e-004**	**1.0000e-005**	**7.3000e-004**	**1.9000e-004**	**1.0000e-005**	**2.0000e-004**	**0.0000**	**0.6156**	**0.6156**	**2.0000e-005**	**0.0000**	**0.6160**

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0109	0.1048	0.1609	2.5000e-004		5.1500e-003	5.1500e-003		4.7400e-003	4.7400e-003	0.0000	22.0292	22.0292	7.1200e-003	0.0000	22.2073
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0109**	**0.1048**	**0.1609**	**2.5000e-004**		**5.1500e-003**	**5.1500e-003**		**4.7400e-003**	**4.7400e-003**	**0.0000**	**22.0292**	**22.0292**	**7.1200e-003**	**0.0000**	**22.2073**

3.6 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	2.9000e-004	3.5100e-003	1.0000e-005	1.2300e-003	1.0000e-005	1.2400e-003	3.3000e-004	1.0000e-005	3.4000e-004	0.0000	1.0094	1.0094	3.0000e-005	0.0000	1.0100
Total	**4.4000e-004**	**2.9000e-004**	**3.5100e-003**	**1.0000e-005**	**1.2300e-003**	**1.0000e-005**	**1.2400e-003**	**3.3000e-004**	**1.0000e-005**	**3.4000e-004**	**0.0000**	**1.0094**	**1.0094**	**3.0000e-005**	**0.0000**	**1.0100**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0109	0.1048	0.1609	2.5000e-004		5.1500e-003	5.1500e-003		4.7400e-003	4.7400e-003	0.0000	22.0292	22.0292	7.1200e-003	0.0000	22.2073
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0109**	**0.1048**	**0.1609**	**2.5000e-004**		**5.1500e-003**	**5.1500e-003**		**4.7400e-003**	**4.7400e-003**	**0.0000**	**22.0292**	**22.0292**	**7.1200e-003**	**0.0000**	**22.2073**

3.6 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	2.9000e-004	3.5100e-003	1.0000e-005	1.2300e-003	1.0000e-005	1.2400e-003	3.3000e-004	1.0000e-005	3.4000e-004	0.0000	1.0094	1.0094	3.0000e-005	0.0000	1.0100
Total	**4.4000e-004**	**2.9000e-004**	**3.5100e-003**	**1.0000e-005**	**1.2300e-003**	**1.0000e-005**	**1.2400e-003**	**3.3000e-004**	**1.0000e-005**	**3.4000e-004**	**0.0000**	**1.0094**	**1.0094**	**3.0000e-005**	**0.0000**	**1.0100**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.1372					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1600e-003	0.0213	0.0317	5.0000e-005		1.0700e-003	1.0700e-003		1.0700e-003	1.0700e-003	0.0000	4.4682	4.4682	2.5000e-004	0.0000	4.4745
Total	**4.1404**	**0.0213**	**0.0317**	**5.0000e-005**		**1.0700e-003**	**1.0700e-003**		**1.0700e-003**	**1.0700e-003**	**0.0000**	**4.4682**	**4.4682**	**2.5000e-004**	**0.0000**	**4.4745**

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.4800e-003	4.9300e-003	0.0596	1.9000e-004	0.0209	1.6000e-004	0.0211	5.5500e-003	1.5000e-004	5.7000e-003	0.0000	17.1287	17.1287	4.3000e-004	0.0000	17.1394
Total	**7.4800e-003**	**4.9300e-003**	**0.0596**	**1.9000e-004**	**0.0209**	**1.6000e-004**	**0.0211**	**5.5500e-003**	**1.5000e-004**	**5.7000e-003**	**0.0000**	**17.1287**	**17.1287**	**4.3000e-004**	**0.0000**	**17.1394**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.1372					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1600e-003	0.0213	0.0317	5.0000e-005		1.0700e-003	1.0700e-003		1.0700e-003	1.0700e-003	0.0000	4.4682	4.4682	2.5000e-004	0.0000	4.4745
Total	**4.1404**	**0.0213**	**0.0317**	**5.0000e-005**		**1.0700e-003**	**1.0700e-003**		**1.0700e-003**	**1.0700e-003**	**0.0000**	**4.4682**	**4.4682**	**2.5000e-004**	**0.0000**	**4.4745**

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.4800e-003	4.9300e-003	0.0596	1.9000e-004	0.0209	1.6000e-004	0.0211	5.5500e-003	1.5000e-004	5.7000e-003	0.0000	17.1287	17.1287	4.3000e-004	0.0000	17.1394
Total	**7.4800e-003**	**4.9300e-003**	**0.0596**	**1.9000e-004**	**0.0209**	**1.6000e-004**	**0.0211**	**5.5500e-003**	**1.5000e-004**	**5.7000e-003**	**0.0000**	**17.1287**	**17.1287**	**4.3000e-004**	**0.0000**	**17.1394**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.4986	7,620.4986	0.3407	0.0000	7,629.0162
Unmitigated	1.5857	7.9962	19.1834	0.0821	7.7979	0.0580	7.8559	2.0895	0.0539	2.1434	0.0000	7,620.4986	7,620.4986	0.3407	0.0000	7,629.0162

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	145.75	154.25	154.00	506,227	506,227
Apartments Mid Rise	4,026.75	3,773.25	4075.50	13,660,065	13,660,065
General Office Building	288.45	62.55	31.05	706,812	706,812
High Turnover (Sit Down Restaurant)	2,368.80	2,873.52	2817.72	3,413,937	3,413,937
Hotel	192.00	187.50	160.00	445,703	445,703
Quality Restaurant	501.12	511.92	461.20	707,488	707,488
Regional Shopping Center	528.08	601.44	357.84	1,112,221	1,112,221
Total	8,050.95	8,164.43	8,057.31	20,552,452	20,552,452

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Apartments Mid Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
General Office Building	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
High Turnover (Sit Down Restaurant)	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Hotel	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Quality Restaurant	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Regional Shopping Center	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,512.6465	2,512.6465	0.1037	0.0215	2,521.6356
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,512.6465	2,512.6465	0.1037	0.0215	2,521.6356
NaturalGas Mitigated	0.1398	1.2312	0.7770	7.6200e-003		0.0966	0.0966		0.0966	0.0966	0.0000	1,383.4267	1,383.4267	0.0265	0.0254	1,391.6478
NaturalGas Unmitigated	0.1398	1.2312	0.7770	7.6200e-003		0.0966	0.0966		0.0966	0.0966	0.0000	1,383.4267	1,383.4267	0.0265	0.0254	1,391.6478

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	408494	2.2000e-003	0.0188	8.0100e-003	1.2000e-004		1.5200e-003	1.5200e-003		1.5200e-003	1.5200e-003	0.0000	21.7988	21.7988	4.2000e-004	4.0000e-004	21.9284
Apartments Mid Rise	1.30613e+007	0.0704	0.6018	0.2561	3.8400e-003		0.0487	0.0487		0.0487	0.0487	0.0000	696.9989	696.9989	0.0134	0.0128	701.1408
General Office Building	468450	2.5300e-003	0.0230	0.0193	1.4000e-004		1.7500e-003	1.7500e-003		1.7500e-003	1.7500e-003	0.0000	24.9983	24.9983	4.8000e-004	4.6000e-004	25.1468
High Turnover (Sit Down Restaurant)	8.30736e+006	0.0448	0.4072	0.3421	2.4400e-003		0.0310	0.0310		0.0310	0.0310	0.0000	443.3124	443.3124	8.5000e-003	8.1300e-003	445.9468
Hotel	1.74095e+006	9.3900e-003	0.0853	0.0717	5.1000e-004		6.4900e-003	6.4900e-003		6.4900e-003	6.4900e-003	0.0000	92.9036	92.9036	1.7800e-003	1.7000e-003	93.4557
Quality Restaurant	1.84608e+006	9.9500e-003	0.0905	0.0760	5.4000e-004		6.8800e-003	6.8800e-003		6.8800e-003	6.8800e-003	0.0000	98.5139	98.5139	1.8900e-003	1.8100e-003	99.0993
Regional Shopping Center	91840	5.0000e-004	4.5000e-003	3.7800e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.9009	4.9009	9.0000e-005	9.0000e-005	4.9301
Total		**0.1398**	**1.2312**	**0.7770**	**7.6200e-003**		**0.0966**	**0.0966**		**0.0966**	**0.0966**	**0.0000**	**1,383.4268**	**1,383.4268**	**0.0265**	**0.0254**	**1,391.6478**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	408494	2.2000e-003	0.0188	8.0100e-003	1.2000e-004		1.5200e-003	1.5200e-003		1.5200e-003	1.5200e-003	0.0000	21.7988	21.7988	4.2000e-004	4.0000e-004	21.9284
Apartments Mid Rise	1.30613e+007	0.0704	0.6018	0.2561	3.8400e-003		0.0487	0.0487		0.0487	0.0487	0.0000	696.9989	696.9989	0.0134	0.0128	701.1408
General Office Building	468450	2.5300e-003	0.0230	0.0193	1.4000e-004		1.7500e-003	1.7500e-003		1.7500e-003	1.7500e-003	0.0000	24.9983	24.9983	4.8000e-004	4.6000e-004	25.1468
High Turnover (Sit Down Restaurant)	8.30736e+006	0.0448	0.4072	0.3421	2.4400e-003		0.0310	0.0310		0.0310	0.0310	0.0000	443.3124	443.3124	8.5000e-003	8.1300e-003	445.9468
Hotel	1.74095e+006	9.3900e-003	0.0853	0.0717	5.1000e-004		6.4900e-003	6.4900e-003		6.4900e-003	6.4900e-003	0.0000	92.9036	92.9036	1.7800e-003	1.7000e-003	93.4557
Quality Restaurant	1.84608e+006	9.9500e-003	0.0905	0.0760	5.4000e-004		6.8800e-003	6.8800e-003		6.8800e-003	6.8800e-003	0.0000	98.5139	98.5139	1.8900e-003	1.8100e-003	99.0993
Regional Shopping Center	91840	5.0000e-004	4.5000e-003	3.7800e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.9009	4.9009	9.0000e-005	9.0000e-005	4.9301
Total		**0.1398**	**1.2312**	**0.7770**	**7.6200e-003**		**0.0966**	**0.0966**		**0.0966**	**0.0966**	**0.0000**	**1,383.4268**	**1,383.4268**	**0.0265**	**0.0254**	**1,391.6478**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	106010	33.7770	1.3900e-003	2.9000e-004	33.8978
Apartments Mid Rise	3.94697e+006	1,257.5879	0.0519	0.0107	1,262.0869
General Office Building	584550	186.2502	7.6900e-003	1.5900e-003	186.9165
High Turnover (Sit Down Restaurant)	1.58904e+006	506.3022	0.0209	4.3200e-003	508.1135
Hotel	550308	175.3399	7.2400e-003	1.5000e-003	175.9672
Quality Restaurant	353120	112.5116	4.6500e-003	9.6000e-004	112.9141
Regional Shopping Center	756000	240.8778	9.9400e-003	2.0600e-003	241.7395
Total		**2,512.6465**	**0.1037**	**0.0215**	**2,521.6356**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	106010	33.7770	1.3900e-003	2.9000e-004	33.8978
Apartments Mid Rise	3.94697e+006	1,257.5879	0.0519	0.0107	1,262.0869
General Office Building	584550	186.2502	7.6900e-003	1.5900e-003	186.9165
High Turnover (Sit Down Restaurant)	1.58904e+006	506.3022	0.0209	4.3200e-003	508.1135
Hotel	550308	175.3399	7.2400e-003	1.5000e-003	175.9672
Quality Restaurant	353120	112.5116	4.6500e-003	9.6000e-004	112.9141
Regional Shopping Center	756000	240.8778	9.9400e-003	2.0600e-003	241.7395
Total		**2,512.6465**	**0.1037**	**0.0215**	**2,521.6356**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	5.1437	0.2950	10.3804	1.6700e-003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e-003	222.5835
Unmitigated	5.1437	0.2950	10.3804	1.6700e-003		0.0714	0.0714		0.0714	0.0714	0.0000	220.9670	220.9670	0.0201	3.7400e-003	222.5835

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4137					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.3998					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0206	0.1763	0.0750	1.1200e-003		0.0143	0.0143		0.0143	0.0143	0.0000	204.1166	204.1166	3.9100e-003	3.7400e-003	205.3295
Landscaping	0.3096	0.1187	10.3054	5.4000e-004		0.0572	0.0572		0.0572	0.0572	0.0000	16.8504	16.8504	0.0161	0.0000	17.2540
Total	**5.1437**	**0.2950**	**10.3804**	**1.6600e-003**		**0.0714**	**0.0714**		**0.0714**	**0.0714**	**0.0000**	**220.9670**	**220.9670**	**0.0201**	**3.7400e-003**	**222.5835**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4137					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.3998					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0206	0.1763	0.0750	1.1200e-003		0.0143	0.0143		0.0143	0.0143	0.0000	204.1166	204.1166	3.9100e-003	3.7400e-003	205.3295
Landscaping	0.3096	0.1187	10.3054	5.4000e-004		0.0572	0.0572		0.0572	0.0572	0.0000	16.8504	16.8504	0.0161	0.0000	17.2540
Total	**5.1437**	**0.2950**	**10.3804**	**1.6600e-003**		**0.0714**	**0.0714**		**0.0714**	**0.0714**	**0.0000**	**220.9670**	**220.9670**	**0.0201**	**3.7400e-003**	**222.5835**

7.0 Water Detail

7.1 Mitigation Measures Water

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	585.8052	3.0183	0.0755	683.7567
Unmitigated	585.8052	3.0183	0.0755	683.7567

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	1.62885 / 1.02688	10.9095	0.0535	1.3400e-003	12.6471
Apartments Mid Rise	63.5252 / 40.0485	425.4719	2.0867	0.0523	493.2363
General Office Building	7.99802 / 4.90201	53.0719	0.2627	6.5900e-003	61.6019
High Turnover (Sit Down Restaurant)	10.9272 / 0.697482	51.2702	0.3580	8.8200e-003	62.8482
Hotel	1.26834 / 0.140927	6.1633	0.0416	1.0300e-003	7.5079
Quality Restaurant	2.42827 / 0.154996	11.3934	0.0796	1.9600e-003	13.9663
Regional Shopping Center	4.14806 / 2.54236	27.5250	0.1363	3.4200e-003	31.9490
Total		**585.8052**	**3.0183**	**0.0755**	**683.7567**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	1.62885 / 1.02688	10.9095	0.0535	1.3400e-003	12.6471
Apartments Mid Rise	63.5252 / 40.0485	425.4719	2.0867	0.0523	493.2363
General Office Building	7.99802 / 4.90201	53.0719	0.2627	6.5900e-003	61.6019
High Turnover (Sit Down Restaurant)	10.9272 / 0.697482	51.2702	0.3580	8.8200e-003	62.8482
Hotel	1.26834 / 0.140927	6.1633	0.0416	1.0300e-003	7.5079
Quality Restaurant	2.42827 / 0.154996	11.3934	0.0796	1.9600e-003	13.9663
Regional Shopping Center	4.14806 / 2.54236	27.5250	0.1363	3.4200e-003	31.9490
Total		**585.8052**	**3.0183**	**0.0755**	**683.7567**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	207.8079	12.2811	0.0000	514.8354
Unmitigated	207.8079	12.2811	0.0000	514.8354

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	11.5	2.3344	0.1380	0.0000	5.7834
Apartments Mid Rise	448.5	91.0415	5.3804	0.0000	225.5513
General Office Building	41.85	8.4952	0.5021	0.0000	21.0464
High Turnover (Sit Down Restaurant)	428.4	86.9613	5.1393	0.0000	215.4430
Hotel	27.38	5.5579	0.3285	0.0000	13.7694
Quality Restaurant	7.3	1.4818	0.0876	0.0000	3.6712
Regional Shopping Center	58.8	11.9359	0.7054	0.0000	29.5706
Total		**207.8079**	**12.2811**	**0.0000**	**514.8354**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	11.5	2.3344	0.1380	0.0000	5.7834
Apartments Mid Rise	448.5	91.0415	5.3804	0.0000	225.5513
General Office Building	41.85	8.4952	0.5021	0.0000	21.0464
High Turnover (Sit Down Restaurant)	428.4	86.9613	5.1393	0.0000	215.4430
Hotel	27.38	5.5579	0.3285	0.0000	13.7694
Quality Restaurant	7.3	1.4818	0.0876	0.0000	3.6712
Regional Shopping Center	58.8	11.9359	0.7054	0.0000	29.5706
Total		**207.8079**	**12.2811**	**0.0000**	**514.8354**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Village South Specific Plan (Proposed)

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	45.00	1000sqft	1.03	45,000.00	0
High Turnover (Sit Down Restaurant)	36.00	1000sqft	0.83	36,000.00	0
Hotel	50.00	Room	1.67	72,600.00	0
Quality Restaurant	8.00	1000sqft	0.18	8,000.00	0
Apartments Low Rise	25.00	Dwelling Unit	1.56	25,000.00	72
Apartments Mid Rise	975.00	Dwelling Unit	25.66	975,000.00	2789
Regional Shopping Center	56.00	1000sqft	1.29	56,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2028
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Summer

Project Characteristics - Consistent with the DEIR's model.

Land Use - See SWAPE comment regarding residential and retail land uses.

Construction Phase - See SWAPE comment regarding individual construction phase lengths.

Demolition - Consistent with the DEIR's model. See SWAPE comment regarding demolition.

Vehicle Trips - Saturday trips consistent with the DEIR's model. See SWAPE comment regarding weekday and Sunday trips.

Woodstoves - Woodstoves and wood-burning fireplaces consistent with the DEIR's model. See SWAPE comment regarding gas fireplaces.

Energy Use -

Construction Off-road Equipment Mitigation - See SWAPE comment on construction-related mitigation.

Area Mitigation - See SWAPE comment regarding operational mitigation measures.

Water Mitigation - See SWAPE comment regarding operational mitigation measures.

Trips and VMT - Local hire provision

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberWood	1.25	0.00
tblFireplaces	NumberWood	48.75	0.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblVehicleTrips	ST_TR	7.16	6.17
tblVehicleTrips	ST_TR	6.39	3.87
tblVehicleTrips	ST_TR	2.46	1.39
tblVehicleTrips	ST_TR	158.37	79.82

tblVehicleTrips	ST_TR	8.19	3.75
tblVehicleTrips	ST_TR	94.36	63.99
tblVehicleTrips	ST_TR	49.97	10.74
tblVehicleTrips	SU_TR	6.07	6.16
tblVehicleTrips	SU_TR	5.86	4.18
tblVehicleTrips	SU_TR	1.05	0.69
tblVehicleTrips	SU_TR	131.84	78.27
tblVehicleTrips	SU_TR	5.95	3.20
tblVehicleTrips	SU_TR	72.16	57.65
tblVehicleTrips	SU_TR	25.24	6.39
tblVehicleTrips	WD_TR	6.59	5.83
tblVehicleTrips	WD_TR	6.65	4.13
tblVehicleTrips	WD_TR	11.03	6.41
tblVehicleTrips	WD_TR	127.15	65.80
tblVehicleTrips	WD_TR	8.17	3.84
tblVehicleTrips	WD_TR	89.95	62.64
tblVehicleTrips	WD_TR	42.70	9.43
tblWoodstoves	NumberCatalytic	1.25	0.00
tblWoodstoves	NumberCatalytic	48.75	0.00
tblWoodstoves	NumberNoncatalytic	1.25	0.00
tblWoodstoves	NumberNoncatalytic	48.75	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2561	46.4415	31.4494	0.0636	18.2032	2.0456	20.2488	9.9670	1.8820	11.8490	0.0000	6,163.4166	6,163.4166	1.9475	0.0000	6,212.1039
2022	4.5441	38.8811	40.8776	0.1240	8.8255	1.6361	10.4616	3.6369	1.5052	5.1421	0.0000	12,493.4403	12,493.4403	1.9485	0.0000	12,518.5707
2023	4.1534	25.7658	38.7457	0.1206	7.0088	0.7592	7.7679	1.8799	0.7136	2.5935	0.0000	12,150.4890	12,150.4890	0.9589	0.0000	12,174.4615
2024	237.0219	9.5478	14.9642	0.0239	1.2171	0.4694	1.2875	0.3229	0.4319	0.4621	0.0000	2,313.1808	2,313.1808	0.7166	0.0000	2,331.0956
Maximum	**237.0219**	**46.4415**	**40.8776**	**0.1240**	**18.2032**	**2.0456**	**20.2488**	**9.9670**	**1.8820**	**11.8490**	**0.0000**	**12,493.4403**	**12,493.4403**	**1.9485**	**0.0000**	**12,518.5707**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2561	46.4415	31.4494	0.0636	18.2032	2.0456	20.2488	9.9670	1.8820	11.8490	0.0000	6,163.4166	6,163.4166	1.9475	0.0000	6,212.1039
2022	4.5441	38.8811	40.8776	0.1240	8.8255	1.6361	10.4616	3.6369	1.5052	5.1421	0.0000	12,493.4403	12,493.4403	1.9485	0.0000	12,518.5707
2023	4.1534	25.7658	38.7457	0.1206	7.0088	0.7592	7.7679	1.8799	0.7136	2.5935	0.0000	12,150.4890	12,150.4890	0.9589	0.0000	12,174.4615
2024	237.0219	9.5478	14.9642	0.0239	1.2171	0.4694	1.2875	0.3229	0.4319	0.4621	0.0000	2,313.1808	2,313.1808	0.7166	0.0000	2,331.0955
Maximum	**237.0219**	**46.4415**	**40.8776**	**0.1240**	**18.2032**	**2.0456**	**20.2488**	**9.9670**	**1.8820**	**11.8490**	**0.0000**	**12,493.4403**	**12,493.4403**	**1.9485**	**0.0000**	**12,518.5707**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
Mobile	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.6034	50,306.6034	2.1807		50,361.1208
Total	**41.1168**	**67.2262**	**207.5497**	**0.6278**	**45.9592**	**2.4626**	**48.4217**	**12.2950**	**2.4385**	**14.7336**	**0.0000**	**76,811.1816**	**76,811.1816**	**2.8282**	**0.4832**	**77,025.8786**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
Mobile	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.6034	50,306.6034	2.1807		50,361.1208
Total	**41.1168**	**67.2262**	**207.5497**	**0.6278**	**45.9592**	**2.4626**	**48.4217**	**12.2950**	**2.4385**	**14.7336**	**0.0000**	**76,811.1816**	**76,811.1816**	**2.8282**	**0.4832**	**77,025.8786**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2021	10/12/2021	5	30	
2	Site Preparation	Site Preparation	10/13/2021	11/9/2021	5	20	
3	Grading	Grading	11/10/2021	1/11/2022	5	45	
4	Building Construction	Building Construction	1/12/2022	12/12/2023	5	500	
5	Paving	Paving	12/13/2023	1/30/2024	5	35	
6	Architectural Coating	Architectural Coating	1/31/2024	3/19/2024	5	35	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 112.5

Acres of Paving: 0

Residential Indoor: 2,025,000; Residential Outdoor: 675,000; Non-Residential Indoor: 326,400; Non-Residential Outdoor: 108,800; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	458.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	801.00	143.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	160.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3074	0.0000	3.3074	0.5008	0.0000	0.5008			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**3.3074**	**1.5513**	**4.8588**	**0.5008**	**1.4411**	**1.9419**		**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1273	4.0952	0.9602	0.0119	0.2669	0.0126	0.2795	0.0732	0.0120	0.0852		1,292.2413	1,292.2413	0.0877		1,294.4337
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0487	0.0313	0.4282	1.1800e-003	0.1141	9.5000e-004	0.1151	0.0303	8.8000e-004	0.0311		117.2799	117.2799	3.5200e-003		117.3678
Total	**0.1760**	**4.1265**	**1.3884**	**0.0131**	**0.3810**	**0.0135**	**0.3946**	**0.1034**	**0.0129**	**0.1163**		**1,409.5212**	**1,409.5212**	**0.0912**		**1,411.8015**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3074	0.0000	3.3074	0.5008	0.0000	0.5008			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**3.3074**	**1.5513**	**4.8588**	**0.5008**	**1.4411**	**1.9419**	**0.0000**	**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1273	4.0952	0.9602	0.0119	0.2669	0.0126	0.2795	0.0732	0.0120	0.0852		1,292.2413	1,292.2413	0.0877		1,294.4337
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0487	0.0313	0.4282	1.1800e-003	0.1141	9.5000e-004	0.1151	0.0303	8.8000e-004	0.0311		117.2799	117.2799	3.5200e-003		117.3678
Total	**0.1760**	**4.1265**	**1.3884**	**0.0131**	**0.3810**	**0.0135**	**0.3946**	**0.1034**	**0.0129**	**0.1163**		**1,409.5212**	**1,409.5212**	**0.0912**		**1,411.8015**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0584	0.0375	0.5139	1.4100e-003	0.1369	1.1400e-003	0.1381	0.0363	1.0500e-003	0.0374		140.7359	140.7359	4.2200e-003		140.8414
Total	**0.0584**	**0.0375**	**0.5139**	**1.4100e-003**	**0.1369**	**1.1400e-003**	**0.1381**	**0.0363**	**1.0500e-003**	**0.0374**		**140.7359**	**140.7359**	**4.2200e-003**		**140.8414**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0584	0.0375	0.5139	1.4100e-003	0.1369	1.1400e-003	0.1381	0.0363	1.0500e-003	0.0374		140.7359	140.7359	4.2200e-003		140.8414
Total	**0.0584**	**0.0375**	**0.5139**	**1.4100e-003**	**0.1369**	**1.1400e-003**	**0.1381**	**0.0363**	**1.0500e-003**	**0.0374**		**140.7359**	**140.7359**	**4.2200e-003**		**140.8414**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0649	0.0417	0.5710	1.5700e-003	0.1521	1.2700e-003	0.1534	0.0404	1.1700e-003	0.0415		156.3732	156.3732	4.6900e-003		156.4904
Total	**0.0649**	**0.0417**	**0.5710**	**1.5700e-003**	**0.1521**	**1.2700e-003**	**0.1534**	**0.0404**	**1.1700e-003**	**0.0415**		**156.3732**	**156.3732**	**4.6900e-003**		**156.4904**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0649	0.0417	0.5710	1.5700e-003	0.1521	1.2700e-003	0.1534	0.0404	1.1700e-003	0.0415		156.3732	156.3732	4.6900e-003		156.4904
Total	**0.0649**	**0.0417**	**0.5710**	**1.5700e-003**	**0.1521**	**1.2700e-003**	**0.1534**	**0.0404**	**1.1700e-003**	**0.0415**		**156.3732**	**156.3732**	**4.6900e-003**		**156.4904**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0607	0.0376	0.5263	1.5100e-003	0.1521	1.2300e-003	0.1534	0.0404	1.1300e-003	0.0415		150.8754	150.8754	4.2400e-003		150.9813
Total	**0.0607**	**0.0376**	**0.5263**	**1.5100e-003**	**0.1521**	**1.2300e-003**	**0.1534**	**0.0404**	**1.1300e-003**	**0.0415**		**150.8754**	**150.8754**	**4.2400e-003**		**150.9813**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0607	0.0376	0.5263	1.5100e-003	0.1521	1.2300e-003	0.1534	0.0404	1.1300e-003	0.0415		150.8754	150.8754	4.2400e-003		150.9813
Total	**0.0607**	**0.0376**	**0.5263**	**1.5100e-003**	**0.1521**	**1.2300e-003**	**0.1534**	**0.0404**	**1.1300e-003**	**0.0415**		**150.8754**	**150.8754**	**4.2400e-003**		**150.9813**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4079	13.2032	3.4341	0.0364	0.9155	0.0248	0.9404	0.2636	0.0237	0.2873		3,896.5482	3,896.5482	0.2236		3,902.1384
Worker	2.4299	1.5074	21.0801	0.0607	6.0932	0.0493	6.1425	1.6163	0.0454	1.6617		6,042.5585	6,042.5585	0.1697		6,046.8000
Total	**2.8378**	**14.7106**	**24.5142**	**0.0971**	**7.0087**	**0.0741**	**7.0828**	**1.8799**	**0.0691**	**1.9490**		**9,939.1067**	**9,939.1067**	**0.3933**		**9,948.9384**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4079	13.2032	3.4341	0.0364	0.9155	0.0248	0.9404	0.2636	0.0237	0.2873		3,896.5482	3,896.5482	0.2236		3,902.1384
Worker	2.4299	1.5074	21.0801	0.0607	6.0932	0.0493	6.1425	1.6163	0.0454	1.6617		6,042.5585	6,042.5585	0.1697		6,046.8000
Total	**2.8378**	**14.7106**	**24.5142**	**0.0971**	**7.0087**	**0.0741**	**7.0828**	**1.8799**	**0.0691**	**1.9490**		**9,939.1067**	**9,939.1067**	**0.3933**		**9,948.9384**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3027	10.0181	3.1014	0.0352	0.9156	0.0116	0.9271	0.2636	0.0111	0.2747		3,773.8762	3,773.8762	0.1982		3,778.8300
Worker	2.2780	1.3628	19.4002	0.0584	6.0932	0.0479	6.1411	1.6163	0.0441	1.6604		5,821.4028	5,821.4028	0.1529		5,825.2254
Total	**2.5807**	**11.3809**	**22.5017**	**0.0936**	**7.0088**	**0.0595**	**7.0682**	**1.8799**	**0.0552**	**1.9350**		**9,595.2790**	**9,595.2790**	**0.3511**		**9,604.0554**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3027	10.0181	3.1014	0.0352	0.9156	0.0116	0.9271	0.2636	0.0111	0.2747		3,773.8762	3,773.8762	0.1982		3,778.8300
Worker	2.2780	1.3628	19.4002	0.0584	6.0932	0.0479	6.1411	1.6163	0.0441	1.6604		5,821.4028	5,821.4028	0.1529		5,825.2254
Total	**2.5807**	**11.3809**	**22.5017**	**0.0936**	**7.0088**	**0.0595**	**7.0682**	**1.8799**	**0.0552**	**1.9350**		**9,595.2790**	**9,595.2790**	**0.3511**		**9,604.0554**

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0427	0.0255	0.3633	1.0900e-003	0.1141	9.0000e-004	0.1150	0.0303	8.3000e-004	0.0311		109.0150	109.0150	2.8600e-003		109.0866
Total	**0.0427**	**0.0255**	**0.3633**	**1.0900e-003**	**0.1141**	**9.0000e-004**	**0.1150**	**0.0303**	**8.3000e-004**	**0.0311**		**109.0150**	**109.0150**	**2.8600e-003**		**109.0866**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0427	0.0255	0.3633	1.0900e-003	0.1141	9.0000e-004	0.1150	0.0303	8.3000e-004	0.0311		109.0150	109.0150	2.8600e-003		109.0866
Total	**0.0427**	**0.0255**	**0.3633**	**1.0900e-003**	**0.1141**	**9.0000e-004**	**0.1150**	**0.0303**	**8.3000e-004**	**0.0311**		**109.0150**	**109.0150**	**2.8600e-003**		**109.0866**

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9882**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**		**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

3.6 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0403	0.0233	0.3384	1.0600e-003	0.1141	8.8000e-004	0.1150	0.0303	8.1000e-004	0.0311		105.6336	105.6336	2.6300e-003		105.6992
Total	**0.0403**	**0.0233**	**0.3384**	**1.0600e-003**	**0.1141**	**8.8000e-004**	**0.1150**	**0.0303**	**8.1000e-004**	**0.0311**		**105.6336**	**105.6336**	**2.6300e-003**		**105.6992**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9882**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**	**0.0000**	**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

3.6 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0403	0.0233	0.3384	1.0600e-003	0.1141	8.8000e-004	0.1150	0.0303	8.1000e-004	0.0311		105.6336	105.6336	2.6300e-003		105.6992
Total	**0.0403**	**0.0233**	**0.3384**	**1.0600e-003**	**0.1141**	**8.8000e-004**	**0.1150**	**0.0303**	**8.1000e-004**	**0.0311**		**105.6336**	**105.6336**	**2.6300e-003**		**105.6992**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	236.4115					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**236.5923**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4296	0.2481	3.6098	0.0113	1.2171	9.4300e-003	1.2266	0.3229	8.6800e-003	0.3315		1,126.7583	1,126.7583	0.0280		1,127.4583
Total	**0.4296**	**0.2481**	**3.6098**	**0.0113**	**1.2171**	**9.4300e-003**	**1.2266**	**0.3229**	**8.6800e-003**	**0.3315**		**1,126.7583**	**1,126.7583**	**0.0280**		**1,127.4583**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	236.4115					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**236.5923**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4296	0.2481	3.6098	0.0113	1.2171	9.4300e-003	1.2266	0.3229	8.6800e-003	0.3315		1,126.7583	1,126.7583	0.0280		1,127.4583
Total	**0.4296**	**0.2481**	**3.6098**	**0.0113**	**1.2171**	**9.4300e-003**	**1.2266**	**0.3229**	**8.6800e-003**	**0.3315**		**1,126.7583**	**1,126.7583**	**0.0280**		**1,127.4583**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.6034	50,306.6034	2.1807		50,361.1208
Unmitigated	9.8489	45.4304	114.8495	0.4917	45.9592	0.3360	46.2951	12.2950	0.3119	12.6070		50,306.6034	50,306.6034	2.1807		50,361.1208

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	145.75	154.25	154.00	506,227	506,227
Apartments Mid Rise	4,026.75	3,773.25	4075.50	13,660,065	13,660,065
General Office Building	288.45	62.55	31.05	706,812	706,812
High Turnover (Sit Down Restaurant)	2,368.80	2,873.52	2817.72	3,413,937	3,413,937
Hotel	192.00	187.50	160.00	445,703	445,703
Quality Restaurant	501.12	511.92	461.20	707,488	707,488
Regional Shopping Center	528.08	601.44	357.84	1,112,221	1,112,221
Total	8,050.95	8,164.43	8,057.31	20,552,452	20,552,452

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Apartments Mid Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
General Office Building	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
High Turnover (Sit Down Restaurant)	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Hotel	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Quality Restaurant	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Regional Shopping Center	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
NaturalGas Unmitigated	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	1119.16	0.0121	0.1031	0.0439	6.6000e-004		8.3400e-003	8.3400e-003		8.3400e-003	8.3400e-003		131.6662	131.6662	2.5200e-003	2.4100e-003	132.4486
Apartments Mid Rise	35784.3	0.3859	3.2978	1.4033	0.0211		0.2666	0.2666		0.2666	0.2666		4,209.9164	4,209.9164	0.0807	0.0772	4,234.9339
General Office Building	1283.42	0.0138	0.1258	0.1057	7.5000e-004		9.5600e-003	9.5600e-003		9.5600e-003	9.5600e-003		150.9911	150.9911	2.8900e-003	2.7700e-003	151.8884
High Turnover (Sit Down Restaurant)	22759.9	0.2455	2.2314	1.8743	0.0134		0.1696	0.1696		0.1696	0.1696		2,677.6342	2,677.6342	0.0513	0.0491	2,693.5460
Hotel	4769.72	0.0514	0.4676	0.3928	2.8100e-003		0.0355	0.0355		0.0355	0.0355		561.1436	561.1436	0.0108	0.0103	564.4782
Quality Restaurant	5057.75	0.0545	0.4959	0.4165	2.9800e-003		0.0377	0.0377		0.0377	0.0377		595.0298	595.0298	0.0114	0.0109	598.5658
Regional Shopping Center	251.616	2.7100e-003	0.0247	0.0207	1.5000e-004		1.8700e-003	1.8700e-003		1.8700e-003	1.8700e-003		29.6019	29.6019	5.7000e-004	5.4000e-004	29.7778
Total		**0.7660**	**6.7463**	**4.2573**	**0.0418**		**0.5292**	**0.5292**		**0.5292**	**0.5292**		**8,355.9832**	**8,355.9832**	**0.1602**	**0.1532**	**8,405.6387**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	1.11916	0.0121	0.1031	0.0439	6.6000e-004		8.3400e-003	8.3400e-003		8.3400e-003	8.3400e-003		131.6662	131.6662	2.5200e-003	2.4100e-003	132.4486
Apartments Mid Rise	35.7843	0.3859	3.2978	1.4033	0.0211		0.2666	0.2666		0.2666	0.2666		4,209.9164	4,209.9164	0.0807	0.0772	4,234.9339
General Office Building	1.28342	0.0138	0.1258	0.1057	7.5000e-004		9.5600e-003	9.5600e-003		9.5600e-003	9.5600e-003		150.9911	150.9911	2.8900e-003	2.7700e-003	151.8884
High Turnover (Sit Down Restaurant)	22.7599	0.2455	2.2314	1.8743	0.0134		0.1696	0.1696		0.1696	0.1696		2,677.6342	2,677.6342	0.0513	0.0491	2,693.5460
Hotel	4.76972	0.0514	0.4676	0.3928	2.8100e-003		0.0355	0.0355		0.0355	0.0355		561.1436	561.1436	0.0108	0.0103	564.4782
Quality Restaurant	5.05775	0.0545	0.4959	0.4165	2.9800e-003		0.0377	0.0377		0.0377	0.0377		595.0298	595.0298	0.0114	0.0109	598.5658
Regional Shopping Center	0.251616	2.7100e-003	0.0247	0.0207	1.5000e-004		1.8700e-003	1.8700e-003		1.8700e-003	1.8700e-003		29.6019	29.6019	5.7000e-004	5.4000e-004	29.7778
Total		**0.7660**	**6.7463**	**4.2573**	**0.0418**		**0.5292**	**0.5292**		**0.5292**	**0.5292**		**8,355.9832**	**8,355.9832**	**0.1602**	**0.1532**	**8,405.6387**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Unmitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.2670					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.1085					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.6500	14.1000	6.0000	0.0900		1.1400	1.1400		1.1400	1.1400	0.0000	18,000.0000	18,000.0000	0.3450	0.3300	18,106.9650
Landscaping	2.4766	0.9496	82.4430	4.3600e-003		0.4574	0.4574		0.4574	0.4574		148.5950	148.5950	0.1424		152.1542
Total	**30.5020**	**15.0496**	**88.4430**	**0.0944**		**1.5974**	**1.5974**		**1.5974**	**1.5974**	**0.0000**	**18,148.5950**	**18,148.5950**	**0.4874**	**0.3300**	**18,259.1192**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.2670					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.1085					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.6500	14.1000	6.0000	0.0900		1.1400	1.1400		1.1400	1.1400	0.0000	18,000.0000	18,000.0000	0.3450	0.3300	18,106.9650
Landscaping	2.4766	0.9496	82.4430	4.3600e-003		0.4574	0.4574		0.4574	0.4574		148.5950	148.5950	0.1424		152.1542
Total	**30.5020**	**15.0496**	**88.4430**	**0.0944**		**1.5974**	**1.5974**		**1.5974**	**1.5974**	**0.0000**	**18,148.5950**	**18,148.5950**	**0.4874**	**0.3300**	**18,259.1192**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Village South Specific Plan (Proposed)

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	45.00	1000sqft	1.03	45,000.00	0
High Turnover (Sit Down Restaurant)	36.00	1000sqft	0.83	36,000.00	0
Hotel	50.00	Room	1.67	72,600.00	0
Quality Restaurant	8.00	1000sqft	0.18	8,000.00	0
Apartments Low Rise	25.00	Dwelling Unit	1.56	25,000.00	72
Apartments Mid Rise	975.00	Dwelling Unit	25.66	975,000.00	2789
Regional Shopping Center	56.00	1000sqft	1.29	56,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2028
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Winter

Project Characteristics - Consistent with the DEIR's model.

Land Use - See SWAPE comment regarding residential and retail land uses.

Construction Phase - See SWAPE comment regarding individual construction phase lengths.

Demolition - Consistent with the DEIR's model. See SWAPE comment regarding demolition.

Vehicle Trips - Saturday trips consistent with the DEIR's model. See SWAPE comment regarding weekday and Sunday trips.

Woodstoves - Woodstoves and wood-burning fireplaces consistent with the DEIR's model. See SWAPE comment regarding gas fireplaces.

Energy Use -

Construction Off-road Equipment Mitigation - See SWAPE comment on construction-related mitigation.

Area Mitigation - See SWAPE comment regarding operational mitigation measures.

Water Mitigation - See SWAPE comment regarding operational mitigation measures.

Trips and VMT - Local hire provision

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberWood	1.25	0.00
tblFireplaces	NumberWood	48.75	0.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblTripsAndVMT	WorkerTripLength	14.70	10.00
tblVehicleTrips	ST_TR	7.16	6.17
tblVehicleTrips	ST_TR	6.39	3.87
tblVehicleTrips	ST_TR	2.46	1.39
tblVehicleTrips	ST_TR	158.37	79.82

tblVehicleTrips	ST_TR	8.19	3.75
tblVehicleTrips	ST_TR	94.36	63.99
tblVehicleTrips	ST_TR	49.97	10.74
tblVehicleTrips	SU_TR	6.07	6.16
tblVehicleTrips	SU_TR	5.86	4.18
tblVehicleTrips	SU_TR	1.05	0.69
tblVehicleTrips	SU_TR	131.84	78.27
tblVehicleTrips	SU_TR	5.95	3.20
tblVehicleTrips	SU_TR	72.16	57.65
tblVehicleTrips	SU_TR	25.24	6.39
tblVehicleTrips	WD_TR	6.59	5.83
tblVehicleTrips	WD_TR	6.65	4.13
tblVehicleTrips	WD_TR	11.03	6.41
tblVehicleTrips	WD_TR	127.15	65.80
tblVehicleTrips	WD_TR	8.17	3.84
tblVehicleTrips	WD_TR	89.95	62.64
tblVehicleTrips	WD_TR	42.70	9.43
tblWoodstoves	NumberCatalytic	1.25	0.00
tblWoodstoves	NumberCatalytic	48.75	0.00
tblWoodstoves	NumberNoncatalytic	1.25	0.00
tblWoodstoves	NumberNoncatalytic	48.75	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2621	46.4460	31.4068	0.0635	18.2032	2.0456	20.2488	9.9670	1.8820	11.8490	0.0000	6,154.3377	6,154.3377	1.9472	0.0000	6,203.0186
2022	4.7966	38.8851	39.6338	0.1195	8.8255	1.6361	10.4616	3.6369	1.5052	5.1421	0.0000	12,035.3440	12,035.3440	1.9482	0.0000	12,060.6013
2023	4.3939	25.8648	37.5031	0.1162	7.0088	0.7598	7.7685	1.8799	0.7142	2.5940	0.0000	11,710.4080	11,710.4080	0.9617	0.0000	11,734.4497
2024	237.0656	9.5503	14.9372	0.0238	1.2171	0.4694	1.2875	0.3229	0.4319	0.4621	0.0000	2,307.0517	2,307.0517	0.7164	0.0000	2,324.9627
Maximum	**237.0656**	**46.4460**	**39.6338**	**0.1195**	**18.2032**	**2.0456**	**20.2488**	**9.9670**	**1.8820**	**11.8490**	**0.0000**	**12,035.3440**	**12,035.3440**	**1.9482**	**0.0000**	**12,060.6013**

2.1 Overall Construction (Maximum Daily Emission)

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2621	46.4460	31.4068	0.0635	18.2032	2.0456	20.2488	9.9670	1.8820	11.8490	0.0000	6,154.3377	6,154.3377	1.9472	0.0000	6,203.0186
2022	4.7966	38.8851	39.6338	0.1195	8.8255	1.6361	10.4616	3.6369	1.5052	5.1421	0.0000	12,035.3440	12,035.3440	1.9482	0.0000	12,060.6013
2023	4.3939	25.8648	37.5031	0.1162	7.0088	0.7598	7.7685	1.8799	0.7142	2.5940	0.0000	11,710.4080	11,710.4080	0.9617	0.0000	11,734.4497
2024	237.0656	9.5503	14.9372	0.0238	1.2171	0.4694	1.2875	0.3229	0.4319	0.4621	0.0000	2,307.0517	2,307.0517	0.7164	0.0000	2,324.9627
Maximum	**237.0656**	**46.4460**	**39.6338**	**0.1195**	**18.2032**	**2.0456**	**20.2488**	**9.9670**	**1.8820**	**11.8490**	**0.0000**	**12,035.3440**	**12,035.3440**	**1.9482**	**0.0000**	**12,060.6013**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
Mobile	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.8005	47,917.8005	2.1953		47,972.6839
Total	**40.7912**	**67.7872**	**202.7424**	**0.6043**	**45.9592**	**2.4640**	**48.4231**	**12.2950**	**2.4399**	**14.7349**	**0.0000**	**74,422.3787**	**74,422.3787**	**2.8429**	**0.4832**	**74,637.4417**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Energy	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
Mobile	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.8005	47,917.8005	2.1953		47,972.6839
Total	**40.7912**	**67.7872**	**202.7424**	**0.6043**	**45.9592**	**2.4640**	**48.4231**	**12.2950**	**2.4399**	**14.7349**	**0.0000**	**74,422.3787**	**74,422.3787**	**2.8429**	**0.4832**	**74,637.4417**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/1/2021	10/12/2021	5	30	
2	Site Preparation	Site Preparation	10/13/2021	11/9/2021	5	20	
3	Grading	Grading	11/10/2021	1/11/2022	5	45	
4	Building Construction	Building Construction	1/12/2022	12/12/2023	5	500	
5	Paving	Paving	12/13/2023	1/30/2024	5	35	
6	Architectural Coating	Architectural Coating	1/31/2024	3/19/2024	5	35	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 112.5

Acres of Paving: 0

Residential Indoor: 2,025,000; Residential Outdoor: 675,000; Non-Residential Indoor: 326,400; Non-Residential Outdoor: 108,800; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	458.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	801.00	143.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	160.00	0.00	0.00	10.00	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3074	0.0000	3.3074	0.5008	0.0000	0.5008			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**3.3074**	**1.5513**	**4.8588**	**0.5008**	**1.4411**	**1.9419**		**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1304	4.1454	1.0182	0.0117	0.2669	0.0128	0.2797	0.0732	0.0122	0.0854		1,269.8555	1,269.8555	0.0908		1,272.1252
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0532	0.0346	0.3963	1.1100e-003	0.1141	9.5000e-004	0.1151	0.0303	8.8000e-004	0.0311		110.4707	110.4707	3.3300e-003		110.5539
Total	**0.1835**	**4.1800**	**1.4144**	**0.0128**	**0.3810**	**0.0137**	**0.3948**	**0.1034**	**0.0131**	**0.1165**		**1,380.3262**	**1,380.3262**	**0.0941**		**1,382.6791**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3074	0.0000	3.3074	0.5008	0.0000	0.5008			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**3.3074**	**1.5513**	**4.8588**	**0.5008**	**1.4411**	**1.9419**	**0.0000**	**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1304	4.1454	1.0182	0.0117	0.2669	0.0128	0.2797	0.0732	0.0122	0.0854		1,269.8555	1,269.8555	0.0908		1,272.1252
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0532	0.0346	0.3963	1.1100e-003	0.1141	9.5000e-004	0.1151	0.0303	8.8000e-004	0.0311		110.4707	110.4707	3.3300e-003		110.5539
Total	**0.1835**	**4.1800**	**1.4144**	**0.0128**	**0.3810**	**0.0137**	**0.3948**	**0.1034**	**0.0131**	**0.1165**		**1,380.3262**	**1,380.3262**	**0.0941**		**1,382.6791**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0638	0.0415	0.4755	1.3300e-003	0.1369	1.1400e-003	0.1381	0.0363	1.0500e-003	0.0374		132.5649	132.5649	3.9900e-003		132.6646
Total	**0.0638**	**0.0415**	**0.4755**	**1.3300e-003**	**0.1369**	**1.1400e-003**	**0.1381**	**0.0363**	**1.0500e-003**	**0.0374**		**132.5649**	**132.5649**	**3.9900e-003**		**132.6646**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0638	0.0415	0.4755	1.3300e-003	0.1369	1.1400e-003	0.1381	0.0363	1.0500e-003	0.0374		132.5649	132.5649	3.9900e-003		132.6646
Total	**0.0638**	**0.0415**	**0.4755**	**1.3300e-003**	**0.1369**	**1.1400e-003**	**0.1381**	**0.0363**	**1.0500e-003**	**0.0374**		**132.5649**	**132.5649**	**3.9900e-003**		**132.6646**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0709	0.0462	0.5284	1.4800e-003	0.1521	1.2700e-003	0.1534	0.0404	1.1700e-003	0.0415		147.2943	147.2943	4.4300e-003		147.4051
Total	**0.0709**	**0.0462**	**0.5284**	**1.4800e-003**	**0.1521**	**1.2700e-003**	**0.1534**	**0.0404**	**1.1700e-003**	**0.0415**		**147.2943**	**147.2943**	**4.4300e-003**		**147.4051**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0709	0.0462	0.5284	1.4800e-003	0.1521	1.2700e-003	0.1534	0.0404	1.1700e-003	0.0415		147.2943	147.2943	4.4300e-003		147.4051
Total	**0.0709**	**0.0462**	**0.5284**	**1.4800e-003**	**0.1521**	**1.2700e-003**	**0.1534**	**0.0404**	**1.1700e-003**	**0.0415**		**147.2943**	**147.2943**	**4.4300e-003**		**147.4051**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0665	0.0416	0.4861	1.4300e-003	0.1521	1.2300e-003	0.1534	0.0404	1.1300e-003	0.0415		142.1207	142.1207	4.0000e-003		142.2207
Total	**0.0665**	**0.0416**	**0.4861**	**1.4300e-003**	**0.1521**	**1.2300e-003**	**0.1534**	**0.0404**	**1.1300e-003**	**0.0415**		**142.1207**	**142.1207**	**4.0000e-003**		**142.2207**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0665	0.0416	0.4861	1.4300e-003	0.1521	1.2300e-003	0.1534	0.0404	1.1300e-003	0.0415		142.1207	142.1207	4.0000e-003		142.2207
Total	**0.0665**	**0.0416**	**0.4861**	**1.4300e-003**	**0.1521**	**1.2300e-003**	**0.1534**	**0.0404**	**1.1300e-003**	**0.0415**		**142.1207**	**142.1207**	**4.0000e-003**		**142.2207**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4284	13.1673	3.8005	0.0354	0.9155	0.0256	0.9412	0.2636	0.0245	0.2881		3,789.0750	3,789.0750	0.2381		3,795.0283
Worker	2.6620	1.6677	19.4699	0.0571	6.0932	0.0493	6.1425	1.6163	0.0454	1.6617		5,691.9354	5,691.9354	0.1602		5,695.9408
Total	**3.0904**	**14.8350**	**23.2704**	**0.0926**	**7.0087**	**0.0749**	**7.0836**	**1.8799**	**0.0699**	**1.9498**		**9,481.0104**	**9,481.0104**	**0.3984**		**9,490.9691**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4284	13.1673	3.8005	0.0354	0.9155	0.0256	0.9412	0.2636	0.0245	0.2881		3,789.0750	3,789.0750	0.2381		3,795.0283
Worker	2.6620	1.6677	19.4699	0.0571	6.0932	0.0493	6.1425	1.6163	0.0454	1.6617		5,691.9354	5,691.9354	0.1602		5,695.9408
Total	**3.0904**	**14.8350**	**23.2704**	**0.0926**	**7.0087**	**0.0749**	**7.0836**	**1.8799**	**0.0699**	**1.9498**		**9,481.0104**	**9,481.0104**	**0.3984**		**9,490.9691**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3183	9.9726	3.3771	0.0343	0.9156	0.0122	0.9277	0.2636	0.0116	0.2752		3,671.4007	3,671.4007	0.2096		3,676.6417
Worker	2.5029	1.5073	17.8820	0.0550	6.0932	0.0479	6.1411	1.6163	0.0441	1.6604		5,483.7974	5,483.7974	0.1442		5,487.4020
Total	**2.8211**	**11.4799**	**21.2591**	**0.0893**	**7.0088**	**0.0601**	**7.0688**	**1.8799**	**0.0557**	**1.9356**		**9,155.1981**	**9,155.1981**	**0.3538**		**9,164.0437**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3183	9.9726	3.3771	0.0343	0.9156	0.0122	0.9277	0.2636	0.0116	0.2752		3,671.4007	3,671.4007	0.2096		3,676.6417
Worker	2.5029	1.5073	17.8820	0.0550	6.0932	0.0479	6.1411	1.6163	0.0441	1.6604		5,483.7974	5,483.7974	0.1442		5,487.4020
Total	**2.8211**	**11.4799**	**21.2591**	**0.0893**	**7.0088**	**0.0601**	**7.0688**	**1.8799**	**0.0557**	**1.9356**		**9,155.1981**	**9,155.1981**	**0.3538**		**9,164.0437**

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0469	0.0282	0.3349	1.0300e-003	0.1141	9.0000e-004	0.1150	0.0303	8.3000e-004	0.0311		102.6928	102.6928	2.7000e-003		102.7603
Total	**0.0469**	**0.0282**	**0.3349**	**1.0300e-003**	**0.1141**	**9.0000e-004**	**0.1150**	**0.0303**	**8.3000e-004**	**0.0311**		**102.6928**	**102.6928**	**2.7000e-003**		**102.7603**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0469	0.0282	0.3349	1.0300e-003	0.1141	9.0000e-004	0.1150	0.0303	8.3000e-004	0.0311		102.6928	102.6928	2.7000e-003		102.7603
Total	**0.0469**	**0.0282**	**0.3349**	**1.0300e-003**	**0.1141**	**9.0000e-004**	**0.1150**	**0.0303**	**8.3000e-004**	**0.0311**		**102.6928**	**102.6928**	**2.7000e-003**		**102.7603**

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9882**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**		**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

3.6 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0444	0.0257	0.3114	1.0000e-003	0.1141	8.8000e-004	0.1150	0.0303	8.1000e-004	0.0311		99.5045	99.5045	2.4700e-003		99.5663
Total	**0.0444**	**0.0257**	**0.3114**	**1.0000e-003**	**0.1141**	**8.8000e-004**	**0.1150**	**0.0303**	**8.1000e-004**	**0.0311**		**99.5045**	**99.5045**	**2.4700e-003**		**99.5663**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9882**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**	**0.0000**	**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

3.6 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0444	0.0257	0.3114	1.0000e-003	0.1141	8.8000e-004	0.1150	0.0303	8.1000e-004	0.0311		99.5045	99.5045	2.4700e-003		99.5663
Total	**0.0444**	**0.0257**	**0.3114**	**1.0000e-003**	**0.1141**	**8.8000e-004**	**0.1150**	**0.0303**	**8.1000e-004**	**0.0311**		**99.5045**	**99.5045**	**2.4700e-003**		**99.5663**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	236.4115					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**236.5923**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4734	0.2743	3.3220	0.0107	1.2171	9.4300e-003	1.2266	0.3229	8.6800e-003	0.3315		1,061.3818	1,061.3818	0.0264		1,062.0410
Total	**0.4734**	**0.2743**	**3.3220**	**0.0107**	**1.2171**	**9.4300e-003**	**1.2266**	**0.3229**	**8.6800e-003**	**0.3315**		**1,061.3818**	**1,061.3818**	**0.0264**		**1,062.0410**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	236.4115					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**236.5923**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.4734	0.2743	3.3220	0.0107	1.2171	9.4300e-003	1.2266	0.3229	8.6800e-003	0.3315		1,061.3818	1,061.3818	0.0264		1,062.0410
Total	**0.4734**	**0.2743**	**3.3220**	**0.0107**	**1.2171**	**9.4300e-003**	**1.2266**	**0.3229**	**8.6800e-003**	**0.3315**		**1,061.3818**	**1,061.3818**	**0.0264**		**1,062.0410**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.8005	47,917.8005	2.1953		47,972.6839
Unmitigated	9.5233	45.9914	110.0422	0.4681	45.9592	0.3373	46.2965	12.2950	0.3132	12.6083		47,917.8005	47,917.8005	2.1953		47,972.6839

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	145.75	154.25	154.00	506,227	506,227
Apartments Mid Rise	4,026.75	3,773.25	4075.50	13,660,065	13,660,065
General Office Building	288.45	62.55	31.05	706,812	706,812
High Turnover (Sit Down Restaurant)	2,368.80	2,873.52	2817.72	3,413,937	3,413,937
Hotel	192.00	187.50	160.00	445,703	445,703
Quality Restaurant	501.12	511.92	461.20	707,488	707,488
Regional Shopping Center	528.08	601.44	357.84	1,112,221	1,112,221
Total	8,050.95	8,164.43	8,057.31	20,552,452	20,552,452

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
High Turnover (Sit Down	16.60	8.40	6.90	8.50	72.50	19.00	37	20	43
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Quality Restaurant	16.60	8.40	6.90	12.00	69.00	19.00	38	18	44
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Apartments Mid Rise	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
General Office Building	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
High Turnover (Sit Down Restaurant)	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Hotel	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Quality Restaurant	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821
Regional Shopping Center	0.543088	0.044216	0.209971	0.116369	0.014033	0.006332	0.021166	0.033577	0.002613	0.001817	0.005285	0.000712	0.000821

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Village South Specific Plan (Proposed) - Los Angeles-South Coast County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387
NaturalGas Unmitigated	0.7660	6.7462	4.2573	0.0418		0.5292	0.5292		0.5292	0.5292		8,355.9832	8,355.9832	0.1602	0.1532	8,405.6387

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	1119.16	0.0121	0.1031	0.0439	6.6000e-004		8.3400e-003	8.3400e-003		8.3400e-003	8.3400e-003		131.6662	131.6662	2.5200e-003	2.4100e-003	132.4486
Apartments Mid Rise	35784.3	0.3859	3.2978	1.4033	0.0211		0.2666	0.2666		0.2666	0.2666		4,209.9164	4,209.9164	0.0807	0.0772	4,234.9339
General Office Building	1283.42	0.0138	0.1258	0.1057	7.5000e-004		9.5600e-003	9.5600e-003		9.5600e-003	9.5600e-003		150.9911	150.9911	2.8900e-003	2.7700e-003	151.8884
High Turnover (Sit Down Restaurant)	22759.9	0.2455	2.2314	1.8743	0.0134		0.1696	0.1696		0.1696	0.1696		2,677.6342	2,677.6342	0.0513	0.0491	2,693.5460
Hotel	4769.72	0.0514	0.4676	0.3928	2.8100e-003		0.0355	0.0355		0.0355	0.0355		561.1436	561.1436	0.0108	0.0103	564.4782
Quality Restaurant	5057.75	0.0545	0.4959	0.4165	2.9800e-003		0.0377	0.0377		0.0377	0.0377		595.0298	595.0298	0.0114	0.0109	598.5658
Regional Shopping Center	251.616	2.7100e-003	0.0247	0.0207	1.5000e-004		1.8700e-003	1.8700e-003		1.8700e-003	1.8700e-003		29.6019	29.6019	5.7000e-004	5.4000e-004	29.7778
Total		**0.7660**	**6.7463**	**4.2573**	**0.0418**		**0.5292**	**0.5292**		**0.5292**	**0.5292**		**8,355.9832**	**8,355.9832**	**0.1602**	**0.1532**	**8,405.6387**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	1.11916	0.0121	0.1031	0.0439	6.6000e-004		8.3400e-003	8.3400e-003		8.3400e-003	8.3400e-003		131.6662	131.6662	2.5200e-003	2.4100e-003	132.4486
Apartments Mid Rise	35.7843	0.3859	3.2978	1.4033	0.0211		0.2666	0.2666		0.2666	0.2666		4,209.9164	4,209.9164	0.0807	0.0772	4,234.9339
General Office Building	1.28342	0.0138	0.1258	0.1057	7.5000e-004		9.5600e-003	9.5600e-003		9.5600e-003	9.5600e-003		150.9911	150.9911	2.8900e-003	2.7700e-003	151.8884
High Turnover (Sit Down Restaurant)	22.7599	0.2455	2.2314	1.8743	0.0134		0.1696	0.1696		0.1696	0.1696		2,677.6342	2,677.6342	0.0513	0.0491	2,693.5460
Hotel	4.76972	0.0514	0.4676	0.3928	2.8100e-003		0.0355	0.0355		0.0355	0.0355		561.1436	561.1436	0.0108	0.0103	564.4782
Quality Restaurant	5.05775	0.0545	0.4959	0.4165	2.9800e-003		0.0377	0.0377		0.0377	0.0377		595.0298	595.0298	0.0114	0.0109	598.5658
Regional Shopping Center	0.251616	2.7100e-003	0.0247	0.0207	1.5000e-004		1.8700e-003	1.8700e-003		1.8700e-003	1.8700e-003		29.6019	29.6019	5.7000e-004	5.4000e-004	29.7778
Total		**0.7660**	**6.7463**	**4.2573**	**0.0418**		**0.5292**	**0.5292**		**0.5292**	**0.5292**		**8,355.9832**	**8,355.9832**	**0.1602**	**0.1532**	**8,405.6387**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192
Unmitigated	30.5020	15.0496	88.4430	0.0944		1.5974	1.5974		1.5974	1.5974	0.0000	18,148.5950	18,148.5950	0.4874	0.3300	18,259.1192

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.2670					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.1085					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.6500	14.1000	6.0000	0.0900		1.1400	1.1400		1.1400	1.1400	0.0000	18,000.0000	18,000.0000	0.3450	0.3300	18,106.9650
Landscaping	2.4766	0.9496	82.4430	4.3600e-003		0.4574	0.4574		0.4574	0.4574		148.5950	148.5950	0.1424		152.1542
Total	**30.5020**	**15.0496**	**88.4430**	**0.0944**		**1.5974**	**1.5974**		**1.5974**	**1.5974**	**0.0000**	**18,148.5950**	**18,148.5950**	**0.4874**	**0.3300**	**18,259.1192**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.2670					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	24.1085					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.6500	14.1000	6.0000	0.0900		1.1400	1.1400		1.1400	1.1400	0.0000	18,000.0000	18,000.0000	0.3450	0.3300	18,106.9650
Landscaping	2.4766	0.9496	82.4430	4.3600e-003		0.4574	0.4574		0.4574	0.4574		148.5950	148.5950	0.1424		152.1542
Total	**30.5020**	**15.0496**	**88.4430**	**0.0944**		**1.5974**	**1.5974**		**1.5974**	**1.5974**	**0.0000**	**18,148.5950**	**18,148.5950**	**0.4874**	**0.3300**	**18,259.1192**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment C

Local Hire Provision Net Change	
Without Local Hire Provision	
Total Construction GHG Emissions (MT CO2e)	3,623
Amortized (MT CO2e/year)	120.77
With Local Hire Provision	
Total Construction GHG Emissions (MT CO2e)	3,024
Amortized (MT CO2e/year)	100.80
% Decrease in Construction-related GHG Emissions	***17%***

EXHIBIT B

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

SOIL WATER AIR PROTECTION ENTERPRISE
2656 29th Street, Suite 201
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Paul Rosenfeld, Ph.D.

Chemical Fate and Transport & Air Dispersion Modeling

Principal Environmental Chemist

Risk Assessment & Remediation Specialist

Education

Ph.D. Soil Chemistry, University of Washington, 1999. Dissertation on volatile organic compound filtration.

M.S. Environmental Science, U.C. Berkeley, 1995. Thesis on organic waste economics.

B.A. Environmental Studies, U.C. Santa Barbara, 1991. Thesis on wastewater treatment.

Professional Experience

Dr. Rosenfeld has over 25 years' experience conducting environmental investigations and risk assessments for evaluating impacts to human health, property, and ecological receptors. His expertise focuses on the fate and transport of environmental contaminants, human health risk, exposure assessment, and ecological restoration. Dr. Rosenfeld has evaluated and modeled emissions from unconventional oil drilling operations, oil spills, landfills, boilers and incinerators, process stacks, storage tanks, confined animal feeding operations, and many other industrial and agricultural sources. His project experience ranges from monitoring and modeling of pollution sources to evaluating impacts of pollution on workers at industrial facilities and residents in surrounding communities.

Dr. Rosenfeld has investigated and designed remediation programs and risk assessments for contaminated sites containing lead, heavy metals, mold, bacteria, particulate matter, petroleum hydrocarbons, chlorinated solvents, pesticides, radioactive waste, dioxins and furans, semi- and volatile organic compounds, PCBs, PAHs, perchlorate, asbestos, per- and poly-fluoroalkyl substances (PFOA/PFOS), unusual polymers, fuel oxygenates (MTBE), among other pollutants. Dr. Rosenfeld also has experience evaluating greenhouse gas emissions from various projects and is an expert on the assessment of odors from industrial and agricultural sites, as well as the evaluation of odor nuisance impacts and technologies for abatement of odorous emissions. As a principal scientist at SWAPE, Dr. Rosenfeld directs air dispersion modeling and exposure assessments. He has served as an expert witness and testified about pollution sources causing nuisance and/or personal injury at dozens of sites and has testified as an expert witness on more than ten cases involving exposure to air contaminants from industrial sources.

Professional History:

Soil Water Air Protection Enterprise (SWAPE); 2003 to present; Principal and Founding Partner
UCLA School of Public Health; 2007 to 2011; Lecturer (Assistant Researcher)
UCLA School of Public Health; 2003 to 2006; Adjunct Professor
UCLA Environmental Science and Engineering Program; 2002-2004; Doctoral Intern Coordinator
UCLA Institute of the Environment, 2001-2002; Research Associate
Komex H_2O Science, 2001 to 2003; Senior Remediation Scientist
National Groundwater Association, 2002-2004; Lecturer
San Diego State University, 1999-2001; Adjunct Professor
Anteon Corp., San Diego, 2000-2001; Remediation Project Manager
Ogden (now Amec), San Diego, 2000-2000; Remediation Project Manager
Bechtel, San Diego, California, 1999 – 2000; Risk Assessor
King County, Seattle, 1996 – 1999; Scientist
James River Corp., Washington, 1995-96; Scientist
Big Creek Lumber, Davenport, California, 1995; Scientist
Plumas Corp., California and USFS, Tahoe 1993-1995; Scientist
Peace Corps and World Wildlife Fund, St. Kitts, West Indies, 1991-1993; Scientist

Publications:

Remy, L.L., Clay T., Byers, V., **Rosenfeld P. E.** (2019) Hospital, Health, and Community Burden After Oil Refinery Fires, Richmond, California 2007 and 2012. *Environmental Health.* 18:48

Simons, R.A., Seo, Y. **Rosenfeld, P**., (2015) Modeling the Effect of Refinery Emission On Residential Property Value. Journal of Real Estate Research. 27(3):321-342

Chen, J. A, Zapata A. R., Sutherland A. J., Molmen, D.R., Chow, B. S., Wu, L. E., **Rosenfeld, P. E.,** Hesse, R. C., (2012) Sulfur Dioxide and Volatile Organic Compound Exposure To A Community In Texas City Texas Evaluated Using Aermod and Empirical Data. *American Journal of Environmental Science*, 8(6), 622-632.

Rosenfeld, P.E. & Feng, L. (2011). *The Risks of Hazardous Waste.* Amsterdam: Elsevier Publishing.

Cheremisinoff, N.P., & **Rosenfeld, P.E.** (2011). *Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Agrochemical Industry*, Amsterdam: Elsevier Publishing.

Gonzalez, J., Feng, L., Sutherland, A., Waller, C., Sok, H., Hesse, R., **Rosenfeld, P.** (2010). PCBs and Dioxins/Furans in Attic Dust Collected Near Former PCB Production and Secondary Copper Facilities in Sauget, IL. *Procedia Environmental Sciences*. 113–125.

Feng, L., Wu, C., Tam, L., Sutherland, A.J., Clark, J.J., **Rosenfeld, P.E.** (2010). Dioxin and Furan Blood Lipid and Attic Dust Concentrations in Populations Living Near Four Wood Treatment Facilities in the United States. *Journal of Environmental Health*. 73(6), 34-46.

Cheremisinoff, N.P., & **Rosenfeld, P.E.** (2010). *Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Wood and Paper Industries.* Amsterdam: Elsevier Publishing.

Cheremisinoff, N.P., & **Rosenfeld, P.E.** (2009). *Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Petroleum Industry*. Amsterdam: Elsevier Publishing.

Wu, C., Tam, L., Clark, J., **Rosenfeld, P**. (2009). Dioxin and furan blood lipid concentrations in populations living near four wood treatment facilities in the United States. *WIT Transactions on Ecology and the Environment, Air Pollution,* 123 (17), 319-327.

Tam L. K.., Wu C. D., Clark J. J. and **Rosenfeld, P.E.** (2008). A Statistical Analysis Of Attic Dust And Blood Lipid Concentrations Of Tetrachloro-p-Dibenzodioxin (TCDD) Toxicity Equivalency Quotients (TEQ) In Two Populations Near Wood Treatment Facilities. *Organohalogen Compounds*, 70, 002252-002255.

Tam L. K.., Wu C. D., Clark J. J. and **Rosenfeld, P.E.** (2008). Methods For Collect Samples For Assessing Dioxins And Other Environmental Contaminants In Attic Dust: A Review. *Organohalogen Compounds*, 70, 000527-000530.

Hensley, A.R. A. Scott, J. J. J. Clark, **Rosenfeld, P.E.** (2007). Attic Dust and Human Blood Samples Collected near a Former Wood Treatment Facility. *Environmental Research*. 105, 194-197.

Rosenfeld, P.E., J. J. J. Clark, A. R. Hensley, M. Suffet. (2007). The Use of an Odor Wheel Classification for Evaluation of Human Health Risk Criteria for Compost Facilities. *Water Science & Technology* 55(5), 345-357.

Rosenfeld, P. E., M. Suffet. (2007). The Anatomy Of Odour Wheels For Odours Of Drinking Water, Wastewater, Compost And The Urban Environment. *Water Science & Technology* 55(5), 335-344.

Sullivan, P. J. Clark, J.J.J., Agardy, F. J., **Rosenfeld, P.E.** (2007). *Toxic Legacy, Synthetic Toxins in the Food, Water, and Air in American Cities.* Boston Massachusetts: Elsevier Publishing

Rosenfeld, P.E., and Suffet I.H. (2004). Control of Compost Odor Using High Carbon Wood Ash. *Water Science and Technology*. 49(9),171-178.

Rosenfeld P. E., J.J. Clark, I.H. (Mel) Suffet (2004). The Value of An Odor-Quality-Wheel Classification Scheme For The Urban Environment. *Water Environment Federation's Technical Exhibition and Conference (WEFTEC) 2004.* New Orleans, October 2-6, 2004.

Rosenfeld, P.E., and Suffet, I.H. (2004). Understanding Odorants Associated With Compost, Biomass Facilities, and the Land Application of Biosolids. *Water Science and Technology*. 49(9), 193-199.

Rosenfeld, P.E., and Suffet I.H. (2004). Control of Compost Odor Using High Carbon Wood Ash, *Water Science and Technology*, 49(9), 171-178.

Rosenfeld, P. E., Grey, M. A., Sellew, P. (2004). Measurement of Biosolids Odor and Odorant Emissions from Windrows, Static Pile and Biofilter. *Water Environment Research*. 76(4), 310-315.

Rosenfeld, P.E., Grey, M and Suffet, M. (2002). Compost Demonstration Project, Sacramento California Using High-Carbon Wood Ash to Control Odor at a Green Materials Composting Facility. *Integrated Waste Management Board Public Affairs Office*, Publications Clearinghouse (MS–6), Sacramento, CA Publication #442-02-008.

Rosenfeld, P.E., and C.L. Henry. (2001). Characterization of odor emissions from three different biosolids. *Water Soil and Air Pollution*. 127(1-4), 173-191.

Rosenfeld, P.E., and Henry C. L., (2000). Wood ash control of odor emissions from biosolids application. *Journal of Environmental Quality.* 29, 1662-1668.

Rosenfeld, P.E., C.L. Henry and D. Bennett. (2001). Wastewater dewatering polymer affect on biosolids odor emissions and microbial activity. *Water Environment Research*. 73(4), 363-367.

Rosenfeld, P.E., and C.L. Henry. (2001). Activated Carbon and Wood Ash Sorption of Wastewater, Compost, and Biosolids Odorants. *Water Environment Research*, 73, 388-393.

Rosenfeld, P.E., and Henry C. L., (2001). High carbon wood ash effect on biosolids microbial activity and odor. *Water Environment Research*. 131(1-4), 247-262.

Chollack, T. and **P. Rosenfeld. (**1998). Compost Amendment Handbook For Landscaping. Prepared for and distributed by the City of Redmond, Washington State.

Rosenfeld, P. E. (1992). The Mount Liamuiga Crater Trail. *Heritage Magazine of St. Kitts*, 3(2).

Rosenfeld, P. E. (1993). High School Biogas Project to Prevent Deforestation On St. Kitts. *Biomass Users Network*, 7(1).

Rosenfeld, P. E. (1998). Characterization, Quantification, and Control of Odor Emissions From Biosolids Application To Forest Soil. Doctoral Thesis. University of Washington College of Forest Resources.

Rosenfeld, P. E. (1994). Potential Utilization of Small Diameter Trees on Sierra County Public Land. Masters thesis reprinted by the Sierra County Economic Council. Sierra County, California.

Rosenfeld, P. E. (1991). How to Build a Small Rural Anaerobic Digester & Uses Of Biogas In The First And Third World. Bachelors Thesis. University of California.

Presentations:

Rosenfeld, P.E., Sutherland, A; Hesse, R.; Zapata, A. (October 3-6, 2013). Air dispersion modeling of volatile organic emissions from multiple natural gas wells in Decatur, TX. *44th Western Regional Meeting, American Chemical Society.* Lecture conducted from Santa Clara, CA.

Sok, H.L.; Waller, C.C.; Feng, L.; Gonzalez, J.; Sutherland, A.J.; Wisdom-Stack, T.; Sahai, R.K.; Hesse, R.C.; **Rosenfeld, P.E.** (June 20-23, 2010). Atrazine: A Persistent Pesticide in Urban Drinking Water. *Urban Environmental Pollution*. Lecture conducted from Boston, MA.

Feng, L.; Gonzalez, J.; Sok, H.L.; Sutherland, A.J.; Waller, C.C.; Wisdom-Stack, T.; Sahai, R.K.; La, M.; Hesse, R.C.; **Rosenfeld, P.E.** (June 20-23, 2010). Bringing Environmental Justice to East St. Louis, Illinois. *Urban Environmental Pollution.* Lecture conducted from Boston, MA.

Rosenfeld, P.E. (April 19-23, 2009). Perfluoroctanoic Acid (PFOA) and Perfluoroactane Sulfonate (PFOS) Contamination in Drinking Water From the Use of Aqueous Film Forming Foams (AFFF) at Airports in the United States. *2009 Ground Water Summit and 2009 Ground Water Protection Council Spring Meeting*, Lecture conducted from Tuscon, AZ.

Rosenfeld, P.E. (April 19-23, 2009). Cost to Filter Atrazine Contamination from Drinking Water in the United States" Contamination in Drinking Water From the Use of Aqueous Film Forming Foams (AFFF) at Airports in the United States. *2009 Ground Water Summit and 2009 Ground Water Protection Council Spring Meeting*. Lecture conducted from Tuscon, AZ.

Wu, C., Tam, L., Clark, J., **Rosenfeld, P**. (20-22 July, 2009). Dioxin and furan blood lipid concentrations in populations living near four wood treatment facilities in the United States. Brebbia, C.A. and Popov, V., eds., *Air Pollution XVII: Proceedings of the Seventeenth International Conference on Modeling, Monitoring and Management of Air Pollution*. Lecture conducted from Tallinn, Estonia.

Rosenfeld, P. E. (October 15-18, 2007). Moss Point Community Exposure To Contaminants From A Releasing Facility. *The 23rd Annual International Conferences on Soils Sediment and Water.* Platform lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld, P. E. (October 15-18, 2007). The Repeated Trespass of Tritium-Contaminated Water Into A Surrounding Community Form Repeated Waste Spills From A Nuclear Power Plant. *The 23rd Annual International Conferences on Soils Sediment and Water*. Platform lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld, P. E. (October 15-18, 2007). Somerville Community Exposure To Contaminants From Wood Treatment Facility Emissions. The *23rd Annual International Conferences on Soils Sediment and Water*. Lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld P. E. (March 2007). Production, Chemical Properties, Toxicology, & Treatment Case Studies of 1,2,3-Trichloropropane (TCP). *The Association for Environmental Health and Sciences (AEHS) Annual Meeting*. Lecture conducted from San Diego, CA.

Rosenfeld P. E. (March 2007). Blood and Attic Sampling for Dioxin/Furan, PAH, and Metal Exposure in Florala, Alabama. *The AEHS Annual Meeting.* Lecture conducted from San Diego, CA.

Hensley A.R., Scott, A., **Rosenfeld P.E.,** Clark, J.J.J. (August 21 – 25, 2006). Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility. *The 26th International Symposium on Halogenated Persistent Organic Pollutants – DIOXIN2006*. Lecture conducted from Radisson SAS Scandinavia Hotel in Oslo Norway.

Hensley A.R., Scott, A., **Rosenfeld P.E.,** Clark, J.J.J. (November 4-8, 2006). Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility. *APHA 134 Annual Meeting & Exposition.* Lecture conducted from Boston Massachusetts.

Paul Rosenfeld Ph.D. (October 24-25, 2005). Fate, Transport and Persistence of PFOA and Related Chemicals. Mealey's C8/PFOA. *Science, Risk & Litigation Conference.* Lecture conducted from The Rittenhouse Hotel, Philadelphia, PA.

Paul Rosenfeld Ph.D. (September 19, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, *Toxicology and Remediation PEMA Emerging Contaminant Conference*. Lecture conducted from Hilton Hotel, Irvine California.

Paul Rosenfeld Ph.D. (September 19, 2005). Fate, Transport, Toxicity, And Persistence of 1,2,3-TCP. *PEMA Emerging Contaminant Conference.* Lecture conducted from Hilton Hotel in Irvine, California.

Paul Rosenfeld Ph.D. (September 26-27, 2005). Fate, Transport and Persistence of PDBEs. *Mealey's Groundwater Conference.* Lecture conducted from Ritz Carlton Hotel, Marina Del Ray, California.

Paul Rosenfeld Ph.D. (June 7-8, 2005). Fate, Transport and Persistence of PFOA and Related Chemicals. *International Society of Environmental Forensics: Focus On Emerging Contaminants*. Lecture conducted from Sheraton Oceanfront Hotel, Virginia Beach, Virginia.

Paul Rosenfeld Ph.D. (July 21-22, 2005). Fate Transport, Persistence and Toxicology of PFOA and Related Perfluorochemicals. *2005 National Groundwater Association Ground Water And Environmental Law Conference*. Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld Ph.D. (July 21-22, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, Toxicology and Remediation. *2005 National Groundwater Association Ground Water and Environmental Law Conference.* Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. and Rob Hesse R.G. (May 5-6, 2004). Tert-butyl Alcohol Liability and Toxicology, A National Problem and Unquantified Liability. *National Groundwater Association. Environmental Law Conference*. Lecture conducted from Congress Plaza Hotel, Chicago Illinois.

Paul Rosenfeld, Ph.D. (March 2004). Perchlorate Toxicology. *Meeting of the American Groundwater Trust*. Lecture conducted from Phoenix Arizona.

Hagemann, M.F., **Paul Rosenfeld, Ph.D.** and Rob Hesse (2004). Perchlorate Contamination of the Colorado River. *Meeting of tribal representatives*. Lecture conducted from Parker, AZ.

Paul Rosenfeld, Ph.D. (April 7, 2004). A National Damage Assessment Model For PCE and Dry Cleaners. *Drycleaner Symposium. California Ground Water Association*. Lecture conducted from Radison Hotel, Sacramento, California.

Rosenfeld, P. E., Grey, M., (June 2003) Two stage biofilter for biosolids composting odor control. *Seventh International In Situ And On Site Bioremediation Symposium Battelle Conference* Orlando, FL.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. (February 20-21, 2003) Understanding Historical Use, Chemical Properties, Toxicity and Regulatory Guidance of 1,4 Dioxane. *National Groundwater Association. Southwest Focus Conference. Water Supply and Emerging Contaminants*.. Lecture conducted from Hyatt Regency Phoenix Arizona.

Paul Rosenfeld, Ph.D. (February 6-7, 2003). Underground Storage Tank Litigation and Remediation. *California CUPA Forum*. Lecture conducted from Marriott Hotel, Anaheim California.

Paul Rosenfeld, Ph.D. (October 23, 2002) Underground Storage Tank Litigation and Remediation. *EPA Underground Storage Tank Roundtable*. Lecture conducted from Sacramento California.

Rosenfeld, P.E. and Suffet, M. (October 7- 10, 2002). Understanding Odor from Compost, *Wastewater and Industrial Processes. Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association*. Lecture conducted from Barcelona Spain.

Rosenfeld, P.E. and Suffet, M. (October 7- 10, 2002). Using High Carbon Wood Ash to Control Compost Odor. *Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association*. Lecture conducted from Barcelona Spain.

Rosenfeld, P.E. and Grey, M. A. (September 22-24, 2002). Biocycle Composting For Coastal Sage Restoration. *Northwest Biosolids Management Association*. Lecture conducted from Vancouver Washington..

Rosenfeld, P.E. and Grey, M. A. (November 11-14, 2002). Using High-Carbon Wood Ash to Control Odor at a Green Materials Composting Facility. *Soil Science Society Annual Conferenc*e. Lecture conducted from Indianapolis, Maryland.

Rosenfeld. P.E. (September 16, 2000). Two stage biofilter for biosolids composting odor control. *Water Environment Federation.* Lecture conducted from Anaheim California.

Rosenfeld. P.E. (October 16, 2000). Wood ash and biofilter control of compost odor. *Biofest.* Lecture conducted from Ocean Shores, California.

Rosenfeld, P.E. (2000). Bioremediation Using Organic Soil Amendments. *California Resource Recovery Association*. Lecture conducted from Sacramento California.

Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation With High-Carbon Wood-Ash. *Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings*. Lecture conducted from Bellevue Washington.

Rosenfeld, P.E., and C.L. Henry. (1999). An evaluation of ash incorporation with biosolids for odor reduction. *Soil Science Society of America*. Lecture conducted from Salt Lake City Utah.

Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Comparison of Microbial Activity and Odor Emissions from Three Different Biosolids Applied to Forest Soil. *Brown and Caldwell.* Lecture conducted from Seattle Washington.

Rosenfeld, P.E., C.L. Henry. (1998). Characterization, Quantification, and Control of Odor Emissions from Biosolids Application To Forest Soil. *Biofest.* Lecture conducted from Lake Chelan, Washington.

Rosenfeld, P.E, C.L. Henry, R. Harrison. (1998). Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation With High-Carbon Wood-Ash. Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings. Lecture conducted from Bellevue Washington.

Rosenfeld, P.E., C.L. Henry, R. B. Harrison, and R. Dills. (1997). Comparison of Odor Emissions From Three Different Biosolids Applied to Forest Soil. *Soil Science Society of America*. Lecture conducted from Anaheim California.

Teaching Experience:

UCLA Department of Environmental Health (Summer 2003 through 20010) Taught Environmental Health Science 100 to students, including undergrad, medical doctors, public health professionals and nurses. Course focused on the health effects of environmental contaminants.

National Ground Water Association, Successful Remediation Technologies. Custom Course in Sante Fe, New Mexico. May 21, 2002. Focused on fate and transport of fuel contaminants associated with underground storage tanks.

National Ground Water Association; Successful Remediation Technologies Course in Chicago Illinois. April 1, 2002. Focused on fate and transport of contaminants associated with Superfund and RCRA sites.

California Integrated Waste Management Board, April and May, 2001. Alternative Landfill Caps Seminar in San Diego, Ventura, and San Francisco. Focused on both prescriptive and innovative landfill cover design.

UCLA Department of Environmental Engineering, February 5, 2002. Seminar on Successful Remediation Technologies focusing on Groundwater Remediation.

University Of Washington, Soil Science Program, Teaching Assistant for several courses including: Soil Chemistry, Organic Soil Amendments, and Soil Stability.

U.C. Berkeley, Environmental Science Program Teaching Assistant for Environmental Science 10.

Academic Grants Awarded:

California Integrated Waste Management Board. $41,000 grant awarded to UCLA Institute of the Environment. Goal: To investigate effect of high carbon wood ash on volatile organic emissions from compost. 2001.

Synagro Technologies, Corona California: $10,000 grant awarded to San Diego State University.
Goal: investigate effect of biosolids for restoration and remediation of degraded coastal sage soils. 2000.

King County, Department of Research and Technology, Washington State. $100,000 grant awarded to University of Washington: Goal: To investigate odor emissions from biosolids application and the effect of polymers and ash on VOC emissions. 1998.

Northwest Biosolids Management Association, Washington State. $20,000 grant awarded to investigate effect of polymers and ash on VOC emissions from biosolids. 1997.

James River Corporation, Oregon: $10,000 grant was awarded to investigate the success of genetically engineered Poplar trees with resistance to round-up. 1996.

United State Forest Service, Tahoe National Forest: $15,000 grant was awarded to investigating fire ecology of the Tahoe National Forest. 1995.

Kellogg Foundation, Washington D.C. $500 grant was awarded to construct a large anaerobic digester on St. Kitts in West Indies. 1993

Deposition and/or Trial Testimony:

In the United States District Court For The District of New Jersey
Duarte et al, *Plaintiffs,* vs. United States Metals Refining Company et. al. *Defendant.*
Case No.: 2:17-cv-01624-ES-SCM
Rosenfeld Deposition. 6-7-2019

In the United States District Court of Southern District of Texas Galveston Division
M/T Carla Maersk, *Plaintiffs,* vs. Conti 168., Schiffahrts-GMBH & Co. Bulker KG MS "Conti Perdido" *Defendant.*
Case No.: 3:15-CV-00106 consolidated with 3:15-CV-00237
Rosenfeld Deposition. 5-9-2019

In The Superior Court of the State of California In And For The County Of Los Angeles – Santa Monica
Carole-Taddeo-Bates et al., vs. Ifran Khan et al., Defendants
Case No.: No. BC615636
Rosenfeld Deposition, 1-26-2019

In The Superior Court of the State of California In And For The County Of Los Angeles – Santa Monica
The San Gabriel Valley Council of Governments et al. vs El Adobe Apts. Inc. et al., Defendants
Case No.: No. BC646857
Rosenfeld Deposition, 10-6-2018; Trial 3-7-19

In United States District Court For The District of Colorado
Bells et al. Plaintiff vs. The 3M Company et al., Defendants
Case: No 1:16-cv-02531-RBJ
Rosenfeld Deposition, 3-15-2018 and 4-3-2018

In The District Court Of Regan County, Texas, 112th Judicial District
Phillip Bales et al., Plaintiff vs. Dow Agrosciences, LLC, et al., Defendants
Cause No 1923
Rosenfeld Deposition, 11-17-2017

In The Superior Court of the State of California In And For The County Of Contra Costa
Simons et al., Plaintiffs vs. Chevron Corporation, et al., Defendants
Cause No C12-01481
Rosenfeld Deposition, 11-20-2017

In The Circuit Court Of The Twentieth Judicial Circuit, St Clair County, Illinois
Martha Custer et al., Plaintiff vs. Cerro Flow Products, Inc., Defendants
Case No.: No. 0i9-L-2295
Rosenfeld Deposition, 8-23-2017

In The Superior Court of the State of California, For The County of Los Angeles
Warrn Gilbert and Penny Gilber, Plaintiff vs. BMW of North America LLC
Case No.: LC102019 (c/w BC582154)
Rosenfeld Deposition, 8-16-2017, Trail 8-28-2018

In the Northern District Court of Mississippi, Greenville Division
Brenda J. Cooper, et al., *Plaintiffs,* vs. Meritor Inc., et al., *Defendants*
Case Number: 4:16-cv-52-DMB-JVM
Rosenfeld Deposition: July 2017

In The Superior Court of the State of Washington, County of Snohomish
Michael Davis and Julie Davis et al., Plaintiff vs. Cedar Grove Composting Inc., Defendants
Case No.: No. 13-2-03987-5
Rosenfeld Deposition, February 2017
Trial, March 2017

In The Superior Court of the State of California, County of Alameda
Charles Spain., Plaintiff vs. Thermo Fisher Scientific, et al., Defendants
Case No.: RG14711115
Rosenfeld Deposition, September 2015

In The Iowa District Court In And For Poweshiek County
Russell D. Winburn, et al., Plaintiffs vs. Doug Hoksbergen, et al., Defendants
Case No.: LALA002187
Rosenfeld Deposition, August 2015

In The Iowa District Court For Wapello County
Jerry Dovico, et al., Plaintiffs vs. Valley View Sine LLC, et al., Defendants
Law No,: LALA105144 - Division A
Rosenfeld Deposition, August 2015

In The Iowa District Court For Wapello County
Doug Pauls, et al.,, et al., Plaintiffs vs. Richard Warren, et al., Defendants
Law No,: LALA105144 - Division A
Rosenfeld Deposition, August 2015

In The Circuit Court of Ohio County, West Virginia
Robert Andrews, et al. v. Antero, et al.
Civil Action N0. 14-C-30000
Rosenfeld Deposition, June 2015

In The Third Judicial District County of Dona Ana, New Mexico
Betty Gonzalez, et al. Plaintiffs vs. Del Oro Dairy, Del Oro Real Estate LLC, Jerry Settles and Deward DeRuyter, Defendants
Rosenfeld Deposition: July 2015

In The Iowa District Court For Muscatine County
Laurie Freeman et. al. Plaintiffs vs. Grain Processing Corporation, Defendant
Case No 4980
Rosenfeld Deposition: May 2015

In the Circuit Court of the 17th Judicial Circuit, in and For Broward County, Florida
Walter Hinton, et. al. Plaintiff, vs. City of Fort Lauderdale, Florida, a Municipality, Defendant.
Case Number CACE07030358 (26)
Rosenfeld Deposition: December 2014

In the United States District Court Western District of Oklahoma
Tommy McCarty, et al., Plaintiffs, v. Oklahoma City Landfill, LLC d/b/a Southeast Oklahoma City Landfill, et al. Defendants.
Case No. 5:12-cv-01152-C
Rosenfeld Deposition: July 2014

In the County Court of Dallas County Texas
Lisa Parr et al, *Plaintiff*, vs. Aruba et al, *Defendant.*
Case Number cc-11-01650-E
Rosenfeld Deposition: March and September 2013
Rosenfeld Trial: April 2014

In the Court of Common Pleas of Tuscarawas County Ohio
John Michael Abicht, et al., *Plaintiffs,* vs. Republic Services, Inc., et al., *Defendants*
Case Number: 2008 CT 10 0741 (Cons. w/ 2009 CV 10 0987)
Rosenfeld Deposition: October 2012

In the United States District Court of Southern District of Texas Galveston Division
Kyle Cannon, Eugene Donovan, Genaro Ramirez, Carol Sassler, and Harvey Walton, each Individually and on behalf of those similarly situated, *Plaintiffs,* vs. BP Products North America, Inc., *Defendant.*
Case 3:10-cv-00622
Rosenfeld Deposition: February 2012
Rosenfeld Trial: April 2013

In the Circuit Court of Baltimore County Maryland
Philip E. Cvach, II et al., *Plaintiffs* vs. Two Farms, Inc. d/b/a Royal Farms, Defendants
Case Number: 03-C-12-012487 OT
Rosenfeld Deposition: September 2013

EXHIBIT C

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

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Geologic and Hydrogeologic Characterization
Industrial Stormwater Compliance
Investigation and Remediation Strategies
Litigation Support and Testifying Expert
CEQA Review

Education:

M.S. Degree, Geology, California State University Los Angeles, Los Angeles, CA, 1984.
B.A. Degree, Geology, Humboldt State University, Arcata, CA, 1982.

Professional Certifications:

California Professional Geologist
California Certified Hydrogeologist
Qualified SWPPP Developer and Practitioner

Professional Experience:

Matt has 25 years of experience in environmental policy, assessment and remediation. He spent nine years with the U.S. EPA in the RCRA and Superfund programs and served as EPA's Senior Science Policy Advisor in the Western Regional Office where he identified emerging threats to groundwater from perchlorate and MTBE. While with EPA, Matt also served as a Senior Hydrogeologist in the oversight of the assessment of seven major military facilities undergoing base closure. He led numerous enforcement actions under provisions of the Resource Conservation and Recovery Act (RCRA) while also working with permit holders to improve hydrogeologic characterization and water quality monitoring.

Matt has worked closely with U.S. EPA legal counsel and the technical staff of several states in the application and enforcement of RCRA, Safe Drinking Water Act and Clean Water Act regulations. Matt has trained the technical staff in the States of California, Hawaii, Nevada, Arizona and the Territory of Guam in the conduct of investigations, groundwater fundamentals, and sampling techniques.

Positions Matt has held include:

- Founding Partner, Soil/Water/Air Protection Enterprise (SWAPE) (2003 – present);
- Geology Instructor, Golden West College, 2010 – 2014;
- Senior Environmental Analyst, Komex H2O Science, Inc. (2000 -- 2003);

- Executive Director, Orange Coast Watch (2001 – 2004);
- Senior Science Policy Advisor and Hydrogeologist, U.S. Environmental Protection Agency (1989–1998);
- Hydrogeologist, National Park Service, Water Resources Division (1998 – 2000);
- Adjunct Faculty Member, San Francisco State University, Department of Geosciences (1993 – 1998);
- Instructor, College of Marin, Department of Science (1990 – 1995);
- Geologist, U.S. Forest Service (1986 – 1998); and
- Geologist, Dames & Moore (1984 – 1986).

Senior Regulatory and Litigation Support Analyst:

With SWAPE, Matt's responsibilities have included:

- Lead analyst and testifying expert in the review of over 100 environmental impact reports since 2003 under CEQA that identify significant issues with regard to hazardous waste, water resources, water quality, air quality, Valley Fever, greenhouse gas emissions, and geologic hazards. Make recommendations for additional mitigation measures to lead agencies at the local and county level to include additional characterization of health risks and implementation of protective measures to reduce worker exposure to hazards from toxins and Valley Fever.
- Stormwater analysis, sampling and best management practice evaluation at industrial facilities.
- Manager of a project to provide technical assistance to a community adjacent to a former Naval shipyard under a grant from the U.S. EPA.
- Technical assistance and litigation support for vapor intrusion concerns.
- Lead analyst and testifying expert in the review of environmental issues in license applications for large solar power plants before the California Energy Commission.
- Manager of a project to evaluate numerous formerly used military sites in the western U.S.
- Manager of a comprehensive evaluation of potential sources of perchlorate contamination in Southern California drinking water wells.
- Manager and designated expert for litigation support under provisions of Proposition 65 in the review of releases of gasoline to sources drinking water at major refineries and hundreds of gas stations throughout California.
- Expert witness on two cases involving MTBE litigation.
- Expert witness and litigation support on the impact of air toxins and hazards at a school.
- Expert witness in litigation at a former plywood plant.

With Komex H2O Science Inc., Matt's duties included the following:

- Senior author of a report on the extent of perchlorate contamination that was used in testimony by the former U.S. EPA Administrator and General Counsel.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of MTBE use, research, and regulation.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of perchlorate use, research, and regulation.
- Senior researcher in a study that estimates nationwide costs for MTBE remediation and drinking water treatment, results of which were published in newspapers nationwide and in testimony against provisions of an energy bill that would limit liability for oil companies.
- Research to support litigation to restore drinking water supplies that have been contaminated by MTBE in California and New York.

- Expert witness testimony in a case of oil production-related contamination in Mississippi.
- Lead author for a multi-volume remedial investigation report for an operating school in Los Angeles that met strict regulatory requirements and rigorous deadlines.

- Development of strategic approaches for cleanup of contaminated sites in consultation with clients and regulators.

Executive Director:

As Executive Director with Orange Coast Watch, Matt led efforts to restore water quality at Orange County beaches from multiple sources of contamination including urban runoff and the discharge of wastewater. In reporting to a Board of Directors that included representatives from leading Orange County universities and businesses, Matt prepared issue papers in the areas of treatment and disinfection of wastewater and control of the discharge of grease to sewer systems. Matt actively participated in the development of countywide water quality permits for the control of urban runoff and permits for the discharge of wastewater. Matt worked with other nonprofits to protect and restore water quality, including Surfrider, Natural Resources Defense Council and Orange County CoastKeeper as well as with business institutions including the Orange County Business Council.

Hydrogeology:

As a Senior Hydrogeologist with the U.S. Environmental Protection Agency, Matt led investigations to characterize and cleanup closing military bases, including Mare Island Naval Shipyard, Hunters Point Naval Shipyard, Treasure Island Naval Station, Alameda Naval Station, Moffett Field, Mather Army Airfield, and Sacramento Army Depot. Specific activities were as follows:

- Led efforts to model groundwater flow and contaminant transport, ensured adequacy of monitoring networks, and assessed cleanup alternatives for contaminated sediment, soil, and groundwater.
- Initiated a regional program for evaluation of groundwater sampling practices and laboratory analysis at military bases.
- Identified emerging issues, wrote technical guidance, and assisted in policy and regulation development through work on four national U.S. EPA workgroups, including the Superfund Groundwater Technical Forum and the Federal Facilities Forum.

At the request of the State of Hawaii, Matt developed a methodology to determine the vulnerability of groundwater to contamination on the islands of Maui and Oahu. He used analytical models and a GIS to show zones of vulnerability, and the results were adopted and published by the State of Hawaii and County of Maui.

As a hydrogeologist with the EPA Groundwater Protection Section, Matt worked with provisions of the Safe Drinking Water Act and NEPA to prevent drinking water contamination. Specific activities included the following:

- Received an EPA Bronze Medal for his contribution to the development of national guidance for the protection of drinking water.
- Managed the Sole Source Aquifer Program and protected the drinking water of two communities through designation under the Safe Drinking Water Act. He prepared geologic reports, conducted public hearings, and responded to public comments from residents who were very concerned about the impact of designation.

- Reviewed a number of Environmental Impact Statements for planned major developments, including large hazardous and solid waste disposal facilities, mine reclamation, and water transfer.

Matt served as a hydrogeologist with the RCRA Hazardous Waste program. Duties were as follows:

- Supervised the hydrogeologic investigation of hazardous waste sites to determine compliance with Subtitle C requirements.
- Reviewed and wrote "part B" permits for the disposal of hazardous waste.
- Conducted RCRA Corrective Action investigations of waste sites and led inspections that formed the basis for significant enforcement actions that were developed in close coordination with U.S. EPA legal counsel.
- Wrote contract specifications and supervised contractor's investigations of waste sites.

With the National Park Service, Matt directed service-wide investigations of contaminant sources to prevent degradation of water quality, including the following tasks:

- Applied pertinent laws and regulations including CERCLA, RCRA, NEPA, NRDA, and the Clean Water Act to control military, mining, and landfill contaminants.
- Conducted watershed-scale investigations of contaminants at parks, including Yellowstone and Olympic National Park.
- Identified high-levels of perchlorate in soil adjacent to a national park in New Mexico and advised park superintendent on appropriate response actions under CERCLA.
- Served as a Park Service representative on the Interagency Perchlorate Steering Committee, a national workgroup.
- Developed a program to conduct environmental compliance audits of all National Parks while serving on a national workgroup.
- Co-authored two papers on the potential for water contamination from the operation of personal watercraft and snowmobiles, these papers serving as the basis for the development of nation-wide policy on the use of these vehicles in National Parks.
- Contributed to the Federal Multi-Agency Source Water Agreement under the Clean Water Action Plan.

Policy:

Served senior management as the Senior Science Policy Advisor with the U.S. Environmental Protection Agency, Region 9. Activities included the following:

- Advised the Regional Administrator and senior management on emerging issues such as the potential for the gasoline additive MTBE and ammonium perchlorate to contaminate drinking water supplies.
- Shaped EPA's national response to these threats by serving on workgroups and by contributing to guidance, including the Office of Research and Development publication, Oxygenates in Water: Critical Information and Research Needs.
- Improved the technical training of EPA's scientific and engineering staff.
- Earned an EPA Bronze Medal for representing the region's 300 scientists and engineers in negotiations with the Administrator and senior management to better integrate scientific principles into the policy-making process.
- Established national protocol for the peer review of scientific documents.

Geology:

With the U.S. Forest Service, Matt led investigations to determine hillslope stability of areas proposed for timber harvest in the central Oregon Coast Range. Specific activities were as follows:

- Mapped geology in the field, and used aerial photographic interpretation and mathematical models to determine slope stability.
- Coordinated his research with community members who were concerned with natural resource protection.
- Characterized the geology of an aquifer that serves as the sole source of drinking water for the city of Medford, Oregon.

As a consultant with Dames and Moore, Matt led geologic investigations of two contaminated sites (later listed on the Superfund NPL) in the Portland, Oregon, area and a large hazardous waste site in eastern Oregon. Duties included the following:

- Supervised year-long effort for soil and groundwater sampling.
- Conducted aquifer tests.
- Investigated active faults beneath sites proposed for hazardous waste disposal.

Teaching:

From 1990 to 1998, Matt taught at least one course per semester at the community college and university levels:

- At San Francisco State University, held an adjunct faculty position and taught courses in environmental geology, oceanography (lab and lecture), hydrogeology, and groundwater contamination.
- Served as a committee member for graduate and undergraduate students.
- Taught courses in environmental geology and oceanography at the College of Marin.

Matt taught physical geology (lecture and lab and introductory geology at Golden West College in Huntington Beach, California from 2010 to 2014.

Invited Testimony, Reports, Papers and Presentations:

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Presentation to the Public Environmental Law Conference, Eugene, Oregon.

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Invited presentation to U.S. EPA Region 9, San Francisco, California.

Hagemann, M.F., 2005. Use of Electronic Databases in Environmental Regulation, Policy Making and Public Participation. Brownfields 2005, Denver, Coloradao.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Nevada and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Las Vegas, NV (served on conference organizing committee).

Hagemann, M.F., 2004. Invited testimony to a California Senate committee hearing on air toxins at schools in Southern California, Los Angeles.

Brown, A., Farrow, J., Gray, A. and **Hagemann, M.**, 2004. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to the Ground Water and Environmental Law Conference, National Groundwater Association.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Arizona and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Phoenix, AZ (served on conference organizing committee).

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in the Southwestern U.S. Invited presentation to a special committee meeting of the National Academy of Sciences, Irvine, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a tribal EPA meeting, Pechanga, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a meeting of tribal repesentatives, Parker, AZ.

Hagemann, M.F., 2003. Impact of Perchlorate on the Colorado River and Associated Drinking Water Supplies. Invited presentation to the Inter-Tribal Meeting, Torres Martinez Tribe.

Hagemann, M.F., 2003. The Emergence of Perchlorate as a Widespread Drinking Water Contaminant. Invited presentation to the U.S. EPA Region 9.

Hagemann, M.F., 2003. A Deductive Approach to the Assessment of Perchlorate Contamination. Invited presentation to the California Assembly Natural Resources Committee.

Hagemann, M.F., 2003. Perchlorate: A Cold War Legacy in Drinking Water. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. From Tank to Tap: A Chronology of MTBE in Groundwater. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. A Chronology of MTBE in Groundwater and an Estimate of Costs to Address Impacts to Groundwater. Presentation to the annual meeting of the Society of Environmental Journalists.

Hagemann, M.F., 2002. An Estimate of the Cost to Address MTBE Contamination in Groundwater (and Who Will Pay). Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to a meeting of the U.S. EPA and State Underground Storage Tank Program managers.

Hagemann, M.F., 2001. From Tank to Tap: A Chronology of MTBE in Groundwater. Unpublished report.

Hagemann, M.F., 2001. Estimated Cleanup Cost for MTBE in Groundwater Used as Drinking Water. Unpublished report.

Hagemann, M.F., 2001. Estimated Costs to Address MTBE Releases from Leaking Underground Storage Tanks. Unpublished report.

Hagemann, M.F., and VanMouwerik, M., 1999. Potential Water Quality Concerns Related to Snowmobile Usage. Water Resources Division, National Park Service, Technical Report.

VanMouwerik, M. and **Hagemann, M.F**. 1999, Water Quality Concerns Related to Personal Watercraft Usage. Water Resources Division, National Park Service, Technical Report.

Hagemann, M.F., 1999, Is Dilution the Solution to Pollution in National Parks? The George Wright Society Biannual Meeting, Asheville, North Carolina.

Hagemann, M.F., 1997, The Potential for MTBE to Contaminate Groundwater. U.S. EPA Superfund Groundwater Technical Forum Annual Meeting, Las Vegas, Nevada.

Hagemann, M.F., and Gill, M., 1996, Impediments to Intrinsic Remediation, Moffett Field Naval Air Station, Conference on Intrinsic Remediation of Chlorinated Hydrocarbons, Salt Lake City.

Hagemann, M.F., Fukunaga, G.L., 1996, The Vulnerability of Groundwater to Anthropogenic Contaminants on the Island of Maui, Hawaii. Hawaii Water Works Association Annual Meeting, Maui, October 1996.

Hagemann, M. F., Fukanaga, G. L., 1996, Ranking Groundwater Vulnerability in Central Oahu, Hawaii. Proceedings, Geographic Information Systems in Environmental Resources Management, Air and Waste Management Association Publication VIP-61.

Hagemann, M.F., 1994. Groundwater Characterization and Cleanup at Closing Military Bases in California. Proceedings, California Groundwater Resources Association Meeting.

Hagemann, M.F. and Sabol, M.A., 1993. Role of the U.S. EPA in the High Plains States Groundwater Recharge Demonstration Program. Proceedings, Sixth Biennial Symposium on the Artificial Recharge of Groundwater.

Hagemann, M.F., 1993. U.S. EPA Policy on the Technical Impracticability of the Cleanup of DNAPL-contaminated Groundwater. California Groundwater Resources Association Meeting.

Hagemann, M.F., 1992. Dense Nonaqueous Phase Liquid Contamination of Groundwater: An Ounce of Prevention... Proceedings, Association of Engineering Geologists Annual Meeting, v. 35.

Other Experience:

Selected as subject matter expert for the California Professional Geologist licensing examination, 2009-2011.

Appendix B

Air Quality and Greenhouse Gas Emissions Technical Report

Air Quality and Greenhouse Gas Emissions Technical Report

Modera Melrose Mixed Use Development Project

City of Oceanside, California

MAY 2022

Prepared for:

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
AB	Assembly Bill
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CalEEMod	California Emissions Estimator Model
CEQA	California Environmental Quality Act
CO	carbon monoxide
DPM	diesel particulate matter
EPA	U.S. Environmental Protection Agency
g/L	grams per liter
HAP	hazardous air pollutant
kWh	kilowatt-hour
LOS	level of service
NAAQS	National Ambient Air Quality Standards
NO	nitric oxide
NO_2	nitrogen dioxide
NO_x	oxides of nitrogen
O_3	ozone
$PM_{2.5}$	fine particulate matter
PM_{10}	coarse particulate matter
RAQS	Regional Air Quality Strategy
SANDAG	San Diego Association of Governments
SDAB	San Diego Air Basin
SDAPCD	San Diego Air Pollution Control District
SDG&E	San Diego Gas & Electric Company
SIP	state implementation plan
SO_2	sulfur dioxide
SO_x	sulfur oxides
TAC	toxic air contaminant
VOC	volatile organic compound

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Executive Summary

The purpose of this technical report is to assess the potential air quality impacts associated with implementation of the Modera Melrose Mixed Use Development Project (project). This assessment uses the significance thresholds in Appendix G of the California Environmental Quality Act Guidelines.

Project Overview

The project proposes to develop a 7.43-acre site with 323 residential apartment units, 290 of which would be market rate and 33 of which would be very low-income affordable units. Development would also consist of 2,365 square-feet (sq-ft) of commercial space, 1,746 sq-ft of leasing office space, and a pool and recreational facilities. The Project will include 526 parking spaces, including 381 surface spaces and 145 below-ground spaces.

Project Design Features

The proposed project would implement both construction-related and operational project design features (PDFs) intended to reduce emissions of criteria air pollutants and toxic air contaminants (TACs). The proposed project would implement **PDF-AQ-1**, **PDF-AQ-2**, and **PDF-GHG-1** as follow:

PDF-AQ-1: Require the installation of only electric or natural gas appliances in future residential construction. Future residential units are prohibited from having wood-burning fireplaces or stoves.

PDF-AQ-2: Standard construction practices that would be employed to reduce fugitive dust emissions include watering of the active sites two times per day, depending on weather conditions. Construction of Project components would be subject to SDAPCD Rule 55 – Fugitive Dust Control. Compliance with Rule 55 would limit fugitive dust that may be generated during grading and construction activities.

PDF-GHG-1: Photo-voltaic (PV) systems will be installed on each building to meet 50% of forecasted electricity demand.

Air Quality

The air quality impact analysis evaluated the potential for adverse impacts to air quality due to construction and operational emissions resulting from the Project. Impacts were evaluated for their significance based on the San Diego Air Pollution Control District (SDAPCD) mass daily criteria air pollutant thresholds of significance. Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards (criteria) for outdoor concentrations to protect public health. Criteria air pollutants include ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}), particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), and lead. Pollutants that are evaluated include volatile organic compounds (VOCs) (also referred to as reactive organic gases), oxides of nitrogen (NO_x), CO, sulfur oxides (SO_x), PM_{10}, and $PM_{2.5}$. VOCs and NO_x are important because they are precursors to O_3.

Air Quality Plan Consistency

If a project proposes development that is greater than that anticipated in the local plan and the growth projections set by the San Diego Association of Governments (SANDAG), the project might be in conflict with the State Implementation Plan and Regional Air Quality Strategy, and therefore may contribute to a potentially significant cumulative impact on air quality. The proposed project was deemed to be consistent with the current air quality plan, because it is consistent with the current land use and zoning designation, and the anticipated growth associated with the Project does not exceed that projected by SANDAG. In addition, the Project would not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations. Based on these considerations, impacts related to the Project's potential to conflict with or obstruct implementation of the applicable air quality plan would be less than significant.

Construction Criteria Air Pollutant Emissions

Construction of the project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (i.e., off-road construction equipment, soil disturbance, and VOC off-gassing) and off-site sources (i.e., on-road haul trucks, vendor trucks, and worker vehicle trips). After implementation of mitigation measure **MM-AQ-1**, which requires use of low-VOC architectural coatings, the maximum daily construction emissions would not exceed the SDAPCD significance thresholds for VOCs, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$ during construction. Therefore, the Project would have a less than significant impact.

Operational Criteria Air Pollutant Emissions

The analysis herein assumed an operational year of 2024. Operation of the project would generate operational criteria air pollutants from mobile sources (vehicles), area sources (consumer product use, architectural coatings, and landscape maintenance equipment), and energy (natural gas). Maximum operational emissions would not exceed the SDAPCD operational significance thresholds for VOCs, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$.

Cumulative Impacts

The potential for a project to result in a cumulatively considerable impact, per the SDAPCD guidance and thresholds, is based on the project's potential to exceed the project-specific daily thresholds. Because maximum construction and operational emissions would not exceed the SDAPCD significance thresholds for VOCs, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$, the project would not result in a cumulatively considerable increase in criteria air pollutants.

Exposure of Sensitive Receptors

As mentioned above, after implementation of **MM-AQ-1** construction activities would not generate emissions in excess of the SDAPCD site-specific mass daily thresholds; therefore, site-specific construction impacts during construction of the Project would be less than significant. A health risk assessment (HRA) was also conducted to determine the potential impacts of exposure to diesel particulate matter (DPM), which is a TAC, at existing proximate sensitive receptors in the Project vicinity. The results of the HRA demonstrate that after implementation of **MM-AQ-2**, which requires use of Tier 4 equipment during construction, the TAC exposure from construction diesel exhaust emissions would not result in cancer risk above the 10 in 1 million threshold, nor a Chronic Hazard Index greater than 1.0. Therefore, impacts to sensitive receptors would be less than significant.

The proposed project includes 323 residential units and based on the Local Transportation Study, is expected to generate a maximum of 1,843 daily vehicle trips on Saturdays and 2,037 daily trips on weekdays. The nearest signalized intersection to the project is located at N. Melrose Dr. and Oceanside Blvd, and is not expected to operate at or below Level of Service (LOS) E by the time the project is operational. Therefore, no hotspot analysis would be required and potential Project-generated impacts associated with CO hotspots would be less than significant.

Other Emissions

Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment, architectural coatings, and asphalt pavement application, which would disperse rapidly from the Project site and generally occur at magnitudes that would not affect substantial numbers of people. Impacts associated with odors during construction would be less than significant. The Project would be a mixed-use residential development that would not include land uses with sources that have the potential to generate substantial odors, and impacts associated with odors during operation would be less than significant.

Greenhouse Gas Emissions

Global climate change is primarily considered a cumulative impact but must also be evaluated on a project-level under CEQA. A project contributes to this potential impact through its incremental emissions combined with the cumulative increase of all other sources of greenhouse gas (GHG) emissions. GHGs are gases that absorb infrared radiation in the atmosphere. Principal GHGs regulated under state and federal law and regulations include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). GHG emissions are measured in metric tons of CO_2 equivalent (MT CO_2e), which account for weighted global warming potential (GWP) factors for CH_4 and N_2O.

Project Impacts

Construction of the Project would result in GHG emissions primarily associated with the use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. The Project would generate operational GHG emissions from area sources (landscape maintenance), energy sources (electricity consumption and natural gas combustion), mobile sources (vehicle trips), water supply and wastewater treatment, and solid waste. Estimated annual Project-generated operational GHG emissions at buildout in 2024 would be approximately 2,675 MT CO_2e per year. Estimated annual Project-generated operational emissions in 2024, plus amortized Project construction emissions would be approximately 2,736 MT CO_2e per year.

As discussed in Section 3.4 of this report, the Project operational emissions in 2024 plus amortized project construction emissions would be greater than the City's Climate Action Plan (CAP) GHG threshold of 900 MT CO_2e per year. As such, the Project is required to complete the CAP Consistency Checklist to ensure that emission targets identified in the City's CAP can be achieved considering the additional emissions. The project proposes use of on-site renewable energy through solar photovoltaic (PV) roof tiles, electric vehicle (EV) charging infrastructure, and canopy coverage and permeable surface area that exceeds requirements outlined in the City's Zoning Ordinance. Given these project design features, as well as the project's location within a designated Smart Growth Opportunity Area, proximity to a priority transit-oriented development (TOD) corridor, and consistency with land use and zoning designations, the proposed project is deemed consistent with the measurable goals outlined in the City's CAP. As such, the Project is not expected to generate GHG emissions that may have a significant impact on the environment, and would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs and the impact would be **less than significant**.

1 Introduction

1.1 Report Purpose and Scope

The purpose of this technical report is to assess the potential air quality and greenhouse gas (GHG) emissions impacts associated with construction and operation of the Modera Melrose Mixed Use Development Project (project). This analysis uses the significance thresholds in Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.) and the emissions-based significance thresholds recommended by the San Diego Air Pollution Control District (SDAPCD) and other applicable thresholds of significance.

1.2 Project Location

The 7.43-acre project site is a vacant, undeveloped parcel, located in the east central portion of the City of Oceanside (City), which is within the northwestern portion of San Diego County (Figure 1, Project Location). State Route (SR) 76 is approximately 1.6 mile to the north of the project site. The site is located at the southeast corner of West Bobier Drive and Oceanside Boulevard. The site is surrounded by residential uses and commercial uses to the west.

The City of Oceanside General Plan identifies the site as Neighborhood Commercial (NC) and the project site is zoned Commercial Neighborhood (CN). The existing land use designation and zoning allows for mixed-use development, including various residential uses. The proposed project is consistent with the underlying land use and zoning for the project site but would require a waiver under the State Density Bonus Law.

1.3 Project Description

The project proposes development of a mixed-use infill project which would include 323 multi-family residential units and ground-level commercial space on the 7.43-acre project site. The proposed residential development would include 33 affordable/low-income units and 290 market rate units ranging from 666 square feet to 1,416 square feet.

The proposed development would include a total of 526 parking spaces for residences and guests. The project development would include a total of six buildings; five of which would be 4- to 5-story residential buildings, and one 4-story mixed-use building, which would include commercial use on the ground level and 3 residential levels. The proposed residential units would include 1, 2, or 3 bedrooms, living areas, and garage spaces for select units.

1.4 Project Design Features

The proposed project would implement construction-related and operational project design features (PDFs) intended to reduce emissions of criteria air pollutants and toxic air contaminants (TACs) as follows:

PDF-AQ-1: Require the installation of only electric or natural gas appliances in future residential construction. Future residential units are prohibited from having wood-burning fireplaces or stoves.

PDF-AQ-2: Standard construction practices that would be employed to reduce fugitive dust emissions include watering of the active sites two times per day, depending on weather conditions. Construction of

Project components would be subject to SDAPCD Rule 55 – Fugitive Dust Control. Compliance with Rule 55 would limit fugitive dust (PM_{10} and $PM_{2.5}$) that may be generated during grading and construction activities.

PDF-GHG-1: Photo-voltaic (PV) systems will be installed on each building to meet 50% of forecasted electricity demand.

PDF-AQ-1, PDF-AQ-2, and **PDF-GHG-1** would be required as City-imposed Conditions of Approval to ensure they are implemented during construction and operation of the proposed project.



SOURCE: SANGIS 2019, Open Street Map 2019

DUDEK

0 500 1,000 Feet

FIGURE 1

Project Location

Modera Melrose Mixed-Use Development Project

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2 Air Quality

2.1 Environmental Setting

2.1.1 Climate and Topography

The weather of the San Diego region, as in most of Southern California, is influenced by the Pacific Ocean and its semi-permanent high-pressure systems that result in dry, warm summers and mild, occasionally wet winters. The average temperature ranges (in degrees Fahrenheit) from the mid-40s to the high 90s. Most of the region's precipitation falls from November to April, with infrequent (approximately 10%) precipitation during the summer. The average seasonal precipitation along the coast is approximately 10 inches; the amount increases with elevation as moist air is lifted over the mountains (WRCC 2016).

The topography in the San Diego region varies greatly, from beaches on the west to mountains and desert on the east; along with local meteorology, it influences the dispersal and movement of pollutants in the basin. The mountains to the east prohibit dispersal of pollutants in that direction and help trap them in inversion layers.

The interaction of ocean, land, and the Pacific High Pressure Zone maintains clear skies for much of the year and influences the direction of prevailing winds (westerly to northwesterly). Local terrain is often the dominant factor inland, and winds in inland mountainous areas tend to blow through the valleys during the day and down the hills and valleys at night.

2.1.2 San Diego Air Basin Climatology

The Project area is located within the San Diego Air Basin (SDAB) and is subject to the SDAPCD guidelines and regulations. The SDAB is one of 15 air basins that geographically divide the State of California. The SDAB is currently classified as a federal nonattainment area for ozone (O_3) and a state nonattainment area for particulate matter less than 10 microns (PM_{10}), particulate matter less than 2.5 microns ($PM_{2.5}$), and O_3.

The SDAB, which lies in the southwest corner of California and comprises the entire San Diego region, covers 4,260 square miles and is an area of high air pollution potential. The SDAB experiences warm summers, mild winters, infrequent rainfalls, light winds, and moderate humidity. This usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds.

The SDAB experiences frequent temperature inversions. Subsidence inversions occur during the warmer months as descending air associated with the Pacific High Pressure Zone meets cool marine air. The boundary between the two layers of air creates a temperature inversion that traps pollutants. The other type of inversion, a radiation inversion, develops on winter nights when air near the ground cools by heat radiation and air aloft remains warm. The shallow inversion layer formed between these two air masses also can trap pollutants. As the pollutants become more concentrated in the atmosphere, photochemical reactions occur that produce O_3, which contributes to the formation of smog. Smog is a combination of smoke and other particulates, O_3, hydrocarbons, oxides of nitrogen (NO_x) and other chemically reactive compounds which, under certain conditions of weather and sunlight, may result in a murky brown haze that causes adverse health effects (CARB 2022a).

Light daytime winds, predominantly from the west, further aggravate the condition by driving air pollutants inland, toward the mountains. During the fall and winter, air quality problems are created due to carbon monoxide (CO) and NO_x emissions. CO concentrations are generally higher in the morning and late evening. In the morning, CO levels are elevated due to cold temperatures and the large number of motor vehicles traveling. Higher CO levels during the late evenings are a result of stagnant atmospheric conditions trapping CO in the area. Since CO is produced almost entirely from automobiles, the highest CO concentrations in the SDAB are associated with heavy traffic. Nitrogen dioxide (NO_2) levels are also generally higher during fall and winter days.

Under certain conditions, atmospheric oscillation results in the offshore transport of air from the Los Angeles region to San Diego County. This often produces high O_3 concentrations, as measured at air pollutant monitoring stations within San Diego County. The transport of air pollutants from Los Angeles to San Diego has also occurred within the stable layer of the elevated subsidence inversion, where high levels of O_3 are transported.

2.1.3 Sensitive Receptors

Air quality varies as a direct function of the amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. Air quality problems arise when the rate of pollutant emissions exceeds the rate of dispersion.

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution, as identified by the California Air Resources Board (CARB), include children, older adults, and people with cardiovascular and chronic respiratory diseases. According to the SDAPCD, sensitive receptors are those who are especially susceptible to adverse health effects from exposure to toxic air contaminants, such as children, the elderly, and the ill. Sensitive receptors include residences, schools (grades Kindergarten through 12), libraries, day care centers, nursing homes, retirement homes, health clinics, and hospitals within 2 kilometers of the facility (SDAPCD 2022a). The closest sensitive receptors to the Project site are single-family residences immediately adjacent on the southwest boundary of the site.

2.1.4 Pollutants and Effects

2.1.4.1 Criteria Air Pollutants

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include O_3, NO_2, CO, sulfur dioxide (SO_2), PM_{10}, $PM_{2.5}$, and lead. These pollutants are discussed in the following paragraphs.[1] In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants.

[1] The following descriptions of health effects for each of the criteria air pollutants associated with project construction and operations are based on the U.S. Environmental Protection Agency's "Six Common Air Pollutants" (EPA 2017a) and the California Air Resources Board's "Glossary of Air Pollutant Terms" (CARB 2017) published information.

Ozone (O_3). O_3 is a strong-smelling, pale blue, reactive, toxic chemical gas consisting of three oxygen atoms. It is a secondary pollutant formed in the atmosphere by a photochemical process involving the sun's energy and O_3 precursors. These precursors are mainly NO_x and VOCs. The maximum effects of precursor emissions on O_3 concentrations usually occur several hours after they are emitted and many miles from the source. Meteorology and terrain play major roles in O_3 formation, and ideal conditions occur during summer and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. O_3 exists in the upper atmosphere O_3 layer (stratospheric O_3) and at the Earth's surface in the troposphere.[2] The O_3 that the U.S. Environmental Protection Agency (EPA) and the CARB regulate as a criteria air pollutant is produced close to the ground level, where people live, exercise, and breathe. Ground-level O_3 is a harmful air pollutant that causes numerous adverse health effects and is thus considered "bad" O_3. Stratospheric, or "good," O_3 occurs naturally in the upper atmosphere, where it reduces the amount of ultraviolet light (i.e., solar radiation) entering the Earth's atmosphere. Without the protection of the beneficial stratospheric O_3 layer, plant and animal life would be seriously harmed.

O_3 in the troposphere causes numerous adverse health effects; short-term exposures (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes (EPA 2013). These health problems are particularly acute in sensitive receptors such as the sick, the elderly, and young children.

Nitrogen Dioxide (NO_2). NO_2 is a brownish, highly reactive gas that is present in all urban atmospheres. The major mechanism for the formation of NO_2 in the atmosphere is the oxidation of the primary air pollutant nitric oxide (NO), which is a colorless, odorless gas. NO_x plays a major role, together with VOCs, in the atmospheric reactions that produce O_3. NO_x is formed from fuel combustion under high temperature or pressure. In addition, NO_x is an important precursor to acid rain and may affect both terrestrial and aquatic ecosystems. The two major emissions sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers.

NO_2 can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections (EPA 2016a).

Carbon Monoxide (CO). CO is a colorless, odorless gas formed by the incomplete combustion of hydrocarbon, or fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas, such as the Project location, automobile exhaust accounts for the majority of CO emissions. CO is a non-reactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions—primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, which is a typical situation at dusk in urban areas from November to February. The highest levels of CO typically occur during the colder months of the year, when inversion conditions are more frequent.

In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions.

[2] The troposphere is the layer of the Earth's atmosphere nearest to the surface of the Earth. The troposphere extends outward about 5 miles at the poles and about 10 miles at the equator.

Sulfur Dioxide (SO_2). SO_2 is a colorless, pungent gas formed primarily from incomplete combustion of sulfur-containing fossil fuels. The main sources of SO_2 are coal and oil used in power plants and industries; as such, the highest levels of SO_2 are generally found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels.

SO_2 is an irritant gas that attacks the throat and lungs and can cause acute respiratory symptoms and diminished ventilator function in children. When combined with particulate matter, SO_2 can injure lung tissue and reduce visibility and the level of sunlight. SO_2 can also yellow plant leaves and erode iron and steel.

Particulate Matter (PM). Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. Coarse particulate matter (PM_{10}) consists of particulate matter that is 10 microns or less in diameter and is about 1/7 the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. Fine particulate matter ($PM_{2.5}$) consists of particulate matter that is 2.5 microns or less in diameter and is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., from motor vehicles and power generation and industrial facilities), residential fireplaces, and woodstoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as sulfur oxides (SO_x), NO_x, and VOCs.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead, sulfates, and nitrates can cause lung damage directly or be absorbed into the blood stream, causing damage elsewhere in the body. Additionally, these substances can transport adsorbed gases such as chlorides or ammonium into the lungs, also causing injury. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissue. Suspended particulates also damage and discolor surfaces on which they settle and produce haze and reduce regional visibility.

People with influenza, people with chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death as a result of breathing particulate matter. People with bronchitis can expect aggravated symptoms from breathing in particulate matter. Children may experience a decline in lung function due to breathing in PM_{10} and $PM_{2.5}$ (EPA 2009).

Lead. Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paints, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phaseout of leaded gasoline reduced the overall inventory of airborne lead by nearly 95%. With the phaseout of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead-emissions sources of greater concern.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including IQ performance, psychomotor performance, reaction time, and growth. Children are highly susceptible to the effects of lead.

Volatile Organic Compounds (VOCs). Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of O_3 are referred to and regulated as VOCs (also referred to as reactive organic gases). Combustion engine exhaust, oil refineries, and fossil-fueled power plants are the sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry-cleaning solutions, and paint.

The primary health effects of VOCs result from the formation of O_3 and its related health effects. High levels of VOCs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered TACs.

Sulfates. Sulfates are the fully oxidized form of sulfur, which typically occur in combination with metals or hydrogen ions. Sulfates are produced from reactions of SO_2 in the atmosphere and can result in respiratory impairment, as well as reduced visibility.

Vinyl Chloride. Vinyl chloride is a colorless gas with a mild, sweet odor, which has been detected near landfills, sewage plants, and hazardous waste sites, due to the microbial breakdown of chlorinated solvents. Short-term exposure to high levels of vinyl chloride in air can cause nervous system effects, such as dizziness, drowsiness, and headaches. Long-term exposure through inhalation can cause liver damage, including liver cancer.

Hydrogen Sulfide. Hydrogen sulfide is a colorless and flammable gas that has a characteristic odor of rotten eggs. Sources of hydrogen sulfide include geothermal power plants, petroleum refineries, sewers, and sewage treatment plants. Exposure to hydrogen sulfide can result in nuisance odors, as well as headaches and breathing difficulties at higher concentrations.

Visibility-Reducing Particles. Visibility-reducing particles are any particles in the air that obstruct the range of visibility. Effects of reduced visibility can include obscuring the viewshed of natural scenery, reducing airport safety, and discouraging tourism. Sources of visibility-reducing particles are the same as for $PM_{2.5}$.

2.1.4.2 Non-Criteria Pollutants

Toxic Air Contaminants (TACs). A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute and/or chronic noncancer health effects. A toxic substance released into the air is considered a TAC. TACs are identified by federal and state agencies based on a review of available scientific evidence. In the State of California, TACs are identified through a two-step process that was established in 1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of risk identification and risk management and reduction was designed to protect residents from the health effects of toxic substances in the air. In addition, the California Air Toxics "Hot Spots" Information and Assessment Act, Assembly Bill (AB) 2588, was enacted by the legislature in 1987 to address public concern over the release of TACs into the atmosphere. The law requires facilities emitting toxic substances to provide local air pollution control

districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years.

Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources such as automobiles; and area sources such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and noncarcinogenic effects. Noncarcinogenic effects typically affect one or more target organ systems and may be experienced on either short-term (acute) or long-term (chronic) exposure to a given TAC.

Diesel Particulate Matter (DPM). DPM is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is composed of two phases, gas and particle, both of which contribute to health risks. More than 90% of DPM is less than 1 micrometer in diameter (about 1/70th the diameter of a human hair), and thus is a subset of $PM_{2.5}$ (CARB 2022b). DPM is typically composed of carbon particles ("soot," also called black carbon) and numerous organic compounds, including over 40 known cancer-causing organic substances. Examples of these chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene (CARB 2022b). CARB classified "particulate emissions from diesel-fueled engines" (i.e., DPM) as a TAC in August 1998 (17 CCR 93000). DPM is emitted from a broad range of diesel engines: on-road diesel engines of trucks, buses, and cars and off-road diesel engines including locomotives, marine vessels, and heavy-duty construction equipment, among others. Approximately 70% of all airborne cancer risk in California is associated with DPM (CARB 2000). To reduce the cancer risk associated with DPM, CARB adopted a diesel risk reduction plan in 2000 (CARB 2000). Because it is part of $PM_{2.5}$, DPM also contributes to the same non-cancer health effects as $PM_{2.5}$ exposure. These effects include premature death; hospitalizations and emergency department visits for exacerbated chronic heart and lung disease, including asthma; increased respiratory symptoms; and decreased lung function in children. Several studies suggest that exposure to DPM may also facilitate development of new allergies (CARB 2022b). Those most vulnerable to non-cancer health effects are children whose lungs are still developing and the elderly who often have chronic health problems.

Odorous Compounds. Odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting and headache). The ability to detect odors varies considerably among the population and overall is quite subjective. People may have different reactions to the same odor. An odor that is offensive to one person may be perfectly acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. In a phenomenon known as odor fatigue, a person can become desensitized to almost any odor, and recognition may only occur with an alteration in the intensity. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors.

Valley Fever. Coccidioidomycosis, more commonly known as "Valley Fever," is an infection caused by inhalation of the spores of the *Coccidioides immitis* fungus, which grows in the soils of the southwestern United States. The fungus is very prevalent in the soils of California's San Joaquin Valley, particularly in Kern County. Kern County is considered a highly endemic county (i.e., more than 20 cases annually of Valley Fever per 100,000 people) based on the incidence rates reported through 2016 (California Department of Public Health 2017). The ecologic factors

that appear to be most conducive to survival and replication of the spores are high summer temperatures, mild winters, sparse rainfall, and alkaline, sandy soils.

San Diego County (the County) is not considered a highly endemic region for Valley Fever, as the latest report from the County of San Diego Health and Human Services Agency Public Health Services indicated the County has 8.3 cases per 100,000 people (County of San Diego 2019). In the zip code area of the Project site, the case rate is reported as between 5.0-7.6 cases per 100,000 people (County of San Diego 2021). 2.2 Regulatory Setting

2.1.5 Federal

2.1.5.1 Criteria Pollutants

The federal Clean Air Act (CAA), passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The EPA is responsible for implementing most aspects of the CAA, including the setting of National Ambient Air Quality Standards (NAAQS) for major air pollutants, hazardous air pollutant (HAP) standards, approval of state attainment plans, motor vehicle emission standards, stationary source emission standards and permits, acid rain control measures, stratospheric O_3 protection, and enforcement provisions.

NAAQS are established by the EPA for "criteria pollutants" under the CAA, which are O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The CAA requires the EPA to reassess the NAAQS at least every 5 years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the NAAQS must prepare a state implementation plan (SIP) that demonstrates how those areas will attain the standards within mandated time frames.

2.1.5.2 Hazardous Air Pollutants

The 1977 CAA Amendments required the EPA to identify national emission standards for hazardous air pollutants to protect the public health and welfare. HAPs include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. Under the 1990 CAA Amendments, which expanded the control program for HAPs, 189 substances and chemical families were identified as HAPs.

2.1.6 State

2.1.6.1 Criteria Pollutants

The California Clean Air Act was adopted in 1988 and establishes the state's air quality goals, planning mechanisms, regulatory strategies, and standards of progress. Under the California Clean Air Act, the task of air quality management and regulation has been legislatively granted to CARB, with subsidiary responsibilities assigned to air quality management districts and air pollution control districts at the regional and county levels. CARB is responsible for ensuring implementation of the California Clean Air Act, responding to the federal CAA, and regulating emissions from motor vehicles and consumer products. Pursuant to the authority granted to it, CARB has established California Ambient Air Quality Standards (CAAQS), which are generally more restrictive than the NAAQS.

The NAAQS and CAAQS are presented in Table 1.

Table 1. Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	Primary[c,d]	Secondary[c,e]
O_3	1 hour	0.09 ppm (180 µg/m³)	—	Same as primary standard[f]
	8 hours	0.070 ppm (137 µg/m³)	0.070 ppm (137 µg/m³)[f]	
NO_2[g]	1 hour	0.18 ppm (339 µg/m³)	0.100 ppm (188 µg/m³)	Same as primary standard
	Annual arithmetic mean	0.030 ppm (57 µg/m³)	0.053 ppm (100 µg/m³)	
CO	1 hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	None
	8 hours	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	
SO_2[h]	1 hour	0.25 ppm (655 µg/m³)	0.075 ppm (196 µg/m³)	—
	3 hours	—	—	0.5 ppm (1,300 µg/m³)
	24 hours	0.04 ppm (105 µg/m³)	0.14 ppm (for certain areas)[g]	—
	Annual	—	0.030 ppm (for certain areas)[g]	—
PM_{10}[i]	24 hours	50 µg/m³	150 µg/m³	Same as primary standard
	Annual arithmetic mean	20 µg/m³	—	
$PM_{2.5}$[i]	24 hours	—	35 µg/m³	Same as primary standard
	Annual arithmetic mean	12 µg/m³	12.0 µg/m³	15.0 µg/m³
Lead[j, k]	30-day average	1.5 µg/m³	—	—
	Calendar quarter	—	1.5 µg/m³ (for certain areas)[k]	Same as primary standard
	Rolling 3-month average	—	0.15 µg/m³	
Hydrogen sulfide	1 hour	0.03 ppm (42 µg/m³)	—	—
Vinyl chloride[j]	24 hours	0.01 ppm (26 µg/m³)	—	—
Sulfates	24- hours	25 µg/m³	—	—

Table 1. Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	Primary[c,d]	Secondary[c,e]
Visibility reducing particles	8 hour (10:00 a.m. to 6:00 p.m. PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to the number of particles when the relative humidity is less than 70%	—	—

Source: CARB 2016.

Notes: O_3 = ozone; ppm = parts per million by volume; μg/m³ = micrograms per cubic meter; NO_2 = nitrogen dioxide; CO = carbon monoxide; mg/m³= milligrams per cubic meter; SO_2 = sulfur dioxide; PM_{10} = particulate matter with an aerodynamic diameter less than or equal to 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns.

[a] California standards for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, suspended particulate matter (PM_{10}, $PM_{2.5}$), and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[b] National standards (other than O_3, NO_2, SO_2, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once per year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 μg/m³ is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

[c] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25 °Celsius (°C) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25 °C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[d] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[e] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[f] On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

[g] To attain the national 1-hour standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb). Note that the national 1-hour standard is in units of ppb. California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards, the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[h] On June 2, 2010, a new 1-hour SO_2 standard was established, and the existing 24-hour and annual primary standards were revoked. To attain the national 1-hour standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment of the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

[i] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 μg/m³ to 12.0 μg/m³. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 μg/m³, as was the annual secondary standard of 15 μg/m³. The existing 24-hour PM_{10} standards (primary and secondary) of 150 μg/m³ were also retained. The form of the annual primary and secondary standards is the annual mean averaged over 3 years.

[j] CARB has identified lead and vinyl chloride as TACs with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[k] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 μg/m³ as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

2.1.6.2 Toxic Air Contaminants

The state Air Toxics Program was established in 1983 under AB 1807 (Tanner). The California TAC list identifies more than 700 pollutants, of which carcinogenic and noncarcinogenic toxicity criteria have been established for a

subset of these pollutants pursuant to the California Health and Safety Code. In accordance with AB 2728, the state list includes the (federal) HAPs. The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources; however, AB 2588 does not regulate air toxics emissions. TAC emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment (HRA), and if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings.

In 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines. The regulation was anticipated to result in an 80% decrease in statewide diesel health risk in 2020 compared with the diesel risk in 2000. Additional regulations apply to new trucks and diesel fuel, including the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In-Use Off-Road Diesel Vehicle Regulation, and the New Off-Road Compression-Ignition (Diesel) Engines and Equipment program. All of these regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel powered equipment. Several Airborne Toxic Control Measures that reduce diesel emissions including In-Use Off-Road Diesel-Fueled Fleets (13 CCR 2449 et seq.) and In-Use On-Road Diesel-Fueled Vehicles (13 CCR 2025).

California Health and Safety Code Section 41700

This section of the Health and Safety Code states that a person shall not discharge from any source whatsoever quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or that endanger the comfort, repose, health, or safety of any of those persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property. This section also applies to sources of objectionable odors.

2.1.7 Local

2.1.7.1 San Diego Air Pollution Control District

While CARB is responsible for the regulation of mobile emission sources within the state, local air quality management districts and air pollution control districts are responsible for enforcing standards and regulating stationary sources. The Project site is located within the SDAB and is subject to the guidelines and regulations of SDAPCD.

In San Diego County, O_3 and particulate matter are the pollutants of main concern, since exceedances of CAAQS for those pollutants are experienced here in most years. For this reason, the SDAB has been designated as a nonattainment area for the state PM_{10}, $PM_{2.5}$, and O_3 standards. The SDAB is also a federal O_3 attainment (maintenance) area for 1997 8-hour O_3 standard, a O_3 nonattainment area for the 2008 8-hour O_3 standard, and a CO maintenance area (western and central part of the SDAB only). The Project area is in the CO maintenance area.

2.1.7.2 Federal Attainment Plans

In December 2016, the SDAPCD adopted an update to the Eight-Hour Ozone Attainment Plan for San Diego County (2008 O_3 NAAQS). The 2016 Final Eight-Hour Ozone Attainment Plan for San Diego County indicates that local controls and state programs would allow the region to reach attainment of the federal 8-hour O_3 standard (1997 O_3 NAAQS) by 2018 (SDAPCD 2016b). In this plan, SDAPCD relies on the Regional Air Quality Strategy (RAQS) to

demonstrate how the region will comply with the federal O_3 standard. The RAQS details how the region will manage and reduce O_3 precursors (NO_x and VOCs) by identifying measures and regulations intended to reduce these pollutants. The control measures identified in the RAQS generally focus on stationary sources; however, the emissions inventories and projections in the RAQS address all potential sources, including those under the authority of CARB and EPA. Incentive programs for reduction of emissions from heavy-duty diesel vehicles, off-road equipment, and school buses are also established in the RAQS.

Currently, the County is designated as moderate nonattainment for the 2008 O_3 NAAQS and maintenance for the 1997 O_3 NAAQS. As documented in the 2016 Final Eight-Hour Ozone Attainment Plan for San Diego County, the County has a likely chance of obtaining attainment due to the transition to low emission cars, stricter new source review rules, and continuing the requirement of general conformity for military growth and the San Diego International Airport. SDAPCD will also continue emission control measures including ongoing implementation of existing regulations in ozone precursor reduction to stationary and area-wide sources, subsequent inspections of facilities and sources, and the adoption of laws requiring Best Available Retrofit Control Technology for control of emissions (SDAPCD 2016b).

2.1.7.3 State Attainment Plans

SDAPCD and SANDAG are responsible for developing and implementing the clean air plan for attainment and maintenance of the ambient air quality standards in the SDAB. The RAQS for the SDAB was initially adopted in 1991 and is updated every 3 years, most recently in 2016 (SDAPCD 2016c). The RAQS outlines SDAPCD's plans and control measures designed to attain the CAAQS for O_3. The RAQS relies on information from CARB and SANDAG, including mobile and area source emissions, as well as information regarding projected growth in the County and the cities in the County, to forecast future emissions and then determine from that the strategies necessary for the reduction of emissions through regulatory controls. The CARB mobile source emission projections and SANDAG growth projections are based on population, vehicle trends, and land use plans developed by the County and the cities in the County as part of the development of their general plans (SANDAG 2017a, 2017b).

In December 2016, SDAPCD adopted the revised RAQS for the County. Since 2007, the San Diego region has reduced daily VOC emissions and NO_x emissions by 3.9% and 7.0%, respectively; SDAPCD expects to continue reductions through 2035 (SDAPCD 2016c). These reductions were achieved through implementation of six VOC control measures and three NO_x control measures adopted in SDAPCD's 2009 RAQS (SDAPCD 2009a); in addition, SDAPCD is considering additional measures, including three VOC measures and four control measures to reduce 0.3 daily tons of VOCs and 1.2 daily tons of NO_x, provided they are found to be feasible region-wide. In addition, SDAPCD has implemented nine incentive-based programs, has worked with SANDAG to implement regional transportation control measures, and has reaffirmed the state emission offset repeal.

In regard to particulate matter emissions reduction efforts, in December 2005, SDAPCD prepared a report titled "Measures to Reduce Particulate Matter in San Diego County" to address implementation of Senate Bill 656 in San Diego County (Senate Bill 656 required additional controls to reduce ambient concentrations of PM_{10} and $PM_{2.5}$) (SDAPCD 2005). In the report, SDAPCD evaluated the implementation of source-control measures that would reduce particulate matter emissions associated with residential wood combustion; various construction activities including earthmoving, demolition, and grading; bulk material storage and handling; carryout and trackout removal and cleanup methods; inactive disturbed land; disturbed open areas; unpaved parking lots/staging areas; unpaved roads; and windblown dust (SDAPCD 2005).

2.1.7.4 SDAPCD Rules and Regulations

As stated previously, SDAPCD is responsible for planning, implementing, and enforcing federal and state ambient standards in the SDAB. The following rules and regulations apply to all sources in the jurisdiction of SDAPCD:

- **SDAPCD Regulation IV: Prohibitions; Rule 50: Visible Emissions.** Prohibits any activity causing air contaminant emissions darker than 20% opacity for more than an aggregate of 3 minutes in any consecutive 60-minute time period. In addition, Rule 50 prohibits any diesel pile-driving hammer activity causing air contaminant emissions for a period or periods aggregating more than 4 minutes during the driving of a single pile (SDAPCD 1997).
- **SDAPCD Regulation IV: Prohibitions; Rule 51: Nuisance.** Prohibits the discharge, from any source, of such quantities of air contaminants or other materials that cause or have a tendency to cause injury, detriment, nuisance, annoyance to people and/or the public, or damage to any business or property (SDAPCD 1976).
- **SDAPCD Regulation IV: Prohibitions; Rule 55: Fugitive Dust.** Regulates fugitive dust emissions from any commercial construction or demolition activity capable of generating fugitive dust emissions, including active operations, open storage piles, and inactive disturbed areas, as well as track-out and carry-out onto paved roads beyond a project site (SDAPCD 2009b).
- **SDAPCD Regulation IV: Prohibitions; Rule 67.0.1: Architectural Coatings.** Requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories (SDAPCD 2015).

2.2 Regional and Local Air Quality

2.2.1 SDAB Attainment Designation

Pursuant to the 1990 CAA Amendments, EPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant, based on whether the NAAQS have been achieved. Generally, if the recorded concentrations of a pollutant are lower than the standard, the area is classified as "attainment" for that pollutant. If an area exceeds the standard, the area is classified as "nonattainment" for that pollutant. As previously discussed, these standards are set by EPA or CARB for the maximum level of a given air pollutant that can exist in the outdoor air without unacceptable effects on human health or the public welfare. If there is not enough data available to determine whether the standard is exceeded in an area, the area is designated as "unclassified" or "unclassifiable."

The designation of "unclassifiable/attainment" means that the area meets the standard or is expected to be meet the standard despite a lack of monitoring data. Areas that achieve the standards after a nonattainment designation are redesignated as maintenance areas and must have approved maintenance plans to ensure continued attainment of the standards. The California Clean Air Act, like its federal counterpart, called for the designation of areas as "attainment" or "nonattainment," but based on the CAAQS rather than the NAAQS.

Table 2 summarizes SDAB's federal and state attainment designations for each of the criteria pollutants.

Table 2. SDAB Attainment Designation

Pollutant	Federal Designation	State Designation
O_3 (8-hour)	**Nonattainment**	**Nonattainment**
O_3 (1-hour)	Attainment[a]	**Nonattainment**
CO	Attainment	Attainment
PM_{10}	Unclassifiable[b]	**Nonattainment**
$PM_{2.5}$	Attainment	**Nonattainment**[c]
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment
Lead	Attainment	Attainment
Sulfates	(No federal standard)	Attainment
Hydrogen sulfide	(No federal standard)	Unclassified
Visibility-reducing particles	(No federal standard)	Unclassified
Vinyl chloride	(No federal standard)	No designation

Sources: SDAPCD 2022b
Definitions: attainment = meets the standards; nonattainment = does not meet the standards; unclassified or unclassifiable = insufficient data to classify
Notes: SDAB = San Diego; O_3 = ozone; CO = carbon monoxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; NO_2 = nitrogen dioxide; SO_2 = sulfur dioxide.

[a] The federal 1-hour standard of 0.12 parts per million (ppm) was in effect from 1979 through June 15, 2005. The revoked standard is referenced here because it was employed for such a long period and because this benchmark is addressed in SIPs.

[b] At the time of designation, if the available data does not support a designation of attainment or nonattainment, the area is designated as unclassifiable.

[c] CARB has not reclassified the region to attainment yet due to (1) incomplete data, and (2) the use of non-California Approved Samplers (CAS). While data collected does meet the requirements for designation of attainment with federal $PM_{2.5}$ standards, the data completeness requirements for state $PM_{2.5}$ standards substantially exceed federal requirements and mandates, and have historically not been feasible for most air districts to adhere to given local resources. APCD has begun replacing most regional filter-based $PM_{2.5}$ monitors as they reach the end of their useful life with continuous $PM_{2.5}$ air monitors to ensure collected data meets stringent completeness requirements in the future. APCD anticipates these new monitors will be approved as "CAS" monitors once CARB review the list of approved monitors, which has not been updated since 2013.

2.2.2 Air Quality Monitoring Data

SDAPCD operates a network of ambient air monitoring stations throughout the County, which measure ambient concentrations of pollutants and determine whether the ambient air quality meets the CAAQS and the NAAQS. SDAPCD monitors air quality conditions at 10 locations throughout the basin. The Camp Pendleton monitoring station represents the closest monitoring station to the Project site for concentrations for O_3, $PM_{2.5}$, and NO_2. The Escondido monitoring station is the closest monitoring station for CO. The closest monitoring station for SO_2 is the El Cajon monitoring station. The San Diego–Kearny Villa Road monitoring station is the closest station monitoring for PM_{10}. Ambient concentrations of pollutants from 2018 through 2020 are presented in Table 3.

Table 3. Local Ambient Air Quality Data

Monitoring Station	Unit	Averaging Time	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
					2018	2019	2020	2018	2019	2020
Ozone (O_3)										
Camp Pendleton	ppm	Maximum 1-hour concentration	State	0.09	0.084	0.075	0.094	0	0	0
	ppm	Maximum 8-hour concentration	State	0.070	0.069	0.064	0.074	0	0	3
			Federal	0.070	0.068	0.063	0.062	0	0	0
Nitrogen Dioxide (NO_2)										
Camp Pendleton	ppm	Maximum 1-hour concentration	State	0.18	0.048	0.053	0.058	*0*	*0*	*0*
			Federal	0.100	0.048	0053	0.058	*0*	*0*	*0*
	ppm	Annual concentration	State	0.030	0.006	0.006	0.006	0	0	0
			Federal	0.053	0.006	0.005	0.006	0	0	0
Carbon Monoxide (CO)										
Escondido-Rancho Carmel Drive	ppm	Maximum 1-hour concentration	State	20	1.9	4.1	3.3	0	0	0
			Federal	35	1.9	4.1	3.3	0	0	0
	ppm	Maximum 8-hour concentration	State	9.0	1.4	2.5	1.7	0	0	0
			Federal	9	1.4	2.5	1.7	0	0	0
Sulfur Dioxide (SO_2)										
El Cajon	ppm	Maximum 1-hour concentration	Federal	0.075	0.004	—	—	0	0	0
	ppm	Maximum 24-hour concentration	State	0.04	0.0004	—	—	0	0	0
			Federal	0.140	0.0004	—	—	0	0	0
	ppm	Annual concentration	Federal	0.030	0.0001	—	—	—	—	—

Table 3. Local Ambient Air Quality Data

Monitoring Station	Unit	Averaging Time	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
					2018	2019	2020	2018	2019	2020
Coarse Particulate Matter (PM_{10})[a]										
San Diego–Kearny Villa Road	µg/m³	Maximum 24-hour concentration	State	50	38	—	—	0 (0)	—	—
			Federal	150	38	—	—	0 (0)	—	—
	µg/m³	Annual concentration	State	20	18.4	—	—	—	—	—
Fine Particulate Matter ($PM_{2.5}$)[a]										
Camp Pendleton	µg/m³	Maximum 24-hour concentration	Federal	35	30.5	13.8	61.1	0 (0)	0 (0)	0 (0)
	µg/m³	Annual concentration	State	12	—	—	—	—	—	—
			Federal	12.0	—	—	9.5	—	—	—

Sources: CARB 2022c; EPA 2022a.

Notes: ppm = parts per million; — = not available or applicable; µg/m³ = micrograms per cubic meter; ND = insufficient data available to determine the value.

Data taken from CARB iADAM (http://www.arb.ca.gov/adam) and EPA AirData (http://www.epa.gov/airdata/) represent the highest concentrations experienced over a given year.

Exceedances of federal and state standards are only shown for O_3 and particulate matter. Daily exceedances for particulate matter are estimated days because PM_{10} and $PM_{2.5}$ are not monitored daily. All other criteria pollutants did not exceed federal or state standards during the years shown. There is no federal standard for 1-hour O_3, annual PM_{10}, or 24-hour SO_2, nor is there a state 24-hour standard for $PM_{2.5}$.

The Camp Pendleton monitoring station is located at 21441-W B Street, Oceanside, California.

The Escondido monitoring station is located at 600 East Valley Pkwy, Escondido, California.

The El Cajon monitoring station is located at 10537 Floyd Smith Drive, El Cajon, California.

The San Diego–Kearny Villa monitoring station is located at 6123A Kearny Villa Road, San Diego, California.

The San Diego – Rancho Carmel Drive monitoring station is located at 11403 Rancho Carmel Drive, San Diego, California.

[a] Measurements of PM_{10} and $PM_{2.5}$ are usually collected every 6 days and every 1 to 3 days, respectively. Number of days exceeding the standards is a mathematical estimate of the number of days concentrations would have been greater than the level of the standard had each day been monitored. The numbers in parentheses are the measured number of samples that exceeded the standard.

2.3 Significance Criteria and Methodology

2.3.1 Thresholds of Significance

The State of California has developed guidelines to address the significance of air quality impacts based on Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.), which provides guidance that a project would have a significant environmental impact if it would:

1. Conflict with or obstruct implementation of the applicable air quality plan.
2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.
3. Expose sensitive receptors to substantial pollutant concentrations.
4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) indicates that, where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to determine whether a project would have a significant impact on air quality.

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) indicates that, where available, the significance criteria established by the applicable air quality management district or pollution control district may be relied upon to determine whether the project would have a significant impact on air quality. As part of its air quality permitting process, the SDAPCD has established thresholds in Rule 20.2 requiring the preparation of Air Quality Impact Assessments for permitted stationary sources. The SDAPCD sets forth quantitative emission thresholds below which a stationary source would not have a significant impact on ambient air quality. Project-related air quality impacts estimated in this environmental analysis would be considered significant if any of the applicable significance thresholds presented in Table 4 are exceeded.

For CEQA purposes, these screening criteria can be used as numeric methods to demonstrate that the Project's total emissions would or would not result in a significant impact to air quality.

Table 4. SDAPCD Air Quality Significance Thresholds

Construction Emissions	
Pollutant	**Total Emissions (Pounds per Day)**
Coarse particulate matter (PM_{10})	100
Fine particulate matter ($PM_{2.5}$)	55
Oxides of nitrogen (NO_x)	250
Sulfur oxides (SO_x)	250
Carbon monoxide (CO)	550
Volatile organic compounds (VOCs)	75*

Table 4. SDAPCD Air Quality Significance Thresholds

Operational Emissions			
	Total Emissions		
Pollutant	Pounds per Hour	Pounds per Day	Tons per Year
Coarse particulate matter (PM_{10})	—	100	15
Fine particulate matter ($PM_{2.5}$)	—	55	10
Oxides of nitrogen (NO_x)	25	250	40
Sulfur oxides (SO_x)	25	250	40
Carbon monoxide (CO)	100	550	100
Lead and lead compounds	—	3.2	0.6
Volatile organic compounds (VOCs)	—	75*	13.7

Source: SDAPCD 2016a.
Notes: SDAPCD = San Diego Air Pollution Control District.
* VOC threshold based on the threshold of significance for VOCs from the South Coast Air Quality Management District (SCAQMD) for the Coachella Valley as stated in the San Diego County Guidelines for Determining Significance.

The thresholds listed in Table 4 represent screening-level thresholds that can be used to evaluate whether Project-related emissions would cause a significant impact on air quality. Emissions below the screening-level thresholds would not cause a significant impact. In the event that emissions exceed these thresholds, modeling would be required to demonstrate that the Project's total air quality impacts result in ground-level concentrations that are below the CAAQS and NAAQS, including appropriate background levels. For non-attainment pollutants, if emissions exceed the thresholds shown in Table 4, the Project could have the potential to result in a cumulatively considerable net increase in these pollutants and thus could have a significant impact on the ambient air quality.

SDAPCD Rule 51 (Public Nuisance) prohibits emission of any material that causes nuisance to a considerable number of persons or endangers the comfort, health, or safety of any person (SDAPCD 1976). A project that proposes a use that would produce objectionable odors would be deemed to have a significant odor impact if it would affect a considerable number of off-site receptors.

2.3.2 Approach and Methodology

2.3.2.1 Construction Mass Emissions

Emissions from the construction phase of Project components were estimated using the California Emissions Estimator Model (CalEEMod) Version 2020.4.0[3]. Per preliminary project details, it is assumed that construction of the Project would begin in Spring 2023 and would last approximately 18 months.

Table 5 provides the construction timeline, potential phasing, construction equipment mix, and vehicle trips assumed for estimating Project-generated construction emissions. The construction schedule has been developed

[3] CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform to calculate construction and operational emissions from land use development projects. The model was developed for the California Air Pollution Control Officers Association in collaboration with multiple air districts across the state. Numerous lead agencies in the state, including SDAPCD, use CalEEMod to estimate greenhouse gas emissions in accordance with CEQA Guidelines Section 15064.4(a)(1).

based on available information provided by the Project applicant, typical construction practices, and CalEEMod default assumptions. Construction phasing is intended to represent a schedule of anticipated activities for use in estimating potential Project-generated construction emissions.

Table 5. Construction Scenario Assumptions

Construction Phase (Duration)	Vehicle Trips			Equipment		
	Average Daily Worker Trips	Average Daily Vendor Truck Trips	Total Haul Truck Trips	Equipment Type	Quantity	Usage Hours
Site Preparation	18	2	0	Rubber Tired Dozers	3	8
				Tractors/Loaders/Backhoes	4	8
Grading	15	2	5,400	Excavators	1	8
				Graders	1	8
				Rubber Tired Dozers	1	8
				Tractors/Loaders/Backhoes	3	8
Building Construction	351	81	0	Cranes	1	7
				Forklifts	3	8
				Generator Sets	1	8
				Tractors/Loaders/Backhoes	3	7
				Welders	1	8
Paving	15	2	0	Pavers	2	8
				Paving Equipment	2	8
				Rollers	2	8
Architectural Coating	70	2	0	Air Compressors	1	6

Note: See Appendix A for additional details.

The equipment mix assumptions were based on CalEEMod default assumptions based on proposed land use, and is meant to represent a reasonably conservative estimate of construction activity. For the analysis, it is generally assumed that heavy construction equipment would be operating at the site for approximately 8 hours per day, 5 days per week. Default assumptions provided in CalEEMod were used to determine worker trips and vendor truck trips for each potential construction phase. The default CalEEMod trip distance for construction vehicles was assumed, which was a one-way distance of 10.8 miles for worker trips, 7.3 miles for vendor truck trips, and 20 miles for haul truck trips.

Implementation of the Project would generate criteria air pollutant emissions from entrained dust, off-road equipment, vehicle emissions, architectural coatings, and asphalt pavement application. Based on project specific information, 43,200 cubic yards of material import is expected from the construction of the project during the grading phase. Entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. Construction of Project components would be subject to SDAPCD Rule 55 – Fugitive Dust Control. Compliance with Rule 55 would limit fugitive dust (PM_{10} and $PM_{2.5}$) that may be generated during grading and construction activities. Standard construction practices that would be employed to reduce fugitive dust emissions include watering of the active sites two times per day, depending on weather conditions.

Internal combustion engines used by construction equipment, vendor trucks (i.e., delivery trucks), haul trucks, and worker vehicles would result in emissions of VOCs, NO_x, CO, PM_{10}, and $PM_{2.5}$. The application of architectural coatings, such as exterior application/interior paint and other finishes, and application of asphalt pavement would also produce VOC emissions; however, the contractor is required to procure architectural coatings from a supplier in compliance with the requirements of SDAPCD Rule 67.0.1 for Architectural Coatings.

For additional details see Appendix A, *Air Quality and Greenhouse Gas Emissions CalEEMod Output Files*.

2.3.2.2 Construction Health Risk Analysis

An HRA was performed to assess the impact of construction on sensitive receptors proximate to the Project site. This report includes an HRA associated with emissions from construction of the proposed Project based on the methodologies prescribed in the Office of Environmental Health Hazard Assessment (OEHHA) document, Air Toxics Hot Spots Program Risk Assessment Guidelines – Guidance Manual for Preparation of Health Risk Assessments (OEHHA Guidelines) (OEHHA 2015). To implement the OEHHA Guidelines based on proposed project information, the SDAPCD has developed a three-tiered approach where each successive tier is progressively more refined, with fewer conservative assumptions. The SDAPCD document, Supplemental Guidelines for Submission of Air Toxics "Hot Spots" Program Health Risk Assessments (SDAPCD 2022), provides guidance with which to perform HRAs within the SDAB.

Health effects from carcinogenic air toxics are usually described in terms of cancer risk. The SDAPCD recommends a carcinogenic (cancer) risk threshold of 10 in one million. Additionally, some TACs increase non-cancer health risk due to long-term (chronic) exposures. The Chronic Hazard Index is the sum of the individual substance chronic hazard indices for all TACs affecting the same target organ system. The SDAPCD recommends a Chronic Hazard Index significance threshold of one (project increment). The exhaust from diesel engines is a complex mixture of gases, vapors, and particles, many of which are known human carcinogens. DPM has established cancer risk factors and relative exposure values for long-term chronic health hazard impacts. No short-term, acute relative exposure level has been established for DPM; therefore, acute impacts of DPM are not addressed in this assessment. The HRA for the proposed project evaluated the risk to existing off-site residents from diesel emissions from exhaust from on-site construction equipment and diesel haul and vendor trucks.

The dispersion modeling of DPM was performed using the American Meteorological Society/EPA Regulatory Model (AERMOD), which is the model SDAPCD requires for atmospheric dispersion of emissions. AERMOD is a steady-state Gaussian plume model that incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of surface and elevated sources, building downwash, and simple and complex terrain (EPA 2021). For the proposed project, AERMOD was run with all sources emitting unit emissions (one gram per second) to obtain the "X/Q" values. X/Q is a dispersion factor that is the average effluent concentration normalized by source strength and is used as a way to simplify the representation of emissions from many sources. The X/Q values of ground-level concentrations were determined for construction emissions using AERMOD and the maximum concentrations determined for the one-hour and period-averaging periods. Principal parameters of this modeling are presented in Table 6.

Table 6. AERMOD Principal Parameters

Parameter	Details
Meteorological Data	The latest three-year meteorological data (2016–2018) for the McClellan-Palomar Airport Station were obtained from SDAPCD as the recommended meteorological station and input to AERMOD.
Urban versus Rural Option	Urban areas typically have more surface roughness, as well as structures and low-albedo surfaces that absorb more sunlight—and thus more heat—relative to rural areas. Per the SDAPCD guidelines, the land use procedure from 4.4.1 of the OEHHA Guidance Manual indicated that urban dispersion was appropriate for the project site.
Terrain Characteristics	The elevation of the modeled site is about 130 meters above sea level. Digital elevation model files were imported into AERMOD so that complex terrain features were evaluated as appropriate.
Elevation Data	Digital elevation data were imported into AERMOD, and elevations were assigned to the emission sources and receptors. Digital elevation data were obtained through AERMOD View in the U.S. Geological Survey's National Elevation Dataset format with a 10-meter resolution.
Emission Sources and Release Parameters	Air dispersion modeling of DPM from construction equipment was conducted using emissions estimated using CalEEMod, assuming emissions would occur eight hours per day, five days per week. Vendor and hauling trips were modified to account only for emissions occurring within 1,000 ft of the project site. The proposed project area was modeled as a series of adjacent line-volume sources.
Source Release Characterizations	The source release height was assumed to be five meters with plume height and width of 10 and 9 meters per volume source (SCAQMD 2008).
Receptors	20-meter spacing discrete receptors were placed outside the construction area at nearby sensitive receptors surrounding the Project site.

Notes: AERMOD = American Meteorological Society/EPA Regulatory Model; SDAPCD = San Diego Air Pollution Control District; DPM = diesel particulate matter; CalEEMod = California Emissions Estimator Model.
See Appendix B for additional information.

Dispersion model plot files from AERMOD were then imported into CARB's Hotspots Analysis and Reporting Program Version 2 (Version 21081) to determine health risk, which requires peak one-hour emission rates and annual emission rates for all pollutants for each modeling source. For the residential health risk, the HRA assumes exposure would start in the third trimester of pregnancy for a duration of 22 months.

2.3.2.3 Operation

Operation of the proposed project would generate VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions from area sources, energy sources and mobile sources, which are discussed below. Emissions from these sources were estimated based on CalEEMod default assumptions for operations of the proposed project land uses. It was assumed that the project would be operational following the completion of construction, which would occur in 2024.

Area

The area source category calculates direct sources of air pollutant emissions located at the Project site, including consumer product use, architectural coatings, and landscape maintenance equipment. CalEEMod defaults were used to estimate emissions from area sources during operation of the Project. The project includes PDF-AQ-1 that prohibits wood-burning, and only allows for natural gas-fired fireplaces in residential units.

Consumer products are various solvents used in non-industrial applications which emit VOCs during their product use. These typically include cleaning supplies, kitchen aerosols, cosmetics and toiletries. Consumer product VOC emissions are estimated in CalEEMod based on the floor area of residential and nonresidential buildings and on the default factor of pounds of VOC per building square foot per day. For parking lot land uses, CalEEMod estimates VOC emissions associated with use of parking surface degreasers based on a square footage of parking surface area and pounds of VOC per square foot per day. The CalEEMod default utilization rates and emission factors were assumed.

This VOC emissions associated with the reapplication rate and coating for each building surface type and parking surface was also estimated using CalEEMod. The reapplication rate is the percentage of the total surface area that is repainted each year. A default of 10% is used, meaning that 10% of the surface area is repainted each year (i.e., all surface areas are repainted once every 10 years). Daily emissions divide the annual rate by 365 days per year. It was assumed that the Project would comply with SDAPCD Rule 67.0.1 for Architectural Coatings.

Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chainsaws, and hedge trimmers, as well as air compressors, generators, and pumps. The emissions associated from landscape equipment use were estimated using CalEEMod. The emission factors are multiplied by the number of summer days that represent the number of operational days.

Energy

As represented in CalEEMod, energy sources include emissions associated with natural gas usage. Electricity use would contribute indirectly to criteria air pollutant emissions; however, the emissions from electricity use are only quantified for GHGs in CalEEMod, since criteria pollutant emissions occur at the site of the power plant, which is typically off site. CalEEMod default values for energy consumption for each land use were applied for the Project analysis. The energy use from residential land uses is calculated in CalEEMod based on the Residential Appliance Saturation Survey. Energy use from the non-residential land uses is based on various studies and assessments as described in Section 7.3, *Estimating Energy Use from Other Land Uses*, of Appendix A of the CalEEMod User's Guide(CAPCOA 2021).

Mobile Sources (Motor Vehicles)

Following the completion of construction activities, the Project would generate VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions from mobile sources (vehicular traffic) as a result of the 323 additional residential units. The CalEEMod Version 2020.4.0 was used to estimate daily emissions from proposed vehicular sources in combination with trip rates provided in the Local Transportation Study prepared for the proposed project (Linscott Law & Greenspan 2022). CalEEMod default data, including trip characteristics, variable start information, emissions factors, and trip distances, were used for the model inputs. Emission factors representing the vehicle mix and emissions for 2024 were used to estimate emissions associated with vehicular sources.

For additional details see Appendix A, *Air Quality and Greenhouse Gas Emissions CalEEMod Output File*s.

2.4 Impact Analysis

2.4.1 Would the Project conflict with or obstruct implementation of the applicable air quality plan?

2.4.1.1 Analysis

As stated in Section 4.3, Local, SDAPCD and SANDAG are responsible for developing and implementing the clean air plans for attainment and maintenance of the NAAQS and CAAQS in the SDAB; specifically, the SIP and RAQS.[4] The federal O_3 maintenance plan, which is part of the SIP, was adopted in 2016. The SIP includes a demonstration that current strategies and tactics will maintain acceptable air quality in the SDAB based on the NAAQS. The RAQS was initially adopted in 1991 and is updated every 3 years (most recently in 2016). The RAQS outlines SDAPCD's plans and control measures designed to attain the CAAQS for O_3. The SIP and RAQS rely on information from CARB and SANDAG, including mobile and area source emissions, as well as information regarding projected growth in San Diego County and the cities in the County, to project future emissions and then determine from that the strategies necessary for the reduction of emissions through regulatory controls. CARB mobile source emission projections and SANDAG growth projections are based on population, vehicle trends, and land use plans developed by San Diego County and the cities in the County as part of the development of their general plans.

If a project proposes development that is greater than that anticipated in the local plan and SANDAG's growth projections, the project might be in conflict with the SIP and RAQS and may contribute to a potentially significant cumulative impact on air quality. Implementation of the Project would result in an increase in housing of 323 multi-family residential units. The City of Oceanside General Plan identifies the site as Neighborhood Commercial (NC) and the project site is zoned Commercial Neighborhood (CN). The existing land use designation and zoning allows for mixed-use development, including various residential uses. The proposed project is consistent with the underlying land use and zoning for the project site but would require a waiver under the State Density Bonus Law.

Under the Density Bonus Law if a project is developed with 10 or more residences, no fewer than 15% of those residences must be designated as "affordable" as defined by the state. Of the proposed 323 single-family homes, 33 of the units would be affordable/low-income units, and the remaining 290 units would be considered market rate units, which complies with the Density Bonus Law provisions regarding affordable housing. Therefore, the proposed mix of residential units totaling 323 units is consistent with the underlying uses anticipated for the project site and consistent with the provisions allowed under State Density Bonus Law.

Furthermore, the most recent Regional Housing Needs Assessment from SANDAG stated that Oceanside needs to build 5,443 units from 2021 through 2029 (SANDAG 2020). The City has a projected deficit of 1,268 very-low, 718 low income units, 883 moderate and 2,574 above-moderate income units (SANDAG 2020). The Project is expected to bring 323 units to market in 2023, including 33 low income units and 290 above moderate income units, which would be within SANDAG's growth projection for housing during the 6th Cycle planning horizon (i.e., April 2021 – April 2029). Therefore, the Project would not conflict with SANDAG's regional growth forecast for the City.

[4] For the purpose of this discussion, the relevant federal air quality plan is the O_3 maintenance plan (SDAPCD 2016b). The RAQS is the applicable plan for purposes of state air quality planning. Both plans reflect growth projections in the SDAB.

2.4.1.2 Conclusion

The increase in the housing units and associated vehicle source emissions is not anticipated to result in air quality impacts that were not envisioned in the growth projections and RAQS, and this minor increase in residential units in the region would not obstruct or impede implementation of local air quality plans. Based on the analysis above, implementation of the Project would not result in development in excess of that anticipated in local plans or increases in population/housing growth beyond those contemplated by SANDAG. As such, vehicle trip generation and planned development for the Project are considered to be anticipated in the SIP and RAQS. Because the proposed land uses and associated vehicle trips are anticipated in local air quality plans, the Project would be consistent at a regional level with the underlying growth forecasts in the RAQS. Impacts would be **less than significant**.

2.4.2 Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development, and SDAPCD develops and implements plans for future attainment of the NAAQS and CAAQS. Based on these considerations, project-level thresholds of significance for criteria pollutants are relevant in the determination of whether the Project's individual emissions would have a cumulatively significant impact on air quality.

2.4.2.1 Construction

Construction of the proposed project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (i.e., off-road construction equipment, soil disturbance, and VOC off-gassing) and off-site sources (vendor and haul truck trips, and worker vehicle trips). Construction emissions can vary substantially day to day, depending on the level of activity, the specific type of operation, and for dust, the prevailing weather conditions.

Criteria air pollutant emissions associated with construction activities were quantified using CalEEMod. Default values provided by the program were used where detailed proposed project information was not available. A detailed depiction of the construction schedule—including information regarding phasing, equipment used during each phase, haul trucks, vendor trucks, and worker vehicles—is included in Section 2.4.2. above.

Development of the proposed project would generate air pollutant emissions from entrained dust, off-road equipment, vehicle emissions, asphalt pavement application, and architectural coatings. As described previously, fugitive dust would be limited through compliance with SDAPCD Rule 55, which requires the restriction of visible emissions of fugitive dust beyond the property line.

Table 7 shows the estimated maximum unmitigated daily construction emissions associated with the conceptual construction phases of the Project. Complete details of the emissions calculations are provided in Appendix A, *Air Quality and Greenhouse Gas Emissions CalEEMod Output Files*.

Table 7. Estimated Maximum Daily Construction Criteria Air Pollutant Emissions Prior to Mitigation

Construction Phase	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Site Preparation	2.72	27.65	18.71	0.04	21.09	11.31
Grading	2.37	54.80	24.95	0.19	13.32	5.80
Building Construction	2.71	18.67	25.92	0.07	4.17	1.62
Paving	1.38	9.64	14.99	0.02	0.61	0.47
Architectural Coatings	106.03	1.43	3.41	0.01	0.65	0.22
Maximum	***106.03***	***54.80***	***25.92***	***0.19***	***21.09***	***11.31***
SDAPCD threshold	*75*	*250*	*550*	*250*	*100*	*55*
Threshold exceeded?	**Yes**	No	No	No	No	No

Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SDAPCD = San Diego Air Pollution Control District.
See Appendix A for complete results.
The values shown are the maximum summer or winter daily emissions results from CalEEMod.

As shown in Table 7, daily construction emissions for the Project would exceed SDAPCD's significance thresholds for VOCs during the application of architectural coatings. Therefore, the Project would have a **potentially significant impact** related to emissions of criteria air pollutant emissions during construction and would require mitigation.

2.4.2.2 Mitigation

Mitigation required to minimize potentially significant air quality impacts during construction of the project include the following:

MM-AQ-1 Require Low-Volatile Organic Compound Coatings During Construction. The project applicant and/or their contractors shall ensure that low-VOC coatings with a VOC content of 30 grams per liter or less are used during construction.

2.4.2.3 Level of Significance After Mitigation

Table 8 summarizes the estimated maximum daily construction emissions associated with the conceptual construction phases of the Project after implementation of **MM-AQ-1**. As discussed below in Section 2.5.3, use of Tier 4 off road equipment is required to mitigate potentially significant health risk impacts during construction. Therefore, mitigated emissions shown in Table 8 also include use of Tier 4 equipment as described in **MM-AQ-2**. As shown, after mitigation, daily construction emissions for the Project would not exceed SDAPCD's significance thresholds for any criteria air pollutant. Therefore, after implementation of mitigation, the Project would result in a **less than significant impact**.

Table 8. Estimated Maximum Daily Construction Criteria Air Pollutant Emissions After Mitigation

Construction Phase	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Site Preparation	1.57	19.60	21.29	0.04	20.34	10.63
Grading	1.45	49.63	28.48	0.19	12.75	5.28
Building Construction	1.88	14.96	27.73	0.07	3.56	1.05
Paving	0.73	10.15	17.66	0.02	0.18	0.08
Architectural Coatings	64.62	1.27	3.43	0.01	0.60	0.16
Maximum	***64.62***	***49.63***	***28.48***	***0.19***	***20.34***	***10.63***
SDAPCD threshold	*75*	*250*	*550*	*250*	*100*	*55*
Threshold exceeded?	No	No	No	No	No	No

Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SDAPCD = San Diego Air Pollution Control District.
See Appendix A for complete results.
The values shown are the maximum summer or winter daily emissions results from CalEEMod.

2.4.2.4 Operations

Operation of the proposed project would generate VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions from mobile sources (vehicle trips), area sources (consumer products, landscape maintenance equipment), and energy sources. As discussed in Section 2.4.2., pollutant emissions associated with long-term operations were quantified using CalEEMod. Project-generated mobile source emissions were estimated in CalEEMod based on project-specific trip rates. CalEEMod default values were used to estimate emissions from the proposed project area and energy sources. The project includes a PDF that prohibits wood-burning. As such, CalEEMod area source emissions were adjusted to ensure that only natural gas hearths and fireplaces are installed and used in residential development.

Table 9 presents the unmitigated maximum daily emissions associated with the operation of the Project in 2024 after all phases of construction have been completed. Complete details of the emissions calculations are provided in Appendix A, *Air Quality and Greenhouse Gas Emissions CalEEMod Output Files*. Emissions represent maximum of summer and winter. "Summer" emissions are representative of the conditions that may occur during the O_3 season (May 1 to October 31), and "winter" emissions are representative of the conditions that may occur during the balance of the year (November 1 to April 30).

Table 9. Estimated Maximum Daily Operational Criteria Air Pollutant Emissions

Source	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Area	9.13	5.13	28.72	0.03	0.54	0.54
Energy	0.07	0.62	0.28	0.00	0.05	0.05
Mobile	5.81	6.35	53.09	0.11	12.07	3.27
Total	***15.00***	***12.10***	***82.08***	***0.15***	***12.66***	***3.86***
SDAPCD threshold	*75*	*250*	*550*	*250*	*100*	*55*

Table 9. Estimated Maximum Daily Operational Criteria Air Pollutant Emissions

Source	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Threshold exceeded?	No	No	No	No	No	No

Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SDAPCD = San Diego Air Pollution Control District. <0.01 = reported value is less than 0.01.
See Appendix A for complete results.
The values shown are the maximum summer or winter daily emissions results from CalEEMod.

As shown in Table 9, daily operational emissions for the Project would not exceed SDAPCD's significance thresholds for any criteria air pollutant. Therefore, the Project would result in a **less than significant impact** related to emissions of criteria air pollutant emissions during operation.

2.4.2.5 Conclusion

In analyzing cumulative impacts from a project, the analysis must specifically evaluate the project's contribution to the cumulative increase in pollutants for which the SDAB is designated as nonattainment for the CAAQS and NAAQS. If the project does not exceed thresholds and is determined to have less than significant project-specific impacts, it may still contribute to a significant cumulative impact on air quality if the emissions from the project components, in combination with the emissions from other proposed or reasonably foreseeable future projects, are in excess of established thresholds. However, the project would only be considered to have a significant cumulative impact if its contribution accounts for a significant proportion of the cumulative total emissions (i.e., it represents a "cumulatively considerable contribution" to the cumulative air quality impact).

Additionally, for the SDAB, the RAQS serves as the long-term regional air quality planning document for the purpose of assessing cumulative operational emissions within the basin to ensure the SDAB continues to make progress toward NAAQS and CAAQS attainment status. As such, cumulative projects located in the San Diego region would have the potential to result in a cumulative impact to air quality if, in combination, they would conflict with or obstruct implementation of the RAQS. Similarly, individual projects that are inconsistent with the regional planning documents on which the RAQS is based would have the potential to result in cumulative impacts if they represent development beyond regional projections.

The SDAB has been designated as a federal nonattainment area for O_3 and a state nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. PM_{10} and $PM_{2.5}$ emissions associated with construction generally result in near-field impacts. The nonattainment status is the result of cumulative emissions from all sources of these air pollutants and their precursors within the SDAB. As shown in Tables 7 and 8, the emissions of all criteria pollutants from the Project's construction would be below the significance levels after implementation of **MM-AQ-1**, which requires use of low-VOC paints. Construction would be short term, temporary in nature, and activities would be considered typical of a residential project. Once construction is completed, construction-related emissions would cease. Operational emissions generated by the Project would not result in emissions that exceed significance thresholds for any criteria air pollutant. As such, the Project would result in less than significant impacts to air quality.

Regarding long-term cumulative operational emissions in relation to consistency with local air quality plans, the SIP and RAQS serve as the primary air quality planning documents for the state and SDAB, respectively. The SIP and

RAQS rely on SANDAG growth projections based on population, vehicle trends, and land use plans developed by the cities and by the County as part of the development of their general plans. Therefore, projects that propose development that is consistent with the growth anticipated by local plans would be consistent with the SIP and RAQS and would not be considered to result in cumulatively considerable impacts from operational emissions. As discussed in Section 2.5.1 of this report, the Project is consistent with the SANDAG growth projections. Thus, it would be consistent at a regional level with the underlying growth forecasts in the SIP and RAQS.

As a result, the Project would not result in a cumulatively considerable contribution to regional O_3 concentrations or other criteria pollutant emissions. Cumulative impacts for construction and operation would be **less than significant** for the Project.

2.4.3 Would the Project expose sensitive receptors to substantial pollutant concentrations?

2.4.3.1 Carbon Monoxide Hotspots

Mobile-source impacts occur on two basic scales of motion. Regionally, Project-related travel will add to regional trip generation and increase the vehicle miles traveled within the local airshed and the SDAB. Locally, Project traffic will be added to the City's roadway system. If such traffic occurs during periods of poor atmospheric ventilation, consists of a large number of vehicles "cold-started" and operating at pollution-inefficient speeds, and operates on roadways already crowded with non-Project traffic, there is a potential for the formation of microscale CO "hotspots" in the area immediately around points of congested traffic. Because of continued improvement in mobile emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in the basin is steadily decreasing.

Projects contributing to adverse traffic impacts may result in the formation of CO hotspots. To verify that the Project would not cause or contribute to a violation of the CO standard, a screening evaluation of the potential for CO hotspots was conducted. The County's CO hotspot screening guidance (County of San Diego 2007) was followed to determine whether the Project would require a site-specific hotspot analysis. Per guidance, any project that would place receptors within 500 feet of a signalized intersection operating at or below LOS E (peak-hour trips exceeding 3,000 trips) must conduct a "hotspot" analysis for CO. Likewise, projects that will cause road intersections to operate at or below a LOS E (i.e., with intersection peak-hour trips exceeding 3,000) will also have to conduct a CO "hotspot" analysis. The signalized intersection nearest to the project is located at N. Melrose Dr./Oceanside Blvd, which is currently operating at LOS F. While this LOS is below the County's screening criteria of LOS E, per the Local Transportation Study prepared for the Project, once the project is constructed, the intersection will be operating at LOS D with Project traffic due to improvements by the adjacent Melrose Heights Project, which are assumed to be implemented by the time the Project is built and result in delay decreases (Linscott, Law & Greenspan 2022). Therefore, the proposed project would not generate traffic that would contribute to potential adverse traffic impacts that may result in the formation of CO hotspots and no hotspot analysis is required. Based on these considerations, the Project would result in a **less than significant** impact to air quality with regard to potential CO hotspots.

2.4.3.2 Toxic Air Contaminants

In addition to impacts from criteria pollutants, Project impacts may include emissions of pollutants identified by the state and federal government as TACs or HAPs. The greatest potential for TAC emissions during construction would be DPM emissions from heavy equipment operations and heavy-duty trucks, and the associated health impacts to sensitive receptors. Construction of the Project would occur over a period of 14 months and following completion of construction activities, Project-related TAC emissions would cease. The closest sensitive receptors to the Project site are single-family residences immediately adjacent on the southeast boundary of the site. As such, a construction health risk analysis was performed for the Project as discussed below.

Based on results from the HRA, the maximally exposed individual resident offsite would be located at the single-family residences to the southeast of the Project site. Table 10 summarizes the results of the HRA for proposed project construction, and detailed results are provided in Appendix B, *Health Risk Assessment Output Files*.

Table 10. Construction Activity Health Risk Assessment Results Prior to Mitigation

Impact Parameter	Units	Project Impact	CEQA Threshold	Level of Significance
Offsite				
Cancer Risk	Per Million	39.33	10.0	**Potentially Significant**
HIC	Not Applicable	0.035	1.0	Less than Significant

Source: Appendix B
Notes: CEQA = California Environmental Quality Act; HIC = Chronic Hazard Index.

The results of the HRA demonstrate that the TAC exposure from construction diesel exhaust emissions would result in cancer risk above the 10 in 1 million threshold and Chronic Hazard Index less than 1. Therefore, TAC emissions from construction of the Project would result in a **potentially significant** impact and thus mitigation is required.

2.4.3.3 Mitigation

Mitigation required to minimize potentially significant air quality impacts during construction of the project include the following:

MM-AQ-2 Require Use of Tier 4 Off-Road Equipment During Construction. Prior to the commencement of construction activities for the project, the Applicant shall require its construction contractor to demonstrate that all 75-horsepower or greater diesel-powered equipment is powered with California Air Resources Board (CARB)-certified Tier 4 Interim engines.

An exemption from this requirement may be granted if (1) the Applicant documents equipment with Tier 4 Interim engines are not reasonably available, and (2) the required corresponding reductions in criteria air pollutant emissions can be achieved for the project from other combinations of construction equipment. Before an exemption may be granted, the Applicant's construction contractor shall: (1) demonstrate that at least two construction fleet owners/operators in the City of Oceanside or County of San Diego were contacted and that those owners/operators confirmed Tier 4 Interim equipment could not be located within the City of Oceanside or County of San Diego

during the desired construction schedule; and (2) the proposed replacement equipment has been evaluated using California Emissions Estimator Model (CalEEMod) or other industry standard emission estimation method and documentation provided to the City to confirm that necessary project-generated emissions reductions are achieved.

2.4.3.4 Level of Significance After Mitigation

Table 11 summarizes the results of the HRA after implementation of **MM-AQ-2** for construction of the proposed project. As shown, after mitigation, TAC exposure from construction diesel exhaust emissions would result in cancer risk below the 10 in 1 million threshold and Chronic Hazard Index would still be less than 1. Threshold, after implementation of mitigation, the Project would result in a **less than significant impact** related to exposure to TAC emissions during construction.

Table 11. Construction Activity Health Risk Assessment Results After Mitigation

Impact Parameter	Units	Project Impact	CEQA Threshold	Level of Significance
Offsite				
Cancer Risk	Per Million	6.41	10.0	Less than Significant
HIC	Not Applicable	0.006	1.0	Less than Significant

Source: Appendix B
Notes: CEQA = California Environmental Quality Act; HIC = Chronic Hazard Index.

2.5.3.5 Health Effects of Criteria Air Pollutants

After implementation of mitigation measures **MM-AQ-1** and **MM-AQ-2**, construction and operation of the Project would not result in emissions that exceed SDAPCD's emission thresholds for any criteria air pollutants. The SDAPCD thresholds are based on the SDAB complying with the NAAQS and CAAQS which are protective of public health; therefore, no adverse effects to human health would result from the Project. The following provides a general discussion of criteria air pollutants and their health effects.

Regarding VOCs, some VOCs would be associated with motor vehicles and construction equipment, while others are associated with architectural coatings and asphalt off-gassing, the emissions of which would not result in exceedances of SDAPCD's thresholds. Generally, the VOCs in architectural coatings and asphalt are of relatively low toxicity. Additionally, SDAPCD Rule 67.0.1 restricts the VOC content of coatings for both construction and operational applications, and **MM-AQ-1** would ensure that during construction, only coatings with content less than 30 g/L would be used.

In addition, VOCs and NO_x are precursors to O_3, for which the SDAB is designated as nonattainment with respect to the NAAQS and CAAQS (the SDAB is designated by EPA as an attainment area for the 1-hour O_3 NAAQS standard and 1997 8-hour NAAQS standard). The health effects associated with O_3, as discussed in Section 2.1.4, Criteria Air Pollutants, are generally associated with reduced lung function. The contribution of VOCs and NO_x to regional ambient O_3 concentrations is the result of complex photochemistry. The increases in O_3 concentrations in the SDAB due to O_3 precursor emissions tend to be found downwind from the source location to allow time for the photochemical reactions to occur. However, the potential for exacerbating excessive O_3 concentrations would also

depend on the time of year that the VOC emissions would occur because exceedances of the O_3 NAAQS and CAAQS tend to occur between April and October, when solar radiation is highest. The holistic effect of a single project's emissions of O_3 precursors is speculative due to the lack of quantitative methods to assess this impact. Nonetheless, the VOC and NO_x emissions associated with Project construction could minimally contribute to regional O_3 concentrations and the associated health impacts. Due to the minimal contribution during construction and operation, as well as the existing good air quality in coastal San Diego areas, health impacts would be considered less than significant.

Similar to O_3, construction of the Project would not exceed thresholds for PM_{10} or $PM_{2.5}$ and would not contribute to exceedances of the NAAQS and CAAQS for particulate matter. Due to the minimal contribution of particulate matter during construction and operation, health impacts would be considered less than significant.

Regarding NO_2, which is a constituent of NO_x, construction of the Project would not contribute to exceedances of the NAAQS and CAAQS for NO_2 since NO_x emissions would be less than the applicable SDAPCD threshold. As described in Section 3.1, NO_2 health impacts are associated with respiratory irritation, which may be experienced by nearby receptors during the periods of heaviest use of off-road construction equipment. However, these operations would be relatively short term, and the off-road construction equipment would be operating on various portions of the site and would not be concentrated in one portion of the site at any one time. Construction of the Project would not require any stationary emission sources that would create substantial, localized NO_2 impacts.

Based on the preceding considerations, health impacts from Project-related criteria air pollutant emissions would be considered **less than significant** with implementation of **MM-AQ-1** and **MM-AQ-2**.

2.4.3.6 Conclusion

The results of the HRA demonstrate that after implementation of **MM-AQ-2**, which requires use of Tier 4 equipment during construction, the TAC exposure from construction diesel exhaust emissions would not result in cancer risk above the 10 in 1 million threshold, nor a Chronic Hazard Index greater than 1.0. In addition, VOC and NO_x emissions, as described previously, would minimally contribute to regional O_3 concentrations and the associated health effects. In addition to O_3, NO_x emissions would not contribute to potential exceedances of the NAAQS and CAAQS for NO_2. As shown in Table 3, the existing NO_2 concentrations in the area are well below the NAAQS and CAAQS standards. Thus, it is not expected the Project's operational NO_x emissions would result in exceedances of the NO_2 standards or contribute to the associated health effects. CO tends to be a localized impact associated with congested intersections. The associated CO "hotspots" were discussed previously as a less than significant impact. Thus, the Project's CO emissions would not contribute to significant health effects associated with this pollutant. PM_{10} and $PM_{2.5}$ would not contribute to potential exceedances of the NAAQS and CAAQS for particulate matter and would not obstruct the SDAB from coming into attainment for these pollutants and would not contribute to significant health effects associated with particulates. Therefore, overall health impacts associated with criteria air pollutants would be considered **less than significant**.

2.4.4 Would the Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

2.4.4.1 Construction

Odors would be generated from vehicles and/or equipment exhaust emissions during construction of the Project. Odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment and architectural coatings. Such odors are temporary and for the types of construction activities anticipated for Project components, would generally occur at magnitudes that would not affect substantial numbers of people. Therefore, impacts associated with odors during construction would be considered **less than significant**.

2.4.4.2 Operational

Due to the subjective nature of odor impacts, the number of variables that can influence the potential for an odor impact, and the variety of odor sources, there are no quantitative or formulaic methodologies to determine if potential odors would have a significant impact. Examples of land uses and industrial operations that are commonly associated with odor complaints include agricultural uses, wastewater treatment plants, food processing facilities, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding facilities. In addition to the odor source, the distance between the sensitive receptor(s) and the odor source, as well as the local meteorological conditions, are considerations in the potential for a project to frequently expose the public to objectionable odors. Although localized air quality impacts are focused on potential impacts to sensitive receptors, such as residences and schools, other land uses where people may congregate (e.g., workplaces) or uses with the intent to attract people (e.g., restaurants and visitor-serving accommodations) should also be considered in the evaluation of potential odor nuisance impacts. The Project would include a mixed-use residential development, which is not expected to produce any nuisance odors; therefore, impacts related to odors caused by the Project would be **less than significant**.

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3 Greenhouse Gas Emissions

3.1 Environmental Setting

3.1.1 Climate Change Overview

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind patterns, lasting for an extended period of time (decades or longer). The Earth's temperature depends on the balance between energy entering and leaving the planet's system. Many factors, both natural and human, can cause changes in Earth's energy balance, including variations in the sun's energy reaching Earth, changes in the reflectivity of Earth's atmosphere and surface, and changes in the greenhouse effect, which affects the amount of heat retained by Earth's atmosphere (EPA 2022b).

The greenhouse effect is the trapping and build-up of heat in the atmosphere (troposphere) near the Earth's surface. The greenhouse effect traps heat in the troposphere through a threefold process as follows: Short-wave radiation emitted by the Sun is absorbed by the Earth; the Earth emits a portion of this energy in the form of long-wave radiation; and GHGs in the upper atmosphere absorb this long-wave radiation and emit it into space and toward the Earth. The greenhouse effect is a natural process that contributes to regulating the Earth's temperature and creates a pleasant, livable environment on the Earth. Human activities that emit additional GHGs to the atmosphere increase the amount of infrared radiation that gets absorbed before escaping into space, thus enhancing the greenhouse effect and causing the Earth's surface temperature to rise.

The scientific record of the Earth's climate shows that the climate system varies naturally over a wide range of time scales and that in general, climate changes prior to the Industrial Revolution in the 1700s can be explained by natural causes, such as changes in solar energy, volcanic eruptions, and natural changes in GHG concentrations. Recent climate changes, in particular the warming observed over the past century, however, cannot be explained by natural causes alone. Rather, it is extremely likely that human activities have been the dominant cause of that warming since the mid-20th century and is the most significant driver of observed climate change (IPCC 2014; EPA 2022b). Human influence on the climate system is evident from the increasing GHG concentrations in the atmosphere, positive radiative forcing, observed warming, and improved understanding of the climate system (IPCC 2014). The atmospheric concentrations of GHGs have increased to levels unprecedented in the last 800,000 years, primarily from fossil fuel emissions and secondarily from emissions associated with land use changes (IPCC 2014). Continued emissions of GHGs will cause further warming and changes in all components of the climate system, which is discussed further in Section 3.1.5, Potential Effects of Climate Change.

3.1.2 Greenhouse Gases and other Climate Forcing Substances

A GHG is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. GHGs include, but are not limited to, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone (O_3), water vapor, hydrofluorocarbons (HFCs), hydrochlorofluorocarbons (HCFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).[5] Some GHGs, such as CO_2, CH_4, and N_2O, occur naturally and are emitted to the

[5] California Health and Safety Code 38505 identifies seven GHGs that CARB is responsible to monitor and regulate to reduce emissions: CO_2, CH_4, N_2O, SF_6, HFCs, PFCs, and NF_3.

atmosphere through natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Manufactured GHGs, which have a much greater heat-absorption potential than CO_2, include fluorinated gases, such as HFCs, HCFCs, PFCs, and SF_6, which are associated with certain industrial products and processes. A summary of the most common GHGs and their sources is included in the following text.[6] Also included is a discussion of other climate forcing substances.

Carbon Dioxide (CO_2). CO_2 is a naturally occurring gas and a by-product of human activities and is the principal anthropogenic GHG that affects the Earth's radiative balance. Natural sources of CO_2 include respiration of bacteria, plants, animals, and fungus; evaporation from oceans; volcanic out-gassing; and decomposition of dead organic matter. Human activities that generate CO_2 are from the combustion of fuels such as coal, oil, natural gas, and wood and changes in land use.

Methane (CH_4). CH_4 is produced through both natural and human activities. CH_4 is a flammable gas and is the main component of natural gas. Methane is produced through anaerobic (without oxygen) decomposition of waste in landfills, flooded rice fields, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion.

Nitrous Oxide (N_2O). N_2O is produced through natural and human activities, mainly through agricultural activities and natural biological processes, although fuel burning and other processes also create N_2O. Sources of N_2O include soil cultivation practices (microbial processes in soil and water), especially the use of commercial and organic fertilizers, manure management, industrial processes (such as in nitric acid production, nylon production, and fossil-fuel-fired power plants), vehicle emissions, and using N_2O as a propellant (such as in rockets, racecars, and aerosol sprays).

Fluorinated Gases. Fluorinated gases (also referred to as F-gases) are synthetic powerful GHGs emitted from many industrial processes. Fluorinated gases are commonly used as substitutes for stratospheric ozone-depleting substances (e.g., CFCs, HCFCs, and halons). The most prevalent fluorinated gases include the following:

- **Hydrofluorocarbons:** HFCs are compounds containing only hydrogen, fluorine, and carbon atoms. HFCs are synthetic chemicals used as alternatives to ozone-depleting substances in serving many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are used in manufacturing.
- **Perfluorocarbons:** PFCs are a group of human-made chemicals composed of carbon and fluorine only. These chemicals were introduced as alternatives, with HFCs, to the ozone depleting substances. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing. Since PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere, these chemicals have long lifetimes, ranging between 10,000 and 50,000 years.
- **Sulfur Hexafluoride:** SF_6 is a colorless gas soluble in alcohol and ether and slightly soluble in water. SF_6 is used for insulation in electric power transmission and distribution equipment, semiconductor manufacturing, the magnesium industry, and as a tracer gas for leak detection.

[6] The descriptions of GHGs are summarized from the Intergovernmental Panel on Climate Change (IPCC) Second Assessment Report (1995), IPCC Fourth Assessment Report (2007), CARB's Glossary of Air Pollution Terms (2015), and EPA's Glossary of Climate Change Terms (2016).

- **Nitrogen Trifluoride:** NF_3 is used in the manufacture of a variety of electronics, including semiconductors and flat panel displays.

Chlorofluorocarbons (CFCs). CFCs are synthetic chemicals that have been used as cleaning solvents, refrigerants, and aerosol propellants. CFCs are chemically unreactive in the lower atmosphere (troposphere) and the production of CFCs was prohibited in 1987 due to the chemical destruction of stratospheric O_3.

Hydrochlorofluorocarbons (HCFCs). HCFCs are a large group of compounds, whose structure is very close to that of CFCs—containing hydrogen, fluorine, chlorine, and carbon atoms—but including one or more hydrogen atoms. Like HFCs, HCFCs are used in refrigerants and propellants. HCFCs were also used in place of CFCs for some applications; however, their use in general is being phased out.

Black Carbon. Black carbon is a component of fine particulate matter, which has been identified as a leading environmental risk factor for premature death. It is produced from the incomplete combustion of fossil fuels and biomass burning, particularly from older diesel engines and forest fires. Black carbon warms the atmosphere by absorbing solar radiation, influences cloud formation, and darkens the surface of snow and ice, which accelerates heat absorption and melting. Black carbon is a short-lived species that varies spatially, which makes it difficult to quantify the global warming potential. Diesel particulate matter emissions are a major source of black carbon and are toxic air contaminates (TACs) that have been regulated and controlled in California for several decades to protect public health. In relation to declining diesel particulate matter from the California Air Resources Board's (CARB's) regulations pertaining to diesel engines, diesel fuels, and burning activities, CARB estimates that annual black carbon emissions in California have reduced by 70% between 1990 and 2010, with 95% control expected by 2020 (CARB 2014).

Water Vapor. The primary source of water vapor is evaporation from the ocean, with additional vapor generated by sublimation (change from solid to gas) from ice and snow, evaporation from other water bodies, and transpiration from plant leaves. Water vapor is the most important, abundant, and variable GHG in the atmosphere and maintains a climate necessary for life.

Ozone (O_3). Tropospheric O_3, which is created by photochemical reactions involving gases from both natural sources and human activities, acts as a GHG. Stratospheric O_3, which is created by the interaction between solar ultraviolet radiation and molecular oxygen (O_2), plays a decisive role in the stratospheric radiative balance. Depletion of stratospheric O_3, due to chemical reactions that may be enhanced by climate change, results in an increased ground-level flux of ultraviolet-B radiation.

Aerosols. Aerosols are suspensions of particulate matter in a gas emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light.

3.1.3 Global Warming Potential

Gases in the atmosphere can contribute to climate change both directly and indirectly. Direct effects occur when the gas itself absorbs radiation. Indirect radiative forcing occurs when chemical transformations of the substance produce other GHGs, when a gas influences the atmospheric lifetimes of other gases, and/or when a gas affects atmospheric processes that alter the radiative balance of the Earth (e.g., affect cloud formation or albedo) (EPA

2022b). The Intergovernmental Panel on Climate Change (IPCC) developed the global warming potential (GWP) concept to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP of a GHG is defined as the ratio of the time-integrated radiative forcing from the instantaneous release of 1 kilogram of a trace substance relative to that of 1 kilogram of a reference gas (IPCC 2014). The reference gas used is CO_2; therefore, GWP-weighted emissions are measured in metric tons CO_2 equivalent (MT CO_2e).

The current version of the CalEEMod (version 2020.4.0) assumes that the GWP for CH_4 is 25 (so emissions of 1 MT of CH_4 are equivalent to emissions of 25 MT of CO_2), and the GWP for N_2O is 298, based on the IPCC Fourth Assessment Report (IPCC 2007). The GWP values identified in CalEEMod were applied to the Project.

3.1.4 Sources of Greenhouse Gas Emissions

Global Inventory

Anthropogenic GHG emissions worldwide in 2019 (the most recent year for which data is available) totaled approximately 52,400 million metric tons (MMT) of CO_2e, excluding land use change and forestry (PBL 2018). The top six GHG emitters include China, the United States, the Russian Federation, India, Japan, and the European Union, which accounted for approximately 62% of the total global emissions, or approximately 32,500 MMT CO_2e (PBL 2018). Table 12 presents the top GHG-emissions-producing countries.

Table 12. Six Top GHG Producer Countries

Emitting Countries	2019 GHG Emissions (MMT CO_2e)[a,b]
China	14,000
United States	6,600
European Union	4,300
India	3,700
Russian Federation	2,500
Japan	1,400
Total	**32,500**

Source: PBL 2018.
Notes: MMT CO_2e = million metric tons of carbon dioxide equivalent.
[a] Column may not add due to rounding.
[b] GHG emissions do not include land use change and forestry-related GHG emissions.

National Inventory

Per the EPA Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 to 2019 (EPA 2021), total United States GHG emissions were approximately 6,558.3 MMT CO_2e in 2019 (EPA 2021). The primary GHG emitted by human activities in the United States was CO_2, which represented approximately 80.1% of total GHG emissions (5,255.8 MMT CO_2e). The largest source of CO_2, and of overall GHG emissions, was fossil-fuel combustion, which accounted for approximately 92.4% of CO_2 emissions in 2019 (4,856.7 MMT CO_2e). Relative to 1990, gross United States GHG emissions in 2019 were 1.8% higher; however, the gross emissions were down from a high of 15.6% above 1990 levels in 2007. GHG emissions decreased from 2018 to 2019 by 1.7% (113.1 MMT CO_2e) and overall, net emissions in 2019 were 13% below 2005 levels (EPA 2021).

State Inventory

According to California's 2000–2019 GHG emissions inventory (2021 edition), California emitted approximately 418 MMT CO_2e in 2019, including emissions resulting from out-of-state electrical generation (CARB 2022d). The sources of GHG emissions in California include transportation, industry, electric power production from both in-state and out-of-state sources, residential and commercial activities, agriculture, high-GWP substances, and recycling and waste. Table 13 presents California GHG emission source categories and their relative contributions to the emissions inventory in 2019.

Between 2000 and 2019, per-capita GHG emissions in California have dropped from a peak of 14.0 MT per person in 2001 to 10.5 MT per person in 2019, representing an approximate 25% decrease. In addition, total GHG emissions in 2019 were approximately 7 MMT CO_2e lower than 2018 emissions (CARB 2022d).

Table 13. GHG Emissions Sources in California

Source Category	Annual GHG Emissions (MMT CO_2e)	Percent of Total*
Transportation	166.1	39.7%
Industrial	88.2	21.1%
Electric power	58.8	14.1%
Commercial and residential	43.8	10.5%
Agriculture	31.8	7.6%
High global-warming potential substances	20.6	4.9%
Recycling and waste	8.9	2.1%
Total	**418.2**	**100%**

Source: CARB 2022d.
Notes: GHG = greenhouse gas; MMT CO_2e = million metric tons of carbon dioxide equivalent.
* Column may not add due to rounding.

Between 2000 and 2019, per-capita GHG emissions in California have dropped from a peak of 14.0 MT CO_2e per person in 2001 to 10.5 MT CO_2e per person in 2019, representing an approximate 25% decrease. In addition, total GHG emissions in 2019 were approximately 7 MMT CO_2e lower than 2018 emissions (CARB 2022d).

Local Inventories

According to the GHG inventory data compiled by the Energy Policy Initiative Center, in 2012, the County (as defined to include all cities therein and unincorporated County areas) emitted 34.7 MMT CO_2e (EPIC 2015). As outlined in Table 14, San Diego County GHG Emissions by Sectors, on-road transportation generated 37% of these emissions. Similar to emissions trends statewide, electricity generation is the second biggest emitter.

Table 14. San Diego County GHG Emissions by Sectors

Source Category	Annual GHG Emissions (MMT CO_2e)	Percent of Total
On-road transportation	13.14	37.2
Electricity generation	7.97	22.6

Table 14. San Diego County GHG Emissions by Sectors

Source Category	Annual GHG Emissions (MMT CO_2e)	Percent of Total
Natural gas end uses	2.84	8.0
Heavy Duty Trucks & Vehicles	1.89	5.4
Solid Waste	1.75	4.9
Other Fuels	1.64	4.6
Industrial	1.43	4.1
Aviation	1.37	3.9
Off-Road	0.92	2.6
Wildfire	0.81	2.3
Other – Thermal Cogeneration	0.64	1.8
Water	0.52	1.5
Wastewater	0.16	0.5
Rail	0.11	0.3
Agriculture	0.08	0.2
Marine Vessels	0.05	0.1
Development and Sequestration	(0.65)	N/A
Total	**34.67**	**100**

Source: EPIC 2015.
Notes: GHG = greenhouse gas; MMT CO_2e = million metric tons of carbon dioxide equivalent per year

The 2013 emissions inventory for the City is shown in Table 15 below.

Table 15. City of Oceanside GHG Emissions by Sectors for 2013

Source Category	Annual GHG Emissions (MT CO_2e)	Percent of Total
Transportation	477,178	48.5
Electricity	251,524	25.6
Natural Gas	162,447	16.5
Solid Waste	40,615	4.1
Water[1]	27,420	2.8
Municipal Operations	24,828	2.5
Total	**984,012**	**100**

Source: City of Oceanside 2019.
Notes: GHG emissions for each category are rounded. Sums may not add up to totals due to rounding.
1 Emissions associated with water and wastewater treatment at City-operated facilities were accounted for as Municipal emissions. Water emissions include upstream emissions from import of water to the City.

3.1.5 Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through uncertain impacts related to future air temperatures and precipitation patterns. The 2014 IPCC Synthesis Report indicated that warming of the climate system is unequivocal and since the 1950s, many of the observed changes are

unprecedented over decades to millennia. Signs that global climate change has occurred include warming of the atmosphere and ocean, diminished amounts of snow and ice, and rising sea levels (IPCC 2014).

In California, climate change impacts have the potential to affect sea-level rise, agriculture, snowpack and water supply, forestry, wildfire risk, public health, frequency of severe weather events, and electricity demand and supply. The primary effect of global climate change has been a rise in average global tropospheric temperature. Reflecting the long-term warming trend since pre-industrial times, observed global mean surface temperature for the decade 2006–2015 was 0.87°C (1.6°F) (likely between 0.75°C [1.4°F] and 0.99°C [1.8°F]) higher than the average over the 1850–1900 period (IPCC 2018). Scientific modeling predicts that continued emissions of GHGs at or above current rates would induce more extreme climate changes during the twenty-first century than were observed during the twentieth century. Human activities are estimated to have caused approximately 1.0°C (1.8°F) of global warming above pre-industrial levels, with a likely range of 0.8°C to 1.2°C (1.4°F to 2.2°F) (IPCC 2018). Global warming is likely to reach 1.5°C (2.7°F) between 2030 and 2052 if it continues to increase at the current rate (IPCC 2018).

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. A scientific consensus confirms that climate change is already affecting California. The Office of Environmental Health Hazard Assessment identified various indicators of climate change in California, which are scientifically based measurements that track trends in various aspects of climate change. Many indicators reveal discernible evidence that climate change is occurring in California and is having significant, measurable impacts in the state. Changes in the state's climate have been observed, including an increase in annual average air temperature with record warmth from 2012 to 2016, more frequent extreme heat events, more extreme drought, a decline in winter chill, an increase in cooling degree days and a decrease in heating degree days, and an increase in variability of statewide precipitation (OEHHA 2018).

Warming temperatures and changing precipitation patterns have altered California's physical systems—the ocean, lakes, rivers, and snowpack—upon which the state depends. Winter snowpack and spring snowmelt runoff from the Sierra Nevada and southern Cascade Mountains provide approximately one-third of the state's annual water supply. Impacts of climate on physical systems have been observed such as high variability of snow-water content (i.e., amount of water stored in snowpack), decrease in snowmelt runoff, glacier change (loss in area), rise in sea levels, increase in average lake water temperature and coastal ocean temperature, and a decrease in dissolved oxygen in coastal waters (OEHHA 2018).

Impacts of climate change on biological systems, including humans, wildlife, and vegetation, have also been observed, including climate change impacts on terrestrial, marine, and freshwater ecosystems. As with global observations, species responses include those consistent with warming: elevational or latitudinal shifts in range, changes in the timing of key plant and animal life cycle events, and changes in the abundance of species and in community composition. Humans are better able to adapt to a changing climate than plants and animals in natural ecosystems. Nevertheless, climate change poses a threat to public health as warming temperatures and changes in precipitation can affect vector-borne pathogen transmission and disease patterns in California as well as the variability of heat-related deaths and illnesses. In addition, since 1950, the area burned by wildfires each year has followed an increasing trend overall.

The CNRA has released four California Climate Change Assessments (2006, 2009, 2012, and 2018), which have addressed the following: acceleration of warming across the state, more intense and frequent heat waves, greater riverine flows, accelerating sea level rise, more intense and frequent drought, more severe and frequent wildfires,

more severe storms and extreme weather events, shrinking snowpack and less overall precipitation, and ocean acidification, hypoxia, and warming. A summary of current and future climate change impacts to resource areas in California, as discussed in the Safeguarding California: Reducing Climate Risk (CNRA 2014), is provided in the following text.

Agriculture. The impacts of climate change on the agricultural sector are far more severe than the typical variability in weather and precipitation patterns that occur year to year. Some of the specific challenges faced by the agricultural sector and farmers include more drastic and unpredictable precipitation and weather patterns; extreme weather events that range from severe flooding to extreme drought, to destructive storm events; significant shifts in water availably and water quality; changes in pollinator lifecycles; temperature fluctuations, including extreme heat stress and decreased chill hours; increased risks from invasive species and weeds, agricultural pests and plant diseases; and disruptions to the transportation and energy infrastructure supporting agricultural production. These challenges and associated short-term and long-term impacts can have both positive and negative effects on agricultural production. Nonetheless, it is predicted that current crop and livestock production will suffer long-term negative effects resulting in a substantial decrease in the agricultural sector if not managed or mitigated.

Biodiversity and Habitat. The state's extensive biodiversity stems from its varied climate and assorted landscapes, which have resulted in numerous habitats where species have evolved and adapted over time. Specific climate change challenges to biodiversity and habitat include species migration in response to climatic changes, range shift, and novel combinations of species; pathogens, parasites and disease; invasive species; extinction risks; changes in the timing of seasonal life-cycle events; food web disruptions; and threshold effects (i.e., a change in the ecosystem that results in a "tipping point" beyond which irreversible damage or loss has occurs). Habitat restoration, conservation, and resource management across California and through collaborative efforts amongst public, private and nonprofit agencies has assisted in the effort to fight climate change impacts on biodiversity and habitat. One of the key measures in these efforts is ensuring species' ability to relocate as temperature and water availability fluctuate as a result of climate change, based on geographic region.

Energy. The energy sector provides California residents with a supply of reliable and affordable energy through a complex integrated system. Specific climate change challenges for the energy sector include temperature, fluctuating precipitation patterns, increasing extreme weather events and sea level rise. Increasing temperatures and reduced snowpack negatively impact the availability of a steady flow of snowmelt to hydroelectric reservoirs. Higher temperatures also reduce the capacity of thermal power plants since power plant cooling is less efficient at higher ambient temperatures. Natural gas infrastructure in coastal California is threatened by sea level rise and extreme storm events.

Forestry. Forests occupy approximately 33% of California's 100 million acres and provide key benefits such as wildlife habitat, absorption of CO_2, renewable energy and building materials. The most significant climate change related risk to forests is accelerated risk of wildfire and more frequent and severe droughts. Droughts have resulted in more large-scale mortalities and combined with increasing temperatures have led to an overall increase in wildfire risks. Increased wildfire intensity subsequently increases public safety risks, property damage, fire suppression and emergency response costs, watershed and water quality impacts and vegetation conversions. These factors contribute to decreased forest growth, geographic shifts in tree distribution, loss of fish and wildlife habitat and decreased carbon absorption. Climate change may result in increased establishment of non-native species, particularly in rangelands where invasive species are already a problem. Invasive species may be able to

exploit temperature or precipitation changes, or quickly occupy areas denuded by fire, insect mortality or other climate change effects on vegetation.

Ocean and Coastal Ecosystems and Resources. Sea level rise, changing ocean conditions and other climate change stressors are likely to exacerbate long-standing challenges related to ocean and coastal ecosystems in addition to threatening people and infrastructure located along the California coastline and in coastal communities. Sea level rise in addition to more frequent and severe coastal storms and erosion are threatening vital infrastructure such as roads, bridges, power plants, ports and airports, gasoline pipes, and emergency facilities, as well as negatively impacting the coastal recreational assets such as beaches and tidal wetlands. Water quality and ocean acidification threaten the abundance of seafood and other plant and wildlife habitats throughout California and globally.

Public Health. Climate change can impact public health through various environmental changes and is the largest threat to human health in the twenty-first century. Changes in precipitation patterns affect public health primarily through potential for altered water supplies, and extreme events such as heat, floods, droughts, and wildfires. Increased frequency, intensity and duration of extreme heat and heat waves is likely to increase the risk of mortality due to heat related illness as well as exacerbate existing chronic health conditions. Other extreme weather events are likely to negatively impact air quality and increase or intensify respiratory illness such as asthma and allergies. Additional health impacts that may be impacted by climate change include cardiovascular disease, vector-borne diseases, mental health impacts, and malnutrition injuries. Increased frequency of these ailments is likely to subsequently increase the direct risk of injury and/or mortality.

Transportation. Residents of California rely on airports, seaports, public transportation and an extensive roadway network to gain access to destinations, goods and services. While the transportation industry is a source of GHG emissions it is also vulnerable to climate change risks. Particularly, sea level rise and erosion threaten many coastal California roadways, airports, seaports, transit systems, bridge supports, and energy and fueling infrastructure. Increasing temperatures and extended periods of extreme heat threaten the integrity of the roadways and rail lines. High temperatures cause the road surfaces to expand which leads to increased pressure and pavement buckling. High temperatures can also cause rail breakages, which could lead to train derailment. Other forms of extreme weather events, such as extreme storm events, can negatively impact infrastructure which can impair movement of peoples and goods, or potentially block evacuation routes and emergency access roads. Increased wildfires, flooding, erosion risks, landslides, mudslides, and rockslides can all profoundly impact the transportation system and pose a serious risk to public safety.

Water. Water resources in California support residences, plants, wildlife, farmland, landscapes and ecosystems and bring trillions of dollars in economic activity. Climate change could seriously impact the timing, form, amount of precipitation, runoff patterns, and frequency and severity of precipitation events. Higher temperatures reduce the amount of snowpack and lead to earlier snowmelt, which can impact water supply availability, natural ecosystems and winter recreation. Water supply availability during the intense dry summer months is heavily dependent on the snowpack accumulated during the wintertime. Increased risk of flooding has a variety of public health concerns including water quality, public safety, property damage, displacement and post-disaster mental health problems. Prolonged and intensified droughts can also negatively groundwater reserves and result in increased overdraft and subsidence. Droughts can also negatively impact agriculture and farmland throughout the state. The higher risk of wildfires can lead to increased erosion, which can negatively impact watersheds and result in poor water quality. Water temperatures are also prone to increase, which can negatively impact wildlife that rely on a specific range of temperatures for suitable habitat.

In addition to the potential statewide effects of climate change, to address local and regional governments need for information to support action in their communities, the CNRA Fourth Assessment includes reports for nine regions of the state, including the San Diego Region, where the Project is located. Key projected climate changes for the San Diego Region include the following (CNRA 2019):

- Temperature is projected to increase substantially, along with mean temperature, heat wave frequency will increase, with more intensity and longer duration.
- Precipitation will remain highly variable but will change in character, with wetter winters, drier springs, and more frequent and severe droughts punctuated by more intense individual precipitation events.
- Wildfire risk will increase in the future as climate warms. The risk for large catastrophic wildfires driven by Santa Ana wind events will also likely increase as a result of a drier autumns leading to low antecedent precipitation before the height of the Santa Ana wind season.
- The sea level along San Diego County is expected to rise. High tides combined with elevated shoreline water levels produced by locally and distantly driven wind-driven waves will drive extreme events. Longer-term sea level will increase rapidly in the second half of the century and will be punctuated by short periods of storm-driven extreme sea levels that will imperil existing infrastructure, structures, and ecosystems with increasing frequency.

3.2 Regulatory Setting

3.2.1 Federal

Massachusetts v. EPA. In *Massachusetts v. EPA* (April 2007), the U.S. Supreme Court directed the EPA administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In December 2009, the administrator signed a final rule with the following two distinct findings regarding GHGs under Section 202(a) of the federal Clean Air Act:

- The Administrator found that elevated concentrations of GHGs—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations. This is the "endangerment finding."
- The Administrator further found the combined emissions of GHGs—CO_2, CH_4, N_2O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is the "cause or contribute finding."

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the Clean Air Act.

Energy Independence and Security Act. The Energy Independence and Security Act of 2007 (December 2007), among other key measures, would do the following, which would aid in the reduction of national GHG emissions:

1. Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel by 2022.

2. Set a target of 35 miles per gallon for the combined fleet of cars and light trucks by model year 2020 and direct National Highway Traffic Safety Administration (NHTSA) to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.
3. Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

Federal Vehicle Standards. In response to a U.S. Supreme Court ruling, the Bush Administration issued Executive Order (EO) 13432 in 2007 directing the EPA, the Department of Transportation, and the Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the NHTSA issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011, and in 2010, the EPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012–2016 (75 FR 25324–25728).

In 2010, President Barack Obama issued a memorandum directing the Department of Transportation, Department of Energy, EPA, and NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the EPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017–2025 light-duty vehicles. The proposed standards projected to achieve 163 grams per mile of CO_2 by model year 2025 on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017–2021 (77 FR 62624–63200). On January 12, 2017, the EPA finalized its decision to maintain the current GHG emissions standards for model years 2022–2025 cars and light trucks (EPA 2022c).

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011, the EPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018 (76 FR 57106–57513). The standards for CO_2 emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the EPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by 6%–23% over the 2010 baselines.

In August 2016, the EPA and NHTSA announced the adoption of the phase two program related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program will apply to vehicles with model year 2018 through 2027 for certain trailers, and model years 2021 through 2027 for semi-trucks, large pickup trucks, vans, and all types and sizes of buses and work trucks. The final standards are expected to lower CO_2 emissions by approximately 1.1 billion MT and reduce oil consumption by up to 2 billion barrels over the lifetime of the vehicles sold under the program (EPA and NHTSA 2016).

In August 2018, the EPA and NHTSA proposed to amend certain fuel economy and GHG standards for passenger cars and light trucks and establish new standards for model years 2021 through 2026. Compared to maintaining the post-2020 standards in place at the time, the 2018 proposal would increase U.S. fuel consumption by about half a million barrels per day (2%–3% of total daily consumption, according to the Energy Information Administration) and would impact the global climate by 3/1000th of 1°C by 2100 (EPA and NHTSA 2018). California and other states have stated their intent to challenge federal actions that would delay or eliminate GHG reduction measures, and have committed to cooperating with other countries to implement global climate change initiatives.

In 2019, the EPA and NHTSA published the Safer Affordable Fuel-Efficient Vehicles Rule Part One: One National Program (SAFE-1), which revoked California's authority to set its own GHG emissions standards and set zero-emission vehicle (ZEV) mandates in California. In March 2020, Part Two was issued which set CO2 emissions standards and corporate average fuel economy standards for passenger vehicles and light-duty trucks for model years 2021 through 2026. In March 2022, EPA reinstated California's authority under the Clean Air Act to implement its own GHG emission standards and ZEV sales mandate. EPA's March 2022 action concludes its reconsideration of the 2019 SAFE-1 rule by finding that the actions taken under the previous administration as a part of SAFE-1 were decided in error and are now entirely rescinded.

3.2.2 State

The statewide GHG emissions regulatory framework is summarized below by category: state climate change targets, building energy, renewable energy and energy procurement, mobile sources, solid waste, water, and other state regulations and goals. The following text describes executive orders, legislation, regulations, and other plans and policies that would directly or indirectly reduce GHG emissions and/or address climate change issues.

State Climate Change Targets

The state has taken a number of actions to address climate change. These include executive orders, legislation, and CARB plans and requirements. These are summarized below.

Executive Order S-3-05. EO S-3-05 (June 2005) established the following statewide goals: GHG emissions should be reduced to 2000 levels by 2010, GHG emissions should be reduced to 1990 levels by 2020, and GHG emissions should be reduced to 80% below 1990 levels by 2050.

EO S-3-05 also directed the California EPA to report biannually on progress made toward meeting the GHG targets and the impacts to California due to global warming, including impacts to water supply, public health, agriculture, the coastline, and forestry. The Climate Action Team was formed, which subsequently issued reports from 2006 to 2010 (CAT 2016).

Assembly Bill 32. In furtherance of the goals established in EO S-3-05, the legislature enacted AB 32 (Núñez and Pavley). The bill is referred to as the California Global Warming Solutions Act of 2006 (September 27, 2006). AB 32 provided initial direction on creating a comprehensive multiyear program to limit California's GHG emissions at 1990 levels by 2020 and initiate the transformations required to achieve the state's long-range climate objectives.

Executive Order B-55-18. EO B-55-18 (September 2018) establishes a statewide policy for the state to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net-negative emissions thereafter. The goal is an addition to the existing statewide targets of reducing the state's GHG emissions. CARB will work with relevant state agencies to ensure that future scoping plans identify and recommend measures to achieve the carbon neutrality goal.

California Air Resources Board's Climate Change Scoping Plan. One specific requirement of AB 32 was for CARB to prepare a scoping plan for achieving the maximum technologically feasible and cost-effective GHG emission reductions by 2020 (Health and Safety Code Section 38561[a]), and to update the plan at least once every 5 years. In 2008, CARB approved the first scoping plan. The Climate Change Scoping Plan: A Framework for Change (Scoping

Plan) included a mix of recommended strategies that combined direct regulations, market-based approaches, voluntary measures, policies, and other emission reduction programs calculated to meet the 2020 statewide GHG emissions limit and initiate the transformations needed to achieve the state's long-range climate objectives. The key elements of the Scoping Plan include the following (CARB 2008):

1. Expanding and strengthening existing energy efficiency programs, as well as building and appliance standards.
2. Achieving a statewide renewable energy mix of 33%.
3. Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85% of California's GHG emissions.
4. Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets.
5. Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard (17 CCR 95480 et seq.).
6. Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation.

The Scoping Plan also identified local governments as essential partners in achieving California's goals to reduce GHG emissions because they have broad influence and, in some cases, exclusive authority over activities that contribute to significant direct and indirect GHG emissions through their planning and permitting processes, local ordinances, outreach and education efforts, and municipal operations. Specifically, the Scoping Plan encouraged local governments to adopt a reduction goal for municipal operations, and for community emissions to reduce GHGs by approximately 15% from then levels (2008) by 2020. Many local governments developed community-scale local GHG reduction plans based on this Scoping Plan recommendation.

In 2014, CARB approved the first update to the Scoping Plan. The First Update to the Climate Change Scoping Plan: Building on the Framework (First Update) defined the state's GHG emission reduction priorities for the next 5 years, and laid the groundwork to start the transition to the post-2020 goals set forth in EO S-3-05 and EO B-16-2012. The First Update concluded that California is on track to meet the 2020 target but recommended a 2030 mid-term GHG reduction target be established to ensure a continuum of action to reduce emissions. The First Update recommended a mix of technologies in key economic sectors to reduce emissions through 2050, including energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and the rapid market penetration of efficient and clean energy technologies. As part of the First Update, CARB recalculated the state's 1990 emissions level, using more recent GWPs identified by the IPCC, from 427 MMT CO_2e to 431 MMT CO_2e (CARB 2014).

In 2015, as directed by EO B-30-15, CARB began working on an update to the Scoping Plan to incorporate the 2030 target of 40% below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing GHG emissions to 80% below 1990 levels by 2050 as set forth in EO S-3-05. The governor called on California to pursue a new and ambitious set of strategies, in line with the five climate change pillars from his inaugural address, to reduce GHG emissions and prepare for the unavoidable impacts of climate change. In the summer of 2016, the legislature affirmed the importance of addressing climate change through passage of SB 32.

In December 2017, CARB adopted California's 2017 Climate Change Scoping Plan (2017 Scoping Plan) for public review and comment (CARB 2017). The 2017 Scoping Plan builds on the successful framework established in the initial Scoping Plan and First Update while identifying new, technologically feasible and cost-effective strategies that will serve as the framework to achieve the 2030 GHG target as established by SB 32 and define the state's climate change priorities to 2030 and beyond. The strategies' commitments include implementing renewable energy and energy efficiency strategies (including the mandates of SB 350), increasing stringency of the Low Carbon Fuel Standard, implementing measures identified in the Mobile Source and Freight Strategies, implementing measures identified in the proposed Short-Lived Climate Pollutant Reduction Strategy, and increasing stringency of SB 375 targets. To fill the gap in additional reductions needed to achieve the 2030 target, it recommends continuing the Cap-and-Trade Program and a measure to reduce GHGs from refineries by 20%.

For local governments, the 2017 Scoping Plan replaced the initial Scoping Plan's 15% reduction goal with a recommendation to aim for a community-wide goal of no more than 6 MT CO_2e per capita by 2030, and no more than 2 MT CO_2e per capita by 2050, which are consistent with the state's long-term goals. These goals are also consistent with the Under 2 Memorandum of Understanding (Under 2 2016) and the Paris Agreement, which are developed around the scientifically based levels necessary to limit global warming to below 2°C. The 2017 Scoping Plan recognized the benefits of local government GHG planning (e.g., through CAPs) and provided more information regarding tools CARB is working on to support those efforts. It also recognized the CEQA streamlining provisions for project-level review where there is a legally adequate CAP.[7]

The Scoping Plan recommends strategies for implementation at the statewide level to meet the goals of AB 32, SB 32, and the executive orders, and establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. A project is considered consistent with the statutes and executive orders if it meets the general policies in reducing GHG emissions to facilitate the achievement of the state's goals and does not impede attainment of those goals. A project would be consistent if it will further the objectives and not obstruct their attainment.

Executive Order B-30-15. EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under EO S-3-05 and AB 32. EO B-30-15 set an interim target goal of reducing statewide GHG emissions to 40% below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing statewide GHG emissions to 80% below 1990 levels by 2050, as set forth in EO S-3-05. To facilitate achievement of this goal, EO B-30-15 calls for an update to CARB's Scoping Plan to express the 2030 target in terms of MMT CO_2e. The executive order also calls for state agencies to continue to develop and implement GHG emissions reduction programs in support of the reduction targets. Sector-specific agencies in transportation, energy, water, and forestry were required to prepare GHG reduction plans by September 2015, followed by a report on action taken in relation to these plans in June 2016. EO B-30-15 does not require local agencies to take any action to meet the new interim GHG reduction target.

Senate Bill 32 and Assembly Bill 197. SB 32 and AB 197 (enacted in 2016) are companion bills that set a new statewide GHG reduction targets, make changes to CARB's membership and increase legislative oversight of CARB's climate change-based activities, and expand dissemination of GHG and other air-quality-related emissions data to enhance transparency and accountability. More specifically, SB 32 codified the 2030 emissions reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40% below 1990

[7] *Sierra Club v. County of Napa* (2004) 121 Cal.App.4th 1490; *San Francisco Tomorrow et al. v. City and County of San Francisco* (2015) 229 Cal.App.4th 498; *San Franciscans Upholding the Downtown Specific Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656; *Sequoyah Hills Homeowners Assn. v. City of Oakland* (1993) 23 Cal.App.4th 704, 719.

levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three members of the Senate and three members of the Assembly to provide ongoing oversight over implementation of the state's climate policies. AB 197 also added two members of the Legislature to CARB as nonvoting members; requires CARB to make available and update (at least annually via its website) emissions data for GHGs, criteria air pollutants, and TACs from reporting facilities; and requires CARB to identify specific information for GHG emissions reduction measures when updating the Scoping Plan.

Senate Bill 605 and Senate Bill 1383. SB 605 (2014) required CARB to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants in the state, and SB 1383 (2016) required CARB to approve and implement that strategy by January 1, 2018. The Short-Lived Climate Pollutants Reduction Strategy was approved by CARB in March 2017, and lays out a range of options to reduce short-lived climate pollutant emissions in California, including regulations, incentives, and other market-supporting activities. SB 1383 also establishes specific targets for the reduction of short-lived climate pollutants (40% below 2013 levels by 2030 for CH_4 and HFCs, and 50% below 2013 levels by 2030 for anthropogenic black carbon), and provides direction for reductions from dairy and livestock operations and landfills. Accordingly, and as mentioned above, CARB adopted its Short-Lived Climate Pollutant Reduction Strategy in March 2017. This strategy establishes a framework for the statewide reduction of emissions of black carbon, CH_4, and fluorinated gases.

Building Energy

Title 24, Part 6. Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. Although not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically established Building Energy Efficiency Standards that are designed to ensure new and existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality. These energy efficiency standards are reviewed every few years by the Building Standards Commission and CEC, and revised if necessary (California Public Resources Code [PRC] Section 25402[b][1]). The regulations receive input from members of industry and the public, with the goal of "reducing of wasteful, uneconomic, inefficient, or unnecessary consumption of energy" (PRC Section 25402). These regulations are carefully scrutinized and analyzed for technological and economic feasibility (PRC Section 25402[d]) and cost effectiveness (PRC Sections 25402[b][2] and [b][3]). As a result, these standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment.

The 2019 Title 24 standards are the currently applicable building energy efficiency standards, and became effective on January 1, 2020. The 2019 Title 24 Building Energy Efficiency Standards will further reduce energy used and associated GHG emissions compared to prior standards. In general, single-family residences built to the 2019 standards are anticipated to use approximately 7% less energy due to energy efficiency measures than those built to the 2016 standards; once rooftop solar electricity generation is factored in, single-family residences built under the 2019 standards will use approximately 53% less energy than those under the 2016 standards (CEC 2018). Nonresidential buildings built to the 2019 standards are anticipated to use an estimated 30% less energy than those built to the 2016 standards (CEC 2018).

The 2022 Title 24 standards will improve upon the 2019 standards for new construction of, and additions and alterations to, residential and nonresidential buildings. The CEC adopted the 2022 Title 24 Energy Code in August 2021 and the California Building Standards Commission approved incorporating the updated code into the

California Building Standards Code (CALGreen) in December 2021. The 2022 Energy Code will go into effect on January 1, 2023. The 2022 Energy Code focuses on four key areas in newly constructed homes and businesses:

- Encouraging electric heat pump technology for space and water heating, which consumes less energy and produces fewer emissions than gas-powered units.
- Establishing electric-ready requirements for single-family homes to position owners to use cleaner electric heating, cooking, and electric vehicle (EV) charging options whenever they choose to adopt those technologies.
- Expanding solar photovoltaic (PV) system and battery storage standards to make clean energy available onsite and complement the state's progress toward a 100% clean electricity grid.
- Strengthening ventilation standards to improve indoor air quality.

Title 24, Part 11. In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as California's Green Building Standards (CALGreen), and establishes minimum mandatory standards and voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The CALGreen standards took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential and state-owned buildings, schools, and hospitals. The CALGreen 2019 standards, which are the current standards, became effective January 1, 2020.

Title 20. Title 20 of the California Code of Regulations requires manufacturers of appliances to meet state and federal standards for energy and water efficiency. Performance of appliances must be certified through the CEC to demonstrate compliance with standards. New appliances regulated under Title 20 include refrigerators, refrigerator-freezers, and freezers; room air conditioners and room air-conditioning heat pumps; central air conditioners; spot air conditioners; vented gas space heaters; gas pool heaters; plumbing fittings and plumbing fixtures; fluorescent lamp ballasts; lamps; emergency lighting; traffic signal modules; dishwaters; clothes washers and dryers; cooking products; electric motors; low voltage dry-type distribution transformers; power supplies; televisions and consumer audio and video equipment; and battery charger systems. Title 20 presents protocols for testing for each type of appliance covered under the regulations, and appliances must meet the standards for energy performance, energy design, water performance, and water design. Title 20 contains three types of standards for appliances: federal and state standards for federally regulated appliances, state standards for federally regulated appliances, and state standards for non-federally regulated appliances.

Assembly Bill 1109. Enacted in 2007, AB 1109 required the CEC to adopt minimum energy efficiency standards for general-purpose lighting to reduce electricity consumption by 50% for indoor residential lighting and by 25% for indoor commercial lighting.

SB 1. SB 1 (Murray) (August 2006) established a $3 billion rebate program to support the goal of the state to install rooftop solar energy systems with a generation capacity of 3,000 megawatts through 2016. SB 1 added sections to the Public Resources Code, including Chapter 8.8 (California Solar Initiative), that require building projects applying for ratepayer-funded incentives for photovoltaic systems to meet minimum energy efficiency levels and performance requirements. Section 25780 established that it is a goal of the state to establish a self-sufficient solar industry. The goals included establishing solar energy systems as a viable mainstream option for homes and

businesses within 10 years of adoption, and placing solar energy systems on 50% of new homes within 13 years of adoption. SB 1, also termed "Go Solar California," was previously titled "Million Solar Roofs."

California AB 1470 (Solar Water Heating). This bill established the Solar Water Heating and Efficiency Act of 2007. AB 1470 makes findings and declarations of the Legislature relating to the promotion of solar water heating systems and other technologies that reduce natural gas demand. AB 1470 defines several terms for purposes of the act. The bill required a commission to evaluate the data available from a specified pilot program, and to design and implement a program of incentives for the installation of 200,000 solar water heating systems in homes and businesses throughout the state by 2017.

Renewable Energy and Energy Procurement

SB 1078 (2002) established the Renewables Portfolio Standard (RPS) program, which requires an annual increase in renewable generation by the utilities. Initially, the RPS required utilities to obtain 20% of their power from renewable sources by 2010. SB X1-2 (2011) subsequently expanded the RPS by establishing that 33% of the total electricity sold to retail customers in California per year by December 31, 2020, and in subsequent years, be secured from qualifying renewable energy sources. SB 350 (2015) further expanded the RPS by establishing that 50% of the total electricity sold to retail customers in California per year by December 31, 2030, be secured from qualifying renewable energy sources. And SB 100 (2018) further accelerated the RPS, requiring achievement of a 50% RPS by December 31, 2026, and a 60% RPS by December 31, 2030. SB 100 also established a new state policy goal that calls for eligible renewable energy resources and zero-carbon resources to supply 100% of electricity retail sales and 100% of electricity procured to serve all state agencies by December 31, 2045.

Under the program, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation of 30 megawatts or less, digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current, and that meets other specified requirements with respect to its location.

Mobile Sources

State Vehicle Standards. AB 1493 (July 2002) was enacted in response to the transportation sector accounting for more than one-half of California's CO_2 emissions. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by the state board to be vehicles that are primarily used for noncommercial personal transportation in the state. AB 1493 required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004. EO B-16-12 (March 2012) required that state entities under the governor's direction and control support and facilitate the rapid commercialization of zero-emissions vehicles. It ordered CARB, CEC, the California Public Utilities Commission, and other relevant agencies to work with the Plug-In Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to help achieve goals by 2015, 2020, and 2025. On a statewide basis, EO B-16-12 established a target reduction of GHG emissions from the transportation sector equaling 80% less than 1990 levels by 2050. This directive did not apply to vehicles that have special performance requirements necessary for the protection of the public safety and welfare.

Executive Order S-1-07. Issued on January 18, 2007, EO S-1-07 sets a declining Low Carbon Fuel Standard for GHG emissions measured in CO_2e grams per unit of fuel energy sold in California. The initial target of the Low Carbon

Fuel Standard was to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020. The Low Carbon Fuel Standard was subsequently amended in 2018 to require a 20% reduction in carbon intensity by 2030. This new requirement aligns with the California's overall 2030 target of reducing climate changing emissions to 40% below 1990 levels by 2030, set by SB 32. CARB has adopted implementing regulations for both the 10% and 20% carbon intensity reduction targets.

Senate Bill 375. SB 375 (2008) addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. SB 375 required CARB to adopt regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035. Regional metropolitan planning organizations are then responsible for preparing a Sustainable Communities Strategy (SCS) within their Regional Transportation Plan (RTP). The goal of the SCS is to establish a forecasted development pattern for the region that, after considering transportation measures and policies, will achieve, if feasible, the GHG reduction targets. If an SCS is unable to achieve the GHG reduction target, a metropolitan planning organization must prepare an Alternative Planning Strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies.

Pursuant to California Government Code Section 65080(b)(2)(K), an SCS does not regulate the use of land; supersede the land use authority of cities and counties; or require that a city's or county's land use policies and regulations, including those in a general plan, be consistent with it. Nonetheless, SB 375 makes regional and local planning agencies responsible for developing those strategies as part of the federally required metropolitan transportation planning process and the state-mandated housing element process.

In 2010, CARB adopted the SB 375 targets for the regional metropolitan planning organizations. The targets adopted for SANDAG in 2010 are a 7% reduction in per-capita passenger-vehicle GHG emissions by 2020 and a 13% reduction by 2035, measured relative to 2005 GHG emissions. In 2018, CARB adopted the second round of SB 375 reduction targets, and increased SANDAG's 2020 target to a 15% reduction in per-capita passenger-vehicle GHG emissions, and the 2035 target to a 19% reduction using the same 2005 baseline.

SANDAG completed and adopted its 2050 RTP/SCS in October 2011. In November 2011, CARB, by resolution, accepted SANDAG's GHG emissions quantification analysis and determination that, if implemented, the SCS would achieve CARB's 2020 and 2035 GHG emissions reduction targets for the region.

After SANDAG's 2050 RTP/SCS was adopted, a lawsuit was filed by the Cleveland National Forest Foundation and others (*Cleveland National Forest Foundation v. San Diego Association of Governments* (2017) 3 Cal. 5th 497). regarding analysis of EO S-3-05's 2050 goal of an 80% reduction in GHG emissions from 1990 levels. The Supreme Court of California held that the Environmental Impact Report at issue was sufficient to inform the public, based on the information available at the time, about the regional plan's GHG impacts and its potential inconsistency with state climate change goals without including an explicit analysis of the consistency of projected 2050 GHG emissions with the goals in the executive order.

In 2015, SANDAG adopted the next iteration of its RTP/SCS in accordance with statutorily mandated timelines and no subsequent litigation challenge was filed. More specifically, in October 2015, SANDAG adopted San Diego Forward: The Regional Plan (SANDAG 2015). Like the 2050 RTP/SCS, San Diego Forward: Regional Plan meets CARB's 2020 and 2035 reduction targets for the region (SANDAG 2015). In December 2015, CARB, by resolution, accepted SANDAG's GHG emissions quantification analysis and determination that, if implemented, the SCS would

achieve CARB's 2020 and 2035 GHG emissions reduction targets for the region. The Regional Plan was updated in 2021, which was the result of years of planning, data analysis, and community engagement to reimagine the San Diego region with a transformative transportation system, a sustainable pattern of growth and development, and innovative demand and management strategies (SANDAG 2021).

Advanced Clean Cars Program. The Advanced Clean Cars program (January 2012) is an emissions-control program for model years 2015 through 2025. The program combines the control of smog- and soot-causing pollutants and GHG emissions into a single coordinated package. The package includes elements to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars. To improve air quality, CARB implemented new emission standards to reduce smog-forming emissions beginning with 2015 model year vehicles. It is estimated that by 2025, cars will emit 75% less smog-forming pollution than the average new car sold in 2012. To reduce GHG emissions, CARB, in conjunction with the EPA and NHTSA, adopted new GHG standards for model year 2017 to 2025 vehicles; the new standards are estimated to reduce GHG emissions by 34% in 2025. The zero-emissions vehicle (ZEV) program will act as the focused technology of the Advanced Clean Cars program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid electric vehicles in the 2018 to 2025 model years.

AB 1236. AB 1236 (October 2015) (Chiu) required a city, county, or city and county to approve an application for the installation of electric vehicle charging stations, as defined, through the issuance of specified permits unless the city or county makes specified written findings based on substantial evidence in the record that the proposed installation would have a specific, adverse impact upon the public health or safety, and there is no feasible method to satisfactorily mitigate or avoid the specific, adverse impact. AB 1236 provided for appeal of that decision to the planning commission, as specified. The bill provided that the implementation of consistent statewide standards to achieve the timely and cost-effective installation of electric vehicle charging stations is a matter of statewide concern. The bill required electric vehicle charging stations to meet specified standards. AB 1236 required a city, county, or city and county with a population of 200,000 or more residents to adopt an ordinance, by September 30, 2016, that created an expedited and streamlined permitting process for electric vehicle charging stations. The bill also required a city, county, or city and county with a population of fewer than 200,000 residents to adopt this ordinance by September 30, 2017.

Executive Order B-16-12. EO B-16-12 (2012) directs state entities under the Governor's direction and control to support and facilitate development and distribution ZEVs. On a statewide basis, EO B-16-12 also establishes a GHG emissions reduction target from the transportation sector equaling 80% less than 1990 levels by 2050. In furtherance of this executive order, the Governor convened an Interagency Working Group on ZEVs that has published multiple reports regarding the progress made on the penetration of ZEVs in the statewide vehicle fleet.

Senate Bill 350. In 2015, SB 350 – the Clean Energy and Pollution Reduction Act – was enacted into law. As one of its elements, SB 350 establishes a statewide policy for widespread electrification of the transportation sector, recognizing that such electrification is required for achievement of the state's 2030 and 2050 reduction targets (see California Public Utilities Code, Section 740.12).

Solid Waste

AB 939, AB 341, and AB 1826. In 1989, AB 939, known as the Integrated Waste Management Act (PRC Sections 40000 et seq.), was passed because of the increase in waste stream and decrease in landfill capacity. The statute established the California Integrated Waste Management Board, which oversees a disposal reporting system. AB

939 mandated a reduction of waste being disposed of where jurisdictions were required to meet diversion goals of all solid waste through source reduction, recycling, and composting activities of 25% by 1995 and 50% by 2000.

AB 341 (Chapter 476, Statutes of 2011 [Chesbro]) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the state that not less than 75% of solid waste generated be source-reduced, recycled, or composted by 2020, and annually thereafter. In addition, AB 341 required the California Department of Resources Recycling and Recovery (CalRecycle) to develop strategies to achieve the state's policy goal. CalRecycle conducted several general stakeholder workshops and several focused workshops, and in August 2015 published a discussion document titled AB 341 Report to the Legislature, which identified five priority strategies that CalRecycle believed would assist the state in reaching the 75% goal by 2020, legislative and regulatory recommendations, and an evaluation of program effectiveness (CalRecycle 2015).

AB 1826 (Chapter 727, Statutes of 2014, effective 2016) requires businesses to recycle their organic waste (i.e., food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste) depending on the amount of waste they generate per week. This law also requires local jurisdictions across the state to implement an organic waste recycling program to divert organic waste generated by businesses, including multi-family residential dwellings that consist of five or more units. The minimum threshold of organic waste generation by businesses decreases over time, which means an increasingly greater proportion of the commercial sector will be required to comply.

Water

Executive Order B-29-15. In response to the ongoing drought in California, EO B-29-15 (April 2015) set a goal of achieving a statewide reduction in potable urban water usage of 25% relative to water use in 2013. The term of the executive order extended through February 28, 2016, although many of the directives have since become permanent water-efficiency standards and requirements. The executive order includes specific directives that set strict limits on water usage in the state. In response to EO B-29-15, the California Department of Water Resources modified and adopted a revised version of the Model Water Efficient Landscape Ordinance that, among other changes, significantly increased the requirements for landscape water use efficiency and broadened its applicability to include new development projects with smaller landscape areas.

EO B-37-16. Issued May 2016, EO B-37-16 directed the State Water Resources Control Board to adjust emergency water conservation regulations through the end of January 2017 to reflect differing water supply conditions across the state. The State Water Resources Control Board also developed a proposal to achieve a mandatory reduction of potable urban water usage that builds off the mandatory 25% reduction called for in EO B-29-15. The State Water Resources Control Board and Department of Water Resources will develop new, permanent water use targets that build on the existing state law requirements that the state achieve 20% reduction in urban water usage by 2020. EO B-37-16 also specifies that the State Water Resources Control Board permanently prohibit water-wasting practices such as hosing off sidewalks, driveways, and other hardscapes; washing automobiles with hoses not equipped with a shut-off nozzle; using non-recirculated water in fountains and other decorative water features; watering lawns in a manner that causes runoff, or within 48 hours after measurable precipitation; and irrigating ornamental turf on public street medians.

Other State Regulations and Goals

SB 97. SB 97 (Dutton) (August 2007) directed the Governor's Office of Planning and Research to develop guidelines under CEQA for the mitigation of GHG emissions. In 2008, the Governor's Office of Planning and Research issued a technical advisory as interim guidance regarding the analysis of GHG emissions in CEQA documents. The advisory indicated that the lead agency should identify and estimate a project's GHG emissions, including those associated with vehicular traffic, energy consumption, water usage, and construction activities (OPR 2007). The advisory further recommended that the lead agency determine significance of the impacts and impose all mitigation measures necessary to reduce GHG emissions to a level that is less than significant. The CNRA adopted the CEQA Guidelines amendments in December 2009, which became effective in March 2010.

Under the amended CEQA Guidelines, a lead agency has the discretion to determine whether to use a quantitative or qualitative analysis or apply performance standards to determine the significance of GHG emissions resulting from a particular project (14 CCR 15064.4[a]). The CEQA Guidelines require a lead agency to consider the extent to which a project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4[b]). The CEQA Guidelines also allow a lead agency to consider feasible means of mitigating the significant effects of GHG emissions, including reductions in emissions through the implementation of project features or off-site measures. The adopted amendments do not establish a GHG emissions threshold, instead allowing a lead agency to develop, adopt, and apply its own thresholds of significance or those developed by other agencies or experts. The CNRA also acknowledged that a lead agency may consider compliance with regulations or requirements implementing AB 32 in determining the significance of a project's GHG emissions (CNRA 2009a).

With respect to GHG emissions, the CEQA Guidelines state in Section 15064.4(a) that lead agencies should "make a good faith effort, to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions. The CEQA Guidelines note that an agency may identify emissions by either selecting a "model or methodology" to quantify the emissions or by relying on "qualitative analysis or other performance-based standards" (14 CCR 15064.4[a]). Section 15064.4(b) states that the lead agency should consider the following when assessing the significance of impacts from GHG emissions on the environment: the extent a project may increase or reduce GHG emissions as compared to the existing environmental setting; whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4[b]).

Executive Order S-13-08. EO Order S-13-08 (November 2008) is intended to hasten California's response to the impacts of global climate change, particularly sea-level rise. Therefore, the executive order directs state agencies to take specified actions to assess and plan for such impacts. The final 2009 California Climate Adaptation Strategy report was issued in December 2009 (CNRA 2009b), and an update, Safeguarding California: Reducing Climate Risk, followed in July 2014 (CNRA 2014). To assess the state's vulnerability, the report summarizes key climate change impacts to the state for the following areas: agriculture, biodiversity and habitat, emergency management, energy, forestry, ocean and coastal ecosystems and resources, public health, transportation, and water.

3.2.3 Local

City of Oceanside General Plan

The City of Oceanside's General Plan Circulation Element includes goals and policies to reduce GHG emissions within the City (City of Oceanside 2002). The following goals and policies from the City's General Plan are relevant to the Proposed Project:

Circulation Element

Policy 2.5: The City will strive to incorporate complete streets throughout the Oceanside transportation network which are designed and constructed to serve all users of streets, roads and highways, regardless of their age or ability, or whether they are driving, walking, bicycling, or using transit.

Pedestrian Facilities

Goal 5: Support walking as a primary means of transportation that in turn supports transit and bike options. A positive walking environment is essential for supporting smart growth, mixed land uses, transit oriented development, traffic calming and reducing traffic congestion and greenhouse gas emissions.

Intelligent Transportation System Technologies

Policy 4.1: The City shall encourage the reduction of vehicle miles traveled, reduction of the total number of daily and peak hour vehicle trips, and provide better utilization of the circulation system through development and implementation of TDM strategies. These may include, but not limited to, implementation of peak hour trip reduction, encourage staggered work hours, telework programs, increased development of employment centers where transit usage is highly viable, encouragement of ridesharing options in the public and private sector, provision for park-and-ride facilities adjacent to the regional transportation system, and provision for transit subsidies.

Transportation Demand Management

Policy 4.9: The City shall look for opportunities to incorporate TDM [transportation demand management] programs into their Energy Roadmap that contributes to state and regional goals for saving energy and reducing greenhouse gas emissions.

Land Use Element

Air Quality

The City will continue to cooperate with the SDAPCD Board. This will include participation in the development of the Regional Air Quality Strategy (RAQS) through cooperation with the San Diego County Air Quality Planning Team.

Bicycle Facilities

Policy A: Development shall provide Class II Bikeways (Bike Lanes) on all secondary, major, and prime arterials.

Policy D: The use of land shall integrate the Bicycle Circulation System with auto, pedestrian, and transit systems:

- Development shall provide short-term bicycle parking and long-term bicycle storage facilities such as bicycle racks, pedestal posts, and rental bicycle lockers.
- Development shall provide safe and convenient bicycle access to high activity land uses, such as schools, parks, shopping, employment, and entertainment centers.

Pedestrian

Policy A: The construction of five (5) foot wide sidewalks adjacent to the curb shall be required in all new developments and street improvements.

Transit System

Policy A: The City shall coordinate and encourage the existing bus system to serve newly developed areas.

Energy

Policy A: The City shall encourage the design, installation, and use of passive and active solar collection systems.

Policy B: The City shall encourage the use of energy efficient design, structures, materials, and equipment in all land developments or uses.

City of Oceanside Climate Action Plan

The City adopted its Climate Action Plan (CAP) on May 8, 2019 (City of Oceanside 2019). The CAP acts as a roadmap to address challenges of climate change within the City and outlines measures the City will take to make progress towards meeting the State's GHG reduction goals. The CAP includes a baseline GHG emissions inventory for 2013, GHG emissions forecasts for 2020, 2030, 2035, 2040, and 2050, local GHG emissions reduction strategies and measures to help the City achieve the statewide targets, and implementation and monitoring mechanisms to ensure the City's measures and targets are achieved. The CAP established local GHG emissions reduction targets for future years as follows:

- by 2020, reduce GHG emissions levels to 5 MT CO_2e per capita;
- by 2030, reduce GHG emissions levels to 4 MT CO_2e per capita;
- by 2040, reduce GHG emissions levels to 3 MT CO_2e per capita; and
- by 2050, reduce GHG emissions levels to 2 MT CO_2e per capita.

The CAP was prepared in accordance with the requirements within CEQA Guidelines Section 15183.5, and the CAP Consistency Checklist was used to evaluate the proposed project's significance with respect to GHG emissions.

City of Oceanside Energy Climate Action Element

The Energy Climate Action Element (ECAE) of the City's General Plan was adopted on May 8, 2019 and addresses energy consumption and other activities within the City that may contribute to adverse energy and GHG impacts. The ECAE focuses on activities associated with human-induced climate change. The ECAE outlines sustainability goals and policies for the City's decision-making process including development review protocols. The primary themes and goals of the ECAE are related to energy efficiency and renewable energy, smart growth and multimodal transportation, zero waste, water conservation, urban greening, local agriculture, and sustainable consumption.

3.3 Significance Criteria and Methodology

3.3.1 Thresholds of Significance

California has developed guidelines to address the significance of GHG emissions impacts that are contained in Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.). Appendix G provides that a project would have a significant environmental impact if it would:

1. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment
2. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The Appendix G thresholds for GHGs do not prescribe specific methodologies for performing an assessment, do not establish specific thresholds of significance, and do not mandate specific mitigation measures. Rather, the CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance consistent with the manner in which other impact areas are handled in CEQA (CNRA 2009a). Additional guidance regarding assessment of GHGs is discussed below.

CEQA Guidelines

With respect to GHG emissions, the CEQA Guidelines Section 15064.4(a) states that lead agencies "shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions resulting from a project. The CEQA Guidelines note that an agency has the discretion to either quantify a project's GHG emissions or rely on a "qualitative analysis or performance-based standards" (14 CCR 15064.4[a]). A lead agency may use a "model or methodology" to estimate greenhouse gas emissions and has the discretion to select the model or methodology it considers "most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change" (14 CCR 15064.4[c]). The CEQA Guidelines provide that the lead agency should consider the following when determining the significance of impacts from GHG emissions on the environment (14 CCR 15064.4[b]):

1. The extent a project may increase or reduce GHG emissions as compared to the existing environmental setting.
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.

3. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

In addition, the CEQA Guidelines specify that "[w]hen adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence" (14 CCR 15064.7[c]).

Governor's Office of Planning and Research Guidance

The Governor's Office of Planning and Research technical advisory titled, CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review, states that "public agencies are encouraged but not required to adopt thresholds of significance for environmental impacts. Even in the absence of clearly defined thresholds for GHG emissions, the law requires that such emissions from CEQA projects must be disclosed and mitigated to the extent feasible whenever the lead agency determines that the project contributes to a significant, cumulative climate change impact" (OPR 2007). Furthermore, the advisory document indicates that "in the absence of regulatory standards for GHG emissions or other scientific data to clearly define what constitutes a 'significant impact,' individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice" (OPR 2007).

Approaches to Determining Significance

The City of Oceanside's CAP relies on a screening threshold based on land use size and a CAP Consistency Checklist to determine whether a project's emissions would be consistent with GHG emissions estimated within the City's CAP. Consistent with California's Climate Change Scoping Plan, the City has established a bright line threshold of significance for GHG emissions impacts: 900 MT CO_2e annually, with construction-related emissions amortized over 20 years. Specifically, the City has determined that new development projects emitting less than 900 MT CO_2e annual GHG would not contribute considerably to cumulative climate change impacts, and therefore do not need to demonstrate consistency with the CAP. Projects greater than 900 MT CO_2e would be required to show CAP Checklist consistency.

The CAP Consistency Checklist is used to determine significance in accordance with CEQA Guidelines Section 15183.5; therefore, the CAP Consistency Checklist was used to evaluate the proposed project's significance with respect to GHG emissions.

3.3.2 Approach and Methodology

3.3.2.1 Construction

Construction of the proposed project would result in emissions of GHG emissions primarily associated with use of off-road construction equipment, on-road haul and vendor (material delivery) truck trips, and worker vehicle trips. As discussed previously in Section 2.4.2, emissions from the construction phase of Project components were

estimated using the CalEEMod Version 2020.4.0[8]. Per preliminary project details, it is assumed that construction of the Project would begin in Spring 2023 and would last approximately 14 months. A detailed depiction of the construction schedule—including information regarding phasing, equipment used during each phase, haul trucks, vendor trucks, and worker vehicles—is included in Section 2.4.2. above, and complete details of the emissions calculations are provided in Appendix A, *Air Quality and Greenhouse Gas Emissions CalEEMod Output File*s. Per City Guidance, construction-related GHG emissions were amortized over 20 years and added to operational emissions to assess significance.

3.3.2.2 Operation

Operation of the proposed project would generate GHG emissions from mobile sources, area sources (landscape maintenance equipment), energy use, water use and wastewater generation, and solid waste (i.e., CO_2e emissions associated with landfill off-gassing). As with project construction, CalEEMod Version 2020.4.0 was used to estimate potential project-generated operational GHG emissions based on proposed project land uses. It was assumed that the project would be operational following the completion of construction, which would occur in 2024.

Area

The area source category calculates direct sources of GHG emissions located at the Project site including hearths and landscape maintenance equipment. This source category does not include the emissions associated with natural gas usage in space heating and water heating as these are calculated in the building energy use module of CalEEMod. The project includes a PDF that prohibits wood-burning, and only allows for natural gas-fired fireplaces in residential units.

Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, roto tillers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers, as well as air compressors, generators, and pumps. The emissions associated from landscape equipment use were estimated using CalEEMod defaults. For San Diego County, CalEEMod assumes that landscaping equipment would operate 180 days per year. To be conservative, emissions were estimated assuming that landscape maintenance equipment was powered by gasoline or diesel fuel, and not electrified.

Energy

As represented in CalEEMod, energy sources include emissions associated with building electricity and natural gas usage (non-hearth). CalEEMod default values for energy consumption were applied to each land use. The energy use from residential land uses is calculated in CalEEMod based on the Residential Appliance Saturation Survey. Energy use from the non-residential land uses is based on various studies and assessments as described in Section 7.3, *Estimating Energy Use from Other Land Uses*, of Appendix A of the CalEEMod User's Guide (CAPCOA 2021).

[8] CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform to calculate construction and operational emissions from land use development projects. The model was developed for the California Air Pollution Control Officers Association in collaboration with multiple air districts across the state. Numerous lead agencies in the state, including SDAPCD, use CalEEMod to estimate greenhouse gas emissions in accordance with CEQA Guidelines Section 15064.4(a)(1).

Annual natural gas and electricity emissions were estimated in CalEEMod using default values for emissions factors for San Diego Gas and Electric (SDG&E), which would be the energy source provider for the Project. The project includes PDF-GHG-1 that ensures PV systems are installed on each building to meet 50% of forecasted electricity demand.

Mobile Sources (Motor Vehicles)

Following the completion of construction activities, the Project would generate GHG emissions from mobile sources (vehicular traffic), as a result of residents and employees associated with the 323 residential units. The CalEEMod Version 2020.4.0 model was used to estimate daily emissions from vehicular sources (refer to Appendix A). CalEEMod Version 2020.4.0 default data, including trip rate, temperature, trip characteristics, variable start information, and emissions factors were used for the model inputs. Emission factors representing the vehicle mix and emission factors for 2024 were used to estimate emissions associated with vehicular sources.

Solid Waste

The Project would generate solid waste, and therefore, result in CO_2e emissions associated with landfill off-gassing. CalEEMod default values for solid waste generation were used to estimate GHG emissions associated with solid waste.

Water and Wastewater

Supply, conveyance, treatment, and distribution of water for the Project require the use of electricity, which would result in associated indirect GHG emissions. Similarly, wastewater generated by the project requires the use of electricity for conveyance and treatment, along with GHG emissions generated during wastewater treatment.

For additional details see Appendix A, *Air Quality and Greenhouse Gas Emissions CalEEMod Output File*s.

3.4 Impact Analysis

This section evaluates the GHG emissions impacts associated with the project. The significance criteria described in Section 3.3.1, Thresholds of Significance, were used to evaluate impacts associated with the construction and operation of the project.

Threshold 1: ***Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?***

Threshold 2: ***Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?***

As discussed above in Section 3.2.3, the City of Oceanside's CCAP was adopted in May 2019 to assist the City in reducing GHG emissions to 4 MT CO_2e per capita by 2030, and 2 MT CO_2e per capita by 2050 to align with the state's targets established by EOs B-30-15 and S-3-05, respectively. According to the City's CAP, new discretionary development projects subject to CEQA review that emit less than 900 MT CO_2e annually would not contribute considerably to cumulative climate change impacts, and therefore, would be considered consistent with the CAP and associated emissions projections. Project-generated GHG emissions were estimated per the methodology described in Section 3.3.2. and are discussed for construction and operation below.

3.4.1 Project GHG Emissions

Construction

Table 16 shows the estimated annual GHG construction emissions associated with the Project. Additional information about methodology and approach are provided above in Section 3.3.2. Complete details of the construction emissions calculations are provided in Appendix A, *Air Quality and Greenhouse Gas Emissions CalEEMod Output Files*.

Table 16. Estimated Annual Construction GHG Emissions

Year	CO_2	CH_4	N_2O	CO_2e
	Metric Tons			
2023	716.03	0.08	0.05	732.99
2024	225.85	0.03	0.01	229.44
Total	*941.88*	*0.11*	*0.06*	*962.43*
			Amortized Emissions (20 years)	*48.12*

Source: CalEEMod Version 2020.4.0.
Notes: GHG = greenhouse gas; CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent. See Appendix A for complete results. <0.01 = reported value is less than 0.01.

As shown in Table 16, the estimated total GHG emissions from construction of the Project would be 962.43 MT CO_2e. When amortized over 20 years, the estimated annual GHG emissions from construction of the Project would be approximately 48 MT CO_2e per year.

Operation

Table 18 shows the estimated annual GHG operational emissions associated with the Project. As discussed above, total annual operational emissions were combined with amortized (20 years) construction emissions and compared to the recommended 900 MT CO_2e bright-line threshold. As shown in Table 17, implementation of the Project would result in approximately 2,604.30 MT CO_2e per year including amortized construction emissions. Complete details of the construction emissions calculations are provided in Appendix A, *Air Quality and Greenhouse Gas Emissions CalEEMod Output Files*.

Table 17. Summary of Estimated Annual GHG Emissions

Emissions Source	MT CO_2	MT CH_4	MT N_2O	MT CO_2e
Area	232.89	0.01	0.00	234.35
Energy	336.50	0.02	0.00	338.05
Mobile	1,751.89	0.13	0.08	1,778.92
Waste	39.30	2.32	0.00	97.36
Water	84.30	0.72	0.02	107.51
			Amortized Construction Emissions (20 years)	48.12
			Total Project Emissions	***2,604.30***
			Brightline Threshold	*900*
			Exceeds Threshold?	**Yes**

Source: See Appendix A for complete results.
Notes: GHG = greenhouse gas; MT = metric tons; CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent. <0.01 = reported value is less than 0.01.
Per City guidance, new development projects that emit more than 900 MT CO_2e annually could have a considerable contribution to cumulative climate change impacts. Given that project-generated operational emissions in 2024 plus amortized project construction emissions are estimated to exceed this bright-line threshold, the project is required to demonstrate consistency with the CAP Consistency Checklist to ensure that the specific emissions targets identified in the City's CAP can be achieved.

Projects that meet one or more of the following locational criteria are eligible for using the CAP Consistency Checklist:

1. The project site is located within a designated Smart Growth Opportunity Area.
2. The project site is located with ¼ mile of a priority TOD corridor, as identified in the City's Smart and Sustainable Corridors Plan.
3. The project is consistent with current land use and zoning designations.
4. The project requires amendment of current land use and zoning designations. As demonstrated through a detailed analysis a) consistent with the precedent in the surrounding zoning district and b) subject to third party expert review, the proposed land uses would generate less GHG emissions than those associated with uses allowed under current land use and zoning designations.

The project site is located within a Smart Growth Opportunity Area, is within ¼ mile of a priority TOD corridor, and is consistent with the current land use and zoning designation, as described in detail in Section 2.5.1 of this report. As such, the project is eligible for the CAP Consistency Checklist for assessment of GHG emissions impacts. Table 18 includes the CAP Checklist items and the related project consistency analysis. Please see Appendix C, *CAP Consistency Checklist* for complete details.

Table 18 Climate Action Plan Consistency Checklist and Project Consistency

Check List Item	Project Consistency
1. On-Site Renewable Energy Supply. If the project meets one or more of the thresholds outlined in Section 3047 of the City's Zoning Ordinance, will at least 50 percent of the estimated electricity demand be met with on-site renewable emissions-free energy supply (e.g., solar photovoltaic facilities)?	**Consistent.** The project is a residential project that includes more than 25 dwelling units, and is therefore required to comply with the on-site renewable energy supply provisions of the checklist. The proposed project includes roof-top solar PV, which will accommodate at least 50% of energy demand during operation.
2. Electric Vehicle Charging Facilities. If the project involves new development that requires at least five (5) parking spaces, will the project comply with the requirements of Section 3048 of the City's Zoning Ordinance?	**Consistent.** The proposed project includes a total of 526 parking spaces for residences and guests, and is therefore required to comply with the requirements of Section 3048 of the City's Zoning Ordinance. Per Section 3048, the project will provide 78 electric vehicle parking stalls, 39 of which will be charger quipped facilities.
3. Recycled Water Infrastructure. Does the City's Water Utilities Department require that the project install infrastructure to provide for recycled water service?	**Not Applicable.** The project is not required to use recycled water.
4. Transportation Demand Management (TDM). Per Section 3050 of the City's Zoning Ordinance, does the proposed project expected to generate at least 100 daily employee commute trips, necessitating the preparation and implementation of a TDM Plan?	**Not Applicable.** The project is not expected to generate more than 100 daily employee commute trips, and therefore is not required to prepare a TDM Plan.
5. Urban Forestry. Will the project comply with the minimum tree canopy and permeable surface area requirements outlined in Section 3049 of the City's Zoning Ordinance?	**Consistent.** The proposed project will provide 32% tree canopy coverage and 25.5% permeable surface, which exceeds the requirements outlined in Section 3049 of the City's Zoning Ordinance.

Source: Appendix C, *CAP Consistency Checklist*

As shown in Table 18, the proposed project is consistent with the CAP Consistency Checklist adopted by the City to ensure that the emission targets identified in the CAP are achieved. Therefore, the proposed project is not expected to generate GHG emissions that may have a significant impact on the environment, and would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs and the impact would be **less than significant**.

4 References

14 CCR 15000–15387 and Appendices A–N. Guidelines for Implementation of the California Environmental Quality Act, as amended.

17 CCR 93000. Substances Identified as Toxic Air Contaminants.

California Department of Public Health. 2017. *Epidemiologic Summary of Coccidioidomycosis in California, 2016*. Prepared by F. Tabnak, K. Knutson, G. Cooksey, A. Nguyen, and D. Vugia. June 2017. Available: https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/CocciEpiSummary2016.pdf. Accessed May 2022.

CalRecycle. 2015. *AB341 Report to the Legislature.* August 28. Available: https://www2.calrecycle.ca.gov/Publications/Details/1538. Accessed May 2022.

CAPCOA. 2021. *California Emissions Estimator Model (CalEEMod) User's Guide Version 2020.4.0.* May.

CARB (California Air Resources Board). 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. October 2000. Available: http://www.arb.ca.gov/diesel/documents/rrpfinal.pdf. Accessed May 2022.

CARB. 2008. *Climate Change Scoping Plan.* December. Available: https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/document/adopted_scoping_plan.pdf. Accessed May 2022.

CARB. 2014. *First Update to the Climate Change Scoping Plan Building on the Framework Pursuant to AB 32 – The California Global Warming Solutions Act of 2006*. May 2014. Available: https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf Accessed May 2022.

CARB. 2016. "Ambient Air Quality Standards." May 5, 2016. Available: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf. Accessed May 2022.

CARB. 2017. *California's 2017 Climate Change Scoping Plan.* November. Available: https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/scoping_plan_2017.pdf. Accessed May 2022.

CARB. 2021. *2000-2019 GHG Inventory (2021 Edition)*.

CARB. 2022a. "Glossary of Air Pollutant Terms." Accessed May 2022. CARB website. http://www.arb.ca.gov/html/gloss.htm.

CARB. 2022b. "Overview: Diesel Exhaust and Health." Available: https://www.arb.ca.gov/research/diesel/diesel-health.htm. Accessed May 2022.

CARB. 2022c. "iADAM: Air Quality Data Statistics." Available: http://arb.ca.gov/adam. Accessed May 2022.

CARB. 2022d. *Current California GHG Emission Inventory Data 2000-2019 GHG Inventory (2021 Edition).* April 1. Available: https://ww2.arb.ca.gov/ghg-inventory-data. Accessed May 2022.

CEC. 2018. *2019 Building Energy Efficiency Standards.* Available: https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2019-building-energy-efficiency. Accessed May 2022.

City of Oceanside. 2002. *City of Oceanside General Plan.* June. Available: https://www.ci.oceanside.ca.us /gov/dev/planning/general.asp. Accessed. May 2022.

City of Oceanside. 2019. *Oceanside Climate Action Plan.* January. Available: https://www.ci.oceanside.ca.us/ civicax/filebank/blobdload.aspx?blobid=48919. Accessed April 2022.

County of San Diego. 2019. "San Diego County Annual Communicable Disease Report 2018." County of San Diego, Health and Human Services Agency, Public Health Services, Epidemiology and Immunization Services Branch. October 2019.

County of San Diego. 2021. *Monthly Communicable Disease Report.* Available: https://www.sandiegocounty.gov/ content/dam/sdc/hhsa/programs/phs/Epidemiology/Monthly%20CD%20Report_May%202021.pdf. Accessed May 2022.

CNRA. 2009a. *Final Statement of Reasons for Regulatory Action.* December. Available: https://resources.ca.gov/ CNRALegacyFiles/ceqa/docs/Final_Statement_of_Reasons.pdf. Accessed May 2022.

CNRA. 2009b. *2009 California Climate Adaptation Strategy.* Available: https://resources.ca.gov/ CNRALegacyFiles/docs/climate/Statewide_Adaptation_Strategy.pdf. Accessed May 2022.

CNRA. 2014. *Safeguarding California: Reducing Climate Risk.* Available: https://cawaterlibrary.net/ document/safeguarding-california-reducing-climate-risk-an-update-to-the-2009-california-climate-adaptation-strategy/. Accessed May 2022.

CNRA. 2019. *California's Fourth Climate Change Assessment: San Diego Region Report.* March 2019. Accessed April 2022 at https://www.energy.ca.gov/sites/default/files/2019-11/Reg_Report-SUM-CCCA4-2018-009_SanDiego_ADA.pdf.

EPA (U.S. Environmental Protection Agency). 2009. "Integrated Science Assessment for Particulate Matter." EPA/600/R-08/139F.

EPA. 2021. *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990–2019*. https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2019.

EPA. 2022a. "AirData: Access to Air Pollution Data." Available: http://www.epa.gov/airdata/ad_rep_mon.html. Accessed May 2022.

EPA. 2022b. *Basics of Climate Change.* February 23. Available: https://www.epa.gov/climatechange-science/ basics-climate-change. Accessed May 2022.

EPA. 2022c. *Midterm Evaluation of Light-Duty Vehicle Greenhouse Gas Emissions Standards for Model Years 2022-2025.* Available: https://www.epa.gov/regulations-emissions-vehicles-and-engines/midterm-evaluation-light-duty-vehicle-greenhouse-gas. Accessed May 2022.

EPA and NHTSA (Department of Transportation's National Highway Traffic Safety Administration). 2016. *EPA and NHTSA Adopt Standards to Reduce Greenhouse Gas Emissions and Improve Fuel Efficiency of Medium- and Heavy-Duty Vehicles for Model Year 2018 and Beyond*. August 2016. Available: https://nepis.epa.gov/Exe/ZyPDF.cgi/P100P7NL.PDF?Dockey=P100P7NL.PDF. Accessed May 2022.

EPA and NHTSA. 2018. *The Safer Affordable Fuel-Efficient 'SAFE' Vehicles Rule for Model Years 2021-2026 Passenger Vehicles and Light Trucks*. Proposed Rule August 2018. Available: https://www.govinfo.gov/content/pkg/FR-2018-08-24/pdf/2018-16820.pdf. Accessed May 2022.

EPIC. 2015. *2012 Greenhouse Gas Emissions Inventory and Projections for the San Diego Region.* August. Available: https://www.sdforward.com/pdfs/Final_PDFs/AppendixD.pdf. Accessed May 2022.

IPCC (Intergovernmental Panel on Climate Change). 2007. *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 996 pp. Accessed May 2019. http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4_wg1_full_report.pdf.

IPCC. 2014. *Climate Change 2014 Synthesis Report: A Report of the Intergovernmental Panel on Climate Change.* Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Accessed May 2019. http://www.ipcc.ch/report/ar5/syr/.

IPCC, 2018: *Summary for Policymakers. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty* [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. In Press. Available: https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_SPM_version_report_LR.pdf. Accessed May 2022.

Linscott, Law & Greenspan. 2022. *Local Transportation Study: Modera Melrose*. February 15.

OEHHA (Office of Environmental Health Hazard Assessment). 2015. *Air Toxics Hot Spots Program Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments 2015*. February 2015. Available: http://oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf. Accessed May 2022.

OEHHA. 2018. *Indicators of Climate Change.* August 30. Available: https://oehha.ca.gov/climate-change/document/indicators-climate-change-california. Accessed May 2022.

OPR. 2007. *Senate Bill No. 97 Chapter 185.* Available: https://opr.ca.gov/docs/SB_97_bill_20070824_chaptered.pdf. Accessed May 2022.

PBL (PBL Netherlands Environmental Assessment Agency). 2018. *Trends in Global CO_2 and Total Greenhouse Gas Emissions, 2018 Report*. December 2018. Accessed May 2019. https://www.pbl.nl/sites/default/files/cms/publicaties/pbl-2018-trends-in-global-co2-and-total-greenhouse-gas-emissons-2018-report_3125.pdf.

SANDAG. 2015. *2015 Regional Plan.* Available: https://www.sdforward.com/2019-federal-rtp/2015-regional-plan. Accessed May 2022.

SANDAG. 2017a. "Series 13: 2050 Regional Growth Forecast." Available: http://www.sandag.org/index.asp?classid=12&subclassid=84&projectid=503&fuseaction=projects.detail. Accessed May 2022.

SANDAG. 2017b. "Comprehensive Transportation Projects: 2050 Regional Transportation Plan." Available: http://www.sandag.org/index.asp?projectid=349&fuseaction=projects.detail. Accessed May 2022.

SANDAG. 2020. *6th Cycle Regional Housing Needs Assessment Plan.* July 10. Available: https://www.sandag.org/uploads/projectid/projectid_189_27782.pdf. Accessed April 2022.

SANDAG. 2021. *SANDAG 2021 Regional Plan*. Adopted December 10, 2021. Accessed April 2022. https://sdforward.com/mobility-planning/2021-regional-plan

SCAQMD. 2008. *Final Localized Significance Threshold Methodology*. July. Available: http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf?sfvrsn=2. Accessed May 2022.

SDAPCD (San Diego Air Pollution Control District). 1976. Rules and Regulations. Regulation IV. Prohibitions. Rule 51. Nuisance. Effective November 8. Available: https://www.sdapcd.org/content/dam/sdapcd/documents/rules/current-rules/Rule-51.pdf. Accessed May 2022.

SDAPCD. 1997. Rules and Regulations. Regulation IV. Prohibitions. Rule 50. Visible Emissions. Effective August 13. Available: https://www.sdapcd.org/content/dam/sdapcd/documents/rules/current-rules/Rule-50.pdf. Accessed May 2022.

SDAPCD. 2005. *Measures to Reduce Particulate Matter in San Diego County*. December 2005. Available: http://sntbberry.cityofsanteeca.gov/sites/FanitaRanch/Public/Remainder%20of%20the%20Record/(2)%20Reference%20Documents%20from%20EIR%20&%20Technical%20Reports/Tab%20203%20-%202005-12%20SDAPCD_Measures%20to%20Reduce%20Particulate%20Matter.pdf. Accessed May 2022.

SDAPCD. 2009a. *2009 Regional Air Quality Strategy Revision*. April 2009. Accessed November 2019. http://www.sdapcd.org/content/dam/sdc/apcd/PDF/Air%20Quality%20Planning/2009-RAQS.pdf.

SDAPCD. 2009b. Rules and Regulations. Regulation IV. Prohibitions. Rule 55. Fugitive Dust. Adopted June 24, 2009; effective December 24, 2009. Available: https://www.sdapcd.org/content/dam/sdapcd/documents/rules/current-rules/Rule-55.pdf. Accessed May 2022.

SDAPCD. 2015. Rules and Regulations. Regulation IV. Prohibitions. Rule 67.0.1. Architectural Coatings. Revised June 24, 2015. Available: https://www.sdapcd.org/content/dam/sdapcd/documents/rules/rule-archive/2021/Rule-67.0.1.pdf. Accessed May 2022.

SDAPCD. 2016a. SDAPCD Regulation II: Permits; Rule 20.2: New Source Review—Non-Major Sources. January 29, 2016. Available: https://www.sdapcd.org/content/dam/sdapcd/documents/rules/current-rules/Rule-20.2.pdf. Accessed May 2022.

SDAPCD. 2016b. *2008 Eight-Hour Ozone Attainment Plan for San Diego County*. Updated December 2016. http://www.sdapcd.org/content/dam/sdc/apcd/PDF/Air%20Quality%20Planning/8-Hr-03%20Attain%20Plan-08%20Std.pdf.

SDAPCD. 2016c. *2016 Revision of the Regional Air Quality Strategy for San Diego County*. December 2016. Accessed June 2017. http://www.sdapcd.org/content/dam/sdc/apcd/PDF/Air%20Quality%20Planning/2016%20RAQS.pdf.

SDAPCD. 2022a. *Supplemental Guidelines for Submission of Air Toxics "Hot Spots" Program Health Risk Assessments (HRAs)*. April. Available: https://www.sdapcd.org/content/dam/sdapcd/documents/permits/air-toxics/Hot-Spots-Guidelines.pdf. Accessed May 2022.

SDAPCD. 2022b. *Attainment Status*. Available: https://www.sdapcd.org/content/sdapcd/planning/attainment-status.html. Accessed May 2022.

WRCC (Western Regional Climate Center). 2016. "Vista 2. Temperature and Precipitation." Accessed May 2022. https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca9378.

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Appendix A

CalEEMod Outputs and Estimated Emissions

Modera Melrose Unmitigated - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Modera Melrose Unmitigated

San Diego County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	1.75	1000sqft	0.04	1,745.00	0
Enclosed Parking Structure	145.00	Space	0.00	58,000.00	0
Parking Lot	117.30	1000sqft	2.69	117,304.00	0
City Park	2.20	Acre	2.20	95,696.96	0
Health Club	5.21	1000sqft	0.00	5,206.00	0
Recreational Swimming Pool	1.93	1000sqft	0.04	1,927.00	0
Apartments High Rise	33.00	Dwelling Unit	0.25	33,000.00	94
Apartments Mid Rise	290.00	Dwelling Unit	2.16	290,000.00	829
Strip Mall	2.37	1000sqft	0.05	2,365.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2024
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	539.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Land use assumptions provided by applicant.

Construction Phase - CalEEMod default assumptions. No demolition required.

Off-road Equipment - Architectural Coating: CalEEMod default assumptions

Modera Melrose Unmitigated - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment - Building Construction: CalEEMod default assumptions

Off-road Equipment - Demo: CalEEMod default assumptions

Off-road Equipment - Grading: CalEEMod default assumptions

Off-road Equipment - Paving: CalEEMod default assumptions

Off-road Equipment - Site Prep: CalEEMod default assumptions

Trips and VMT - CalEEMod default assumptions. 2 vendor trucks added to phases without default vendor trips to account for water trucks and/or routine deliveries.

On-road Fugitive Dust - CalEEMod default assumptions

Demolition - No demolition required.

Grading - Import quantity provided by applicant.

Architectural Coating - SDAPCD Rule 67.0.1.

Vehicle Trips - Trips consistent with data from 2/15/2022 Linscott Law & Greenspan Local Transportation Study.

Road Dust - CalEEMod default assumptions

Woodstoves - PDF: no wood-burning appliances.

Consumer Products - CalEEMod Default Assumptions

Area Coating - SDAPCD Rule 67.0.1.

Energy Use - CalEEMod default assumptions

Water And Wastewater - Zero'd out outdoor water use for buildings and accounted for in City Park land use which represents overall landscaping.

Solid Waste - CalEEMod default assumptions

Area Mitigation - SDAPCD Rule 67.0.1

Energy Mitigation - PDF: 50% of on-site energy demand will come from PV solar

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	50.00
tblArchitecturalCoating	EF_Parking	250.00	100.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	50
tblAreaCoating	Area_EF_Nonresidential_Interior	250	50

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblAreaCoating	Area_EF_Parking	250	100
tblAreaCoating	Area_EF_Residential_Exterior	250	50
tblAreaCoating	Area_EF_Residential_Interior	250	50
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	NumberGas	18.15	29.70
tblFireplaces	NumberGas	159.50	261.00
tblFireplaces	NumberWood	11.55	0.00
tblFireplaces	NumberWood	101.50	0.00
tblGrading	MaterialImported	0.00	43,200.00
tblLandUse	LandUseSquareFeet	1,750.00	1,745.00
tblLandUse	LandUseSquareFeet	117,300.00	117,304.00
tblLandUse	LandUseSquareFeet	95,832.00	95,696.96
tblLandUse	LandUseSquareFeet	5,210.00	5,206.00
tblLandUse	LandUseSquareFeet	1,930.00	1,927.00
tblLandUse	LandUseSquareFeet	2,370.00	2,365.00
tblLandUse	LotAcreage	1.30	0.00
tblLandUse	LotAcreage	0.12	0.00
tblLandUse	LotAcreage	0.53	0.25
tblLandUse	LotAcreage	7.63	2.16
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblVehicleTrips	ST_TR	4.53	0.00
tblVehicleTrips	ST_TR	4.91	6.05
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	2.21	0.00
tblVehicleTrips	ST_TR	20.87	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleTrips	ST_TR	9.10	0.00
tblVehicleTrips	ST_TR	42.04	37.50
tblVehicleTrips	SU_TR	3.59	0.00
tblVehicleTrips	SU_TR	4.09	5.04
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	0.70	0.00
tblVehicleTrips	SU_TR	26.73	0.00
tblVehicleTrips	SU_TR	13.60	0.00
tblVehicleTrips	SU_TR	20.43	18.20
tblVehicleTrips	WD_TR	4.45	0.00
tblVehicleTrips	WD_TR	5.44	6.70
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	9.74	0.00
tblVehicleTrips	WD_TR	32.93	0.00
tblVehicleTrips	WD_TR	28.82	0.00
tblVehicleTrips	WD_TR	44.32	39.54
tblWater	OutdoorWaterUseRate	1,355,487.01	0.00
tblWater	OutdoorWaterUseRate	11,911,855.55	0.00
tblWater	OutdoorWaterUseRate	190,633.78	0.00
tblWater	OutdoorWaterUseRate	188,857.41	0.00
tblWater	OutdoorWaterUseRate	107,596.31	0.00
tblWoodstoves	NumberCatalytic	1.65	0.00
tblWoodstoves	NumberCatalytic	14.50	0.00
tblWoodstoves	NumberNoncatalytic	1.65	0.00
tblWoodstoves	NumberNoncatalytic	14.50	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00

2.0 Emissions Summary

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.2530	2.2228	2.4468	7.7200e-003	0.4971	0.0779	0.5750	0.1730	0.0730	0.2460	0.0000	716.0260	716.0260	0.0771	0.0505	732.9877
2024	1.1537	0.6828	0.9916	2.4900e-003	0.1160	0.0264	0.1425	0.0312	0.0248	0.0561	0.0000	225.8545	225.8545	0.0282	9.6600e-003	229.4385
Maximum	**1.1537**	**2.2228**	**2.4468**	**7.7200e-003**	**0.4971**	**0.0779**	**0.5750**	**0.1730**	**0.0730**	**0.2460**	**0.0000**	**716.0260**	**716.0260**	**0.0771**	**0.0505**	**732.9877**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.2530	2.2228	2.4468	7.7200e-003	0.4971	0.0779	0.5750	0.1730	0.0730	0.2460	0.0000	716.0257	716.0257	0.0771	0.0505	732.9874
2024	1.1537	0.6828	0.9916	2.4900e-003	0.1160	0.0264	0.1425	0.0312	0.0248	0.0561	0.0000	225.8543	225.8543	0.0282	9.6600e-003	229.4384
Maximum	**1.1537**	**2.2228**	**2.4468**	**7.7200e-003**	**0.4971**	**0.0779**	**0.5750**	**0.1730**	**0.0730**	**0.2460**	**0.0000**	**716.0257**	**716.0257**	**0.0771**	**0.0505**	**732.9874**

Modera Melrose Unmitigated - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**4-1-2023**	**6-30-2023**	1.0780	1.0780
2	**7-1-2023**	**9-30-2023**	0.6927	0.6927
3	**10-1-2023**	**12-31-2023**	0.7025	0.7025
4	**1-1-2024**	**3-31-2024**	0.6493	0.6493
5	**4-1-2024**	**6-30-2024**	1.1765	1.1765
		Highest	1.1765	1.1765

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.5112	0.2254	2.4840	1.3900e-003		0.0293	0.0293		0.0293	0.0293	0.0000	232.8923	232.8923	8.1600e-003	4.2000e-003	234.3473
Energy	0.0132	0.1132	0.0502	7.2000e-004		9.1300e-003	9.1300e-003		9.1300e-003	9.1300e-003	0.0000	542.2401	542.2401	0.0277	5.4500e-003	544.5542
Mobile	0.9624	1.0853	8.9937	0.0190	2.0225	0.0148	2.0373	0.5398	0.0138	0.5536	0.0000	1,751.8916	1,751.8916	0.1261	0.0801	1,778.9213
Waste						0.0000	0.0000		0.0000	0.0000	39.2970	0.0000	39.2970	2.3224	0.0000	97.3567
Water						0.0000	0.0000		0.0000	0.0000	6.9649	77.3387	84.3036	0.7201	0.0175	107.5100
Total	**2.4868**	**1.4239**	**11.5278**	**0.0211**	**2.0225**	**0.0532**	**2.0757**	**0.5398**	**0.0522**	**0.5920**	**46.2619**	**2,604.3627**	**2,650.6246**	**3.2044**	**0.1072**	**2,762.6894**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.5112	0.2254	2.4840	1.3900e-003		0.0293	0.0293		0.0293	0.0293	0.0000	232.8923	232.8923	8.1600e-003	4.2000e-003	234.3473
Energy	0.0132	0.1132	0.0502	7.2000e-004		9.1300e-003	9.1300e-003		9.1300e-003	9.1300e-003	0.0000	336.4998	336.4998	0.0151	3.9200e-003	338.0453
Mobile	0.9624	1.0853	8.9937	0.0190	2.0225	0.0148	2.0373	0.5398	0.0138	0.5536	0.0000	1,751.8916	1,751.8916	0.1261	0.0801	1,778.9213
Waste						0.0000	0.0000		0.0000	0.0000	39.2970	0.0000	39.2970	2.3224	0.0000	97.3567
Water						0.0000	0.0000		0.0000	0.0000	6.9649	77.3387	84.3036	0.7201	0.0175	107.5100
Total	**2.4868**	**1.4239**	**11.5278**	**0.0211**	**2.0225**	**0.0532**	**2.0757**	**0.5398**	**0.0522**	**0.5920**	**46.2619**	**2,398.6224**	**2,444.8843**	**3.1918**	**0.1057**	**2,556.1806**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**7.90**	**7.76**	**0.39**	**1.43**	**7.47**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/1/2023	4/14/2023	5	10	
2	Grading	Grading	4/15/2023	5/12/2023	5	20	
3	Building Construction	Building Construction	5/13/2023	3/29/2024	5	230	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4	Paving	Paving	3/30/2024	4/26/2024	5	20	
5	Architectural Coating	Architectural Coating	4/27/2024	5/24/2024	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 20

Acres of Paving: 2.69

Residential Indoor: 654,075; Residential Outdoor: 218,025; Non-Residential Indoor: 13,974; Non-Residential Outdoor: 4,658; Striped Parking Area: 10,518 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	2.00	5,400.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	351.00	81.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	70.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0983	0.0000	0.0983	0.0505	0.0000	0.0505	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0133	0.1376	0.0912	1.9000e-004		6.3300e-003	6.3300e-003		5.8200e-003	5.8200e-003	0.0000	16.7254	16.7254	5.4100e-003	0.0000	16.8606
Total	**0.0133**	**0.1376**	**0.0912**	**1.9000e-004**	**0.0983**	**6.3300e-003**	**0.1046**	**0.0505**	**5.8200e-003**	**0.0563**	**0.0000**	**16.7254**	**16.7254**	**5.4100e-003**	**0.0000**	**16.8606**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-005	4.4000e-004	1.6000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.2007	0.2007	1.0000e-005	3.0000e-005	0.2095
Worker	2.4000e-004	1.7000e-004	2.0500e-003	1.0000e-005	7.2000e-004	0.0000	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.5711	0.5711	2.0000e-005	2.0000e-005	0.5763
Total	**2.5000e-004**	**6.1000e-004**	**2.2100e-003**	**1.0000e-005**	**7.9000e-004**	**0.0000**	**8.0000e-004**	**2.1000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**0.7718**	**0.7718**	**3.0000e-005**	**5.0000e-005**	**0.7857**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0983	0.0000	0.0983	0.0505	0.0000	0.0505	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0133	0.1376	0.0912	1.9000e-004		6.3300e-003	6.3300e-003		5.8200e-003	5.8200e-003	0.0000	16.7253	16.7253	5.4100e-003	0.0000	16.8606
Total	**0.0133**	**0.1376**	**0.0912**	**1.9000e-004**	**0.0983**	**6.3300e-003**	**0.1046**	**0.0505**	**5.8200e-003**	**0.0563**	**0.0000**	**16.7253**	**16.7253**	**5.4100e-003**	**0.0000**	**16.8606**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-005	4.4000e-004	1.6000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.2007	0.2007	1.0000e-005	3.0000e-005	0.2095
Worker	2.4000e-004	1.7000e-004	2.0500e-003	1.0000e-005	7.2000e-004	0.0000	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.5711	0.5711	2.0000e-005	2.0000e-005	0.5763
Total	**2.5000e-004**	**6.1000e-004**	**2.2100e-003**	**1.0000e-005**	**7.9000e-004**	**0.0000**	**8.0000e-004**	**2.1000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**0.7718**	**0.7718**	**3.0000e-005**	**5.0000e-005**	**0.7857**

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0739	0.0000	0.0739	0.0347	0.0000	0.0347	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0171	0.1794	0.1475	3.0000e-004		7.7500e-003	7.7500e-003		7.1300e-003	7.1300e-003	0.0000	26.0606	26.0606	8.4300e-003	0.0000	26.2713
Total	**0.0171**	**0.1794**	**0.1475**	**3.0000e-004**	**0.0739**	**7.7500e-003**	**0.0816**	**0.0347**	**7.1300e-003**	**0.0418**	**0.0000**	**26.0606**	**26.0606**	**8.4300e-003**	**0.0000**	**26.2713**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.9600e-003	0.3664	0.0975	1.6200e-003	0.0463	3.0000e-003	0.0493	0.0127	2.8700e-003	0.0156	0.0000	162.0392	162.0392	8.1500e-003	0.0258	169.9224
Vendor	2.0000e-005	8.9000e-004	3.1000e-004	0.0000	1.3000e-004	1.0000e-005	1.4000e-004	4.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.4013	0.4013	1.0000e-005	6.0000e-005	0.4189
Worker	4.1000e-004	2.8000e-004	3.4200e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9518	0.9518	3.0000e-005	3.0000e-005	0.9605
Total	**6.3900e-003**	**0.3676**	**0.1012**	**1.6300e-003**	**0.0476**	**3.0200e-003**	**0.0506**	**0.0131**	**2.8900e-003**	**0.0159**	**0.0000**	**163.3924**	**163.3924**	**8.1900e-003**	**0.0259**	**171.3018**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0739	0.0000	0.0739	0.0347	0.0000	0.0347	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0171	0.1794	0.1475	3.0000e-004		7.7500e-003	7.7500e-003		7.1300e-003	7.1300e-003	0.0000	26.0606	26.0606	8.4300e-003	0.0000	26.2713
Total	**0.0171**	**0.1794**	**0.1475**	**3.0000e-004**	**0.0739**	**7.7500e-003**	**0.0816**	**0.0347**	**7.1300e-003**	**0.0418**	**0.0000**	**26.0606**	**26.0606**	**8.4300e-003**	**0.0000**	**26.2713**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.9600e-003	0.3664	0.0975	1.6200e-003	0.0463	3.0000e-003	0.0493	0.0127	2.8700e-003	0.0156	0.0000	162.0392	162.0392	8.1500e-003	0.0258	169.9224
Vendor	2.0000e-005	8.9000e-004	3.1000e-004	0.0000	1.3000e-004	1.0000e-005	1.4000e-004	4.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.4013	0.4013	1.0000e-005	6.0000e-005	0.4189
Worker	4.1000e-004	2.8000e-004	3.4200e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9518	0.9518	3.0000e-005	3.0000e-005	0.9605
Total	**6.3900e-003**	**0.3676**	**0.1012**	**1.6300e-003**	**0.0476**	**3.0200e-003**	**0.0506**	**0.0131**	**2.8900e-003**	**0.0159**	**0.0000**	**163.3924**	**163.3924**	**8.1900e-003**	**0.0259**	**171.3018**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1298	1.1868	1.3401	2.2200e-003		0.0577	0.0577		0.0543	0.0543	0.0000	191.2389	191.2389	0.0455	0.0000	192.3762
Total	**0.1298**	**1.1868**	**1.3401**	**2.2200e-003**		**0.0577**	**0.0577**		**0.0543**	**0.0543**	**0.0000**	**191.2389**	**191.2389**	**0.0455**	**0.0000**	**192.3762**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.8400e-003	0.2967	0.1046	1.3700e-003	0.0444	1.7500e-003	0.0461	0.0128	1.6700e-003	0.0145	0.0000	134.0846	134.0846	4.0500e-003	0.0194	139.9757
Worker	0.0783	0.0542	0.6599	2.0000e-003	0.2322	1.2800e-003	0.2335	0.0617	1.1700e-003	0.0629	0.0000	183.7524	183.7524	5.4500e-003	5.1300e-003	185.4164
Total	**0.0861**	**0.3509**	**0.7645**	**3.3700e-003**	**0.2766**	**3.0300e-003**	**0.2796**	**0.0745**	**2.8400e-003**	**0.0774**	**0.0000**	**317.8370**	**317.8370**	**9.5000e-003**	**0.0246**	**325.3921**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1298	1.1868	1.3401	2.2200e-003		0.0577	0.0577		0.0543	0.0543	0.0000	191.2387	191.2387	0.0455	0.0000	192.3760
Total	**0.1298**	**1.1868**	**1.3401**	**2.2200e-003**		**0.0577**	**0.0577**		**0.0543**	**0.0543**	**0.0000**	**191.2387**	**191.2387**	**0.0455**	**0.0000**	**192.3760**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.8400e-003	0.2967	0.1046	1.3700e-003	0.0444	1.7500e-003	0.0461	0.0128	1.6700e-003	0.0145	0.0000	134.0846	134.0846	4.0500e-003	0.0194	139.9757
Worker	0.0783	0.0542	0.6599	2.0000e-003	0.2322	1.2800e-003	0.2335	0.0617	1.1700e-003	0.0629	0.0000	183.7524	183.7524	5.4500e-003	5.1300e-003	185.4164
Total	**0.0861**	**0.3509**	**0.7645**	**3.3700e-003**	**0.2766**	**3.0300e-003**	**0.2796**	**0.0745**	**2.8400e-003**	**0.0774**	**0.0000**	**317.8370**	**317.8370**	**9.5000e-003**	**0.0246**	**325.3921**

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0478	0.4369	0.5254	8.8000e-004		0.0199	0.0199		0.0188	0.0188	0.0000	75.3510	75.3510	0.0178	0.0000	75.7964
Total	**0.0478**	**0.4369**	**0.5254**	**8.8000e-004**		**0.0199**	**0.0199**		**0.0188**	**0.0188**	**0.0000**	**75.3510**	**75.3510**	**0.0178**	**0.0000**	**75.7964**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.9700e-003	0.1161	0.0403	5.3000e-004	0.0175	6.9000e-004	0.0182	5.0500e-003	6.6000e-004	5.7100e-003	0.0000	51.9012	51.9012	1.6300e-003	7.5200e-003	54.1828
Worker	0.0290	0.0192	0.2429	7.6000e-004	0.0915	4.8000e-004	0.0920	0.0243	4.4000e-004	0.0248	0.0000	70.0168	70.0168	1.9600e-003	1.8900e-003	70.6280
Total	**0.0320**	**0.1353**	**0.2832**	**1.2900e-003**	**0.1090**	**1.1700e-003**	**0.1101**	**0.0294**	**1.1000e-003**	**0.0305**	**0.0000**	**121.9180**	**121.9180**	**3.5900e-003**	**9.4100e-003**	**124.8108**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0478	0.4369	0.5254	8.8000e-004		0.0199	0.0199		0.0188	0.0188	0.0000	75.3509	75.3509	0.0178	0.0000	75.7963
Total	**0.0478**	**0.4369**	**0.5254**	**8.8000e-004**		**0.0199**	**0.0199**		**0.0188**	**0.0188**	**0.0000**	**75.3509**	**75.3509**	**0.0178**	**0.0000**	**75.7963**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.9700e-003	0.1161	0.0403	5.3000e-004	0.0175	6.9000e-004	0.0182	5.0500e-003	6.6000e-004	5.7100e-003	0.0000	51.9012	51.9012	1.6300e-003	7.5200e-003	54.1828
Worker	0.0290	0.0192	0.2429	7.6000e-004	0.0915	4.8000e-004	0.0920	0.0243	4.4000e-004	0.0248	0.0000	70.0168	70.0168	1.9600e-003	1.8900e-003	70.6280
Total	**0.0320**	**0.1353**	**0.2832**	**1.2900e-003**	**0.1090**	**1.1700e-003**	**0.1101**	**0.0294**	**1.1000e-003**	**0.0305**	**0.0000**	**121.9180**	**121.9180**	**3.5900e-003**	**9.4100e-003**	**124.8108**

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8800e-003	0.0953	0.1463	2.3000e-004		4.6900e-003	4.6900e-003		4.3100e-003	4.3100e-003	0.0000	20.0265	20.0265	6.4800e-003	0.0000	20.1885
Paving	3.5200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0134**	**0.0953**	**0.1463**	**2.3000e-004**		**4.6900e-003**	**4.6900e-003**		**4.3100e-003**	**4.3100e-003**	**0.0000**	**20.0265**	**20.0265**	**6.4800e-003**	**0.0000**	**20.1885**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-005	8.8000e-004	3.1000e-004	0.0000	1.3000e-004	1.0000e-005	1.4000e-004	4.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3943	0.3943	1.0000e-005	6.0000e-005	0.4117
Worker	3.8000e-004	2.5000e-004	3.1900e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9207	0.9207	3.0000e-005	2.0000e-005	0.9287
Total	**4.0000e-004**	**1.1300e-003**	**3.5000e-003**	**1.0000e-005**	**1.3300e-003**	**2.0000e-005**	**1.3500e-003**	**3.6000e-004**	**2.0000e-005**	**3.7000e-004**	**0.0000**	**1.3150**	**1.3150**	**4.0000e-005**	**8.0000e-005**	**1.3404**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8800e-003	0.0953	0.1463	2.3000e-004		4.6900e-003	4.6900e-003		4.3100e-003	4.3100e-003	0.0000	20.0265	20.0265	6.4800e-003	0.0000	20.1884
Paving	3.5200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0134**	**0.0953**	**0.1463**	**2.3000e-004**		**4.6900e-003**	**4.6900e-003**		**4.3100e-003**	**4.3100e-003**	**0.0000**	**20.0265**	**20.0265**	**6.4800e-003**	**0.0000**	**20.1884**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-005	8.8000e-004	3.1000e-004	0.0000	1.3000e-004	1.0000e-005	1.4000e-004	4.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3943	0.3943	1.0000e-005	6.0000e-005	0.4117
Worker	3.8000e-004	2.5000e-004	3.1900e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9207	0.9207	3.0000e-005	2.0000e-005	0.9287
Total	**4.0000e-004**	**1.1300e-003**	**3.5000e-003**	**1.0000e-005**	**1.3300e-003**	**2.0000e-005**	**1.3500e-003**	**3.6000e-004**	**2.0000e-005**	**3.7000e-004**	**0.0000**	**1.3150**	**1.3150**	**4.0000e-005**	**8.0000e-005**	**1.3404**

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.0565					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8100e-003	0.0122	0.0181	3.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5569
Total	**1.0583**	**0.0122**	**0.0181**	**3.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.4000e-004**	**0.0000**	**2.5569**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-005	8.8000e-004	3.1000e-004	0.0000	1.3000e-004	1.0000e-005	1.4000e-004	4.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3943	0.3943	1.0000e-005	6.0000e-005	0.4117
Worker	1.7800e-003	1.1800e-003	0.0149	5.0000e-005	5.6100e-003	3.0000e-005	5.6400e-003	1.4900e-003	3.0000e-005	1.5200e-003	0.0000	4.2965	4.2965	1.2000e-004	1.2000e-004	4.3340
Total	**1.8000e-003**	**2.0600e-003**	**0.0152**	**5.0000e-005**	**5.7400e-003**	**4.0000e-005**	**5.7800e-003**	**1.5300e-003**	**4.0000e-005**	**1.5600e-003**	**0.0000**	**4.6908**	**4.6908**	**1.3000e-004**	**1.8000e-004**	**4.7456**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.0565					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8100e-003	0.0122	0.0181	3.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5568
Total	**1.0583**	**0.0122**	**0.0181**	**3.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.4000e-004**	**0.0000**	**2.5568**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-005	8.8000e-004	3.1000e-004	0.0000	1.3000e-004	1.0000e-005	1.4000e-004	4.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3943	0.3943	1.0000e-005	6.0000e-005	0.4117
Worker	1.7800e-003	1.1800e-003	0.0149	5.0000e-005	5.6100e-003	3.0000e-005	5.6400e-003	1.4900e-003	3.0000e-005	1.5200e-003	0.0000	4.2965	4.2965	1.2000e-004	1.2000e-004	4.3340
Total	**1.8000e-003**	**2.0600e-003**	**0.0152**	**5.0000e-005**	**5.7400e-003**	**4.0000e-005**	**5.7800e-003**	**1.5300e-003**	**4.0000e-005**	**1.5600e-003**	**0.0000**	**4.6908**	**4.6908**	**1.3000e-004**	**1.8000e-004**	**4.7456**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.9624	1.0853	8.9937	0.0190	2.0225	0.0148	2.0373	0.5398	0.0138	0.5536	0.0000	1,751.8916	1,751.8916	0.1261	0.0801	1,778.9213
Unmitigated	0.9624	1.0853	8.9937	0.0190	2.0225	0.0148	2.0373	0.5398	0.0138	0.5536	0.0000	1,751.8916	1,751.8916	0.1261	0.0801	1,778.9213

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments High Rise	0.00	0.00	0.00		
Apartments Mid Rise	1,943.00	1,754.50	1461.60	5,274,602	5,274,602
City Park	0.00	0.00	0.00		
Enclosed Parking Structure	0.00	0.00	0.00		
General Office Building	0.00	0.00	0.00		
Health Club	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Recreational Swimming Pool	0.00	0.00	0.00		
Strip Mall	93.71	88.88	43.13	132,126	132,126
Total	2,036.71	1,843.38	1,504.73	5,406,727	5,406,727

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments High Rise	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3
Apartments Mid Rise	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Enclosed Parking Structure	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Health Club	9.50	7.30	7.30	16.90	64.10	19.00	52	39	9
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Recreational Swimming Pool	9.50	7.30	7.30	33.00	48.00	19.00	52	39	9
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments High Rise	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Apartments Mid Rise	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
City Park	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Enclosed Parking Structure	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
General Office Building	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Health Club	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Parking Lot	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Recreational Swimming Pool	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Strip Mall	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Percent of Electricity Use Generated with Renewable Energy

Modera Melrose Unmitigated - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	205.7403	205.7403	0.0126	1.5200e-003	206.5088
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	411.4807	411.4807	0.0252	3.0500e-003	413.0177
NaturalGas Mitigated	0.0132	0.1132	0.0502	7.2000e-004		9.1300e-003	9.1300e-003		9.1300e-003	9.1300e-003	0.0000	130.7595	130.7595	2.5100e-003	2.4000e-003	131.5365
NaturalGas Unmitigated	0.0132	0.1132	0.0502	7.2000e-004		9.1300e-003	9.1300e-003		9.1300e-003	9.1300e-003	0.0000	130.7595	130.7595	2.5100e-003	2.4000e-003	131.5365

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments High Rise	240110	1.2900e-003	0.0111	4.7100e-003	7.0000e-005		8.9000e-004	8.9000e-004		8.9000e-004	8.9000e-004	0.0000	12.8132	12.8132	2.5000e-004	2.3000e-004	12.8893
Apartments Mid Rise	2.11005e+006	0.0114	0.0972	0.0414	6.2000e-004		7.8600e-003	7.8600e-003		7.8600e-003	7.8600e-003	0.0000	112.6005	112.6005	2.1600e-003	2.0600e-003	113.2697
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	34952.3	1.9000e-004	1.7100e-003	1.4400e-003	1.0000e-005		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	1.8652	1.8652	4.0000e-005	3.0000e-005	1.8763
Health Club	59973.1	3.2000e-004	2.9400e-003	2.4700e-003	2.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	3.2004	3.2004	6.0000e-005	6.0000e-005	3.2194
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	5250.3	3.0000e-005	2.6000e-004	2.2000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.2802	0.2802	1.0000e-005	1.0000e-005	0.2818
Total		**0.0132**	**0.1132**	**0.0502**	**7.2000e-004**		**9.1200e-003**	**9.1200e-003**		**9.1200e-003**	**9.1200e-003**	**0.0000**	**130.7595**	**130.7595**	**2.5200e-003**	**2.3900e-003**	**131.5365**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments High Rise	240110	1.2900e-003	0.0111	4.7100e-003	7.0000e-005		8.9000e-004	8.9000e-004		8.9000e-004	8.9000e-004	0.0000	12.8132	12.8132	2.5000e-004	2.3000e-004	12.8893
Apartments Mid Rise	2.11005e+006	0.0114	0.0972	0.0414	6.2000e-004		7.8600e-003	7.8600e-003		7.8600e-003	7.8600e-003	0.0000	112.6005	112.6005	2.1600e-003	2.0600e-003	113.2697
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	34952.3	1.9000e-004	1.7100e-003	1.4400e-003	1.0000e-005		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	1.8652	1.8652	4.0000e-005	3.0000e-005	1.8763
Health Club	59973.1	3.2000e-004	2.9400e-003	2.4700e-003	2.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	3.2004	3.2004	6.0000e-005	6.0000e-005	3.2194
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	5250.3	3.0000e-005	2.6000e-004	2.2000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.2802	0.2802	1.0000e-005	1.0000e-005	0.2818
Total		**0.0132**	**0.1132**	**0.0502**	**7.2000e-004**		**9.1200e-003**	**9.1200e-003**		**9.1200e-003**	**9.1200e-003**	**0.0000**	**130.7595**	**130.7595**	**2.5200e-003**	**2.3900e-003**	**131.5365**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	126725	31.0388	1.9000e-003	2.3000e-004	31.1547
Apartments Mid Rise	1.11364e+006	272.7649	0.0167	2.0200e-003	273.7838
City Park	0	0.0000	0.0000	0.0000	0.0000
Enclosed Parking Structure	304500	74.5814	4.5600e-003	5.5000e-004	74.8600
General Office Building	22580.3	5.5306	3.4000e-004	4.0000e-005	5.5513
Health Club	42585.1	10.4304	6.4000e-004	8.0000e-005	10.4694
Parking Lot	41056.4	10.0560	6.1000e-004	7.0000e-005	10.0935
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	28900.3	7.0786	4.3000e-004	5.0000e-005	7.1050
Total		**411.4806**	**0.0252**	**3.0400e-003**	**413.0177**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	63362.3	15.5194	9.5000e-004	1.1000e-004	15.5774
Apartments Mid Rise	556820	136.3825	8.3300e-003	1.0100e-003	136.8919
City Park	0	0.0000	0.0000	0.0000	0.0000
Enclosed Parking Structure	152250	37.2907	2.2800e-003	2.8000e-004	37.4300
General Office Building	11290.2	2.7653	1.7000e-004	2.0000e-005	2.7756
Health Club	21292.5	5.2152	3.2000e-004	4.0000e-005	5.2347
Parking Lot	20528.2	5.0280	3.1000e-004	4.0000e-005	5.0468
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	14450.1	3.5393	2.2000e-004	3.0000e-005	3.5525
Total		**205.7403**	**0.0126**	**1.5300e-003**	**206.5088**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.5112	0.2254	2.4840	1.3900e-003		0.0293	0.0293		0.0293	0.0293	0.0000	232.8923	232.8923	8.1600e-003	4.2000e-003	234.3473
Unmitigated	1.5112	0.2254	2.4840	1.3900e-003		0.0293	0.0293		0.0293	0.0293	0.0000	232.8923	232.8923	8.1600e-003	4.2000e-003	234.3473

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1057					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.3101					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0231	0.1977	0.0841	1.2600e-003		0.0160	0.0160		0.0160	0.0160	0.0000	228.9698	228.9698	4.3900e-003	4.2000e-003	230.3305
Landscaping	0.0723	0.0276	2.3998	1.3000e-004		0.0133	0.0133		0.0133	0.0133	0.0000	3.9225	3.9225	3.7700e-003	0.0000	4.0168
Total	**1.5112**	**0.2254**	**2.4840**	**1.3900e-003**		**0.0293**	**0.0293**		**0.0293**	**0.0293**	**0.0000**	**232.8923**	**232.8923**	**8.1600e-003**	**4.2000e-003**	**234.3473**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1057					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.3101					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0231	0.1977	0.0841	1.2600e-003		0.0160	0.0160		0.0160	0.0160	0.0000	228.9698	228.9698	4.3900e-003	4.2000e-003	230.3305
Landscaping	0.0723	0.0276	2.3998	1.3000e-004		0.0133	0.0133		0.0133	0.0133	0.0000	3.9225	3.9225	3.7700e-003	0.0000	4.0168
Total	**1.5112**	**0.2254**	**2.4840**	**1.3900e-003**		**0.0293**	**0.0293**		**0.0293**	**0.0293**	**0.0000**	**232.8923**	**232.8923**	**8.1600e-003**	**4.2000e-003**	**234.3473**

7.0 Water Detail

7.1 Mitigation Measures Water

Modera Melrose Unmitigated - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	84.3036	0.7201	0.0175	107.5100
Unmitigated	84.3036	0.7201	0.0175	107.5100

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	2.15008 / 0	7.5393	0.0705	1.7100e-003	9.8094
Apartments Mid Rise	18.8947 / 0	66.2541	0.6194	0.0150	86.2035
City Park	0 / 2.62126	7.1329	4.4000e-004	5.0000e-005	7.1596
Enclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0.311034 / 0	1.0906	0.0102	2.5000e-004	1.4190
Health Club	0.308136 / 0	1.0805	0.0101	2.4000e-004	1.4058
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0.114146 / 0.0699606	0.5906	3.7500e-003	9.0000e-005	0.7119
Strip Mall	0.175552 / 0	0.6156	5.7500e-003	1.4000e-004	0.8009
Total		**84.3036**	**0.7201**	**0.0175**	**107.5100**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	2.15008 / 0	7.5393	0.0705	1.7100e-003	9.8094
Apartments Mid Rise	18.8947 / 0	66.2541	0.6194	0.0150	86.2035
City Park	0 / 2.62126	7.1329	4.4000e-004	5.0000e-005	7.1596
Enclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0.311034 / 0	1.0906	0.0102	2.5000e-004	1.4190
Health Club	0.308136 / 0	1.0805	0.0101	2.4000e-004	1.4058
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0.114146 / 0.0699606	0.5906	3.7500e-003	9.0000e-005	0.7119
Strip Mall	0.175552 / 0	0.6156	5.7500e-003	1.4000e-004	0.8009
Total		**84.3036**	**0.7201**	**0.0175**	**107.5100**

8.0 Waste Detail

8.1 Mitigation Measures Waste

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	39.2970	2.3224	0.0000	97.3567
Unmitigated	39.2970	2.3224	0.0000	97.3567

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	15.18	3.0814	0.1821	0.0000	7.6341
Apartments Mid Rise	133.4	27.0790	1.6003	0.0000	67.0871
City Park	0.19	0.0386	2.2800e-003	0.0000	0.0956
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
General Office Building	1.63	0.3309	0.0196	0.0000	0.8197
Health Club	29.7	6.0288	0.3563	0.0000	14.9362
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	11	2.2329	0.1320	0.0000	5.5319
Strip Mall	2.49	0.5055	0.0299	0.0000	1.2522
Total		**39.2970**	**2.3224**	**0.0000**	**97.3567**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	15.18	3.0814	0.1821	0.0000	7.6341
Apartments Mid Rise	133.4	27.0790	1.6003	0.0000	67.0871
City Park	0.19	0.0386	2.2800e-003	0.0000	0.0956
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
General Office Building	1.63	0.3309	0.0196	0.0000	0.8197
Health Club	29.7	6.0288	0.3563	0.0000	14.9362
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	11	2.2329	0.1320	0.0000	5.5319
Strip Mall	2.49	0.5055	0.0299	0.0000	1.2522
Total		**39.2970**	**2.3224**	**0.0000**	**97.3567**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Modera Melrose Unmitigated - San Diego County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Modera Melrose Unmitigated

San Diego County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	1.75	1000sqft	0.04	1,745.00	0
Enclosed Parking Structure	145.00	Space	0.00	58,000.00	0
Parking Lot	117.30	1000sqft	2.69	117,304.00	0
City Park	2.20	Acre	2.20	95,696.96	0
Health Club	5.21	1000sqft	0.00	5,206.00	0
Recreational Swimming Pool	1.93	1000sqft	0.04	1,927.00	0
Apartments High Rise	33.00	Dwelling Unit	0.25	33,000.00	94
Apartments Mid Rise	290.00	Dwelling Unit	2.16	290,000.00	829
Strip Mall	2.37	1000sqft	0.05	2,365.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2024
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	539.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Land use assumptions provided by applicant.

Construction Phase - CalEEMod default assumptions. No demolition required.

Off-road Equipment - Architectural Coating: CalEEMod default assumptions

Modera Melrose Unmitigated - San Diego County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment - Building Construction: CalEEMod default assumptions

Off-road Equipment - Demo: CalEEMod default assumptions

Off-road Equipment - Grading: CalEEMod default assumptions

Off-road Equipment - Paving: CalEEMod default assumptions

Off-road Equipment - Site Prep: CalEEMod default assumptions

Trips and VMT - CalEEMod default assumptions. 2 vendor trucks added to phases without default vendor trips to account for water trucks and/or routine deliveries.

On-road Fugitive Dust - CalEEMod default assumptions

Demolition - No demolition required.

Grading - Import quantity provided by applicant.

Architectural Coating - SDAPCD Rule 67.0.1.

Vehicle Trips - Trips consistent with data from 2/15/2022 Linscott Law & Greenspan Local Transportation Study.

Road Dust - CalEEMod default assumptions

Woodstoves - PDF: no wood-burning appliances.

Consumer Products - CalEEMod Default Assumptions

Area Coating - SDAPCD Rule 67.0.1.

Energy Use - CalEEMod default assumptions

Water And Wastewater - Zero'd out outdoor water use for buildings and accounted for in City Park land use which represents overall landscaping.

Solid Waste - CalEEMod default assumptions

Area Mitigation - SDAPCD Rule 67.0.1

Energy Mitigation - PDF: 50% of on-site energy demand will come from PV solar

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	50.00
tblArchitecturalCoating	EF_Parking	250.00	100.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	50
tblAreaCoating	Area_EF_Nonresidential_Interior	250	50

Modera Melrose Unmitigated - San Diego County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblAreaCoating	Area_EF_Parking	250	100
tblAreaCoating	Area_EF_Residential_Exterior	250	50
tblAreaCoating	Area_EF_Residential_Interior	250	50
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	NumberGas	18.15	29.70
tblFireplaces	NumberGas	159.50	261.00
tblFireplaces	NumberWood	11.55	0.00
tblFireplaces	NumberWood	101.50	0.00
tblGrading	MaterialImported	0.00	43,200.00
tblLandUse	LandUseSquareFeet	1,750.00	1,745.00
tblLandUse	LandUseSquareFeet	117,300.00	117,304.00
tblLandUse	LandUseSquareFeet	95,832.00	95,696.96
tblLandUse	LandUseSquareFeet	5,210.00	5,206.00
tblLandUse	LandUseSquareFeet	1,930.00	1,927.00
tblLandUse	LandUseSquareFeet	2,370.00	2,365.00
tblLandUse	LotAcreage	1.30	0.00
tblLandUse	LotAcreage	0.12	0.00
tblLandUse	LotAcreage	0.53	0.25
tblLandUse	LotAcreage	7.63	2.16
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblVehicleTrips	ST_TR	4.53	0.00
tblVehicleTrips	ST_TR	4.91	6.05
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	2.21	0.00
tblVehicleTrips	ST_TR	20.87	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleTrips	ST_TR	9.10	0.00
tblVehicleTrips	ST_TR	42.04	37.50
tblVehicleTrips	SU_TR	3.59	0.00
tblVehicleTrips	SU_TR	4.09	5.04
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	0.70	0.00
tblVehicleTrips	SU_TR	26.73	0.00
tblVehicleTrips	SU_TR	13.60	0.00
tblVehicleTrips	SU_TR	20.43	18.20
tblVehicleTrips	WD_TR	4.45	0.00
tblVehicleTrips	WD_TR	5.44	6.70
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	9.74	0.00
tblVehicleTrips	WD_TR	32.93	0.00
tblVehicleTrips	WD_TR	28.82	0.00
tblVehicleTrips	WD_TR	44.32	39.54
tblWater	OutdoorWaterUseRate	1,355,487.01	0.00
tblWater	OutdoorWaterUseRate	11,911,855.55	0.00
tblWater	OutdoorWaterUseRate	190,633.78	0.00
tblWater	OutdoorWaterUseRate	188,857.41	0.00
tblWater	OutdoorWaterUseRate	107,596.31	0.00
tblWoodstoves	NumberCatalytic	1.65	0.00
tblWoodstoves	NumberCatalytic	14.50	0.00
tblWoodstoves	NumberNoncatalytic	1.65	0.00
tblWoodstoves	NumberNoncatalytic	14.50	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00

2.0 Emissions Summary

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	2.7151	54.7982	25.5376	0.1928	19.8184	1.2673	21.0858	10.1456	1.1660	11.3115	0.0000	20,892.8021	20,892.8021	1.8313	2.8516	21,788.3541
2024	106.0294	17.6401	24.9086	0.0665	3.4320	0.6494	4.0814	0.9227	0.6109	1.5336	0.0000	6,671.5071	6,671.5071	0.7274	0.3202	6,785.1031
Maximum	**106.0294**	**54.7982**	**25.5376**	**0.1928**	**19.8184**	**1.2673**	**21.0858**	**10.1456**	**1.1660**	**11.3115**	**0.0000**	**20,892.8021**	**20,892.8021**	**1.8313**	**2.8516**	**21,788.3541**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	2.7151	54.7982	25.5376	0.1928	19.8184	1.2673	21.0858	10.1456	1.1660	11.3115	0.0000	20,892.8021	20,892.8021	1.8313	2.8516	21,788.3541
2024	106.0294	17.6401	24.9086	0.0665	3.4320	0.6494	4.0814	0.9227	0.6109	1.5336	0.0000	6,671.5071	6,671.5071	0.7274	0.3202	6,785.1031
Maximum	**106.0294**	**54.7982**	**25.5376**	**0.1928**	**19.8184**	**1.2673**	**21.0858**	**10.1456**	**1.1660**	**11.3115**	**0.0000**	**20,892.8021**	**20,892.8021**	**1.8313**	**2.8516**	**21,788.3541**

Modera Melrose Unmitigated - San Diego County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	9.1253	5.1294	28.7168	0.0322		0.5376	0.5376		0.5376	0.5376	0.0000	6,204.0427	6,204.0427	0.1642	0.1129	6,241.7797
Energy	0.0724	0.6203	0.2751	3.9500e-003		0.0500	0.0500		0.0500	0.0500		789.7953	789.7953	0.0151	0.0145	794.4887
Mobile	5.6755	6.3506	53.0910	0.1090	11.9826	0.0858	12.0684	3.1920	0.0800	3.2719		11,108.9103	11,108.9103	0.8195	0.5163	11,283.2510
Total	**14.8732**	**12.1003**	**82.0829**	**0.1451**	**11.9826**	**0.6734**	**12.6560**	**3.1920**	**0.6676**	**3.8596**	**0.0000**	**18,102.7484**	**18,102.7484**	**0.9988**	**0.6436**	**18,319.5194**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	9.1253	5.1294	28.7168	0.0322		0.5376	0.5376		0.5376	0.5376	0.0000	6,204.0427	6,204.0427	0.1642	0.1129	6,241.7797
Energy	0.0724	0.6203	0.2751	3.9500e-003		0.0500	0.0500		0.0500	0.0500		789.7953	789.7953	0.0151	0.0145	794.4887
Mobile	5.6755	6.3506	53.0910	0.1090	11.9826	0.0858	12.0684	3.1920	0.0800	3.2719		11,108.9103	11,108.9103	0.8195	0.5163	11,283.2510
Total	**14.8732**	**12.1003**	**82.0829**	**0.1451**	**11.9826**	**0.6734**	**12.6560**	**3.1920**	**0.6676**	**3.8596**	**0.0000**	**18,102.7484**	**18,102.7484**	**0.9988**	**0.6436**	**18,319.5194**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/1/2023	4/14/2023	5	10	
2	Grading	Grading	4/15/2023	5/12/2023	5	20	
3	Building Construction	Building Construction	5/13/2023	3/29/2024	5	230	
4	Paving	Paving	3/30/2024	4/26/2024	5	20	
5	Architectural Coating	Architectural Coating	4/27/2024	5/24/2024	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 20

Acres of Paving: 2.69

Residential Indoor: 654,075; Residential Outdoor: 218,025; Non-Residential Indoor: 13,974; Non-Residential Outdoor: 4,658; Striped Parking Area: 10,518 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	2.00	5,400.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	351.00	81.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	70.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647		3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**19.6570**	**1.2660**	**20.9230**	**10.1025**	**1.1647**	**11.2672**		**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3200e-003	0.0893	0.0318	4.1000e-004	0.0136	5.2000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		44.2722	44.2722	1.3300e-003	6.4200e-003	46.2176
Worker	0.0533	0.0344	0.4105	1.2300e-003	0.1479	7.9000e-004	0.1487	0.0392	7.3000e-004	0.0400		124.8010	124.8010	3.8100e-003	3.5600e-003	125.9573
Total	**0.0557**	**0.1237**	**0.4423**	**1.6400e-003**	**0.1614**	**1.3100e-003**	**0.1627**	**0.0431**	**1.2300e-003**	**0.0444**		**169.0733**	**169.0733**	**5.1400e-003**	**9.9800e-003**	**172.1749**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647	0.0000	3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**19.6570**	**1.2660**	**20.9230**	**10.1025**	**1.1647**	**11.2672**	**0.0000**	**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3200e-003	0.0893	0.0318	4.1000e-004	0.0136	5.2000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		44.2722	44.2722	1.3300e-003	6.4200e-003	46.2176
Worker	0.0533	0.0344	0.4105	1.2300e-003	0.1479	7.9000e-004	0.1487	0.0392	7.3000e-004	0.0400		124.8010	124.8010	3.8100e-003	3.5600e-003	125.9573
Total	**0.0557**	**0.1237**	**0.4423**	**1.6400e-003**	**0.1614**	**1.3100e-003**	**0.1627**	**0.0431**	**1.2300e-003**	**0.0444**		**169.0733**	**169.0733**	**5.1400e-003**	**9.9800e-003**	**172.1749**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.3861	0.0000	7.3861	3.4707	0.0000	3.4707			0.0000			0.0000
Off-Road	1.7109	17.9359	14.7507	0.0297		0.7749	0.7749		0.7129	0.7129		2,872.6910	2,872.6910	0.9291		2,895.9182
Total	**1.7109**	**17.9359**	**14.7507**	**0.0297**	**7.3861**	**0.7749**	**8.1610**	**3.4707**	**0.7129**	**4.1836**		**2,872.6910**	**2,872.6910**	**0.9291**		**2,895.9182**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.5748	36.7444	9.8233	0.1617	4.7224	0.3003	5.0227	1.2944	0.2874	1.5818		17,871.8380	17,871.8380	0.8977	2.8422	18,741.2540
Vendor	2.3200e-003	0.0893	0.0318	4.1000e-004	0.0136	5.2000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		44.2722	44.2722	1.3300e-003	6.4200e-003	46.2176
Worker	0.0445	0.0286	0.3421	1.0300e-003	0.1232	6.6000e-004	0.1239	0.0327	6.1000e-004	0.0333		104.0008	104.0008	3.1800e-003	2.9700e-003	104.9644
Total	**0.6216**	**36.8623**	**10.1972**	**0.1632**	**4.8591**	**0.3015**	**5.1607**	**1.3310**	**0.2885**	**1.6194**		**18,020.1111**	**18,020.1111**	**0.9022**	**2.8516**	**18,892.4360**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.3861	0.0000	7.3861	3.4707	0.0000	3.4707			0.0000			0.0000
Off-Road	1.7109	17.9359	14.7507	0.0297		0.7749	0.7749		0.7129	0.7129	0.0000	2,872.6910	2,872.6910	0.9291		2,895.9182
Total	**1.7109**	**17.9359**	**14.7507**	**0.0297**	**7.3861**	**0.7749**	**8.1610**	**3.4707**	**0.7129**	**4.1836**	**0.0000**	**2,872.6910**	**2,872.6910**	**0.9291**		**2,895.9182**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.5748	36.7444	9.8233	0.1617	4.7224	0.3003	5.0227	1.2944	0.2874	1.5818		17,871.8380	17,871.8380	0.8977	2.8422	18,741.2540
Vendor	2.3200e-003	0.0893	0.0318	4.1000e-004	0.0136	5.2000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		44.2722	44.2722	1.3300e-003	6.4200e-003	46.2176
Worker	0.0445	0.0286	0.3421	1.0300e-003	0.1232	6.6000e-004	0.1239	0.0327	6.1000e-004	0.0333		104.0008	104.0008	3.1800e-003	2.9700e-003	104.9644
Total	**0.6216**	**36.8623**	**10.1972**	**0.1632**	**4.8591**	**0.3015**	**5.1607**	**1.3310**	**0.2885**	**1.6194**		**18,020.1111**	**18,020.1111**	**0.9022**	**2.8516**	**18,892.4360**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0941	3.6184	1.2891	0.0166	0.5486	0.0213	0.5698	0.1579	0.0203	0.1783		1,793.0258	1,793.0258	0.0540	0.2599	1,871.8125
Worker	1.0401	0.6699	8.0045	0.0241	2.8834	0.0155	2.8988	0.7648	0.0142	0.7790		2,433.6196	2,433.6196	0.0744	0.0694	2,456.1676
Total	**1.1342**	**4.2883**	**9.2936**	**0.0407**	**3.4320**	**0.0367**	**3.4687**	**0.9227**	**0.0346**	**0.9573**		**4,226.6454**	**4,226.6454**	**0.1284**	**0.3293**	**4,327.9801**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0941	3.6184	1.2891	0.0166	0.5486	0.0213	0.5698	0.1579	0.0203	0.1783		1,793.0258	1,793.0258	0.0540	0.2599	1,871.8125
Worker	1.0401	0.6699	8.0045	0.0241	2.8834	0.0155	2.8988	0.7648	0.0142	0.7790		2,433.6196	2,433.6196	0.0744	0.0694	2,456.1676
Total	**1.1342**	**4.2883**	**9.2936**	**0.0407**	**3.4320**	**0.0367**	**3.4687**	**0.9227**	**0.0346**	**0.9573**		**4,226.6454**	**4,226.6454**	**0.1284**	**0.3293**	**4,327.9801**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0903	3.5940	1.2597	0.0163	0.5486	0.0214	0.5700	0.1579	0.0204	0.1784		1,761.8366	1,761.8366	0.0552	0.2553	1,839.2981
Worker	0.9791	0.6023	7.4821	0.0233	2.8834	0.0147	2.8981	0.7648	0.0135	0.7784		2,353.9716	2,353.9716	0.0678	0.0649	2,374.9973
Total	**1.0694**	**4.1963**	**8.7418**	**0.0396**	**3.4320**	**0.0361**	**3.4680**	**0.9227**	**0.0340**	**0.9567**		**4,115.8082**	**4,115.8082**	**0.1230**	**0.3202**	**4,214.2954**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0903	3.5940	1.2597	0.0163	0.5486	0.0214	0.5700	0.1579	0.0204	0.1784		1,761.8366	1,761.8366	0.0552	0.2553	1,839.2981
Worker	0.9791	0.6023	7.4821	0.0233	2.8834	0.0147	2.8981	0.7648	0.0135	0.7784		2,353.9716	2,353.9716	0.0678	0.0649	2,374.9973
Total	**1.0694**	**4.1963**	**8.7418**	**0.0396**	**3.4320**	**0.0361**	**3.4680**	**0.9227**	**0.0340**	**0.9567**		**4,115.8082**	**4,115.8082**	**0.1230**	**0.3202**	**4,214.2954**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.3524					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3406**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**		**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2300e-003	0.0887	0.0311	4.0000e-004	0.0136	5.3000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		43.5021	43.5021	1.3600e-003	6.3000e-003	45.4148
Worker	0.0418	0.0257	0.3198	1.0000e-003	0.1232	6.3000e-004	0.1239	0.0327	5.8000e-004	0.0333		100.5971	100.5971	2.9000e-003	2.7700e-003	101.4956
Total	**0.0441**	**0.1145**	**0.3509**	**1.4000e-003**	**0.1368**	**1.1600e-003**	**0.1379**	**0.0366**	**1.0800e-003**	**0.0377**		**144.0992**	**144.0992**	**4.2600e-003**	**9.0700e-003**	**146.9104**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.3524					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3406**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**	**0.0000**	**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2300e-003	0.0887	0.0311	4.0000e-004	0.0136	5.3000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		43.5021	43.5021	1.3600e-003	6.3000e-003	45.4148
Worker	0.0418	0.0257	0.3198	1.0000e-003	0.1232	6.3000e-004	0.1239	0.0327	5.8000e-004	0.0333		100.5971	100.5971	2.9000e-003	2.7700e-003	101.4956
Total	**0.0441**	**0.1145**	**0.3509**	**1.4000e-003**	**0.1368**	**1.1600e-003**	**0.1379**	**0.0366**	**1.0800e-003**	**0.0377**		**144.0992**	**144.0992**	**4.2600e-003**	**9.0700e-003**	**146.9104**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	105.6511					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**105.8319**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2300e-003	0.0887	0.0311	4.0000e-004	0.0136	5.3000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		43.5021	43.5021	1.3600e-003	6.3000e-003	45.4148
Worker	0.1953	0.1201	1.4922	4.6400e-003	0.5750	2.9300e-003	0.5780	0.1525	2.7000e-003	0.1552		469.4530	469.4530	0.0135	0.0129	473.6462
Total	**0.1975**	**0.2089**	**1.5233**	**5.0400e-003**	**0.5886**	**3.4600e-003**	**0.5920**	**0.1564**	**3.2000e-003**	**0.1596**		**512.9552**	**512.9552**	**0.0149**	**0.0192**	**519.0610**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	105.6511					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**105.8319**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2300e-003	0.0887	0.0311	4.0000e-004	0.0136	5.3000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		43.5021	43.5021	1.3600e-003	6.3000e-003	45.4148
Worker	0.1953	0.1201	1.4922	4.6400e-003	0.5750	2.9300e-003	0.5780	0.1525	2.7000e-003	0.1552		469.4530	469.4530	0.0135	0.0129	473.6462
Total	**0.1975**	**0.2089**	**1.5233**	**5.0400e-003**	**0.5886**	**3.4600e-003**	**0.5920**	**0.1564**	**3.2000e-003**	**0.1596**		**512.9552**	**512.9552**	**0.0149**	**0.0192**	**519.0610**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.6755	6.3506	53.0910	0.1090	11.9826	0.0858	12.0684	3.1920	0.0800	3.2719		11,108.9103	11,108.9103	0.8195	0.5163	11,283.2510
Unmitigated	5.6755	6.3506	53.0910	0.1090	11.9826	0.0858	12.0684	3.1920	0.0800	3.2719		11,108.9103	11,108.9103	0.8195	0.5163	11,283.2510

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments High Rise	0.00	0.00	0.00		
Apartments Mid Rise	1,943.00	1,754.50	1461.60	5,274,602	5,274,602
City Park	0.00	0.00	0.00		
Enclosed Parking Structure	0.00	0.00	0.00		
General Office Building	0.00	0.00	0.00		
Health Club	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Recreational Swimming Pool	0.00	0.00	0.00		
Strip Mall	93.71	88.88	43.13	132,126	132,126
Total	2,036.71	1,843.38	1,504.73	5,406,727	5,406,727

4.3 Trip Type Information

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments High Rise	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3
Apartments Mid Rise	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Enclosed Parking Structure	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Health Club	9.50	7.30	7.30	16.90	64.10	19.00	52	39	9
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Recreational Swimming Pool	9.50	7.30	7.30	33.00	48.00	19.00	52	39	9
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments High Rise	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Apartments Mid Rise	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
City Park	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Enclosed Parking Structure	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
General Office Building	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Health Club	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Parking Lot	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Recreational Swimming Pool	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Strip Mall	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Percent of Electricity Use Generated with Renewable Energy

Modera Melrose Unmitigated - San Diego County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0724	0.6203	0.2751	3.9500e-003		0.0500	0.0500		0.0500	0.0500		789.7953	789.7953	0.0151	0.0145	794.4887
NaturalGas Unmitigated	0.0724	0.6203	0.2751	3.9500e-003		0.0500	0.0500		0.0500	0.0500		789.7953	789.7953	0.0151	0.0145	794.4887

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments High Rise	657.835	7.0900e-003	0.0606	0.0258	3.9000e-004		4.9000e-003	4.9000e-003		4.9000e-003	4.9000e-003		77.3923	77.3923	1.4800e-003	1.4200e-003	77.8522
Apartments Mid Rise	5780.97	0.0623	0.5328	0.2267	3.4000e-003		0.0431	0.0431		0.0431	0.0431		680.1143	680.1143	0.0130	0.0125	684.1558
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	95.7599	1.0300e-003	9.3900e-003	7.8900e-003	6.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004		11.2659	11.2659	2.2000e-004	2.1000e-004	11.3328
Health Club	164.31	1.7700e-003	0.0161	0.0135	1.0000e-004		1.2200e-003	1.2200e-003		1.2200e-003	1.2200e-003		19.3306	19.3306	3.7000e-004	3.5000e-004	19.4455
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	14.3844	1.6000e-004	1.4100e-003	1.1800e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		1.6923	1.6923	3.0000e-005	3.0000e-005	1.7023
Total		**0.0724**	**0.6203**	**0.2751**	**3.9600e-003**		**0.0500**	**0.0500**		**0.0500**	**0.0500**		**789.7953**	**789.7953**	**0.0151**	**0.0145**	**794.4887**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments High Rise	0.657835	7.0900e-003	0.0606	0.0258	3.9000e-004		4.9000e-003	4.9000e-003		4.9000e-003	4.9000e-003		77.3923	77.3923	1.4800e-003	1.4200e-003	77.8522
Apartments Mid Rise	5.78097	0.0623	0.5328	0.2267	3.4000e-003		0.0431	0.0431		0.0431	0.0431		680.1143	680.1143	0.0130	0.0125	684.1558
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	0.0957599	1.0300e-003	9.3900e-003	7.8900e-003	6.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004		11.2659	11.2659	2.2000e-004	2.1000e-004	11.3328
Health Club	0.16431	1.7700e-003	0.0161	0.0135	1.0000e-004		1.2200e-003	1.2200e-003		1.2200e-003	1.2200e-003		19.3306	19.3306	3.7000e-004	3.5000e-004	19.4455
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	0.0143844	1.6000e-004	1.4100e-003	1.1800e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		1.6923	1.6923	3.0000e-005	3.0000e-005	1.7023
Total		**0.0724**	**0.6203**	**0.2751**	**3.9600e-003**		**0.0500**	**0.0500**		**0.0500**	**0.0500**		**789.7953**	**789.7953**	**0.0151**	**0.0145**	**794.4887**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	9.1253	5.1294	28.7168	0.0322		0.5376	0.5376		0.5376	0.5376	0.0000	6,204.0427	6,204.0427	0.1642	0.1129	6,241.7797
Unmitigated	9.1253	5.1294	28.7168	0.0322		0.5376	0.5376		0.5376	0.5376	0.0000	6,204.0427	6,204.0427	0.1642	0.1129	6,241.7797

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.5789					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.1786					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.5643	4.8222	2.0520	0.0308		0.3899	0.3899		0.3899	0.3899	0.0000	6,156.0000	6,156.0000	0.1180	0.1129	6,192.5820
Landscaping	0.8035	0.3072	26.6648	1.4100e-003		0.1477	0.1477		0.1477	0.1477		48.0427	48.0427	0.0462		49.1977
Total	**9.1253**	**5.1294**	**28.7168**	**0.0322**		**0.5376**	**0.5376**		**0.5376**	**0.5376**	**0.0000**	**6,204.0427**	**6,204.0427**	**0.1642**	**0.1129**	**6,241.7797**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.5789					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.1786					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.5643	4.8222	2.0520	0.0308		0.3899	0.3899		0.3899	0.3899	0.0000	6,156.0000	6,156.0000	0.1180	0.1129	6,192.5820
Landscaping	0.8035	0.3072	26.6648	1.4100e-003		0.1477	0.1477		0.1477	0.1477		48.0427	48.0427	0.0462		49.1977
Total	**9.1253**	**5.1294**	**28.7168**	**0.0322**		**0.5376**	**0.5376**		**0.5376**	**0.5376**	**0.0000**	**6,204.0427**	**6,204.0427**	**0.1642**	**0.1129**	**6,241.7797**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Modera Melrose Unmitigated

San Diego County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	1.75	1000sqft	0.04	1,745.00	0
Enclosed Parking Structure	145.00	Space	0.00	58,000.00	0
Parking Lot	117.30	1000sqft	2.69	117,304.00	0
City Park	2.20	Acre	2.20	95,696.96	0
Health Club	5.21	1000sqft	0.00	5,206.00	0
Recreational Swimming Pool	1.93	1000sqft	0.04	1,927.00	0
Apartments High Rise	33.00	Dwelling Unit	0.25	33,000.00	94
Apartments Mid Rise	290.00	Dwelling Unit	2.16	290,000.00	829
Strip Mall	2.37	1000sqft	0.05	2,365.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2024
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	539.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Land use assumptions provided by applicant.

Construction Phase - CalEEMod default assumptions. No demolition required.

Off-road Equipment - Architectural Coating: CalEEMod default assumptions

Modera Melrose Unmitigated - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment - Building Construction: CalEEMod default assumptions

Off-road Equipment - Demo: CalEEMod default assumptions

Off-road Equipment - Grading: CalEEMod default assumptions

Off-road Equipment - Paving: CalEEMod default assumptions

Off-road Equipment - Site Prep: CalEEMod default assumptions

Trips and VMT - CalEEMod default assumptions. 2 vendor trucks added to phases without default vendor trips to account for water trucks and/or routine deliveries.

On-road Fugitive Dust - CalEEMod default assumptions

Demolition - No demolition required.

Grading - Import quantity provided by applicant.

Architectural Coating - SDAPCD Rule 67.0.1.

Vehicle Trips - Trips consistent with data from 2/15/2022 Linscott Law & Greenspan Local Transportation Study.

Road Dust - CalEEMod default assumptions

Woodstoves - PDF: no wood-burning appliances.

Consumer Products - CalEEMod Default Assumptions

Area Coating - SDAPCD Rule 67.0.1.

Energy Use - CalEEMod default assumptions

Water And Wastewater - Zero'd out outdoor water use for buildings and accounted for in City Park land use which represents overall landscaping.

Solid Waste - CalEEMod default assumptions

Area Mitigation - SDAPCD Rule 67.0.1

Energy Mitigation - PDF: 50% of on-site energy demand will come from PV solar

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	50.00
tblArchitecturalCoating	EF_Parking	250.00	100.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	50
tblAreaCoating	Area_EF_Nonresidential_Interior	250	50

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblAreaCoating	Area_EF_Parking	250	100
tblAreaCoating	Area_EF_Residential_Exterior	250	50
tblAreaCoating	Area_EF_Residential_Interior	250	50
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	NumberGas	18.15	29.70
tblFireplaces	NumberGas	159.50	261.00
tblFireplaces	NumberWood	11.55	0.00
tblFireplaces	NumberWood	101.50	0.00
tblGrading	MaterialImported	0.00	43,200.00
tblLandUse	LandUseSquareFeet	1,750.00	1,745.00
tblLandUse	LandUseSquareFeet	117,300.00	117,304.00
tblLandUse	LandUseSquareFeet	95,832.00	95,696.96
tblLandUse	LandUseSquareFeet	5,210.00	5,206.00
tblLandUse	LandUseSquareFeet	1,930.00	1,927.00
tblLandUse	LandUseSquareFeet	2,370.00	2,365.00
tblLandUse	LotAcreage	1.30	0.00
tblLandUse	LotAcreage	0.12	0.00
tblLandUse	LotAcreage	0.53	0.25
tblLandUse	LotAcreage	7.63	2.16
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblVehicleTrips	ST_TR	4.53	0.00
tblVehicleTrips	ST_TR	4.91	6.05
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	2.21	0.00
tblVehicleTrips	ST_TR	20.87	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleTrips	ST_TR	9.10	0.00
tblVehicleTrips	ST_TR	42.04	37.50
tblVehicleTrips	SU_TR	3.59	0.00
tblVehicleTrips	SU_TR	4.09	5.04
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	0.70	0.00
tblVehicleTrips	SU_TR	26.73	0.00
tblVehicleTrips	SU_TR	13.60	0.00
tblVehicleTrips	SU_TR	20.43	18.20
tblVehicleTrips	WD_TR	4.45	0.00
tblVehicleTrips	WD_TR	5.44	6.70
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	9.74	0.00
tblVehicleTrips	WD_TR	32.93	0.00
tblVehicleTrips	WD_TR	28.82	0.00
tblVehicleTrips	WD_TR	44.32	39.54
tblWater	OutdoorWaterUseRate	1,355,487.01	0.00
tblWater	OutdoorWaterUseRate	11,911,855.55	0.00
tblWater	OutdoorWaterUseRate	190,633.78	0.00
tblWater	OutdoorWaterUseRate	188,857.41	0.00
tblWater	OutdoorWaterUseRate	107,596.31	0.00
tblWoodstoves	NumberCatalytic	1.65	0.00
tblWoodstoves	NumberCatalytic	14.50	0.00
tblWoodstoves	NumberNoncatalytic	1.65	0.00
tblWoodstoves	NumberNoncatalytic	14.50	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00

2.0 Emissions Summary

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	2.7110	53.3669	25.9190	0.1927	19.8184	1.2673	21.0858	10.1456	1.1660	11.3115	0.0000	20,881.4382	20,881.4382	1.8332	2.8485	21,776.1119
2024	106.0138	17.4280	25.2474	0.0679	3.4320	0.6493	4.0813	0.9227	0.6108	1.5335	0.0000	6,805.5138	6,805.5138	0.7234	0.3147	6,917.3801
Maximum	**106.0138**	**53.3669**	**25.9190**	**0.1927**	**19.8184**	**1.2673**	**21.0858**	**10.1456**	**1.1660**	**11.3115**	**0.0000**	**20,881.4382**	**20,881.4382**	**1.8332**	**2.8485**	**21,776.1119**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	2.7110	53.3669	25.9190	0.1927	19.8184	1.2673	21.0858	10.1456	1.1660	11.3115	0.0000	20,881.4381	20,881.4381	1.8332	2.8485	21,776.1119
2024	106.0138	17.4280	25.2474	0.0679	3.4320	0.6493	4.0813	0.9227	0.6108	1.5335	0.0000	6,805.5138	6,805.5138	0.7234	0.3147	6,917.3801
Maximum	**106.0138**	**53.3669**	**25.9190**	**0.1927**	**19.8184**	**1.2673**	**21.0858**	**10.1456**	**1.1660**	**11.3115**	**0.0000**	**20,881.4381**	**20,881.4381**	**1.8332**	**2.8485**	**21,776.1119**

Modera Melrose Unmitigated - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	9.1253	5.1294	28.7168	0.0322		0.5376	0.5376		0.5376	0.5376	0.0000	6,204.0427	6,204.0427	0.1642	0.1129	6,241.7797
Energy	0.0724	0.6203	0.2751	3.9500e-003		0.0500	0.0500		0.0500	0.0500		789.7953	789.7953	0.0151	0.0145	794.4887
Mobile	5.8070	5.8595	51.7631	0.1140	11.9826	0.0857	12.0684	3.1920	0.0799	3.2719		11,612.2206	11,612.2206	0.7746	0.4900	11,777.5916
Total	**15.0047**	**11.6092**	**80.7550**	**0.1501**	**11.9826**	**0.6734**	**12.6560**	**3.1920**	**0.6676**	**3.8596**	**0.0000**	**18,606.0586**	**18,606.0586**	**0.9539**	**0.6173**	**18,813.8600**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	9.1253	5.1294	28.7168	0.0322		0.5376	0.5376		0.5376	0.5376	0.0000	6,204.0427	6,204.0427	0.1642	0.1129	6,241.7797
Energy	0.0724	0.6203	0.2751	3.9500e-003		0.0500	0.0500		0.0500	0.0500		789.7953	789.7953	0.0151	0.0145	794.4887
Mobile	5.8070	5.8595	51.7631	0.1140	11.9826	0.0857	12.0684	3.1920	0.0799	3.2719		11,612.2206	11,612.2206	0.7746	0.4900	11,777.5916
Total	**15.0047**	**11.6092**	**80.7550**	**0.1501**	**11.9826**	**0.6734**	**12.6560**	**3.1920**	**0.6676**	**3.8596**	**0.0000**	**18,606.0586**	**18,606.0586**	**0.9539**	**0.6173**	**18,813.8600**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/1/2023	4/14/2023	5	10	
2	Grading	Grading	4/15/2023	5/12/2023	5	20	
3	Building Construction	Building Construction	5/13/2023	3/29/2024	5	230	
4	Paving	Paving	3/30/2024	4/26/2024	5	20	
5	Architectural Coating	Architectural Coating	4/27/2024	5/24/2024	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 20

Acres of Paving: 2.69

Residential Indoor: 654,075; Residential Outdoor: 218,025; Non-Residential Indoor: 13,974; Non-Residential Outdoor: 4,658; Striped Parking Area: 10,518 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	2.00	5,400.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	351.00	81.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	70.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647		3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**19.6570**	**1.2660**	**20.9230**	**10.1025**	**1.1647**	**11.2672**		**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3900e-003	0.0857	0.0309	4.1000e-004	0.0136	5.2000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		44.2094	44.2094	1.3400e-003	6.4000e-003	46.1504
Worker	0.0492	0.0306	0.4320	1.3100e-003	0.1479	7.9000e-004	0.1487	0.0392	7.3000e-004	0.0400		132.0595	132.0595	3.5800e-003	3.2900e-003	133.1300
Total	**0.0516**	**0.1163**	**0.4629**	**1.7200e-003**	**0.1614**	**1.3100e-003**	**0.1627**	**0.0431**	**1.2300e-003**	**0.0444**		**176.2689**	**176.2689**	**4.9200e-003**	**9.6900e-003**	**179.2805**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647	0.0000	3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**19.6570**	**1.2660**	**20.9230**	**10.1025**	**1.1647**	**11.2672**	**0.0000**	**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3900e-003	0.0857	0.0309	4.1000e-004	0.0136	5.2000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		44.2094	44.2094	1.3400e-003	6.4000e-003	46.1504
Worker	0.0492	0.0306	0.4320	1.3100e-003	0.1479	7.9000e-004	0.1487	0.0392	7.3000e-004	0.0400		132.0595	132.0595	3.5800e-003	3.2900e-003	133.1300
Total	**0.0516**	**0.1163**	**0.4629**	**1.7200e-003**	**0.1614**	**1.3100e-003**	**0.1627**	**0.0431**	**1.2300e-003**	**0.0444**		**176.2689**	**176.2689**	**4.9200e-003**	**9.6900e-003**	**179.2805**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.3861	0.0000	7.3861	3.4707	0.0000	3.4707			0.0000			0.0000
Off-Road	1.7109	17.9359	14.7507	0.0297		0.7749	0.7749		0.7129	0.7129		2,872.6910	2,872.6910	0.9291		2,895.9182
Total	**1.7109**	**17.9359**	**14.7507**	**0.0297**	**7.3861**	**0.7749**	**8.1610**	**3.4707**	**0.7129**	**4.1836**		**2,872.6910**	**2,872.6910**	**0.9291**		**2,895.9182**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.6115	35.3198	9.7024	0.1616	4.7224	0.2998	5.0221	1.2944	0.2868	1.5812		17,854.4882	17,854.4882	0.8998	2.8393	18,723.1016
Vendor	2.3900e-003	0.0857	0.0309	4.1000e-004	0.0136	5.2000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		44.2094	44.2094	1.3400e-003	6.4000e-003	46.1504
Worker	0.0410	0.0255	0.3600	1.0900e-003	0.1232	6.6000e-004	0.1239	0.0327	6.1000e-004	0.0333		110.0496	110.0496	2.9800e-003	2.7400e-003	110.9417
Total	**0.6548**	**35.4310**	**10.0933**	**0.1631**	**4.8591**	**0.3009**	**5.1601**	**1.3310**	**0.2879**	**1.6189**		**18,008.7472**	**18,008.7472**	**0.9041**	**2.8485**	**18,880.1937**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.3861	0.0000	7.3861	3.4707	0.0000	3.4707			0.0000			0.0000
Off-Road	1.7109	17.9359	14.7507	0.0297		0.7749	0.7749		0.7129	0.7129	0.0000	2,872.6910	2,872.6910	0.9291		2,895.9182
Total	**1.7109**	**17.9359**	**14.7507**	**0.0297**	**7.3861**	**0.7749**	**8.1610**	**3.4707**	**0.7129**	**4.1836**	**0.0000**	**2,872.6910**	**2,872.6910**	**0.9291**		**2,895.9182**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.6115	35.3198	9.7024	0.1616	4.7224	0.2998	5.0221	1.2944	0.2868	1.5812		17,854.4882	17,854.4882	0.8998	2.8393	18,723.1016
Vendor	2.3900e-003	0.0857	0.0309	4.1000e-004	0.0136	5.2000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		44.2094	44.2094	1.3400e-003	6.4000e-003	46.1504
Worker	0.0410	0.0255	0.3600	1.0900e-003	0.1232	6.6000e-004	0.1239	0.0327	6.1000e-004	0.0333		110.0496	110.0496	2.9800e-003	2.7400e-003	110.9417
Total	**0.6548**	**35.4310**	**10.0933**	**0.1631**	**4.8591**	**0.3009**	**5.1601**	**1.3310**	**0.2879**	**1.6189**		**18,008.7472**	**18,008.7472**	**0.9041**	**2.8485**	**18,880.1937**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0968	3.4723	1.2513	0.0166	0.5486	0.0212	0.5697	0.1579	0.0202	0.1782		1,790.4803	1,790.4803	0.0543	0.2593	1,869.0928
Worker	0.9592	0.5957	8.4237	0.0255	2.8834	0.0155	2.8988	0.7648	0.0142	0.7790		2,575.1608	2,575.1608	0.0698	0.0642	2,596.0355
Total	**1.0560**	**4.0680**	**9.6750**	**0.0421**	**3.4320**	**0.0366**	**3.4686**	**0.9227**	**0.0345**	**0.9572**		**4,365.6411**	**4,365.6411**	**0.1241**	**0.3234**	**4,465.1283**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0968	3.4723	1.2513	0.0166	0.5486	0.0212	0.5697	0.1579	0.0202	0.1782		1,790.4803	1,790.4803	0.0543	0.2593	1,869.0928
Worker	0.9592	0.5957	8.4237	0.0255	2.8834	0.0155	2.8988	0.7648	0.0142	0.7790		2,575.1608	2,575.1608	0.0698	0.0642	2,596.0355
Total	**1.0560**	**4.0680**	**9.6750**	**0.0421**	**3.4320**	**0.0366**	**3.4686**	**0.9227**	**0.0345**	**0.9572**		**4,365.6411**	**4,365.6411**	**0.1241**	**0.3234**	**4,465.1283**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0932	3.4486	1.2220	0.0163	0.5486	0.0213	0.5699	0.1579	0.0203	0.1783		1,759.2638	1,759.2638	0.0555	0.2547	1,836.5560
Worker	0.9007	0.5356	7.8586	0.0246	2.8834	0.0147	2.8981	0.7648	0.0135	0.7784		2,490.5510	2,490.5510	0.0635	0.0600	2,510.0165
Total	**0.9938**	**3.9842**	**9.0806**	**0.0409**	**3.4320**	**0.0360**	**3.4679**	**0.9227**	**0.0339**	**0.9566**		**4,249.8149**	**4,249.8149**	**0.1190**	**0.3147**	**4,346.5725**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0932	3.4486	1.2220	0.0163	0.5486	0.0213	0.5699	0.1579	0.0203	0.1783		1,759.2638	1,759.2638	0.0555	0.2547	1,836.5560
Worker	0.9007	0.5356	7.8586	0.0246	2.8834	0.0147	2.8981	0.7648	0.0135	0.7784		2,490.5510	2,490.5510	0.0635	0.0600	2,510.0165
Total	**0.9938**	**3.9842**	**9.0806**	**0.0409**	**3.4320**	**0.0360**	**3.4679**	**0.9227**	**0.0339**	**0.9566**		**4,249.8149**	**4,249.8149**	**0.1190**	**0.3147**	**4,346.5725**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.3524					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3406**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**		**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3000e-003	0.0852	0.0302	4.0000e-004	0.0136	5.2000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		43.4386	43.4386	1.3700e-003	6.2900e-003	45.3471
Worker	0.0385	0.0229	0.3358	1.0500e-003	0.1232	6.3000e-004	0.1239	0.0327	5.8000e-004	0.0333		106.4338	106.4338	2.7100e-003	2.5600e-003	107.2657
Total	**0.0408**	**0.1080**	**0.3660**	**1.4500e-003**	**0.1368**	**1.1500e-003**	**0.1379**	**0.0366**	**1.0800e-003**	**0.0377**		**149.8724**	**149.8724**	**4.0800e-003**	**8.8500e-003**	**152.6127**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.3524					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3406**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**	**0.0000**	**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3000e-003	0.0852	0.0302	4.0000e-004	0.0136	5.2000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		43.4386	43.4386	1.3700e-003	6.2900e-003	45.3471
Worker	0.0385	0.0229	0.3358	1.0500e-003	0.1232	6.3000e-004	0.1239	0.0327	5.8000e-004	0.0333		106.4338	106.4338	2.7100e-003	2.5600e-003	107.2657
Total	**0.0408**	**0.1080**	**0.3660**	**1.4500e-003**	**0.1368**	**1.1500e-003**	**0.1379**	**0.0366**	**1.0800e-003**	**0.0377**		**149.8724**	**149.8724**	**4.0800e-003**	**8.8500e-003**	**152.6127**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	105.6511					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**105.8319**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3000e-003	0.0852	0.0302	4.0000e-004	0.0136	5.2000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		43.4386	43.4386	1.3700e-003	6.2900e-003	45.3471
Worker	0.1796	0.1068	1.5672	4.9100e-003	0.5750	2.9300e-003	0.5780	0.1525	2.7000e-003	0.1552		496.6911	496.6911	0.0127	0.0120	500.5731
Total	**0.1819**	**0.1920**	**1.5974**	**5.3100e-003**	**0.5886**	**3.4500e-003**	**0.5920**	**0.1564**	**3.2000e-003**	**0.1596**		**540.1297**	**540.1297**	**0.0140**	**0.0183**	**545.9202**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	105.6511					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**105.8319**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3000e-003	0.0852	0.0302	4.0000e-004	0.0136	5.2000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		43.4386	43.4386	1.3700e-003	6.2900e-003	45.3471
Worker	0.1796	0.1068	1.5672	4.9100e-003	0.5750	2.9300e-003	0.5780	0.1525	2.7000e-003	0.1552		496.6911	496.6911	0.0127	0.0120	500.5731
Total	**0.1819**	**0.1920**	**1.5974**	**5.3100e-003**	**0.5886**	**3.4500e-003**	**0.5920**	**0.1564**	**3.2000e-003**	**0.1596**		**540.1297**	**540.1297**	**0.0140**	**0.0183**	**545.9202**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.8070	5.8595	51.7631	0.1140	11.9826	0.0857	12.0684	3.1920	0.0799	3.2719		11,612.2206	11,612.2206	0.7746	0.4900	11,777.5916
Unmitigated	5.8070	5.8595	51.7631	0.1140	11.9826	0.0857	12.0684	3.1920	0.0799	3.2719		11,612.2206	11,612.2206	0.7746	0.4900	11,777.5916

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments High Rise	0.00	0.00	0.00		
Apartments Mid Rise	1,943.00	1,754.50	1461.60	5,274,602	5,274,602
City Park	0.00	0.00	0.00		
Enclosed Parking Structure	0.00	0.00	0.00		
General Office Building	0.00	0.00	0.00		
Health Club	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Recreational Swimming Pool	0.00	0.00	0.00		
Strip Mall	93.71	88.88	43.13	132,126	132,126
Total	2,036.71	1,843.38	1,504.73	5,406,727	5,406,727

4.3 Trip Type Information

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments High Rise	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3
Apartments Mid Rise	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Enclosed Parking Structure	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Health Club	9.50	7.30	7.30	16.90	64.10	19.00	52	39	9
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Recreational Swimming Pool	9.50	7.30	7.30	33.00	48.00	19.00	52	39	9
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments High Rise	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Apartments Mid Rise	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
City Park	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Enclosed Parking Structure	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
General Office Building	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Health Club	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Parking Lot	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Recreational Swimming Pool	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Strip Mall	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Percent of Electricity Use Generated with Renewable Energy

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0724	0.6203	0.2751	3.9500e-003		0.0500	0.0500		0.0500	0.0500		789.7953	789.7953	0.0151	0.0145	794.4887
NaturalGas Unmitigated	0.0724	0.6203	0.2751	3.9500e-003		0.0500	0.0500		0.0500	0.0500		789.7953	789.7953	0.0151	0.0145	794.4887

Modera Melrose Unmitigated - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments High Rise	657.835	7.0900e-003	0.0606	0.0258	3.9000e-004		4.9000e-003	4.9000e-003		4.9000e-003	4.9000e-003		77.3923	77.3923	1.4800e-003	1.4200e-003	77.8522
Apartments Mid Rise	5780.97	0.0623	0.5328	0.2267	3.4000e-003		0.0431	0.0431		0.0431	0.0431		680.1143	680.1143	0.0130	0.0125	684.1558
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	95.7599	1.0300e-003	9.3900e-003	7.8900e-003	6.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004		11.2659	11.2659	2.2000e-004	2.1000e-004	11.3328
Health Club	164.31	1.7700e-003	0.0161	0.0135	1.0000e-004		1.2200e-003	1.2200e-003		1.2200e-003	1.2200e-003		19.3306	19.3306	3.7000e-004	3.5000e-004	19.4455
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	14.3844	1.6000e-004	1.4100e-003	1.1800e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		1.6923	1.6923	3.0000e-005	3.0000e-005	1.7023
Total		**0.0724**	**0.6203**	**0.2751**	**3.9600e-003**		**0.0500**	**0.0500**		**0.0500**	**0.0500**		**789.7953**	**789.7953**	**0.0151**	**0.0145**	**794.4887**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments High Rise	0.657835	7.0900e-003	0.0606	0.0258	3.9000e-004		4.9000e-003	4.9000e-003		4.9000e-003	4.9000e-003		77.3923	77.3923	1.4800e-003	1.4200e-003	77.8522
Apartments Mid Rise	5.78097	0.0623	0.5328	0.2267	3.4000e-003		0.0431	0.0431		0.0431	0.0431		680.1143	680.1143	0.0130	0.0125	684.1558
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	0.0957599	1.0300e-003	9.3900e-003	7.8900e-003	6.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004		11.2659	11.2659	2.2000e-004	2.1000e-004	11.3328
Health Club	0.16431	1.7700e-003	0.0161	0.0135	1.0000e-004		1.2200e-003	1.2200e-003		1.2200e-003	1.2200e-003		19.3306	19.3306	3.7000e-004	3.5000e-004	19.4455
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	0.0143844	1.6000e-004	1.4100e-003	1.1800e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		1.6923	1.6923	3.0000e-005	3.0000e-005	1.7023
Total		**0.0724**	**0.6203**	**0.2751**	**3.9600e-003**		**0.0500**	**0.0500**		**0.0500**	**0.0500**		**789.7953**	**789.7953**	**0.0151**	**0.0145**	**794.4887**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	9.1253	5.1294	28.7168	0.0322		0.5376	0.5376		0.5376	0.5376	0.0000	6,204.0427	6,204.0427	0.1642	0.1129	6,241.7797
Unmitigated	9.1253	5.1294	28.7168	0.0322		0.5376	0.5376		0.5376	0.5376	0.0000	6,204.0427	6,204.0427	0.1642	0.1129	6,241.7797

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.5789					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.1786					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.5643	4.8222	2.0520	0.0308		0.3899	0.3899		0.3899	0.3899	0.0000	6,156.0000	6,156.0000	0.1180	0.1129	6,192.5820
Landscaping	0.8035	0.3072	26.6648	1.4100e-003		0.1477	0.1477		0.1477	0.1477		48.0427	48.0427	0.0462		49.1977
Total	**9.1253**	**5.1294**	**28.7168**	**0.0322**		**0.5376**	**0.5376**		**0.5376**	**0.5376**	**0.0000**	**6,204.0427**	**6,204.0427**	**0.1642**	**0.1129**	**6,241.7797**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.5789					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.1786					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.5643	4.8222	2.0520	0.0308		0.3899	0.3899		0.3899	0.3899	0.0000	6,156.0000	6,156.0000	0.1180	0.1129	6,192.5820
Landscaping	0.8035	0.3072	26.6648	1.4100e-003		0.1477	0.1477		0.1477	0.1477		48.0427	48.0427	0.0462		49.1977
Total	**9.1253**	**5.1294**	**28.7168**	**0.0322**		**0.5376**	**0.5376**		**0.5376**	**0.5376**	**0.0000**	**6,204.0427**	**6,204.0427**	**0.1642**	**0.1129**	**6,241.7797**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Modera Melrose Mitigated - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Modera Melrose Mitigated

San Diego County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	1.75	1000sqft	0.04	1,745.00	0
Enclosed Parking Structure	145.00	Space	0.00	58,000.00	0
Parking Lot	117.30	1000sqft	2.69	117,304.00	0
City Park	2.20	Acre	2.20	95,696.96	0
Health Club	5.21	1000sqft	0.00	5,206.00	0
Recreational Swimming Pool	1.93	1000sqft	0.04	1,927.00	0
Apartments High Rise	33.00	Dwelling Unit	0.25	33,000.00	94
Apartments Mid Rise	290.00	Dwelling Unit	2.16	290,000.00	829
Strip Mall	2.37	1000sqft	0.05	2,365.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2024
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	539.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Land use assumptions provided by applicant.

Construction Phase - CalEEMod default assumptions. No demolition required.

Off-road Equipment - Architectural Coating: CalEEMod default assumptions

Modera Melrose Mitigated - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment - Building Construction: CalEEMod default assumptions

Off-road Equipment - Demo: CalEEMod default assumptions

Off-road Equipment - Grading: CalEEMod default assumptions

Off-road Equipment - Paving: CalEEMod default assumptions

Off-road Equipment - Site Prep: CalEEMod default assumptions

Trips and VMT - CalEEMod default assumptions. 2 vendor trucks added to phases without default vendor trips to account for water trucks and/or routine deliveries.

On-road Fugitive Dust - CalEEMod default assumptions

Demolition - No demolition required.

Grading - Import quantity provided by applicant.

Architectural Coating - SDAPCD Rule 67.0.1 for parking. Mitigation: use of low-VOC paints (<30 g/L).

Vehicle Trips - Trips consistent with data from 2/15/2022 Linscott Law & Greenspan Local Transportation Study.

Road Dust - CalEEMod default assumptions

Woodstoves - PDF: no wood-burning appliances.

Consumer Products - CalEEMod Default Assumptions

Area Coating - SDAPCD Rule 67.0.1.

Energy Use - CalEEMod default assumptions

Water And Wastewater - Zero'd out outdoor water use for buildings and accounted for in City Park land use which represents overall landscaping.

Solid Waste - CalEEMod default assumptions

Construction Off-road Equipment Mitigation - Tier4i mitigation for HRA impact

Area Mitigation - SDAPCD Rule 67.0.1

Energy Mitigation - PDF: 50% of on-site energy demand will come from PV solar

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	30.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	30.00
tblArchitecturalCoating	EF_Parking	250.00	100.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	30.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	30.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	50

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblAreaCoating	Area_EF_Nonresidential_Interior	250	50
tblAreaCoating	Area_EF_Parking	250	100
tblAreaCoating	Area_EF_Residential_Exterior	250	50
tblAreaCoating	Area_EF_Residential_Interior	250	50
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	NumberGas	18.15	29.70

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblFireplaces	NumberGas	159.50	261.00
tblFireplaces	NumberWood	11.55	0.00
tblFireplaces	NumberWood	101.50	0.00
tblGrading	MaterialImported	0.00	43,200.00
tblLandUse	LandUseSquareFeet	1,750.00	1,745.00
tblLandUse	LandUseSquareFeet	117,300.00	117,304.00
tblLandUse	LandUseSquareFeet	95,832.00	95,696.96
tblLandUse	LandUseSquareFeet	5,210.00	5,206.00
tblLandUse	LandUseSquareFeet	1,930.00	1,927.00
tblLandUse	LandUseSquareFeet	2,370.00	2,365.00
tblLandUse	LotAcreage	1.30	0.00
tblLandUse	LotAcreage	0.12	0.00
tblLandUse	LotAcreage	0.53	0.25
tblLandUse	LotAcreage	7.63	2.16
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblVehicleTrips	ST_TR	4.53	0.00
tblVehicleTrips	ST_TR	4.91	6.05
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	2.21	0.00
tblVehicleTrips	ST_TR	20.87	0.00
tblVehicleTrips	ST_TR	9.10	0.00
tblVehicleTrips	ST_TR	42.04	37.50
tblVehicleTrips	SU_TR	3.59	0.00
tblVehicleTrips	SU_TR	4.09	5.04
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	0.70	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleTrips	SU_TR	26.73	0.00
tblVehicleTrips	SU_TR	13.60	0.00
tblVehicleTrips	SU_TR	20.43	18.20
tblVehicleTrips	WD_TR	4.45	0.00
tblVehicleTrips	WD_TR	5.44	6.70
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	9.74	0.00
tblVehicleTrips	WD_TR	32.93	0.00
tblVehicleTrips	WD_TR	28.82	0.00
tblVehicleTrips	WD_TR	44.32	39.54
tblWater	OutdoorWaterUseRate	1,355,487.01	0.00
tblWater	OutdoorWaterUseRate	11,911,855.55	0.00
tblWater	OutdoorWaterUseRate	190,633.78	0.00
tblWater	OutdoorWaterUseRate	188,857.41	0.00
tblWater	OutdoorWaterUseRate	107,596.31	0.00
tblWoodstoves	NumberCatalytic	1.65	0.00
tblWoodstoves	NumberCatalytic	14.50	0.00
tblWoodstoves	NumberNoncatalytic	1.65	0.00
tblWoodstoves	NumberNoncatalytic	14.50	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00

2.0 Emissions Summary

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.2530	2.2228	2.4468	7.7200e-003	0.4971	0.0779	0.5750	0.1730	0.0730	0.2460	0.0000	716.0260	716.0260	0.0771	0.0505	732.9877
2024	0.7409	0.6828	0.9916	2.4900e-003	0.1160	0.0264	0.1425	0.0312	0.0248	0.0561	0.0000	225.8545	225.8545	0.0282	9.6600e-003	229.4385
Maximum	**0.7409**	**2.2228**	**2.4468**	**7.7200e-003**	**0.4971**	**0.0779**	**0.5750**	**0.1730**	**0.0730**	**0.2460**	**0.0000**	**716.0260**	**716.0260**	**0.0771**	**0.0505**	**732.9877**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.1697	1.8246	2.6444	7.7200e-003	0.4971	0.0184	0.5155	0.1730	0.0177	0.1907	0.0000	716.0257	716.0257	0.0771	0.0505	732.9874
2024	0.7088	0.5950	1.0795	2.4900e-003	0.1160	4.4000e-003	0.1205	0.0312	4.3300e-003	0.0356	0.0000	225.8543	225.8543	0.0282	9.6600e-003	229.4384
Maximum	**0.7088**	**1.8246**	**2.6444**	**7.7200e-003**	**0.4971**	**0.0184**	**0.5155**	**0.1730**	**0.0177**	**0.1907**	**0.0000**	**716.0257**	**716.0257**	**0.0771**	**0.0505**	**732.9874**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**11.60**	**16.73**	**-8.30**	**0.00**	**0.00**	**78.19**	**11.37**	**0.00**	**77.46**	**25.08**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**4-1-2023**	**6-30-2023**	1.0780	0.8918
2	**7-1-2023**	**9-30-2023**	0.6927	0.5434
3	**10-1-2023**	**12-31-2023**	0.7025	0.5533
4	**1-1-2024**	**3-31-2024**	0.6493	0.5362
5	**4-1-2024**	**6-30-2024**	0.7637	0.7595
		Highest	1.0780	0.8918

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.5112	0.2254	2.4840	1.3900e-003		0.0293	0.0293		0.0293	0.0293	0.0000	232.8923	232.8923	8.1600e-003	4.2000e-003	234.3473
Energy	0.0132	0.1132	0.0502	7.2000e-004		9.1300e-003	9.1300e-003		9.1300e-003	9.1300e-003	0.0000	542.2401	542.2401	0.0277	5.4500e-003	544.5542
Mobile	0.9624	1.0853	8.9937	0.0190	2.0225	0.0148	2.0373	0.5398	0.0138	0.5536	0.0000	1,751.8916	1,751.8916	0.1261	0.0801	1,778.9213
Waste						0.0000	0.0000		0.0000	0.0000	39.2970	0.0000	39.2970	2.3224	0.0000	97.3567
Water						0.0000	0.0000		0.0000	0.0000	6.9649	77.3387	84.3036	0.7201	0.0175	107.5100
Total	**2.4868**	**1.4239**	**11.5278**	**0.0211**	**2.0225**	**0.0532**	**2.0757**	**0.5398**	**0.0522**	**0.5920**	**46.2619**	**2,604.3627**	**2,650.6246**	**3.2044**	**0.1072**	**2,762.6894**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.5112	0.2254	2.4840	1.3900e-003		0.0293	0.0293		0.0293	0.0293	0.0000	232.8923	232.8923	8.1600e-003	4.2000e-003	234.3473
Energy	0.0132	0.1132	0.0502	7.2000e-004		9.1300e-003	9.1300e-003		9.1300e-003	9.1300e-003	0.0000	336.4998	336.4998	0.0151	3.9200e-003	338.0453
Mobile	0.9624	1.0853	8.9937	0.0190	2.0225	0.0148	2.0373	0.5398	0.0138	0.5536	0.0000	1,751.8916	1,751.8916	0.1261	0.0801	1,778.9213
Waste						0.0000	0.0000		0.0000	0.0000	39.2970	0.0000	39.2970	2.3224	0.0000	97.3567
Water						0.0000	0.0000		0.0000	0.0000	6.9649	77.3387	84.3036	0.7201	0.0175	107.5100
Total	**2.4868**	**1.4239**	**11.5278**	**0.0211**	**2.0225**	**0.0532**	**2.0757**	**0.5398**	**0.0522**	**0.5920**	**46.2619**	**2,398.6224**	**2,444.8843**	**3.1918**	**0.1057**	**2,556.1806**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**7.90**	**7.76**	**0.39**	**1.43**	**7.47**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/1/2023	4/14/2023	5	10	
2	Grading	Grading	4/15/2023	5/12/2023	5	20	
3	Building Construction	Building Construction	5/13/2023	3/29/2024	5	230	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4	Paving	Paving	3/30/2024	4/26/2024	5	20	
5	Architectural Coating	Architectural Coating	4/27/2024	5/24/2024	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 20

Acres of Paving: 2.69

Residential Indoor: 654,075; Residential Outdoor: 218,025; Non-Residential Indoor: 13,974; Non-Residential Outdoor: 4,658; Striped Parking Area: 10,518 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	2.00	5,400.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	351.00	81.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	70.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0983	0.0000	0.0983	0.0505	0.0000	0.0505	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0133	0.1376	0.0912	1.9000e-004		6.3300e-003	6.3300e-003		5.8200e-003	5.8200e-003	0.0000	16.7254	16.7254	5.4100e-003	0.0000	16.8606
Total	**0.0133**	**0.1376**	**0.0912**	**1.9000e-004**	**0.0983**	**6.3300e-003**	**0.1046**	**0.0505**	**5.8200e-003**	**0.0563**	**0.0000**	**16.7254**	**16.7254**	**5.4100e-003**	**0.0000**	**16.8606**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-005	4.4000e-004	1.6000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.2007	0.2007	1.0000e-005	3.0000e-005	0.2095
Worker	2.4000e-004	1.7000e-004	2.0500e-003	1.0000e-005	7.2000e-004	0.0000	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.5711	0.5711	2.0000e-005	2.0000e-005	0.5763
Total	**2.5000e-004**	**6.1000e-004**	**2.2100e-003**	**1.0000e-005**	**7.9000e-004**	**0.0000**	**8.0000e-004**	**2.1000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**0.7718**	**0.7718**	**3.0000e-005**	**5.0000e-005**	**0.7857**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0983	0.0000	0.0983	0.0505	0.0000	0.0505	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.5700e-003	0.0974	0.1041	1.9000e-004		2.6100e-003	2.6100e-003		2.4200e-003	2.4200e-003	0.0000	16.7253	16.7253	5.4100e-003	0.0000	16.8606
Total	**7.5700e-003**	**0.0974**	**0.1041**	**1.9000e-004**	**0.0983**	**2.6100e-003**	**0.1009**	**0.0505**	**2.4200e-003**	**0.0529**	**0.0000**	**16.7253**	**16.7253**	**5.4100e-003**	**0.0000**	**16.8606**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-005	4.4000e-004	1.6000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.2007	0.2007	1.0000e-005	3.0000e-005	0.2095
Worker	2.4000e-004	1.7000e-004	2.0500e-003	1.0000e-005	7.2000e-004	0.0000	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.5711	0.5711	2.0000e-005	2.0000e-005	0.5763
Total	**2.5000e-004**	**6.1000e-004**	**2.2100e-003**	**1.0000e-005**	**7.9000e-004**	**0.0000**	**8.0000e-004**	**2.1000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**0.7718**	**0.7718**	**3.0000e-005**	**5.0000e-005**	**0.7857**

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0739	0.0000	0.0739	0.0347	0.0000	0.0347	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0171	0.1794	0.1475	3.0000e-004		7.7500e-003	7.7500e-003		7.1300e-003	7.1300e-003	0.0000	26.0606	26.0606	8.4300e-003	0.0000	26.2713
Total	**0.0171**	**0.1794**	**0.1475**	**3.0000e-004**	**0.0739**	**7.7500e-003**	**0.0816**	**0.0347**	**7.1300e-003**	**0.0418**	**0.0000**	**26.0606**	**26.0606**	**8.4300e-003**	**0.0000**	**26.2713**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.9600e-003	0.3664	0.0975	1.6200e-003	0.0463	3.0000e-003	0.0493	0.0127	2.8700e-003	0.0156	0.0000	162.0392	162.0392	8.1500e-003	0.0258	169.9224
Vendor	2.0000e-005	8.9000e-004	3.1000e-004	0.0000	1.3000e-004	1.0000e-005	1.4000e-004	4.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.4013	0.4013	1.0000e-005	6.0000e-005	0.4189
Worker	4.1000e-004	2.8000e-004	3.4200e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9518	0.9518	3.0000e-005	3.0000e-005	0.9605
Total	**6.3900e-003**	**0.3676**	**0.1012**	**1.6300e-003**	**0.0476**	**3.0200e-003**	**0.0506**	**0.0131**	**2.8900e-003**	**0.0159**	**0.0000**	**163.3924**	**163.3924**	**8.1900e-003**	**0.0259**	**171.3018**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0739	0.0000	0.0739	0.0347	0.0000	0.0347	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.9300e-003	0.1277	0.1828	3.0000e-004		2.0200e-003	2.0200e-003		1.8900e-003	1.8900e-003	0.0000	26.0606	26.0606	8.4300e-003	0.0000	26.2713
Total	**7.9300e-003**	**0.1277**	**0.1828**	**3.0000e-004**	**0.0739**	**2.0200e-003**	**0.0759**	**0.0347**	**1.8900e-003**	**0.0366**	**0.0000**	**26.0606**	**26.0606**	**8.4300e-003**	**0.0000**	**26.2713**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.9600e-003	0.3664	0.0975	1.6200e-003	0.0463	3.0000e-003	0.0493	0.0127	2.8700e-003	0.0156	0.0000	162.0392	162.0392	8.1500e-003	0.0258	169.9224
Vendor	2.0000e-005	8.9000e-004	3.1000e-004	0.0000	1.3000e-004	1.0000e-005	1.4000e-004	4.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.4013	0.4013	1.0000e-005	6.0000e-005	0.4189
Worker	4.1000e-004	2.8000e-004	3.4200e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9518	0.9518	3.0000e-005	3.0000e-005	0.9605
Total	**6.3900e-003**	**0.3676**	**0.1012**	**1.6300e-003**	**0.0476**	**3.0200e-003**	**0.0506**	**0.0131**	**2.8900e-003**	**0.0159**	**0.0000**	**163.3924**	**163.3924**	**8.1900e-003**	**0.0259**	**171.3018**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1298	1.1868	1.3401	2.2200e-003		0.0577	0.0577		0.0543	0.0543	0.0000	191.2389	191.2389	0.0455	0.0000	192.3762
Total	**0.1298**	**1.1868**	**1.3401**	**2.2200e-003**		**0.0577**	**0.0577**		**0.0543**	**0.0543**	**0.0000**	**191.2389**	**191.2389**	**0.0455**	**0.0000**	**192.3762**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.8400e-003	0.2967	0.1046	1.3700e-003	0.0444	1.7500e-003	0.0461	0.0128	1.6700e-003	0.0145	0.0000	134.0846	134.0846	4.0500e-003	0.0194	139.9757
Worker	0.0783	0.0542	0.6599	2.0000e-003	0.2322	1.2800e-003	0.2335	0.0617	1.1700e-003	0.0629	0.0000	183.7524	183.7524	5.4500e-003	5.1300e-003	185.4164
Total	**0.0861**	**0.3509**	**0.7645**	**3.3700e-003**	**0.2766**	**3.0300e-003**	**0.2796**	**0.0745**	**2.8400e-003**	**0.0774**	**0.0000**	**317.8370**	**317.8370**	**9.5000e-003**	**0.0246**	**325.3921**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0614	0.8804	1.4895	2.2200e-003		7.6700e-003	7.6700e-003		7.6700e-003	7.6700e-003	0.0000	191.2387	191.2387	0.0455	0.0000	192.3760
Total	**0.0614**	**0.8804**	**1.4895**	**2.2200e-003**		**7.6700e-003**	**7.6700e-003**		**7.6700e-003**	**7.6700e-003**	**0.0000**	**191.2387**	**191.2387**	**0.0455**	**0.0000**	**192.3760**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.8400e-003	0.2967	0.1046	1.3700e-003	0.0444	1.7500e-003	0.0461	0.0128	1.6700e-003	0.0145	0.0000	134.0846	134.0846	4.0500e-003	0.0194	139.9757
Worker	0.0783	0.0542	0.6599	2.0000e-003	0.2322	1.2800e-003	0.2335	0.0617	1.1700e-003	0.0629	0.0000	183.7524	183.7524	5.4500e-003	5.1300e-003	185.4164
Total	**0.0861**	**0.3509**	**0.7645**	**3.3700e-003**	**0.2766**	**3.0300e-003**	**0.2796**	**0.0745**	**2.8400e-003**	**0.0774**	**0.0000**	**317.8370**	**317.8370**	**9.5000e-003**	**0.0246**	**325.3921**

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0478	0.4369	0.5254	8.8000e-004		0.0199	0.0199		0.0188	0.0188	0.0000	75.3510	75.3510	0.0178	0.0000	75.7964
Total	**0.0478**	**0.4369**	**0.5254**	**8.8000e-004**		**0.0199**	**0.0199**		**0.0188**	**0.0188**	**0.0000**	**75.3510**	**75.3510**	**0.0178**	**0.0000**	**75.7964**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.9700e-003	0.1161	0.0403	5.3000e-004	0.0175	6.9000e-004	0.0182	5.0500e-003	6.6000e-004	5.7100e-003	0.0000	51.9012	51.9012	1.6300e-003	7.5200e-003	54.1828
Worker	0.0290	0.0192	0.2429	7.6000e-004	0.0915	4.8000e-004	0.0920	0.0243	4.4000e-004	0.0248	0.0000	70.0168	70.0168	1.9600e-003	1.8900e-003	70.6280
Total	**0.0320**	**0.1353**	**0.2832**	**1.2900e-003**	**0.1090**	**1.1700e-003**	**0.1101**	**0.0294**	**1.1000e-003**	**0.0305**	**0.0000**	**121.9180**	**121.9180**	**3.5900e-003**	**9.4100e-003**	**124.8108**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0236	0.3455	0.5863	8.8000e-004		2.7700e-003	2.7700e-003		2.7700e-003	2.7700e-003	0.0000	75.3509	75.3509	0.0178	0.0000	75.7963
Total	**0.0236**	**0.3455**	**0.5863**	**8.8000e-004**		**2.7700e-003**	**2.7700e-003**		**2.7700e-003**	**2.7700e-003**	**0.0000**	**75.3509**	**75.3509**	**0.0178**	**0.0000**	**75.7963**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.9700e-003	0.1161	0.0403	5.3000e-004	0.0175	6.9000e-004	0.0182	5.0500e-003	6.6000e-004	5.7100e-003	0.0000	51.9012	51.9012	1.6300e-003	7.5200e-003	54.1828
Worker	0.0290	0.0192	0.2429	7.6000e-004	0.0915	4.8000e-004	0.0920	0.0243	4.4000e-004	0.0248	0.0000	70.0168	70.0168	1.9600e-003	1.8900e-003	70.6280
Total	**0.0320**	**0.1353**	**0.2832**	**1.2900e-003**	**0.1090**	**1.1700e-003**	**0.1101**	**0.0294**	**1.1000e-003**	**0.0305**	**0.0000**	**121.9180**	**121.9180**	**3.5900e-003**	**9.4100e-003**	**124.8108**

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.8800e-003	0.0953	0.1463	2.3000e-004		4.6900e-003	4.6900e-003		4.3100e-003	4.3100e-003	0.0000	20.0265	20.0265	6.4800e-003	0.0000	20.1885
Paving	3.5200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0134**	**0.0953**	**0.1463**	**2.3000e-004**		**4.6900e-003**	**4.6900e-003**		**4.3100e-003**	**4.3100e-003**	**0.0000**	**20.0265**	**20.0265**	**6.4800e-003**	**0.0000**	**20.1885**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-005	8.8000e-004	3.1000e-004	0.0000	1.3000e-004	1.0000e-005	1.4000e-004	4.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3943	0.3943	1.0000e-005	6.0000e-005	0.4117
Worker	3.8000e-004	2.5000e-004	3.1900e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9207	0.9207	3.0000e-005	2.0000e-005	0.9287
Total	**4.0000e-004**	**1.1300e-003**	**3.5000e-003**	**1.0000e-005**	**1.3300e-003**	**2.0000e-005**	**1.3500e-003**	**3.6000e-004**	**2.0000e-005**	**3.7000e-004**	**0.0000**	**1.3150**	**1.3150**	**4.0000e-005**	**8.0000e-005**	**1.3404**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.3400e-003	0.1004	0.1730	2.3000e-004		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	20.0265	20.0265	6.4800e-003	0.0000	20.1884
Paving	3.5200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.8600e-003**	**0.1004**	**0.1730**	**2.3000e-004**		**3.7000e-004**	**3.7000e-004**		**3.7000e-004**	**3.7000e-004**	**0.0000**	**20.0265**	**20.0265**	**6.4800e-003**	**0.0000**	**20.1884**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-005	8.8000e-004	3.1000e-004	0.0000	1.3000e-004	1.0000e-005	1.4000e-004	4.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3943	0.3943	1.0000e-005	6.0000e-005	0.4117
Worker	3.8000e-004	2.5000e-004	3.1900e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9207	0.9207	3.0000e-005	2.0000e-005	0.9287
Total	**4.0000e-004**	**1.1300e-003**	**3.5000e-003**	**1.0000e-005**	**1.3300e-003**	**2.0000e-005**	**1.3500e-003**	**3.6000e-004**	**2.0000e-005**	**3.7000e-004**	**0.0000**	**1.3150**	**1.3150**	**4.0000e-005**	**8.0000e-005**	**1.3404**

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6437					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8100e-003	0.0122	0.0181	3.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5569
Total	**0.6455**	**0.0122**	**0.0181**	**3.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.4000e-004**	**0.0000**	**2.5569**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-005	8.8000e-004	3.1000e-004	0.0000	1.3000e-004	1.0000e-005	1.4000e-004	4.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3943	0.3943	1.0000e-005	6.0000e-005	0.4117
Worker	1.7800e-003	1.1800e-003	0.0149	5.0000e-005	5.6100e-003	3.0000e-005	5.6400e-003	1.4900e-003	3.0000e-005	1.5200e-003	0.0000	4.2965	4.2965	1.2000e-004	1.2000e-004	4.3340
Total	**1.8000e-003**	**2.0600e-003**	**0.0152**	**5.0000e-005**	**5.7400e-003**	**4.0000e-005**	**5.7800e-003**	**1.5300e-003**	**4.0000e-005**	**1.5600e-003**	**0.0000**	**4.6908**	**4.6908**	**1.3000e-004**	**1.8000e-004**	**4.7456**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6437					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.4000e-004	0.0106	0.0183	3.0000e-005		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5568
Total	**0.6442**	**0.0106**	**0.0183**	**3.0000e-005**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**2.5533**	**2.5533**	**1.4000e-004**	**0.0000**	**2.5568**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-005	8.8000e-004	3.1000e-004	0.0000	1.3000e-004	1.0000e-005	1.4000e-004	4.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3943	0.3943	1.0000e-005	6.0000e-005	0.4117
Worker	1.7800e-003	1.1800e-003	0.0149	5.0000e-005	5.6100e-003	3.0000e-005	5.6400e-003	1.4900e-003	3.0000e-005	1.5200e-003	0.0000	4.2965	4.2965	1.2000e-004	1.2000e-004	4.3340
Total	**1.8000e-003**	**2.0600e-003**	**0.0152**	**5.0000e-005**	**5.7400e-003**	**4.0000e-005**	**5.7800e-003**	**1.5300e-003**	**4.0000e-005**	**1.5600e-003**	**0.0000**	**4.6908**	**4.6908**	**1.3000e-004**	**1.8000e-004**	**4.7456**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.9624	1.0853	8.9937	0.0190	2.0225	0.0148	2.0373	0.5398	0.0138	0.5536	0.0000	1,751.8916	1,751.8916	0.1261	0.0801	1,778.9213
Unmitigated	0.9624	1.0853	8.9937	0.0190	2.0225	0.0148	2.0373	0.5398	0.0138	0.5536	0.0000	1,751.8916	1,751.8916	0.1261	0.0801	1,778.9213

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments High Rise	0.00	0.00	0.00		
Apartments Mid Rise	1,943.00	1,754.50	1461.60	5,274,602	5,274,602
City Park	0.00	0.00	0.00		
Enclosed Parking Structure	0.00	0.00	0.00		
General Office Building	0.00	0.00	0.00		
Health Club	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Recreational Swimming Pool	0.00	0.00	0.00		
Strip Mall	93.71	88.88	43.13	132,126	132,126
Total	2,036.71	1,843.38	1,504.73	5,406,727	5,406,727

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments High Rise	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3
Apartments Mid Rise	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Enclosed Parking Structure	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Health Club	9.50	7.30	7.30	16.90	64.10	19.00	52	39	9
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Recreational Swimming Pool	9.50	7.30	7.30	33.00	48.00	19.00	52	39	9
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments High Rise	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Apartments Mid Rise	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
City Park	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Enclosed Parking Structure	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
General Office Building	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Health Club	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Parking Lot	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Recreational Swimming Pool	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Strip Mall	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Percent of Electricity Use Generated with Renewable Energy

Modera Melrose Mitigated - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	205.7403	205.7403	0.0126	1.5200e-003	206.5088
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	411.4807	411.4807	0.0252	3.0500e-003	413.0177
NaturalGas Mitigated	0.0132	0.1132	0.0502	7.2000e-004		9.1300e-003	9.1300e-003		9.1300e-003	9.1300e-003	0.0000	130.7595	130.7595	2.5100e-003	2.4000e-003	131.5365
NaturalGas Unmitigated	0.0132	0.1132	0.0502	7.2000e-004		9.1300e-003	9.1300e-003		9.1300e-003	9.1300e-003	0.0000	130.7595	130.7595	2.5100e-003	2.4000e-003	131.5365

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments High Rise	240110	1.2900e-003	0.0111	4.7100e-003	7.0000e-005		8.9000e-004	8.9000e-004		8.9000e-004	8.9000e-004	0.0000	12.8132	12.8132	2.5000e-004	2.3000e-004	12.8893
Apartments Mid Rise	2.11005e+006	0.0114	0.0972	0.0414	6.2000e-004		7.8600e-003	7.8600e-003		7.8600e-003	7.8600e-003	0.0000	112.6005	112.6005	2.1600e-003	2.0600e-003	113.2697
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	34952.3	1.9000e-004	1.7100e-003	1.4400e-003	1.0000e-005		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	1.8652	1.8652	4.0000e-005	3.0000e-005	1.8763
Health Club	59973.1	3.2000e-004	2.9400e-003	2.4700e-003	2.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	3.2004	3.2004	6.0000e-005	6.0000e-005	3.2194
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	5250.3	3.0000e-005	2.6000e-004	2.2000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.2802	0.2802	1.0000e-005	1.0000e-005	0.2818
Total		**0.0132**	**0.1132**	**0.0502**	**7.2000e-004**		**9.1200e-003**	**9.1200e-003**		**9.1200e-003**	**9.1200e-003**	**0.0000**	**130.7595**	**130.7595**	**2.5200e-003**	**2.3900e-003**	**131.5365**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments High Rise	240110	1.2900e-003	0.0111	4.7100e-003	7.0000e-005		8.9000e-004	8.9000e-004		8.9000e-004	8.9000e-004	0.0000	12.8132	12.8132	2.5000e-004	2.3000e-004	12.8893
Apartments Mid Rise	2.11005e+006	0.0114	0.0972	0.0414	6.2000e-004		7.8600e-003	7.8600e-003		7.8600e-003	7.8600e-003	0.0000	112.6005	112.6005	2.1600e-003	2.0600e-003	113.2697
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	34952.3	1.9000e-004	1.7100e-003	1.4400e-003	1.0000e-005		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	1.8652	1.8652	4.0000e-005	3.0000e-005	1.8763
Health Club	59973.1	3.2000e-004	2.9400e-003	2.4700e-003	2.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	3.2004	3.2004	6.0000e-005	6.0000e-005	3.2194
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	5250.3	3.0000e-005	2.6000e-004	2.2000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.2802	0.2802	1.0000e-005	1.0000e-005	0.2818
Total		**0.0132**	**0.1132**	**0.0502**	**7.2000e-004**		**9.1200e-003**	**9.1200e-003**		**9.1200e-003**	**9.1200e-003**	**0.0000**	**130.7595**	**130.7595**	**2.5200e-003**	**2.3900e-003**	**131.5365**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	126725	31.0388	1.9000e-003	2.3000e-004	31.1547
Apartments Mid Rise	1.11364e+006	272.7649	0.0167	2.0200e-003	273.7838
City Park	0	0.0000	0.0000	0.0000	0.0000
Enclosed Parking Structure	304500	74.5814	4.5600e-003	5.5000e-004	74.8600
General Office Building	22580.3	5.5306	3.4000e-004	4.0000e-005	5.5513
Health Club	42585.1	10.4304	6.4000e-004	8.0000e-005	10.4694
Parking Lot	41056.4	10.0560	6.1000e-004	7.0000e-005	10.0935
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	28900.3	7.0786	4.3000e-004	5.0000e-005	7.1050
Total		**411.4806**	**0.0252**	**3.0400e-003**	**413.0177**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	63362.3	15.5194	9.5000e-004	1.1000e-004	15.5774
Apartments Mid Rise	556820	136.3825	8.3300e-003	1.0100e-003	136.8919
City Park	0	0.0000	0.0000	0.0000	0.0000
Enclosed Parking Structure	152250	37.2907	2.2800e-003	2.8000e-004	37.4300
General Office Building	11290.2	2.7653	1.7000e-004	2.0000e-005	2.7756
Health Club	21292.5	5.2152	3.2000e-004	4.0000e-005	5.2347
Parking Lot	20528.2	5.0280	3.1000e-004	4.0000e-005	5.0468
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	14450.1	3.5393	2.2000e-004	3.0000e-005	3.5525
Total		**205.7403**	**0.0126**	**1.5300e-003**	**206.5088**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.5112	0.2254	2.4840	1.3900e-003		0.0293	0.0293		0.0293	0.0293	0.0000	232.8923	232.8923	8.1600e-003	4.2000e-003	234.3473
Unmitigated	1.5112	0.2254	2.4840	1.3900e-003		0.0293	0.0293		0.0293	0.0293	0.0000	232.8923	232.8923	8.1600e-003	4.2000e-003	234.3473

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1057					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.3101					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0231	0.1977	0.0841	1.2600e-003		0.0160	0.0160		0.0160	0.0160	0.0000	228.9698	228.9698	4.3900e-003	4.2000e-003	230.3305
Landscaping	0.0723	0.0276	2.3998	1.3000e-004		0.0133	0.0133		0.0133	0.0133	0.0000	3.9225	3.9225	3.7700e-003	0.0000	4.0168
Total	**1.5112**	**0.2254**	**2.4840**	**1.3900e-003**		**0.0293**	**0.0293**		**0.0293**	**0.0293**	**0.0000**	**232.8923**	**232.8923**	**8.1600e-003**	**4.2000e-003**	**234.3473**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1057					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.3101					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0231	0.1977	0.0841	1.2600e-003		0.0160	0.0160		0.0160	0.0160	0.0000	228.9698	228.9698	4.3900e-003	4.2000e-003	230.3305
Landscaping	0.0723	0.0276	2.3998	1.3000e-004		0.0133	0.0133		0.0133	0.0133	0.0000	3.9225	3.9225	3.7700e-003	0.0000	4.0168
Total	**1.5112**	**0.2254**	**2.4840**	**1.3900e-003**		**0.0293**	**0.0293**		**0.0293**	**0.0293**	**0.0000**	**232.8923**	**232.8923**	**8.1600e-003**	**4.2000e-003**	**234.3473**

7.0 Water Detail

7.1 Mitigation Measures Water

Modera Melrose Mitigated - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	84.3036	0.7201	0.0175	107.5100
Unmitigated	84.3036	0.7201	0.0175	107.5100

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	2.15008 / 0	7.5393	0.0705	1.7100e-003	9.8094
Apartments Mid Rise	18.8947 / 0	66.2541	0.6194	0.0150	86.2035
City Park	0 / 2.62126	7.1329	4.4000e-004	5.0000e-005	7.1596
Enclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0.311034 / 0	1.0906	0.0102	2.5000e-004	1.4190
Health Club	0.308136 / 0	1.0805	0.0101	2.4000e-004	1.4058
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0.114146 / 0.0699606	0.5906	3.7500e-003	9.0000e-005	0.7119
Strip Mall	0.175552 / 0	0.6156	5.7500e-003	1.4000e-004	0.8009
Total		**84.3036**	**0.7201**	**0.0175**	**107.5100**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	2.15008 / 0	7.5393	0.0705	1.7100e-003	9.8094
Apartments Mid Rise	18.8947 / 0	66.2541	0.6194	0.0150	86.2035
City Park	0 / 2.62126	7.1329	4.4000e-004	5.0000e-005	7.1596
Enclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	0.311034 / 0	1.0906	0.0102	2.5000e-004	1.4190
Health Club	0.308136 / 0	1.0805	0.0101	2.4000e-004	1.4058
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0.114146 / 0.0699606	0.5906	3.7500e-003	9.0000e-005	0.7119
Strip Mall	0.175552 / 0	0.6156	5.7500e-003	1.4000e-004	0.8009
Total		**84.3036**	**0.7201**	**0.0175**	**107.5100**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Modera Melrose Mitigated - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	39.2970	2.3224	0.0000	97.3567
Unmitigated	39.2970	2.3224	0.0000	97.3567

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	15.18	3.0814	0.1821	0.0000	7.6341
Apartments Mid Rise	133.4	27.0790	1.6003	0.0000	67.0871
City Park	0.19	0.0386	2.2800e-003	0.0000	0.0956
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
General Office Building	1.63	0.3309	0.0196	0.0000	0.8197
Health Club	29.7	6.0288	0.3563	0.0000	14.9362
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	11	2.2329	0.1320	0.0000	5.5319
Strip Mall	2.49	0.5055	0.0299	0.0000	1.2522
Total		**39.2970**	**2.3224**	**0.0000**	**97.3567**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	15.18	3.0814	0.1821	0.0000	7.6341
Apartments Mid Rise	133.4	27.0790	1.6003	0.0000	67.0871
City Park	0.19	0.0386	2.2800e-003	0.0000	0.0956
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
General Office Building	1.63	0.3309	0.0196	0.0000	0.8197
Health Club	29.7	6.0288	0.3563	0.0000	14.9362
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	11	2.2329	0.1320	0.0000	5.5319
Strip Mall	2.49	0.5055	0.0299	0.0000	1.2522
Total		**39.2970**	**2.3224**	**0.0000**	**97.3567**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Modera Melrose Mitigated - San Diego County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Modera Melrose Mitigated

San Diego County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	1.75	1000sqft	0.04	1,745.00	0
Enclosed Parking Structure	145.00	Space	0.00	58,000.00	0
Parking Lot	117.30	1000sqft	2.69	117,304.00	0
City Park	2.20	Acre	2.20	95,696.96	0
Health Club	5.21	1000sqft	0.00	5,206.00	0
Recreational Swimming Pool	1.93	1000sqft	0.04	1,927.00	0
Apartments High Rise	33.00	Dwelling Unit	0.25	33,000.00	94
Apartments Mid Rise	290.00	Dwelling Unit	2.16	290,000.00	829
Strip Mall	2.37	1000sqft	0.05	2,365.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2024
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	539.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Land use assumptions provided by applicant.

Construction Phase - CalEEMod default assumptions. No demolition required.

Off-road Equipment - Architectural Coating: CalEEMod default assumptions

Modera Melrose Mitigated - San Diego County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment - Building Construction: CalEEMod default assumptions

Off-road Equipment - Demo: CalEEMod default assumptions

Off-road Equipment - Grading: CalEEMod default assumptions

Off-road Equipment - Paving: CalEEMod default assumptions

Off-road Equipment - Site Prep: CalEEMod default assumptions

Trips and VMT - CalEEMod default assumptions. 2 vendor trucks added to phases without default vendor trips to account for water trucks and/or routine deliveries.

On-road Fugitive Dust - CalEEMod default assumptions

Demolition - No demolition required.

Grading - Import quantity provided by applicant.

Architectural Coating - SDAPCD Rule 67.0.1 for parking. Mitigation: use of low-VOC paints (<30 g/L).

Vehicle Trips - Trips consistent with data from 2/15/2022 Linscott Law & Greenspan Local Transportation Study.

Road Dust - CalEEMod default assumptions

Woodstoves - PDF: no wood-burning appliances.

Consumer Products - CalEEMod Default Assumptions

Area Coating - SDAPCD Rule 67.0.1.

Energy Use - CalEEMod default assumptions

Water And Wastewater - Zero'd out outdoor water use for buildings and accounted for in City Park land use which represents overall landscaping.

Solid Waste - CalEEMod default assumptions

Construction Off-road Equipment Mitigation - Tier4i mitigation for HRA impact

Area Mitigation - SDAPCD Rule 67.0.1

Energy Mitigation - PDF: 50% of on-site energy demand will come from PV solar

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	30.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	30.00
tblArchitecturalCoating	EF_Parking	250.00	100.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	30.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	30.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	50

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblAreaCoating	Area_EF_Nonresidential_Interior	250	50
tblAreaCoating	Area_EF_Parking	250	100
tblAreaCoating	Area_EF_Residential_Exterior	250	50
tblAreaCoating	Area_EF_Residential_Interior	250	50
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
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tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	NumberGas	18.15	29.70

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblFireplaces	NumberGas	159.50	261.00
tblFireplaces	NumberWood	11.55	0.00
tblFireplaces	NumberWood	101.50	0.00
tblGrading	MaterialImported	0.00	43,200.00
tblLandUse	LandUseSquareFeet	1,750.00	1,745.00
tblLandUse	LandUseSquareFeet	117,300.00	117,304.00
tblLandUse	LandUseSquareFeet	95,832.00	95,696.96
tblLandUse	LandUseSquareFeet	5,210.00	5,206.00
tblLandUse	LandUseSquareFeet	1,930.00	1,927.00
tblLandUse	LandUseSquareFeet	2,370.00	2,365.00
tblLandUse	LotAcreage	1.30	0.00
tblLandUse	LotAcreage	0.12	0.00
tblLandUse	LotAcreage	0.53	0.25
tblLandUse	LotAcreage	7.63	2.16
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblVehicleTrips	ST_TR	4.53	0.00
tblVehicleTrips	ST_TR	4.91	6.05
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	2.21	0.00
tblVehicleTrips	ST_TR	20.87	0.00
tblVehicleTrips	ST_TR	9.10	0.00
tblVehicleTrips	ST_TR	42.04	37.50
tblVehicleTrips	SU_TR	3.59	0.00
tblVehicleTrips	SU_TR	4.09	5.04
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	0.70	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleTrips	SU_TR	26.73	0.00
tblVehicleTrips	SU_TR	13.60	0.00
tblVehicleTrips	SU_TR	20.43	18.20
tblVehicleTrips	WD_TR	4.45	0.00
tblVehicleTrips	WD_TR	5.44	6.70
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	9.74	0.00
tblVehicleTrips	WD_TR	32.93	0.00
tblVehicleTrips	WD_TR	28.82	0.00
tblVehicleTrips	WD_TR	44.32	39.54
tblWater	OutdoorWaterUseRate	1,355,487.01	0.00
tblWater	OutdoorWaterUseRate	11,911,855.55	0.00
tblWater	OutdoorWaterUseRate	190,633.78	0.00
tblWater	OutdoorWaterUseRate	188,857.41	0.00
tblWater	OutdoorWaterUseRate	107,596.31	0.00
tblWoodstoves	NumberCatalytic	1.65	0.00
tblWoodstoves	NumberCatalytic	14.50	0.00
tblWoodstoves	NumberNoncatalytic	1.65	0.00
tblWoodstoves	NumberNoncatalytic	14.50	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00

2.0 Emissions Summary

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	2.7151	54.7982	25.5376	0.1928	19.8184	1.2673	21.0858	10.1456	1.1660	11.3115	0.0000	20,892.8021	20,892.8021	1.8313	2.8516	21,788.3541
2024	64.7439	17.6401	24.9086	0.0665	3.4320	0.6494	4.0814	0.9227	0.6109	1.5336	0.0000	6,671.5071	6,671.5071	0.7274	0.3202	6,785.1031
Maximum	**64.7439**	**54.7982**	**25.5376**	**0.1928**	**19.8184**	**1.2673**	**21.0858**	**10.1456**	**1.1660**	**11.3115**	**0.0000**	**20,892.8021**	**20,892.8021**	**1.8313**	**2.8516**	**21,788.3541**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	1.8783	49.6347	28.4757	0.1928	19.8184	0.5239	20.3423	10.1456	0.4853	10.6308	0.0000	20,892.8021	20,892.8021	1.8313	2.8516	21,788.3541
2024	64.6177	14.8281	26.7824	0.0665	3.4320	0.1214	3.5534	0.9227	0.1193	1.0420	0.0000	6,671.5071	6,671.5071	0.7274	0.3202	6,785.1031
Maximum	**64.6177**	**49.6347**	**28.4757**	**0.1928**	**19.8184**	**0.5239**	**20.3423**	**10.1456**	**0.4853**	**10.6308**	**0.0000**	**20,892.8021**	**20,892.8021**	**1.8313**	**2.8516**	**21,788.3541**

Modera Melrose Mitigated - San Diego County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	1.43	11.01	-9.54	0.00	0.00	66.33	5.05	0.00	65.97	9.13	0.00	0.00	0.00	0.00	0.00	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	9.1253	5.1294	28.7168	0.0322		0.5376	0.5376		0.5376	0.5376	0.0000	6,204.0427	6,204.0427	0.1642	0.1129	6,241.7797
Energy	0.0724	0.6203	0.2751	3.9500e-003		0.0500	0.0500		0.0500	0.0500		789.7953	789.7953	0.0151	0.0145	794.4887
Mobile	5.6755	6.3506	53.0910	0.1090	11.9826	0.0858	12.0684	3.1920	0.0800	3.2719		11,108.9103	11,108.9103	0.8195	0.5163	11,283.2510
Total	**14.8732**	**12.1003**	**82.0829**	**0.1451**	**11.9826**	**0.6734**	**12.6560**	**3.1920**	**0.6676**	**3.8596**	**0.0000**	**18,102.7484**	**18,102.7484**	**0.9988**	**0.6436**	**18,319.5194**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	9.1253	5.1294	28.7168	0.0322		0.5376	0.5376		0.5376	0.5376	0.0000	6,204.0427	6,204.0427	0.1642	0.1129	6,241.7797
Energy	0.0724	0.6203	0.2751	3.9500e-003		0.0500	0.0500		0.0500	0.0500		789.7953	789.7953	0.0151	0.0145	794.4887
Mobile	5.6755	6.3506	53.0910	0.1090	11.9826	0.0858	12.0684	3.1920	0.0800	3.2719		11,108.9103	11,108.9103	0.8195	0.5163	11,283.2510
Total	**14.8732**	**12.1003**	**82.0829**	**0.1451**	**11.9826**	**0.6734**	**12.6560**	**3.1920**	**0.6676**	**3.8596**	**0.0000**	**18,102.7484**	**18,102.7484**	**0.9988**	**0.6436**	**18,319.5194**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/1/2023	4/14/2023	5	10	
2	Grading	Grading	4/15/2023	5/12/2023	5	20	
3	Building Construction	Building Construction	5/13/2023	3/29/2024	5	230	
4	Paving	Paving	3/30/2024	4/26/2024	5	20	
5	Architectural Coating	Architectural Coating	4/27/2024	5/24/2024	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 20

Acres of Paving: 2.69

Residential Indoor: 654,075; Residential Outdoor: 218,025; Non-Residential Indoor: 13,974; Non-Residential Outdoor: 4,658; Striped Parking Area: 10,518 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	2.00	5,400.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	351.00	81.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	70.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647		3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**19.6570**	**1.2660**	**20.9230**	**10.1025**	**1.1647**	**11.2672**		**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3200e-003	0.0893	0.0318	4.1000e-004	0.0136	5.2000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		44.2722	44.2722	1.3300e-003	6.4200e-003	46.2176
Worker	0.0533	0.0344	0.4105	1.2300e-003	0.1479	7.9000e-004	0.1487	0.0392	7.3000e-004	0.0400		124.8010	124.8010	3.8100e-003	3.5600e-003	125.9573
Total	**0.0557**	**0.1237**	**0.4423**	**1.6400e-003**	**0.1614**	**1.3100e-003**	**0.1627**	**0.0431**	**1.2300e-003**	**0.0444**		**169.0733**	**169.0733**	**5.1400e-003**	**9.9800e-003**	**172.1749**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	1.5146	19.4809	20.8237	0.0381		0.5226	0.5226		0.4840	0.4840	0.0000	3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**1.5146**	**19.4809**	**20.8237**	**0.0381**	**19.6570**	**0.5226**	**20.1796**	**10.1025**	**0.4840**	**10.5865**	**0.0000**	**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3200e-003	0.0893	0.0318	4.1000e-004	0.0136	5.2000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		44.2722	44.2722	1.3300e-003	6.4200e-003	46.2176
Worker	0.0533	0.0344	0.4105	1.2300e-003	0.1479	7.9000e-004	0.1487	0.0392	7.3000e-004	0.0400		124.8010	124.8010	3.8100e-003	3.5600e-003	125.9573
Total	**0.0557**	**0.1237**	**0.4423**	**1.6400e-003**	**0.1614**	**1.3100e-003**	**0.1627**	**0.0431**	**1.2300e-003**	**0.0444**		**169.0733**	**169.0733**	**5.1400e-003**	**9.9800e-003**	**172.1749**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.3861	0.0000	7.3861	3.4707	0.0000	3.4707			0.0000			0.0000
Off-Road	1.7109	17.9359	14.7507	0.0297		0.7749	0.7749		0.7129	0.7129		2,872.6910	2,872.6910	0.9291		2,895.9182
Total	**1.7109**	**17.9359**	**14.7507**	**0.0297**	**7.3861**	**0.7749**	**8.1610**	**3.4707**	**0.7129**	**4.1836**		**2,872.6910**	**2,872.6910**	**0.9291**		**2,895.9182**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.5748	36.7444	9.8233	0.1617	4.7224	0.3003	5.0227	1.2944	0.2874	1.5818		17,871.8380	17,871.8380	0.8977	2.8422	18,741.2540
Vendor	2.3200e-003	0.0893	0.0318	4.1000e-004	0.0136	5.2000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		44.2722	44.2722	1.3300e-003	6.4200e-003	46.2176
Worker	0.0445	0.0286	0.3421	1.0300e-003	0.1232	6.6000e-004	0.1239	0.0327	6.1000e-004	0.0333		104.0008	104.0008	3.1800e-003	2.9700e-003	104.9644
Total	**0.6216**	**36.8623**	**10.1972**	**0.1632**	**4.8591**	**0.3015**	**5.1607**	**1.3310**	**0.2885**	**1.6194**		**18,020.1111**	**18,020.1111**	**0.9022**	**2.8516**	**18,892.4360**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.3861	0.0000	7.3861	3.4707	0.0000	3.4707			0.0000			0.0000
Off-Road	0.7926	12.7724	18.2785	0.0297		0.2019	0.2019		0.1891	0.1891	0.0000	2,872.6910	2,872.6910	0.9291		2,895.9182
Total	**0.7926**	**12.7724**	**18.2785**	**0.0297**	**7.3861**	**0.2019**	**7.5880**	**3.4707**	**0.1891**	**3.6598**	**0.0000**	**2,872.6910**	**2,872.6910**	**0.9291**		**2,895.9182**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.5748	36.7444	9.8233	0.1617	4.7224	0.3003	5.0227	1.2944	0.2874	1.5818		17,871.8380	17,871.8380	0.8977	2.8422	18,741.2540
Vendor	2.3200e-003	0.0893	0.0318	4.1000e-004	0.0136	5.2000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		44.2722	44.2722	1.3300e-003	6.4200e-003	46.2176
Worker	0.0445	0.0286	0.3421	1.0300e-003	0.1232	6.6000e-004	0.1239	0.0327	6.1000e-004	0.0333		104.0008	104.0008	3.1800e-003	2.9700e-003	104.9644
Total	**0.6216**	**36.8623**	**10.1972**	**0.1632**	**4.8591**	**0.3015**	**5.1607**	**1.3310**	**0.2885**	**1.6194**		**18,020.1111**	**18,020.1111**	**0.9022**	**2.8516**	**18,892.4360**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0941	3.6184	1.2891	0.0166	0.5486	0.0213	0.5698	0.1579	0.0203	0.1783		1,793.0258	1,793.0258	0.0540	0.2599	1,871.8125
Worker	1.0401	0.6699	8.0045	0.0241	2.8834	0.0155	2.8988	0.7648	0.0142	0.7790		2,433.6196	2,433.6196	0.0744	0.0694	2,456.1676
Total	**1.1342**	**4.2883**	**9.2936**	**0.0407**	**3.4320**	**0.0367**	**3.4687**	**0.9227**	**0.0346**	**0.9573**		**4,226.6454**	**4,226.6454**	**0.1284**	**0.3293**	**4,327.9801**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7441	10.6716	18.0549	0.0269		0.0930	0.0930		0.0930	0.0930	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**0.7441**	**10.6716**	**18.0549**	**0.0269**		**0.0930**	**0.0930**		**0.0930**	**0.0930**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0941	3.6184	1.2891	0.0166	0.5486	0.0213	0.5698	0.1579	0.0203	0.1783		1,793.0258	1,793.0258	0.0540	0.2599	1,871.8125
Worker	1.0401	0.6699	8.0045	0.0241	2.8834	0.0155	2.8988	0.7648	0.0142	0.7790		2,433.6196	2,433.6196	0.0744	0.0694	2,456.1676
Total	**1.1342**	**4.2883**	**9.2936**	**0.0407**	**3.4320**	**0.0367**	**3.4687**	**0.9227**	**0.0346**	**0.9573**		**4,226.6454**	**4,226.6454**	**0.1284**	**0.3293**	**4,327.9801**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0903	3.5940	1.2597	0.0163	0.5486	0.0214	0.5700	0.1579	0.0204	0.1784		1,761.8366	1,761.8366	0.0552	0.2553	1,839.2981
Worker	0.9791	0.6023	7.4821	0.0233	2.8834	0.0147	2.8981	0.7648	0.0135	0.7784		2,353.9716	2,353.9716	0.0678	0.0649	2,374.9973
Total	**1.0694**	**4.1963**	**8.7418**	**0.0396**	**3.4320**	**0.0361**	**3.4680**	**0.9227**	**0.0340**	**0.9567**		**4,115.8082**	**4,115.8082**	**0.1230**	**0.3202**	**4,214.2954**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7255	10.6318	18.0406	0.0270		0.0853	0.0853		0.0853	0.0853	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**0.7255**	**10.6318**	**18.0406**	**0.0270**		**0.0853**	**0.0853**		**0.0853**	**0.0853**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0903	3.5940	1.2597	0.0163	0.5486	0.0214	0.5700	0.1579	0.0204	0.1784		1,761.8366	1,761.8366	0.0552	0.2553	1,839.2981
Worker	0.9791	0.6023	7.4821	0.0233	2.8834	0.0147	2.8981	0.7648	0.0135	0.7784		2,353.9716	2,353.9716	0.0678	0.0649	2,374.9973
Total	**1.0694**	**4.1963**	**8.7418**	**0.0396**	**3.4320**	**0.0361**	**3.4680**	**0.9227**	**0.0340**	**0.9567**		**4,115.8082**	**4,115.8082**	**0.1230**	**0.3202**	**4,214.2954**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.3524					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3406**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**		**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2300e-003	0.0887	0.0311	4.0000e-004	0.0136	5.3000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		43.5021	43.5021	1.3600e-003	6.3000e-003	45.4148
Worker	0.0418	0.0257	0.3198	1.0000e-003	0.1232	6.3000e-004	0.1239	0.0327	5.8000e-004	0.0333		100.5971	100.5971	2.9000e-003	2.7700e-003	101.4956
Total	**0.0441**	**0.1145**	**0.3509**	**1.4000e-003**	**0.1368**	**1.1600e-003**	**0.1379**	**0.0366**	**1.0800e-003**	**0.0377**		**144.0992**	**144.0992**	**4.2600e-003**	**9.0700e-003**	**146.9104**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3341	10.0395	17.2957	0.0228		0.0374	0.0374		0.0374	0.0374	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.3524					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6865**	**10.0395**	**17.2957**	**0.0228**		**0.0374**	**0.0374**		**0.0374**	**0.0374**	**0.0000**	**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2300e-003	0.0887	0.0311	4.0000e-004	0.0136	5.3000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		43.5021	43.5021	1.3600e-003	6.3000e-003	45.4148
Worker	0.0418	0.0257	0.3198	1.0000e-003	0.1232	6.3000e-004	0.1239	0.0327	5.8000e-004	0.0333		100.5971	100.5971	2.9000e-003	2.7700e-003	101.4956
Total	**0.0441**	**0.1145**	**0.3509**	**1.4000e-003**	**0.1368**	**1.1600e-003**	**0.1379**	**0.0366**	**1.0800e-003**	**0.0377**		**144.0992**	**144.0992**	**4.2600e-003**	**9.0700e-003**	**146.9104**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	64.3657					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**64.5465**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2300e-003	0.0887	0.0311	4.0000e-004	0.0136	5.3000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		43.5021	43.5021	1.3600e-003	6.3000e-003	45.4148
Worker	0.1953	0.1201	1.4922	4.6400e-003	0.5750	2.9300e-003	0.5780	0.1525	2.7000e-003	0.1552		469.4530	469.4530	0.0135	0.0129	473.6462
Total	**0.1975**	**0.2089**	**1.5233**	**5.0400e-003**	**0.5886**	**3.4600e-003**	**0.5920**	**0.1564**	**3.2000e-003**	**0.1596**		**512.9552**	**512.9552**	**0.0149**	**0.0192**	**519.0610**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	64.3657					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0545	1.0598	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**64.4202**	**1.0598**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2300e-003	0.0887	0.0311	4.0000e-004	0.0136	5.3000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		43.5021	43.5021	1.3600e-003	6.3000e-003	45.4148
Worker	0.1953	0.1201	1.4922	4.6400e-003	0.5750	2.9300e-003	0.5780	0.1525	2.7000e-003	0.1552		469.4530	469.4530	0.0135	0.0129	473.6462
Total	**0.1975**	**0.2089**	**1.5233**	**5.0400e-003**	**0.5886**	**3.4600e-003**	**0.5920**	**0.1564**	**3.2000e-003**	**0.1596**		**512.9552**	**512.9552**	**0.0149**	**0.0192**	**519.0610**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.6755	6.3506	53.0910	0.1090	11.9826	0.0858	12.0684	3.1920	0.0800	3.2719		11,108.9103	11,108.9103	0.8195	0.5163	11,283.2510
Unmitigated	5.6755	6.3506	53.0910	0.1090	11.9826	0.0858	12.0684	3.1920	0.0800	3.2719		11,108.9103	11,108.9103	0.8195	0.5163	11,283.2510

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments High Rise	0.00	0.00	0.00		
Apartments Mid Rise	1,943.00	1,754.50	1461.60	5,274,602	5,274,602
City Park	0.00	0.00	0.00		
Enclosed Parking Structure	0.00	0.00	0.00		
General Office Building	0.00	0.00	0.00		
Health Club	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Recreational Swimming Pool	0.00	0.00	0.00		
Strip Mall	93.71	88.88	43.13	132,126	132,126
Total	2,036.71	1,843.38	1,504.73	5,406,727	5,406,727

4.3 Trip Type Information

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments High Rise	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3
Apartments Mid Rise	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Enclosed Parking Structure	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Health Club	9.50	7.30	7.30	16.90	64.10	19.00	52	39	9
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Recreational Swimming Pool	9.50	7.30	7.30	33.00	48.00	19.00	52	39	9
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments High Rise	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Apartments Mid Rise	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
City Park	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Enclosed Parking Structure	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
General Office Building	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Health Club	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Parking Lot	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Recreational Swimming Pool	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Strip Mall	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Percent of Electricity Use Generated with Renewable Energy

Modera Melrose Mitigated - San Diego County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0724	0.6203	0.2751	3.9500e-003		0.0500	0.0500		0.0500	0.0500		789.7953	789.7953	0.0151	0.0145	794.4887
NaturalGas Unmitigated	0.0724	0.6203	0.2751	3.9500e-003		0.0500	0.0500		0.0500	0.0500		789.7953	789.7953	0.0151	0.0145	794.4887

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments High Rise	657.835	7.0900e-003	0.0606	0.0258	3.9000e-004		4.9000e-003	4.9000e-003		4.9000e-003	4.9000e-003		77.3923	77.3923	1.4800e-003	1.4200e-003	77.8522
Apartments Mid Rise	5780.97	0.0623	0.5328	0.2267	3.4000e-003		0.0431	0.0431		0.0431	0.0431		680.1143	680.1143	0.0130	0.0125	684.1558
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	95.7599	1.0300e-003	9.3900e-003	7.8900e-003	6.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004		11.2659	11.2659	2.2000e-004	2.1000e-004	11.3328
Health Club	164.31	1.7700e-003	0.0161	0.0135	1.0000e-004		1.2200e-003	1.2200e-003		1.2200e-003	1.2200e-003		19.3306	19.3306	3.7000e-004	3.5000e-004	19.4455
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	14.3844	1.6000e-004	1.4100e-003	1.1800e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		1.6923	1.6923	3.0000e-005	3.0000e-005	1.7023
Total		**0.0724**	**0.6203**	**0.2751**	**3.9600e-003**		**0.0500**	**0.0500**		**0.0500**	**0.0500**		**789.7953**	**789.7953**	**0.0151**	**0.0145**	**794.4887**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments High Rise	0.657835	7.0900e-003	0.0606	0.0258	3.9000e-004		4.9000e-003	4.9000e-003		4.9000e-003	4.9000e-003		77.3923	77.3923	1.4800e-003	1.4200e-003	77.8522
Apartments Mid Rise	5.78097	0.0623	0.5328	0.2267	3.4000e-003		0.0431	0.0431		0.0431	0.0431		680.1143	680.1143	0.0130	0.0125	684.1558
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	0.0957599	1.0300e-003	9.3900e-003	7.8900e-003	6.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004		11.2659	11.2659	2.2000e-004	2.1000e-004	11.3328
Health Club	0.16431	1.7700e-003	0.0161	0.0135	1.0000e-004		1.2200e-003	1.2200e-003		1.2200e-003	1.2200e-003		19.3306	19.3306	3.7000e-004	3.5000e-004	19.4455
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	0.0143844	1.6000e-004	1.4100e-003	1.1800e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		1.6923	1.6923	3.0000e-005	3.0000e-005	1.7023
Total		**0.0724**	**0.6203**	**0.2751**	**3.9600e-003**		**0.0500**	**0.0500**		**0.0500**	**0.0500**		**789.7953**	**789.7953**	**0.0151**	**0.0145**	**794.4887**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	9.1253	5.1294	28.7168	0.0322		0.5376	0.5376		0.5376	0.5376	0.0000	6,204.0427	6,204.0427	0.1642	0.1129	6,241.7797
Unmitigated	9.1253	5.1294	28.7168	0.0322		0.5376	0.5376		0.5376	0.5376	0.0000	6,204.0427	6,204.0427	0.1642	0.1129	6,241.7797

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.5789					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.1786					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.5643	4.8222	2.0520	0.0308		0.3899	0.3899		0.3899	0.3899	0.0000	6,156.0000	6,156.0000	0.1180	0.1129	6,192.5820
Landscaping	0.8035	0.3072	26.6648	1.4100e-003		0.1477	0.1477		0.1477	0.1477		48.0427	48.0427	0.0462		49.1977
Total	**9.1253**	**5.1294**	**28.7168**	**0.0322**		**0.5376**	**0.5376**		**0.5376**	**0.5376**	**0.0000**	**6,204.0427**	**6,204.0427**	**0.1642**	**0.1129**	**6,241.7797**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.5789					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.1786					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.5643	4.8222	2.0520	0.0308		0.3899	0.3899		0.3899	0.3899	0.0000	6,156.0000	6,156.0000	0.1180	0.1129	6,192.5820
Landscaping	0.8035	0.3072	26.6648	1.4100e-003		0.1477	0.1477		0.1477	0.1477		48.0427	48.0427	0.0462		49.1977
Total	**9.1253**	**5.1294**	**28.7168**	**0.0322**		**0.5376**	**0.5376**		**0.5376**	**0.5376**	**0.0000**	**6,204.0427**	**6,204.0427**	**0.1642**	**0.1129**	**6,241.7797**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Modera Melrose Mitigated - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Modera Melrose Mitigated

San Diego County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	1.75	1000sqft	0.04	1,745.00	0
Enclosed Parking Structure	145.00	Space	0.00	58,000.00	0
Parking Lot	117.30	1000sqft	2.69	117,304.00	0
City Park	2.20	Acre	2.20	95,696.96	0
Health Club	5.21	1000sqft	0.00	5,206.00	0
Recreational Swimming Pool	1.93	1000sqft	0.04	1,927.00	0
Apartments High Rise	33.00	Dwelling Unit	0.25	33,000.00	94
Apartments Mid Rise	290.00	Dwelling Unit	2.16	290,000.00	829
Strip Mall	2.37	1000sqft	0.05	2,365.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2024
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	539.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Land use assumptions provided by applicant.

Construction Phase - CalEEMod default assumptions. No demolition required.

Off-road Equipment - Architectural Coating: CalEEMod default assumptions

Modera Melrose Mitigated - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-road Equipment - Building Construction: CalEEMod default assumptions

Off-road Equipment - Demo: CalEEMod default assumptions

Off-road Equipment - Grading: CalEEMod default assumptions

Off-road Equipment - Paving: CalEEMod default assumptions

Off-road Equipment - Site Prep: CalEEMod default assumptions

Trips and VMT - CalEEMod default assumptions. 2 vendor trucks added to phases without default vendor trips to account for water trucks and/or routine deliveries.

On-road Fugitive Dust - CalEEMod default assumptions

Demolition - No demolition required.

Grading - Import quantity provided by applicant.

Architectural Coating - SDAPCD Rule 67.0.1 for parking. Mitigation: use of low-VOC paints (<30 g/L).

Vehicle Trips - Trips consistent with data from 2/15/2022 Linscott Law & Greenspan Local Transportation Study.

Road Dust - CalEEMod default assumptions

Woodstoves - PDF: no wood-burning appliances.

Consumer Products - CalEEMod Default Assumptions

Area Coating - SDAPCD Rule 67.0.1.

Energy Use - CalEEMod default assumptions

Water And Wastewater - Zero'd out outdoor water use for buildings and accounted for in City Park land use which represents overall landscaping.

Solid Waste - CalEEMod default assumptions

Construction Off-road Equipment Mitigation - Tier4i mitigation for HRA impact

Area Mitigation - SDAPCD Rule 67.0.1

Energy Mitigation - PDF: 50% of on-site energy demand will come from PV solar

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	30.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	30.00
tblArchitecturalCoating	EF_Parking	250.00	100.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	30.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	30.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	50

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblAreaCoating	Area_EF_Nonresidential_Interior	250	50
tblAreaCoating	Area_EF_Parking	250	100
tblAreaCoating	Area_EF_Residential_Exterior	250	50
tblAreaCoating	Area_EF_Residential_Interior	250	50
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
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tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	NumberGas	18.15	29.70

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblFireplaces	NumberGas	159.50	261.00
tblFireplaces	NumberWood	11.55	0.00
tblFireplaces	NumberWood	101.50	0.00
tblGrading	MaterialImported	0.00	43,200.00
tblLandUse	LandUseSquareFeet	1,750.00	1,745.00
tblLandUse	LandUseSquareFeet	117,300.00	117,304.00
tblLandUse	LandUseSquareFeet	95,832.00	95,696.96
tblLandUse	LandUseSquareFeet	5,210.00	5,206.00
tblLandUse	LandUseSquareFeet	1,930.00	1,927.00
tblLandUse	LandUseSquareFeet	2,370.00	2,365.00
tblLandUse	LotAcreage	1.30	0.00
tblLandUse	LotAcreage	0.12	0.00
tblLandUse	LotAcreage	0.53	0.25
tblLandUse	LotAcreage	7.63	2.16
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblVehicleTrips	ST_TR	4.53	0.00
tblVehicleTrips	ST_TR	4.91	6.05
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	2.21	0.00
tblVehicleTrips	ST_TR	20.87	0.00
tblVehicleTrips	ST_TR	9.10	0.00
tblVehicleTrips	ST_TR	42.04	37.50
tblVehicleTrips	SU_TR	3.59	0.00
tblVehicleTrips	SU_TR	4.09	5.04
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	0.70	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblVehicleTrips	SU_TR	26.73	0.00
tblVehicleTrips	SU_TR	13.60	0.00
tblVehicleTrips	SU_TR	20.43	18.20
tblVehicleTrips	WD_TR	4.45	0.00
tblVehicleTrips	WD_TR	5.44	6.70
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	9.74	0.00
tblVehicleTrips	WD_TR	32.93	0.00
tblVehicleTrips	WD_TR	28.82	0.00
tblVehicleTrips	WD_TR	44.32	39.54
tblWater	OutdoorWaterUseRate	1,355,487.01	0.00
tblWater	OutdoorWaterUseRate	11,911,855.55	0.00
tblWater	OutdoorWaterUseRate	190,633.78	0.00
tblWater	OutdoorWaterUseRate	188,857.41	0.00
tblWater	OutdoorWaterUseRate	107,596.31	0.00
tblWoodstoves	NumberCatalytic	1.65	0.00
tblWoodstoves	NumberCatalytic	14.50	0.00
tblWoodstoves	NumberNoncatalytic	1.65	0.00
tblWoodstoves	NumberNoncatalytic	14.50	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00

2.0 Emissions Summary

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	2.7110	53.3669	25.9190	0.1927	19.8184	1.2673	21.0858	10.1456	1.1660	11.3115	0.0000	20,881.4382	20,881.4382	1.8332	2.8485	21,776.1119
2024	64.7284	17.4280	25.2474	0.0679	3.4320	0.6493	4.0813	0.9227	0.6108	1.5335	0.0000	6,805.5138	6,805.5138	0.7234	0.3147	6,917.3801
Maximum	**64.7284**	**53.3669**	**25.9190**	**0.1927**	**19.8184**	**1.2673**	**21.0858**	**10.1456**	**1.1660**	**11.3115**	**0.0000**	**20,881.4382**	**20,881.4382**	**1.8332**	**2.8485**	**21,776.1119**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	1.8001	48.2034	28.3718	0.1927	19.8184	0.5239	20.3423	10.1456	0.4853	10.6308	0.0000	20,881.4381	20,881.4381	1.8332	2.8485	21,776.1119
2024	64.6021	14.6160	27.1212	0.0679	3.4320	0.1213	3.5533	0.9227	0.1192	1.0420	0.0000	6,805.5138	6,805.5138	0.7234	0.3147	6,917.3801
Maximum	**64.6021**	**48.2034**	**28.3718**	**0.1927**	**19.8184**	**0.5239**	**20.3423**	**10.1456**	**0.4853**	**10.6308**	**0.0000**	**20,881.4381**	**20,881.4381**	**1.8332**	**2.8485**	**21,776.1119**

Modera Melrose Mitigated - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	1.54	11.27	-8.46	0.00	0.00	66.34	5.05	0.00	65.98	9.13	0.00	0.00	0.00	0.00	0.00	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	9.1253	5.1294	28.7168	0.0322		0.5376	0.5376		0.5376	0.5376	0.0000	6,204.0427	6,204.0427	0.1642	0.1129	6,241.7797
Energy	0.0724	0.6203	0.2751	3.9500e-003		0.0500	0.0500		0.0500	0.0500		789.7953	789.7953	0.0151	0.0145	794.4887
Mobile	5.8070	5.8595	51.7631	0.1140	11.9826	0.0857	12.0684	3.1920	0.0799	3.2719		11,612.2206	11,612.2206	0.7746	0.4900	11,777.5916
Total	**15.0047**	**11.6092**	**80.7550**	**0.1501**	**11.9826**	**0.6734**	**12.6560**	**3.1920**	**0.6676**	**3.8596**	**0.0000**	**18,606.0586**	**18,606.0586**	**0.9539**	**0.6173**	**18,813.8600**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	9.1253	5.1294	28.7168	0.0322		0.5376	0.5376		0.5376	0.5376	0.0000	6,204.0427	6,204.0427	0.1642	0.1129	6,241.7797
Energy	0.0724	0.6203	0.2751	3.9500e-003		0.0500	0.0500		0.0500	0.0500		789.7953	789.7953	0.0151	0.0145	794.4887
Mobile	5.8070	5.8595	51.7631	0.1140	11.9826	0.0857	12.0684	3.1920	0.0799	3.2719		11,612.2206	11,612.2206	0.7746	0.4900	11,777.5916
Total	**15.0047**	**11.6092**	**80.7550**	**0.1501**	**11.9826**	**0.6734**	**12.6560**	**3.1920**	**0.6676**	**3.8596**	**0.0000**	**18,606.0586**	**18,606.0586**	**0.9539**	**0.6173**	**18,813.8600**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/1/2023	4/14/2023	5	10	
2	Grading	Grading	4/15/2023	5/12/2023	5	20	
3	Building Construction	Building Construction	5/13/2023	3/29/2024	5	230	
4	Paving	Paving	3/30/2024	4/26/2024	5	20	
5	Architectural Coating	Architectural Coating	4/27/2024	5/24/2024	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 20

Acres of Paving: 2.69

Residential Indoor: 654,075; Residential Outdoor: 218,025; Non-Residential Indoor: 13,974; Non-Residential Outdoor: 4,658; Striped Parking Area: 10,518 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	2.00	5,400.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	351.00	81.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	70.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647		3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**19.6570**	**1.2660**	**20.9230**	**10.1025**	**1.1647**	**11.2672**		**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3900e-003	0.0857	0.0309	4.1000e-004	0.0136	5.2000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		44.2094	44.2094	1.3400e-003	6.4000e-003	46.1504
Worker	0.0492	0.0306	0.4320	1.3100e-003	0.1479	7.9000e-004	0.1487	0.0392	7.3000e-004	0.0400		132.0595	132.0595	3.5800e-003	3.2900e-003	133.1300
Total	**0.0516**	**0.1163**	**0.4629**	**1.7200e-003**	**0.1614**	**1.3100e-003**	**0.1627**	**0.0431**	**1.2300e-003**	**0.0444**		**176.2689**	**176.2689**	**4.9200e-003**	**9.6900e-003**	**179.2805**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	1.5146	19.4809	20.8237	0.0381		0.5226	0.5226		0.4840	0.4840	0.0000	3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**1.5146**	**19.4809**	**20.8237**	**0.0381**	**19.6570**	**0.5226**	**20.1796**	**10.1025**	**0.4840**	**10.5865**	**0.0000**	**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3900e-003	0.0857	0.0309	4.1000e-004	0.0136	5.2000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		44.2094	44.2094	1.3400e-003	6.4000e-003	46.1504
Worker	0.0492	0.0306	0.4320	1.3100e-003	0.1479	7.9000e-004	0.1487	0.0392	7.3000e-004	0.0400		132.0595	132.0595	3.5800e-003	3.2900e-003	133.1300
Total	**0.0516**	**0.1163**	**0.4629**	**1.7200e-003**	**0.1614**	**1.3100e-003**	**0.1627**	**0.0431**	**1.2300e-003**	**0.0444**		**176.2689**	**176.2689**	**4.9200e-003**	**9.6900e-003**	**179.2805**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.3861	0.0000	7.3861	3.4707	0.0000	3.4707			0.0000			0.0000
Off-Road	1.7109	17.9359	14.7507	0.0297		0.7749	0.7749		0.7129	0.7129		2,872.6910	2,872.6910	0.9291		2,895.9182
Total	**1.7109**	**17.9359**	**14.7507**	**0.0297**	**7.3861**	**0.7749**	**8.1610**	**3.4707**	**0.7129**	**4.1836**		**2,872.6910**	**2,872.6910**	**0.9291**		**2,895.9182**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.6115	35.3198	9.7024	0.1616	4.7224	0.2998	5.0221	1.2944	0.2868	1.5812		17,854.4882	17,854.4882	0.8998	2.8393	18,723.1016
Vendor	2.3900e-003	0.0857	0.0309	4.1000e-004	0.0136	5.2000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		44.2094	44.2094	1.3400e-003	6.4000e-003	46.1504
Worker	0.0410	0.0255	0.3600	1.0900e-003	0.1232	6.6000e-004	0.1239	0.0327	6.1000e-004	0.0333		110.0496	110.0496	2.9800e-003	2.7400e-003	110.9417
Total	**0.6548**	**35.4310**	**10.0933**	**0.1631**	**4.8591**	**0.3009**	**5.1601**	**1.3310**	**0.2879**	**1.6189**		**18,008.7472**	**18,008.7472**	**0.9041**	**2.8485**	**18,880.1937**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.3861	0.0000	7.3861	3.4707	0.0000	3.4707			0.0000			0.0000
Off-Road	0.7926	12.7724	18.2785	0.0297		0.2019	0.2019		0.1891	0.1891	0.0000	2,872.6910	2,872.6910	0.9291		2,895.9182
Total	**0.7926**	**12.7724**	**18.2785**	**0.0297**	**7.3861**	**0.2019**	**7.5880**	**3.4707**	**0.1891**	**3.6598**	**0.0000**	**2,872.6910**	**2,872.6910**	**0.9291**		**2,895.9182**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.6115	35.3198	9.7024	0.1616	4.7224	0.2998	5.0221	1.2944	0.2868	1.5812		17,854.4882	17,854.4882	0.8998	2.8393	18,723.1016
Vendor	2.3900e-003	0.0857	0.0309	4.1000e-004	0.0136	5.2000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		44.2094	44.2094	1.3400e-003	6.4000e-003	46.1504
Worker	0.0410	0.0255	0.3600	1.0900e-003	0.1232	6.6000e-004	0.1239	0.0327	6.1000e-004	0.0333		110.0496	110.0496	2.9800e-003	2.7400e-003	110.9417
Total	**0.6548**	**35.4310**	**10.0933**	**0.1631**	**4.8591**	**0.3009**	**5.1601**	**1.3310**	**0.2879**	**1.6189**		**18,008.7472**	**18,008.7472**	**0.9041**	**2.8485**	**18,880.1937**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0968	3.4723	1.2513	0.0166	0.5486	0.0212	0.5697	0.1579	0.0202	0.1782		1,790.4803	1,790.4803	0.0543	0.2593	1,869.0928
Worker	0.9592	0.5957	8.4237	0.0255	2.8834	0.0155	2.8988	0.7648	0.0142	0.7790		2,575.1608	2,575.1608	0.0698	0.0642	2,596.0355
Total	**1.0560**	**4.0680**	**9.6750**	**0.0421**	**3.4320**	**0.0366**	**3.4686**	**0.9227**	**0.0345**	**0.9572**		**4,365.6411**	**4,365.6411**	**0.1241**	**0.3234**	**4,465.1283**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7441	10.6716	18.0549	0.0269		0.0930	0.0930		0.0930	0.0930	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**0.7441**	**10.6716**	**18.0549**	**0.0269**		**0.0930**	**0.0930**		**0.0930**	**0.0930**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0968	3.4723	1.2513	0.0166	0.5486	0.0212	0.5697	0.1579	0.0202	0.1782		1,790.4803	1,790.4803	0.0543	0.2593	1,869.0928
Worker	0.9592	0.5957	8.4237	0.0255	2.8834	0.0155	2.8988	0.7648	0.0142	0.7790		2,575.1608	2,575.1608	0.0698	0.0642	2,596.0355
Total	**1.0560**	**4.0680**	**9.6750**	**0.0421**	**3.4320**	**0.0366**	**3.4686**	**0.9227**	**0.0345**	**0.9572**		**4,365.6411**	**4,365.6411**	**0.1241**	**0.3234**	**4,465.1283**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0932	3.4486	1.2220	0.0163	0.5486	0.0213	0.5699	0.1579	0.0203	0.1783		1,759.2638	1,759.2638	0.0555	0.2547	1,836.5560
Worker	0.9007	0.5356	7.8586	0.0246	2.8834	0.0147	2.8981	0.7648	0.0135	0.7784		2,490.5510	2,490.5510	0.0635	0.0600	2,510.0165
Total	**0.9938**	**3.9842**	**9.0806**	**0.0409**	**3.4320**	**0.0360**	**3.4679**	**0.9227**	**0.0339**	**0.9566**		**4,249.8149**	**4,249.8149**	**0.1190**	**0.3147**	**4,346.5725**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7255	10.6318	18.0406	0.0270		0.0853	0.0853		0.0853	0.0853	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**0.7255**	**10.6318**	**18.0406**	**0.0270**		**0.0853**	**0.0853**		**0.0853**	**0.0853**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0932	3.4486	1.2220	0.0163	0.5486	0.0213	0.5699	0.1579	0.0203	0.1783		1,759.2638	1,759.2638	0.0555	0.2547	1,836.5560
Worker	0.9007	0.5356	7.8586	0.0246	2.8834	0.0147	2.8981	0.7648	0.0135	0.7784		2,490.5510	2,490.5510	0.0635	0.0600	2,510.0165
Total	**0.9938**	**3.9842**	**9.0806**	**0.0409**	**3.4320**	**0.0360**	**3.4679**	**0.9227**	**0.0339**	**0.9566**		**4,249.8149**	**4,249.8149**	**0.1190**	**0.3147**	**4,346.5725**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9882	9.5246	14.6258	0.0228		0.4685	0.4685		0.4310	0.4310		2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.3524					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3406**	**9.5246**	**14.6258**	**0.0228**		**0.4685**	**0.4685**		**0.4310**	**0.4310**		**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3000e-003	0.0852	0.0302	4.0000e-004	0.0136	5.2000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		43.4386	43.4386	1.3700e-003	6.2900e-003	45.3471
Worker	0.0385	0.0229	0.3358	1.0500e-003	0.1232	6.3000e-004	0.1239	0.0327	5.8000e-004	0.0333		106.4338	106.4338	2.7100e-003	2.5600e-003	107.2657
Total	**0.0408**	**0.1080**	**0.3660**	**1.4500e-003**	**0.1368**	**1.1500e-003**	**0.1379**	**0.0366**	**1.0800e-003**	**0.0377**		**149.8724**	**149.8724**	**4.0800e-003**	**8.8500e-003**	**152.6127**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3341	10.0395	17.2957	0.0228		0.0374	0.0374		0.0374	0.0374	0.0000	2,207.5472	2,207.5472	0.7140		2,225.3963
Paving	0.3524					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6865**	**10.0395**	**17.2957**	**0.0228**		**0.0374**	**0.0374**		**0.0374**	**0.0374**	**0.0000**	**2,207.5472**	**2,207.5472**	**0.7140**		**2,225.3963**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3000e-003	0.0852	0.0302	4.0000e-004	0.0136	5.2000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		43.4386	43.4386	1.3700e-003	6.2900e-003	45.3471
Worker	0.0385	0.0229	0.3358	1.0500e-003	0.1232	6.3000e-004	0.1239	0.0327	5.8000e-004	0.0333		106.4338	106.4338	2.7100e-003	2.5600e-003	107.2657
Total	**0.0408**	**0.1080**	**0.3660**	**1.4500e-003**	**0.1368**	**1.1500e-003**	**0.1379**	**0.0366**	**1.0800e-003**	**0.0377**		**149.8724**	**149.8724**	**4.0800e-003**	**8.8500e-003**	**152.6127**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	64.3657					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**64.5465**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3000e-003	0.0852	0.0302	4.0000e-004	0.0136	5.2000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		43.4386	43.4386	1.3700e-003	6.2900e-003	45.3471
Worker	0.1796	0.1068	1.5672	4.9100e-003	0.5750	2.9300e-003	0.5780	0.1525	2.7000e-003	0.1552		496.6911	496.6911	0.0127	0.0120	500.5731
Total	**0.1819**	**0.1920**	**1.5974**	**5.3100e-003**	**0.5886**	**3.4500e-003**	**0.5920**	**0.1564**	**3.2000e-003**	**0.1596**		**540.1297**	**540.1297**	**0.0140**	**0.0183**	**545.9202**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Architectural Coating - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	64.3657					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0545	1.0598	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**64.4202**	**1.0598**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3000e-003	0.0852	0.0302	4.0000e-004	0.0136	5.2000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		43.4386	43.4386	1.3700e-003	6.2900e-003	45.3471
Worker	0.1796	0.1068	1.5672	4.9100e-003	0.5750	2.9300e-003	0.5780	0.1525	2.7000e-003	0.1552		496.6911	496.6911	0.0127	0.0120	500.5731
Total	**0.1819**	**0.1920**	**1.5974**	**5.3100e-003**	**0.5886**	**3.4500e-003**	**0.5920**	**0.1564**	**3.2000e-003**	**0.1596**		**540.1297**	**540.1297**	**0.0140**	**0.0183**	**545.9202**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.8070	5.8595	51.7631	0.1140	11.9826	0.0857	12.0684	3.1920	0.0799	3.2719		11,612.2206	11,612.2206	0.7746	0.4900	11,777.5916
Unmitigated	5.8070	5.8595	51.7631	0.1140	11.9826	0.0857	12.0684	3.1920	0.0799	3.2719		11,612.2206	11,612.2206	0.7746	0.4900	11,777.5916

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments High Rise	0.00	0.00	0.00		
Apartments Mid Rise	1,943.00	1,754.50	1461.60	5,274,602	5,274,602
City Park	0.00	0.00	0.00		
Enclosed Parking Structure	0.00	0.00	0.00		
General Office Building	0.00	0.00	0.00		
Health Club	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Recreational Swimming Pool	0.00	0.00	0.00		
Strip Mall	93.71	88.88	43.13	132,126	132,126
Total	2,036.71	1,843.38	1,504.73	5,406,727	5,406,727

4.3 Trip Type Information

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments High Rise	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3
Apartments Mid Rise	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Enclosed Parking Structure	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Health Club	9.50	7.30	7.30	16.90	64.10	19.00	52	39	9
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Recreational Swimming Pool	9.50	7.30	7.30	33.00	48.00	19.00	52	39	9
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments High Rise	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Apartments Mid Rise	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
City Park	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Enclosed Parking Structure	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
General Office Building	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Health Club	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Parking Lot	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Recreational Swimming Pool	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949
Strip Mall	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Percent of Electricity Use Generated with Renewable Energy

Modera Melrose Mitigated - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0724	0.6203	0.2751	3.9500e-003		0.0500	0.0500		0.0500	0.0500		789.7953	789.7953	0.0151	0.0145	794.4887
NaturalGas Unmitigated	0.0724	0.6203	0.2751	3.9500e-003		0.0500	0.0500		0.0500	0.0500		789.7953	789.7953	0.0151	0.0145	794.4887

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments High Rise	657.835	7.0900e-003	0.0606	0.0258	3.9000e-004		4.9000e-003	4.9000e-003		4.9000e-003	4.9000e-003		77.3923	77.3923	1.4800e-003	1.4200e-003	77.8522
Apartments Mid Rise	5780.97	0.0623	0.5328	0.2267	3.4000e-003		0.0431	0.0431		0.0431	0.0431		680.1143	680.1143	0.0130	0.0125	684.1558
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	95.7599	1.0300e-003	9.3900e-003	7.8900e-003	6.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004		11.2659	11.2659	2.2000e-004	2.1000e-004	11.3328
Health Club	164.31	1.7700e-003	0.0161	0.0135	1.0000e-004		1.2200e-003	1.2200e-003		1.2200e-003	1.2200e-003		19.3306	19.3306	3.7000e-004	3.5000e-004	19.4455
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	14.3844	1.6000e-004	1.4100e-003	1.1800e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		1.6923	1.6923	3.0000e-005	3.0000e-005	1.7023
Total		**0.0724**	**0.6203**	**0.2751**	**3.9600e-003**		**0.0500**	**0.0500**		**0.0500**	**0.0500**		**789.7953**	**789.7953**	**0.0151**	**0.0145**	**794.4887**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments High Rise	0.657835	7.0900e-003	0.0606	0.0258	3.9000e-004		4.9000e-003	4.9000e-003		4.9000e-003	4.9000e-003		77.3923	77.3923	1.4800e-003	1.4200e-003	77.8522
Apartments Mid Rise	5.78097	0.0623	0.5328	0.2267	3.4000e-003		0.0431	0.0431		0.0431	0.0431		680.1143	680.1143	0.0130	0.0125	684.1558
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	0.0957599	1.0300e-003	9.3900e-003	7.8900e-003	6.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004		11.2659	11.2659	2.2000e-004	2.1000e-004	11.3328
Health Club	0.16431	1.7700e-003	0.0161	0.0135	1.0000e-004		1.2200e-003	1.2200e-003		1.2200e-003	1.2200e-003		19.3306	19.3306	3.7000e-004	3.5000e-004	19.4455
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Strip Mall	0.0143844	1.6000e-004	1.4100e-003	1.1800e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		1.6923	1.6923	3.0000e-005	3.0000e-005	1.7023
Total		**0.0724**	**0.6203**	**0.2751**	**3.9600e-003**		**0.0500**	**0.0500**		**0.0500**	**0.0500**		**789.7953**	**789.7953**	**0.0151**	**0.0145**	**794.4887**

6.0 Area Detail

6.1 Mitigation Measures Area

Modera Melrose Mitigated - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	9.1253	5.1294	28.7168	0.0322		0.5376	0.5376		0.5376	0.5376	0.0000	6,204.0427	6,204.0427	0.1642	0.1129	6,241.7797
Unmitigated	9.1253	5.1294	28.7168	0.0322		0.5376	0.5376		0.5376	0.5376	0.0000	6,204.0427	6,204.0427	0.1642	0.1129	6,241.7797

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.5789					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.1786					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.5643	4.8222	2.0520	0.0308		0.3899	0.3899		0.3899	0.3899	0.0000	6,156.0000	6,156.0000	0.1180	0.1129	6,192.5820
Landscaping	0.8035	0.3072	26.6648	1.4100e-003		0.1477	0.1477		0.1477	0.1477		48.0427	48.0427	0.0462		49.1977
Total	**9.1253**	**5.1294**	**28.7168**	**0.0322**		**0.5376**	**0.5376**		**0.5376**	**0.5376**	**0.0000**	**6,204.0427**	**6,204.0427**	**0.1642**	**0.1129**	**6,241.7797**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.5789					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.1786					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.5643	4.8222	2.0520	0.0308		0.3899	0.3899		0.3899	0.3899	0.0000	6,156.0000	6,156.0000	0.1180	0.1129	6,192.5820
Landscaping	0.8035	0.3072	26.6648	1.4100e-003		0.1477	0.1477		0.1477	0.1477		48.0427	48.0427	0.0462		49.1977
Total	**9.1253**	**5.1294**	**28.7168**	**0.0322**		**0.5376**	**0.5376**		**0.5376**	**0.5376**	**0.0000**	**6,204.0427**	**6,204.0427**	**0.1642**	**0.1129**	**6,241.7797**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix B

Health Risk Assessment Output Files

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                                          ***   MODEL SETUP OPTIONS SUMMARY
 ***
 - - -

```
                and:    350 VOLUME source(s)
                and:      0 AREA type source(s)
                and:      0 LINE source(s)
                and:      0 RLINE/RLINEXT source(s)
                and:      0 OPENPIT source(s)
                and:      0 BUOYANT LINE source(s) with a total of     0 line(s)


 **Model Set To Continue RUNning After the Setup Testing.

 **The AERMET Input Meteorological Data Version Date:  19191

 **Output Options Selected:
         Model Outputs Tables of PERIOD Averages by Receptor
         Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE
Keyword)
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE
Keyword)
         Model Outputs Separate Summary File of High Ranked Values (SUMMFILE
Keyword)

 **NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                 m for Missing Hours
                                                                 b for Both Calm and
Missing Hours

 **Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =    92.00 ;  Decay
Coef. =    0.000     ;  Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                                 ;
Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

 **Approximate Storage Requirements of Model =      4.3 MB of RAM.

 **Input Runstream File:          aermod.inp

 **Output Print File:             aermod.out


 **Detailed Error/Message File:   Modera Melrose Construction.err

 **File for Summary of Results:   Modera Melrose Construction.sum

 *** AERMOD - VERSION 21112  ***   *** C:\Users\shalterman\Desktop\HRAs\Modera
Melrose\Modera Melrose Const ***        04/29/22
 *** AERMET - VERSION  19191 ***   ***
                       ***        17:09:50

                                  PAGE   2
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*
```

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***

(1=YES; 0=NO)

```
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1
```

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***

(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

Surface file: Palomar_2016_2018.SFC
Met Version: 19191
Profile file: Palomar_2016_2018.PFL

Surface format: FREE

Profile format: FREE

Surface station no.: 3177 Upper air station no.: 3190
Name: UNKNOWN Name: UNKNOWN

Year: 2016 Year: 2016

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF WS	WD	HT	REF TA	HT
16	01	01	1	01	-17.3	0.179	-9.000	-9.000	-999.	182.	35.4	0.22	0.91	1.00	1.67	34.	7.9	282.0	2.0
16	01	01	1	02	-15.8	0.171	-9.000	-9.000	-999.	170.	32.3	0.22	0.91	1.00	1.60	38.	7.9	281.4	2.0
16	01	01	1	03	-18.4	0.185	-9.000	-9.000	-999.	191.	37.7	0.22	0.91	1.00	1.72	51.	7.9	280.9	2.0
16	01	01	1	04	-18.4	0.185	-9.000	-9.000	-999.	191.	37.7	0.22	0.91	1.00	1.72	33.	7.9	280.9	2.0
16	01	01	1	05	-21.0	0.209	-9.000	-9.000	-999.	230.	48.1	0.22	0.91	1.00	1.93	45.	7.9	279.9	2.0
16	01	01	1	06	-22.8	0.226	-9.000	-9.000	-999.	258.	56.4	0.22	0.91	1.00	2.08	36.	7.9	279.9	2.0
16	01	01	1	07	-12.4	0.151	-9.000	-9.000	-999.	142.	24.9	0.22	0.91	1.00	1.42	34.	7.9	279.9	2.0
16	01	01	1	08	-10.9	0.160	-9.000	-9.000	-999.	153.	33.7	0.22	0.91	0.50	1.48	31.	7.9	282.5	2.0
16	01	01	1	09	30.7	0.192	0.394	0.006	72.	202.	-20.7	0.21	0.91	0.29	1.43	26.	7.9	285.9	2.0
16	01	01	1	10	77.8	0.259	0.826	0.005	260.	317.	-20.2	0.22	0.91	0.22	1.91	45.	7.9	288.1	2.0
16	01	01	1	11	110.0	0.224	1.152	0.005	500.	256.	-9.2	0.27	0.91	0.20	1.38	350.	7.9	289.2	2.0
16	01	01	1	12	125.4	0.249	1.288	0.005	613.	298.	-11.1	0.15	0.91	0.19	1.91	285.	7.9	289.9	2.0
16	01	01	1	13	123.0	0.494	1.454	0.005	899.	832.	-87.8	0.24	0.91	0.19	3.98	244.	7.9	289.2	2.0
16	01	01	1	14	103.8	0.504	1.490	0.005	1145.	859.	-110.9	0.24	0.91	0.20	4.12	256.	7.9	289.9	2.0
16	01	01	1	15	67.8	0.346	1.340	0.010	1274.	508.	-54.7	0.15	0.91	0.23	3.12	279.	7.9	289.2	2.0
16	01	01	1	16	18.3	0.281	0.872	0.011	1303.	361.	-109.3	0.15	0.91	0.32	2.64	278.	7.9	288.1	2.0
16	01	01	1	17	-11.5	0.152	-9.000	-9.000	-999.	153.	27.3	0.31	0.91	0.60	1.26	313.	7.9	287.0	2.0
16	01	01	1	18	-7.3	0.116	-9.000	-9.000	-999.	95.	19.1	0.27	0.91	1.00	1.04	354.	7.9	285.4	2.0
16	01	01	1	19	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.24	0.91	1.00	0.00	0.	7.9	284.2	2.0
16	01	01	1	20	-9.4	0.128	-9.000	-9.000	-999.	110.	20.0	0.12	0.91						

```
1.00    1.45   64.    7.9  283.8    2.0
 16 01 01   1 21   -9.8  0.131 -9.000 -9.000 -999.  114.     20.5  0.12   0.91
1.00    1.48   81.    7.9  283.1    2.0
 16 01 01   1 22   -8.1  0.118 -9.000 -9.000 -999.   98.     18.4  0.12   0.91
1.00    1.35   71.    7.9  282.5    2.0
 16 01 01   1 23   -7.6  0.115 -9.000 -9.000 -999.   93.     17.8  0.12   0.91
1.00    1.31   82.    7.9  282.5    2.0
 16 01 01   1 24  -16.7  0.172 -9.000 -9.000 -999.  172.     32.7  0.12   0.91
1.00    1.91   69.    7.9  282.0    2.0


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 16 01 01 01    7.9 1   34.    1.67   282.1   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
 *** AERMOD - VERSION 21112  ***   *** C:\Users\shalterman\Desktop\HRAs\Modera
Melrose\Modera Melrose Const ***        04/29/22
 *** AERMET - VERSION  19191 ***   ***
                       ***        17:09:50

                                   PAGE   4
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                                        *** THE SUMMARY OF MAXIMUM PERIOD ( 26304
HRS) RESULTS ***


                                    ** CONC OF PM_10    IN MICROGRAMS/M**3
             **


                      NETWORK
GROUP ID                     AVERAGE CONC               RECEPTOR  (XR, YR, ZELEV,
ZHILL, ZFLAG)  OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - -

ALL       1ST HIGHEST VALUE IS      71.48302 AT (  476169.99,  3675735.78,   138.89,
  138.89,    0.00)  DC
          2ND HIGHEST VALUE IS      66.15215 AT (  476172.06,  3675720.24,   138.82,
  138.82,    0.00)  DC
          3RD HIGHEST VALUE IS      58.08178 AT (  476172.41,  3675697.10,   138.65,
  138.65,    0.00)  DC
          4TH HIGHEST VALUE IS      51.40644 AT (  476191.44,  3675749.55,   139.70,
  139.70,    0.00)  GC  UCART4
          5TH HIGHEST VALUE IS      50.69363 AT (  476191.44,  3675729.55,   139.10,
  139.10,    0.00)  GC  UCART4
          6TH HIGHEST VALUE IS      49.11393 AT (  476191.44,  3675769.55,   140.50,
  140.50,    0.00)  GC  UCART4
```

```
         7TH HIGHEST VALUE IS      47.37982 AT (  476191.44,  3675709.55,   138.70,
  138.70,    0.00)  GC  UCART4
         8TH HIGHEST VALUE IS      45.52121 AT (  476175.86,  3675677.06,   138.49,
  138.49,    0.00)  DC
         9TH HIGHEST VALUE IS      44.91525 AT (  476191.44,  3675789.55,   141.10,
  141.10,    0.00)  GC  UCART4
        10TH HIGHEST VALUE IS      41.79675 AT (  476191.44,  3675689.55,   138.40,
  138.40,    0.00)  GC  UCART4


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
 *** AERMOD - VERSION 21112  ***   *** C:\Users\shalterman\Desktop\HRAs\Modera
Melrose\Modera Melrose Const ***        04/29/22
 *** AERMET - VERSION  19191 ***   ***
                       ***        17:09:50

                                  PAGE   5
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                                                *** THE SUMMARY OF HIGHEST  1-HR
RESULTS ***


                                    ** CONC OF PM_10    IN MICROGRAMS/M**3
             **

                                                      DATE
                                         NETWORK
GROUP ID                           AVERAGE CONC     (YYMMDDHH)             RECEPTOR
(XR, YR, ZELEV, ZHILL, ZFLAG)    OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - -

ALL      HIGH   1ST HIGH VALUE IS     231.37043  ON 17020817: AT (  476172.41,
3675697.10,   138.65,   138.65,    0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
 *** AERMOD - VERSION 21112  ***   *** C:\Users\shalterman\Desktop\HRAs\Modera
Melrose\Modera Melrose Const ***        04/29/22
 *** AERMET - VERSION  19191 ***   ***
                       ***        17:09:50

                                  PAGE   6
```

```
*** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------

A Total of            0 Fatal Error Message(s)
A Total of            2 Warning Message(s)
A Total of         2125 Informational Message(s)

A Total of        26304 Hours Were Processed

A Total of         1851 Calm Hours Identified

A Total of          274 Missing Hours Identified (  1.04 Percent)


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
ME W186     827       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
    0.50
ME W187     827       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET
```

HARP2 - HRACalc (dated 22118) 5/11/2022 12:01:49 PM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
Pathway receptors loaded successfully
****
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: All
Calculation Method: Derived

****
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: -0.25
Total Exposure Duration: 1.54

Exposure Duration Bin Distribution
3rd Trimester Bin: 0.25
0<2 Years Bin: 1.54
2<9 Years Bin: 0
2<16 Years Bin: 0
16<30 Years Bin: 0
16 to 70 Years Bin: 0

****
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments. The remaining pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: True
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

****
INHALATION

Daily breathing rate: RMP

Worker Adjustment Factors
Worker adjustment factors enabled: NO

Fraction at time at home
3rd Trimester to 16 years: ON
16 years to 70 years: ON

****
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.02
Soil mixing depth (m): 0.01
Dermal climate: Mixed

****
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment. Please see the input file for details.
Tier2 - What was changed: ED or start age changed|
Calculating cancer risk
Cancer risk breakdown by pollutant and receptor saved to:
\\dudek.int\data\Projects\300.Environmental\13937 Modera Melrose\DUDEK WORK PRODUCTS\3_Tech Studies\AQGHG\HRA\HARP\MODERA MELROSE CONSTRUCTION\hra\Residential-DefaultCancerRisk.csv
Cancer risk total by receptor saved to:
\\dudek.int\data\Projects\300.Environmental\13937 Modera Melrose\DUDEK WORK PRODUCTS\3_Tech Studies\AQGHG\HRA\HARP\MODERA MELROSE CONSTRUCTION\hra\Residential-DefaultCancerRiskSumByRec.csv
Calculating chronic risk
Chronic risk breakdown by pollutant and receptor saved to:
\\dudek.int\data\Projects\300.Environmental\13937 Modera Melrose\DUDEK WORK PRODUCTS\3_Tech Studies\AQGHG\HRA\HARP\MODERA MELROSE CONSTRUCTION\hra\Residential-DefaultNCChronicRisk.csv
Chronic risk total by receptor saved to:
\\dudek.int\data\Projects\300.Environmental\13937 Modera Melrose\DUDEK WORK PRODUCTS\3_Tech Studies\AQGHG\HRA\HARP\MODERA MELROSE CONSTRUCTION\hra\Residential-DefaultNCChronicRiskSumByRec.csv
Calculating acute risk
Acute risk breakdown by pollutant and receptor saved to:
\\dudek.int\data\Projects\300.Environmental\13937 Modera Melrose\DUDEK WORK PRODUCTS\3_Tech Studies\AQGHG\HRA\HARP\MODERA MELROSE CONSTRUCTION\hra\Residential-DefaultNCAcuteRisk.csv
Acute risk total by receptor saved to:
\\dudek.int\data\Projects\300.Environmental\13937 Modera Melrose\DUDEK WORK PRODUCTS\3_Tech Studies\AQGHG\HRA\HARP\MODERA MELROSE CONSTRUCTION\hra\Residential-DefaultNCAcuteRiskSumByRec.csv
HRA ran successfully

HARP2 - HRACalc (dated 22118) 5/11/2022 12:08:45 PM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
Pathway receptors loaded successfully
****
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: All
Calculation Method: Derived

****
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: -0.25
Total Exposure Duration: 1.54

Exposure Duration Bin Distribution
3rd Trimester Bin: 0.25
0<2 Years Bin: 1.54
2<9 Years Bin: 0
2<16 Years Bin: 0
16<30 Years Bin: 0
16 to 70 Years Bin: 0

****
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments. The remaining pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: True
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

****
INHALATION

Daily breathing rate: RMP

Worker Adjustment Factors
Worker adjustment factors enabled: NO

Fraction at time at home
3rd Trimester to 16 years: ON
16 years to 70 years: ON

****
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.02
Soil mixing depth (m): 0.01
Dermal climate: Mixed

****
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment. Please see the input file for details.
Tier2 - What was changed: ED or start age changed|
Calculating cancer risk
Cancer risk breakdown by pollutant and receptor saved to:
\\dudek.int\data\Projects\300.Environmental\13937 Modera Melrose\DUDEK WORK PRODUCTS\3_Tech Studies\AQGHG\HRA\HARP\MODERA MELROSE CONSTRUCTION\hra\Residential-MitigatedCancerRisk.csv
Cancer risk total by receptor saved to:
\\dudek.int\data\Projects\300.Environmental\13937 Modera Melrose\DUDEK WORK PRODUCTS\3_Tech Studies\AQGHG\HRA\HARP\MODERA MELROSE CONSTRUCTION\hra\Residential-MitigatedCancerRiskSumByRec.csv
Calculating chronic risk
Chronic risk breakdown by pollutant and receptor saved to:
\\dudek.int\data\Projects\300.Environmental\13937 Modera Melrose\DUDEK WORK PRODUCTS\3_Tech Studies\AQGHG\HRA\HARP\MODERA MELROSE CONSTRUCTION\hra\Residential-MitigatedNCChronicRisk.csv
Chronic risk total by receptor saved to:
\\dudek.int\data\Projects\300.Environmental\13937 Modera Melrose\DUDEK WORK PRODUCTS\3_Tech Studies\AQGHG\HRA\HARP\MODERA MELROSE CONSTRUCTION\hra\Residential-MitigatedNCChronicRiskSumByRec.csv
Calculating acute risk
Acute risk breakdown by pollutant and receptor saved to:
\\dudek.int\data\Projects\300.Environmental\13937 Modera Melrose\DUDEK WORK PRODUCTS\3_Tech Studies\AQGHG\HRA\HARP\MODERA MELROSE CONSTRUCTION\hra\Residential-MitigatedNCAcuteRisk.csv
Acute risk total by receptor saved to:
\\dudek.int\data\Projects\300.Environmental\13937 Modera Melrose\DUDEK WORK PRODUCTS\3_Tech Studies\AQGHG\HRA\HARP\MODERA MELROSE CONSTRUCTION\hra\Residential-MitigatedNCAcuteRiskSumByRec.csv
HRA ran successfully

Appendix C
Biological Technical Report

DRAFT

Biological Technical Report

Modera Melrose Project

AUGUST 2022

Prepared for:

MILL CREEK RESIDENTIAL TRUST
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Printed on 30% post-consumer recycled material.

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A Plant Species List
B Wildlife Species List
C Special-Status Plant Species with Low Potential and Not Expected to Occur within the Biological Study Area
D Special-Status Wildlife Species Potentially Occurring within the Biological Study Area
E Special-Status Wildlife Species with Low Potential and Not Expected to Occur within the Biological Study Area

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
ESA	federal Endangered Species Act
MBTA	Migratory Bird Treaty Act
MHCP	Multiple Habitat Conservation Program
MM	Mitigation Measure
project	Modera Melrose
RWQCB	Regional Water Quality Control Board
SR	State Route
USFWS	U.S. Fish and Wildlife Service

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Summary of Findings

This biological technical report was prepared to provide the existing conditions of the biological study area and evaluation of the proposed Modera Melrose project (project). The biological study area refers to the approximately 7.4-acre project site analyzed in this report. The Modera Melrose project is in the City of Oceanside in San Diego County. The Oceanside Subarea Plan is used as a guidance document for development projects in the City of Oceanside, but has yet to be approved by the Oceanside City Council. Dudek conducted a reconnaissance survey, vegetation mapping, and rare plant survey in June 2022. This report documents the results of Dudek's fieldwork, and provides an analysis of the biological impacts related to the proposed project.

Based on species composition and general physiognomy, Dudek biologists mapped two vegetation communities and two land covers within the biological study area: Disturbed Diegan coastal sage scrub (0.49 acres), non-native grassland (5.13 acres), ornamental land (0.10 acres), and disturbed habitat (1.67 acres). No special-status rare plant species were observed during the rare plant survey and/or subsequently determined to have a potential to occur. Special-status wildlife species with moderate potential to occur include orange-throated whiptail (*Aspidoscelis hyperythra*), San Diegan tiger whiptail (*Aspidoscelis tigris stejnegeri*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), Bell's sage sparrow (*Artemisiospiza belli belli*), and California horned lark (*Eremophila alpestris actia*). No potentially jurisdictional aquatic features were observed or mapped within the project site. The project site is nearly surrounded by developed and does not contain habitat, topographic features, or direct connections to serve as a wildlife corridor/habitat linkage.

Overall, the proposed project would result in 7.4 acres of permanent impacts associated with grading for and development of the proposed project. There would be significant impacts from the permanent loss of 0.49 acres of Disturbed Diegan coastal sage scrub and 5.13 acres of non-native grassland. Additionally, there would be significant direct and/or indirect effects on special-status vegetation communities, special-status wildlife species and their habitat, jurisdictional resources adjacent to the project site, and wildlife corridors/habitat linkages adjacent to the project site.

Mitigation to reduce these impacts to a less-than-significant level would include designation of habitat mitigation credits for impacts to native vegetation, pre-construction nesting bird surveys, initial and periodic biological monitoring during construction, best management practices, fencing, and prohibition of invasive species in planting palettes.

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1 Introduction

1.1 Purpose of the Report

This biological technical report summarizes the methods and results of biological studies conducted on the Modera Melrose project (project) site to describe the existing conditions of biological resources, including vegetation, jurisdictional resources, flora, wildlife, the potential for special-status species, and wildlife movement. This biological technical report presents the evaluation of the biological significance of these resources and potential project impacts, and recommends measures to avoid, minimize, or mitigate potential impacts where feasible to less-than-significant levels.

1.2 Location and Project Description

1.2.1 Location

The approximately 7.4-acre project site is at the southeast corner of Melrose Drive and West Bobier Drive in the east-central portion of the City of Oceanside on Assessor's Parcel Numbers 161-030-23 and -24. The project site boarders the City of Vista along the project site's eastern boundary line. The project site is approximately 1.6 miles south of State Route (SR) 76 and approximately 2 miles north of SR-78. The project site is surrounded by roads, residential development, and commercial uses (Figure 1, Project Location). It is located on the U.S. Geological Survey 7.5-minute San Luis Rey quadrangle map in Section 13, in Township 11 South, Range 4 West of the San Bernardino Base and Meridian. The approximate center of the project site is at 33.220540, −117.25701 (decimal degrees).

1.2.2 Project Description

The project proposes development of a mixed-use infill project that would include 323 multi-family residential units and ground-level commercial space on the 7.4-acre project site (Figure 2, Proposed Project). The proposed residential development would include 33 affordable/low-income units and 290 market rate units ranging from 666 square feet to 1,429 square feet. Access is proposed from West Bobier Drive and the northeastern corner of the project site. In the event of an emergency, adequate emergency access would be provided via the entrance on West Bobier Drive. Additionally, the development would include 526 parking spaces for residences and guests. The project development would include six buildings, five of which would be four- to five-story residential buildings, and one of which would be a four-story mixed-use building that would include commercial uses on the ground level and three residential levels. The proposed residential units would include one, two, or three bedrooms, living areas, and garage spaces for select units.

1.2.3 Project Terms

Project site. The project site is the approximately 7.4-acre area proposed for the mixed-use residential development. Therefore, the project site consists of all areas within the project site parcels (Assessor's Parcel Numbers 161-030-23 and -24).

Proposed project. The proposed project refers to the proposed residential units, commercial space, parking, garage spaces access, and appurtenant facilities.

Biological study area. The biological study area refers to the project site areas analyzed in this report, and totals approximately 7.4 acres. For this assessment, the biological study area consists of the same area as the project site.

2 Regulatory Context

2.1 Federal

2.1.1 Federal Endangered Species Act

The federal Endangered Species Act (ESA) of 1973 (16 USC 1531 et seq.), as amended, is administered by the U.S. Fish and Wildlife Service (USFWS) for most plant and animal species, and by the National Oceanic and Atmospheric Administration National Marine Fisheries Service for certain marine species. This legislation is intended to provide a means to conserve the ecosystems upon which endangered and threatened species depend, and to provide programs for the conservation of those species, thus preventing extinction of plants and wildlife. The ESA defines an endangered species as "any species that is in danger of extinction throughout all or a significant portion of its range." A threatened species is defined as "any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." Under the ESA, it is unlawful to "take" any listed species; "take" is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."

The ESA allows for the issuance of incidental take permits for listed species under Section 7, which is generally available for projects that also require other federal agency permits or other approvals, and under Section 10, which provides for the approval of habitat conservation plans on private property without any other federal agency involvement. Upon development of a habitat conservation plan, USFWS can issue incidental take permits for listed species.

2.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) was originally passed in 1918 as four bilateral treaties, or conventions, for the protection of a shared migratory bird resource. The primary motivation for the international negotiations was to stop the "indiscriminate slaughter" of migratory birds by market hunters and others. Each of the treaties protects selected species of birds, and provides for closed and open seasons for hunting game birds. The MBTA protects more than 800 species of birds, and prohibits the take of any migratory bird or any part, nest, or eggs of any such bird. Under the MBTA, "take" is defined as pursuing, hunting, shooting, capturing, collecting, or killing, or attempting to do so (16 USC 703 et seq.). Current federal interpretation of the MBTA prohibits incidental take of migratory birds, and applies enforcement discretion associated with incidental take (October 4, 2021, 86 FR 54642–54656).

Two species of eagles that are native to the United States, bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*), were granted additional protection within the United States under the Bald and Golden Eagle Protection Act (16 USC 668–668d) to prevent the species from becoming extinct.

2.1.3 Clean Water Act

Pursuant to Section 404 of the Clean Water Act, the U.S. Army Corps of Engineers regulates the discharge of dredged and/or fill material into "waters of the United States." The term "adjacent wetlands" (a subset of waters of the United States) is defined in Title 33 of the Code of Federal Regulations (CFR), Section 328.3(c)(16) (33 CFR 328.3[c][16]), as "areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil

conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." In the absence of wetlands, the limits of U.S. Army Corps of Engineers jurisdiction in non-tidal waters, such as intermittent streams, extend to the "ordinary high water mark," which is defined in 33 CFR 328.3(c)(7) as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas."

2.2 State

2.2.1 California Endangered Species Act

The California Department of Fish and Wildlife (CDFW) administers the California Endangered Species Act (CESA), which prohibits the "take" of plant and animal species designated by the California Fish and Game Commission as endangered or threatened in the state of California. Under CESA Section 86, take is defined as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA Section 2053 stipulates that state agencies may not approve projects that will "jeopardize the continued existence of any endangered species or threatened species, or result in the destruction or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available consistent with conserving the species or its habitat which would prevent jeopardy."

CESA defines an endangered species as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease." CESA defines a threatened species as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the [California Fish and Game] Commission as rare on or before January 1, 1985, is a threatened species." A candidate species is defined as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the Commission has formally noticed as being under review by the department for addition to either the list of endangered species or the list of threatened species, or a species for which the Commission has published a notice of proposed regulation to add the species to either list." CESA does not list invertebrate species.

CESA authorizes the taking of threatened, endangered, or candidate species if take is incidental to otherwise lawful activity and if specific criteria are met. These provisions also require CDFW to coordinate consultations with USFWS for actions involving federally listed species that are also state-listed species. In certain circumstances, CESA allows CDFW to adopt a CESA incidental take authorization as satisfactory for California Environmental Quality Act (CEQA) purposes based on a finding that the federal permit adequately protects the species and is consistent with state law.

A CESA permit may not authorize the take of "fully protected" species that are protected in other provisions of the California Fish and Game Code, discussed further below.

2.2.2 California Fish and Game Code

Section 3511, Birds; Section 4700, Mammals; Section 5050, Reptiles and Amphibians; and Section 5515, Fish, of the California Fish and Game Code provide that designated fully protected species may not be taken or possessed without a permit. Incidental take of these species is not authorized by law.

Pursuant to Section 3503.5 of the California Fish and Game Code, it is unlawful to take, possess, or destroy any birds of prey; or to take, possess, or destroy any nest or eggs of such birds. Birds of prey refer to species in the orders Falconiformes and Strigiformes.

Nests of all other birds (except English sparrow [*Passer domesticus*] and European starling [*Sturnus vulgaris*]) are protected under Sections 3503 and 3513 of the California Fish and Game Code.

Pursuant to Section 1602 of the California Fish and Game Code, CDFW regulates all diversions, obstructions, and changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. Diversion, obstruction, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife requires authorization from CDFW by means of entering into an agreement pursuant to Section 1602 of the California Fish and Game Code.

2.2.3 Porter–Cologne Water Quality Control Act

The Porter–Cologne Water Quality Control Act (Porter–Cologne Act) protects water quality and the beneficial uses of water. It applies to surface water and groundwater. Under this law, the State Water Resources Control Board develops statewide water quality plans, and the Regional Water Quality Control Boards (RWQCBs) develop regional basin plans that identify beneficial uses, water quality objectives, and implementation plans. The RWQCBs have the primary responsibility to implement the provisions of statewide plans and basin plans. Waters regulated under the Porter–Cologne Act include isolated waters that are not regulated by the U.S. Army Corps of Engineers. RWQCBs regulate discharging waste, or proposing to discharge waste, within any region that could affect a "water of the state" (California Water Code, Section 13260[a]). Waters of the state are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code, Section 13050[e]). Developments with impacts on jurisdictional waters must demonstrate compliance with the goals of the Porter–Cologne Act by developing stormwater pollution prevention plans, standard urban stormwater mitigation plans, and other measures to obtain a Clean Water Act Section 401 certification. If a Clean Water Act Section 404 permit is not required for the project, the RWQCB may still require a permit (i.e., Waste Discharge Requirement) for impacts to waters of the state under the Porter–Cologne Act.

2.2.4 California Environmental Quality Act

CEQA (California Public Resources Code, Section 21000 et seq.) and the CEQA Guidelines (14 CCR 15000 et seq.) require identification of a project's potentially significant impacts on biological resources, and feasible mitigation measures and alternatives that could avoid or reduce significant impacts. CEQA Guidelines Section 15380(b)(1) defines endangered animals or plants as species or subspecies whose "survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors" (14 CCR 15000 et seq.). A rare animal or plant is defined in CEQA Guidelines Section 15380(b)(2) as a species that, although not currently threatened with extinction, exists "in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or … [t]he species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered 'threatened' as that term is used in the federal Endangered Species Act." Additionally, an animal or plant may be presumed to be endangered, rare, or threatened if it meets the criteria for listing, as defined further in CEQA Guidelines Section 15380(c). CEQA also requires identification of a project's potentially significant impacts on riparian habitats (such as wetlands, bays, estuaries, and marshes) and other sensitive natural communities, including habitats occupied by endangered, rare, and threatened species.

In Title 14 of the California Code of Regulations (CCR), Section 1.72 (14 CCR, Section 1.72), CDFW defines a "stream" (including creeks and rivers) as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation."

In 14 CCR 1.56, CDFW's definition of "lake" includes "natural lakes or man-made reservoirs." Diversion, obstruction, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife requires authorization from CDFW by means of entering into an agreement pursuant to Section 1602 of the California Fish and Game Code.

CDFW recognizes that all plants with a California Rare Plant Rank (CRPR) of 1A, 1B, 2, and some ranked 3, of the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants in California (CNPS 2022) may meet the criteria for listing as threatened or endangered and should be considered under CEQA (CDFW 2022a). Some of the CRPR 3 and 4 plants meet the criteria for determination as "rare" or "endangered" as defined in Section 1901, Chapter 10 (Native Plant Protection Act), Division 2, of the California Fish and Game Code, as well as Section 2062 and Section 2067, Chapter 1.5 (CESA), Division 3. Therefore, consideration under CEQA for these CRPR 3 and 4 species is strongly recommended by CNPS (CNPS 2022). For purposes of this report, animals considered "rare" under CEQA include endangered or threatened species, Birds of Conservation Concern (USFWS 2021), California Species of Special Concern (CDFW 2022b), and fully protected species.

Section IV, Appendix G (Environmental Checklist Form) of the CEQA Guidelines (14 CCR 15000 et seq.) requires an evaluation of impacts to "any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service." The criteria used to determine the significance of impacts to biological resources under CEQA are provided in Chapter 6, Anticipated Project Impacts and Analysis of Significance, of this report.

2.3 Local

2.3.1 North County Multiple Habitat Conservation Program

The North County Multiple Habitat Conservation Program (MHCP) is a long-term regional conservation plan established to protect sensitive species and habitats in northern San Diego County. The MHCP is divided into seven Subarea Plans—one for each jurisdiction within the MHCP—that are permitted and implemented separately from one another. The City of Carlsbad is the only city under the MHCP that has an approved and permitted Subarea Plan. The Oceanside Subarea Plan has been prepared and is used as a guidance document for development projects in Oceanside, but the Oceanside Subarea Plan has not been approved or permitted (City of Oceanside 2010).

2.3.2 City of Oceanside Subarea Plan

The overall goal of the Oceanside Subarea Plan is to contribute to regional biodiversity and the viability of rare, unique, or sensitive biological resources throughout Oceanside and the larger region while allowing public and private development to occur consistent with the City of Oceanside's General Plan and Capital Improvement Program. In addition, the Oceanside Subarea Plan calls for the conservation of 90% to 100% of all hardline conservation areas; conservation of a minimum of 2,511 acres of existing native habitats as a biological preserve in Oceanside; conservation of a minimum of 95% of rare and narrow endemic species populations within the

preserve and a minimum of 80% throughout Oceanside as a whole; and restoration of a minimum of 164 acres of coastal sage scrub habitat within Oceanside, of which 145 acres will be within a wildlife corridor planning zone. Parcels within the wildlife corridor planning zone contribute to the north/south regional gnatcatcher steppingstone corridor (City of Oceanside 2010). Although the Oceanside Subarea Plan is used as a guidance document for development projects in Oceanside, the Subarea Plan has yet to be approved by the Oceanside City Council, and incidental take authority has therefore not been transferred to the City of Oceanside from USFWS and CDFW.

The Oceanside Subarea Plan identifies undeveloped lands within Oceanside where conservation and management will achieve the Oceanside Subarea Plan's biological goals while minimizing adverse effects on lands uses, economics, or private property rights. In addition, the Oceanside Subarea Plan establishes preserve planning zones, the existing biological conditions and goals of which were used as foundations for their designation; however, the zones are defined for effective implementation of the Subarea Plan. Brief descriptions of the preserve planning zones are provided below (City of Oceanside 2010):

- **Wildlife Corridor Planning Zone.** The Wildlife Corridor Planning Zone extends from U.S. Marine Corps Base Camp Pendleton south to Buena Vista Creek. This zone varies in width from 1 to 2 miles along most of its length, and is centered roughly on El Camino Real and the associated San Diego Gas & Electric Company electric transmission corridor. It encompasses those habitat parcels that potentially contribute to the north/south regional gnatcatcher steppingstone corridor, recognizing that existing preserve lands north of the San Luis Rey River complete the steppingstone corridor connection to U.S. Marine Corps Base Camp Pendleton. The project site is not within the Wildlife Corridor Planning Zone.
- **Pre-Approved Mitigation Areas.** These areas represent land areas that have significant resource value and therefore qualify for on-site mitigation credit. Development is allowed in Pre-Approved Mitigation Areas, subject to planning guidelines to avoid, minimize, and fully mitigate impacts. The project site is not within a Pre-Approved Mitigation Area.
- **Agricultural Exclusion Zone.** This zone includes lands north of San Luis Rey River that are planned for agricultural uses under the Oceanside General Plan. Ongoing agricultural practices may continue in this area as long as they do not remove existing natural habitats. The project site is not within an Agricultural Exclusion Zone.
- **Off-Site Mitigation Zone.** This zone includes all other parcels within Oceanside that support natural vegetation outside of the Wildlife Corridor Planning Zone, Agricultural Exclusion Zone, and Coastal Zone. The Off-Site Mitigation Zone includes several Pre-Approved Mitigation Areas. In addition, there is less emphasis on impact avoidance within this zone as long as off-site mitigation is directed to the Wildlife Corridor Planning Zone or Pre-Approved Mitigation Areas. The project site is within the Off-Site Mitigation Zone.
- **Coastal Zone.** This zone is all areas within Oceanside's coastal zone where the federal Coastal Zone Management Act and California Coastal Act policies apply. The project site is not within the Coastal Zone.

In addition to preserve planning zones, the Oceanside Subarea Plan also identifies specific "hardline" and "softline" preserves. Generally, hardline preserves are areas that are already preserved to Oceanside Subarea Plan standards, and softline preserves are areas specifically targeted for preservation through application of Subarea Plan standards and policies (City of Oceanside 2010). The project site does not contain, and is not adjacent to, any preserves.

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3 Survey Methods

3.1 Literature Review

Prior to conducting field surveys, Dudek reviewed regional California Natural Diversity Database occurrence data[1] (CDFW 2022c), the California Rare Plant Inventory[1] (CNPS 2022), USFWS occurrence data[1] and critical habitat (USFWS 2022a), the San Diego Geographic Information Source (SanGIS 2022), the National Wetlands Inventory (USFWS 2022b), and the U.S. Department of Agriculture's Natural Resources Conservation Service Web Soil Survey (USDA 2022a) to analyze the occurrence potential of special-status species and jurisdictional waters that are known to occur or may potentially occur within the biological study area.

General information regarding wildlife species present in the region was obtained from Unitt (2004) for birds, Tremor (2017) for mammals, and Stebbins (2018) and California Herps (CaliforniaHerps.com 2022) for reptiles and amphibians.

3.2 Survey Schedule

The 2022 survey and site conditions are presented in Table 1.

Table 1. Survey Details and Conditions

Date	Time	Survey Types	Personnel	Survey Conditions
6/6/2022	8:44 AM–11:42 AM	Reconnaissance survey; vegetation mapping; rare plant survey	Erin Bergman, Leslie Fisher	70–75°F; 0% cloud cover; 0–4 mph wind

3.3 Reconnaissance Survey

Dudek biologists traversed the entire project site by foot and performed a general inventory of plant and animal species detected by sight, calls, tracks, scat, or other signs. The survey area is shown in Figure 3. If detected during the reconnaissance survey, plant and wildlife species commonly accepted as regionally sensitive by CNPS, CDFW, and USFWS were recorded. During the reconnaissance survey, a habitat assessment was conducted for potentially occurring sensitive resources that were not apparent at the time of the survey (e.g., rare annual plants, special-status wildlife species, and raptor nests). In addition, the site was assessed for any potentially jurisdictional aquatic resources.

3.4 Vegetation Mapping

Vegetation communities were evaluated within the biological study area on an aerial map at a 200 scale (1 inch =200 feet). These boundaries and locations were digitized and downloaded by Dudek GIS technicians using

[1] U.S. Geological Survey 7.5-minute San Luis Rey quadrangle and surrounding seven quadrangles: Las Pulgas Canyon, Morro Hill, Bonsall, Oceanside, San Marcos, Encinitas, and Rancho Santa Fe.

ArcGIS software. Vegetation communities and land covers were mapped using the Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1986) as modified by the County of San Diego and noted in Vegetation Communities of San Diego County (Oberbauer et al. 2008).

3.5 Special-Status Plants

Special-status plant species considered in this report are those that are (1) species listed by federal and/or state agencies, proposed for listing as threatened or endangered, or candidate species (CDFW 2022a); (2) species with a CRPR (CNPS 2022); or (3) species listed in the Oceanside Subarea Plan Proposed Covered Species list (City of Oceanside 2010).

A focused survey for special-status plants was conducted on June 6, 2022. A reference check was done before the survey at a nearby site to verify the blooming status of thread-leaf brodiaea (*Brodiaea filifolia*), San Diego button celery (*Eryngium aristulatum* var. *parishii*), and vernal pool pincushion plant (*Navarretia fossalis*). Prior to special-status plant surveys, Dudek evaluated plant records in the San Luis Rey quadrangle and the surrounding seven quadrangles: Las Pulgas Canyon, Morro Hill, Bonsall, Oceanside, San Marcos, Encinitas, and Rancho Santa Fe (CDFW 2022c; CNPS 2022; USFWS 2022a) to determine target species. In addition to Dudek biologists' knowledge of biological resources and regional distribution of each species, elevation, habitat, and soils present within the biological study area were evaluated to determine the potential for various special-status plant species to occur. Field survey methods conformed to CNPS Botanical Survey Guidelines (CNPS 2001); Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities (CDFG 2000); and General Rare Plant Survey Guidelines (Cypher 2002). Figure 4, Regional Species Occurrences, shows the surrounding species occurrences. Surveys were conducted by walking meandering transects throughout the project site to detect special-status species.

3.6 Special-Status Wildlife

All wildlife species detected during the field surveys by sight, vocalizations, burrows, tracks, scat, and other signs were recorded. Binoculars (10×40) were used to aid in the identification of observed wildlife.

Special-status wildlife species considered in this report are those that are (1) listed by federal and/or state agencies, proposed for listing as threatened or endangered, or are candidate species (CDFW 2022b); (2) Species of Special Concern and Birds of Conservation Concern (CDFW 2022b; USFWS 2021); (3) fully protected species (CDFW 2022b); or (4) listed in the Oceanside Subarea Plan Proposed Covered Species list (City of Oceanside 2010). Figure 4 shows the surrounding species occurrences.

4 Physical Characteristics

4.1 Site Description

The project site is currently a disturbed, vacant land. A review of aerial photography (Google Earth 2022) suggests that the majority of the site has experienced periodic disturbance through mowing and/or disking for many years. One dirt access road intersects the property in a slight northeast/southwest direction across the non-native grassland, suggesting prior access for vehicles and/or equipment. The property is partially fenced along the southern and eastern boundaries. The unfenced areas are adjacent to Melrose Drive and West Bobier Drive, which provides opportunities for frequent human access and utilization. Trash, debris, and old straw wattles are present on site, particularly along the southwestern portions of the site. Wall graffiti is also present on a short retaining wall just outside the site boundaries along the southern portion of the site.

The project site supports primarily non-native grasslands and disturbed areas. Ornamental plantings occur along the southeastern edge of the site, which borders an existing residential development. Small and isolated patches of disturbed Diegan coastal sage scrub occur in the western and northwestern portions of the site.

Elevations on site range from approximately 417 feet above mean sea level to 451 feet above mean sea level. The topography is steeper along the southwest, west, and northwest edges of the site, along Melrose Drive and West Bobier Drive. At these locations, the terrain rises quickly from the bike paths, sidewalks, and roadways. From west to east, the topography gently slopes downward toward the middle of the site at its lowest point before rising gently toward the southeast of the site.

4.2 Soils

Soils on site are classified as Tujunga sand (TuB), 0% to 5% slopes; and Diablo clay (DaC), 2% to 9% slopes (USDA 2022a). Tujunga sand is considered a “hydric" soil.” These soil types are “predominantly non-hydric” or “non-hydric” (USDA 2022b). The soils are shown in Figure 5.

4.3 Hydrology

Nearly the entire project site is within the Carlsbad Hydrological Unit (904.00) Loma Alta Hydrological Area (904.10). A very small section of the northwestern edge of the project site is within the San Luis Rey Hydrologic Unit (903.00) Lower San Luis Hydrological Aera (903.11). The U.S. Geological Survey maps this area in the Loma Alta Creek–Frontal Gulf of Santa Catalina Hydrologic Subarea within the San Marcos Creek–Frontal Gulf of Santa Catalina Hydrologic Area within the San Luis Rey–Escondido Hydrologic Unit. Similarly, only the very northwestern edge of the site is within the adjacent Guajome Lake San Luis Rey River Subarea within the Low San Luis Rey River Hydrological Area (Figure 6, Hydrologic Setting). The main drainage in this area is Loma Alta Creek, which runs parallel to Oceanside Boulevard northwest of the project site and drains to the west. Loma Alta Creek outlets into the Pacific Ocean approximately 7 miles west of the site.

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5 Results

5.1 Vegetation Communities

Dudek biologists mapped two vegetation communities and two land covers within the biological study area: Disturbed Diegan coastal sage scrub, non-native grassland, ornamental, and disturbed habitat. See Figure 7, Vegetation Communities, and Table 2.

Table 2. Vegetation Communities and Land Covers

Vegetation/Land Cover Type	Total Acreage
Disturbed Diegan coastal sage scrub	0.49
Non-native grassland	5.13
Ornamental	0.10
Disturbed habitat	1.67
Total*	**7.40**

* May not total due to rounding.

5.1.1 Disturbed Diegan Coastal Sage Scrub

Disturbed Diegan coastal sage scrub is mapped in small, isolated patches along the central-western and northwestern portions of the biological study area. Disturbed Diegan coastal sage scrub is dominated by coyotebrush (*Baccharis pilularis*) and California sagebrush (*Artemisia californica*), and interspersed with California buckwheat (*Eriogonum fasciculatum*) and non-native grasses. The Diegan coastal sage scrub habitat onsite is disturbed with non-native grasses, historical mowing or grading, soil erosion, and soil disturbance. The Diegan coastal sage scrub is in small patches and surrounded by urban development. The site doesn't consist of habitat that would support coastal California gnatcatcher or coastal California gnatcatcher nesting.

5.1.2 Non-Native Grassland

Non-native grassland comprises the majority of the biological study area where it is dominated by naturalized species, including non-native bromes (*Bromus* spp.), oats (Avena sp.), panic veldtgrass (*Ehrharta erecta*), perennial rye grass (*Festuca perennnis*), mouse barley (*Hordeum murinum*), and fountain grass (*Pennisetum setaceum*). As discussed above, the site and areas of non-native grasslands appear to have experienced periodic disturbance through disking and/or mowing for many years.

5.1.3 Ornamental

Ornamental refers to areas where non-native ornamental species and landscaping schemes have been installed and maintained, usually as part of commercial or residential property. The ornamental areas mapped within the biological study area occur along the southeastern edge of the site where the biological study area is bordered by existing residential development. Ornamentals in this area include species such as hottentot fig (*Carpobrotus edulis*), Peruvian peppertree (*Schinus molle*), and similar species.

5.1.4 Disturbed Habitat

Disturbed habitat refers to areas where soils have been recently or repeatedly disturbed by grading, compaction, or clearing of vegetation. Within the biological study area, disturbed habitat includes the dirt access road bisecting the site, areas with barren ground, and areas with evidence of debris and significant ground disturbance that may have occurred from previous ground-disturbing activities. Disturbed habitat on site supports sparse or interspersed non-native species, such as mustard (*Brassica nigra, Hirschfeldia incana*), sowthistle (*Sonchus* sp.), fennel (*Foeniculum vulgare*), and similar species.

5.1.5 Flora and Fauna

A total of 58 plants were observed during the June 2022 survey, consisting of 15 native (26%) and 43 non-native (74%) species. A cumulative list of plant species observed by Dudek biologists during all surveys is presented in Appendix A, Plant Species List. Latin and common names for plant species with a CRPR follow the California Native Plant Society's Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2022). For plant species without a CRPR, Latin names follow the Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California (Jepson Flora Project 2020) and common names follow the California Natural Communities List (CDFW 2022d) or the United States Department of Agriculture Natural Resources Conservation Service's Plants Database (USDA 2022c).

Ten wildlife species were observed during the June 2022 survey, consisting of eight birds, one invertebrate, and one reptile. All wildlife species observed or detected during the surveys were recorded and are presented in Appendix B, Wildlife Species List. Latin and common names of animals follow Crother (2017) for reptiles and amphibians, the American Ornithological Society (AOS 2021) for birds, Wilson and Reeder (2005) for mammals, and the North American Butterfly Association (NABA 2016) or San Diego Natural History Museum (SDNHM 2002) for butterflies.

5.2 Special-Status Plants

No special-status plants were observed during the focused plant surveys in June 2022. Special-status plants evaluated but that have low potential or are not expected to occur are described in Appendix C, Special-Status Plant Species with Low Potential and Not Expected to Occur within the Biological Study Area. The regional context of species occurrences is shown in Figure 4. Although federal critical habitat is designated on the parcel north of West Bobier Drive for thread-leaved brodiaea (*Brodiaea filifolia*), the project site does not contain critical habitat (Figure 8, USFWS Critical Habitat). Further, thread-leaved brodiaea was observed in bloom at a nearby reference site on June 6, 2022, prior to the site-specific survey.

5.3 Special-Status Wildlife

No special-status wildlife were observed during the survey in June 2022. Special-status wildlife species with potential to occur on site are listed in Appendix D, Special-Status Wildlife Species Potentially Occurring within the Biological Study Area. Special-status species with moderate potential to occur include orange-throated whiptail (*Aspidoscelis hyperythra*), San Diegan tiger whiptail (*Aspidoscelis tigris stejnegeri*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), Bell's sage sparrow (*Artemisiospiza belli belli*), and California horned lark (*Eremophila alpestris actia*). Special-status wildlife that occur in the vicinity but do not have potential to occur based on lack of habitat, elevation, or range are included in Appendix E, Special-Status Wildlife Species

with Low Potential and Not Expected to Occur within the Biological Study Area. The regional context of species occurrences is shown in Figure 4. The project site does not contain critical habitat (Figure 8).

5.4 Jurisdictional Resources

No potentially jurisdictional features were mapped within the biological study area. One concrete-lined stormwater control feature (v-ditch) was observed along the southern boundary, but outside of the biological study area. This feature follows the public bike path and appears to collect runoff, including possibly sheet flow runoff associated with the biological study area.

5.5 Wildlife Corridors/Habitat Linkages

The biological study area is outside of the Wildlife Corridor Planning Zone designated by the Oceanside Subarea Plan (City of Oceanside 2010). The site is surrounded by development, which limits movement of larger mammals. One small undeveloped parcel borders the northeastern edge of the site. However, this parcel is small; vacant; appears to be regularly maintained, mowed, or disked; and is also surrounded by development. In addition, an active residential development project (Melrose Heights) is located between the biological study area and the nearest open space area (Guajome Regional Park), located approximately 600 feet north of the site. As a result, there is no direct connection between the biological study area and other natural areas that would support the movement of larger wildlife to or through the biological study area. The small, isolated patches of disturbed Diegan coastal sage scrub may support some common birds, reptiles, invertebrates, and small mammals commonly found in upland scrub and disturbed vegetation.

Urban-adapted species observed or that could commonly occur in the non-native grassland and disturbed areas in the lowlands include desert cottontail (*Sylvilagus audubonii*), western fence lizard (*Sceloporus occidentalis*), common side-blotched lizard (*Uta stansburiana*), horned lark (*Eremophila alpestris*), American crow (*Corvus brachyrhynchos*), house finch (*Haemorhous mexicanus*), and California towhee (*Melozone crissalis*).

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6 Anticipated Project Impacts and Analysis of Significance

This chapter addresses direct, indirect, and cumulative impacts to biological resources that would result from implementation of the proposed project.

Direct impacts are defined as those that result in the direct removal of a biological resource through clearing, grubbing, and/or grading. These impacts are further classified as temporary or permanent: temporary impacts primarily result from staging or work areas outside of the permanent footprint that will be restored to its pre-project conditions, and permanent impacts refer to the buildings, roads, and other permanent structures. As shown in Figure 9, Impacts to Biological Resources, no temporary impacts are proposed; permanent impacts would occur in all areas of the biological study area (i.e., project site).

Indirect impacts primarily result from adverse "edge effects" as either short-term indirect impacts related to construction activities or long-term indirect impacts associated with the proximity of a development to natural areas. Cumulative impacts refer to incremental individual environmental effects over long-term implementation of a project when considered together with other impacts from other projects in an area. These impacts taken individually may be minor, but can become collectively significant as they occur over a period of time.

6.1 Explanation of Findings of Significance

Impacts to special-status vegetation communities, special-status plants, special-status wildlife species, jurisdictional resources, and wildlife movement must be quantified and analyzed to determine whether such impacts are significant under CEQA. CEQA Guidelines Section 15064(b) states that an ironclad definition of "significant" effect is not possible because the significance of an activity may vary with the setting. Appendix G of the CEQA Guidelines, however, does provide "examples of consequences which may be deemed to be a significant effect on the environment" (14 CCR 15064[e]). These effects include substantial effects on rare or endangered species of animals or plants or the habitat of the species. CEQA Guidelines Section 15065(a) is also helpful in defining whether a project may have "a significant effect on the environment." Under Section 15065(a), a project may have a significant effect on the environment if it has the potential to (1) substantially degrade the quality of the environment; (2) substantially reduce the habitat of a fish or wildlife species; (3) cause a fish or wildlife population to drop below self-sustaining levels; (4) threaten to eliminate a plant or animal community; (5) substantially reduce the number or restrict the range of an endangered, rare, or threatened species; or (6) eliminate important examples of a major period of California history or prehistory.

6.2 Direct Impacts

On-site impacts consist of permanent impacts from the proposed project. The permanent impacts consist of the grading and development of the proposed project.

6.2.1 Vegetation Communities

The proposed project would result in permanent direct impacts. These impacts are summarized in Table 3 and shown in Figure 9.

Table 3. Permanent Impacts to Vegetation Communities and Land Covers

Vegetation/Land Cover Type	Impacts (Acres)	Mitigation	
	Development	Ratio[b]	Acres Required
Disturbed Diegan coastal sage scrub	0.49	1:1	.49
Non-native grassland	5.13	0.5:1	2.57
Ornamental	0.10	0	0
Disturbed habitat	1.67	0	0
Total[a]	**7.40**	—	**3.06**

[a] Acreages may not sum precisely due to rounding.
[b] Per Table 5-2 of the Oceanside Subarea Plan (City of Oceanside 2010).

The project site is within the Oceanside Subarea Plan Offsite Mitigation Zone. Therefore, impacts to disturbed Diegan coastal sage scrub and non-native grassland require mitigation per Table 5-2, Mitigation Standards for Impacts to Natural Vegetation and Habitat, of the Oceanside Subarea Plan (City of Oceanside 2010). Due to the low quality of the disturbed Diegan coastal sage scrub (small size, soil disturbance, lack of habitat for Coastal California gnatcatcher) a mitigation ratio of 1:1 is assumed. Permanent impacts to these vegetation communities would be a potentially significant impact. The permanent loss of these vegetation communities would be mitigated to less than significant through the conservation of native habitats, as described in Mitigation Measure (MM) BIO-1 (Habitat Mitigation), provided in Section 7.1, Minimization and Mitigation Measures. Permanent impacts to ornamental areas totaling 0.10 acres and disturbed habitat totaling 1.67 acres would be less than significant and no mitigation is required.

6.2.2 Special-Status Plant Species

No special-status plants were observed during focused survey in June 2022. In addition, Dudek biologists' habitat evaluation of special-status plants, including those with a blooming period outside of the June site visit, determined that special-status plants have a low potential to occur or not expected, as described in Appendix C. Therefore, the project would not result in direct impacts to special-status plant species.

6.2.3 Special-Status Wildlife Species

Special-status species with moderate potential to occur on site are listed in Appendix D and include orange-throated whiptail, San Diegan tiger whiptail, Southern California rufous-crowned sparrow, Bell's sage sparrow, and California horned lark. These species would primarily occur in the disturbed Diegan coastal sage scrub, but could occasionally use the non-native grassland on site. Impacts to the non-native grassland could result in loss of foraging and/or breeding and nesting habitat for these species, and would be a potentially significant impact. The permanent loss of habitat would be mitigated to less than significant through the conservation of native habitats, as described in MM-BIO-1 (Habitat Mitigation), provided in Section 7.1.

Special-status wildlife that occur in the vicinity of the project site but do not have potential to occur based on lack of habitat, elevation, or range are listed in Appendix E.

The California Fish and Game Code protects bird nests, and the MBTA prohibits the intentional take of any migratory bird or any part, nest, or eggs of any such bird. If clearing, grubbing, or other activities that result in the removal of

vegetation occur during the nesting bird season, any impacts to active nests or the young of nesting bird species would be potentially significant. This impact would be mitigated to less than significant through nesting bird surveys and establishment of appropriate buffers, as described in MM-BIO-2 (Nesting Bird Surveys), provided in Section 7.1.

6.2.4 Jurisdictional Resources

No potentially jurisdictional features were mapped within the biological study area. Therefore, no direct impacts to jurisdictional resources would occur as a result of the project.

6.2.5 Wildlife Corridors/Habitat Linkages

The biological study area is outside of the Wildlife Corridor Planning Zone designated by the Oceanside Subarea Plan (City of Oceanside 2010). The site is surrounded by development, which limits movement of larger mammals. One small undeveloped parcel borders the northeastern edge of the site. However, this parcel is small and vacant; appears to be regularly maintained, mowed, or disked; and is also surrounded by development. In addition, an active residential development project (Melrose Heights) is located between the biological study area and the nearest open space area (Guajome Regional Park), located approximately 600 feet north of the site. As a result, there is no direct connection between the biological study area and other natural areas that would support the movement of larger wildlife to or through the biological study area. The small, isolated patches of disturbed Diegan coastal sage scrub may support some common birds, reptiles, invertebrates, and small mammals commonly found in upland scrub. Therefore, no impacts to wildlife corridors or habitat linkages would occur as a result of the proposed project.

6.3 Indirect Impacts

6.3.1 Vegetation Communities and/or Special-Status Plants

Short-Term Indirect Impacts

Potential short-term or temporary indirect impacts to any special-status vegetation communities and special-status plants adjacent to the biological study area (if they occur) would primarily result from construction activities and include impacts related to or resulting from the generation of fugitive dust; changes in hydrology resulting from construction, including sedimentation and erosion; and the introduction of chemical pollutants (including herbicides). These impacts are described in detail in the following paragraphs and would be mitigated to less than significant through implementation of MM-BIO-3 (Biological Monitoring) and MM-BIO-4 (Temporary Installation of Fencing), provided in Section 7.1.

Generation of Fugitive Dust

Excessive dust can decrease the vigor and productivity of vegetation through effects on light, penetration, photosynthesis, respiration, transpiration, increased penetration of phytotoxic gaseous pollutants, and increased incidence of pests and diseases.

Changes in Hydrology

Construction could result in hydrologic impacts adjacent to and downstream of the limits of grading.

Chemical Pollutants

Erosion, sedimentation, and chemical pollution (releases of fuel, oil, lubricants, paints, release agents, and other construction materials) may affect special-status vegetation communities and/or special-status plants. The use of chemical pollutants can decrease the number of plant pollinators, increase the existence of non-native plants, and cause damage to and destruction of native plants.

Long-Term Indirect Impacts

Long-term (operation-related) or permanent indirect impacts could result from the proposed project to special-status vegetation communities and/or special-status plants adjacent to the site (if they occur) after construction. Permanent indirect impacts that could affect special-status vegetation communities include chemical pollutants, altered hydrology, non-native invasive species, and increased human activity. Each of these potential indirect impacts is discussed in the following paragraphs and would be mitigated through implementation of MM-BIO-3 (Biological Monitoring) and MM-BIO-5 (Invasive Species Prohibition), provided in Section 7.1.

Chemical Pollutants

The effects of chemical pollutants on vegetation communities and special-status plant species are described above. During landscaping activities, herbicides may be used to prevent vegetation from reoccurring around structures. However, weed control treatments would include only legally permitted chemical, manual, and mechanical methods. Additionally, the herbicides used during landscaping activities would be contained within the project site.

Altered Hydrology

Water would be used for landscaping purposes that may alter the on-site hydrologic regime. These hydrologic alterations may affect special-status vegetation communities and special-status plant communities. Altered hydrology can allow for the establishment of non-native plants and invasion by Argentine ants (*Linepithema humile*), which can compete with native ant species that could be seed dispersers or plant pollinators. However, the water, and associated runoff, used during landscaping activities would be contained within the project site, and long-term indirect impacts associated with altered hydrology are not expected because the storm drain design proposed for the project would mitigate flood and water quality impacts such that no adjacent properties would be negatively impacted from runoff generated by the development (Kimley-Horn and Associates 2021).

Non-Native, Invasive Plant and Animal Species

Invasive plant species that thrive in edge habitats are a well-documented problem in Southern California and throughout the United States. Bossard et al. (2000) list several adverse effects of non-native species in natural open areas, including exotic plant competition for light, water, and nutrients, and the formation of thatches that block sunlight from reaching smaller native plants. Exotic plant species may alter habitats and displace native species over time, leading to extirpation of native plant species and unique vegetation communities. The introduction of non-native, invasive animal species could negatively affect native species that may be pollinators or seed dispersal agents for plants within vegetation communities and special-status plant populations. However, the project site is in a vacant lot that appears to have experienced periodic disturbance through disking and/or mowing activities. The majority of the site is already disturbed by non-native species and human activity.

Increased Human Activity

The proposed development would contain ground-level commercial space and 323 multi-family residential units ranging from 666 square feet to 1,429 square feet. Increased human activity could result in trampling of vegetation and soil compaction, and could affect the viability of plant communities. Trampling can alter the ecosystem, creating gaps in vegetation, and allow exotic, non-native plant species to become established, leading to soil erosion. Trampling may also affect the rate of rainfall interception and evapotranspiration, soil moisture, water penetration pathways, surface flows, and erosion. An increased human population would increase the risk for damage to vegetation communities and/or special-status plants if they occur adjacent to the site.

6.3.2 Special-Status Wildlife Species

Short-Term Indirect Impacts

Short-term, construction-related, or temporary indirect impacts to special-status wildlife species that occur within the biological study area (e.g., orange-throated whiptail, San Diegan tiger whiptail, southern California rufous-crowned sparrow, Bell's sage sparrow, and California horned lark) would primarily result from construction activities. Potential temporary indirect impacts could occur as a result of generation of fugitive dust, noise, chemical pollutants, and increased human activity. These impacts are described in detail in the following paragraphs and would be mitigated to less than significant through implementation of MM-BIO-3 (Biological Monitoring) and MM- BIO-4 (Temporary Installation of Fencing), provided in Section 7.1.

Generation of Fugitive Dust

Dust and applications for fugitive dust control can impact vegetation surrounding the limits of grading, resulting in changes in the community structure and function. These changes could result in impacts to suitable habitat for special-status wildlife species.

Noise

Construction-related noise could occur from equipment used during vegetation clearing and construction of the residences and associated infrastructure. Noise impacts can have a variety of indirect impacts on wildlife species, including increased stress, weakened immune systems, altered foraging behavior, displacement due to startle, degraded communication with conspecifics (e.g., masking), damaged hearing from extremely loud noises, and increased vulnerability to predators (Lovich and Ennen 2011; Brattstrom and Bondello 1983, cited in Lovich and Ennen 2011).

Chemical Pollutants

Accidental spills of hazardous chemicals could contaminate nearby surface waters and groundwater, and indirectly impact wildlife species through poisoning or altering suitable habitat.

Increased Human Activity

Increased human activity associated with construction activities can deter wildlife from using habitat areas near the project site.

Long-Term Indirect Impacts

Potential long-term or permanent indirect impacts to special-status wildlife species that could occur within the biological study area include increased non-native, invasive plant and animal species and increased human activity. These impacts are described in detail in the following paragraphs and would be mitigated to less than significant through implementation of MM-BIO-3 (Biological Monitoring) and MM-BIO-5 (Invasive Species Prohibition), provided in Section 7.1.

Non-Native, Invasive Plant and Animal Species

Invasive plant species that thrive in edge habitats are a well-documented problem in Southern California and throughout the United States. Development could also fragment native plant populations, which may increase the likelihood of invasion by exotic plants due to the increased interface between natural habitats and developed areas. Bossard et al. (2000) list several adverse effects of non-native species in natural open areas, including the fact that exotic plants compete for light, water, and nutrients, and can create a thatch that blocks sunlight from reaching smaller native plants. Exotic plant species may alter habitats and displace native species over time, leading to extirpation of native plant species and subsequently suitable habitat for special-status wildlife species. However, the project site is in an area already disturbed by non-native species and human disturbance.

Increased Human Activity

The proposed development would contain ground-level commercial space and 323 multi-family residential units ranging from 666 square feet to 1,429 square feet. Increased human activity could result in trampling of vegetation and soil compaction, which could affect the viability and function of suitable habitat for wildlife species. An increased human population increases the risk for damage to suitable habitat for wildlife species. In addition, increased human activity can deter wildlife from using habitat areas near the project site. However, the project site is in an area already disturbed by non-native species and human disturbance.

Collision

The proposed development would include non-reflective glass windows to help reduce potential bird collisions with windows.

6.3.3 Jurisdictional Resources

Short-Term Indirect Impacts

Potential short-term or temporary indirect impacts to jurisdictional resources adjacent to the biological study area would primarily result from construction activities and include impacts related to or resulting from the generation of fugitive dust; changes in hydrology resulting from construction, including sedimentation and erosion; and the introduction of chemical pollutants, including herbicides. Potential short-term indirect impacts that could affect jurisdictional aquatic resources adjacent to the biological study area are described in detail in the following paragraphs and would be mitigated to less than significant through implementation of MM-BIO-3 (Biological Monitoring) and MM-BIO-4 (Temporary Installation of Fencing), provided in Section 7.1.

Generation of Fugitive Dust

As stated above, excessive dust can decrease the vigor and productivity of vegetation through effects on light, penetration, photosynthesis, respiration, and transpiration, as well as increased penetration of phytotoxic gaseous pollutants and increased incidence of pests and diseases.

Changes in Hydrology

Construction could result in hydrologic and water-quality-related impacts adjacent to and downstream of the construction area. The effects of changes in hydrology would be similar to those described in Section 6.3.1, Vegetation Communities and/or Special-Status Plants.

Chemical Pollutants

Erosion and chemical pollution (releases of fuel, oil, lubricants, paints, release agents, and other construction materials) may affect jurisdictional resources. The use of chemical pollutants can decrease the number of plant pollinators, increase the existence of non-native plants, and cause damage to and destruction of native plants.

Long-Term Indirect Impacts

Long-term (operation-related) or permanent indirect impacts could result from the proximity of the proposed project to jurisdictional aquatic resources after construction. Permanent indirect impacts that could affect jurisdictional aquatic resources include chemical pollutants, altered hydrology, non-native invasive species, and increased human activity. Each of these potential indirect impacts is discussed in detail in the following paragraphs and would be mitigated to less than significant through implementation of MM-BIO-3 (Biological Monitoring) and MM-BIO-5 (Invasive Species Prohibition), provided in Section 7.1.

Chemical Pollutants

The effects of chemical pollutants on jurisdictional resources are described above.

Altered Hydrology

Water used for landscaping purposes may alter the adjacent hydrologic regime. These hydrologic alterations may affect nearby jurisdictional resources. However, the water, and associated runoff, used during landscaping activities would be contained within the project site, and long-term indirect impacts associated with altered hydrology are not expected because the storm drain proposed for the project is designed to mitigate flood and water quality impacts such that no adjacent properties would be negatively impacted from runoff generated by the development (Kimley-Horn and Associates 2021).

Non-Native, Invasive Plant and Animal Species

The effects of non-native, invasive plant and animal species would be similar to those described in Section 6.3.1. The introduction of non-native, invasive animal species could negatively affect native species that may be pollinators of or seed dispersal agents for plants within nearby jurisdictional resources. However, the project site is in an area already disturbed by non-native species and human disturbance.

Increased Human Activity

The effects of increased human activity would be similar to those described in Section 6.3.1. An increased human population increases the risk for damage to jurisdictional resources occurring adjacent to the site.

6.3.4 Wildlife Corridors/Habitat Linkages

Short-Term Indirect Impacts

Short-term indirect impacts to habitat connectivity and wildlife corridors could result from increased human activity. These impacts are described in detail in the following paragraphs and would be mitigated to less than significant through implementation of MM-BIO-3 (Biological Monitoring) and MM-BIO-4 (Temporary Installation of Fencing), provided in Section 7.1.

Increased Human Activity

Project construction would occur during the daytime and would not affect wildlife species, such as mammals, that are most active in evenings and nighttime. Wildlife species such as birds, rabbits, and lizards are active in the daytime, but use a variety of habitats and could continue using other areas adjacent to the biological study area for wildlife movement.

Long-Term Indirect Impacts

Long-term indirect impacts include increased human activity and lighting. These impacts are described in detail below and would be mitigated to less than significant through implementation of MM-BIO-4 (Biological Monitoring) and MM-BIO-6 (Invasive Species Prohibition), provided in Section 7.1.

Increased Human Activity

The proposed project would contain ground-level commercial space and 323 multi-family residential units ranging from 666 square feet to 1,429 square feet. Increased human activity can deter wildlife from using habitat areas near the proposed project. However, the project site is in an area already disturbed by non-native species and human disturbance.

6.4 Cumulative Impacts

The cumulative biological study area is the area covered by the Oceanside Subarea Plan (City of Oceanside 2010). Direct impacts to special-status plant species and special-status wildlife could occur due to project implementation but would be mitigated per the Oceanside Subarea Plan, and therefore would not contribute to any cumulative sensitive species impacts. The project would implement standard best management practices, which would avoid contributions toward a cumulative indirect impact to special-status wildlife species and sensitive habitats. As with all other projects, the proposed project would be required to comply with the California Fish and Game Code and MBTA to avoid impacts to nesting birds. Therefore, the project is not anticipated to result in significant cumulative impacts to regional biological resources.

7 Avoidance, Minimization, and Mitigation Measures

The project would have potential direct and/or indirect significant impacts to vegetation communities, special-status wildlife species, potential jurisdictional resources, and wildlife corridors/habitat linkages.

7.1 Minimization and Mitigation Measures

The following minimization and mitigation measures would be implemented to reduce potential direct and indirect impacts to less than significant.

MM-BIO-1 Habitat Mitigation**.** The applicant shall mitigate for impacts to disturbed Diegan coastal sage and non-native grassland in accordance with Table 5-2, Mitigation Standards for Impacts to Natural Vegetation and Habitat, in the 2010 City of Oceanside Subarea Plan which states that mitigation shall occur at a ratio of 3:1 forcoastal sage scrub and 0.5:1 for non-native grassland. However, due to the high level of disturbance of the coastal sage scrub onsite, small patches of habitat and soil disturbance within the coastal sagescrub a 1:1 mitigation ratio is applied. Therefore .49 acres of coastal sage scrub and 2.57 acres of non-native grassland will be required for project related impacts. Mitigation shall include preservation of any lands within the Wildlife Corridor Planning Zone and south of State Route 76, or any land within the Wildlife Corridor Planning Zone and north of State Route 76, or any Preapproved Mitigation Area within the City of Oceanside. Mitigation may also include purchase credits within an existing mitigation bank.

MM-BIO-2 Nesting Bird Surveys. Construction-related ground-disturbing activities (e.g., clearing/grubbing, grading, and other intensive activities) that occur during the breeding season (typically January 15 through August 31) shall require a survey for nesting bird species to be conducted on or within 300 feet of the construction area for non-listed nesting migratory birds, and within 500 feet of the construction area for federally or state-listed birds and raptors. This survey is necessary to ensure avoidance of impacts to nesting raptors and/or birds protected by the federal Migratory Bird Treaty Act and California Fish and Game Code, Sections 3503 and 3513.

The pre-construction survey must be conducted within 10 calendar days prior to the start of construction. The results of the survey must be submitted to the City of Oceanside (City) for review and approval prior to initiating any construction activities. If nesting birds are detected by the City-approved biologist, the following buffers shall be established: (1) no work within 300 feet of a non-listed nesting migratory bird nest, and (2) no work within 500 feet of a listed bird or raptor nest. However, the City may reduce these buffer widths depending on site-specific conditions (e.g., the width and type of screening vegetation between the nest and proposed activity) or the existing ambient level of activity (e.g., existing level of human activity within the buffer distance). If construction must take place within the recommended buffer widths, the project applicant shall contact the City and Wildlife Agencies to determine the appropriate buffer. Once the nest is no longer occupied for the season, construction may proceed in the setback areas.

If construction activities, particularly clearing/grubbing, grading, and other intensive activities, stop for more than 3 days, an additional nesting bird survey shall be conducted within the proposed impact area.

MM-BIO-3 Biological Monitoring. To prevent inadvertent disturbance to areas outside the limits of grading for each phase, all grading of native habitat shall be monitored by a biologist. The biological monitor(s) shall be contracted to perform biological monitoring during all clearing and grubbing activities.

The project biologist(s) also shall perform the following duties:

a. Attend the pre-construction meeting with the contractor and other key construction personnel prior to clearing and grubbing to reduce conflict between the timing and location of construction activities with other mitigation requirements (e.g., seasonal surveys for nesting birds).
b. During clearing and grubbing, the project biologist shall conduct meetings with the contractor and other key construction personnel each morning prior to construction activities to go over the proposed activities for the day, and for the monitor(s) to describe the importance of restricting work to designated areas and of minimizing harm to or harassment of wildlife prior to clearing and grubbing.
c. Review and/or designate the construction area in the field with the contractor in accordance with the final grading plan prior to clearing and grubbing.
d. Supervise and monitor the initial vegetation clearing and grubbing weekly to ensure against direct and indirect impacts to biological resources (e.g., reptiles or biological resources adjacent to the site) that are intended to be protected, and to document that protective fencing is intact.
e. Flush wildlife species (i.e., reptiles, mammals, avian, or other mobile species) from occupied habitat areas immediately prior to brush-clearing activities. This does not include disturbance to nesting birds (see MM-BIO-2).
f. Periodically monitor the construction site to verify that the project is implementing the Stormwater Quality Management Plan best management practices, including dust control, silt fencing, removal of construction debris and a clean work area, covered trash receptacles that are animal-proof and weather-proof, prohibition of pets on the construction site, and a speed limit of 15 miles per hour.
g. Keep monitoring notes for the duration of the project for submittal in a final report to substantiate the biological supervision of the vegetation clearing and grading activities and the protection of any biological resources on or adjacent to the site.
h. Prepare a monitoring report after the construction activities are completed that describes the biological monitoring activities, including a monitoring log; photos of the site before, during, and after the grading and clearing activities; and a list of special-status species observed.

MM-BIO-4 Temporary Installation of Fencing. To prevent inadvertent disturbance to areas outside the limits of grading for each phase, the contractor shall install temporary fencing, or use existing fencing, along the limits of grading.

MM-BIO-5 Invasive Species Prohibition. The final landscape plans shall be reviewed by the project biologist and a qualified botanist to confirm that there are no invasive plant species as included on the most recent version of the California Invasive Plant Council's inventory for the project region.

7.2 Regional Resource Planning Context – Compliance Review

City of Oceanside MHCP Subarea Plan

The project site is not within a preserve, nor does it include any wetlands or riparian areas on site or adjacent to the site. With implementation of the mitigation measures provided in Section 7.1, this project will be in compliance with the Oceanside MHCP Subarea Plan.

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8 References

AOS (American Ornithological Society). 2021. "North and Middle American Checklist." Accessed July 6, 2021. https://americanornithology.org/publications/north-and-middle-american-checklist/.

Bossard, C.C., J.M. Randall, and M.C. Hoshovsky, eds. 2000. *Invasive Plants of California's Wildlands*. Berkeley, Los Angeles, and London: University of California Press.

CaliforniaHerps.com. 2022. "California Herps: A Guide to the Amphibians and Reptiles of California." Accessed July 2022. http://californiaherps.com/.

CDFG (California Department of Fish and Game). 2000. *Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities*. December 1983, revised May 8, 2000.

CDFW (California Department of Fish and Wildlife). 2022a. "State and Federally Listed Endangered, Threatened, and Rare Plants of California. California Natural Diversity Database. Sacramento: CDFW, Biogeographic Branch. July 2022. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109390&inline

CDFW (California Department of Fish and Wildlife). 2022b. "Special Animals List." California Natural Diversity Database. Sacramento: CDFW, Biogeographic Branch. July 2022. https://www.dfg.ca.gov/wildlife/nongame/list.html.

CDFW. 2022c. RareFind, Version 5. California Natural Diversity Database (Commercial Subscription). Sacramento: CDFW, Biogeographic Data Branch. Accessed July 2022. https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data.

CDFW. 2022d. "California Natural Communities List." Sacramento: CDFW. July 5, 2022. Accessed July 2022. https://www.wildlife.ca.gov/Data/VegCAMP/Natural-Communities.

City of Oceanside. 2010. *Final Oceanside Subarea Plan*. Accessed July 2022. https://www.ci.oceanside.ca.us/gov/dev/planning/subarea.asp.

CNPS (California Native Plant Society). 2001. *Botanical Survey Guidelines*.

CNPS. 2022. *Inventory of Rare and Endangered Plants of California* (online edition, v9-01 1.5). Accessed July 2022. http://www.rareplants.cnps.org.

Crother, B.I. 2017. *Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, with Comments Regarding Confidence in our Understanding*, edited by J.J. Moriarty. 8th ed. Society for the Study of Amphibians and Reptiles (SSAR); Herpetological Circular No. 43.

Cypher, E.A. 2002. "General Rare Plant Survey Guidelines." Bakersfield, California: California State University, Stanislaus, Endangered Species Recovery Program. Revised July 2002. http://www.fws.gov/sacramento/ES/Survey-Protocols-Guidelines/Documents/rare_plant_protocol.pdf.

Google Earth. 2022. Earth.google.com

Holland, R.F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. Nongame-Heritage Program, California Department of Fish and Game. October 1986.

Jepson Flora Project. 2020. Jepson eFlora. Berkeley, California: University of California. Accessed December 6, 2020. http://ucjeps.berkeley.edu/interchange/index.html.

Kimley-Horn and Associates. 2021. *Modera Melrose Project No. D21-00011 Drainage Report*. Prepared for Mill Creek Residential Trust. Prepared by Kimley Horn and Associates Inc. December 2021.

Lovich, J.E., and J.R. Ennen. 2011. "Wildlife Conservation and Solar Energy Development in the Desert Southwest, United States." *BioScience* 61(12): 982–992.

NABA (North American Butterfly Association). 2016. "Checklist of North American Butterflies Occurring North of Mexico." Adapted from North American Butterfly Association (NABA) Checklist & English Names of North American Butterflies, eds. B. Cassie, J. Glassberg, A. Swengel, and G. Tudor. 2nd ed. Morristown, New Jersey: NABA. Accessed February 23, 2017. http://www.naba.org/pubs/enames2_3.html.

Oberbauer, T., M. Kelly, and J. Buegge. 2008. *Draft Vegetation Communities of San Diego County*. Based on "Preliminary Descriptions of the Terrestrial Natural Communities of California," R.F. Holland, October 1986. March 2008.

SanGIS (San Diego Geographic Information Source). 2022. San Diego Geographic Information Source. Accessed July 2022. http://www.sangis.org/.

SDNHM (San Diego Natural History Museum). 2002. "Butterflies of San Diego County. Revised September 2002." http://www.sdnhm.org/archive/research/entomology/sdbutterflies.html.

Stebbins, R.C. 2018. *A Field Guide to Western Reptiles and Amphibians.* 4th ed. Peterson Field Guide Series. Boston, Massachusetts: Houghton Mifflin Company.

Tremor, S., ed. 2017. *San Diego County Mammal Atlas*. Illustrated by J. Zee. San Diego, California: San Diego Natural History Museum.

Unitt, P. 2004. *San Diego County Bird Atlas*. San Diego, California: San Diego Natural History Museum.

USDA (U.S. Department of Agriculture). 2022a. Web Soil Survey. USDA Natural Resources Conservation Service, Soil Survey Staff. Accessed July 2022. https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx.

USDA. 2022b. "State Soil Data Access (SDA) Hydric Soils List." https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcseprd1389479.html.

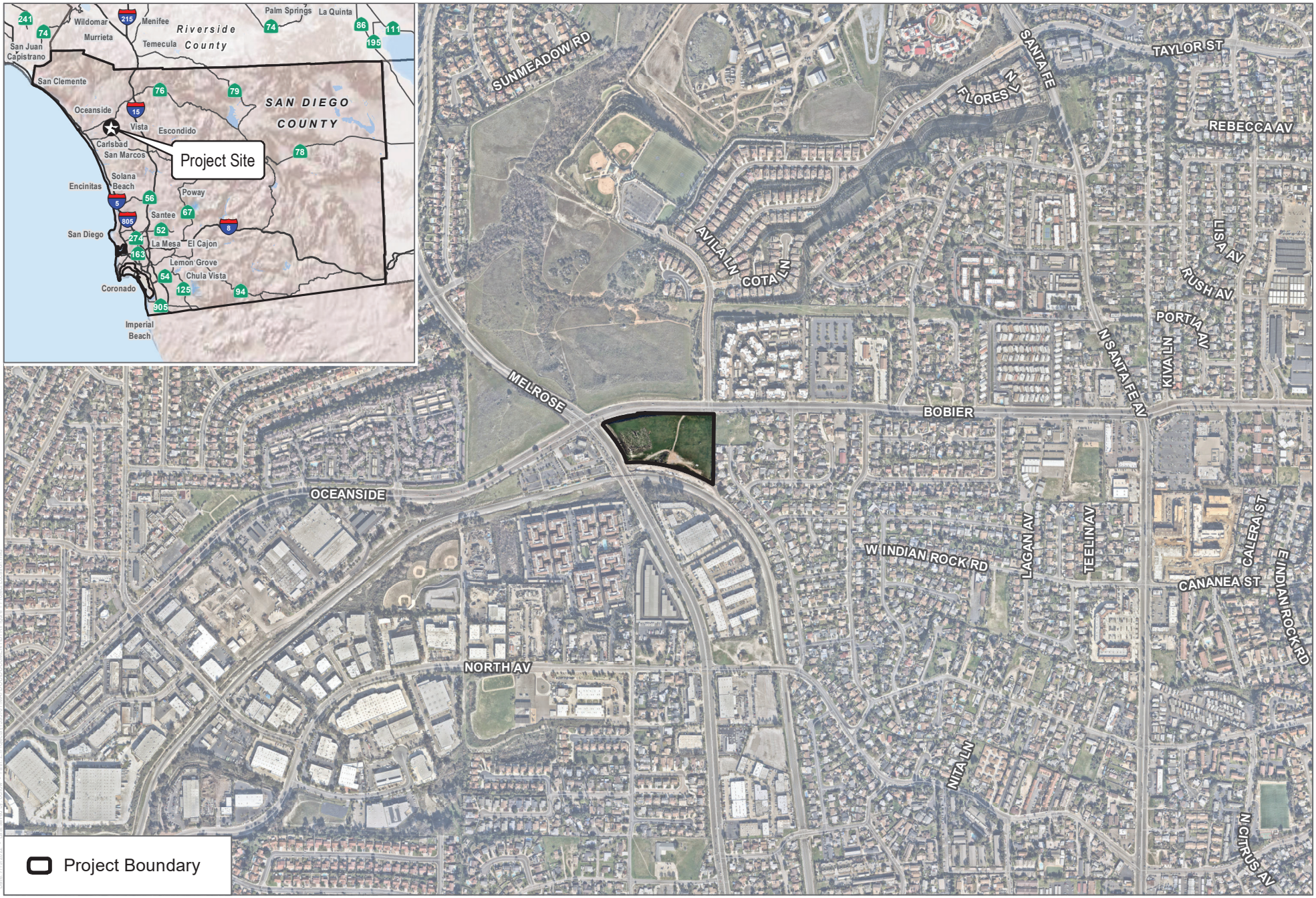
USDA. 2022c. PLANTS Database. https://plants.usda.gov/home.

USFWS (U.S. Fish and Wildlife Service). 2021. "Birds of Conservation Concern 2021, Migratory Bird Program." Accessed July 2022. https://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php.

USFWS. 2022a. "Critical Habitat and Occurrence Data" [map]. USFWS Geospatial Services. Accessed July 2022. http://www.fws.gov/data.

USFWS. 2022b. "National Wetlands Inventory (NWI) Wetlands Mapper." Accessed July 2022. https://www.fws.gov/program/national-wetlands-inventory/wetlands-mapper.

Wilson, D.E., and D.M. Reeder, eds. 2005. *Mammal Species of the World: A Taxonomic and Geographic Reference*. 3rd ed. Baltimore, Maryland: Johns Hopkins University Press.



SOURCE: SANGIS 2019

DUDEK

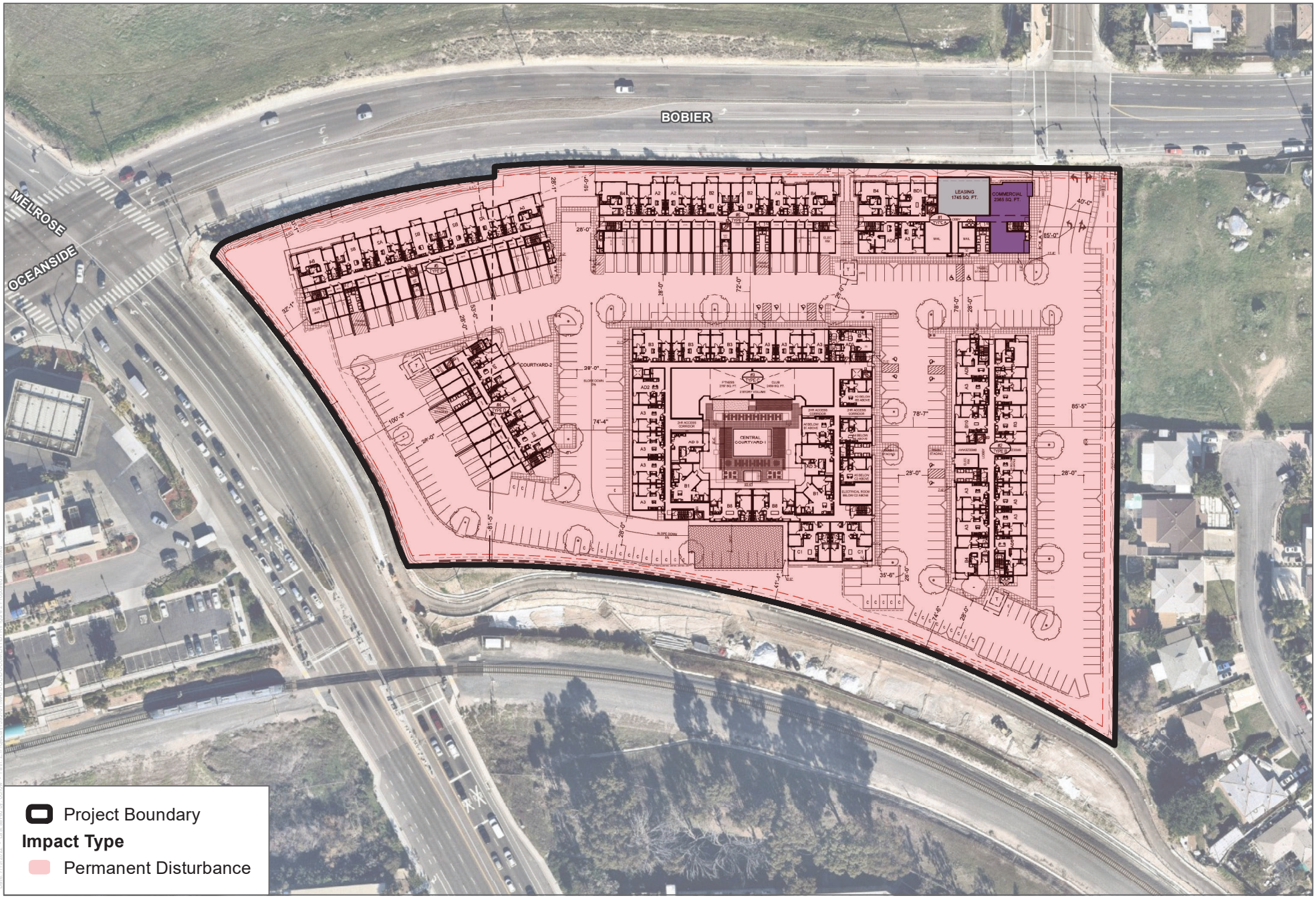
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FIGURE 1

Project Location

Modera Melrose Project

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SOURCE: SANGIS 2019, AO Architects 2021

DUDEK

0 100 200 Feet

FIGURE 2

Proposed Project

Modera Melrose Project

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SOURCE: SANGIS 2019, Dudek 2022

DUDEK

0 100 200 Feet

FIGURE 3

Survey Area

Modera Melrose Project

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SOURCE: SANGIS 2019, SanBIOS 2009, CA Dept. of Fish and Wildlife 2021

DUDEK

0 400 800 Feet

FIGURE 4

Regional Species Occurrences

Modera Melrose Project

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SOURCE: SANGIS 2019, CA Dept. of Conservation 2018

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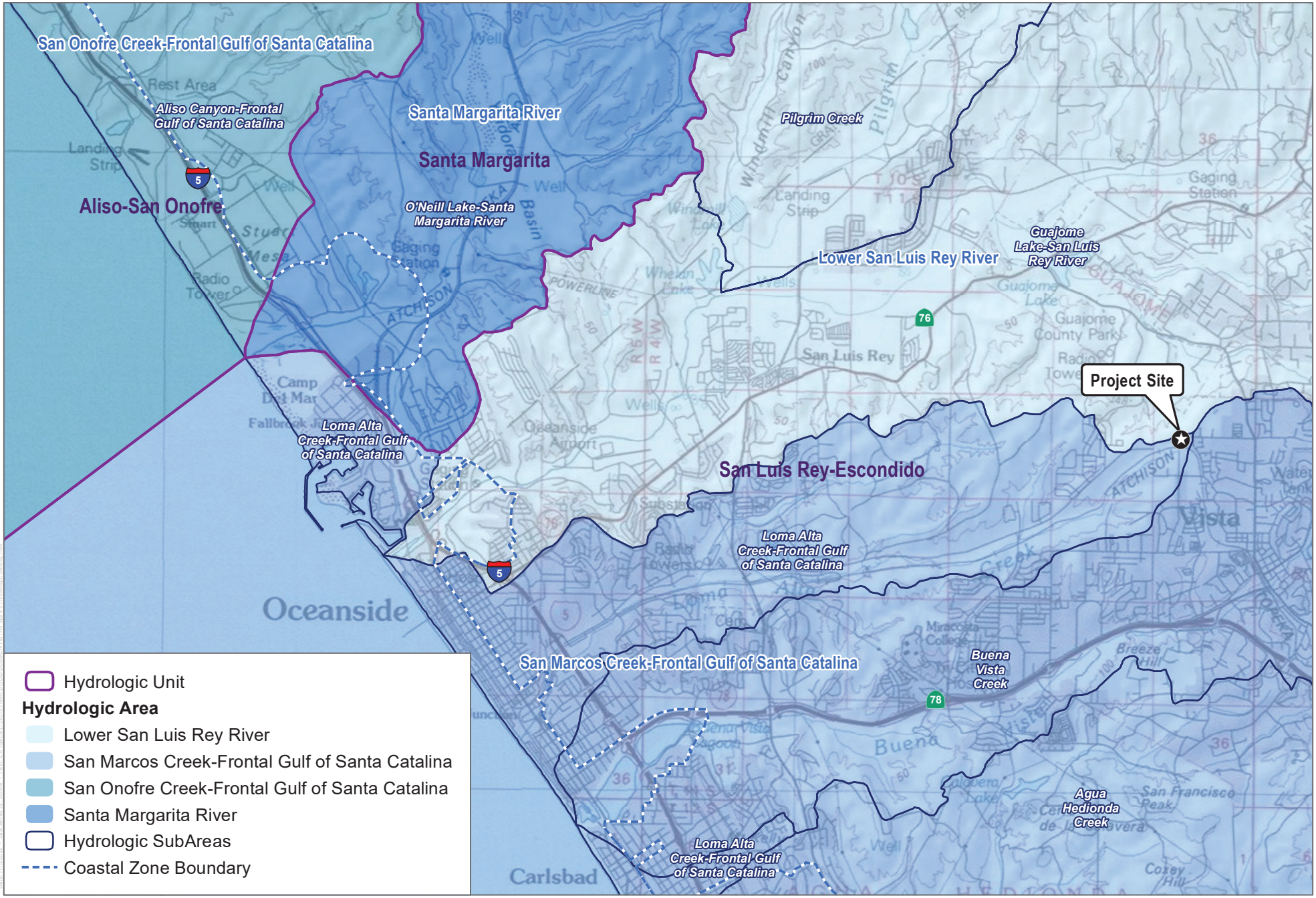
0 100 200 Feet

FIGURE 5

Soils

Modera Melrose Project

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SOURCE: USGS 7.5-Minute Series Las Pulgas Canyon, Morro Hill, Bonsall, Oceanside, San Luis Rey, San Marcos Quadrangles; USGS 2022

DUDEK

0 1 2 Miles

FIGURE 6

Hydrologic Setting

Modera Melrose Project

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SOURCE: SANGIS 2019, Dudek 2022

DUDEK

0 100 200 Feet

FIGURE 7

Vegetation Communities

Modera Melrose Project

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SOURCE: SANGIS 2019, USFWS 2022

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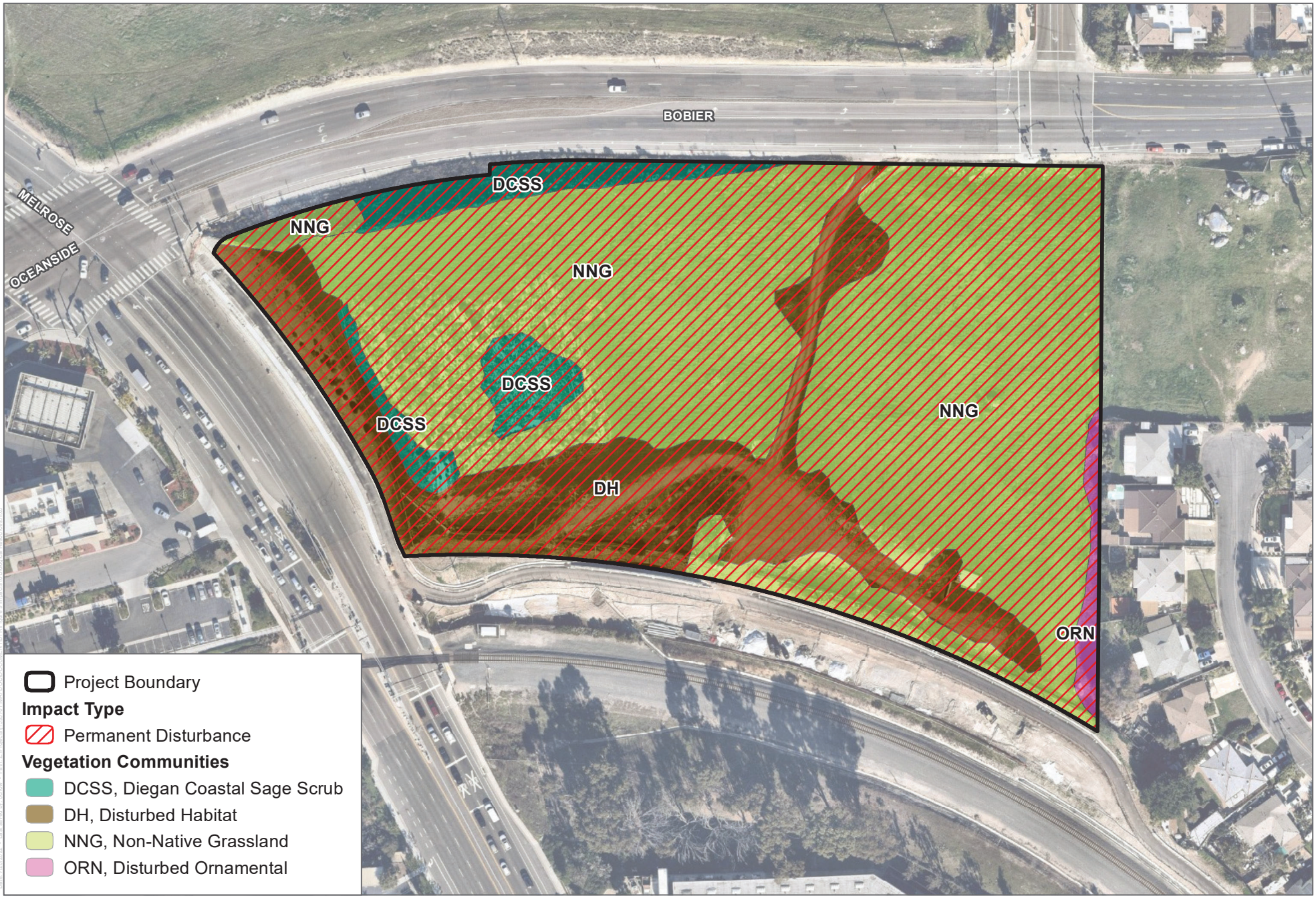
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FIGURE 8

USFWS Critical Habitat

Modera Melrose Project

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SOURCE: SANGIS 2019, Dudek 2022

DUDEK

0 100 200 Feet

FIGURE 9

Impacts to Biological Resources

Modera Melrose Project

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Appendix A
Plant Species List

Vascular Species

Eudicots

AIZOACEAE – FIG-MARIGOLD FAMILY

* *Carpobrotus edulis* – hottentot fig

ANACARDIACEAE – SUMAC OR CASHEW FAMILY

Malosma laurina – laurel sumac

* *Schinus molle* – Peruvian peppertree

APIACEAE – CARROT FAMILY

* *Foeniculum vulgare* – fennel

ASTERACEAE – SUNFLOWER FAMILY

Baccharis pilularis ssp. *consanguinea* – coyotebrush

Baccharis salicifolia – mulefat

* *Carduus pycnocephalus* ssp. *pycnocephalus* – Italian plumeless thistle
* *Centaurea melitensis* – Maltese star-thistle
* *Cynara cardunculus* – cardoon

Deinandra fasciculata – clustered tarwee

* *Dittrichia graveolens* – stinkwort

Encelia californica – California brittle bush

* *Erigeron bonariensis* – asthmaweed

Erigeron canadensis – Canadian horseweed

* *Glebionis coronaria* – crowndaisy

Hazardia squarrosa var. *grindelioides* – sawtooth bristleweed

* *Hedypnois rhagadioloides* – crete weed
* *Helminthotheca echioides* – bristly oxtongue

Heterotheca grandiflora – telegraphweed

* *Hypochaeris glabra* – smooth cat's ear
* *Lactuca serriola* – prickly lettuce

Pseudognaphalium californicum – ladies' tobacco

* *Sonchus asper* – spiny sowthistle
* *Sonchus oleraceus* – common sowthistle

BORAGINACEAE – BORAGE FAMILY

Amsinckia menziesii – Menzies' fiddleneck

Phacelia cicutaria var. *hispida* – caterpillar phacelia

BRASSICACEAE – MUSTARD FAMILY

* *Brassica nigra* – black mustard
* *Hirschfeldia incana* – shortpod mustard

CARYOPHYLLACEAE – PINK FAMILY

* *Spergularia bocconi* – Boccone's sandspurry

CHENOPODIACEAE – GOOSEFOOT FAMILY

* *Atriplex semibaccata* – Australian saltbush
* *Chenopodium murale* – nettleleaf goosefoot
* *Salsola tragus* – prickly Russian thistle

CRASSULACEAE – STONECROP FAMILY

* *Crassula ovata* – jade plant

EUPHORBIACEAE – SPURGE FAMILY

Croton setiger – dove weed

* *Euphorbia maculata* – spotted sandmat
* *Ricinus communis* – castorbean

FABACEAE – LEGUME FAMILY

Acmispon americanus var. *americanus* – American bird's-foot trefoil

* *Lotus corniculatus* – bird's-foot trefoil
* *Trifolium hirtum* – rose clover

GERANIACEAE – GERANIUM FAMILY

* *Erodium cicutarium* – redstem stork's bill
* *Pelargonium peltatum* – ivyleaf geranium

MALVACEAE – MALLOW FAMILY

* *Malva parviflora* – cheeseweed mallow

Malvella leprosa – alkali mallow

MYRSINACEAE – MYRSINE FAMILY

Lysimachia arvensis – scarlet pimpernel

POLYGONACEAE – BUCKWHEAT FAMILY

Eriogonum fasciculatum var. *fasciculatum* – California buckwheat

* *Rumex crispus* – curly dock

SOLANACEAE – NIGHTSHADE FAMILY

* *Nicotiana glauca* – tree tobacco
* *Solanum elaeagnifolium* – silverleaf nightshade

ULMACEAE – ELM FAMILY

* *Ulmus parvifolia* – Chinese elm

Monocots

ARECACEAE – PALM FAMILY

* *Washingtonia robusta* – Washington fan palm

POACEAE – GRASS FAMILY

* *Avena barbata* – slender oat
* *Avena fatua* – wild oat
* *Bromus diandrus* – ripgut brome
* *Bromus rubens* – red brome
* *Ehrharta erecta* – panic veldtgrass
* *Festuca perennis* – perennial rye grass
* *Hordeum murinum* – mouse barley
* *Pennisetum setaceum* – fountain grass

* signifies introduced (non-native) species

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Appendix B
Wildlife Species List

Birds

Finches

FRINGILLIDAE – FRINGILLINE AND CARDUELINE FINCHES AND ALLIES

Haemorhous mexicanus – house finch

Spinus psaltria – lesser goldfinch

Flycatchers

TYRANNIDAE – TYRANT FLYCATCHERS

Sayornis nigricans – black phoebe

Sayornis saya – Say's phoebe

Hawks

ACCIPITRIDAE – HAWKS, KITES, EAGLES AND ALLIES

Buteo jamaicensis – red-tailed hawk

Hummingbirds

TROCHILIDAE – HUMMINGBIRDS

Calypte anna – Anna's hummingbird

Jays, Magpies and Crows

CORVIDAE – CROWS AND JAYS

Corvus corax – common raven

Pigeons and Doves

COLUMBIDAE – PIGEONS AND DOVES

Zenaida macroura – mourning dove

Invertebrates

Butterflies

PIERIDAE – WHITES AND SULFURS

Pontia protodice – checkered white

Reptiles

Lizards

PHRYNOSOMATIDAE – IGUANID LIZARDS

Sceloporus occidentalis – western fence lizard

Appendix C

Special-Status Plant Species with Low Potential and Not Expected to Occur within the Biological Study Area

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Artemisia palmeri	San Diego sagewort	None/None/4.2/None	Chaparral, coastal scrub, riparian forest, riparian scrub, riparian woodland; sandy, mesic/perennial deciduous shrub/ (Feb)May–Sep/45–3,000	Not expected to occur. There are small patches of suitable coastal scrub and sandy soils present. However, this species was not detected during the focused plant survey in June 2022. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Asplenium vespertinum	western spleenwort	None/None/4.2/None	Chaparral, cismontane woodland, coastal scrub; rocky/ perennial rhizomatous herb/Feb–June/590–3,280	Not expected to occur. The site is outside of the species' known elevation range and this species was not observed during the June 2022 survey. Additionally, there are no known occurrences within 5 miles of the project site (CCH 2022).
Astragalus tener var. *titi*	coastal dunes milk-vetch	FE/SE/1B.1/None	Coastal bluff scrub (sandy), coastal dunes, coastal prairie (mesic); often vernally mesic areas/annual herb/ Mar–May/0–165	Not expected to occur. The site is outside of the species ' known elevation range and there is no suitable vegetation present. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022; USFWS 2022).
Atriplex coulteri	Coulter's saltbush	None/None/1B.2/None	Coastal bluff scrub, coastal dunes, coastal scrub, valley and foothill grassland; alkaline or clay/perennial herb/Mar–Oct/ 5–1,510	Not expected to occur. There are small patches of suitable coastal scrub, clay soils, and disturbed non-native grasslands present. However, the majority of the site appears to have periodically experienced disturbance through mowing and/or disking for many years. This species was not detected during the focused plant survey in June 2022. Additionally, the closest known CNDDB occurrence is approximately 4 miles southwest of the project site near Lake Calavera Preserve (CDFW 2022; USFWS 2022).
Atriplex pacifica	south coast saltscale	None/None/1B.2/None	Coastal bluff scrub, coastal dunes, coastal scrub, playas/ annual herb/Mar–Oct/0–460	Not expected to occur. There are small patches of suitable coastal scrub present. However, this species was not detected during the focused plant survey in June 2022. Additionally, the closest known CNDDB occurrence is approximately 2.9 miles northwest of the project site along San Luis Rey River; however, the only source of information for this occurrence is from 1881 (CDFW 2022).
Baccharis vanessae	Encinitas baccharis	FT/SE/1B.1/None	Chaparral (maritime), cismontane woodland; sandstone/ perennial deciduous shrub/Aug, Oct, Nov/195–2,360	Not expected to occur. No suitable vegetation is present. Additionally, this perennial shrub was not observed during the focused plant survey in June 2022, and there are no known occurrences within 5 miles of the project site (CDFW 2022; USFWS 2022).
Bloomeria clevelandii	San Diego goldenstar	None/None/1B.1/None	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; clay/perennial bulbiferous herb/Apr–May/160–1,525	Low potential to occur. There are small patches of suitable coastal scrub, clay soils, and non-native grassland present. However, the majority of the site appears to have periodically experienced disturbance through mowing and/or disking for many years. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Brodiaea filifolia	thread-leaved brodiaea	FT/SE/1B.1/Covered	Chaparral (openings), cismontane woodland, coastal scrub, playas, valley and foothill grassland, vernal pools; often clay/ perennial bulbiferous herb/Mar–June/80–3,675	Not expected to occur. Although there are small patches of suitable coastal scrub, clay soils, and disturbed non-native grasslands on site, this species was not observed during the focused plant survey in June 2022. In addition, the majority of the site appears to have periodically experienced disturbance through mowing and/or disking for many years. This species is known to occur on the property immediately north of the site across West Bobier Drive, with the closest mapped individuals approximately 465 feet north of the project site (CDFW 2022; USFWS 2022).
Brodiaea orcuttii	Orcutt's brodiaea	None/None/1B.1/None	Closed-cone coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools; mesic, clay/perennial bulbiferous herb/May–July/95–5,550	Not expected to occur. Although grassland is present, the majority of the site appears to have periodically experienced disturbance through mowing and/or disking for many years. This species was not detected during the focused plant survey in June 2022. Additionally, the closest known occurrence is approximately 3.7 miles southeast of the project site along State Route 78 (CDFW 2022).
Calandrinia breweri	Brewer's calandrinia	None/None/4.2/None	Chaparral, Coastal scrub; burned areas, disturbed areas, loam (sometimes), sandy (sometimes)/annual herb/(Jan)Mar–June/ 35–4,000	Not expected to occur. There are small patches of suitable coastal scrub and sandy soils present. This species was not detected during the focused plant survey in June 2022. Additionally, there are no known occurrences of this species within 5 miles of the project site (CCH 2022).

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Calochortus plummerae	Plummer's mariposa-lily	None/None/4.2/None	Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Valley and foothill grassland; granitic, rocky/ perennial bulbiferous herb/May–July/330–5,575	Not expected to occur. Although there are small patches of suitable coastal scrub and disturbed non-native grasslands on site, this species was not observed during the focused plant survey in June 2022. In addition, the majority of the site appears to have periodically experienced disturbance through mowing and/or disking for many years. Additionally, there are no known occurrences within 5 miles of the project site (CCH 2022).
Camissoniopsis lewisii	Lewis' evening-primrose	None/None/3/None	Coastal bluff scrub, cismontane woodland, coastal dunes, coastal scrub, valley and foothill grassland; sandy or clay/ annual herb/Mar–May(June)/0–985	Not expected to occur. Although there are small patches of suitable coastal scrub, sandy and clay soils, and disturbed non-native grasslands on site, this species was not observed during the focused plant survey in June 2022. In addition, the majority of the site appears to have periodically experienced disturbance through mowing and/or disking for many years. The closest known occurrence is approximately 3.1 miles northwest of the project site near San Luis Rey River (CCH 2022).
Caulanthus simulans	Payson's jewelflower	None/None/4.2/None	Chaparral, coastal scrub; sandy, granitic/annual herb/ (Feb)Mar–May(June)/295–7,220	Not expected to occur. Although there is suitable coastal scrub and sandy soils present, this species was not observed during the focused plant survey in June 2022. Additionally, there are no known occurrences within 5 miles of the project site (CCH 2022).
Ceanothus cyaneus	Lakeside ceanothus	None/None/1B.2/None	Chaparral, Closed-cone coniferous forest/perennial evergreen shrub/ Apr–June/770–2,475	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022), and this evergreen shrub was not observed during the focused plant survey in June 2022.
Ceanothus verrucosus	wart-stemmed ceanothus	None/None/2B.2/None	Chaparral/perennial evergreen shrub/Dec–May/0–1,245	Not expected to occur. Although a large population of this species was documented in 2001 approximately 2.8 miles east of the project site (CDFW 2022), the site does not support suitable vegetation, and this evergreen shrub was not detected during the focused plant survey in June 2022.
Centromadia parryi ssp. *australis*	southern tarplant	None/None/1B.1/None	Marshes and swamps (margins), valley and foothill grassland (vernally mesic), vernal pools/annual herb/May–Nov/0–1,575	Not expected to occur. Southern tarplant is more likely to be found in foothill grassland that is vernally mesic. Areas with the potential for grassland habitat are disturbed. Disturbed non-native annual grasses are abundant within the biological study area. The majority of the site appears to have periodically experienced disturbance through mowing and/or disking for many years. This species was not detected during the focused plant survey in June 2022. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Centromadia pungens ssp. *laevis*	smooth tarplant	None/None/1B.1/None	Chenopod scrub, meadows and seeps, playas, riparian woodland, valley and foothill grassland; alkaline/annual herb/ Apr–Sep/0–2,100	Not expected to occur. Smooth tarplant occurs in alkaline foothill grasslands. Disturbed non-native annual grasses are abundant within the biological study area. However, this species was not detected during the focused plant survey in June 2022. In addition, the majority of the site appears to have periodically experienced disturbance through mowing and/or disking for many years species. The closest known CNDDB occurrence is approximately 2.9 miles northwest of the project site near San Luis Rey River (CDFW 2022).
Chaenactis glabriuscula var. *orcuttiana*	Orcutt's pincushion	None/None/1B.1/None	Coastal bluff scrub (sandy), coastal dunes/annual herb/ Jan–Aug/0–330	Not expected to occur. No suitable vegetation is present. This species was not observed during the focused plant survey in June 2022. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Chamaebatia australis	southern mountain misery	None/None/4.2/None	Chaparral (gabbroic or metavolcanic)/perennial evergreen shrub/ Nov–May/980–3,345	Not expected to occur. The site is outside the species' known elevation range, and there is no suitable vegetation present. This evergreen shrub was not observed during the focused plant survey in June 2022. Additionally, the closest known occurrence is approximately 4 miles east of the project site (CCH 2022).
Chorizanthe orcuttiana	Orcutt's spineflower	FE/SE/1B.1/None	Closed-cone coniferous forest, chaparral (maritime), coastal scrub; sandy openings/annual herb/Mar–May/5–410	Low potential to occur. There are small patches of suitable coastal scrub and sandy soils present. However, there are no known occurrences within 5 miles of the project site (CDFW 2022; USFWS 2022).

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Chorizanthe polygonoides var. *longispina*	long-spined spineflower	None/None/1B.2/None	Chaparral, coastal scrub, meadows and seeps, valley and foothill grassland, vernal pools; often clay/annual herb/Apr–July/ 95–5,020	Not expected to occur. There are small patches of coastal scrub, clay soils, and disturbed non-native grassland present. However, the majority of the site appears to have periodically experienced disturbance through mowing and/or disking for many years. In addition, this species was not observed during the focused plant survey in June 2022. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Cistanthe maritima	seaside cistanthe	None/None/4.2/None	Coastal bluff scrub, coastal scrub, valley and foothill grassland; sandy/annual herb/(Feb)Mar–June(Aug)/15–985	Not expected to occur. There are small patches of coastal scrub, sandy soils, and disturbed non-native grassland present. However, the majority of the site appears to have periodically experienced disturbance through mowing and/or disking for many years. In addition, this species was not observed during the focused plant survey in June 2022. Additionally, there are no known occurrences within 5 miles of the project site (CCH 2022).
Comarostaphylis diversifolia ssp. *diversifolia*	summer holly	None/None/1B.2/None	Chaparral, cismontane woodland/perennial evergreen shrub/ Apr–June/95–2,590	Not expected to occur. No suitable vegetation is present. This species was not observed during the focused plant survey in June 2022. The closest known CNDDB occurrence is approximately 3.1 miles southwest of the project site within Lake Calavera Preserve (CDFW 2022).
Convolvulus simulans	small-flowered morning-glory	None/None/4.2/None	Chaparral (openings), coastal scrub, valley and foothill grassland; clay, serpentinite seeps/annual herb/Mar–July/95–2,430	Not expected to occur. There are small patches of coastal scrub, sandy soils, and disturbed non-native grassland present. However, the majority of the site appears to have periodically experienced disturbance through mowing and/or disking for many years. Although the closest known CNDDB occurrence is approximately 1.5 miles southeast of the project site (CCH 2022), this species was not observed during the focused plant survey in June 2022.
Corethrogyne filaginifolia var. *linifolia*	Del Mar Mesa sand aster	None/None/1B.1/None	Coastal bluff scrub, chaparral (maritime, openings), coastal scrub; sandy/perennial herb/May, July, Aug, Sep/45–490	Not expected to occur. San Diego sand aster and Del Mar Mesa sand aster have been lumped back taxonomically to *Corethrogyne filaginifolia.* However, these rare varieties recognized by the California Native Plant Society occur near Del Mar and within Torrey Pines State Preserve. There are small patches of suitable coastal scrub and sandy soils present. However, this species was not observed during the focused plant survey in June 2022. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Cryptantha wigginsii	Wiggins' cryptantha	None/None/1B.2/None	Coastal scrub; often clay/annual herb/Feb–June/65–900	Not expected to occur. There are small patches of suitable coastal scrub and sandy soils present. However, this species was not observed during the focused plant survey in June 2022. The closest known occurrence is approximately 4.7 miles southwest of the project site within Hidden Canyon Park (CDFW 2022).
Deinandra paniculata	paniculate tarplant	None/None/4.2/None	Coastal scrub, valley and foothill grassland, vernal pools; usually vernally mesic, sometimes sandy/annual herb/ (Mar)Apr Nov(Dec)/80–3,085	Not expected to occur. There are small patches of suitable coastal scrub, sandy soils, and disturbed non-native grassland present. However, the majority of the site appears to have periodically experienced disturbance through mowing and/or disking for many years. In addition, this species was not observed during the focused plant survey in June 2022. Additionally, the closest known occurrence is approximately 1.2 miles north of the project site along Guajome Regional Park (CCH 2022).
Dichondra occidentalis	western dichondra	None/None/4.2/None	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland/perennial rhizomatous herb/(Jan)Mar–July/ 160–1,640	Not expected to occur. There are small patches of suitable coastal scrub and disturbed non-native grassland present. However, the majority of the site appears to have periodically experienced disturbance through mowing and/or disking for many years. In addition, this species was not observed during the focused plant survey in June 2022. Additionally, the closest known occurrence is approximately 4 miles southwest of the project site within Lake Calvera Preserve (CCH 2022).

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Dudleya blochmaniae ssp. *blochmaniae*	Blochman's dudleya	None/None/1B.1/ Covered	Coastal bluff scrub, chaparral, coastal scrub, valley and foothill grassland; rocky, often clay or serpentinite/perennial herb/ Apr–June/15–1,475	Not expected to occur. There are small patches of suitable coastal scrub, clay soils, and disturbed non-native grassland present. However, the majority of the site appears to have periodically experienced disturbance through mowing and/or disking for many years. In addition, this species was not observed during the focused plant survey in June 2022. Additionally, the closest known occurrence is approximately 0.2 miles north of the project site (CDFW 2022).
Dudleya multicaulis	many-stemmed dudleya	None/None/1B.2/None	Chaparral, coastal scrub, valley and foothill grassland; often clay/ perennial herb/Apr–July/45–2,590	Not expected to occur. There are small patches of suitable coastal scrub and clay soils present. However, the majority of the site appears to have periodically experienced disturbance through mowing and/or disking for many years. In addition, this species was not detected during the focused plant survey in June 2022. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Dudleya variegata	variegated dudleya	None/None/1B.2/None	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland, vernal pools; clay/perennial herb/ Apr–June/5–1,905	Not expected to occur. There are small patches of suitable coastal scrub and clay soils present. However, the majority of the site appears to have periodically experienced disturbance through mowing and/or disking for many years. In addition, this species was not detected during the focused plant survey in June 2022 and there are no known occurrences within 5 miles of the project site (CDFW 2022).
Dudleya viscida	sticky dudleya	None/None/1B.2/Covered	Coastal bluff scrub, chaparral, cismontane woodland, coastal scrub; rocky/perennial herb/May–June/30–1,805	Not expected to occur. There are small patches of suitable coastal scrub present. However, this species was not detected during the focused plant survey in June 2022. The closest known CNDDB occurrence is approximately 4 miles south of the project site near Ocean Hills (CDFW 2022).
Ericameria palmeri var. *palmeri*	Palmer's goldenbush	None/None/1B.1/None	Chaparral, coastal scrub; mesic/perennial evergreen shrub/ (July)Sep–Nov/95–1,970	Not expected to occur. There are small patches of suitable coastal scrub present. However, this evergreen shrub was not detected during the focused plant survey in June 2022. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Eryngium aristulatum var. *parishii*	San Diego button-celery	FE/SE/1B.1/None	Coastal scrub, valley and foothill grassland, vernal pools; mesic/ annual/perennial herb/Apr–June/65–2,035	Not expected to occur. San Diego button-celery occurs in areas with native grasslands and, often, mesic meadows or vernal pools. Typical habitat is the coastal grassland areas of Marine Corps Base Camp Pendleton. The biological study area does not consist of native grasslands. The biological study area consists of disturbed soils and non-native annual grasses, along with small patches of coastal scrub. This species was not detected during the focused plant survey in June 2022. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022; USFWS 2022).
Eryngium pendletonense	Pendleton button-celery	None/None/1B.1/None	Coastal bluff scrub, valley and foothill grassland, vernal pools; clay, vernally mesic/perennial herb/Apr–June(July)/45–360	Not expected to occur. Pendleton button-celery is known to occur only on Marine Corps Base Camp Pendleton. Pendleton button-celery occurs in vernally mesic native grasslands. The biological study area does not consist of native grasslands. The biological study area consists of disturbed soils and non-native annual grasses, along with small patches of coastal scrub. This species was not detected during the focused plant survey in June 2022. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Erysimum ammophilum	sand-loving wallflower	None/None/1B.2/None	Chaparral (maritime), coastal dunes, coastal scrub; sandy, openings/ perennial herb/Feb–June/0–195	Not expected to occur. The site is outside of the species' known elevation range. The site contains small patches of suitable coastal scrub. This species was not detected during the focused plant survey in June 2022. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Erythranthe diffusa	Palomar monkeyflower	None/None/4.3/None	Chaparral, lower montane coniferous forest; sandy or gravelly/ annual herb/Apr–June/4,000–6,005	Not expected to occur. The site is outside the species' known elevation range, and there is no suitable vegetation present. This species was not detected during the focused plant survey in June 2022. There are no known occurrences within 5 miles of the project site (CCH 2020).

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Euphorbia misera	cliff spurge	None/None/2B.2/None	Coastal bluff scrub, coastal scrub, Mojavean desert scrub; rocky/ perennial shrub/Dec–Aug(Oct)/30–1,640	Not expected to occur. The site contains small patches of suitable coastal scrub. However, this perennial shrub was not observed during the focused plant survey in June 2022. The closest known CNDDB occurrence overlaps the project site and is mapped along the railroad, but the exact location is unknown (CDFW 2022).
Ferocactus viridescens	San Diego barrel cactus	None/None/2B.1/Covered	Chaparral, coastal scrub, valley and foothill grassland, vernal pools/ perennial stem succulent/May–June/5–1,475	Not expected to occur. There are small patches of suitable coastal scrub present. However, the majority of the site appears to have periodically experienced disturbance through mowing and/or disking for many years. In addition, this species was not detected during the focused plant survey in June 2022. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Githopsis diffusa ssp. *filicaulis*	Mission Canyon bluecup	None/None/3.1/None	Chaparral/annual herb/Apr–June/1,475–2,295	Not expected to occur. The site is outside of the species' known elevation range, and there is no suitable vegetation present. Additionally, there are no known occurrences within 5 miles of the project site (CCH 2022). This species was not detected during the focused plant survey in June 2022.
Harpagonella palmeri	Palmer's grapplinghook	None/None/4.2/None	Chaparral, coastal scrub, valley and foothill grassland; clay; open grassy areas within shrubland/annual herb/Mar–May/65–3,135	Low potential to occur. There are small patches of suitable coastal scrub, clay soils, and disturbed non-native grasslands present. However, the majority of the site appears to have periodically experienced disturbance through mowing and/or disking for many years. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Hazardia orcuttii	Orcutt's hazardia	None/ST/1B.1/ Covered	Chaparral (maritime), coastal scrub; often clay/ perennial evergreen shrub/Aug–Oct/260–280	Not expected to occur. The site is outside of the species' known elevation range. There are small patches of suitable coastal scrub and clay soils present. However, this evergreen shrub was not detected during the focused plant survey in June 2022. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Heterotheca sessiliflora ssp. *sessiliflora*	beach goldenaster	None/None/1B.1/None	Chaparral (coastal), coastal dunes, coastal scrub/perennial herb/ Mar–Dec/0–4,020	Not expected to occur. There are small patches of suitable coastal scrub present. However, this species was not detected during the focused plant survey in June 2022. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Holocarpha virgata ssp. *elongata*	graceful tarplant	None/None/4.2/None	Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland/annual herb/May–Nov/195–3,610	Not expected to occur. There are small patches of suitable coastal scrub and disturbed non-native grasslands present. However, the majority of the site appears to have periodically experienced disturbance through mowing and/or disking for many years. In addition, this species was not detected during the focused plant survey in June 2022. Additionally, there are no known occurrences within 5 miles of the project site (CCH 2022).
Hordeum intercedens	vernal barley	None/None/3.2/None	Coastal dunes, coastal scrub, valley and foothill grassland (saline flats and depressions), vernal pools/annual herb/Mar–June/ 15–3,280	Not expected to occur. There are small patches of suitable coastal scrub and disturbed non-native grassland present. However, the majority of the site appears to have periodically experienced disturbance through mowing and/or disking for many years. In addition, this species was not detected during the focused plant survey in June 2022. Additionally, there are no known occurrences within 5 miles of the project site (CCH 2022).
Horkelia truncata	Ramona horkelia	None/None/1B.3/None	Chaparral, cismontane woodland; clay, gabbroic/perennial herb/ May–June/1,310–4,265	Not expected to occur. Clay soils are present; however, the site is outside the species' known elevation range, and there is no suitable vegetation present. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022). This species was not detected during the focused plant survey in June 2022.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Isocoma menziesii var. *decumbens*	decumbent goldenbush	None/None/1B.2/None	Chaparral, coastal scrub (sandy, often in disturbed areas)/ perennial shrub/Apr–Nov/30–445	Not expected to occur. There are small patches of suitable coastal scrub and sandy soils present. However, this species was not detected during the focused plant survey in June 2022. Additionally, the closest known CNDDB occurrence is approximately 2.8 miles east of the project site along the San Marcos Mountains (CDFW 2022).
Iva hayesiana	San Diego marsh-elder	None/None/2B.2/Covered	Marshes and swamps, playas/perennial herb/Apr–Oct/ 30–1,640	Not expected to occur. No suitable vegetation present. The closest known CNDDB occurrence is approximately 3.3 miles southwest of the project site within the Lake Calavera Preserve (CDFW 2022). This species was not detected during the focused plant survey in June 2022.
Juglans californica	Southern California black walnut	None/None/4.2/None	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland/ perennial deciduous tree/Mar–Aug/165–2,950	Not expected to occur. There are small patches of suitable coastal scrub present. However, this species was not detected during the focused plant survey in June 2022. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Juncus acutus ssp. *leopoldii*	southwestern spiny rush	None/None/4.2/None	Coastal dunes (mesic), meadows and seeps (alkaline seeps), marshes and swamps (coastal salt)/perennial rhizomatous herb/ (Mar)May–June/5–2,955	Not expected to occur. No suitable vegetation is present. The closest known occurrence is approximately 3.3 miles north of the project site within Lake Calavera Preserve (CCH 2022). This species was not detected during the focused plant survey in June 2022.
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	None/None/1B.1/None	Marshes and swamps (coastal salt), playas, vernal pools/ annual herb/Feb–June/0–4,005	Not expected to occur. No suitable vegetation is present. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022). This species was not detected during the focused plant survey in June 2022.
Lepidium virginicum var. *robinsonii*	Robinson's pepper-grass	None/None/4.3/None	Chaparral, coastal scrub/annual herb/Jan–July/0–2,905	Not expected to occur. There are small suitable patches coastal scrub present. However, this species was not detected during the focused plant survey in June 2022. Additionally, the closest known CNDDB occurrence is approximately 3.1 miles northwest of the project site near San Luis Rey River Valley (CDFW 2020).
Leptosyne maritima	sea dahlia	None/None/2B.2/None	Coastal bluff scrub, coastal scrub/perennial herb/Mar–May/ 15–490	Low potential to occur. There are small suitable patches of coastal scrub present, but the closest known CNDDB occurrence is approximately 3.8 miles southwest of the project site within Lake Calavera Preserve (CDFW 2022). Due to the isolation and size of the coastal scrub patches, it is unlikely this species would occur.
Lycium californicum	California box-thorn	None/None/4.2/None	Coastal bluff scrub, coastal scrub/perennial shrub/ (Dec)Mar, June, July, Aug/15–490	Not expected to occur. There are small suitable patches of coastal scrub present. However, this species was not detected during the focused plant survey in June 2022. Additionally, there are no known occurrences within 5 miles of the project site (CCH 2020).
Microseris douglasii ssp. *platycarpha*	small-flowered microseris	None/None/4.2/None	Cismontane woodland, coastal scrub, valley and foothill grassland, vernal pools; clay/annual herb/Mar–May/45–3,510	Low potential to occur. There are small suitable patches of coastal scrub, clay soils, and disturbed non-native grasslands present. However, the majority of the site appears to have periodically experienced disturbance through mowing and/or disking for many years. In addition, there are no known occurrences within 5 miles of the project site (CCH 2020).
Monardella hypoleuca ssp. *lanata*	felt-leaved monardella	None/None/1B.2/None	Chaparral, cismontane woodland/perennial rhizomatous herb/ June–Aug/980–5,165	Not expected to occur. The site is outside the species ' known elevation range, and there is no suitable vegetation present. This species was not detected during the focused plant survey in June 2022. Additionally, the closest known CNDDB occurrence is approximately 3.2 miles east of the project site within San Marcos Mountains (CDFW 2022).
Myosurus minimus ssp. *apus*	little mousetail	None/None/3.1/None	Valley and foothill grassland, vernal pools (alkaline)/annual herb/ Mar–June/65–2,100	Not expected to occur. Little mousetail occurs within vernal grasslands and vernal pools. The biological study area does not consist of quality habitat for little mousetail. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022). This species was not detected during the focused plant survey in June 2022.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Nama stenocarpa	mud nama	None/None/2B.2/None	Marshes and swamps (lake margins, riverbanks)/annual/ perennial herb/Jan–July/15–1,640	Not expected to occur. No suitable vegetation is present. The closest known CNDDB occurrence is approximately 3 miles northwest of the project site near San Luis Rey River (CDFW 2022). This species was not detected during the focused plant survey in June 2022.
Navarretia fossalis	spreading navarretia	FT/None/1B.1/None	Chenopod scrub, marshes and swamps (assorted shallow freshwater), playas, vernal pools/annual herb/Apr–June/ 95–2,150	Not expected to occur. No suitable vegetation is present. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022). This species was not detected during the focused plant survey in June 2022.
Nemacaulis denudata var. *denudata*	coast woolly-heads	None/None/1B.2/None	Coastal dunes/annual herb/Apr–Sep/0–330	Not expected to occur. No suitable vegetation is present. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022). This species was not detected during the focused plant survey in June 2022.
Nemacaulis denudate var. *gracilis*	slender cottonheads	None/None/2B.2/None	Coastal dunes, desert dunes, Sonoran desert scrub/annual herb/ (Mar)Apr–May/160–1,310	Low potential to occur. No suitable vegetation is present. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Nolina cismontana	chaparral nolina	None/None/1B.2/None	Chaparral, coastal scrub; sandstone or gabbro/ perennial evergreen shrub/(Mar)May–July/455–4,185	Not expected to occur. The site is outside the species ‘ known elevation range. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022). This species was not detected during the focused plant survey in June 2022.
Ophioglossum californicum	California adder’s-tongue	None/None/4.2/None	Chaparral, Valley and foothill grassland, Vernal pools/ perennial rhizomatous herb/Jan–June(Dec)/195–1,720	Not expected to occur. No suitable vegetation is present. The majority of the site appears to have periodically experienced disturbance through mowing and/or disking for many years. Additionally, there are no known occurrences within 5 miles of the project site (CCH 2022). This species was not detected during the focused plant survey in June 2022.
Orcuttia californica	California Orcutt grass	FE/SE/1B.1/None	Vernal pools/annual herb/Apr–Aug/45–2,165	Not expected to occur. No suitable vegetation is present. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Orobanche parishii ssp. *brachyloba*	short-lobed broomrape	None/None/4.2/None	Coastal bluff scrub, coastal dunes, coastal scrub; sandy/ perennial herb (parasitic)/Apr–Oct/5–1,000	Not expected to occur. There are small suitable patches of coastal scrub and sandy soils present, but this species was not detected during the focused plant survey in June 2022. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Pentachaeta aurea ssp. *aurea*	golden-rayed pentachaeta	None/None/4.2/None	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland, valley and foothill grassland/ annual herb/Mar–July/260–6,070	Not expected to occur. There are small suitable patches of coastal scrub and disturbed non-native grasslands present, but this species was not detected during the focused plant survey in June 2022. Additionally, there are no known occurrences within 5 miles of the project site (CCH 2022).
Phacelia stellaris	Brand’s star phacelia	None/None/1B.1/None	Coastal dunes, coastal scrub/annual herb/Mar–June/0–1,310	Not expected to occur. There are small suitable patches of coastal scrub present. However, this species was not detected during the focused plant survey in June 2022. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Pinus torreyana ssp. *torreyana*	Torrey pine	None/None/1B.2/None	Closed-cone coniferous forest, chaparral; sandstone/ perennial evergreen tree/N.A./95–525	Not expected to occur. No suitable vegetation is present. Additionally, there are no known occurrences within 5 miles of the project site (CCH 2022). This perennial tree was not detected during the focused plant survey in June 2022.
Pogogyne abramsii	San Diego mesa mint	FE/SE/1B.1/None	Vernal pools/annual herb/Mar–July/295–655	Not expected to occur. No suitable vegetation is present. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022). This species was not detected during the focused plant survey in June 2022.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Polygala cornuta var. *fishiae*	Fish's milkwort	None/None/4.3/None	Chaparral, cismontane woodland, riparian woodland/ perennial deciduous shrub/May–Aug/325–3,280	Not expected to occur. No suitable vegetation is present. There are no known occurrences within 5 miles of the project site (CCH 2022). This species was not detected during the focused plant survey in June 2022.
Pseudognaphalium leucocephalum	white rabbit-tobacco	None/None/2B.2/None	Chaparral, cismontane woodland, coastal scrub, riparian woodland; sandy, gravelly/perennial herb/ (July)Aug–Nov(Dec)/0–6,890	Not expected to occur. There are small patches of suitable coastal scrub habitat and sandy soils present. However, this species was not detected during the focused plant survey in June 2022. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Psilocarphus brevissimus var. *multiflorus*	Delta woolly-marbles	None/None/4.2/None	Vernal pools/annual herb/May–June/30–1,640	Not expected to occur. No suitable vegetation is present. There are no known occurrences within 5 miles of the project site (CCH 2022). This species was not detected during the focused plant survey in June 2022.
Quercus dumosa	Nuttall's scrub oak	None/None/1B.1/ Covered	Closed-cone coniferous forest, chaparral, coastal scrub; sandy, clay loam/perennial evergreen shrub/Feb–Apr(May–Aug)/ 45–1,310	Not expected to occur. There are small patches of suitable coastal scrub, sandy, and clay soils present, but this species was not detected during the focused plant survey in June 2022. Additionally, the closest known CNDDB occurrence is approximately 3.6 miles southwest of the project site within Lake Calavera Preserve (CDFW 2022).
Quercus engelmannii	Engelmann oak	None/None/4.2/None	Chaparral, Cismontane woodland, Riparian woodland, Valley and foothill grassland/perennial deciduous tree/Mar–June/ 160–4,265	Absent. Engelmann oak was not observed during the focused plant survey in June 2022. Additionally, there are no known occurrences within 5 miles of the project site (CCH 2022).
Salvia munzii	Munz's sage	None/None/2B.2/None	Chaparral, Coastal scrub/perennial evergreen shrub/ Feb–Apr/375–3,495	Not expected to occur. There are small patches of suitable coastal scrub and clay soils present, but this evergreen shrub was not detected during the focused plant survey in June 2022. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Selaginella cinerascens	ashy spike-moss	None/None/4.1/None	Chaparral, coastal scrub/perennial rhizomatous herb/N.A./ 65–2,100	Not expected to occur. There are small patches of suitable coastal scrub present. However, this species was not detected during the focused plant survey in June 2022. Additionally, there are no known occurrences within 5 miles of the project site (CCH 2022).
Senecio aphanactis	chaparral ragwort	None/None/2B.2/None	Chaparral, cismontane woodland, coastal scrub; sometimes alkaline/ annual herb/Jan–Apr(May)/45–2,625	Not expected to occur. There are small patches of suitable coastal scrub present. However, this species was not detected during the focused plant survey in June 2022. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Sidalcea neomexicana	salt spring checkerbloom	None/None/2B.2/None	Chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub, playas; alkaline, mesic/perennial herb/ Mar–June/45–5,020	Not expected to occur. There are small patches of suitable coastal scrub present. However, this species was not detected during the focused plant survey in June 2022. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Sphaerocarpos drewiae	bottle liverwort	None/None/1B.1/None	Chaparral, Coastal scrub/ephemeral liverwort/295–1,965	Not expected to occur. There are small patches of suitable coastal scrub present. However, this species was not detected during the focused plant survey in June 2022. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Sphenopholis interrupta ssp. *californica*	prairie false oat	None/None/1B.1/None	Chaparral; Clay/annual herb/Apr/50–50	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. One CNDDB occurrence overlaps with the project site; however, the location is unknown within the San Luis Rey U.S. Geological Survey Quadrangle (CDFW 2022).
Stemodia durantifolia	purple stemodia	None/None/2B.1/None	Sonoran desert scrub (often mesic, sandy)/perennial herb/ (Jan)Apr, June, Aug–Oct, Dec/590–985	Not expected to occur. The site is outside the species' known elevation range, and there is no suitable vegetation present. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022). This species was not detected during the focused plant survey in June 2022.

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Stipa diegoensis	San Diego County needle grass	None/None/4.2/None	Chaparral, coastal scrub; rocky, often mesic/perennial herb/ Feb–June/30–2,625	Not expected to occur. There are small patches of suitable coastal scrub present. However, this species was not detected during the focused plant survey in June 2022. Additionally, there are no known occurrences within 5 miles of the project site (CCH 2022).
Suaeda esteroa	estuary seablite	None/None/1B.2/None	Marshes and swamps (coastal salt)/perennial herb/ (May)July–Oct(Jan)/0–15	Not expected to occur. The site is outside the species ‘ known elevation range, and there is no suitable vegetation present. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022). This species was not detected during the focused plant survey in June 2022.
Suaeda taxifolia	woolly seablite	None/None/4.2	Coastal bluff scrub, Coastal dunes, Marshes and swamps/ perennial evergreen shrub/Jan–Dec/0–165	Not expected to occur. The site is outside of the species ‘ known elevation range and there is no suitable vegetation present. Additionally, there are no known occurrences within 5 miles of the project site (CCH 2022). This evergreen shrub was not detected during the focused plant survey in June 2022.
Tetracoccus dioicus	Parry’s tetracoccus	None/None/1B.2/None	Chaparral, coastal scrub/perennial deciduous shrub/ Apr–May/540–3,280	Low potential to occur. There are small patches of suitable coastal scrub present. The closest known CNDDB occurrence is approximately 2.8 miles east of the project site along the San Marcos Mountains (CDFW 2022). Due to the isolation and size of the coastal scrub patches, it is unlikely this species would occur.
Viguiera laciniata (= Bahiopsis laciniata)	San Diego County viguiera	None/None/4.3/None	Chaparral, coastal scrub/perennial shrub/Feb–June(Aug)/ 195–2,460	Not expected to occur. There are small patches of suitable coastal scrub present. However, this species was not detected during the focused plant survey in June 2022. Additionally, there are no known occurrences within 5 miles of the project site (CCH 2022).

Status Legend
Federal
FE: Federally listed as endangered
FT: Federally listed as threatened
State
SE: State listed as endangered
ST: State listed as threatened
CRPR: California Rare Plant Rank
1B: Plants rare, threatened, or endangered in California and elsewhere
2B: Plants rare, threatened, or endangered in California, but more common elsewhere
3: Plants about which more information is needed – a review list
4: Plants of limited distribution – a watch list
Threat Rank
0.1: Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
0.2: Moderately threatened in California (20%–80% occurrences threatened/moderate degree and immediacy of threat)
0.3: Not very threatened in California (less than 20% of occurrences threatened/low degree and immediacy of threat or no current threats known)
Oceanside Subarea Plan
Covered: Species covered under the Subarea Plan
Notes: CRPR = California Rare Plant Rank; amsl = above mean sea level; CNDDB: California Natural Diversity Database; N.A. = not applicable.
References
CCH (California Consortium of Herbaria). 2022. Data provided by the participants of the Consortium of California Herbaria. Accessed July 2022. https://ucjeps.berkeley.edu/consortium/about.html.

CDFW (California Department of Fish and Wildlife). 2022. California Natural Diversity Database (CNDDB). RareFind, Version 5. (Commercial Subscription). Sacramento: CDFW, Biogeographic Data Branch. Accessed July 2022. https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data.

USFWS (U.S. Fish and Wildlife Service). ‘2022. “Critical Habitat and Occurrence Data” [map]. USFWS Geospatial Services. Accessed July 2022. https://www.fws.gov/data.

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Appendix D

Special-Status Wildlife Species Potentially Occurring within the Biological Study Area

Scientific Name	Common Name	Status (Federal/State/ Oceanside Subarea Plan)	Habitat	Potential to Occur
Reptiles				
Aspidoscelis hyperythra	orange-throated whiptail	None/WL/Covered	Low-elevation coastal scrub, chaparral, and valley–foothill hardwood.	**Moderate** potential to occur. The project site supports small patches of isolated coastal scrub habitat and sandy soils. Although the majority of the site is surrounded by development and appears to have periodically experienced disturbance through mowing and/or disking for many years, if present in Guajome Regional Park, it would be possible for this species to access the site through narrow edges of habitat along developed areas. Additionally, the closest known California Natural Diversity Database (CNDDB) occurrences are located approximately 2 miles north of the project site along the San Luis Rey River where it was documented in 1989 (CDFW 2022). It was also documented approximately 2.8 miles east of the project site in 1999 along the San Marcos Mountains (CDFW 2022).
Aspidoscelis tigris stejnegeri	San Diegan tiger whiptail	None/SSC/None	Hot and dry areas with sparse foliage, including chaparral, woodland, and riparian areas.	**Moderate** potential to occur. The site supports small patches of isolated coastal scrub habitat and sandy soils. Although the majority of the site is surrounded by development and appears to have periodically experienced disturbance through mowing and/or disking for many years, if present in Guajome Regional Park, it would be possible for this species to access the site through narrow edges of habitat along developed areas. Additionally, the closest known CNDDB occurrences are located approximately 2.3 miles north of the project site along the San Luis Rey River with an unknown collection date (CDFW 2022). It was also documented approximately 4 miles northeast of the project site in 1999 along Gopher Canyon (CDFW 2022).

Scientific Name	Common Name	Status (Federal/State/ Oceanside Subarea Plan)	Habitat	Potential to Occur
Birds				
Aimophila ruficeps canescens	southern California rufous-crowned sparrow	None/WL/Covered	Nests and forages in open coastal scrub and chaparral with low cover of scattered scrub interspersed with rocky and grassy patches.	**Moderate** potential to forage and low potential to nest. The site supports small patches of isolated coastal scrub, and disturbed non-native grasslands may provide some areas for foraging (seeds, forbs, grasses). The closest known CNDDB occurrence is approximately 2.7 miles east of the project site along the San Marcos Mountains (CDFW 2022). The small isolated patches of coastal scrub are unlikely to support nesting.
Artemisiospiza belli belli	Bell's sage sparrow	None/WL/Covered	Nests and forages in coastal scrub and dry chaparral; typically in large, unfragmented patches dominated by chamise; nests in more dense patches but uses more open habitat in winter.	**Moderate** potential to forage and low potential to nest. The site supports small patches of isolated coastal scrub, and disturbed non-native grasslands may provide some areas for foraging (seeds, forbs, grasses). However, there are no known occurrences within 5 miles of the project site (CDFW 2022). Their distribution in north San Diego County is more inland (Unitt 2004).
Eremophila alpestris actia	California horned lark	None/WL/None	This subspecies of horned lark occurs on the state's southern and central coastal slope and in the San Joaquin Valley. Nests and forages in grasslands, disturbed lands, agriculture, and beaches.	**Moderate** potential to nest and forage. The site supports disturbed non-native grasslands and sparse/barren ground that may be suitable for nesting and foraging (seeds, forbs). The closest known CNDDB occurrence is approximately 5 miles south of the project site, north of Agua Hedionda Creek in 1999 (CDFW 2022).

Status Legend
State
SSC: California species of special concern
WL: California Department of Fish and Wildlife watch list species
Oceanside Subarea Plan
Covered: Species covered under the Subarea Plan

References

CDFW (California Department of Fish and Wildlife). 2022. California Natural Diversity Database (CNDDB). RareFind, Version 5. (Commercial Subscription). Sacramento: CDFW, Biogeographic Data Branch. Accessed July 2022. https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data.

Unitt, P. 2004. *San Diego County Bird Atlas.* Online (Google Earth) version. Proceedings of the San Diego Society of Natural History, no. 39. San Diego, California: San Diego Natural History Museum.

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Appendix E

Special-Status Wildlife Species with Low Potential and Not Expected to Occur within the Biological Study Area

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
Amphibians				
Anaxyrus californicus	arroyo toad	FE/SSC/Covered	Semi-arid areas near washes, sandy riverbanks, riparian areas, palm oasis, Joshua tree, mixed chaparral, and sagebrush; stream channels for breeding (typically third order); adjacent stream terraces and uplands for foraging and wintering.	Not expected to occur. The project site lacks suitable vegetation, and aquatic and associated upland habitats required by this species. The closest known California Natural Diversity Database (CNDDB) and U.S. Fish and Wildlife Service (USFWS) occurrence is 2.5 miles north of the project site along the San Luis Rey River (CDFW 2022; USFWS 2022).
Spea hammondii	western spadefoot	None/SSC/Covered	Primarily grassland and vernal pools, but also in ephemeral wetlands that persist at least 3 weeks in chaparral, coastal scrub, valley–foothill woodlands, pastures, and other agriculture.	Not expected to occur. The project site lacks suitable vegetation, and aquatic and associated upland habitats required by this species. The closest known CNDDB and USFWS occurrence is 1.3 miles north of the project site along the San Luis Rey River (CDFW 2022; USFWS 2022).
Reptiles				
Actinemys pallida	southwestern pond turtle	None/None/Covered	Slow-moving permanent or intermittent streams, ponds, small lakes, and reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter.	Not expected to occur. The project site lacks suitable vegetation, aquatic and associated upland habitats required by this species. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Anniella stebbinsi	Southern California legless lizard	None/SSC	Coastal dunes, stabilized dunes, beaches, dry washes, valley–foothill, chaparral, and scrubs; pine, oak, and riparian woodlands; associated with sparse vegetation and moist sandy or loose, loamy soils.	Low potential to occur. Although the site supports small patches of isolated coastal scrub habitat and sandy soils, the soils on site are compacted through apparently many years of disturbance (possible disking and mowing). The compacted soils on site would not provide suitable burrowing substrates for this species. In addition, the urban environment would not provide adequate access to the site from regional open space areas. The closest known CNDDB occurrence is approximately 4.6 miles northwest of the project site along the San Luis Rey River (CDFW 2022).
Arizona elegans occidentalis	California glossy snake	None/SSC/None	Commonly occurs in desert regions throughout Southern California. Prefers open sandy areas with scattered brush. Also found in rocky areas.	Low potential to occur. Although the site supports small patches of isolated coastal scrub habitat and sandy soils, the soils on site are compacted through apparently many years of disturbance (possible disking and mowing). The compacted soils on site would not provide suitable burrowing substrates for this species. In addition, the urban environment would not provide adequate access to the site from regional open space areas. The closest known CNDDB occurrence is approximately 1.3 miles east of the project site where a specimen was collected in 1967 (CDFW 2022). Based on level of urbanization, it likely no longer exists. Additionally, the occurrence is mapped to a general location to 6 miles southeast of Bonsall (CDFW 2022).
Crotalus ruber	red diamond rattlesnake	None/SSC/None	Coastal scrub, chaparral, oak and pine woodlands, rocky grasslands, cultivated areas, and desert flats.	Low potential to occur. The project site lacks suitable vegetation and habitat conditions for this species. In addition, the majority of the site is surrounded by development and appears to have periodically experienced disturbance through mowing and/or disking for many years. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Phrynosoma blainvillii	Blainville's horned lizard	None/SSC/None	Open areas of sandy soil in valleys, foothills, and semi-arid mountains, including coastal scrub, chaparral, valley–foothill hardwood, conifer, riparian, pine–cypress, juniper, and annual grassland habitats.	Low potential to occur. Although the site supports small patches of isolated coastal scrub habitat and sandy soils, the urban environment would not provide adequate access to the site from regional open space areas. Additionally, the closest known CNDDB occurrences are approximately 0.8 miles southeast of the project site where it was documented in 1931 (CDFW 2022). Based on level of urbanization, it likely no longer exists. Additionally, the occurrence is mapped to a general location in the vicinity of Vista (CDFW 2022).

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
Plestiodon skiltonianus interparietalis	Coronado skink	None/WL/None	Woodlands, grasslands, pine forests, and chaparral; rocky areas near water.	Not expected to occur. The site lacks aquatic or dense vegetated areas preferred by this species. In addition, the majority of the site is surrounded by development and appears to have periodically experienced disturbance through mowing and/or disking for many years. There are no known occurrences within 5 miles of the project site (CDFW 2022).
Salvadora hexalepis virgultea	coast patch-nosed snake	None/SSC/None	Brushy or shrubby vegetation; requires small mammal burrows for refuge and overwintering sites.	Low potential to occur. Although there are small patches of isolated coastal scrub, the majority of the site is surrounded by development and appears to have periodically experienced disturbance through mowing and/or disking for many years, so the site is unlikely to support a regular supply of small mammal burrows for this species. There are no known occurrences within 5 miles of the project site (CDFW 2022).
Thamnophis hammondii	two-striped gartersnake	None/SSC/None	Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools.	Not expected to occur. The project site lacks suitable vegetation, and aquatic and associated habitats required by this species. There are no known occurrences within 5 miles of the project site (CDFW 2022).
Birds				
Accipiter cooperii (nesting)	Cooper's hawk	None/WL/Covered	Nests and forages in dense stands of live oak, riparian woodlands, or other woodland habitats often near water.	Low potential to nest. Suitable nesting trees or substrates are generally lacking. There is potential for the species to forage on site. The closest known CNDDB occurrence is approximately 1.8 miles north of the project site along the San Luis Rey River in 2003 (CDFW 2022).
Agelaius tricolor (nesting colony)	tricolored blackbird	BCC/SSC, ST/None	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberry (Rubus armeniacus); forages in grasslands, woodland, and agriculture.	Not expected to nest. No suitable nesting vegetation is present. The closest known CNDDB occurrences are approximately 2.0 and 3.6 miles northwest of the project site along the San Luis Rey River in the vicinity of Whelan Lake where the species was documented in 1932 and 1936, respectively (CDFW 2022).
Aquila chrysaetos (nesting and wintering)	golden eagle	None/FP, WL/Covered	Nests and winters in hilly, open/semi-open areas, including shrublands, grasslands, pastures, riparian areas, mountainous canyon land, open desert rimrock terrain; nests in large trees and on cliffs in open areas and forages in open habitats.	Not expected to occur. No suitable vegetation or habitat is present. The project site is too small and urbanized for this species. There are no known occurrences within 5 miles of the project site (CDFW 2022).
Athene cunicularia (burrow sites and some wintering sites)	burrowing owl	BCC/SSC/None	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows.	Not expected to occur. Although the site supports non-native grasslands, no suitable burrows or ground squirrels were documented during the June 2022 survey. No evidence of burrowing owls was detected on site. In addition, the closest known occurrence is approximately 140 feet north of the site in 1898 (SanBIOS 2022). There are no other occurrences within 5 miles of the project site (CDFW 2022).
Buteo swainsoni (nesting)	Swainson's hawk	None/ST/None	Nests in open woodland and savanna, riparian, and in isolated large trees; forages in nearby grasslands and agricultural areas such as wheat and alfalfa fields and pasture.	Not expected to occur. No suitable nesting vegetation is present. The closest known CNDDB occurrence is approximately 2.9 miles northwest of the project site along the San Luis Rey River in 1902 (CDFW 2022).
Campylorhynchus brunneicapillus sandiegensis (San Diego and Orange Counties only)	coastal cactus wren	None/SSC/Covered	Southern cactus scrub patches.	Not expected to occur. No cactus or succulent plant species occur in enough cover to form cactus scrub communities on site. The closest known CNDDB occurrence is approximately 4.9 miles northwest of the project site within Marine Corps Base Camp Pendleton (CDFW 2022).
Charadrius nivosus nivosus (nesting)	western snowy plover	FT, BCC/SSC/Covered	On coasts, nests on sandy marine and estuarine shores; in the interior, nests on sandy, barren, or sparsely vegetated flats near saline or alkaline lakes, reservoirs, and ponds.	Not expected to occur. No suitable habitat is present. There are no known occurrences within 5 miles of the project site, with the closest record within Buena Vista Lagoon (CDFW 2022; USFWS 2022).

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
Circus hudsonius (nesting)	northern harrier	BCC/SSC/None	Nests in open wetlands (marshy meadows, wet lightly-grazed pastures, old fields, freshwater and brackish marshes); also in drier habitats (grassland and grain fields); forages in grassland, scrubs, rangelands, emergent wetlands, and other open habitats.	Not expected to nest on site due to the proximity to urban areas. In addition, the open non-native grassland areas appear to have periodically experienced disturbance through mowing and/or disking for many years and the site lacks the undisturbed dense and tall vegetation that is often used for nesting. There is potential for the species to forage on site. There are no known occurrences within 5 miles of the project site, with the closest record within Buena Vista Lagoon (CDFW 2022).
Coccyzus americanus occidentalis (nesting)	western yellow-billed cuckoo	FT/SE/None	Nests in dense, wide riparian woodlands and forest with well-developed understories.	Not expected to occur. Although the closest known occurrence is approximately 0.4 miles north of the project site within Guajome Regional Park (CDFW 2022; USFWS 2022), no suitable riparian or woodland vegetation is present on site.
Elanus leucurus (nesting)	white-tailed kite	None/FP/None	Nests in woodland, riparian, and individual trees near open lands; forages opportunistically in grassland, meadows, scrubs, agriculture, emergent wetland, savanna, and disturbed lands.	Not expected to occur. Although the closest known CNDDB occurrence is approximately 0.1 miles north of the project site near Guajome Regional Park in 2005 (CDFW 2022), the site lacks suitable nesting vegetation and trees. There is potential for the species to forage on site.
Empidonax traillii extimus (nesting)	southwestern willow flycatcher	FE/SE/Covered	Nests in dense riparian habitats along streams, reservoirs, or wetlands; uses variety of riparian and shrubland habitats during migration.	Not expected to occur. No suitable riparian or woodland vegetation is present. The closest known CNDDB occurrence is approximately 1.9 miles north of the project site along Old River Club, east of Guajome Lake (CDFW 2022; USFWS 2022).
Falco peregrinus anatum (nesting)	American peregrine falcon	FPD/FP, SCD/Covered	Nests on cliffs, buildings, and bridges; forages in wetlands, riparian, meadows, croplands, especially where waterfowl are present.	Not expected to nest on site due to lack of suitable nesting habitat. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Icteria virens (nesting)	yellow-breasted chat	None/SSC/Covered	Nests and forages in dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush.	Not expected to occur. No suitable riparian or woodland vegetation is present. The closest known CNDDB occurrence is approximately 1.9 miles north of the project site along Old River Club, east of Guajome Lake (CDFW 2022).
Ixobrychus exilis (nesting)	least bittern	None/SSC/None	Nests in freshwater and brackish marshes with dense, tall growth of aquatic and semi-aquatic vegetation.	Not expected to occur. No suitable vegetation is present. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Laterallus jamaicensis coturniculus	California black rail	None/FP, ST/None	Tidal marshes, shallow freshwater margins, wet meadows, and flooded grassy vegetation; suitable habitats are often supplied by canal leakage in Sierra Nevada foothill populations.	Not expected to occur. No suitable vegetation is present. The closest known CNDDB occurrence is approximately 0.4 miles south of the project site (CDFW 2022). However, this specimen was documented in 1938 with an unknown location in the vicinity of Vista (CDFW 2022). In addition, this species was last observed in San Diego County in 1983 (Unitt 2012).
Pandion haliaetus (nesting)	osprey	None/WL/Covered	Large waters (lakes, reservoirs, rivers) supporting fish; usually near forest habitats, but widely observed along the coast.	Not expected to nest on site due to lack of suitable nesting habitat. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Passerculus sandwichensis beldingi	Belding's savannah sparrow	BCC/SE/Covered	Nests and forages in coastal saltmarsh dominated by pickleweed (*Salicornia* spp.).	Not expected to occur. No suitable coastal saltmarsh vegetation is present. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Passerculus sandwichensis rostratus (wintering)	large-billed savannah sparrow	None/SSC/Covered	Nests and forages in open, low saltmarsh vegetation, including low halophytic scrub.	Not expected to occur. No suitable vegetation is present. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Pelecanus occidentalis californicus (nesting colonies and communal roosts)	California brown pelican	FPD/FP, SCD/Covered	Forages in warm coastal marine and estuarine environments; in California, nests on dry, rocky offshore islands.	Not expected to occur. No suitable vegetation is present. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2020).

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
Plegadis chihi (nesting colony)	white-faced ibis	None/WL/Covered	Nests in shallow marshes with areas of emergent vegetation; winter foraging in shallow lacustrine waters, flooded agricultural fields, muddy ground of wet meadows, marshes, ponds, lakes, rivers, flooded fields, and estuaries.	Not expected to occur. No suitable vegetation is present. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2020).
Polioptila californica californica	coastal California gnatcatcher	FT/SSC/Covered	Nests and forages in various sage scrub communities, often dominated by California sagebrush and buckwheat; generally, avoids nesting in areas with a slope of greater than 40%; majority of nesting at less than 1,000 feet above mean sea level.	Low potential to occur. This species was not present during the June 2022 site visit by Erin Bergman, who holds a 10(a)(1)(A) permit to survey for coastal California gnatcatcher. Although the closest CNDDB occurrence is approximately 420 feet north of the project site (CDFW 2022; USFWS 2022), the site only supports small patches of isolated coastal scrub, which are disconnected from other known habitat areas and populations. These small and isolated patches are unlikely to support a pair. In addition, the site is surrounded by development, and open non-native grassland areas appear to have periodically experienced disturbance through mowing and/or disking for many years.
Rallus obsoletus levipes	Ridgway's rail	FE/SE, FP/Covered	Coastal wetlands, brackish areas, coastal saline emergent wetlands.	Not expected to occur. No suitable vegetation is present. The closest known occurrence is a CNDDB record approximately 1.9 miles northwest of the project site within Guajome Lake Marsh in 1984 (CDFW 2022; USFWS 2022).
Riparia riparia (nesting)	bank swallow	None/ST/None	Nests in riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with sandy soils; open country and water during migration.	Not expected to nest on site due to lack of suitable nesting habitat. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2020).
Setophaga petechia (nesting)	yellow warbler	None/SSC/None	Nests and forages in riparian and oak woodlands, montane chaparral, open ponderosa pine, and mixed-conifer habitats.	Not expected to occur. No suitable riparian or woodland vegetation is present. The closest known CNDDB occurrence is approximately 1.9 miles north of the project site along Old River Club, east of Guajome Lake (CDFW 2022).
Sternula antillarum browni (nesting colony)	California least tern	FE/FP, SE/Covered	Forages in shallow estuaries and lagoons; nests on sandy beaches or exposed tidal flats.	Not expected to occur. No suitable vegetation is present. The closest known occurrence is a CNDDB record approximately 1.8 miles north of the project site within Guajome Lake (CDFW 2022; USFWS 2022).
Thalasseus elegans (nesting colony)	elegant tern	BCC/WL/Covered	Inshore coastal waters, bays, estuaries, and harbors; forages over open water.	Not expected to occur. No suitable vegetation is present. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Vireo bellii pusillus (nesting)	least Bell's vireo	FE/SE/Covered	Nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams; forages in riparian and adjacent shrubland late in nesting season.	Not expected to occur. Although the closest known CNDDB occurrence is approximately 415 feet north of the project site within Guajome Regional Park (CDFW 2022; USFWS 2022), the site lacks suitable riparian or woodland vegetation to support this species.
Fishes				
Eucyclogobius newberryi	tidewater goby	FE/None/None	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County, to the mouth of the Smith River.	Not expected to occur. No suitable aquatic habitat is present. The closest known occurrence is a CNDDB record approximately 4.9 miles northwest of the project site along the San Luis Rey River (CDFW 2022; USFWS 2022).
Gila orcuttii	arroyo chub	None/SSC/None	Warm, fluctuating streams with slow-moving or backwater sections of warm to cool streams at depths >40 centimeters (16 inches); substrates of sand or mud.	Not expected to occur. The site is outside the species' known geographic range, and there is no suitable vegetation present. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Mammals				
Antrozous pallidus	pallid bat	None/SSC/None	Grasslands, shrublands, woodlands, forests; most common in open, dry habitats with rocky outcrops for roosting, but also roosts in human-built structures and trees.	Not expected to occur. No suitable roosting habitat is present on site. The closest known CNDDB occurrence is approximately 3.4 miles northwest of the project site along the San Luis Rey River (CDFW 2022).

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
Chaetodipus californicus femoralis	Dulzura pocket mouse	None/SSC/None	Open habitat, coastal scrub, chaparral, oak woodland, chamise chaparral, mixed-conifer habitats; disturbance specialist; 0 to 3,000 feet above mean sea level.	Not expected to occur. Although the site contains small, isolated areas of coastal scrub and open non-native grassland habitat that would typically provide suitable habitat, the site is surrounded by development, and open grassland areas appear to have periodically experienced disturbance through mowing and/or disking for many years, so the site is unlikely to support this species. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Chaetodipus fallax fallax	northwestern San Diego pocket mouse	None/SSC/Covered	Coastal scrub, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon–juniper, and annual grassland.	Not expected to occur. Although the site contains small, isolated areas of coastal scrub and open non-native grassland habitat that would typically provide suitable habitat, the site is surrounded by development, and open grassland areas appear to have periodically experienced disturbance through mowing and/or disking for many years, so the site is unlikely to support this species. The closest known CNDDB occurrence is approximately 4.4 miles southwest of the project site along Eternal Hills Memorial Park (CDFW 2022).
Choeronycteris mexicana	Mexican long-tongued bat	None/SSC/None	Desert and montane riparian, desert succulent scrub, desert scrub, and pinyon–juniper woodland; roosts in caves, mines, and buildings.	Not expected to occur. No suitable roosting habitat is present on site. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Corynorhinus townsendii	Townsend's big-eared bat	None/SSC/None	Mesic habitats characterized by coniferous and deciduous forests and riparian habitat, but also xeric areas; roosts in limestone caves and lava tubes, human-made structures, and tunnels.	Not expected to roost on site due to lack of habitat. This species is presumed absent from coastal San Diego (Tremor et al. 2017). Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Dasypterus xanthinus (=Lasiurus xanthinus)	western yellow bat	None/SSC/None	Valley–foothill riparian, desert riparian, desert wash, and palm oasis habitats; below 2,000 feet above mean sea level; roosts in riparian and palms.	Low potential to occur. This species primarily roosts in fan palms (Tremor et al. 2017), of which only one was present on site and unlikely to support this species. Additionally, the closest known CNDDB occurrence is approximately 0.9 miles southeast of the project site at an unknown location in the vicinity of Vista in 1998 (CDFW 2022).
Dipodomys stephensi (including D. cascus)	Stephens' kangaroo rat	FE/ST/Covered	Annual and perennial grassland habitats, coastal scrub or sagebrush with sparse canopy cover, or in disturbed areas.	Not expected to occur. The site is surrounded by development and the flat open portion of the site, which could provide the most suitable area for the species, appears to have been periodically disturbed for many years, including likely disking and mowing that would have extirpated any populations on the site. In addition, the coastal sage scrub present is situated in small, isolated patches along a major roadway. Additionally, most of the records in Oceanside are from along the San Luis Rey River, well southwest of the site. Stephens' kangaroo rat in the region is now limited to Marine Corps Base Camp Pendleton and some areas of Fallbrook associated with the Naval Weapons Station adjacent to Camp Pendleton (Tremor et al. 2017). The project site is completely isolated from known populations of the species on Camp Pendleton, so there are no opportunities for immigration to the site, even if suitable habitat were present. The closest known occurrence is a CNDDB record 1.6 miles northwest of the project site, southeast of Mission San Luis Rey (CDFW 2022; USFWS 2022).
Eumops perotis californicus	western mastiff bat	None/SSC/None	Chaparral, coastal and desert scrub, coniferous and deciduous forest and woodland; roosts in crevices in rocky canyons and cliffs where the canyon or cliff is vertical or nearly vertical, trees, and tunnels.	Low potential to roost on site due to lack of habitat. Tremor et al. (2017) describes the species as rarely roosting in palm trees, of which only one was present on site and unlikely to support this species. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
Leptonycteris yerbabuenae	lesser long-nosed bat	FPD/SSC/None	Sonoran desert scrub, semi-desert grasslands, lower oak woodlands.	Not expected to occur on site. The single occurrence of this species in San Diego County is from Oceanside in 1996; it likely occurs only as a rare visitor to the area (Tremor et al. 2017). Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Lepus californicus bennettii	San Diego black-tailed jackrabbit	None/None/Covered	Arid habitats with open ground; grasslands, coastal scrub, agriculture, disturbed areas, and rangelands.	Not expected to occur due to the urbanized environment. This conspicuous species was not observed during the June 2022 survey. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Neotoma lepida intermedia	San Diego desert woodrat	None/SSC/None	Coastal scrub, desert scrub, chaparral, cacti, rocky areas.	Not expected to occur due to the urbanized environment and lack of suitable vegetated areas. The middens of this species were not observed during the June 2022 survey. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Nyctinomops femorosaccus	pocketed free-tailed bat	None/SSC/None	Pinyon–juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oases; roosts in high cliffs or rock outcrops with drop-offs, caverns, and buildings.	Not expected to occur due to lack of roosting habitat. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Perognathus longimembris pacificus	Pacific pocket mouse	FE/SSC/None	Fine-grained sandy substrates in open coastal strand, coastal dunes, and river alluvium.	Not expected to occur. The site is outside of the species' known extant geographic range, and there is no suitable vegetation present. The site is surrounded by development, and the flat, open portion of the site that could provide the most suitable area for the species appears to have been periodically disturbed for many years, including likely disking and mowing, which would have extirpated any populations on the site. In addition, the coastal sage scrub present is situated in small, isolated patches along a major roadway. There appears to be only one historical confirmed record for Pacific pocket mouse in Oceanside near the mouth of the San Luis Rey River, and the only two known extant populations in San Diego County are on Marine Corps Base Camp Pendleton, well north of the project site (Tremor et al. 2017). The project site is completely isolated from known populations of the species on Camp Pendleton, so there are no opportunities for immigration to the site, even if suitable habitat were present. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Taxidea taxus	American badger	None/SSC/None	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils.	Low potential to occur due to high levels of human activity in the area. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).
Invertebrates				
Branchinecta lynchi	vernal pool fairy shrimp	FT/None/None	Vernal pools, seasonally ponded areas within vernal swales, and ephemeral freshwater habitats.	Not expected to occur. Although the site supports clay soils, the project site is outside the known distribution range for this species. As such, the nearest occurrence for this species is in the vicinity of Murrieta (CDFW 2022; USFWS 2022).
Branchinecta sandiegonensis	San Diego fairy shrimp	FE/None/None	Vernal pools, non-vegetated ephemeral pools.	Low potential to occur. Although the site supports clay soils (along the northwest and eastern edges of the site), the majority of the site is surrounded by development and appears to have periodically experienced disturbance through mowing and/or disking for many years, so the site is unlikely to support this species. The closest records for fairy shrimp species is approximately 5 miles northwest of the project site on Marine Corps Base Camp Pendleton (CDFW 2022; USFWS 2022).

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
Danaus plexippus	Monarch butterfly	FC/None/None	Wind-protected tree groves with nectar sources and nearby water sources	Not expected to occur. The site lacks wind-protected trees or groves that would be suitable as transitory or overwintering habitat for this species. Additionally, there are no known occurrences or overwintering sites within 5 miles of the project site (CDFW 2022; Xerces 2022).
Euphydryas editha quino	Quino checkerspot butterfly	FE/SCE/Covered	Annual forblands, grassland, open coastal scrub and chaparral; often soils with cryptogamic crusts and fine-textured clay; host plants include *Plantago erecta, Antirrhinum coulterianum*, and *Plantago patagonica* (Silverado Occurrence Complex).	Low potential to occur. No host plants were observed during the rare plant survey. The site is outside critical habitat. The closest known USFWS occurrence overlaps with the project site; however, this occurrence is dated 1951 and with an unknown location in the vicinity of Vista (USFWS 2022).
Streptocephalus woottoni	Riverside fairy shrimp	FE/None/Covered	Vernal pools, non-vegetated ephemeral pools.	Low potential to occur. Although the site supports clay soils (along the northwest and eastern edges of the site), the majority of the site is surrounded by development and appears to have periodically experienced disturbance through mowing and/or disking for many years, so the site is unlikely to support this species. The closest records for fairy shrimp species is approximately 5 miles northwest of the project site on Marine Corps Base Camp Pendleton (CDFW 2022; USFWS 2022).
Panoquina errans	wandering skipper	None/None/Covered	Saltmarsh.	Not expected to occur. No suitable saltmarsh habitat is present. Additionally, there are no known occurrences within 5 miles of the project site (CDFW 2022).

Status Legend
Federal
BCC: U.S. Fish and Wildlife Service Birds of Conservation Concern
FC: Federal candidate species (former Category 1 candidates)
FPD: Federally proposed for delisting
FE: Federally listed as endangered
FT: Federally listed as threatened
State
FP: California Department of Fish and Wildlife fully protected species
SCD: State candidate for delisting
SCE: State candidate for listing as endangered
SE: State listed as endangered
ST: State listed as threatened
SSC: California species of special concern
WL: California Department of Fish and Wildlife watch list species
Oceanside Subarea Plan
Covered: Species covered under the Subarea Plan

References
CDFW (California Department of Fish and Wildlife). 2022. California Natural Diversity Database (CNDDB). RareFind, Version 5. (Commercial Subscription). Sacramento: CDFW, Biogeographic Data Branch. Accessed July 2022. https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data.
SanBIOS (County of San Diego, GIS Data). 2022. County of San Diego GIS Data. Accessed July 2022.
Tremor, S., ed. 2017. San Diego County Mammal Atlas. Illustrated by J. Zee. San Diego, California: San Diego Natural History Museum.
Unitt, P. 2012. “The Birds of San Diego County, from the San Diego County Bird Atlas.” Accessed July 2022. https://sdplantatlas.org/BirdAtlas/BirdPages.aspx.
USFWS (U.S. Fish and Wildlife Service). 2022. “Critical Habitat and Occurrence Data” [map]. USFWS Geospatial Services. Accessed July 2022. http://www.fws.gov/data.
USGS (U.S. Geological Survey). 2022. “Flow Lines, Water Points, Watershed Boundaries” [digital GIS data]. National Hydrography Dataset website. http://nhd.usgs.gov/.
Xerces (Xerces Society for Invertebrate Conservation). 2022. “Find an Overwintering Site” [map]. Accessed July 2022. https://www.westernmonarchcount.org/find-an-overwintering-site-near-you/.

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Appendix D

Cultural Resources Inventory Report

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August 23, 2022 13937

Matt McGlashan
Mill Creek Residential Trust
949 South Coast Drive, Suite 400
Costa Mesa, CA 92626

Subject: Cultural Resources Inventory Report for the Modera Melrose Project, Oceanside, California

Dear Mr. McGlashan:

The following letter report summarizes the cultural resources Phase I inventory conducted for the Modera Melrose Project (Project), located in Oceanside, California (Figure 1). The Project would consist of the construction of 323-unit residential project located at the southeast corner of Melrose Drive and West Bobier Drive. These cultural resources investigation was conducted in accordance with the California Environmental Quality Act (CEQA) and the City of Oceanside Guidelines for historical resources. The City of Oceanside (City) is the CEQA Lead Agency for the Project. In accordance with CEQA, Dudek performed a Phase I cultural resources inventory for the entire area of potential effect (APE). The Project APE consists of an approximately 7.4-acre property covering two parcels (APNs 161-030-23-00 and 161-030-24) (Figure 2).

CEQA refers to sequential stages of cultural resources investigation, including Inventory, Evaluation, and Mitigation. Phase I (Inventory), Phase II (Evaluation), and Phase III (Mitigation) are vernacular terms used in the cultural resources industry. For the purposes of this report, Phase I is defined as an Inventory and includes archival research for archaeological resources and Tribal Cultural Resources (TCR), pedestrian surveys, and other inventory methods.

Brian F. Smith and Associates, Inc. (BFSA) conducted a cultural resources Due Diligence Study for the entire Project APE in 2021 (Smith 2021). The study is summarized herein in this letter report.

A records search was conducted by Dudek at the South Coastal Information Center (SCIC) for the proposed Project APE and a one-mile radius search buffer around the Project APE. The records search identified a portion of CA-SDI-5345 recorded within the northeastern portion of the Project APE. A total of 21 cultural resources were identified within the one-mile radius search buffer. A Native American Heritage Commission (NAHC) Sacred Lands File SLF search indicated positive results of Native American cultural resources within the Project area. Outreach letters were mailed to all Native American group representatives included on the NAHC contact list and four responses have been received to date. Through the outreach effort, it was determined that the Project APE is located in close proximity to culturally sensitive areas, such as village sites and ceremonial sites. An intensive pedestrian survey of the Project APE did not identify any archaeological or built environment resources. Dudek also did not relocate CA-SDI-5345 during the pedestrian survey. The Project APE has been disturbed by previous grading activities.

The portion of CA-SDI-5345 within the Project APE has been destroyed. The site is not a significant archaeological resource under CEQA, however, due to the proximity of culturally sensitive areas, number of cultural resources

identified within one-mile of the Project APE, and proximity to a drainage, there is potential for subsurface cultural resources, therefore, it is recommended that a qualified archaeologist and a Traditionally and Culturally Affiliated (TCA) Native American Monitor representing a TCA Luiseño Tribe are present during all ground-disturbing activities.

1 Project Description and Location

The Project APE is located at the southeast corner of Melrose Drive and West Bobier Drive in the City of Oceanside, California in northwest San Diego County. The Project site falls within Section 13 of Township 11 South, Range 4 West, 3 West of the San Luis Rey, California 7.5-minute U.S. Geological Survey Topographic Quadrangle Map (Figure 1). The proposed Project consists of the construction of a 323-unit residential project. The proposed residential development would include 33 affordable/low-income units and 290 market rate units ranging from 666 square feet to 1,429 square feet. Access is proposed from West Bobier Drive and the northeastern corner of the project site. In the event of an emergency, adequate emergency access would be provided via the entrance on West Bobier Drive. Additionally, the development would include 526 parking spaces for residences and guests. The project development would include six buildings, five of which would be four- to five-story residential buildings, and one of which would be a four-story mixed-use building that would include commercial uses on the ground level and three residential levels. The proposed residential units would include one, two, or three bedrooms, living areas, and garage spaces for select units. The APE for the project consists of the consists of an approximately 7.4-acre property covering two parcels (APNs 161-030-23-00 and 161-030-24) (Figure 2).

2 Regulatory Framework

The City is the Lead Agency for compliance with the CEQA. This study is compliant with cultural resource regulations that apply to the Project APE including provisions for the California Register of Historic Resources (CRHR), Native American Historic Cultural Sites (California Public Resources Code section 5097 et seq.), the California Native American Graves Protection and Repatriation Act, CEQA, California Health and Safety Code section 7050.5, Assembly Bill Number 52, and the City's Guidelines.

2.1 The California Register of Historic Resources (Public Resources Code section 5020 et seq.)

Under CEQA, the term "historical resource" includes but is not limited to "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (California Public Resources Code section 5020.1(j)). In 1992, the California legislature established CRHR "to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (California Public Resources Code section 5024.1(a)). A resource is eligible for listing in the CRHR if the State Historical Resources Commission determines that it is a significant resource and that it meets any of the following National Register of Historic Places (NRHP) criteria:

- Associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

- Associated with the lives of persons important in our past.
- Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
- Has yielded, or may be likely to yield, information important in prehistory or history.

(California Public Resources Code section 5024.1(c).) Resources less than 50 years old are not considered for listing in the CRHR, but may be considered if it can be demonstrated that sufficient time has passed to understand the historical importance of the resource (see 14 CCR, section 4852(d)(2)).

The CRHR protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources. The criteria for the CRHR are nearly identical to those for the NRHP, and properties listed or formally designated as eligible for listing on the NRHP are automatically listed on the CRHR, as are the state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys. The State Historic Preservation Officer maintains the CRHR.

2.2 Native American Historic Cultural Sites (California Public Resources Code section 5097 et seq.)

State law addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction; establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project; and establishes the NRHC to resolve disputes regarding the disposition of such remains. In addition, the Native American Historic Resource Protection Act makes it a misdemeanor punishable by up to 1 year in jail to deface or destroy an Indian historic or cultural site that is listed or may be eligible for listing in the CRHR.

2.3 California Native American Graves Protection and Repatriation Act

The California Native American Graves Protection and Repatriation Act (California Repatriation Act), enacted in 2001, required all state agencies and museums that receive state funding and that have possession or control over collections of human remains or cultural items, as defined, to complete an inventory and summary of these remains and items on or before January 1, 2003, with certain exceptions. The California Repatriation Act also provides a process for the identification and repatriation of these items to the appropriate tribes.

2.4 California Environmental Quality Act

As described further below, the following CEQA statutes and CEQA Guidelines are of relevance to the analysis of archaeological and historic resources:

1. California Public Resources Code section 21083.2(g): Defines “unique archaeological resource.”
2. California Public Resources Code section 21084.1 and CEQA Guidelines section 15064.5(a): Define historical resources. In addition, CEQA Guidelines section 15064.5(b) defines the phrase “substantial adverse change in the significance of an historical resource;” it also defines the circumstances when a project would materially impair the significance of a historical resource.

3. California Public Resources Code section 5097.98 and CEQA Guidelines section 15064.5(e): Set forth standards and steps to be employed following the accidental discovery of human remains in any location other than a dedicated ceremony.
4. California Public Resources Code sections 21083.2(b)-(c) and CEQA Guidelines section 15126.4: Provide information regarding the mitigation framework for archaeological and historic resources, including options of preservation-in-place mitigation measures; preservation-in-place is the preferred manner of mitigating impacts to significant archaeological sites because it maintains the relationship between artifacts and the archaeological context, and may also help avoid conflict with religious or cultural values of groups associated with the archaeological site(s).

Under CEQA, a project may have a significant effect on the environment if it may cause "a substantial adverse change in the significance of an historical resource" (California Public Resources Code section 21084.1; CEQA Guidelines section 15064.5(b)). If a site is either listed or eligible for listing in the CRHR, or if it is included in a local register of historic resources, or identified as significant in a historical resources survey (meeting the requirements of California Public Resources Code section 5024.1(q)), it is a "historical resource" and is presumed to be historically or culturally significant for purposes of CEQA (California Public Resources Code section 21084.1; CEQA Guidelines section 15064.5(a)). The lead agency is not precluded from determining that a resource is a historical resource even if it does not fall within this presumption (California Public Resources Code section 21084.1; CEQA Guidelines section 15064.5(a)).

A "substantial adverse change in the significance of an historical resource" reflecting a significant effect under CEQA means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (CEQA Guidelines section 15064.5(b)(1); California Public Resources Code section 5020.1(q)). In turn, the significance of a historical resource is materially impaired when a project:

1. Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or
2. Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
3. Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA.

2.5 California Health and Safety Code section 7050.5

CEQA Guidelines Section 15064.5 assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. As described below, these procedures are detailed in California Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98.

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. Health and Safety Code section

7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains shall occur until the County coroner has examined the remains (California Health and Safety Code Section 7050.5[b]). If the coroner determines or has reason to believe the remains are those of a Native American, the coroner must contact the NAHC within 24 hours (California Health and Safety Code Section 7050.5[c]). In accordance with California Public Resources Code Section 5097.98(a), the NAHC will notify the Most Likely Descendant (MLD). With the permission of the landowner, the MLD may inspect the site of discovery. Within 48 hours of being granted access to the site, the MLD may recommend means of treatment or disposition, with appropriate dignity, of the human remains and associated grave goods.

2.6 Assembly Bill 52

California Assembly Bill 52, which took effect July 1, 2015, establishes a consultation process between California Native American Tribes and lead agencies in order to address tribal concerns regarding project impacts and mitigation to "tribal cultural resources" (TCR). Public Resources Code section 21074(a) defines TCRs and states that a project that has the potential to cause a substantial adverse change to a TCR is a project that may have an adverse effect on the environment. A TCR is defined as a site, feature, place, cultural landscape, sacred place, and object with cultural value to a California Native American tribe that is either:

1. listed or eligible for listing in the CRHR or a local register of historical resources, or
2. determined by a lead agency to be a TCR.

2.7 City of Oceanside Guidelines

Chapter 14A of the City of Oceanside Municipal Code, referred to as the Historical Preservation Ordinance, identifies evaluation criteria under which a historical site or area may be designated (City of Oceanside 2017: Section 14A.6, Ordinance No. 82-14, Section 1, 9-8-82):

a) It exemplifies or reflects special elements of the city's cultural, social, economic, political, aesthetic, engineering, or architectural history; or

b) It is identified with persons or events significant in local, state, or national history; or

c) It embodies distinctive characteristics of a style, type, period, or method of construction, or is a valuable example of the use of indigenous materials or craftsmanship; or

d) It is representative of the notable work of a builder, designer, or architect; or

e) It is found by the council to have significant characteristics which should come under the protection of this chapter.

3 Project Background

3.1 Current Conditions

The approximately 7.4-acre APE is currently a disturbed, vacant property with no existing structures. The proposed Project APE has never been developed but the general level of previous ground disturbance is high, as noted by evidence of mowing/disking, grading, various dirt berms, and construction waste dumping piles. The Project APE has a discernable south-facing slope, with the lowest elevation along the southern edge of the Project APE. There are multiple large granite bedrock boulders located in the remains of a natural seasonal drainage along the south-central edge of the Project APE, all heavily exfoliated and damaged on outer surfaces. Vegetation within the Project APE includes primarily non-native grasslands and disturbed areas. Ornamental plantings occur along the southeastern edge of the site, bordering an existing residential development, and small isolated patches of coastal sage scrub exist in the western and northwestern portions of the Project APE.

The Project APE is underlain by weathered plutonic igneous rocks mapped as the Cretaceous-age Bonsall Tonalite, overlain by sedimentary rocks of the Eocene-age Santiago Formation (Deméré and Siren 2013). Soils consist of Diablo clay, 2 to 9 percent slopes within the northwestern corner and eastern section of the Project APE, and Tujunga Sand, 0 to 5 percent slopes throughout the rest of the Project APE (USDA 2022).

3.2 Prehistoric Context

Evidence for continuous human occupation in Southern California spans the last 10,000 years. Various attempts to parse out variability in archaeological assemblages over this broad period have led to the development of several cultural chronologies; some of these are based on geologic time, most are based on temporal trends in archaeological assemblages, and others are interpretive reconstructions. Each of these reconstructions describes essentially similar trends in assemblage composition in more or less detail. However, given the direction of research and differential timing of archaeological study following intensive development in Riverside County, chronology building in the Inland Empire must rely on data from neighboring regions to fill the gaps. To be more inclusive, this research employs a common set of generalized terms used to describe chronological trends in assemblage composition: Paleoindian (before 7500 years ago), Archaic (10,000 – 1500 years ago), Late Prehistoric (1500 BP[1]–AD 1769), and Ethnohistoric (after AD 1769).

3.2.1 Paleoindian Period (before 7500 years ago)

Evidence for Paleoindian occupation in the region is tenuous. Our knowledge of associated cultural pattern(s) is informed by a relatively sparse body of data that has been collected from within an area extending from coastal San Diego, through the Mojave Desert, and beyond. A very unique technology defined by fluted projectile points and a highly formal lithic tool kit with almost no processing equipment is often considered to be the earliest evidence of human adaptation to North America. Widely known as “Clovis,” regional manifestations of this toolkit show important variability both in projectile point style and tool kit composition. Importantly, the attributes of “Clovis” are uncommon in California, with very few examples of the diagnostic, “fluted” Clovis point. There is however, a notable exception from Crystal Cove State Park in southern Orange County (Fitzgerald and Rondeau 2012). This, along with

[1] “BP” indicates calibrated, calendar years before present (specifically, prior to AD 1950). Ages presented herein have been calibrated from the original age estimates wherever possible; ranges of general phenomena (e.g. cultural periods are approximate).

other potential attributes of Clovis culture along the California Coast remain undated, and most of the earliest well-dated sites from the region contain rather different archaeological assemblages (Erlandson et al. 2007).

While the earliest evidence for human activity in California comes from the Channel Islands, ca. 13,000 BP, it does not exhibit obvious cultural similarity with the Clovis phenomenon. However, in the southern Central Valley fluted Clovis points date from ca. 11,000–10,500 BP (Rogers and Yohe 2020). One of the earliest dated archaeological assemblages in coastal Southern California (excluding the Channel Islands) comes from SDI-4669/W-12 in La Jolla, with human remains dating to ca. 9900–9050 BP (Bada et al. 1984). The burial is part of a larger site complex that contained more than 29 human burials associated with an assemblage that fits the Archaic profile (i.e., large amounts of ground stone, battered cobbles, and expedient flake tools) (Kennedy 1983). In contrast, typical Paleoindian assemblages include large stemmed projectile points, high proportions of formal lithic tools, bifacial lithic reduction strategies, and relatively small proportions of ground stone tools. Prime examples of this pattern come from Naval Air Weapons Station China Lake near Ridgecrest (Davis 1978). These sites contained fluted and unfluted stemmed points and large numbers of formal flake tools (e.g., shaped scrapers, blades). Fluted points from SBR-2355 and SBR-2356, also in the Mojave Desert, are considered quite ancient (on the thickness of obsidian hydration rinds) and co-occur with a diverse assemblage that also contains stemmed points, typically attributed to the Lake Mojave archaeological culture. Other typical Paleoindian sites in the desert include the Komodo site (MNO-679)—a multi-component fluted point site, and MNO-680—a single component Great Basined Stemmed point site (Basgall 1987, 1988; Basgall et al. 2002). At MNO-679 and -680, ground stone tools were rare while finely made projectile points were common.

Turning back to coastal Southern California, the fact that some of the earliest dated assemblages are dominated by processing tools runs counter to traditional image of Paleoindians as highly mobile big-game hunters. Evidence for the latter—that is, typical Paleoindian assemblages—may have been located along the coastal margin at one time, prior to glacial desiccation and a rapid rise in sea level during the early Holocene (before 7500 BP) that submerged as much as 16 kilometers of the San Diego coastline since people first arrived in California, ca. 13,000 years ago (ICF 2013). If this were true, however, it would also be expected that such sites would be located on older landforms near the current coastline. Some sites, such as SDI-210 along Agua Hedionda Lagoon, contain stemmed points similar in form and age to Silver Lake and Lake Mojave projectile points from the high desert (Basgall and Hall 1993; Warren et al. 2004). However, sites of this nature are extremely rare; more typical are sites that contain large numbers of milling tools intermingled with older projectile point forms. Separating cultural components on the basis of artifact form and frequency is therefore difficult.

Warren et al. (2004) claim that a biface manufacturing tradition at the Harris site complex (SDI-149) is representative of typical Paleoindian occupation in the San Diego region that possibly dates between ca. 11,200 and 8200 BP (on the basis of radiocarbon dates from the Harris site itself). Termed San Dieguito (also see Rogers 1945), assemblages at the Harris site are qualitatively distinct from most others in the San Diego region because the site has large numbers of well-made bifaces (including projectile points), formal flake tools, a biface reduction trajectory, and relatively small amounts of processing tools (also see Warren 1964; Warren 1968). Despite the unique assemblage composition, the definition of San Dieguito as a separate cultural tradition is hotly debated. Gallegos (1987, 2017) suggested that the San Dieguito pattern is simply the inland manifestation of a broader economic pattern. This interpretation of San Dieguito has been widely accepted in recent years, in part because of the difficulty in distinguishing San Dieguito components from other assemblage constituents. In other words, it is easier to ignore San Dieguito as a distinct socioeconomic pattern than it is to draw it out of mixed assemblages.

The large number of finished bifaces (i.e., projectile points and non-projectile blades), along with large numbers of formal flake tools at the Harris site complex, is very different than nearly all other assemblages throughout the San Diego region, regardless of age. Warren et al. (2004) made this point, tabulating basic assemblage constituents for key early Holocene sites. Producing finely made bifaces and formal flake tools implies that relatively large amounts of time were spent on tool manufacture. Such a strategy contrasts with the expedient flake-based tools and cobble-core reduction strategy that typifies the regional Archaic sites (see below). It can be inferred from the uniquely high degree of San Dieguito assemblage formality that the Harris site complex represents an economic strategy distinct from that represented by other roughly contemporaneous assemblages from throughout the region.

San Dieguito sites are rare in the inland valleys, with one possible candidate, RIV-2798/H, located on the shore of Lake Elsinore. Excavations at Locus B at RIV-2798/H produced a toolkit consisting predominately of flaked stone tools, including crescents, points, and bifaces, and lesser amounts of groundstone tools, among other items (Grenda 1997). A calibrated and reservoir-corrected radiocarbon date on a shell from this site points to an early occupation, ca. 8880–8525 BP. Grenda suggested this site represents seasonal exploitation of lacustrine resources and small game and resembles coastal San Dieguito assemblages and spatial patterning.

If the San Dieguito pattern truly represents a socioeconomic strategy distinct from the regional Archaic processing regime, its rarity implies that it was not only short-lived, but that it was not as economically successful as the Archaic strategy. Such a conclusion would fit with other trends in Southern California deserts, where hunting-related tools were replaced by processing tools during the early Holocene (Basgall and Hall 1990).

2.2.2 Archaic Period (10,000 – 1500 years ago)

The more than 2,500-year overlap between the presumed age of Paleoindian occupations and the Archaic period highlights the difficulty in defining a cultural chronology in Southern California. If San Dieguito is the only recognized Paleoindian component in the coastal Southern California, then the dominance of hunting tools implies that it derives from Great Basin adaptive strategies and is not necessarily a local adaptation. Warren et al. (2004) admitted as much, citing strong desert connections with San Dieguito. Thus, the Archaic pattern is the earliest local socioeconomic adaptation in the region (see Hale 2001, 2009).

The Archaic pattern, which has also been termed the Millingstone Horizon (among other things), is relatively easy to define with assemblages that consist primarily of processing tools, such as millingstones, handstones, battered cobbles, heavy crude scrapers, incipient flake-based tools, and cobble-core reduction. These assemblages occur in all environments across the region with little variability in tool composition. Low assemblage variability over time and space among Archaic sites has been equated with cultural conservatism (Basgall and Hall 1990; Byrd and Reddy 2002; Warren 1968; Warren et al. 2004). Despite enormous amounts of archaeological work at Archaic sites, little change in assemblage composition occurred until the bow and arrow, and then ceramics, were adopted after 1500 BP (Griset 1996; Hale 2009; Schaefer 2012). Even then, assemblage formality remained low. After the bow was adopted, small arrow points appear in large quantities and already low amounts of formal flake tools are replaced by increasing amounts of expedient flake tools. Similarly, shaped millingstones and handstones decreased in proportion relative to expedient, unshaped ground stone tools (Hale 2009). Thus, the terminus of the Archaic period is equally as hard to define as its beginning because basic assemblage constituents and patterns of manufacturing investment remain stable, complemented only by the addition of the bow and ceramics.

2.2.3 Late Prehistoric Period (1500 BP-AD 1769)

The period of time following the Archaic and before Ethnohistoric times (AD 1769) is commonly referred to as the Late Prehistoric (McDonald and Eighmey 2004; Rogers 1945; Wallace 1955); however, several other subdivisions continue to be used to describe various shifts in assemblage composition. In general, this period is defined by the addition of arrow points and ceramics, as well as the widespread use of bedrock mortars. The fundamental Late Prehistoric assemblage is very similar to the Archaic pattern but includes arrow points and large quantities of fine debitage from producing arrow points, as well as ceramics, and cremations. The appearance of mortars and pestles is difficult to place in time because most mortars are on bedrock surfaces. Some argue that the Ethnohistoric intensive acorn economy extends as far back as 1500 BP (Bean and Shipek 1978). However, there is no substantial evidence that reliance on acorns, and the accompanying use of mortars and pestles, occurred before 600 BP. In Riverside County and the surrounding region, millingstones and handstones persisted in higher frequencies than mortars and pestles until the last 500 years (Basgall and Hall 1990); even then, weighing the economic significance of millingstone-handstone versus mortar-pestle technology is tenuous due to incomplete information on archaeological assemblages.

2.2.4 Ethnohistory

The proposed Project site lies within an area considered ancestral to the Luiseño.

Luiseño

The Luiseño language belongs to the Cupan group of the Takic language branch of the Uto-Aztecan language family. Luiseño is a term given to Native Americans under the administration of Mission San Luis Rey, and later applied specifically to the Payomkawichum ethnic nation who were present in the region where the mission was founded. Meaning the “western people,” the name Payomkawichum can also be applied to the closely related coastal Luiseño who lived north of the mission.

Luiseño territory was situated in the north half of San Diego County and the western edge of Riverside County. Their lands encompassed the southern Santa Margarita Mountains and the Palomar Mountains, and their foothills to the Pacific Ocean. The territory extended eastward into the San Jacinto Valley and the western foothills of the San Jacinto Mountains. Their neighbors to the were the Juaneño (Acjachemen) who spoke a Luiseño dialect; the Cahuilla and Cupeño to the east who spoke other Takic Cupan languages; and the Ipai (Kumeyaay) to the south who spoke a California-Delta Yuman language.

The Luiseño resided in permanent villages and associated seasonal camps. Village population ranged from 50–400 with social structure based on lineages and clans. A single lineage was generally represented in smaller villages, while multiple lineages and a dominant clan presided in larger villages. Each clan/village owned a resource territory and was politically independent, yet maintained ties to others through economic, religious, and social networks in the immediate region. There were contact period villages in the vicinity of this segment, near the towns of Vista, San Marcos, and Escondido, but researchers have been unable to place rancheria names from the mission registers with these locations.

Like other Indigenous California groups, the primary food staple was the acorn (Bean and Shipek 1978), supplemented by other plant resources, fish, shellfish, waterfowl, and marine and terrestrial mammals. Villages were situated near reliable sources of water, needed for the daily leaching of milled acorn flour. Other plant foods

included pine nuts and grass seeds, manzanita, sunflower, sage, chia, lemonade berry, wild rose, holly-leaf cherry, prickly pear, and lamb's quarter. Large and small prey included deer, antelope, rabbit, jackrabbit, wood rat, mice, and ground squirrel, as well as quail, ducks, and other birds. Fish, such as trout, were caught in rivers and creeks.

The first direct European contact with the Luiseño occurred in July 1769 with the Spanish expedition led by Gaspar de Portolá. During the next six years, eight missions and forts were founded north and south of Luiseño territory. In 1776, Mission San Juan Capistrano was founded less than 10 miles north, and the populations of five northern Luiseño villages had been halved within 15 years. In 1798, Mission San Luis Rey was established within Luiseño territory, and the proselytizing among the Payomkawichum began in earnest.

Several Luiseño leaders signed the statewide 1852 treaty, locally known as the Treaty of Temecula (an interior Luiseño village), but the U.S. Congress never ratified it. By 1875, however, reservations for the Luiseño were established in the Palomar Mountains and nearby valleys, including Pala, Pauma, Rincon, Pechanga, and La Jolla.

San Luis Rey

Rio San Luis Rey de Francia was the name given by the Franciscan Friars to what is now known as the San Luis Rey River, and the mission of San Luis Rey de Francia was established in 1798, four miles up the San Luis Rey River (Sparkman 1908). Approximately 20 miles up the San Luis Rey River was the mission of Pala, established in 1816 as an outpost of San Luis Rey de Francia (Sparkman 1908). The Mission San Luis Rey is located approximately 3.5 miles northwest of the proposed Project APE.

Luiseño geographical names are very numerous; small tracts with distinguishing features may be named, or there may be a name for a small portion of a tract, or names for a large tract of country (Sparkman 1908). Each band had its tract in the San Luis Rey valley (Sparkman 1908). Some geographical names may be descriptive and some names are of old village sites noted to be located near modern localities and settlements; for example Keish is associated with San Luis Rey (Sparkman 1908). Kroeber has also noted several villages along the San Luis Rey River; Ikaimai was also noted to be located near Mission San Luis Rey near Keish (Kroeber 1925). Located to the east from the Mission San Luis Rey were Wiasamai and Wahaumai, continuing east from the Mission San Luis Rey is Kwalam (Opila), Tomkav, and Pala, and Wiawio was noted to be located at the west coast of the San Luis Rey River (Kroeber 1925).

4 Methods

4.1 Records Search

Previous Studies

Dudek conducted a records search at the SCIC for the Project APE and a one-mile radius buffer around the Project on March 16, 2022 (Confidential Appendix A). The records search results indicate that 79 previous cultural resources studies have been conducted within one-mile of the Project APE. Of the 79 studies, eight studies intersect the Project APE and are listed in Table 1 below. These studies include two archaeological testing programs, four cultural resources survey reports, one archaeological evaluation report, and one archaeological investigation report. Additionally, a Due Diligence Study prepared for the Project by BFSA (Smith 2021) in 2021 was provided to Dudek

(Confidential Appendix A). Based on the previous studies, the entire APE has been studied. The studies not listed in Table 1 are included in Confidential Appendix A.

Table 1. Reports Intersecting the Project APE

Report Number	Date	Authors	Title
SD-00503	1978	Paul G. Chace	Archaeological Test Excavations at SDI-5345, the Church Site, City of Vista.
SD-01090	1979	Westec Services, Inc.	Archaeological Investigation of the Colluci Property, Oceanside, California
SD-11228	1987	Marben-Laird Associates	Historic Resource Survey, A Project of the City of Vista, California
SD-11524	2007	Brian F. Smith and Associates	A Cultural Resources Evaluation for the Vista and Buena Sanitation District 2007 Sewer Master Plan Update
SD-11563	2008	ASM Affiliates, Inc.	Archaeological Resources Survey of the Melrose Station Market, Oceanside, San Diego County, California
SD-11742	2008	Gatlin Development Company	Archaeological Resources Survey, Bobier Property (APN 161-030-07), Vista, San Diego County, California
SD-14069	2011	ASM Affiliates, Inc.	Cultural and Historical Resource Study for the City of Oceanside General Plan- Circulation Element Update Program Environmental Impact Report
SD-14122	2013	Affinis	Cultural Resources Survey and Assessment, Vista Ridge Apartments, Vista, San Diego County, California
N/A	2021	Brian F. Smith and Associates	Results of a Cultural Resources Due Diligence Study for the Modera Melrose Project (APNs 161-030-07, -23, and -24), Cities of Oceanside and Vista, San Diego County, California

Smith 2021

BFSA completed a Due Diligence Study for the current Project APE in 2021. The study included a review of SCIC records and previous studies, NAHC SLF files, and a reconnaissance survey of the APE. A portion of CA-SDI-5345 is recorded within the eastern portion of the Project APE. Eight additional sites CA-SDI-6088, CA-SDI-6089, CA-SDI-6090, CA-SDI-6091, CA-SDI-6092, CA-SDI-6093, CA-SDI-8241, and SDI-11630 are located to the north and northeast of the Project APE. CA-SDI-5345 was originally recorded as consisting of bedrock milling features and a partially disturbed surface scatter of prehistoric habitation debris in 1975 by B. Underwood. Paul Chace conducted test excavations in 1978 and determined that a majority of CA-SDI-5345 was destroyed by grading activities. BFSA conducted a survey of the Project APE on February 11, 2021 and noted that the property was impacted by previous agricultural uses, some grading activity, a block retaining wall, entry gate, and driveway at the northeast portion of the Project APE. BFSA relocated two bedrock milling features were within the eastern portion of the Project APE. No artifacts or additional features associated with CA-SDI-5345 were identified and no additional archaeological sites were identified within the Project APE. While a majority of CA-SDI-5345 was previously destroyed, there is still

potential for inadvertent archaeological discoveries, and archaeological and Native American monitoring would likely be required by the City of Oceanside.

SD-00503

Paul G. Chace & Associates conducted a testing program at CA-SDI-5345 in 1978. Five 5-ft x 5-ft square subsurface test units were excavated and placed within a five-foot grid system over the entire project area, and a series of soil auger tests were performed with a manual 10-inch diameter bucket augur. The units were excavated in six-inch horizontal levels. There was very little prehistoric cultural material recovered from the site. In totally, only 24 pieces of prehistoric material were recovered and consisted of one flaked core, one wedge-shaped piece of limestone, one milling basin fragment, one cobble, and 20 flakes of stone debitage. Modern trash was encountered in large quantities during the excavation of the test units. This demonstrated that the soil deposit was highly disturbed and that the site lacked integrity of association to distinguish between the prehistoric and modern material in the deposit. The testing program concluded that the archaeological resources at CA-SDI-5345 are limited and lack integrity of setting and association, that it can be included that CA-SDI-5345 will not yield information important in prehistory. CA-SDI-5345 is not eligible for the National Register of Historic Places. It is proposed that no further mitigation measures are necessary to mitigate any impacts against the site. The maps in the report do not indicate the site boundaries, however, the mapping on the USGS map with the site record shows it extending on both the north and south side of Bobier Drive.

SD-11742

Affinis conducted a cultural resources survey in 2008 of the Bobier Property (APN 161-030-07) located immediate adjacent and to the east of the proposed Project APE. CA-SDI-5345 is located within the Bobier Property and was previously tested by Paul G. Chace & Associates in 1978. During the survey, two bedrock milling features were noted, as well as two marine shells and a piece of metavolcanic angular waste. The survey did not contradict the previous assessment concluded by Chace in which CA-SDI-5345 was determined not to be a significant resource. Impacts to CA-SDI-5345 would not constitute a significant environmental effect. CA-SDI-5345 does not meet the criteria for listing on the California Register, nor would it be considered a historic property. However, due to the proximity of cultural sensitive areas such as the Luiseño village of Guajome, there is potential for subsurface cultural resources and an archaeological monitoring program was recommended.

SD-11563

ASM conducted a survey for the Melrose Station Market Project in 2007. This survey covers the proposed Project APE. One prehistoric milling feature was noted in the northeastern corner of the project area, within the approximate area where CA-SDI-5345 was mapped. The feature consists of a partial milling slick surface on an approximately 70 cm x 60 cm x 70 cm granite boulder. The slick is situated on a vertical angle, therefore, it is clear the feature is not in its original location and was likely moved to its current position during past construction and development. In addition, a marine shell fragment (s*p. Argopecten aequisulcatus*) was identified less than 5 meters from the eastern boundary fence adjacent to the location of CA-SDI-5345. The fragment was located on the surface and not in association with any midden soils. Three exploratory shovel tests pits were excavated during the survey immediately adjacent to the location where the shell was discovered. Within 20 cm below the surface, a modern ceramic fragment was recovered. The ceramic was decorated with a scallop shell set in expoy resin. The scallop shell from the ceramic fragment is the same type of shell noted on the surface, therefore, the surface shell fragment is likely modern in origin. In addition, three backhoe trenches approximately 25 feet long, 2.5 to 3 feet deep, located

approximately 5 feet apart, were excavated. No evidence of any buried cultural materials were found the trench excavations. While one prehistoric milling feature was identified, the feature is not in its original location. No other evidence for CA-SDI-5345 or any other prehistoric archaeological site was found during the survey and trenching and monitoring was not recommended.

SD-14122

Affinis conducted a survey and testing program of CA-SDI-5345 in 2012 for the Vista Ridge Apartments. Testing included documentation of the bedrock milling feature and 12 shovel test pits measuring 50 cm x 30 cm and excavated in 10 cm levels. CA-SDI-5345 was recorded immediately south of the Vista Ridge Apartments property and noted as being significantly disturbed by the construction of West Bobier Drive. One small bedrock milling feature was noted during the survey along with a scatter of 30 surface artifacts consisting of marine shell, animal bone, and lithic artifacts. The testing program resulted in the recovery of seven pieces of debitage, indicating a lock of subsurface cultural deposits. Due to the amount of past disturbance and the scarcity of cultural material, CA-SDI-5345 is not a significant archaeological resource under CEQA, and impacts to the site do not constitute significant environmental effects. This study does not cover the proposed Project APE, as the Vista Ridge Apartments is located northeast of the Project APE, north of Bobier Drive.

Previously Recorded Resources

The SCIC records indicate that a portion of one site, CA-SDI-5345/P-37-005345, is located within the northeastern portion of the Project APE. The records search results identified a total of 21 cultural resources previously recorded within one-mile of the Project APE (Table 2). Of the total 21 resources identified in the one-mile buffer, 16 are prehistoric resources and four are historic resources and one is a multicomponent site. No historic addresses have been recorded within the Project APE. The results of the records search and all DPR forms are located in Confidential Appendix A.

Table 2. Previously Recorded Cultural Resources in the One-Mile Record Search Radius

Primary Number	Trinomial	Age	Description	In/ Out of APE
P-37-004991	-	Prehistoric	Lithic scatter and metate fragment	Out
P-37-004992	-	Prehistoric	Lithic scatter and bedrock milling feature	Out
P-37-005345	CA-SDI-5345	Prehistoric	Bedrock milling with lithic scatter	In
P-37-005992	CA-SDI-5992	Historic	Guajome Ranch House	Out
P-37-006604	CA-SDI-6004	Prehistoric	Lithic scatter and flaking debris	Out
P-37-006088	CA-SDI-6088	Prehistoric	Bedrock milling with shell and lithic scatter	Out
P-37-006089	CA-SDI-6089	Prehistoric	Lithic fragments	Out
P-37-006090	CA-SDI-6090	Prehistoric	Bedrock milling feature with lithic scatter	Out

P-37-006091	CA-SDI-6091	Prehistoric	Bedrock milling with lithic scatter	Out
P-37-006092	CA-SDI-6092	Prehistoric	Bedrock milling features	Out
P-37-006093	CA-SDI-6093	Prehistoric	Bedrock milling with flakes	Out
P-37-008241	CA-SDI-8241	Prehistoric	Bedrock milling, pictographs, midden, shell, lithic tool scatter	Out
P-37-008242	CA-SDI-8242	Prehistoric	Village site and human burial of recent European origin	Out
P-37-011630	CA-SDI-11630	Prehistoric	Shell scatter	Out
P-37-013182	CA-SDI-13182H	Multicomponent	Prehistoric lithic tool scatter, bedrock milling features, and historic tiles and pottery	Out
P-37-019211	CA-SDI-15889	Prehistoric	Campsite with hearth feature, groundstone tool cache, and human burial	Out
P-37-028774	-	Historic	Vista Community Center	Out
P-37-029291	CA-SDI-18734	Prehistoric	Lithic tool scatter and debitage	Out
P-37-029400	-	Historic	Residential foundations, swimming pool, shed, palm nursery	Out
P-37-035549	-	Historic	Single family property	Out
P-37-038378	CA-SDI-22643	Prehistoric	Bedrock milling features	Out

CA-SDI-5345

As noted above, CA-SDI-5345 was recorded by B. Underwood in 1975 as a prehistoric bedrock milling feature with one milling element that consisted of a mortar. The SCIC GIS data maps CA-SDI-5345 within the northeastern corner of the Project APE (Confidential Appendix B). In 1975, B. Underwood noted that the property owners reported that the site contained handstones, metates, and small triangular projectile points, but lacked pottery. Since there was no official site form prepared by B. Underwood in 1975, P. Chace officially recorded CA-SDI-5345 in 1977 and noted midden soil adjacent to the bedrock milling granite. The approximate size of the site was undetermined, but P. Chace noted the site to be potentially larger than one acre. Chace conducted a testing program consisting of five test units, each approximately 5 square feet in 1978. The testing program yielded 24 artifacts consisting of a core, wedge-shaped piece of limestone, metate fragment, cobble handstone, and 20 flakes. The testing program concluded that the CA-SDI-5345 will not yield information important in prehistory and determined to not be a significant resource under CEQA, and no further work was recommended. R.L. Franklin revisited CA-SDI-5345 in 1979 and noted the site to be approximately 4m x 5m and consisting of bedrock grinding features, a midden, various handstones, two metates, and a metate fragment. In 2008, Affinis revisited the site and noted that most of CA-SDI-5345 had been destroyed by construction of West Bobier Drive. Two bedrock milling features were noted, two marine shells, and a piece of metavolcanic angular waste. No evidence was found to contradict the previous assessment of CA-SDI-5345 as not being a significant resource under CEQA.

ASM Affiliates Inc. conducted a survey in 2007 for the proposed Melrose Station Market Project, which is located immediately adjacent to CA-SDI-5345 and covers the current proposed Project APE. One bedrock milling slick was noted on a displaced granite boulder. The slick was relatively vertical which strongly implied that the boulder was disturbed and not in situ. No other archaeological evidence was noted during the survey. A marine shell fragment (*sp. Argopecten aequisulcatus*) was identified less than 5 meters from the eastern boundary fence adjacent to the location of CA-SDI-5345. The fragment was located on the surface and not in association with any midden soils. Three exploratory STPs were excavated during the survey immediately adjacent to the location where the shell was discovered. Within 20 cm below the surface, a modern ceramic fragment was recovered. The ceramic was decorated with a scallop shell set in epoxy resin. The scallop shell from the ceramic fragment is the same type of shell noted on the surface, therefore, the surface shell fragment is likely modern in origin. In addition, three backhoe trenches approximately 25 feet long, 2.5 to 3 feet deep, located approximately 5 feet apart, were excavated. No evidence of any buried cultural materials were found the trench excavations. There was an absence of materials from site CA-SDI-5345.

Affinis conducted a survey in 2012 for the proposed Vista Ridge Apartments Project and CA-SDI-5345 was located within the project area. One small bedrock milling feature and a surface scatter of shell and lithic artifacts consisting of 37 flaked stone artifacts, shell, animal bone, and historic glass and metal were noted. A testing program consisting of 12 shovel test pits was conducted and yielded seven pieces of debitage and three historic items. The testing program determined that the property has been subject to a great deal of past disturbance associated with develop of the two existing residential lots and the placement of fill soils with the development of West Bobier Drive. Native soil and bedrock were still exposed on the south-central and southeastern portions of the project and there is a possibility that cultural material still exist beneath the fill soils. The testing program concluded that CA-SDI-5345 is not a significant archaeological resource under CEQA, however, the area is of cultural importance to the Luiseño people, and significant cultural resources are known in the vicinity. The proposed current Project would not impact (direct or indirect) site CA-SDI-5345.

4.2 Archival Research

Historic topographic maps and historic aerial images were reviewed to understand the development of the Project area and surrounding properties at historicaerials.com (NETR 2022). Historic aerial photographs of the project site were available for 1938, 1946, 1953, 1964, 1967, 1978, 1980-1986, 1988-1991, 1993-2000, 2003, 2005, 2009, 2010, 2012, 2014, 2016, and 2018. The historic aerial from 1938 shows the Project APE disturbed by agricultural activities. West Bobier Drive/Ocean Boulevard exists as a dirt road immediately north of the Project APE and a residential structure appears to the east of the Project APE. The 1946 aerial shows crops within the southeastern portion of the Project APE, and the rest of the Project APE as being mass graded. The 1953 aerial shows a majority of the crops disappearing. The 1964 aerial shows some dirt roads cutting through the middle of the Project APE, and a residential development appears to the east. By 1967, more grading occurs along the perimeter and middle portion of the Project APE and another residential development appears to the northeast. The 1978 aerial shows some slight ground disturbance in the western portion of the Project APE. The 1980 aerial does not reveal any changes to the Project APE.

The 1981 aerial shows mass grading to the northern and western perimeters of the Project APE, likely for construction of West Bobier Drive/Ocean Boulevard and Melrose Drive. The 1982 aerial shows West Bobier Drive/Ocean Boulevard as paved asphalt roads with some grading within the northern and western perimeter of the Project APE. The 1983-1984 aerials do not reveal any changes to the Project APE. The 1985 aerial shows dirt

trails within the western and southern portion of the Project APE. The 1986-1990 aerials do not reveal any changes to the Project APE. By 1991, some landscaping occurs on the northwestern perimeter of the Project APE. The 1994 aerial shows dirt trails in the middle of the Project APE and some ground disturbance to the northeastern corner of the Project APE. The 1995 to 2002 aerials do not reveal any changes to the Project APE. The 2005 aerial shows mass grading within the entire Project APE. The 2009-2012 aerials do not reveal any changes to the Project APE. The 2014 aerial shows ground disturbance in the Project APE. The 2018 aerial shows some ground disturbance within the Project APE. The review of the historic aerial images demonstrates that the Project APE has undergone extensive earth movement from agricultural activities, construction of the adjacent roads, and some grading activity. No historic structures are located within the Project APE.

Historic topographic maps of the Project APE were reviewed (earliest map available from 1893) and do not show historic-age structures within the Project APE.

4.3 NAHC and Tribal Correspondence

A search of the NAHC Sacred Lands File was requested on February 21, 2022 for the Project APE and a one-mile buffer. The SLF consists of a database of known Native American resources. These resources may not be included in SCIC database. The NAHC replied on April 12, 2022 with positive results, however, the response does not state if TCRs are located within the Project APE or the search buffer. The NAHC also recommended contacting the La Jolla Band of Luiseño Indians, Pechanga Band of Mission Indians, and the San Luis Rey Band of Mission Indians for more information (Appendix C). The NAHC additionally provided a list of Native American tribes and individuals/organizations with traditional geographic associations that might have knowledge of cultural resources in this area.

Outreach letters were mailed on April 13, 2022, to all Native American group representatives included on the NAHC contact list (Appendix C). The purpose of these letters is to solicit additional information relating to Native American resources that may be impacted by the Project. Native American representatives were requested to define a general area where known resources intersect the Project APE. Four responses have been received to date. A response was received from the Pechanga Band of Mission Indians on April 15, 2022 stating that the Project area is located within their Ancestral Territory, located in proximity to two Luiseño Traditional Cultural Properties, located near five Ancestral Placename locations and two ceremonial locations, and believes the possibility for recovering subsurface artifacts during ground-disturbing activities is extremely high. A response was received from the San Luis Rey Band of Mission Indians on April 26, 2022, stating that they are aware of cultural resources within close proximity to the proposed Project and recommends including a Luiseño Native American monitor during all ground disturbing activities. A response was received from the Barona Band of Mission Indians on April 29, 2022, requesting to consult under AB52 with the City. A response was received form the Rincon Band of Luiseño Indians on May 3, 2022, stating the Project is located within their Area of Historic Interest, and the Project may impact tangible TCRs, Traditional Cultural Landscapes, and potential Traditional Cultural Properties. They recommended conducing a cultural resources study including a records search and survey of the property. The letters have been forwarded to the City and included in the report. No other communications between Dudek and the tribes has occurred since then. The NAHC correspondence is included in Appendix C.

In compliance with Assembly Bill 52, the City, as lead agency, is responsible for conducting government to government consultation with pertinent tribal entities. For information regarding Assembly Bill 52, please refer to the Project's CEQA document.

4.4 Intensive Pedestrian Survey

The current intensive pedestrian field survey was conducted by Dudek archaeologist Scott Wolf on March 18, 2022. Saving Sacred Sites Native American Monitor VI'i Sialo'i participated in the survey. All survey work was conducted employing standard archaeological procedures and techniques consistent with Secretary of the Interior Standards. 5-meter interval survey transects were conducted. Exposed ground surface areas, such as vegetation clearings, cut banks, and rodent burrows/spoils were inspected for potential subsurface deposits and sediment conditions.

The Project APE had moderate to poor ground surface visibility due to various levels of ground covering surface vegetation (Figure 3). Vegetation covered approximately 75% of the ground surface. The general level of previous ground disturbance is very high, as noted by evidence of grading excavations and various dirt berms, as well as several dispersed locations of construction waste dumping piles (Figure 4). Small mammal burrows were noted on the property, offering a limited sample of immediate sub-surface sediments. The rodent spoils were searched for potential subsurface artifacts or other cultural materials and no artifacts were identified.

The Project APE has a discernable south-facing slope, with the lowest elevation along the southern edge of the Project APE. There are multiple large granite bedrock boulders located in the remains of a natural seasonal drainage along the south-central edge of the Project APE, all heavily exfoliated and damaged on outer surfaces. No milling surfaces were identified on these boulders. Additionally, three granite bedrock boulders are located along the southeastern corner of the Project APE (Figure 5). These boulders were inspected for cultural features, and none were identified. It strongly appears that the boulders are not in situ and have been placed in their current location.

No new artifacts or features were identified during the pedestrian survey. The previously recorded displaced milling feature identified during the 2007 ASM Affiliates survey of the Project APE is now missing and was not relocated during the current survey (Figure 6). In 2007-2008, this feature was presumed to have been displaced from the immediately adjacent site, CA-SDI-5345.

No artifacts or features were identified within the previously recorded site boundaries of CA-SDI-5345 or in the vicinity associated with CA-SDI-5345. CA-SDI-5345 was not relocated within the Project APE. No artifacts or features were identified during this survey and no structures are present in the Project APE; therefore, there are no historical resources are located within the Project APE.

5 Summary and Management Considerations

5.1 Archaeological Recommendations

Dudek's Phase I cultural resources inventory of the Project indicates there is moderate to high sensitivity for identifying intact subsurface archaeological deposits during Project implementation. The SCIC records search did identify CA-SDI-5345 within the northeastern corner of the Project APE, however, the pedestrian survey did not relocate CA-SDI-5345 or any resources within the Project APE. CA-SDI-5345 was previously determined as ineligible for listing for the CRHR and NRHP and is not significant under CEQA or the City of Oceanside Guidelines.

As there are no cultural resources in the APE, no historical resources, as defined under CEQA will be impacted by the Project. This includes no direct, indirect, or cumulative impacts. The portion of CA-SDI-5345 within the Project APE has been destroyed. The site is not a significant archaeological resource under CEQA, however, the Project APE

is located in close proximity to culturally sensitive areas such as village sites and ceremonial aeras, numerous cultural resources have been noted to be within proximity to the Project APE, and the Project APE is in close proximity to a drainage. Given the sensitivity of the area, there is potential for subsurface cultural resources, therefore, it is recommended that a qualified archaeologist and TCA Native American Monitor representing a TCA Luiseño Tribe are present during all ground-disturbing activities.

Unanticipated Discovery of Archaeological Resources

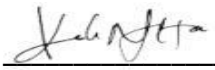
In the event that archaeological resources (sites, features, or artifacts) are exposed during construction activities for the Project, all construction work occurring within 100 feet of the find shall immediately stop until a qualified archaeologist meeting the Secretary of the Interior's Professional Qualification Standards can evaluate the significance of the find. Construction activities may continue in other areas, but should be redirected a safe distance from the find. If the new discovery is evaluated and found to be significant under CEQA and avoidance is not feasible, additional work such as data recovery may be warranted. In such an event, a data recovery plan should be developed by the qualified archaeologist in consultation with the City and Native American representatives, if applicable. Ground disturbing work can continue in the area of the find only after impacts to the resources have been mitigated and with City approval.

Unanticipated Discovery of Human Remains

In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are found, the County Coroner shall be immediately notified of the discovery. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the appropriate treatment and disposition of the human remains. If the County Coroner determines that the remains are, or are believed to be, Native American, he or she shall notify the NAHC in Sacramento within 24 hours. In accordance with California Public Resources Code Section 5097.98, the NAHC must immediately notify the person or persons it believes to be the MLD from the deceased Native American. The MLD shall complete inspection within 48 hours of being granted access to the site and make recommendations for the treatment and disposition, in consultation with the property owner, of the human remains.

Should you have any questions relating to this report and its findings, please do not hesitate to contact me at 619.949.3082 or kmontifolca@dudek.com.

Sincerely,



Keshia Montifolca, M.A., RPA
Archaeologist

Att.: *Figure 1, Project Location*
Figure 2, APE Map
Figure 3, Overview APE
Figure 4, Construction Waste
Figure 5, Non-cultural boulders
Figure 6, Overview of eastern APE
National Archaeological Database Information Sheet
Confidential Appendix A, SCIC Records Search Results
Confidential Appendix B, APE Map and Updated DPR Form
Appendix C, Tribal Correspondence
cc: *Angela Pham, Micah Hale, Dudek*

6 References

Bada, Jeffrey L., R. Gillespie, J. A. J. Gowlett, and R. E. M. Hedges. 1984. Accelerator mass spectrometry radiocarbon ages of amino acid extracts from Californian paleoindian skeletons. *Nature* 312(29):442-444.

Basgall, Mark E. 1987. Paleoindian occupation in central-eastern California: the Komodo site. *Current Research in the Pleistocene* 4:50-54.

Basgall, Mark E. 1988. The archaeology of CA-MNO-679: a pre-Archaic site in Long Valley Caldera, Mono County, California. In *Early human occupation in far western North America: the Clovis-Archaic interface*, edited by J. Willig, C. M. Aikens, and J. Fagan. Nevada State Museum, Anthropological Papers 21.

Basgall, Mark E., and Matthew C. Hall. 1990. Adaptive variation in the north-central Mojave Desert. Paper presented at the The 55th Annual Meeting of the Society for American Archaeology, Las Vegas, NV.

Basgall, Mark E., and Matthew C. Hall. 1993. *Archaeology of the Awl Site, CA-SBR-4562, Fort Irwin, San Bernardino County, California.* Submitted to Far Western Anthropological Research Group. Prepared for U.S. Army Corps of Engineers, Los Angeles District.

Basgall, Mark E., L. Johnson, and Micah J. Hale. 2002. *An evaluation of four archaeological sites in the Lead Mountain Training Area, Marine Corps Air Ground Combat Center, Twentynine Palms, California*. Submitted to Submitted to U.S. Army Corps of Engineers, Fort Worth, Texas.

Bean, Lowell J., and Florence C. Shipek. 1978. Luiseño. In *Handbook of North American Indians: Volume 8, California*, edited by Robert F. Hiezer, pp. 550-563. Smithsonian Institution Press, Washington DC.

Byrd, Brian F., and Seetha N. Reddy. 2002. Late Holocene adaptations along the northern San Diego coastline: new perspectives on old paradigms. In *Catalysts to complexity: late Holocene societies of the California coast*, edited by Jon M. Erlandson, and Terry L. Jones, pp. 41-62. Cotsen Institute of Archaeology, University of California, Los Angeles, Los Angeles.

Chace, Paul G. 1978. An Archaeological Test Excavation at SDI-5345, The Church Site, City of Vista

City of Oceanside 2017. *Municipal Code*. Chapter 14A. Historical Resources. Oceanside, CA.

Colletti, John. 2021.Results of a Cultural Resources Due Diligence Study for the Modera Melrose Project (APNs 161-030-07, -23, and -24), Cities of Oceanside and Vista, San Diego County, California

Davis, Emma Lou. 1978. *The ancient Californians: Rancholabrean hunters of the Mojave Lakes country*. Natural History Museum of Los Angeles County Science Series No. 29, Los Angeles.

Deméré and Siren. 2013. Paleontological Resource Assessment Melrose Heights Project, City of Oceanside, San Diego County, California.

Erlandson, Jon M., Torben C. Rick, Terry L. Jones, and Judith F. Porcasi. 2007. One if by land, two if by sea: who where the first Californians? In *California Prehistory: colonization, culture, and complexity*, edited by Terry L. Jones, and Kathryn A. Klar, pp. 53-62. Alta Mira Press, Lanham, MD.

Fitzgerald, Richard T., and Michael F. Rondeau. 2012. A fluted projectile point from Crystal Cove State Park, Orange County, Alta California. *California Archaeology* 4(2):247-256.

Gallegos, Dennis R. (editor). 1987. *San Dieguito-La Jolla: chronology and controversy*. San Diego County Archaeological Society, Research Paper No. 1, San Diego.

Gallegos, Dennis R. (editor). 2017. *First people: a revised chronology for San Diego County*. StorySeekers, San Diego.

Giletti, Andrew and Mary Robbins-Wade. 2008. Archaeological Resources Survey, Bobier Property (APN 161-030-07), Vista, San Diego County, California.

Golla, Victor. 2011. *California Indian languages*. University of California Press, Berkeley.

Grenda, Donn R. 1997. Site structure, settlement systems, and social organization at Lake Elsinore, California. PhD, Anthropology, University of Arizona, Tucson, AZ.

Hale, Micah J. 2001. Technological organization of the Millingstone Pattern in southern California. MA, Anthropology, California State University, Sacramento, Sacramento.

Hale, Micah J. 2009. Santa Barbara and San Diego: contrasting adaptive strategies on the southern California coast. PhD, Anthropology, University of California, Davis, Davis, CA.

Hector, Susan M. and Scott Wolf. 2008. Archaeological Resources Survey of the Melrose Station Market, Oceanside, San Diego County, California.

ICF 2013. *(ICF International, Davis Geoarchaeological Research, Southeastern Archaeological Research) Inventory and analysis of coastal and submerged archaeological site occurrence on the Pacific Outer Continental Shelf*. Submitted to U.S. Department of the Interior, Bureau of Ocean Energy Management, Pacific OCS Region, Camarillo, CA.

Kennedy, Gail E. 1983. An unusual burial practice at an early California Indian site. *Journal of New World Archaeology* 5(3):4-7.

Kroeber, A.L. 1925. Handbook of the Indians of California. *Smithsonian Institution Bureau of American Ethnology Bulletin 78.*

McDonald, Meg, and James D Eighmey. 2004. *Late Period prehistory in San Diego*. Submitted to Prehistoric and historic archaeology of metropolitan San Diego: an historic properties background study, prepared for Metropolitan Wastewater Department, San Diego, California, by ASM Affiliates, Inc., Carlsbad, California.

NETR (National Environmental Title Research, LLC) 2020. Area search for: Vista, CA. Accessed March 11, 2022. http://www.historicaerials.com/.P-37-005345/CA-SDI-5345. 1977, 1978, 2008, 2012. Site Record On File at the South Coastal Information Center, San Diego State University. Accessed March 2022.

Robbins-Wade, Mary and Andrew Giletti. 2013. Cultural Resources Survey and Assessment, Vista Ridge Apartments, Vista, San Diego, County, California PC12–293

Rogers, Alexander K., and Robert M. Yohe. 2020. Obisidian hydration dating of proposed Paleoindian artifacts from Tulare Lake, California. *California Archaeology* 12(2):223-239.Rogers, Malcom J. 1945. An outline of Yuman prehistory. *Southwestern Journal of Anthropology* 1(2):167-198.

Schaefer, Jerry. 2012. Coastal brown ware ceramics from Camp Pendleton, San Diego County. *Pacific Coast Archaeological Society Quarterly* 48(1 & 2):25-46.

Sparkman, Philip S. 1908. The Cultural of the Luiseño Indians. *University of California Publications in American Archaeology and Ethnology* 8(4):187-234.

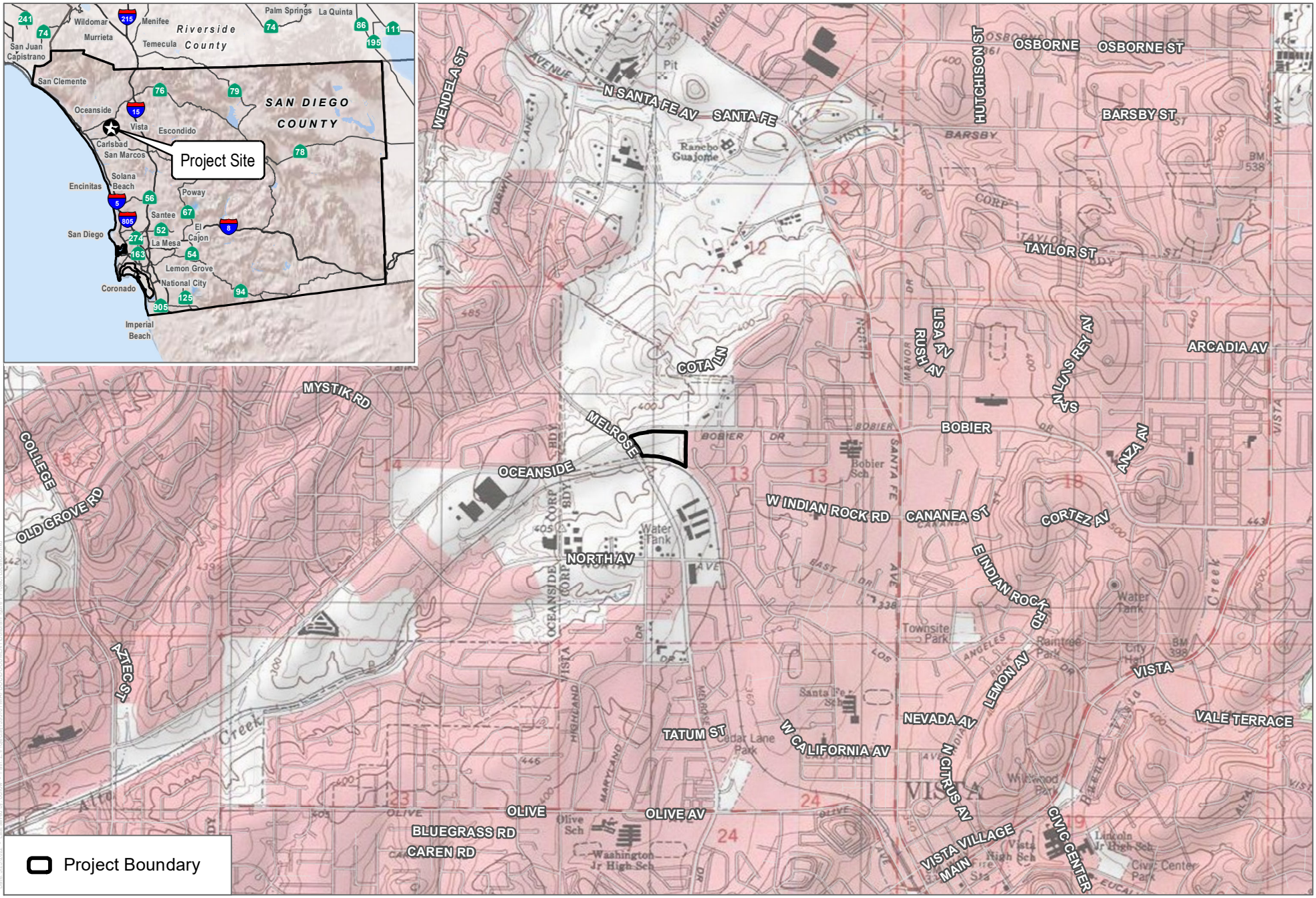
USDA (U.S. Department of Agriculture). 2022. Web Soil Survey. USDA, Natural Resources Conservation Service, Soil Survey Staff. Accessed June 2022. http://websoilsurvey.nrcs.usda.gov

Wallace, William J. 1955. A suggested chronology for Southern California coastal archaeology. *Southwestern Journal of Anthropology* 11(3):214-230.

Warren, Claude N. 1964. Cultural change and continuity on the San Diego Coast. PhD, Anthropology, University of California, Los Angeles, Los Angeles.

Warren, Claude N. 1968. Cultural tradition and ecological adaptation on the southern California coast. *Eastern New Mexico University Contributions in Anthropology* 1(3):1-15.

Warren, Claude N., Gretchen Siegler, and Frank Dittmer. 2004. *Paleoindian and early Archaic periods*. Submitted to Prehistoric and historic archaeology of metropolitan San Diego: an historic properties background study, prepared for Metropolitan Wastewater Department, San Diego, California, by ASM Affiliates, Inc., Carlsbad, California.



SOURCE: USGS 7.5-Minute Series San Luis Rey Quadrangle

DUDEK

0 1,000 2,000 Feet

FIGURE 1

Project Location

Modera Melrose Project



SOURCE: Bing Imagery 2022

DUDEK

0 50 100 Feet

FIGURE 2

Area of Potential Effects

Modera Melrose Project



Figure 3. Overview of APE, view facing northeast.



Figure 4. Construction waste, view facing south.



Figure 5. Non-cultural boulders, view facing north.



Figure 6. Overview of northeastern APE; bedrock milling feature missing, view facing east.

National Archaeological Database (NADB) Information

Authors:	Keshia Montifolca M.A., RPA
Firm:	Dudek
Project Proponent:	City of Oceanside
Report Date:	August 2022
Report Title:	Cultural Resources Inventory Report for the Modera Melrose Project, Oceanside, California
Type of Study:	Cultural Resources Inventory
Resources:	CA-SDI-5345
USGS Quads:	San Luis Rey, California, Township 11 South, Range 4 West, Section 34
Acreage:	7.4
Permit Numbers:	N/A
Keywords:	Pedestrian Survey, Inventory, City of Oceanside, negative survey

Confidential Appendix A

SCIC Records Search Results

Confidential Appendix B

APE Map with Previously Recorded Sites and Updated DPR Form

Appendix C
Tribal Correspondence

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Laura Miranda
Luiseño

VICE CHAIRPERSON
Reginald Pagaling
Chumash

PARLIAMENTARIAN
Russell Attebery
Karuk

SECRETARY
Sara Dutschke
Miwok

COMMISSIONER
William Mungary
Paiute/White Mountain Apache

COMMISSIONER
Isaac Bojorquez
Ohlone-Costanoan

COMMISSIONER
Buffy McQuillen
Yokayo Pomo, Yuki, Nomlaki

COMMISSIONER
Wayne Nelson
Luiseño

COMMISSIONER
Stanley Rodriguez
Kumeyaay

EXECUTIVE SECRETARY
Raymond C. Hitchcock
Miwok/Nisenan

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

April 12, 2022

Keshia Montifolca
Dudek

Via Email to: kmontifolca@dudek.com

Re: Modera Melrose (13937) Project, San Diego County

Dear Ms. Montifolca:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information submitted for the above referenced project. The results were positive. Please contact the La Jolla Band of Luiseno Indians, the Pechanga Band of Indians, and the San Luis Rey Band of Mission Indians on the attached list for information. Please note that tribes do not always record their sacred sites in the SLF, nor are they required to do so. A SLF search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with a project's geographic area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites, such as the appropriate regional California Historical Research Information System (CHRIS) archaeological Information Center for the presence of recorded archaeological sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. Please contact all of those listed; if they cannot supply information, they may recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
San Diego County
4/12/2022

Barona Group of the Capitan Grande
Edwin Romero, Chairperson
1095 Barona Road — Diegueno
Lakeside, CA, 92040
Phone: (619) 443 - 6612
Fax: (619) 443-0681
cloyd@barona-nsn.gov

Campo Band of Diegueno Mission Indians
Ralph Goff, Chairperson
36190 Church Road, Suite 1 — Diegueno
Campo, CA, 91906
Phone: (619) 478 - 9046
Fax: (619) 478-5818
rgoff@campo-nsn.gov

Ewiiaapaayp Band of Kumeyaay Indians
Robert Pinto, Chairperson
4054 Willows Road — Diegueno
Alpine, CA, 91901
Phone: (619) 368 - 4382
Fax: (619) 445-9126
ceo@ebki-nsn.gov

Ewiiaapaayp Band of Kumeyaay Indians
Michael Garcia, Vice Chairperson
4054 Willows Road — Diegueno
Alpine, CA, 91901
Phone: (619) 933 - 2200
Fax: (619) 445-9126
michaelg@leaningrock.net

Iipay Nation of Santa Ysabel
Virgil Perez, Chairperson
P.O. Box 130 — Diegueno
Santa Ysabel, CA, 92070
Phone: (760) 765 - 0845
Fax: (760) 765-0320

Iipay Nation of Santa Ysabel
Clint Linton, Director of Cultural Resources
P.O. Box 507 — Diegueno
Santa Ysabel, CA, 92070
Phone: (760) 803 - 5694
cjlinton73@aol.com

Inaja-Cosmit Band of Indians
Rebecca Osuna, Chairperson
2005 S. Escondido Blvd. — Diegueno
Escondido, CA, 92025
Phone: (760) 737 - 7628
Fax: (760) 747-8568

Jamul Indian Village
Erica Pinto, Chairperson
P.O. Box 612 — Diegueno
Jamul, CA, 91935
Phone: (619) 669 - 4785
Fax: (619) 669-4817
epinto@jiv-nsn.gov

Jamul Indian Village
Lisa Cumper, Tribal Historic Preservation Officer
P.O. Box 612 — Diegueno
Jamul, CA, 91935
Phone: (619) 669 - 4855
lcumper@jiv-nsn.gov

Kwaaymii Laguna Band of Mission Indians
Carmen Lucas,
P.O. Box 775 — Kwaaymii
Pine Valley, CA, 91962 — Diegueno
Phone: (619) 709 - 4207

La Jolla Band of Luiseno Indians
Norma Contreras, Chairperson
22000 Highway 76 — Luiseno
Pauma Valley, CA, 92061
Phone: (760) 742 - 3771

La Posta Band of Diegueno Mission Indians
Gwendolyn Parada, Chairperson
8 Crestwood Road — Diegueno
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
LP13boots@aol.com

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Modera Melrose (13937) Project, San Diego County.

La Posta Band of Diegueno Mission Indians
Javaughn Miller, Tribal Administrator
8 Crestwood Road — Diegueno
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
jmiller@LPtribe.net

Manzanita Band of Kumeyaay Nation
Angela Elliott Santos, Chairperson
P.O. Box 1302 — Diegueno
Boulevard, CA, 91905
Phone: (619) 766 - 4930
Fax: (619) 766-4957

Mesa Grande Band of Diegueno Mission Indians
Michael Linton, Chairperson
P.O Box 270 — Diegueno
Santa Ysabel, CA, 92070
Phone: (760) 782 - 3818
Fax: (760) 782-9092
mesagrandeband@msn.com

Pala Band of Mission Indians
Shasta Gaughen, Tribal Historic Preservation Officer
PMB 50, 35008 Pala Temecula Rd. — Cupeno, Luiseno
Pala, CA, 92059
Phone: (760) 891 - 3515
Fax: (760) 742-3189
sgaughen@palatribe.com

Pauma Band of Luiseno Indians
Temet Aguilar, Chairperson
P.O. Box 369 — Luiseno
Pauma Valley, CA, 92061
Phone: (760) 742 - 1289
Fax: (760) 742-3422
bennaecalac@aol.com

Pechanga Band of Indians
Paul Macarro, Cultural Resources Coordinator
P.O. Box 1477 — Luiseno
Temecula, CA, 92593
Phone: (951) 770 - 6306
Fax: (951) 506-9491
pmacarro@pechanga-nsn.gov

Pechanga Band of Indians
Mark Macarro, Chairperson
P.O. Box 1477 — Luiseno
Temecula, CA, 92593
Phone: (951) 770 - 6000
Fax: (951) 695-1778
epreston@pechanga-nsn.gov

Rincon Band of Luiseno Indians
Bo Mazzetti, Chairperson
One Government Center Lane — Luiseno
Valley Center, CA, 92082
Phone: (760) 749 - 1051
Fax: (760) 749-5144
bomazzetti@aol.com

Rincon Band of Luiseno Indians
Cheryl Madrigal, Tribal Historic Preservation Officer
One Government Center Lane — Luiseno
Valley Center, CA, 92082
Phone: (760) 297 - 2635
crd@rincon-nsn.gov

San Luis Rey Band of Mission Indians
1889 Sunset Drive — Luiseno
Vista, CA, 92081
Phone: (760) 724 - 8505
Fax: (760) 724-2172
cjmojado@slrmissionindians.org

San Luis Rey Band of Mission Indians
San Luis Rey, Tribal Council
1889 Sunset Drive — Luiseno
Vista, CA, 92081
Phone: (760) 724 - 8505
Fax: (760) 724-2172
cjmojado@slrmissionindians.org

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Modera Melrose (13937) Project, San Diego County.

Native American Heritage Commission
Native American Contact List
San Diego County
4/12/2022

San Pasqual Band of Diegueno Mission Indians
Allen Lawson, Chairperson
P.O. Box 365 — Diegueno
Valley Center, CA, 92082
Phone: (760) 749 - 3200
Fax: (760) 749-3876
allenl@sanpasqualtribe.org

San Pasqual Band of Diegueno Mission Indians
John Flores, Environmental Coordinator
P. O. Box 365 — Diegueno
Valley Center, CA, 92082
Phone: (760) 749 - 3200
Fax: (760) 749-3876
johnf@sanpasqualtribe.org

Soboba Band of Luiseno Indians
Joseph Ontiveros, Cultural Resource Department
P.O. BOX 487 — Cahuilla
San Jacinto, CA, 92581 — Luiseno
Phone: (951) 663 - 5279
Fax: (951) 654-4198
jontiveros@soboba-nsn.gov

Soboba Band of Luiseno Indians
Isaiah Vivanco, Chairperson
P. O. Box 487 — Cahuilla
San Jacinto, CA, 92581 — Luiseno
Phone: (951) 654 - 5544
Fax: (951) 654-4198
ivivanco@soboba-nsn.gov

Sycuan Band of the Kumeyaay Nation
Cody Martinez, Chairperson
1 Kwaaypaay Court — Kumeyaay
El Cajon, CA, 92019
Phone: (619) 445 - 2613
Fax: (619) 445-1927
ssilva@sycuan-nsn.gov

Sycuan Band of the Kumeyaay Nation
Kristie Orosco, Kumeyaay Resource Specialist
1 Kwaaypaay Court — Kumeyaay
El Cajon, CA, 92019
Phone: (619) 445 - 6917

Viejas Band of Kumeyaay Indians
Ernest Pingleton, Tribal Historic Officer, Resource Management
1 Viejas Grade Road — Diegueno
Alpine, CA, 91901
Phone: (619) 659 - 2314
epingleton@viejas-nsn.gov

Viejas Band of Kumeyaay Indians
John Christman, Chairperson
1 Viejas Grade Road — Diegueno
Alpine, CA, 91901
Phone: (619) 445 - 3810
Fax: (619) 445-5337

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Modera Melrose (13937) Project, San Diego County.

DUDEK
MAIN OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 800.450.1818 F 760.632.0164

April 13, 2022 13937

Mr. Edwin (Thorpe) Romero, Chairperson
Barona Group of the Capitan Grande
1095 Barona Road
Lakeside, CA 92040

Subject: Information Request for the Modera Melrose Project in Oceanside, California

Dear Mr. Romero,

The proposed Modera Melrose Project consists of the construction of a 280-unit residential project on approximately 7.4-acre property covering two parcels (APNs 161-030-23-00 and 161-030-24-00) located at the southeast corner of Melrose Drive and West Bobier Drive in the City of Oceanside, California in northwest San Diego County. The project site falls within Section 13 of Township 11 South, Range 4 West, 3 West of the San Luis Rey, California 7.5-minute U.S. Geological Survey Topographic Quadrangle Map (Figure 1).

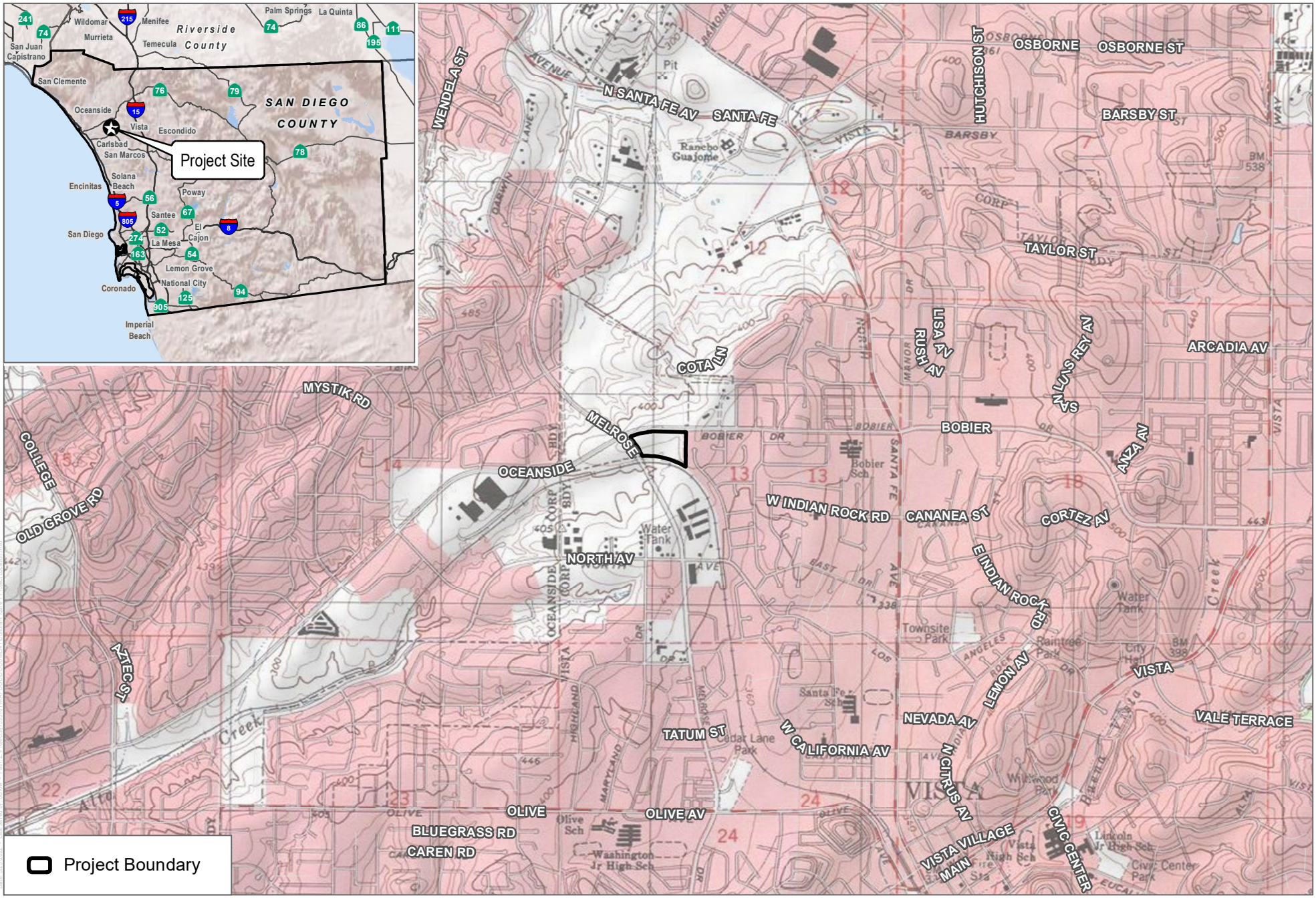
The Native American Heritage Commission conducted a Sacred Lands file search. The results were positive. I am writing as part of the cultural inventory process in order find out if you, or your tribal community, have any knowledge of cultural resources or places that may be impacted by the proposed project. This letter does not constitute formal government to government consultation pursuant to Assembly Bill 52.

If you have any information or concerns pertaining to such information, please contact me.

Respectfully,



Keshia Montifolca, M.A., RPA
Archaeologist
DUDEK
Phone: (619) 949-3082
Email: kmontifolca@dudek.com



SOURCE: USGS 7.5-Minute Series San Luis Rey Quadrangle

DUDEK

0 1,000 2,000 Feet

FIGURE 1

Project Location

Modera Melrose Project

DUDEK
MAIN OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 800.450.1818 F 760.632.0164

April 13, 2022 13937

Mr. Ralph Goff, Chairperson
Campo Band of Diegueno Mission Indians
36190 Church Road, Suite 1
Campo, CA 91906

Subject: Information Request for the Modera Melrose Project in Oceanside, California

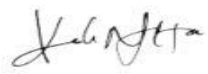
Dear Mr. Goff,

The proposed Modera Melrose Project consists of the construction of a 280-unit residential project on approximately 7.4-acre property covering two parcels (APNs 161-030-23-00 and 161-030-24-00) located at the southeast corner of Melrose Drive and West Bobier Drive in the City of Oceanside, California in northwest San Diego County. The project site falls within Section 13 of Township 11 South, Range 4 West, 3 West of the San Luis Rey, California 7.5-minute U.S. Geological Survey Topographic Quadrangle Map (Figure 1).

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Respectfully,



Keshia Montifolca, M.A., RPA
Archaeologist
DUDEK
Phone: (619) 949-3082
Email: kmontifolca@dudek.com

DUDEK
MAIN OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 800.450.1818 F 760.632.0164

April 13, 2022 13937

Mr. Robert Pinto, Chairperson
Ewiaapaayp Tribe
4054 Willow Rd.
Alpine, CA 91901

Subject: Information Request for the Modera Melrose Project in Oceanside, California

Dear Mr. Pinto,

The proposed Modera Melrose Project consists of the construction of a 280-unit residential project on approximately 7.4-acre property covering two parcels (APNs 161-030-23-00 and 161-030-24-00) located at the southeast corner of Melrose Drive and West Bobier Drive in the City of Oceanside, California in northwest San Diego County. The project site falls within Section 13 of Township 11 South, Range 4 West, 3 West of the San Luis Rey, California 7.5-minute U.S. Geological Survey Topographic Quadrangle Map (Figure 1).

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If you have any information or concerns pertaining to such information, please contact me.

Respectfully,



Keshia Montifolca, M.A., RPA
Archaeologist
DUDEK
Phone: (619) 949-3082
Email: kmontifolca@dudek.com

DUDEK
MAIN OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 800.450.1818 F 760.632.0164

April 13, 2022 13937

Mr. Michael Garcia, Vice Chairperson
Ewiiaapaayp Tribe
4054 Willows Road
Alpine, CA 91901

Subject: Information Request for the Modera Melrose Project in Oceanside, California

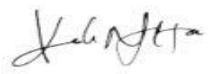
Dear Mr. Garcia,

The proposed Modera Melrose Project consists of the construction of a 280-unit residential project on approximately 7.4-acre property covering two parcels (APNs 161-030-23-00 and 161-030-24-00) located at the southeast corner of Melrose Drive and West Bobier Drive in the City of Oceanside, California in northwest San Diego County. The project site falls within Section 13 of Township 11 South, Range 4 West, 3 West of the San Luis Rey, California 7.5-minute U.S. Geological Survey Topographic Quadrangle Map (Figure 1).

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Respectfully,



Keshia Montifolca, M.A., RPA
Archaeologist
DUDEK
Phone: (619) 949-3082
Email: kmontifolca@dudek.com

DUDEK
MAIN OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 800.450.1818 F 760.632.0164

April 13, 2022 13937

Mr. Virgil Perez, Chairperson
Iipay Nation of Santa Ysabel
P.O. Box 130
Santa Ysabel, CA 92070

Subject: Information Request for the Modera Melrose Project in Oceanside, California

Dear Mr. Perez,

The proposed Modera Melrose Project consists of the construction of a 280-unit residential project on approximately 7.4-acre property covering two parcels (APNs 161-030-23-00 and 161-030-24-00) located at the southeast corner of Melrose Drive and West Bobier Drive in the City of Oceanside, California in northwest San Diego County. The project site falls within Section 13 of Township 11 South, Range 4 West, 3 West of the San Luis Rey, California 7.5-minute U.S. Geological Survey Topographic Quadrangle Map (Figure 1).

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Respectfully,



Keshia Montifolca, M.A., RPA
Archaeologist
DUDEK
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April 13, 2022 13937

Ms. Rebecca Osuna, Chairperson
Inaja-Cosmit Band of Indians
2005 S. Escondido Blvd.
Escondido, CA 92025

Subject: Information Request for the Modera Melrose Project in Oceanside, California

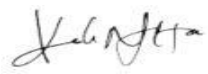
Dear Ms. Osuna,

The proposed Modera Melrose Project consists of the construction of a 280-unit residential project on approximately 7.4-acre property covering two parcels (APNs 161-030-23-00 and 161-030-24-00) located at the southeast corner of Melrose Drive and West Bobier Drive in the City of Oceanside, California in northwest San Diego County. The project site falls within Section 13 of Township 11 South, Range 4 West, 3 West of the San Luis Rey, California 7.5-minute U.S. Geological Survey Topographic Quadrangle Map (Figure 1).

The Native American Heritage Commission conducted a Sacred Lands file search. The results were positive. I am writing as part of the cultural inventory process in order find out if you, or your tribal community, have any knowledge of cultural resources or places that may be impacted by the proposed project. This letter does not constitute formal government to government consultation pursuant to Assembly Bill 52.

If you have any information or concerns pertaining to such information, please contact me.

Respectfully,



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April 13, 2022 13937

Mr. Clint Linton, Director of Cultural Resources
Ipay Nation of Santa Ysabel
P.O. Box 507
Santa Ysabel, CA 92070

Subject: Information Request for the Modera Melrose Project in Oceanside, California

Dear Mr. Linton,

The proposed Modera Melrose Project consists of the construction of a 280-unit residential project on approximately 7.4-acre property covering two parcels (APNs 161-030-23-00 and 161-030-24-00) located at the southeast corner of Melrose Drive and West Bobier Drive in the City of Oceanside, California in northwest San Diego County. The project site falls within Section 13 of Township 11 South, Range 4 West, 3 West of the San Luis Rey, California 7.5-minute U.S. Geological Survey Topographic Quadrangle Map (Figure 1).

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April 13, 2022 13937

Ms. Lisa Cumper, THPO
Jamul Indian Village
P.O. Box 612
Jamul, CA 91935

Subject: Information Request for the Modera Melrose Project in Oceanside, California

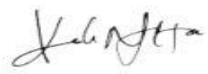
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April 13, 2022 13937

Ms. Erica Pinto, Chairperson
Jamul Indian Village
P.O. Box 612
Jamul, CA 91935

Subject: Information Request for the Modera Melrose Project in Oceanside, California

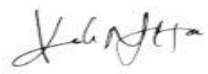
Dear Ms. Pinto,

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April 13, 2022 13937

Ms. Carmen Lucas,
Kwaaymii Laguna Band of Mission Indians
P.O. Box 775
Pine Valley, CA 91962

Subject: Information Request for the Modera Melrose Project in Oceanside, California

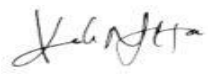
Dear Ms. Lucas,

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April 13, 2022 13937

Ms. Norma Contreras, Chairperson
La Jolla Band of Mission Indians
22000 Highway 76
Pauma Valley, CA 92061

Subject: Information Request for the Modera Melrose Project in Oceanside, California

Dear Ms. Contreras,

The proposed Modera Melrose Project consists of the construction of a 280-unit residential project on approximately 7.4-acre property covering two parcels (APNs 161-030-23-00 and 161-030-24-00) located at the southeast corner of Melrose Drive and West Bobier Drive in the City of Oceanside, California in northwest San Diego County. The project site falls within Section 13 of Township 11 South, Range 4 West, 3 West of the San Luis Rey, California 7.5-minute U.S. Geological Survey Topographic Quadrangle Map (Figure 1).

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April 13, 2022 13937

Ms. Gwendolyn Parada, Chairperson
La Posta Band of Diegueno Mission Indians
8 Crestwood Rd.
Boulevard, CA 91905

Subject: Information Request for the Modera Melrose Project in Oceanside, California

Dear Ms. Parada,

The proposed Modera Melrose Project consists of the construction of a 280-unit residential project on approximately 7.4-acre property covering two parcels (APNs 161-030-23-00 and 161-030-24-00) located at the southeast corner of Melrose Drive and West Bobier Drive in the City of Oceanside, California in northwest San Diego County. The project site falls within Section 13 of Township 11 South, Range 4 West, 3 West of the San Luis Rey, California 7.5-minute U.S. Geological Survey Topographic Quadrangle Map (Figure 1).

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April 13, 2022 13937

Ms. Javaughn Miller, Tribal Administrator
La Posta Band of Diegueno Mission Indians
8 Crestwood Rd.
Boulevard, CA 91905

Subject: Information Request for the Modera Melrose Project in Oceanside, California

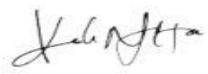
Dear Ms. Miller,

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April 13, 2022 13937

Ms. Angela Elliott Santos, Chairperson
Manzanita Band of Kumeyaay Nation
P.O. Box 1302
Boulevard, CA 91905

Subject: Information Request for the Modera Melrose Project in Oceanside, California

Dear Ms. Santos,

The proposed Modera Melrose Project consists of the construction of a 280-unit residential project on approximately 7.4-acre property covering two parcels (APNs 161-030-23-00 and 161-030-24-00) located at the southeast corner of Melrose Drive and West Bobier Drive in the City of Oceanside, California in northwest San Diego County. The project site falls within Section 13 of Township 11 South, Range 4 West, 3 West of the San Luis Rey, California 7.5-minute U.S. Geological Survey Topographic Quadrangle Map (Figure 1).

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April 13, 2022 13937

Mr. Michael Linton, Chairperson
Mesa Grande Band of Dieguneo Mission Indians
P.O. Box 270
Santa Ysabel, CA 92070

Subject: Information Request for the Modera Melrose Project in Oceanside, California

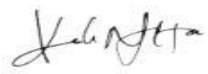
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April 13, 2022 13937

Ms. Shasta Gaughen, Tribal Historic Preservation Officer
Pala Band of Mission Indians
35008 Pala Temecula Rd.
Pala, CA 92059

Subject: Information Request for the Modera Melrose Project in Oceanside, California

Dear Ms. Gaughen,

The proposed Modera Melrose Project consists of the construction of a 280-unit residential project on approximately 7.4-acre property covering two parcels (APNs 161-030-23-00 and 161-030-24-00) located at the southeast corner of Melrose Drive and West Bobier Drive in the City of Oceanside, California in northwest San Diego County. The project site falls within Section 13 of Township 11 South, Range 4 West, 3 West of the San Luis Rey, California 7.5-minute U.S. Geological Survey Topographic Quadrangle Map (Figure 1).

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April 13, 2022 13937

Mr. Temet Aguilar, Chairperson
Pauma & Yuima Reservation
P.O. Box 369
Pauma Valley, CA 92061

Subject: Information Request for the Modera Melrose Project in Oceanside, California

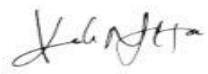
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April 13, 2022 13937

Mr. Paul Macarro, Cultural Resources Manager
Pechanga Band of Mission Indians
P.O. Box 1477
Temecula, CA 92593

Subject: Information Request for the Modera Melrose Project in Oceanside, California

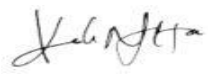
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April 13, 2022 13937

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Pechanga Band of Mission Indians
P.O. Box 1477
Temecula, CA 92593

Subject: Information Request for the Modera Melrose Project in Oceanside, California

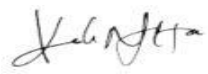
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April 13, 2022 13937

Mr. Bo Mazzetti, Chairperson
Rincon Band of Luiseño Indians
1 Government Center Lane
Valley Center, CA 92082

Subject: Information Request for the Modera Melrose Project in Oceanside, California

Dear Mr. Mazzetti,

The proposed Modera Melrose Project consists of the construction of a 280-unit residential project on approximately 7.4-acre property covering two parcels (APNs 161-030-23-00 and 161-030-24-00) located at the southeast corner of Melrose Drive and West Bobier Drive in the City of Oceanside, California in northwest San Diego County. The project site falls within Section 13 of Township 11 South, Range 4 West, 3 West of the San Luis Rey, California 7.5-minute U.S. Geological Survey Topographic Quadrangle Map (Figure 1).

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April 13, 2022 13937

Ms. Cheryl Madrigal, Tribal Historic Preservation Officer
Rincon Band of Mission Indians
One Governement Center Lane
Valley Center, CA 92082

Subject: Information Request for the Modera Melrose Project in Oceanside, California

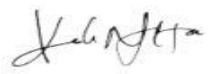
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April 13, 2022 13937

Cultural Department ,
San Luis Rey Band of Mission Indians
1889 Sunset Dr.
Vista, CA 92081

Subject: Information Request for the Modera Melrose Project in Oceanside, California

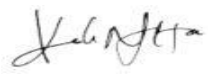
Dear San Luis Rey Band Cultural Department,

The proposed Modera Melrose Project consists of the construction of a 280-unit residential project on approximately 7.4-acre property covering two parcels (APNs 161-030-23-00 and 161-030-24-00) located at the southeast corner of Melrose Drive and West Bobier Drive in the City of Oceanside, California in northwest San Diego County. The project site falls within Section 13 of Township 11 South, Range 4 West, 3 West of the San Luis Rey, California 7.5-minute U.S. Geological Survey Topographic Quadrangle Map (Figure 1).

The Native American Heritage Commission conducted a Sacred Lands file search. The results were positive. I am writing as part of the cultural inventory process in order find out if you, or your tribal community, have any knowledge of cultural resources or places that may be impacted by the proposed project. This letter does not constitute formal government to government consultation pursuant to Assembly Bill 52.

If you have any information or concerns pertaining to such information, please contact me.

Respectfully,



Keshia Montifolca, M.A., RPA
Archaeologist
DUDEK
Phone: (619) 949-3082
Email: kmontifolca@dudek.com

DUDEK
MAIN OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 800.450.1818 F 760.632.0164

April 13, 2022 13937

Tribal Council ,
San Luis Rey Band of Mission Indians
1889 Sunset Dr.
Vista, CA 92081

Subject: Information Request for the Modera Melrose Project in Oceanside, California

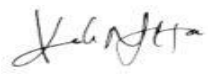
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April 13, 2022 13937

Mr. John Flores, Environmental Coordinator
San Pasqual Band of Diegueno Mission Indians
P.O. Box 365
Valley Center, CA 92082

Subject: Information Request for the Modera Melrose Project in Oceanside, California

Dear Mr. Flores,

The proposed Modera Melrose Project consists of the construction of a 280-unit residential project on approximately 7.4-acre property covering two parcels (APNs 161-030-23-00 and 161-030-24-00) located at the southeast corner of Melrose Drive and West Bobier Drive in the City of Oceanside, California in northwest San Diego County. The project site falls within Section 13 of Township 11 South, Range 4 West, 3 West of the San Luis Rey, California 7.5-minute U.S. Geological Survey Topographic Quadrangle Map (Figure 1).

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T 800.450.1818 F 760.632.0164

April 13, 2022 13937

Mr. Allen E. Lawson, Chairperson
San Pasqual Band of Diegueno Mission Indians
P.O. Box 365
Valley Center, CA 92082

Subject: Information Request for the Modera Melrose Project in Oceanside, California

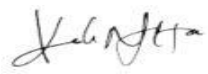
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ENCINITAS, CALIFORNIA 92024
T 800.450.1818 F 760.632.0164

April 13, 2022 13937

Mr. Joseph Ontiveros, Cultural Resource Department
Soboba Band of Luiseno Indians
P.O. Box 487
San Jacinto, CA 92581

Subject: Information Request for the Modera Melrose Project in Oceanside, California

Dear Mr. Ontiveros,

The proposed Modera Melrose Project consists of the construction of a 280-unit residential project on approximately 7.4-acre property covering two parcels (APNs 161-030-23-00 and 161-030-24-00) located at the southeast corner of Melrose Drive and West Bobier Drive in the City of Oceanside, California in northwest San Diego County. The project site falls within Section 13 of Township 11 South, Range 4 West, 3 West of the San Luis Rey, California 7.5-minute U.S. Geological Survey Topographic Quadrangle Map (Figure 1).

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ENCINITAS, CALIFORNIA 92024
T 800.450.1818 F 760.632.0164

April 13, 2022 13937

Mr. Isaiah Vivanco, Chairperson
Soboba Band of Luiseno Indians
P.O. Box 487
San Jacinto, CA 92581

Subject: Information Request for the Modera Melrose Project in Oceanside, California

Dear Mr. Vivanco,

The proposed Modera Melrose Project consists of the construction of a 280-unit residential project on approximately 7.4-acre property covering two parcels (APNs 161-030-23-00 and 161-030-24-00) located at the southeast corner of Melrose Drive and West Bobier Drive in the City of Oceanside, California in northwest San Diego County. The project site falls within Section 13 of Township 11 South, Range 4 West, 3 West of the San Luis Rey, California 7.5-minute U.S. Geological Survey Topographic Quadrangle Map (Figure 1).

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ENCINITAS, CALIFORNIA 92024
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April 13, 2022 13937

Charlene Worrell-Elliott, Resource Specialist
Sycuan Band of the Kumeyaay Nation
1 Kwaaypaay Court
El Cajon, CA 92019

Subject: Information Request for the Modera Melrose Project in Oceanside, California

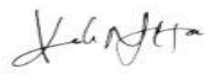
Dear Ms. Worrell-Elliott,

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605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 800.450.1818 F 760.632.0164

April 13, 2022 13937

Mr. Cody Martinez, Chairperson
Sycuan Band of the Kumeyaay Nation
1 Kwaaypaay Court
El Cajon, CA 92019

Subject: Information Request for the Modera Melrose Project in Oceanside, California

Dear Mr. Martinez,

The proposed Modera Melrose Project consists of the construction of a 280-unit residential project on approximately 7.4-acre property covering two parcels (APNs 161-030-23-00 and 161-030-24-00) located at the southeast corner of Melrose Drive and West Bobier Drive in the City of Oceanside, California in northwest San Diego County. The project site falls within Section 13 of Township 11 South, Range 4 West, 3 West of the San Luis Rey, California 7.5-minute U.S. Geological Survey Topographic Quadrangle Map (Figure 1).

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605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 800.450.1818 F 760.632.0164

April 13, 2022 13937

Mr. John Christman, Chairperson
Viejas Band of Kumeyaay Indians
1 Viejas Grade Rd.
Alpine, CA 91901

Subject: Information Request for the Modera Melrose Project in Oceanside, California

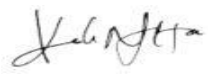
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MAIN OFFICE
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ENCINITAS, CALIFORNIA 92024
T 800.450.1818 F 760.632.0164

April 13, 2022 13937

Mr. Ernest Pingleton, Tribal Historic Officer
Viejas Band of Kumeyaay Indians
1 Viejas Grade Rd.
Alpine, CA 91901

Subject: Information Request for the Modera Melrose Project in Oceanside, California

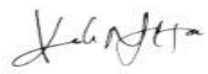
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Respectfully,



Keshia Montifolca, M.A., RPA
Archaeologist
DUDEK
Phone: (619) 949-3082
Email: kmontifolca@dudek.com

PECHANGA CULTURAL RESOURCES
Temecula Band of Luiseño Mission Indians

Post Office. Box 2183 • Temecula, CA 92593
Telephone (951) 770-6300 • Fax (951) 506-9491

Chairperson:
Neal Ibanez

Vice Chairperson:
Bridgett Barcello

Committee Members:
Darlene Miranda
Richard B. Scearce, III
Robert Villalobos
Shevon Torres
Juan Rodriguez

Director:
Gary DuBois

Coordinator:
Paul Macarro

Cultural Analyst:
Tuba Ebru Ozdil

Planning Specialist:
Molly Escobar

April 15, 2022

VIA E-Mail and USPS
Keshia Montifolca, M.A., RPA
Archaeologist
DUDEK
605 Third Street,
Encinitas, CA. 92024

RE: Request for Information for the Modera Melrose Project, City of Oceanside, San Diego County, California.

Dear Ms. Montifolca,

The Pechanga Band of Indians ("the Tribe") appreciates your request for information regarding the above referenced Project. After reviewing the provided maps and our internal documents, we have determined that the Project area is not within Reservation land's, although it is located within Our Ancestral Territory. At this time, we are interested in participating in this Project based upon our 'Ayélkwish/Traditional Knowledge of the area, its proximity two Luiseño Traditional Cultural Properties, and this Project's under two-mile adjacency to five Ancestral Placename locations. Further, this Project is situated just under a mile from two ceremonial locations. Because of multiple nearby Ancestral-remains and considering the extensive previously recorded sites within this Project's-vicinity the Tribe therefore, is interested in participating in this Project. Pechanga believes the possibility for recovering subsurface resources, during ground-disturbing activities for the Project is extremely high.

The Tribe is dedicated to providing comprehensive cultural information to you and your firm for inclusion in the archaeological study as well as to the Lead Agency for CEQA review. At this time, the Tribe requests the following so we may continue the consultation process and to provide adequate and appropriate recommendations for the Project:

1) Notification once the Project begins the entitlement process, if it has not already;
2) Copies of all applicable archaeological reports, site records, proposed grading plans and environmental documents (EA/IS/MND/EIR, etc);
3) Government-to-government consultation with the Lead Agency; and
4) The Tribe believes that monitoring by a San Diego County qualified archaeologist and a professional Pechanga Tribal Monitor may be required during earthmoving activities. Therefore, the Tribe reserves its right to make additional comments and

recommendations once the environmental documents have been received and fully reviewed. Further, in the event that subsurface cultural resources are identified, the Tribe requests consultation with the Project proponent and Lead Agency regarding the treatment and disposition of all artifacts.

As a Sovereign governmental entity, the Tribe is entitled to appropriate and adequate government-to-government consultation regarding the proposed Project. We would like you and your client to know that the Tribe does not consider initial inquiry letters from project consultants to constitute appropriate government-to-government consultation, but rather tools to obtain further information about the Project area. Therefore, the Tribe reserves its rights to participate in the formal environmental review process, including government-to-government consultation with the Lead Agency, and requests to be included in all correspondence regarding this Project.

Please note that we are interested in participating in surveys within Luiseño Ancestral territory. Prior to conducting any surveys, please contact the Cultural Department to schedule specifics. If you have any additional questions or comments, please contact me at pmacarro@pechanga-nsn.gov or 951-770-6306.

Sincerely,

Paul E. Macarro

Paul E. Macarro
Cultural Coordinator
Pechanga Reservation

SAN LUIS REY BAND OF MISSION INDIANS

1889 Sunset Drive • Vista, California 92081
760-724-8505 • FAX 760-724-2172
www.slrmissionindians.org

April 26, 2022

Keshia Montifolca, M.A., RPA
Archaeologist
Dudek

VIA ELECTRONIC MAIL
kmontifolca@dudek.com

RE: SLR RESPONSE REGARDING THE PROPOSED MODERA MELROSE PROJECT IN OCEANSIDE, CA AND ITS POTENTIAL IMPACTS TO NATIVE AMERICAN TRIBAL CULTURAL RESOURCES

Dear Ms.Montifolca:

We, the San Luis Rey Band of Mission Indians ("Tribe") have received and reviewed your letter dated April 13, 2022 (and inclusive maps) regarding the proposed Modera Melrose Project in Oceanside, CA ("Project" and "Project Area"). We further understand from your letter that you are inquiring whether the Tribe possesses any information and/or concerns regarding tribal cultural resources and/or Sacred Lands in the Project Area.

We are a northern San Diego County Tribe traditionally and culturally affiliated with Camp Pendleton, the current cities of Oceanside, Carlsbad, Encinitas, Vista, San Marcos and Escondido, as well as many unincorporated areas within northern San Diego County, such as the communities of Fallbrook, Bonsall and Valley Center. We are resolute in the preservation and protection of tribal cultural resources within all these jurisdictions.

Our Tribe has intimate knowledge about the many discoveries made throughout the Project Area and is aware of cultural resource sites within close proximity to the proposed Project. We strongly urge caution in assessing the land encompassing the Project for any ground disturbing purposes, as well as incorporating the presence of a Luiseño Native American monitor during all ground disturbing activities (including but not limited to any and all boring activities) and cultural resource assessment surveys.

In regards to information our Tribe can provide Dudek regarding these tribal cultural resources and sacred sites within the Project Area, we respectfully request that any further discussion be done in person. Please contact our Cultural Resource Manager Cami Mojado at (760) 917-1736 or via email at cjmojado@slrmissionindians.org to arrange a mutually acceptable meeting date and time.

Furthermore, the Tribe requests that any and all cultural resource surveys completed in the Project Area and/or for the benefit of this Project be provided to the Tribe's Cultural Department at 1889 Sunset Drive, Vista, CA 92081 as your earliest convenience. If digital copies

are available, please send them directly to cjmojado@slrmissionindians.org. If a cultural resource survey has not been completed as of today's date, then the Tribe respectfully requests that a Luiseño Native American monitor be present during any proposed survey of the Project property.

We appreciate this opportunity to provide information and/or share our concerns regarding this Project. We thank you for your assistance in protecting our invaluable Luiseño tribal cultural resources.

Sincerely,

Cami Mojado
Cultural Resource Manager
San Luis Rey Band of Mission Indians

Keshia Montifolca

From: buncelaw@aol.com
Sent: Friday, April 29, 2022 10:41 AM
To: Keshia Montifolca
Subject: Re: Failure Notice

Hello there,

It's the Modera Melrose project in Oceanside.

Art

-----Original Message-----
From: Keshia Montifolca <kmontifolca@dudek.com>
To: buncelaw@aol.com <buncelaw@aol.com>
Sent: Fri, Apr 29, 2022 10:27 am
Subject: RE: Failure Notice

Dear Mr. Bunce,

I received this message but did not receive all the information as it looks like the original message was rejected. May I please know which Project you are referring to?

I can forward your request to consult with the City of Oceanside as they are they lead agency and responsible for government to government consultation.

Sincerely,

Keshia Montifolca, M.A., RPA
Archaeologist
DUDEK
605 Third Street, Encinitas, CA 92024
O: 619.949.3082 C: 619.372.6255
www.dudek.com

From: buncelaw@aol.com <buncelaw@aol.com>
Sent: Friday, April 29, 2022 10:05 AM
To: Keshia Montifolca <kmontifolca@dudek.com>
Subject: Fwd: Failure Notice

-----Original Message-----
From: MAILER-DAEMON@aol.com
To: buncelaw@aol.com
Sent: Fri, Apr 29, 2022 9:52 am
Subject: Failure Notice

Sorry, we were unable to deliver your message to the following address.

<keshia.montifolca@dudek.com>:
550: 5.4.1 Recipient address rejected: Access denied. AS(201806281) [DM6NAM10FT047.eop-nam10.prod.protection.outlook.com]

---------- Forwarded message ----------

Dear Mr. or Ms. Montifolca,

The Barona Band of Mission Indians is a federally-recognized Indian tribe occupying the Barona Indian Reservation in rural San Diego County, in the traditional territory of the Kumeyaay people. I serve as its Tribal Attorney and often am the one who responds to cultural resource inquiries on behalf of Chairman Raymond Welch, who has succeeded Chairman Romero, who has retired. Your letter of April 13, 2022 regarding the above project has reached me for response.

Because the NAHC search was positive, I would like to request consultation under AB 25 with the City of Oceanside on behalf of the Barona Band regarding this project. I would like to know what the positive results were. If significant, more may be needed. Please let me know how you wish to proceed.

Sincerely,

Art Bunce
Tribal Attorney

Rincon Band of Luiseño Indians

CULTURAL RESOURCES DEPARTMENT

One Government Center Lane | Valley Center | CA 92082
(760) 749-1092 | Fax: (760) 749-8901 | rincon-nsn.gov

May 3, 2022

Sent via email: kmontifolca@dudek.com
Ms. Keshia Montifolca
DUDEK
605 Third Street
Encinitas, CA 92024

Re: Modera Melrose Project in Oceanside, California

Dear Ms. Montifolca,

This letter is written on behalf of the Rincon Band of Luiseño Indians ("Rincon Band" or "Tribe"), a federally recognized Indian Tribe and sovereign government. We have received your notification regarding the above referenced project and we thank you for the opportunity to provide information pertaining to cultural resources. The identified location is within the Traditional Use Area of the Luiseño people, and is also within Rincon Band's specific Area of Historic Interest (AHI).

After review of the provided documents and our internal information, the Band has specific concerns that that the project may impact tangible Tribal Cultural Resources (TCRs), Traditional Cultural Landscapes (TCLs), and potential Traditional Cultural Properties (TCPs). Embedded in these resources and within the AHI are the Tribe's history, culture, and continuing traditional identity.

Based on the information provided above, the Rincon Band recommends conducting an archaeological/cultural resources study, to include an archeological record search and complete intensive survey of the property. Additionally, we ask that a professional Tribal monitor from the Rincon Band to accompany the archaeologist during the survey.

The Rincon Band further requests to consult directly with the lead agency regarding project impacts to cultural resources. While it is not the responsibility of consultants to facilitate State-mandated consultation, the request is included in this letter so the lead agency is aware of the Tribe's concerns about the project. If you have additional questions or concerns, please do not hesitate to contact our office at your convenience at (760) 749 1092 ext. 323 or via electronic mail at cmadrigal@rincon-nsn.gov. We look forward to working together to protect and preserve our cultural assets.

Sincerely,

Cheryl Madrigal
Tribal Historic Preservation Officer
Cultural Resources Manager

Bo Mazzetti, Chairman | Tishmall Turner, Vice Chair | Laurie E. Gonzalez, Council Member | John Constantino, Council Member | Joseph Linton, Council Member

Appendix E

Preliminary Geotechnical Investigation

PRELIMINARY
GEOTECHNICAL INVESTIGATION

MODERA MELROSE
OCEANSIDE, CALIFORNIA

GEOCON
INCORPORATED

GEOTECHNICAL
ENVIRONMENTAL
MATERIALS

PREPARED FOR

MCRT INVESTMENTS, LLC
COSTA MESA, CALIFORNIA

JANUARY 26, 2021
REVISED JULY 28, 2021
PROJECT NO. 07647-32-04

Project No. 07647-32-04
January 26, 2021
Revised July 28, 2021

MCRT Investments LLC
949 South Coast Drive, Suite 400
Costa Mesa, California 92626

Attention: Mr. John Colletti

Subject: PRELIMINARY GEOTECHNICAL INVESTIGATION
MODERA MELROSE
OCEANSIDE, CALIFORNIA

Dear Mr. Colletti:

In accordance with your request, and our Proposal No. LG-21015, dated January 12, 2021, we have prepared this preliminary geotechnical investigation on the subject property southeast of the intersection between Oceanside Boulevard (West Bobier Drive) and North Melrose Drive in Oceanside, California. This revised report was prepared to address the updated site plan. The accompanying report presents our conclusions and preliminary recommendations pertaining to the geotechnical aspects of project development. The results of our study indicate that the site can be developed as planned, provided the recommendations of this report are followed. An update to this report should be performed once the project grading plans are developed.

If there are any questions regarding this update report, or if we may be of further service, please contact the undersigned at your convenience.

Very truly yours,

GEOCON INCORPORATED

Trevor E. Myers
RCE 63773

David B. Evans
CEG 1860

TEM:DBE:arm

(e-mail) Addressee

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PRELIMINARY GEOTECHNICAL INVESTIGATION

1. PURPOSE AND SCOPE

This report presents the results of a preliminary geotechnical study for a proposed residential development in Oceanside, California (see *Vicinity Map*, Figure 1). The purpose of this report was to present a compilation of previous geotechnical information and to provide recommendations for the new land use plan in accordance with the 2019 California Building Code (CBC). Once the project grading plans are developed, this report should be updated, as necessary.

The scope of our study included a review of the following reports:

1. Geotechnical Investigation, Oceanside (Melrose) Neighboorhood Market Store 5905-00, Oceanside, California, prepared by Geocon Incorporated, dated October 5, 2011 (Project No. 07647-42-03).

2. *Supplemental Rippability Study, Melrose Gateway Shopping Center, Oceanside, California,* prepared by Geocon Incorporated, dated October 23, 2006 (Project No. 07647-32-02).

3. *Geotechnical Investigation, Melrose and Bobier Property, Oceanside, California*, prepared by Geocon Incorporated, dated February 9, 2006 (Project No. 07647-32-01).

4. *Updated Geotechnical Considerations, Melrose Station Market Commercial Development, Southeast Corner of Melrose Drive and Oceanside Boulevard, Oceanside, San Diego County, California*, prepared by EEI, dated October 31, 2008 (Project No. GAT-70622).

5. *Geotechnical Update for 2007 California Building Code, Melrose Station Market Commercial Development, Southeast Corner of Melrose Drive and Oceanside Boulevard, Oceanside, San Diego County, California*, prepared by EEI, dated July 29, 2008 (Project No. GAT-70622).

6. *Preliminary Geotechnical Evaluation, Melrose Station Market, Southeast Corner of Melrose Drive and Oceanside Boulevard, Oceanside and Future Residential Parcel, 552 West Bobier Avenue, Vista, San Diego County, California*, prepared by EEI, dated September 18, 2007 (Project No. GAT-70622).

Previous field and laboratory test information obtained by Geocon Incorporated are provided in Appendices A through C. Field and laboratory test results performed by EEI on the property are presented in Appendix D. The descriptions of the soil and geologic conditions presented herein are based on review of the above referenced reports.

2. SITE AND PROJECT DESCRIPTION

The site is located southeast of the intersection of Oceanside Boulevard and North Melrose Drive, in Oceanside, California. The property is bounded by Oceanside Boulevard to the north, North Melrose Drive to the west, residential homes and an open space lot to the east, and a railroad easement to the south.

The subject property is undeveloped with gentle southward sloping terrain and a small drainage course near the south-central portion. This drainage course has been partially in-filled with undocumented fill and organic debris. Minor amounts of trash were also observed on the property. A north-south trending trail bisects the site and is used primarily by pedestrians to access the bus stop located south of the railroad tracks. Two relatively large boulders (approximately 5 feet in size) were observed at the surface near the southwest corner of the site and an outcrop of very large boulders is present in the eastern portion of the property. Existing elevations vary from approximately 424 Mean Sea Level (MSL) in the south-central portion to approximately 455 MSL in the northern portion of the property.

Based on our discussions with you and review of the updated site plan, we understand the approximate 9-acre property will be graded to accommodate 324 apartment homes on a podium building with one-level of underground parking. The plan indicates that 385 surface parking spots and 145 subterranean parking spots will be developed to provide a total of 530 parking spots. The development also includes underground and surface improvements. Grading plans were not available at the time of this study.

A square-shaped parcel of land situated immediately to the east of the subject parcel is shown with proposed residential development on the conceptual plan. This parcel of land is situated in the City of Vista. Although it is our understanding that this parcel is not currently planned for development, we have included the air-track logs performed during a previous study in Appendix C and locations on Figure 2 for reference.

The above locations, site descriptions, and proposed development are based on a site reconnaissance, review of the conceptual plan, published geologic literature and our previous in-house geotechnical reports. If the final development plans differ from those described herein, Geocon Incorporated should be contacted for review of the plans and possible revisions to this report.

3. SOIL AND GEOLOGIC CONDITIONS

Two surficial soil units and two geologic formations were observed at the site. The surficial materials consist of undocumented fill and colluvium. The geologic formations encountered consist of the Santiago Formation and granitic rock (Bonsall Tonalite). The estimated distribution of the units is shown on the Geologic Map, Figure 2. A contact between the granitic rock and Santiago formation can be observed in the existing slope adjacent to Melrose Drive and in the grade cuts within the railroad easement. The units encountered are discussed below in order of increasing age.

3.1 Undocumented Fill (Qudf)

We encountered undocumented fill in the drainage course near the south-central portion of the site. The fill encountered in Geocon's previous exploratory trench T-2 was approximately 4 feet thick and

consisted of loose, porous, clayey sand with abundant organics (straw, tree branches, etc.) and plastic bags. The upper 1 foot of the undocumented fill observed in the trench excavation was relatively clean of organic debris. The lower 3 feet consisted primarily of organic debris. This material will require complete removal and exportation from the site.

3.2 Colluvium (Col)

Colluvium blankets the majority of the site and underlies the undocumented fill. This material ranges from approximately 2 to 5-feet-thick and generally consists of loose to medium dense, medium stiff to stiff, silty to clayey sand and silty to sandy clay. Based on the laboratory test results, the colluvium possesses a *medium* to *high* expansion potential. The colluvium is compressible and is considered unsuitable in its present condition. Remedial grading of this unit will be required within areas of proposed development.

3.3 Santiago Formation (Tsa)

We encountered the Eocene-age Santiago Formation in the majority of exploratory borings and trenches performed throughout the site. The Santiago Formation consists of massive, dense to hard, damp to moist, silty to clayey, fine- to medium-grained sandstone, sandy to clayey siltstone, and silty claystone. Bedding was not observed to the maximum depth explored. This unit is considered suitable for the support of additional structural fill and settlement sensitive structures.

The Santiago Formation often exhibits highly cemented zones that may result in excavation difficulty during grading and construction of site improvements (e.g., underground utility lines and building foundations). Although blasting is not expected, moderate to heavy ripping may be necessary in portions of this formation to facilitate excavation. Oversize materials, if generated, will need to be placed in deeper fill areas in accordance with the grading specifications contained in Appendix E, or exported from the site. Consideration should be given to undercutting cemented zones if they are found within areas of future improvements. Undercutting during grading will help reduce the potential for excavation difficulty during the construction of site improvements, including foundations and landscaping.

3.4 Bonsall Tonalite (Kb)

Cretaceous-age Bonsall Tonalite (granitic rock) of the Southern California Batholith was encountered in the eastern portion of the site and is exposed along the western margin of the property. The granitic rock generally consists of fresh to highly weathered decomposed granite. Granitic units generally exhibit adequate slope stability characteristics and slopes excavated at an inclination of 2:1 (horizontal:vertical) or flatter should be stable to the proposed heights if free of adversely oriented joints or fractures.

The soils derived from excavations within the decomposed granitic rock are expected to consist of low expansive, silty to clayey, medium- to coarse-grained sands and should provide suitable foundation support in either a natural or properly compacted condition.

It should be expected that excavations within the granitic rock will generate boulders and oversize materials (rocks greater than 12 inches) and will require special handling and placement in deeper fill areas as outlined in the grading specifications contained in Appendix E, or exportation from the site. In addition, the surface boulders and large rock outcroppings may require breaking and special handling during grading. Consideration should be given to using these core stone boulders as landscape features, where practical.

Areas of very hard granitic rock and corestones are expected at depth. Excavations, particularly those for deeper utilities, may generate oversize material that could necessitate burying the rock in deeper fill areas or exporting.

4. GROUNDWATER

We did not observe groundwater during our field investigation. We do not expect groundwater to adversely impact proposed project development; however, it is not uncommon for groundwater or seepage conditions to develop where none previously existed. Groundwater elevations are dependent on seasonal precipitation, irrigation; land use, among other factors, and vary as a result. Proper surface drainage will be important to future performance of the project.

5. GEOLOGIC HAZARDS

5.1 Ground Rupture

United States Geological Survey maps (2016) indicates that there are no mapped Quaternary faults crossing or trending toward the property. In addition, the site is not located within a currently established Alquist-Priolo Earthquake Fault Zone.

The nearest known active-fault zones are the Rose Canyon and Newport Inglewood Faults, located approximately 11 miles west of the subject site. The risk associated with ground rupture hazard is low.

5.2 Seismicity

The San Diego County and Southern California region is seismically active. Considerations important in seismic design include the frequency and duration of motion and the soil conditions underlying the site. Seismic design of structures should be performed in accordance with the California Building Code (CBC) guidelines currently adopted by the local agency. The risk associated with strong ground shaking due to earthquake at the site is no greater than that for the region.

5.3 Soil Liquefaction

Soil liquefaction occurs within relatively loose, cohesionless sands located below the water table that are subjected to ground accelerations from earthquakes. Due to the absence of permanent groundwater, the dense nature of the soil and rock beneath the site, and the proposed removal and compaction of compressible soils, the potential for liquefaction occurring at the site is considered very low.

5.4 Landslides

No landslides were mapped or observed on the property.

6. RIPPABILITY AND ROCK CONSIDERATIONS

Rock rippability studies were performed during previous investigations consisting of drilling hydraulic rotary percussion borings (generically referenced herein as air-track borings) in the areas where significant excavations were previously proposed. The borings were advanced using an Ingersoll Rand ECM-370 drill rig equipped with a 4-inch drill bit. The approximate locations of the air-track borings are shown on the Geologic Map, Figure 2.

A frequently used guideline to equate rock rippability to drill penetration rate is that a penetration rate of approximately 0 to 20 seconds per foot (spf) generally indicates rippable material, 20 to 30 spf indicates marginally to non-rippable material, and greater than 30 spf indicates non-rippable rock. These general guidelines are typically based on drill rates using a rotary percussion drill rig similar to an Ingersoll Rand ECM 360 with a 3½-inch drill bit.

The penetration rate (recorded in seconds per foot) for each air track boring is presented in Appendix C, Figures C-16 through C-57. The estimated depth and thickness of non-rippable material for each boring in the western portion of the site, using 20 seconds per foot as the boundary between rippable and marginal to non-rippable rock is presented on Table 6 below. The estimate is derived from a literal interpretation of the penetration rate from each boring. Perspective contractors should use their own judgment to identify the penetration rate boundary between productive and non-productive ripping, and rippable and non-rippable rock.

Since the Santiago Formation non-conformably overlies granitic rock, and this interface often undulates, the majority of the air-track borings in the western portion of the site were initiated in the sedimentary rocks in an attempt to define the contact where a risk of encountering hard rock was present (AT-1 through AT-21). Borings performed in the eastern portion of the site were in advanced in Granitic Rock (AT-22 through AT-42).

TABLE 6
SUMMARY OF AIR TRACK DRILLING DATA

Boring No.	Approximate Elevation of top of boring (feet)	Total Drill Depth (feet)	Depth to Non-Rippable Material (feet)*	Geologic Formation
AT-1	445	34	n/a	Santiago
AT-2	453	34	n/a	Santiago
AT-3	455	23	n/a	Santiago
AT-4	454	22	n/a	Santiago
AT-5	450	22	n/a	Santiago
AT-6	447	10	n/a	Santiago
AT-7	447	20	17-18	Granitic Rock
AT-8	447	22	21+	Granitic Rock
AT-9	446	10	n/a	Granitic Rock
AT-10	443	10	8-9	Granitic Rock
AT-11	441	10	n/a	Santiago
AT-12	443	16	n/a	Santiago
AT-13	443	20	n/a	Santiago
AT-14	446	22	n/a	Santiago
AT-15	444	25	n/a	Santiago
AT-16	436	15	12+	Santiago/Granitic Rock
AT-17	442	22	n/a	Santiago
AT-18	433	10	n/a	Granitic Rock
AT-19	436	10	n/a	Santiago
AT-20	437	10	n/a	Santiago
AT-21	437	10	n/a	Santiago
AT-22	467	22	14	Granitic Rock
AT-23	464	22	4	Granitic Rock
AT-24	455	20	n/a	Granitic Rock
AT-25	462	20	1	Granitic Rock
AT-26	466	18	10	Granitic Rock
AT-27	465	10	3	Granitic Rock
AT-28	463	16	3	Granitic Rock
AT-29	455	18	3	Granitic Rock
AT-30	451	17	4	Granitic Rock
AT-31	454	17	3	Granitic Rock
AT-32	458	18	3	Granitic Rock
AT-33	459	16	2	Granitic Rock
AT-34	462	15	3	Granitic Rock
AT-35	461	22	12	Granitic Rock
AT-36	457	17	3	Granitic Rock
AT-37	459	18	1	Granitic Rock
AT-38	462	20	2	Granitic Rock
AT-39	462	20	4	Granitic Rock
AT-40	457	17	6	Granitic Rock
AT-41	454	18	4	Granitic Rock
AT-42	461	18	3	Granitic Rock

* Based on penetration rate of 20 spf or greater.

During air-track drilling through the Santiago Formation, we encountered difficulty measuring accurate penetration rates due to the presence of claystones which constricted the bore holes, preventing the soil cuttings from escaping. Since the data appeared erroneous in some instances, validation drilling was performed on October 10, 2006, using an A-300 truck mounted drill rig equipped with 6-inch diameter augers to verify the "augerability" of the materials encountered.

In general, if a small-diameter boring can be drilled with light to moderate effort, the material is likely rippable with conventional heavy-duty grading equipment. The relative ease with which the 5 verification borings were advanced during this study indicates that favorable rippability characteristics exist within the majority of the western portion of the site. Logs of the verification borings are presented in Appendix C, Figures C-58 through C-62. The approximate locations of the verification borings are shown on the Geologic Map, Figure 2.

Proposed excavations within the eastern portion of the site (granitic rock) will require very heavy ripping and/or blasting. Based on our observations of significant rock outcroppings, and the penetration rates recorded in some of the borings blasting will be required in some locations at the existing ground surface.

An evaluation of the anticipated volume of hard rock materials compared to the available rock fill volume should be performed once the grading plan is developed. Rock crushing may be required to satisfy the rock hold down/particle restriction zones. Roadway/utility corridor and lot undercutting criteria should also be considered when calculating the volume of hard rock. Proposed cuts in hard rock areas can be expected to generate oversized fragments (rocks greater than 12 inches in dimension) which will necessitate typical hard rock handling and placement procedures during grading operations.

7. CONCLUSIONS AND RECOMMENDATIONS

7.1 General

7.1.1 From a geotechnical standpoint, it is our opinion that the site is suitable for the planned development, provided the recommendations presented herein are implemented in design and construction of the project. An update to this report should be performed once the project grading plans are developed.

7.1.2 The site is underlain by surficial units that include undocumented fill and colluvium. These deposits are unsuitable in their present condition and will require remedial grading where improvements are planned. Organic and trash debris in the undocumented fill will need to be exported. The actual extent of unsuitable soil removal will be determined in the field by the geotechnical engineer and/or engineering geologist.

7.1.3 Significant outcrops, and shallow hardrock at or near the surface is present in the eastern portion of the site (AT-22 through AT-42). Based on our boring data, blasting will be necessary for excavations in this area. Roadway/utility corridor and lot undercutting is recommended and should be considered when calculating the volume of hard rock. Proposed cuts in hard rock areas can be expected to generate oversized fragments (rocks greater than 12 inches in dimension) which will necessitate typical hard rock handling and placement procedures during grading operations.

7.1.4 The proposed structures can be supported on conventional shallow footings founded in properly compacted fill or dense formational materials as recommended herein.

7.1.5 Subsurface conditions observed may be extrapolated to reflect general soil/geologic conditions at the site; however, some variations in subsurface conditions between boring and trench locations should be expected.

7.1.6 Project grading plans were not provided for our use in preparation of this report. Once grading plans are available, we should review the plans and provide updated recommendations.

7.2 Excavation and Soil Characteristics

7.2.1 The soil encountered in the field investigations are considered to be “expansive” (expansion index [EI] of greater than 20) as defined by 2019 California Building Code (CBC) Section 1803.5.3. Table 7.2.1 presents soil classifications based on the expansion index. Based on previous laboratory testing by Geocon and EEI, the expansion index for on-site soil possesses a “medium” to “high” expansion potential (EI of 130 or less). We expect the sandy portion of the granitic rock to have a “low” expansion potential.

TABLE 7.2.1
SOIL CLASSIFICATION BASED ON EXPANSION INDEX

Expansion Index (EI)	Soil Classification
0 – 20	Very Low
21 – 50	Low
51 – 90	Medium
91 – 130	High
Greater Than 130	Very High

7.2.2 On-site soil can be excavated with light to heavy effort using conventional heavy-duty grading equipment. Cemented zones in the Santiago Formation will require a very heavy effort to excavate, and may generate oversize material that will require placement in deeper fills or export from the site. Some excavations, if planned in the granitic rock area of the eastern portion of the site will require blasting.

7.2.3 We performed laboratory tests on samples of the site materials to evaluate the percentage of water-soluble sulfate content (California Test No. 417). Results from the laboratory water-soluble sulfate content tests are presented in Appendix B and indicate that the on-site materials at the locations tested possess a "Not Applicable" and "S0" sulfate exposure to concrete structures as defined by 2019 CBC Section 1904 and ACI 318-14 Chapter 19. The presence of water-soluble sulfates is not a visually discernible characteristic; therefore, other soil samples from the site could yield different concentrations. Additionally, over time landscaping activities (i.e., addition of fertilizers and other soil nutrients) may affect the concentration. Table 7.2.2 presents a summary of concrete requirements set forth by 2019 CBC Section 1904 and ACI 318.

TABLE 7.2.2
REQUIREMENTS FOR CONCRETE EXPOSED TO SULFATE-CONTAINING SOLUTIONS

Sulfate Severity	Exposure Class	Water-Soluble Sulfate (SO_4) Percent by Weight	Cement Type (ASTM C 150)	Maximum Water to Cement Ratio by Weight[1]	Minimum Compressive Strength (psi)
Not Applicable	S0	$SO_4<0.10$	No Type Restriction	n/a	2,500
Moderate	S1	$0.10\leq SO_4<0.20$	II	0.50	4,000
Severe	S2	$0.20\leq SO_4\leq 2.00$	V	0.45	4,500
Very Severe	S3	$SO_4>2.00$	V+Pozzolan or Slag	0.45	4,500

[1] Maximum water to cement ratio limits do not apply to lightweight concrete.

7.2.4 We performed laboratory Chloride tests on selected soil samples to check the corrosion potential to subsurface metal structures. The laboratory test results are presented in Appendix B.

7.2.5 Geocon Incorporated does not practice in the field of corrosion engineering; therefore, further evaluation by a corrosion engineer may be needed to incorporate the necessary precautions to avoid premature corrosion of underground pipes and buried metal in direct contact with soil.

7.3 Grading

7.3.1 All grading should be performed in accordance with the City of Oceanside grading ordinance and the *Recommended Grading Specifications* contained in Appendix E. Where the recommendations of Appendix E conflict with this section of the report, the recommendations of this section shall take precedence.

7.3.2 Prior to commencing grading, a preconstruction conference should be held at the site with the grading contractor, civil engineer, a representative of the City of Oceanside, and geotechnical engineer in attendance. Specific soil handling and/or the grading plans can be discussed at that time.

7.3.3 Site preparation should begin with the removal of deleterious material, including trash and vegetation. Existing building foundations, septic tanks, leach fields, and other associated underground pipes or structures should also be removed from the property, if any. Site demolition of the property should include the proper destruction of any existing water wells in accordance with the County of San Diego Department of Environmental Health. The depth of removal should be such that material exposed in cut areas or soil to be used as fill is relatively free of organic matter and debris. Material generated from stripping and/or site demolition should be exported from the site.

7.3.4 Surficial soil should be removed to formational material or granitic rock and replaced with properly compacted fill. The exposed formational material or granitic rock should then be scarified, moisture conditioned as necessary, and properly compacted.

7.3.5 The site should be brought to final design elevations with structural fill compacted in layers. In general, existing soil is suitable for re-use as fill if free from vegetation, debris, and other deleterious material. All fill, including backfill and scarified ground surfaces, should be compacted to a dry density of at least 90 percent of the laboratory maximum dry density

near to slightly above optimum moisture content, in accordance with ASTM Test Procedure D 1557. Materials placed below optimum moisture content may be considered unacceptable.

7.3.6 Where practical, the upper 3 feet of all building pads should be composed of properly compacted fill or undisturbed formational soils that possess a ***very low*** to ***low*** expansion potential (EI of 50 or less). In pavement areas, the upper 2 feet of soil should have an expansion potential no greater than 90. Soil with a ***high*** expansion potential (EI of greater than 90) should be placed no closer than 3 feet below finish pad grade. Rocks greater than 12 inches in maximum dimension should not be placed within 10 feet of finish grade or 3 feet of the deepest utility. Rocks greater than 6 inches in maximum dimension should not be placed within 3 feet of finish grade in building pad areas.

7.3.7 To reduce the potential for differential settlement, it is recommended that building areas with a cut-fill transition be undercut at least 3 feet and replaced with properly compacted "very low" to "low" expansive fill soils. Where dense formational material and/or fresh granitic rock is present at or near finish grade, consideration should be given to undercutting the building pad to create favorable conditions for footing and utility trench excavations. The lateral limits of the undercut should extend minimum 5 feet outside the building footprint. Deeper undercutting of street areas exposing hard formational materials and/or fresh granitic rock should be considered to facilitate the excavation of underground utilities. If subsurface improvements or landscape zones are planned outside these areas, consideration should be given to undercutting these areas as well.

7.3.8 Imported soil, if required, should be tested and approved by Geocon Incorporated prior to importation. At least 3 working days should be allowed for laboratory testing of the soil prior to its importation. The import soil should be predominantly granular and have an Expansion Index less than 50.

7.4 Slope Stability

7.4.1 Slope stability analysis utilizing average drained direct shear strength parameters based on laboratory tests and experience with similar soil types indicates that proposed fill slopes, constructed of on-site materials up to approximately 15 feet high, should have calculated factors of safety of at least 1.5 under static conditions for both deep-seated failure and shallow sloughing conditions. Proposed cut slopes in Santiago Formation/granitic rock up to approximately 30 feet were also found to possess a calculated factor of safety in excess of 1.5 for a deep-seated failure condition. Surficial and deep-seated slope stability calculations are presented on Figures 3 through 5.

7.4.2 It is recommended that all cut slope excavations be observed during grading by an engineering geologist to verify that soil and geologic conditions do not differ significantly from those anticipated.

7.4.3 The outer 15 feet (or a distance equal to the height of the slope, whichever is less) of fill slopes should be composed of properly compacted granular "soil" fill to reduce the potential for surficial sloughing. In general, soils with an Expansion Index of less than 90 or at least 35 percent sand size particles should be acceptable as "granular" fill. Soils of questionable strength to satisfy surficial stability should be tested in the laboratory for acceptable drained shear strength.

7.4.4 Fill slopes should be compacted by backrolling with a loaded sheepsfoot roller at vertical intervals not to exceed 4 feet and should be track-walked at the completion of each slope such that the fill soils are uniformly compacted to at least 90 percent relative compaction to the face of the finished sloped. Alternatively, the fill slope may be over-built at least 3 feet and cut back to yield a properly compacted slope face.

7.4.5 Where fill slopes and fill-over-cut slopes are planned, following removal of the surficial soils, a 15-foot-wide, 2-foot-deep, undrained keyway should be constructed prior to placing compacted fill. The keyway should be constructed with a minimum 5 percent inclination away from the toe of slope.

7.4.6 All slopes should be landscaped with drought-tolerant vegetation, having variable root depths and requiring minimal landscape irrigation. In addition, all slopes should be drained and properly maintained to reduce erosion.

7.5 Stability Fills

7.5.1 Cut slopes, if any, which will expose colluvium or Santiago Formation should be evaluated during grading. Cut slopes exposing fine grained soil (silt and clay) may require stability fills. Our experience with nearby projects indicates that a potential to encounter moderately to intensely jointed/fractured rock exists. Cut slopes in this material may also readily transmit seepage. The need for toe drains will be evaluated during grading based on the conditions encountered.

7.6 Toe Drains

7.6.1 Building pad areas adjacent to ascending cut or natural slopes (if proposed) may experience wet soil conditions due to water migration from natural or future irrigation sources. To

reduce the potential for this to occur, consideration should be given to placing a toe drain along the base of the slopes to collect potential seepage and convey it to a suitable outlet. The drain should be sufficiently deep to intercept the seepage (on the order of 3 feet below finish grade) and constructed in accordance with Figure 6. The need for these drains can be evaluated during development of the grading plan

7.6.2 Prior to outletting, the toe drain should transition to non-perforated drainpipe with a seepage cut-off wall provided at this interface. The project civil engineer should be consulted for an appropriate outlet location.

7.6.3 The necessity for toe drains will be evaluated during grading. In addition, the project civil engineer should be consulted to evaluate the appropriate drain locations and necessary easements, building restriction zones or disclosure requirements that may be necessary. The drains should be surveyed for location and shown on the project as-built drawings.

7.7 Seismic Design Criteria

7.7.1 The seismic design criteria is presented for general and preliminary purposes. Geocon Incorporated should be contacted to provide specific seismic design criteria once project plans are developed. Table 7.7.1 summarizes site-specific design criteria obtained from the 2019 California Building Code (CBC; Based on the 2018 International Building Code [IBC] and ASCE 7-16), Chapter 16 Structural Design, Section 1613 Earthquake Loads. We used the computer program *U.S. Seismic Design Maps*, provided by the Structural Engineers Association (SEA) to calculate the seismic design parameters. The short spectral response uses a period of 0.2 second. We evaluated the Site Class based on the discussion in Section 1613.2.2 of the 2019 CBC and Table 20.3-1 of ASCE 7-16. The values presented herein are for the risk-targeted maximum considered earthquake (MCE_R). Sites designated as Site Class D, E and F may require additional analyses if requested by the project structural engineer and client.

TABLE 7.7.1
2019 CBC SEISMIC DESIGN PARAMETERS

Parameter	Value	2019 CBC Reference
Site Class	C	Section 1613.2.2
MCE_R Ground Motion Spectral Response Acceleration – Class B (short), S_S	0.92g	Figure 1613.2.1(1)
MCE_R Ground Motion Spectral Response Acceleration – Class B (1 sec), S_1	0.34g	Figure 1613.2.1(2)
Site Coefficient, F_A	1.2	Table 1613.2.3(1)
Site Coefficient, F_V	1.5*	Table 1613.2.3(2)
Site Class Modified MCE_R Spectral Response Acceleration (short), S_{MS}	1.104g	Section 1613.2.3 (Eqn 16-36)
Site Class Modified MCE_R Spectral Response Acceleration – (1 sec), S_{M1}	0.51g*	Section 1613.2.3 (Eqn 16-37)
5% Damped Design Spectral Response Acceleration (short), S_{DS}	0.736g	Section 1613.2.4 (Eqn 16-38)
5% Damped Design Spectral Response Acceleration (1 sec), S_{D1}	0.34g*	Section 1613.2.4 (Eqn 16-39)

***** Using the code-based values presented in this table, in lieu of a performing a ground motion hazard analysis, requires the exceptions outlined in ASCE 7-16 Section 11.4.8 be followed by the project structural engineer. Per Section 11.4.8 of ASCE/SEI 7-16, a ground motion hazard analysis should be performed for projects for Site Class "E" sites with Ss greater than or equal to 1.0g and for Site Class "D" and "E" sites with S1 greater than 0.2g. Section 11.4.8 also provides exceptions which indicates that the ground motion hazard analysis may be waived provided the exceptions are followed.

7.7.2 Table 7.7.2 presents the mapped maximum considered geometric mean (MCE_G) seismic design parameters for projects located in Seismic Design Categories of D through F in accordance with ASCE 7-16.

TABLE 7.7.2
ASCE 7-16 PEAK GROUND ACCELERATION

Parameter	Value	ASCE 7-16 Reference
Mapped MCE_G Peak Ground Acceleration, PGA	0.397g	Figure 22-7
Site Coefficient, F_{PGA}	1.2	Table 11.8-1
Site Class Modified MCE_G Peak Ground Acceleration, PGA_M	0.477g	Section 11.8.3 (Eqn 11.8-1)

7.7.3 Conformance to the criteria in Tables 7.7.1 and 7.7.2 for seismic design does not constitute any kind of guarantee or assurance that significant structural damage or ground failure will

not occur in the event of a large earthquake. The primary goal of seismic design is to protect life, not to avoid all damage, since such design may be economically prohibitive.

7.7.4 The project structural engineer and architect should evaluate the appropriate Risk Category and Seismic Design Category for the planned structures. The values presented herein assume a Risk Category of II and resulting in a Seismic Design Category D. Table 7.7.3 presents a summary of the risk categories in accordance with ASCE 7-16.

TABLE 7.7.3
ASCE 7-16 RISK CATEGORIES

Risk Category	Building Use	Examples
I	Low risk to Human Life at Failure	Barn, Storage Shelter
II	Nominal Risk to Human Life at Failure (Buildings Not Designated as I, III or IV)	Residential, Commercial and Industrial Buildings
III	Substantial Risk to Human Life at Failure	Theaters, Lecture Halls, Dining Halls, Schools, Prisons, Small Healthcare Facilities, Infrastructure Plants, Storage for Explosives/Toxins
IV	Essential Facilities	Hazardous Material Facilities, Hospitals, Fire and Rescue, Emergency Shelters, Police Stations, Power Stations, Aviation Control Facilities, National Defense, Water Storage

7.8 Foundation and Concrete Slab-On-Grade Recommendations

7.8.1 The following foundation recommendations are for proposed one- to four-story residential structures. The foundation recommendations have been separated into three categories based on either the maximum and differential fill thickness or Expansion Index. The foundation category criteria are presented in Table 7.8.1.

TABLE 7.8.1
FOUNDATION CATEGORY CRITERIA

Foundation Category	Maximum Fill Thickness, T (feet)	Differential Fill Thickness, D (feet)	Expansion Index (EI)
I	$T<20$	--	$EI \leq 50$
II	$20 \leq T<50$	$10 \leq D<20$	$50<EI \leq 90$
III	$T \geq 50$	$D \geq 20$	$90<EI \leq 130$

7.8.2 We will provide the final foundation category for the buildings after finish pad grades have been achieved and laboratory testing of the finish grade soil has been completed.

7.8.3 Table 7.8.2 presents minimum foundation and interior concrete slab design criteria for conventional foundation systems.

TABLE 7.8.2
CONVENTIONAL FOUNDATION RECOMMENDATIONS BY CATEGORY

Foundation Category	Minimum Footing Embedment Depth (inches)	Continuous Footing Reinforcement	Interior Slab Reinforcement
I	12	Two No. 4 bars, one top and one bottom	6 x 6 - 10/10 welded wire mesh at slab mid-point
II	18	Four No. 4 bars, two top and two bottom	No. 3 bars at 24 inches on center, both directions
III	24	Four No. 5 bars, two top and two bottom	No. 3 bars at 18 inches on center, both directions

7.8.4 The embedment depths presented in Table 7.8.2 should be measured from the lowest adjacent pad grade for both interior and exterior footings. The conventional foundations should have a minimum width of 12 inches and 24 inches for continuous and isolated footings, respectively. A typical wall/column footing detail is presented on Figure 7.

7.8.5 The concrete slabs-on-grade should be a minimum of 4 inches thick for Foundation Categories I and II and 5 inches thick for Foundation Category III. The concrete slabs-on-grade should be underlain by 4 inches and 3 inches of clean sand for 4-inch- thick and 5-inch-thick slabs, respectively. Slabs expected to receive moisture sensitive floor coverings or used to store moisture sensitive materials should be underlain by a vapor inhibitor covered with at least 2 inches of clean sand or crushed rock. If crushed rock will be used, the thickness of the vapor inhibitor should be at least 10 mil to prevent possible puncturing.

7.8.6 As a substitute, the layer of clean sand (or crushed rock) beneath the vapor inhibitor recommended in the previous section can be omitted if a vapor inhibitor that meets or exceeds the requirements of ASTM E 1745-97 (Class A), and that exhibits permeance not greater than 0.012 perm (measured in accordance with ASTM E 96-95) is used. This vapor inhibitor may be placed directly on properly compacted fill or formational materials. The vapor inhibitor should be installed in general conformance with ASTM E 1643-98 and the manufacturer's recommendations. Two inches of clean sand should then be placed on top of the vapor

inhibitor to reduce the potential for differential curing, slab curl, and cracking. Floor coverings should be installed in accordance with the manufacturer's recommendations.

7.8.7 As an alternative to the conventional foundation recommendations, consideration should be given to the use of post-tensioned concrete slab and foundation systems for the support of the proposed structures. The post-tensioned systems should be designed by a structural engineer experienced in post-tensioned slab design and design criteria of the Post-Tensioning Institute (PTI) DC10.5 as required by the 2019 California Building Code (CBC Section 1808.6.2). Although this procedure was developed for expansive soil conditions, we understand it can also be used to reduce the potential for foundation distress due to differential fill settlement. The post-tensioned design should incorporate the geotechnical parameters presented on Table 7.8.3. The parameters presented in Table 7.8.3 are based on the guidelines presented in the PTI, DC10.5 design manual.

TABLE 7.8.3
POST-TENSIONED FOUNDATION SYSTEM DESIGN PARAMETERS

Post-Tensioning Institute (PTI), Third Edition Design Parameters	Foundation Category		
	I	II	III
Thornthwaite Index	-20	-20	-20
Equilibrium Suction	3.9	3.9	3.9
Edge Lift Moisture Variation Distance, e_M (feet)	5.3	5.1	4.9
Edge Lift, y_M (inches)	0.61	1.10	1.58
Center Lift Moisture Variation Distance, e_M (feet)	9.0	9.0	9.0
Center Lift, y_M (inches)	0.30	0.47	0.66

7.8.8 Foundation systems for the lots that possess a foundation Category I and a "very low" expansion potential (expansion index of 20 or less) can be designed using the method described in Section 1808 of the 2019 CBC. If post-tensioned foundations are planned, an alternative, commonly accepted design method (other than PTI DC 10.5) can be used. However, the post-tensioned foundation system should be designed with a total and differential deflection of 1 inch. Geocon Incorporated should be contacted to review the plans and provide additional information, if necessary. This foundation category alternative is commonly referred to as CAT 1A.

7.8.9 If an alternate design method is contemplated, Geocon Incorporated should be contacted to evaluate if additional expansion index testing should be performed to identify the lots that possess a “very low” expansion potential (expansion index of 20 or less).

7.8.10 The foundations for the post-tensioned slabs should be embedded in accordance with the recommendations of the structural engineer. If a post-tensioned mat foundation system is planned, the slab should possess a thickened edge with a minimum width of 12 inches and extend below the clean sand or crushed rock layer.

7.8.11 If the structural engineer proposes a post-tensioned foundation design method other than PTI DC 10.5:

- The deflection criteria presented in Table 7.8.3 are still applicable.
- Interior stiffener beams should be used for Foundation Categories II and III.
- The width of the perimeter foundations should be at least 12 inches.
- The perimeter footing embedment depths should be at least 12 inches, 18 inches and 24 inches for foundation categories I, II, and III, respectively. The embedment depths should be measured from the lowest adjacent pad grade.

7.8.12 Our experience indicates post-tensioned slabs may be susceptible to excessive edge lift, regardless of the underlying soil conditions. Placing reinforcing steel at the bottom of the perimeter footings and the interior stiffener beams may mitigate this potential. The structural engineer should design the foundation system to reduce the potential of edge lift occurring for the proposed structures.

7.8.13 During the construction of the post-tension foundation system, the concrete should be placed monolithically. Under no circumstances should cold joints be allowed to form between the footings/grade beams and the slab during the construction of the post-tension foundation system unless designed by the structural engineer.

7.8.14 Category I, II, or III foundations may be designed for an allowable soil bearing pressure of 2,000 pounds per square foot (psf) (dead plus live load). This bearing pressure may be increased by one-third for transient

7.8.15 Isolated footings, if present, should have the minimum embedment depth and width recommended for conventional foundations for a particular Foundation Category. The use of isolated footings, which are located beyond the perimeter of the building and support structural elements connected to the building, are not recommended for Category III. Where this condition cannot be avoided, the isolated footings should be connected to the building foundation system with grade beams.

7.8.16 For Foundation Category III, consideration should be given to using interior stiffening beams and connecting isolated footings and/or increasing the slab thickness. In addition, consideration should be given to connecting patio slabs, which exceed 5 feet in width, to the building foundation to reduce the potential for future separation to occur.

7.8.17 Special subgrade presaturation is not deemed necessary prior to placing concrete; however, the exposed foundation and slab subgrade soil should be moisture conditioned, as necessary, to maintain a moist condition as would be expected in any such concrete placement.

7.8.18 Where buildings or other improvements are planned near the top of a slope 3:1 (horizontal:vertical) or steeper, special foundation and/or design considerations are recommended due to the tendency for lateral soil movement to occur.

- For fill slopes less than 20 feet high, building footings should be deepened such that the bottom outside edge of the footing is at least 7 feet horizontally from the face of the slope.

- When located next to a descending 3:1 (horizontal:vertical) fill slope or steeper, the foundations should be extended to a depth where the minimum horizontal distance is equal to H/3 (where H equals the vertical distance from the top of the fill slope to the base of the fill soil) with a minimum of 7 feet but need not exceed 40 feet. The horizontal distance is measured from the outer, deepest edge of the footing to the face of the slope. A post-tensioned slab and foundation system or mat foundation system can be used to reduce the potential for distress in the structures associated with strain softening and lateral fill extension. Specific design parameters or recommendations for either of these alternatives can be provided once the building location and fill slope geometry have been determined.

- If swimming pools are planned, Geocon Incorporated should be contacted for a review of specific site conditions.

- Swimming pools located within 7 feet of the top of cut or fill slopes are not recommended. Where such a condition cannot be avoided, the portion of the swimming pool wall within 7 feet of the slope face be designed assuming that the adjacent soil provides no lateral support. This recommendation applies to fill slopes up to 30 feet in height, and cut slopes regardless of height. For swimming pools located near the top of fill slopes greater than 30 feet in height, additional recommendations may be required and Geocon Incorporated should be contacted for a review of specific site conditions.

- Although other improvements, which are relatively rigid or brittle, such as concrete flatwork or masonry walls, may experience some distress if located near the top of a slope, it is generally not economical to mitigate this potential. It may be possible, however, to incorporate design measures, which would permit some lateral soil movement without causing extensive distress. Geocon Incorporated should be consulted for specific recommendations.

7.8.19 Exterior concrete flatwork not subject to vehicular traffic should be constructed in accordance with the recommendations herein. Slab panels should be a minimum of 4 inches thick and, when in excess of 8 feet square, should be reinforced with 6 x 6 - W2.9/W2.9 (6 x 6 - 6/6) welded wire mesh or No. 3 reinforcing bars at 18 inches on center in both directions to reduce the potential for cracking. In addition, concrete flatwork should be provided with crack control joints to reduce and/or control shrinkage cracking. Crack control spacing should be determined by the project structural engineer based upon the slab thickness and intended usage. Criteria of the American Concrete Institute (ACI) should be taken into consideration when establishing crack control spacing. A 4-inch-thick slab should have a maximum joint spacing of 10 feet. Subgrade soil for exterior slabs not subjected to vehicle loads should be compacted in accordance with criteria presented in the grading section prior to concrete placement. Subgrade soil should be properly compacted and the moisture content of subgrade soil should be checked prior to placing concrete.

7.8.20 The recommendations of this report are intended to reduce the potential for cracking of slabs and foundations due to expansive soil (if present), differential settlement of fill soil or soil with varying thicknesses. However, even with the incorporation of the recommendations presented herein, foundations, stucco walls, and slabs-on-grade placed on such conditions may still exhibit some cracking due to soil movement and/or shrinkage. The occurrence of concrete shrinkage cracks is independent of the supporting soil characteristics. Their occurrence may be reduced by limiting the slump of the concrete, proper concrete placement and curing, and by the placement of crack control joints at periodic intervals, in particular, where re-entrant slab corners occur.

7.8.21 Concrete slabs should be provided with adequate crack-control joints, construction joints and/or expansion joints to reduce unsightly shrinkage cracking. The design of joints should consider criteria of the American Concrete Institute (ACI) when establishing crack-control spacing. Additional steel reinforcing, concrete admixtures and/or closer crack control joint spacing should be considered where concrete-exposed finished floors are planned.

7.8.22 Geocon Incorporated should be consulted to provide additional design parameters as required by the structural engineer.

7.9 Retaining Walls and Lateral Loads Recommendations

7.9.1 Retaining walls not restrained at the top and having a level backfill surface should be designed for an active soil pressure equivalent to the pressure exerted by a fluid with a density of 35 pounds per cubic foot (pcf). Where the backfill will be inclined at 2:1 (horizontal:vertical), an active soil pressure of 50 pcf is recommended. These soil pressures

assume that the backfill materials within an area bounded by the wall and a 1:1 plane extending upward from the base of the wall possess an Expansion Index $\leq$50. Geocon Incorporated should be consulted for additional recommendations if backfill materials have an EI >50.

7.9.2 Retaining walls shall be designed to ensure stability against overturning sliding, excessive foundation pressure and water uplift. Where a keyway is extended below the wall base with the intent to engage passive pressure and enhance sliding stability, it is not necessary to consider active pressure on the keyway.

7.9.3 Where walls are restrained from movement at the top, an additional uniform pressure of 8H psf (where H equals the height of the retaining wall portion of the wall in feet) should be added to the active soil pressure where the wall possesses a height of 8 feet or less and 12H where the wall is greater than 8 feet. For retaining walls subject to vehicular loads within a horizontal distance equal to two-thirds the wall height, a surcharge equivalent to two feet of fill soil should be added (total unit weight of soil should be taken as 130 pcf).

7.9.4 Soil contemplated for use as retaining wall backfill, including import materials, should be identified in the field prior to backfill. At that time Geocon Incorporated should obtain samples for laboratory testing to evaluate its suitability. Modified lateral earth pressures may be necessary if the backfill soil does not meet the required expansion index or shear strength. County or regional standard wall designs, if used, are based on a specific active lateral earth pressure and/or soil friction angle. In this regard, on-site soil to be used as backfill may not meet the values for standard wall designs. Geocon Incorporated should be consulted to assess the suitability of the on-site soil for use as wall backfill if standard wall designs will be used. However, imported soil will be needed to raise pad grades approximately 10 feet, therefore, the imported soil would meet the minimum soil values for regional standard wall design.

7.9.5 Unrestrained walls will move laterally when backfilled and loading is applied. The amount of lateral deflection is dependent on the wall height, the type of soil used for backfill, and loads acting on the wall. The wall designer should provide appropriate lateral deflection quantities for planned retaining walls structures, if applicable. These lateral values should be considered when planning types of improvements above retaining wall structures.

7.9.6 Retaining walls should be provided with a drainage system adequate to prevent the buildup of hydrostatic forces and should be waterproofed as required by the project architect. The use of drainage openings through the base of the wall (weep holes) is not recommended

where the seepage could be a nuisance or otherwise adversely affect the property adjacent to the base of the wall. The above recommendations assume a properly compacted granular (EI $\leq$50) free-draining backfill material with no hydrostatic forces or imposed surcharge load. A typical retaining wall drainage detail is presented on Figure 8. If conditions different than those described are expected, or if specific drainage details are desired, Geocon Incorporated should be contacted for additional recommendations.

7.9.7 In general, wall foundations having a minimum depth and width of one foot may be designed for an allowable soil bearing pressure of 2,000 psf, provided the soil within three feet below the base of the wall has an Expansion Index $\leq$ 90. The recommended allowable soil bearing pressure may be increased by 300 psf and 500 psf for each additional foot of foundation width and depth, respectively, up to a maximum allowable soil bearing pressure of 4,000 psf.

7.9.8 The proximity of the foundation to the top of a slope steeper than 3:1 could impact the allowable soil bearing pressure. Therefore, Geocon Incorporated should be consulted where such a condition is anticipated. As a minimum, wall footings should be deepened such that the bottom outside edge of the footing is at least seven feet from the face of slope when located adjacent and/or at the top of descending slopes.

7.9.9 The structural engineer should determine the Seismic Design Category for the project in accordance with Section 1613.3.5 of the 2019 CBC or Section 11.6 of ASCE 7-16. For structures assigned to Seismic Design Category of D, E, or F, retaining walls that support more than 6 feet of backfill should be designed with seismic lateral pressure in accordance with Section 1803.5.12 of the 2019 CBC. The seismic load is dependent on the retained height where H is the height of the wall, in feet, and the calculated loads result in pounds per square foot (psf) exerted at the base of the wall and zero at the top of the wall. A seismic load of 22H should be used for design. We used the peak ground acceleration adjusted for Site Class effects, PGA_M, of 0.477g calculated from ASCE 7-16 Section 11.8.3 and applied a pseudo-static coefficient of 0.33.

7.9.10 For resistance to lateral loads, a passive earth pressure equivalent to a fluid density of 300 pcf is recommended for footings or shear keys poured neat against properly compacted granular fill soils or undisturbed formational materials. The passive pressure assumes a horizontal surface extending away from the base of the wall at least five feet or three times the surface generating the passive pressure, whichever is greater. The upper 12 inches of material not protected by floor slabs or pavement should not be included in the design for lateral resistance.

7.9.11 An ultimate friction coefficient of 0.35 may be used for resistance to sliding between soil and concrete. This friction coefficient may be combined with the passive earth pressure when determining resistance to lateral loads.

7.9.12 The recommendations presented above are generally applicable to the design of rigid concrete or masonry retaining walls having a maximum height of 12 feet. In the event that walls higher than 12 feet are planned, Geocon Incorporated should be consulted for additional recommendations.

7.10 Mechanically-Stabilized Earth (MSE) Retaining Walls

7.10.1 The geologic conditions for the proposed development are anticipated to consist of compacted fill over formational materials. The formational materials consist of Santiago Formation and granitic rock. The compacted fill soils in the foundation and retained zones should consist of silty sands derived from on-site excavations in the granitic rock or imported to the site if selective grading and stockpiling of granular soil for wall backfill is not performed. Clay soils are not considered suitable as wall backfill due to the high expansion potential. Based our experience with similar soil and geologic conditions, we recommend the following geotechnical parameters be used for design of the MSE retaining walls.

TABLE 7.10
MSE RETAINING WALL PARAMETERS

Parameter	Reinforced Zone	Retained Zone	Foundation Zone
Angle of Internal Friction	30 degrees	30 degrees	30 degrees
Cohesion	0 psf	0 psf	0 psf
Wet Unit Weight	125 pcf	125 pcf	125 pcf

7.10.2 The shear strength values used for the reinforced zone assume that predominately granular materials will be stockpiled for use as backfill. Geocon has no way of knowing whether these materials will actually be used as backfill behind the wall during construction. As such, once backfill materials have been selected and/or stockpiled, sufficient shear tests should be conducted on samples of the proposed backfill materials to verify they conform to actual design values. Results should be provided to the designer to re-evaluate stability of the walls. Dependent upon test results, the designer may require modifications to the original wall design (e.g., longer geogrid embedment lengths).

7.10.3 Backfill materials within the reinforced zone should be compacted to a dry density of at least 90 percent of the laboratory maximum dry density at or slightly above optimum moisture content in accordance with ASTM D 1557. This is applicable to the entire embedment length of the geogrid reinforcement. In addition, the wall designer has maximum particle size (typically 3-inches in size or less) and shape (angular/rounded) requirements for soil-rock fill within the reinforced zone. Typically, wall designers specify that heavy compaction equipment be excluded from within 3 feet of the face of the wall; however, smaller equipment (e.g., walk-behind, self-driven compactors or hand whackers) should be used to compact the materials without causing deformation of the wall. If the designer specifies no compactive effort for this zone, the materials are essentially not properly compacted and the geogrid within the uncompacted zone should not be relied upon for reinforcement and overall embedment lengths should be increased to account for the difference.

7.10.4 The wall designer should provide a drainage system sufficient to dissipate hydrostatic pressure behind the wall and to mitigate seepage through and beneath the wall. As such, a subdrain system consisting of a minimum 4-inch diameter, Schedule 40, perforated pvc pipe surrounded by at least 1 cubic foot of ¾-inch open-graded gravel and wrapped in filter fabric (Mirafi 140N or equivalent) should be incorporated into the wall design, where feasible. In order to prevent soil piping into the open-graded gravel layer behind the wall, we recommend the filter fabric be extended to cover the entire gravel layer. The final segment of the subdrain should outlet into an approved drainage facility, such as storm drain or headwall structure. The final segment of the drain should consist of solid pvc pipe. At the transition between the solid and perforated pipe, a concrete cut-off wall should be added to direct the subsurface water into the solid pipe.

7.10.5 A peak ground acceleration adjusted for Site Class effects, PGA_M, of 0.477g was calculated from ASCE 7-16 Section 11.8.3. The 2019 CBC seismic design parameters are provided in Section 7.7.1.

7.10.6 Geosynthetic reinforcement must elongate to develop full tensile resistance. This elongation generally results in movement at the top of the wall. The amount of movement is dependent upon the height of the wall (e.g., higher walls rotate more), construction, and the type of geosynthetic used. In addition, over time reinforced-earth retaining walls have been known to exhibit creep and can undergo additional movement. Given this condition, the owner should be aware that structures and pavement placed within the reinforced and retained zones of the wall may undergo movement and should be designed to accommodate this movement.

7.11 Preliminary Pavement Recommendations

7.11.1 We calculated the preliminary flexible pavement sections in general conformance with the *Caltrans Method of Flexible Pavement Design* (Highway Design Manual, Section 608.4) using estimated Traffic Indices (TI) of 4.5, 5.0, 6.0, 7.0 and 8.0 for light-duty parking stalls, light-duty driveways, medium-duty, and heavy-duty traffic areas, respectively. The project civil engineer, architect, and owner should review the pavement designations to determine appropriate locations for pavement thickness. The final pavement sections should be based on the R-Value of the subgrade soil encountered at final subgrade elevation. For preliminary design purposes, we have utilized an assumed R-value of 5. Table 7.11.1 presents the preliminary flexible pavement sections for private parking lots and roadways.

TABLE 7.11.1
PRELIMINARY FLEXIBLE PAVEMENT SECTIONS

Location	Assumed Traffic Index	Assumed Subgrade R-Value	Asphalt Concrete (inches)	Class 2 Aggregate Base (inches)
Light-duty vehicle parking stalls	4.5	5	3	8
Light-duty vehicle traffic areas	5.0	5	3	10
Medium-duty truck traffic areas	6.0	5	3.5	13
Heavy-duty truck traffic areas	7.0	5	4	16

7.11.2 Prior to placing base materials, the upper 12 inches of the subgrade soil should be scarified, moisture conditioned as necessary, and recompacted to a dry density of at least 95 percent of the laboratory maximum dry density near to slightly above optimum moisture content as determined by ASTM D 1557. Similarly, the base material should be compacted to a dry density of at least 95 percent of the laboratory maximum dry density near to slightly above optimum moisture content. Asphalt concrete should be compacted to a density of at least 95 percent of the laboratory Hveem density in accordance with ASTM D 2726.

7.11.3 Base materials should conform to Section 26-1.028 of the *Standard Specifications for The State of California Department of Transportation (Caltrans)* with a ¾-inch maximum size aggregate. The asphalt concrete should conform to Section 203-6 of the *Standard Specifications for Public Works Construction (Greenbook).*

7.11.4 A rigid Portland Cement concrete (PCC) pavement section should be placed in driveway entrance aprons, trash bin loading/storage areas and loading dock areas. The concrete pad for trash truck areas should be large enough such that the truck wheels will be positioned on

the concrete during loading. We calculated the rigid pavement section in general conformance with the procedure recommended by the American Concrete Institute report ACI 330R-08 *Guide for Design and Construction of Concrete Parking Lots* using the parameters presented in Table 7.11.2.

TABLE 7.11.2
RIGID PAVEMENT DESIGN PARAMETERS

Design Parameter	Design Value
Modulus of subgrade reaction, k	50 pci
Modulus of rupture for concrete, M_R	500 psi
Traffic Category, TC	B and C
Average daily truck traffic, ADTT	25 and 100

7.11.5 Based on the criteria presented herein, the PCC pavement sections should have a minimum thickness as presented in Table 7.11.3.

TABLE 7.11.3
RIGID PAVEMENT RECOMMENDATIONS

Location	Portland Cement Concrete (inches)
Light-Duty Vehicles (TC=B, ADTT = 25)	7.0
Medium-Duty Vehicles (TC=C, ADTT =100)	7.5

7.11.6 The PCC pavement should be placed over subgrade soil that is compacted to a dry density of at least 95 percent of the laboratory maximum dry density near to slightly above optimum moisture content. This pavement section is based on a minimum concrete compressive strength of approximately 3,000 psi (pounds per square inch).

7.11.7 A thickened edge or integral curb should be constructed on the outside of concrete slabs subjected to wheel loads. The thickened edge should be 1.2 times the slab thickness or a minimum thickness of 2 inches, whichever results in a thicker edge, and taper back to the recommended slab thickness 4 feet behind the face of the slab (e.g., a 7-inch-thick slab would have a 9-inch-thick edge).

7.11.8 Reinforcing steel should consist of No. 3 rebar placed at 18 inches on center, both directions, or 6x6-6/6 welded wire mesh.

7.11.9 To control the location and spread of concrete shrinkage cracks, crack-control joints (weakened plane joints) should be included in the design of the concrete pavement slab. Criteria of the American Concrete Institute (ACI) should be taken into consideration when establishing crack control spacing. However, we recommend a spacing not to exceed 10 feet. The depth of the crack-control joints should be determined by the referenced ACI report.

7.11.10 The performance of pavement is highly dependent on providing positive surface drainage away from the edge of the pavement. Ponding of water on or adjacent to the pavement will likely result in pavement distress and subgrade failure. Drainage from landscaped areas should be directed to controlled drainage structures. Landscape areas adjacent to the edge of asphalt pavements are not recommended due to the potential for surface or irrigation water to infiltrate the underlying permeable aggregate base and cause distress. Where such a condition cannot be avoided, consideration should be given to incorporating measures that will significantly reduce the potential for subsurface water migration into the aggregate base. If planter islands are planned, the perimeter curb should extend at least 6 inches below the level of the base materials.

7.12 Storm Water Management

7.12.1 If low-impact development (LID) integrated management practices (IMP's) are being considered, Geocon should review the design and provide specific geotechnical recommendations to reduce the potential adverse impacts to both on and off-site properties.

7.12.2 If not property constructed, there is a potential for distress to improvements and properties located hydrologically down gradient or adjacent to these devices. Factors such as the amount of water to be detained, its residence time, and soil permeability have an important effect on seepage transmission and the potential adverse impacts that may occur if the storm water management features are not properly designed and constructed. We have not performed a hydrogeology study at the site. Down-gradient and adjacent properties may be subjected to seeps, springs, slope instability, raised groundwater, movement of foundations and slabs, or other impacts as a result of water infiltration.

7.12.3 Due to the site soil and geologic conditions, full and partial infiltration of storm water is considered geotechnically infeasible. Liners and subdrains should be incorporated into the design and construction of any planned storm water devices. The liners should be impermeable (e.g. High-density polyethylene, HDPE, with a thickness of about 30 mil or equivalent Polyvinyl Chloride, PVC) to prevent water migration. The subdrains should be perforated within the liner area, installed at the base and above the liner, be at least 4 inches

in diameter and consist of Schedule 40 PVC pipe. The subdrains outside of the liner should consist of solid pipe. Seams and penetrations of the liners should be properly waterproofed. The subdrains should be connected to a proper outlet. The devices should also be installed in accordance with the manufacturer's recommendations.

7.12.4 Revised recommendations may be needed once site plans are available that show proposed storm water BMP types and locations.

7.13 Site Drainage and Moisture Protection

7.13.1 Adequate site drainage is critical to reduce the potential for differential soil movement, erosion and subsurface seepage. Under no circumstances should water be allowed to pond adjacent to footings. The site should be graded and maintained such that surface drainage is directed away from structures in accordance with 2019 CBC 1803.3 or other applicable standards. In addition, surface drainage should be directed away from the top of slopes into swales or other controlled drainage devices. Roof and pavement drainage should be directed into conduits that carry runoff away from the proposed structure.

7.13.2 In the case of basement walls or building walls retaining landscaping areas, a water-proofing system should be used on the wall and joints, and a Miradrain drainage panel (or similar) should be placed over the waterproofing. The project architect or civil engineer should provide detailed specifications on the plans for all waterproofing and drainage.

7.13.3 Underground utilities should be leak free. Utility and irrigation lines should be checked periodically for leaks, and detected leaks should be repaired promptly. Detrimental soil movement could occur if water is allowed to infiltrate the soil for prolonged periods of time.

7.14 Grading and Foundation Plan Review

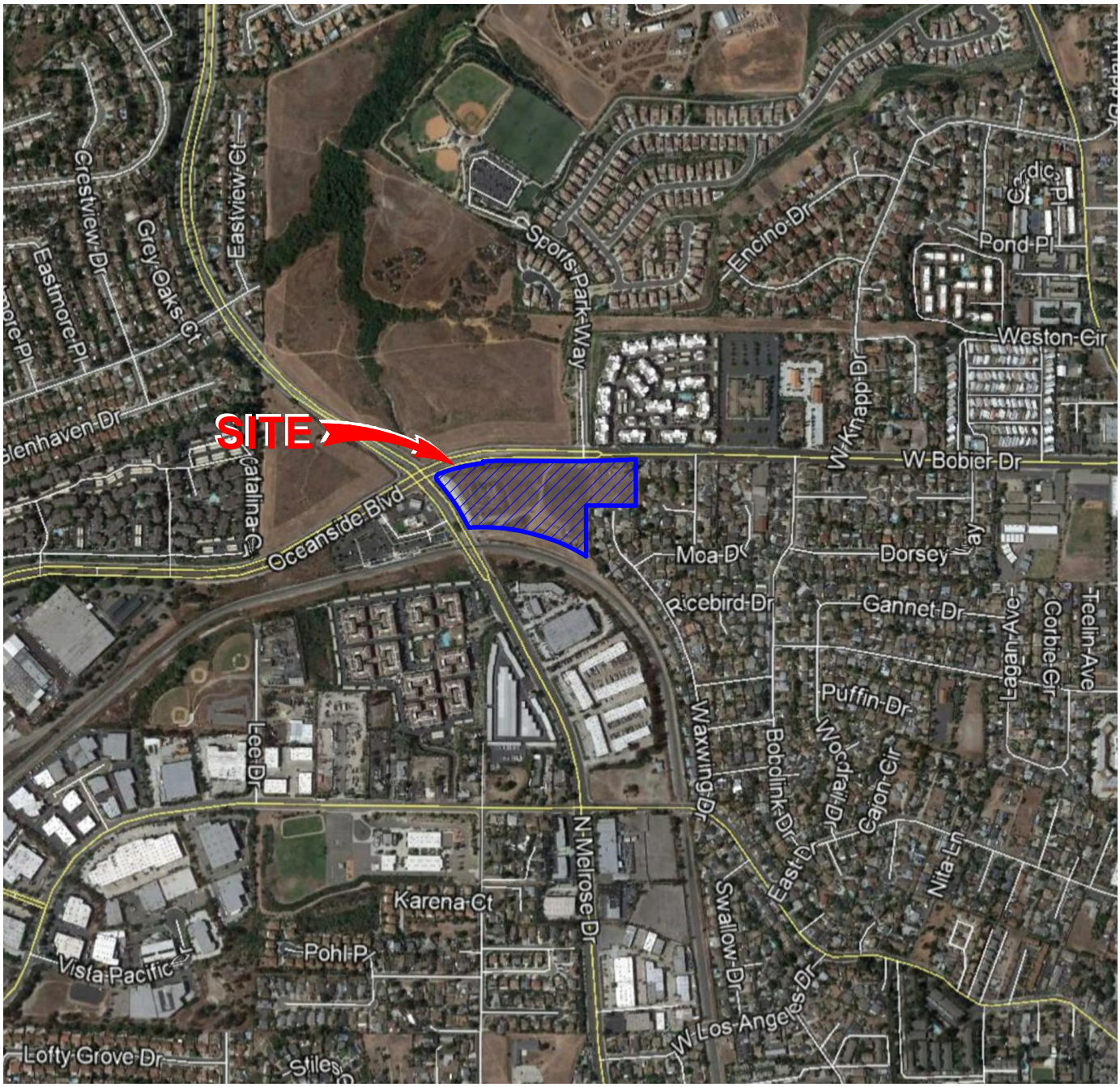
7.14.1 Geocon Incorporated should review the grading and foundation plans for the project prior to final design submittal to determine if additional analysis and/or recommendations are required.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

1. The recommendations of this report pertain only to the site investigated and are based upon the assumption that the soil conditions do not deviate from those disclosed in the investigation. If any variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that anticipated herein, Geocon Incorporated should be notified so that supplemental recommendations can be given. The evaluation or identification of the potential presence of hazardous or corrosive materials was not part of the scope of services provided by Geocon Incorporated.

2. This report is issued with the understanding that it is the responsibility of the owner or his representative to ensure that the information and recommendations contained herein are brought to the attention of the architect and engineer for the project and incorporated into the plans, and the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.

3. The findings of this report are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of three years.



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N

NO SCALE

VICINITY MAP

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MODERA MELROSE
OCEANSIDE, CALIFORNIA

DATE 07 - 28 - 2021	PROJECT NO. 07647 - 32 - 04	FIG. 1

Plotted:07/26/2021 3:27PM | By:ALVIN LADRILLONO | File Location:Y:\PROJECTS\07647-32-04 (Modera Melrose)\DETAILS\07647-32-04 Vic Map.dwg

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GEOCON LEGEND

- *Qudf* .....UNDOCUMENTED FILL
- *Qcol* .....COLLUVIUM
- *Tsa* .....SANTIAGO FORMATION (Dotted Where Buried)
- *Kb* .....BONSALL TONALITE (Dotted Where Buried)
- .....APPROX. LOCATION OF GEOLOGIC CONTACT (Dotted Where Buried,Queried Where Uncertain)
- B-18 .....APPROX. LOCATION OF EXPLORATORY BORING (2011)
- AT-21 .....APPROX. LOCATION OF AIR TRACK BORING
- B-5 .....APPROX. LOCATION OF VERIFICATION BORING
- T-15 .....APPROX. LOCATION OF EXPLORATORY TRENCH
- TP-11 .....APPROX. LOCATION OF EXPLORATORY TEST PIT (Performed by EEI)
- (5) .....ESTIMATED THICKNESS OF SURFICIAL DEPOSIT REQUIRING REMEDIAL GRADING

LOCATION	LATITUDE	LONGTITUDE	ELEVATION (ft. MSL)
B-1	33.220068°	-117.256252°	443'
B-2	33.220073°	-117.256494°	439'
B-3	33.220064°	-117.256728°	436'
B-4	33.220271°	-117.256471°	440'
B-5	33.220359°	-117.256215°	443'
B-6	33.220438°	-117.256673°	437'
B-7	33.220642°	-117.256732°	441'
B-8	33.220653°	-117.256289°	443'
B-9	33.219887°	-117.256110°	444'
B-10	33.219927°	-117.256574°	438'
B-11	33.220544°	-117.256068°	446'
B-12	33.220895°	-117.256435°	447'
B-13	33.220324°	-117.257920°	438'
B-14	33.220069°	-117.257573°	428'
B-15	33.220353°	-117.257565°	438'
B-16	33.220665°	-117.257562°	447'
B-17	33.220541°	-117.257124°	440'
B-18	33.220837°	-117.257023°	449'

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PROJECT NO. 07647 - 32 - 04
FIGURE 2
DATE 07 - 28 - 2021

GEOLOGIC MAP

Y:\PROJECTS\07647-32-04 (Modera Melrose)\SHEETS\07647-32-04 Geo Map.20.dwg

ASSUMED CONDITIONS :

SLOPE HEIGHT	H	=	15 feet
SLOPE INCLINATION	2 : 1	(Horizontal : Vertical)	
TOTAL UNIT WEIGHT OF SOIL	γ_t	=	125 pounds per cubic foot
ANGLE OF INTERNAL FRICTION	ϕ	=	30 degrees
APPARENT COHESION	C	=	250 pounds per square foot
NO SEEPAGE FORCES			

ANALYSIS :

$\lambda_{c\phi}$	=	$\frac{\gamma_t H \tan\phi}{C}$	EQUATION (3-3), REFERENCE 1
FS	=	$\frac{NcfC}{\gamma_t H}$	EQUATION (3-2), REFERENCE 1
$\lambda_{c\phi}$	=	3.6	CALCULATED USING EQ. (3-3)
Ncf	=	16	DETERMINED USING FIGURE 10, REFERENCE 2
FS	=	2.6	FACTOR OF SAFETY CALCULATED USING EQ. (3-2)

REFERENCES :

1.....Janbu, N., Stability Analysis of Slopes with Dimensionless Parameters, Harvard Soil Mechanics, Series No. 46, 1954

2.....Janbu, N., Discussion of J.M. Bell, Dimensionless Parameters for Homogeneous Earth Slopes, Journal of Soil Mechanics and Foundation Design, No. SM6, November 1967.

SLOPE STABILITY ANALYSIS - FILL SLOPES

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MODERA MELROSE
OCEANSIDE, CALIFORNIA

RM / AML		DSK/GTYPD	DATE 07 - 28 - 2021	PROJECT NO. 07647 - 32 - 04	FIG. 3

Plotted:07/26/2021 3:28PM | By:ALVIN LADRILLONO | File Location:Y:\PROJECTS\07647-32-04 (Modera Melrose)\DETAILS\Slope Stability Analyses-Fill (SSA-F).dwg

ASSUMED CONDITIONS :

SLOPE HEIGHT	H	=	30 feet
SLOPE INCLINATION	2 : 1	(Horizontal : Vertical)	
TOTAL UNIT WEIGHT OF SOIL	γ_t	=	130 pounds per cubic foot
ANGLE OF INTERNAL FRICTION	ϕ	=	33 degrees
APPARENT COHESION	C	=	350 pounds per square foot
NO SEEPAGE FORCES			

ANALYSIS :

$\lambda_{c\phi}$	=	$\frac{\gamma_t H \tan\phi}{C}$	EQUATION (3-3), REFERENCE 1
FS	=	$\frac{NcfC}{\gamma_t H}$	EQUATION (3-2), REFERENCE 1
$\lambda_{c\phi}$	=	7.2	CALCULATED USING EQ. (3-3)
Ncf	=	25	DETERMINED USING FIGURE 10, REFERENCE 2
FS	=	2.2	FACTOR OF SAFETY CALCULATED USING EQ. (3-2)

REFERENCES :

1.....Janbu, N., Stability Analysis of Slopes with Dimensionless Parameters, Harvard Soil Mechanics, Series No. 46, 1954

2.....Janbu, N., Discussion of J.M. Bell, Dimensionless Parameters for Homogeneous Earth Slopes, Journal of Soil Mechanics and Foundation Design, No. SM6, November 1967.

SLOPE STABILITY ANALYSIS - CUT SLOPES

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RM / AML		DSK/GTYPD	DATE 07 - 28 - 2021	PROJECT NO. 07647 - 32 - 04	FIG. 4

Plotted:07/26/2021 3:28PM | By:ALVIN LADRILLONO | File Location:Y:\PROJECTS\07647-32-04 (Modera Melrose)\DETAILS\Slope Stability Analyses-Cut (SSA-C).dwg

ASSUMED CONDITIONS :

SLOPE HEIGHT	H	=	Infinite
DEPTH OF SATURATION	Z	=	3 feet
SLOPE INCLINATION	2 : 1		(Horizontal : Vertical)
SLOPE ANGLE	i	=	26.6 degrees
UNIT WEIGHT OF WATER	γ_w	=	62.4 pounds per cubic foot
TOTAL UNIT WEIGHT OF SOIL	γ_t	=	125 pounds per cubic foot
ANGLE OF INTERNAL FRICTION	ϕ	=	30 degrees
APPARENT COHESION	C	=	250 pounds per square foot

SLOPE SATURATED TO VERTICAL DEPTH Z BELOW SLOPE FACE

SEEPAGE FORCES PARALLEL TO SLOPE FACE

ANALYSIS :

$$FS = \frac{C + (\gamma_t - \gamma_w)\ Z\ cos^2\ i\ tan\ \phi}{\gamma_t\ Z\ sin\ i\ cos\ i} = 2.2$$

REFERENCES :

1.....Haefeli, R. *The Stability of Slopes Acted Upon by Parallel Seepage*, Proc. Second International Conference, SMFE, Rotterdam, 1948, 1, 57-62

2.....Skempton, A. W., and F.A. Delory, *Stability of Natural Slopes in London Clay*, Proc. Fourth International Conference, SMFE, London, 1957, 2, 378-81

SURFICIAL SLOPE STABILITY ANALYSIS

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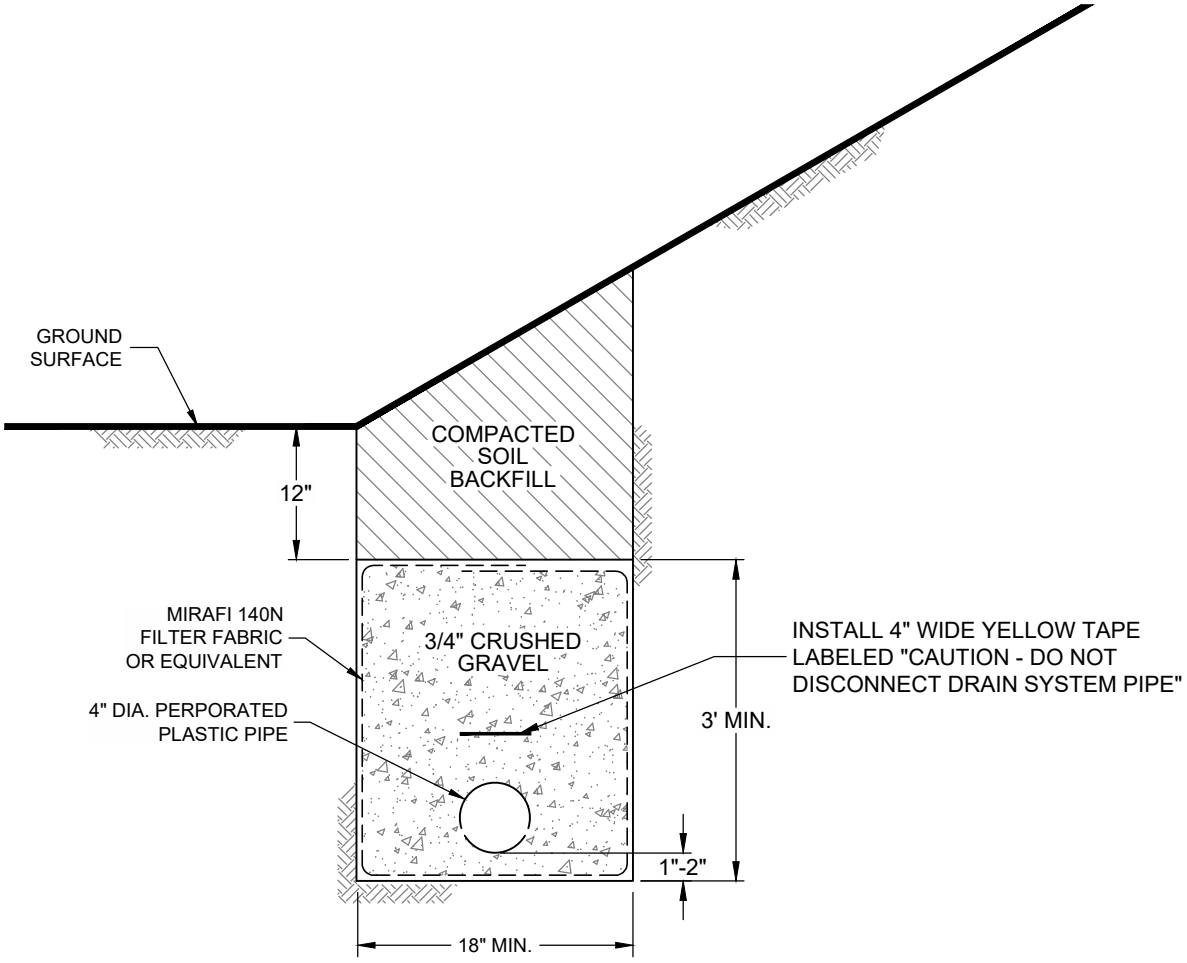
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RM / AML		DSK/GTYPD	DATE 07 - 28 - 2021	PROJECT NO. 07647 - 32 - 04	FIG. 5

Plotted:07/26/2021 3:29PM | By:ALVIN LADRILLONO | File Location:Y:\PROJECTS\07647-32-04 (Modera Melrose)\DETAILS\Slope Stability Analyses-Surficial (SSAS).dwg



NOTES:

1. SOIL CAP COMPACTED TO 90% RELATIVE COMPACTION
2. PERMEABLE MATERIAL SHALL BE ¾" CRUSHED GRAVEL WRAPPED IN FILTER FABRIC (MIRAFI 140N OR EQUIVALENT)
3. 4" DIAMETER PERFORATED PIPE (SDR-35 OR EQUIVALENT) WITH PERFORATIONS DOWN
4. PIPE TO MAINTAIN A MINIMUM 1 PERCENT FALL
5. CONCRETE CUTOFF WALL TO BE PROVIDED AT TRANSITION TO SOLID OUTLET PIPE
6. SOLID OUTLET PIPE TO DRAIN TO APPROVED AREA
7. CLEANOUTS SHOULD BE PROVIDED

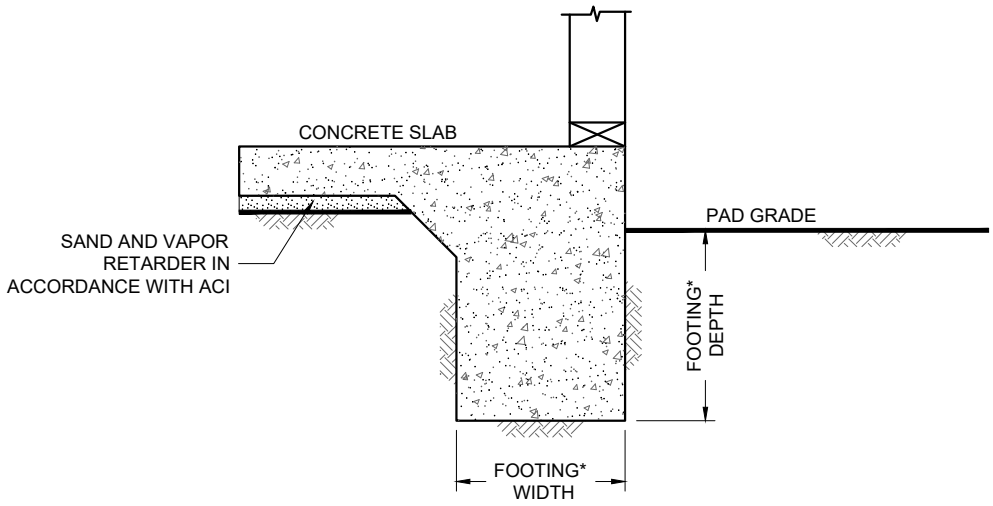
SLOPE TOE DRAIN

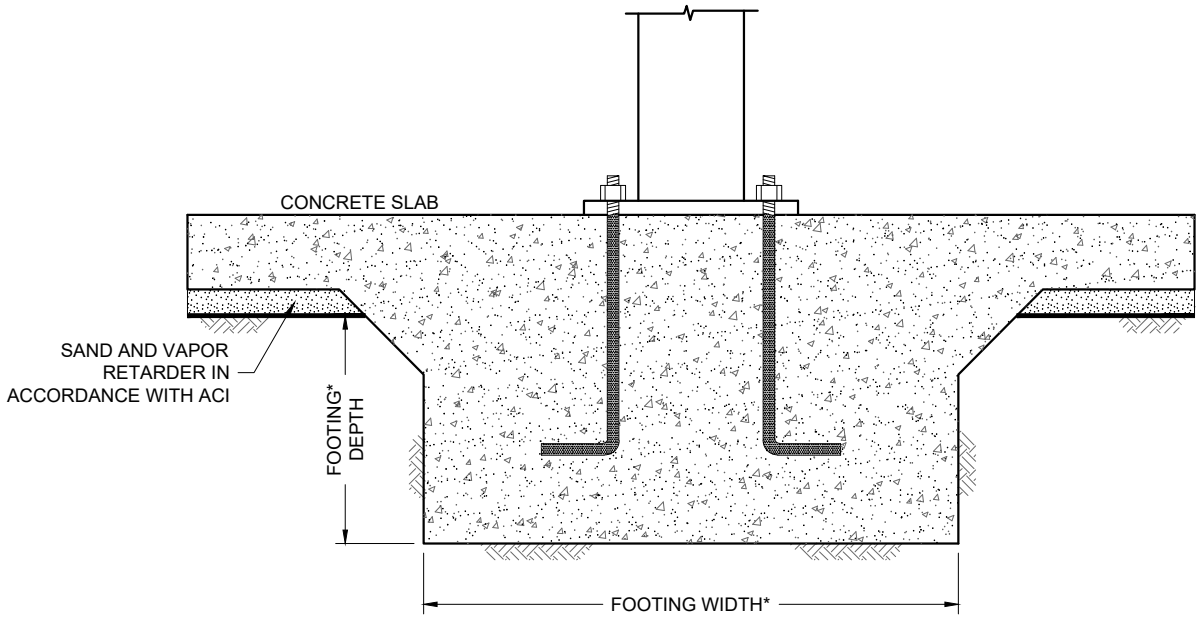
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RM / AML		DSK/GTYPD	DATE 07 - 28 - 2021	PROJECT NO. 07647 - 32 - 04	FIG. 6

Plotted:07/26/2021 3:30PM | By:ALVIN LADRILLONO | File Location:Y:\PROJECTS\07647-32-04 (Modera Melrose)\DETAILS\Slope Toe Drain.dwg





*....SEE REPORT FOR FOUNDATION WIDTH AND DEPTH RECOMMENDATION

NO SCALE

WALL / COLUMN FOOTING DIMENSION DETAIL

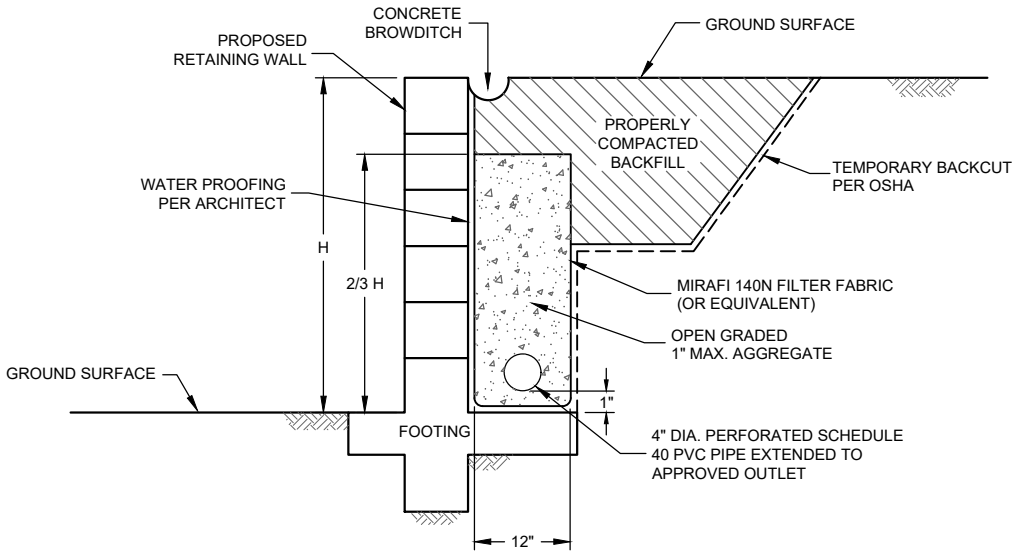
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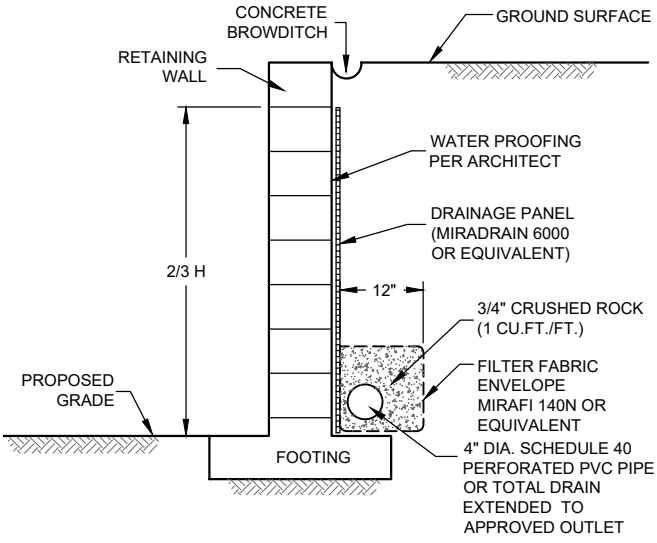
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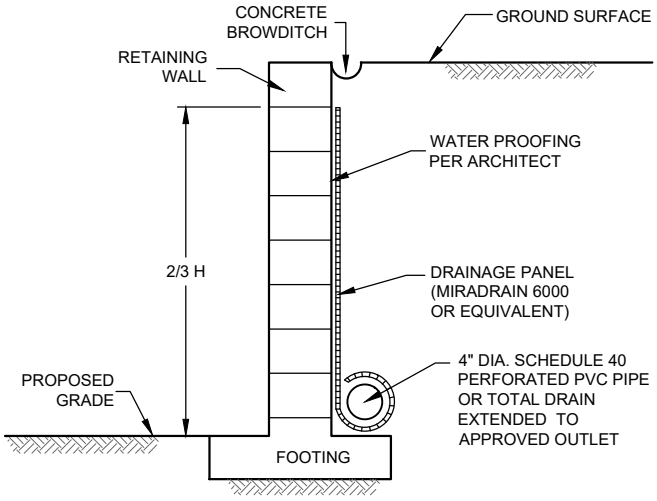
RM / AML		DSK/GTYPD

DATE 07 - 28 - 2021	PROJECT NO. 07647 - 32 - 04	FIG. 7

Plotted:07/26/2021 3:31PM | By:ALVIN LADRILLONO | File Location:Y:\PROJECTS\07647-32-04 (Modera Melrose)\DETAILS\Wall-Column Footing Dimension Detail (COLFOOT2).dwg







NOTE :

DRAIN SHOULD BE UNIFORMLY SLOPED TO GRAVITY OUTLET
OR TO A SUMP WHERE WATER CAN BE REMOVED BY PUMPING

NO SCALE

TYPICAL RETAINING WALL DRAIN DETAIL

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RM / AML		DSK/GTYPD

DATE 07 - 28 - 2021	PROJECT NO. 07647 - 32 - 04	FIG. 8

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APPENDIX A

APPENDIX A

FIELD INVESTIGATION

The most recent field investigation was performed on June 28 and 29, 2011, and consisted of a site reconnaissance and the drilling of 18 small-diameter borings. The approximate locations of the exploratory borings are shown on the Geologic Map, Figure 2.

The borings were drilled to depths ranging from approximately 10 feet to 19.5 feet below existing grade using CME 75 drill rig, equipped with 6-inch-diameter, hollow-stem augers. Relatively undisturbed samples were obtained by driving a 3-inch-diameter, split-tube sampler 12 inches into the undisturbed soil mass with blows from a hammer weighing 140 pounds, dropped from a height of 30 inches. The sampler was equipped with 1-inch-by-2.5-inch brass sampler rings to facilitate removal and testing of the soil. Bulk samples were also obtained.

The soil conditions encountered in the borings were visually examined, classified, and logged in general accordance with American Society for Testing and Materials (ASTM) practice for Description and Identification of Soils (Visual-Manual Procedure D 2488). Logs of the exploratory borings are presented on Figures A-1 through A-18. The logs depict the soil and geologic conditions encountered and the depth at which samples were obtained.

Additional field investigations were performed to further evaluate the soil and geologic conditions on the property, including air-track drilling, exploratory trenching and hollow-stem auger drilling. The logs of these borings and trenches, as well as the laboratory test results, are presented in Appendix C.

PROJECT NO. 07647-42-03

BORING B 1

ELEV. (MSL.) **443'** DATE COMPLETED **06-28-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	B1-1			SC	**COLLUVIUM** Medium dense, damp to moist, brown to dark brown, Clayey, fine to medium SAND; trace clay			
2	B1-2				-Becomes brown to grayish brown	25	117.5	16.1
4	B1-3			SM	**BONSALL TONALITE** Highly weathered, mottled gray and brown to yellowish brown, fine- to coarse-grained, weak, ROCK	24	120.2	14.6
6	B1-4							
8	B1-5					81/9"		
10	B1-6				-Becomes slightly weathered, mottled light gray and brown and black, strong	78/11"		
12								
14								
16	B1-7				-Becomes mottled light greenish gray and black, very strong	50/4"		
18	B1-8				-Poor recovery	50/3.5"		
					BORING TERMINATED AT 19 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-1,
Log of Boring B 1, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-42-03

BORING B 2

ELEV. (MSL.) **439'** DATE COMPLETED **06-28-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0								
				SC	**COLLUVIUM** Medium dense, damp to moist, olive brown to grayish brown, Clayey, fine to coarse SAND			
2	B2-1					30		
4				SM	**SANTIAGO FORMATION** Dense, damp, mottled yellowish brown and light grayish brown, Silty, fine to coarse SAND			
	B2-2					63	122.7	7.8
6	B2-3							
	B2-4					50/5.5"	111.3	6.9
8					-Becomes very dense, light yellowish brown			
10	B2-5					100/7"		
12					-Becomes moist, yellowish brown			
14								
	B2-6				-No recovery	50/5"		
16								
18					-Becomes dry to damp, mottled light gray, brown, light green, and pink. fine to medium SAND			
	B2-7					88/8"		
					BORING TERMINATED AT 19.7 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-2,
Log of Boring B 2, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-42-03

BORING B 3

ELEV. (MSL.) **436'** DATE COMPLETED **06-28-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	B3-1			SM	**COLLUVIUM** Medium dense, damp to moist, brown to grayish brown, Silty, fine to medium SAND			
2	B3-2			SC	Dense, moist, brown to reddish brown, Clayey, fine to coarse SAND	54	127.5	8.6
4	B3-3			SM	**SANTIAGO FORMATION** Very dense, damp, light yellowish brown, Silty, fine to coarse SAND	50/4"	107.0	6.2
6								
8	B3-4				-Becomes light yellowish brown to yellowish brown	50/3.5"	105.3	7.3
10	B3-5				-No recovery	50/3.5"		
12					-Becomes moist, light gray			
14								
16	B3-6				-Disturbed sample	50/3"		
18					-Becomes light gray			
	B3-6				-Poor recovery	50/1.5"		
					BORING TERMINATED AT 19.1 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-3,
Log of Boring B 3, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-42-03

BORING B 4

ELEV. (MSL.) **440'** DATE COMPLETED **06-28-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0								
				SM	**COLLUVIUM** Medium dense, damp, brown to reddish brown, Silty, fine to medium SAND			
2	B4-1					77		
				SM	**SANTIAGO FORMATION** Very dense, damp to moist, light yellowish brown to brown, Silty, fine to coarse SAND			
4	B4-2							
	B4-3					34	115.5	14.4
6				CH	Stiff, damp, mottled light gray and light green, Silty, fine-grained CLAYSTONE; moderately cemented			
	B4-4					81/9"	124.0	12.9
8					-Becomes hard			
10	B4-5				-Becomes mottled light gray and reddish brown	93/8"		
	B4-6							
12					-Becomes mottled light and gray and brown to yellowish brown			
14								
	B4-7					90/8"		
16								
18					-Becomes mottled light gray, brown, and dark reddish brown			
	B4-8					80/9"		
					BORING TERMINATED AT 19.8 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-4,
Log of Boring B 4, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-42-03

BORING B 5

ELEV. (MSL.) **443'** DATE COMPLETED **06-28-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0								
				SM	**COLLUVIUM** Medium dense, moist, dark brown to grayish brown, Silty, fine to medium SAND; trace clay			
2	B5-1					40		
				SM	**BONSALL TONALITE** Highly weathered, mottled brown to olive brown and gray, fine- to coarse-grained, weak, ROCK			
4								
	B5-2				-Becomes mottled light gray and yellowish brown to reddish brown	21	120.4	12.5
6								
	B5-3					64	126.9	10.1
8								
					-Becomes mottled gray, yellowish brown and pink, moderately weak			
10	B5-4					78		
12								
					-Becomes slightly weathered, mottled light gray, gray, and black, strong			
14								
	B5-5					71/11"		
16								
18	B5-6				-No recovery	50/2"		
					BORING TERMINATED AT 18.3 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-5,
Log of Boring B 5, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

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GEOCON

PROJECT NO. 07647-42-03

BORING B 6

ELEV. (MSL.) **437'** DATE COMPLETED **06-28-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	B6-1			CL	**COLLUVIUM** Very stiff, damp to moist, brown to grayish brown, Sandy CLAY			
2	B6-2					40	120.5	12.4
4				CL	**SANTIAGO FORMATION** Hard, damp, mottled yellowish brown and brown, Sandy CLAY			
	B6-3					72/11"	124.7	11.0
6				SC	Dense, damp, light gray, Clayey, fine- to medium-grained SANDSTONE			
8	B6-4				-Becomes dense to very dense, mottled light gray, brown, and pink	73/8"		
10	B6-5				-Becomes very dense, reddish brown	50/5"		
12								
14					-Becomes mottled brown, light gray, and light purple			
	B6-6					50/5"		
16								
18								
	B6-7					50/5"		
					BORING TERMINATED AT 19.5 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-6,
Log of Boring B 6, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

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GEOCON

PROJECT NO. 07647-42-03

BORING B 7

ELEV. (MSL.) **441'** DATE COMPLETED **06-28-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0								
	B7-1			CH	**COLLUVIUM** Stiff, moist, dark brown to dark grayish brown, Silty fat CLAY			
2	B7-2					22	105.6	21.9
4				CL	**SANTIAGO FORMATION** Very stiff, moist, gray to grayish brown, Sandy CLAY			
	B7-3					50	117.3	16.2
6								
	B7-4			CL	Very dense, damp, gray, Silty, fine- to medium-grained CLAYSTONE; weakly cemented	80/9"		
8								
10	B7-5				-Becomes grayish brown to light olive brown	88/9"		
12								
14					-Becomes gray, fine-grained; moderately cemented			
	B7-6					50/5"		
16								
18								
	B7-7				-No recovery	50/4"		
					BORING TERMINATED AT 19.3 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-7,
Log of Boring B 7, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

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GEOCON

PROJECT NO. 07647-42-03

BORING B 8

ELEV. (MSL.) **443'** DATE COMPLETED **06-28-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SC	**COLLUVIUM** Medium dense, damp to moist, brown, Clayey, fine to medium SAND; trace clay			
2	B8-1				-Becomes mottled reddish brown and gray, fine to coarse	20		
4	B8-2			CL	**SANTIAGO FORMATION** Very stiff, mottle reddish brown, brown and light gray, Silty, fine- to medium-grained CLAYSTONE; weakly cemented			
6	B8-3					42	120.4	12.4
8	B8-4				-Becomes dense to very dense, mottled light gray and light green	78/11"	130.4	9.6
10	B8-5				-Becomes very dense, mottled reddish brown, yellowish brown, and light gray; moderately cemented	83/9"		
12								
14					-Becomes mottle dark reddish brown and yellowish brown, and light gray			
16	B8-6					85/8"		
18								
	B8-7					50/5"		
					BORING TERMINATED AT 19.5 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-8,
Log of Boring B 8, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

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GEOCON

PROJECT NO. 07647-42-03

BORING B 9

ELEV. (MSL.) **444'** DATE COMPLETED **06-29-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	B9-1			SC/CL	**COLLUVIUM** Medium dense, damp to moist, dark brown, Clayey, fine to medium SAND to Sandy CLAY			
2	B9-2			SM	**BONSALL TONALITE** Highly weathered, mottled yellowish brown and brown and light gray, fine- to coarse-grained, weak, ROCK	41	123.5	13.4
4	B9-3				-Becomes strong	87/9"	117.6	5.6
6	B9-4					92/11.5"		
8	B9-5				-No recovery	50/5"		
10					BORING TERMINATED AT 10.5 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-9,
Log of Boring B 9, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

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GEOCON

PROJECT NO. 07647-42-03

BORING B 10

ELEV. (MSL.) **438'** DATE COMPLETED **06-29-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SM	**COLLUVIUM** Medium dense, damp to moist, brown, Silty, fine to medium SAND; trace clay			
2	B10-1					31		
4				SC	**SANTIAGO FORMATION** Medium dense, moist, mottled yellowish brown and light gray, Clayey, fine to medium SAND			
6	B10-2			CL	Stiff, moist, mottled yellowish brown and light gray, Sandy CLAY	18		
8	B10-3			SM	Very dense, damp, light yellowish brown, Silty, fine to coarse SAND	50/4"		
10	B10-4					50/3"		
					BORING TERMINATED AT 10.2 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-10,
Log of Boring B 10, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

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GEOCON

PROJECT NO. 07647-42-03

BORING B 11

ELEV. (MSL.) **446'** DATE COMPLETED **06-29-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	B11-1			SM	**COLLUVIUM** Medium dense, damp, brown to dark brown, Silty, fine to medium SAND; trace clay			
2	B11-2					32		
4				SM	**BONSALL TONALITE** Highly weathered, mottled yellowish brown to brown and light gray, fine- to coarse-grained, weak, ROCK			
	B11-3				-Becomes mottled light gray to light green and black	43		
6								
8	B11-4				-Becomes moderately weak	50/4.5"		
10	B11-5				-No recovery	50/3"		
					BORING TERMINATED AT 10.2 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-11,
Log of Boring B 11, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

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GEOCON

PROJECT NO. 07647-42-03

BORING B 12

ELEV. (MSL.) **447'** DATE COMPLETED **06-29-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SM	**COLLUVIUM** Medium dense, damp, dark grayish brown, Silty, fine to medium SAND; trace clay			
2	B12-1			SC	**SANTIAGO FORMATION** Stiff, moist, mottled yellowish brown and light gray, Sandy CLAY	31		
4	B12-2					75/9"		
6				SM	Very dense, damp, mottled reddish brown and light gray, Silty, fine- to medium-grained SANDSTONE; weakly cemented			
8	B12-3				-Becomes reddish brown	50/3"		
10	B12-4					50/5"		
					BORING TERMINATED AT 10.5 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-12,
Log of Boring B 12, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

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GEOCON

PROJECT NO. 07647-42-03

BORING B 13

ELEV. (MSL.) **438'** DATE COMPLETED **06-29-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	B13-1			SC	**COLLUVIUM** Stiff, moist, dark brown to dark gray, Sandy CLAY			
2	B13-2					15	98.1	24.1
4				CL	**SANTIAGO FORMATION** Stiff, moist, gray, Silty CLAY			
6	B13-3				-Excavates with approx. 1/2 inch thick lense of white caliche	27		
8	B13-4			CH	Stiff, damp to moist, light gray to light greenish gray, Silty, FAT CLAY; trace caliche staining; weakly cemented	34		
10	B13-5			CL	Damp, light gray to gray, Sandy, fine- to medium-grained CLAYSTONE; weakly cemented	70		
12								
14					-Becomes very dense			
16	B13-6					95/9"		
18					-Becomes light gray to light greenish gray			
	B13-7					50/5.5"		
					BORING TERMINATED AT 19.5 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-13,
Log of Boring B 13, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

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GEOCON

PROJECT NO. 07647-42-03

BORING B 14

ELEV. (MSL.) **428'** DATE COMPLETED **06-29-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	B14-1			SM	**SANTIAGO FORMATION** Very dense, damp, light gray, Silty, fine- to medium-grained SANDSTONE; weakly cemented; highly weathered			
2	B14-2					70/9"		
4	B14-3				-Becomes fine- to coarse-grained	85/8"		
6					-Becomes white to light gray, fine- to medium-grained			
8	B14-4					50/5.5"		
10	B14-5					50/5.5"		
					BORING TERMINATED AT 10.5 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-14,
Log of Boring B 14, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

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GEOCON

PROJECT NO. 07647-42-03

BORING B 15

ELEV. (MSL.) **438'** DATE COMPLETED **06-29-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0								
				SC	**COLLUVIUM** Medium dense, damp, dark grayish brown, Clayey, fine to medium SAND			
2	B15-1					18		
				CH	**SANTIAGO FORMATION** Stiff, moist, gray, Silty CLAYSTONE; weakly cemented			
4								
	B15-2			SM	Medium dense, damp, gray, Silty, fine- to medium-grained SANDSTONE; veins of caliche	46		
6								
	B15-3				-Becomes white to light gray, fine- to coarse-grained	90/9"		
8								
10	B15-4					50/5"		
					BORING TERMINATED AT 10.5 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-15,
Log of Boring B 15, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

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GEOCON

PROJECT NO. 07647-42-03

BORING B 16

ELEV. (MSL.) **447'** DATE COMPLETED **06-29-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	B16-1			SM	**COLLUVIUM** Medium dense, damp, dark brown to grayish brown, Silty, fine to medium SAND; trace clay			
2	B16-2			SM	**SANTIAGO FORMATION** Dense, moist, mottled light gray and yellowish brown, Silty, fine to coarse SAND	54		
4	B16-3			SM	Dense, damp, mottled gray and yellowish brown, Silty, fine-grained SANDSTONE; weakly cemented	63		
6	B16-4				-Becomes gray to light yellowish brown	62		
8								
10	B16-5					72/10"		
					BORING TERMINATED AT 10.8 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-16,
Log of Boring B 16, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

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GEOCON

PROJECT NO. 07647-42-03

BORING B 17

ELEV. (MSL.) **440'** DATE COMPLETED **06-29-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	B17-1			SC	**COLLUVIUM** Medium dense, damp, dark grayish brown, Clayey, fine to medium SAND			
2	B17-2			SM	**SANTIAGO FORMATION** Medium dense, damp to moist, mottled light gray and light brown, Silty, fine- to medium-grained SANDSTONE; weakly cemented	33		
4	B17-3			ML	Stiff, moist, light gray to gray, Sandy SILTSTONE; weakly cemented	33		
6	B17-4			SM	Dense, damp, light gray to gray, Silty, fine- to medium-grained SANDSTONE; weakly cemented	71		
8								
10	B17-5					72		
					BORING TERMINATED AT 11 FEET Groundwater not encountered Backfill with cuttings			

Figure A-17,
Log of Boring B 17, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

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GEOCON

PROJECT NO. 07647-42-03

BORING B 18

ELEV. (MSL.) **449'** DATE COMPLETED **06-29-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	B18-1			SM	**COLLUVIUM** Medium dense, damp, dark grayish brown, Silty, fine to medium SAND			
2	B18-2			CL	**SANTIAGO FORMATION** Stiff, moist, mottled light gray and brown, Sandy CLAY; highly cemented	17		
4	B18-3			SM	Medium dense, damp to moist, mottled light gray to light yellowish brown and brown, Silty, fine- to medium-grained SANDSTONE; weakly cemented	29		
6	B18-4				-Becomes damp, light gray, fine- to medium-grained	54		
8				ML	Very stiff, damp, gray to light gay, Sandy SILTSTONE; weakly cemented			
10	B18-5					44		
					BORING TERMINATED AT 11 FEET Groundwater not encountered Backfill with cuttings			

Figure A-18,
Log of Boring B 18, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

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GEOCON

APPENDIX B

APPENDIX B

LABORATORY TESTING

We performed laboratory tests in general accordance with the test methods of the American Society for Testing and Materials (ASTM) or other suggested procedures. We tested selected samples to evaluate in-place dry density and moisture content, maximum dry density and optimum moisture content, expansion index, shear strength, water-soluble sulfate, chloride ion content, pH and resistivity, Atterberg Limits, hydraulic conductivity, resistance value (R-Value), gradation, and consolidation characteristics. The results of our laboratory tests are presented in the following tables and graphs. The in-place dry density and moisture content test results are presented on the exploratory boring logs in Appendices A and C.

TABLE B-I
SUMMARY OF LABORATORY MAXIMUM DRY DENSITY AND OPTIMUM MOISTURE CONTENT TEST RESULTS
ASTM D 1557

Sample No.	Description	Maximum Dry Density (pcf)	Optimum Moisture Content (% dry wt.)
B7-1	Dark olive brown, Sandy CLAY	120.5	12.6
B16-1	Dark olive brown, Clayey, fine to medium SAND	128.6	9.3

TABLE B-II
SUMMARY OF LABORATORY EXPANSION INDEX TEST RESULTS
ASTM D 4829

Sample No.	Moisture Content (%)		Dry Density (pcf)	Expansion Index	2019 CBC Classification
	Before Test	After Test			
B6-1	10.2	21.2	109.9	64	Medium
B7-1	11.8	25.9	105.5	115	High
B13-1	12.5	25.5	104.6	86	Medium

TABLE B-III
SUMMARY OF LABORATORY DIRECT SHEAR TEST RESULTS
ASTM D 3080

Sample No.	Dry Density (pcf)	Moisture Content (%)		Angle of Shear Resistance (degrees)	Unit Cohesion (psf)
		Initial	Final		
B4-3	115.5	14.4	20.1	33	350
B5-2	120.4	12.5	19.7	38	0

TABLE B-IV
SUMMARY OF LABORATORY WATER-SOLUBLE SULFATE TEST RESULTS
CALIFORNIA TEST NO. 417

Sample No.	Water Soluble Sulfate Content (%)	Sulfate Rating
B6-1	0.036	Not Applicable
B7-1	0.028	Not Applicable
B13-1	0.014	Not Applicable

TABLE B-V
SUMMARY OF LABORATORY CHLORIDE ION TEST RESULTS
AASHTO T 291

Sample No.	Chloride Ion Content (ppm)	Chloride Ion Content (%)
B6-1	89	0.009
B7-1	220	0.022
B13-1	126	0.013

TABLE B-VI
SUMMARY OF LABORATORY POTENTIAL OF
HYDROGEN (PH) AND RESISTIVITY TEST RESULTS
CALIFORNIA TEST NO. 643

Sample No.	pH	Minimum Resistivity (ohm-centimeters)
B6-1	7.3	800
B7-1	7.7	470
B13-1	7.5	530

TABLE B-VII
SUMMARY OF LABORATORY ATTERBERG LIMITS TEST RESULTS
ASTM D 4318

Sample No.	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index
B7-1	51	17	34
B13-2	8	19	29
B13-4	55	21	34

TABLE B-VIII
SUMMARY OF LABORATORY HYDRAULIC CONDUCTIVITY TEST RESULTS
ASTM D 5084

Sample No.	Moisture Content (%)		Dry Density (pcf)	Average Hydraulic Conductivity (cm/sec)	Average Hydraulic Conductivity (inches/hr)
	Before Test	After Test			
*B16-1	9.3	20.1	115.4	3.30E-7	4.68E-4

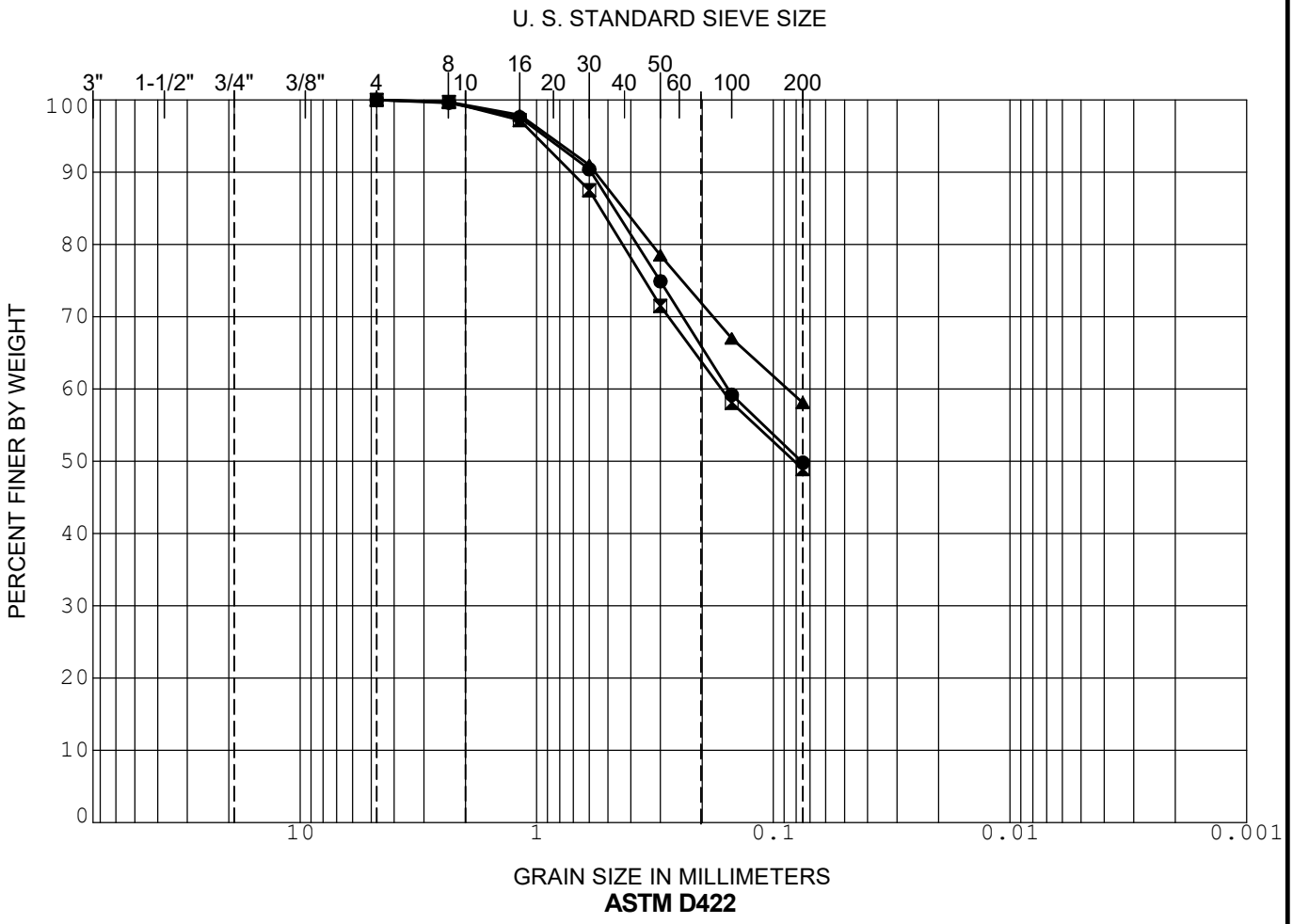
* Sample remolded to 90 percent of the laboratory maximum dry density.

TABLE B-IX
SUMMARY OF LABORATORY RESISTANCE VALUE (R-VALUE) TEST RESULTS
ASTM D 2844

Sample No.	R-Value
B9-1	12
B17-1	5

PROJECT NO. 07647-42-03

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



ASTM D422

	SAMPLE	DEPTH (ft)	CLASSIFICATION	NAT WC	LL	PL	PI
●	B6-1	0.0	SC - Clayey SAND				
⊠	B7-1	1.0	SC - Clayey SAND		51	17	34
▲	B15-1	2.5	CL - Sandy, lean CLAY				

GRADATION CURVE

MODERA MELROSE

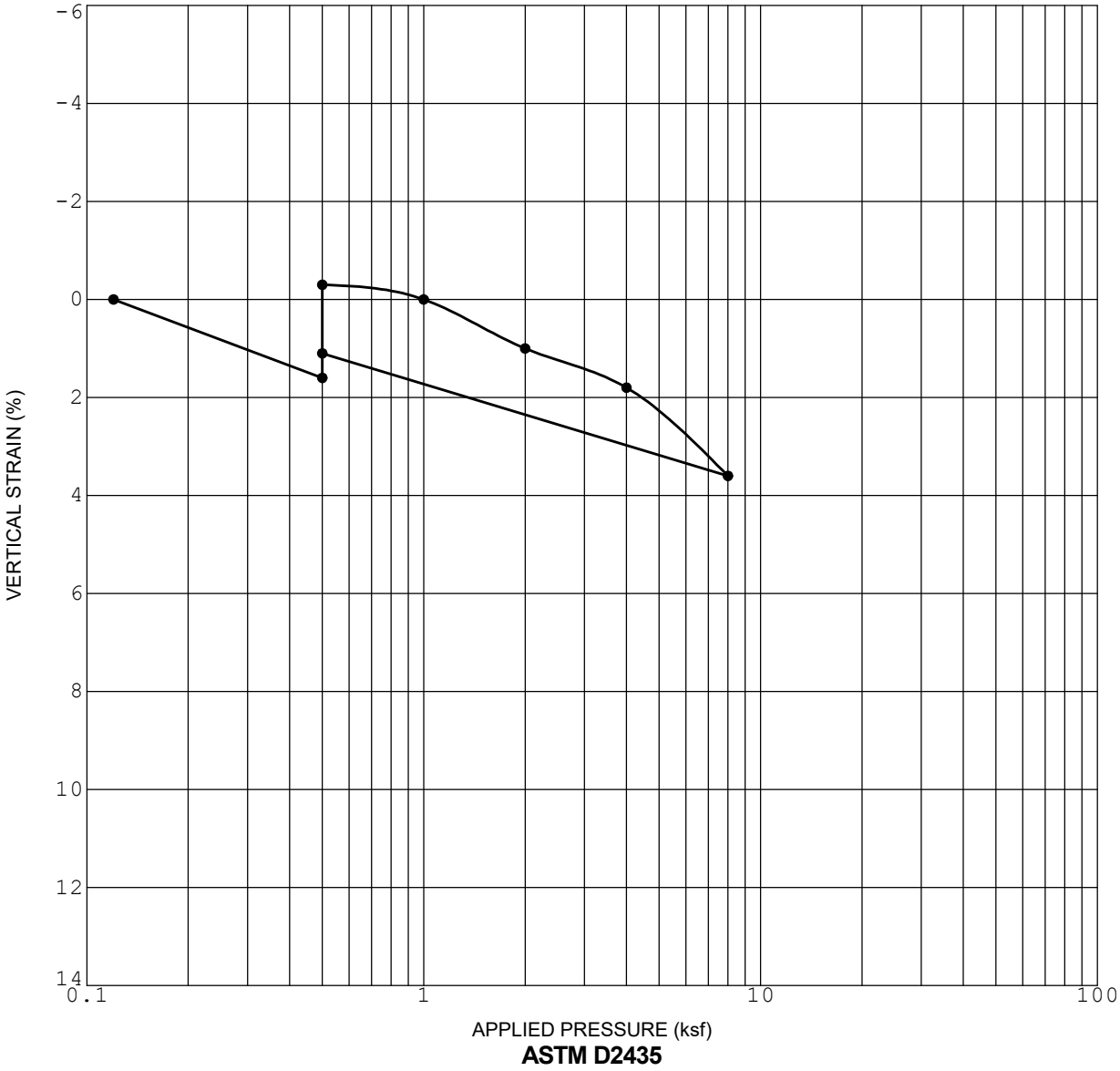
OCEANSIDE, CALIFORNIA

07647-32-04 (FROM 07647-42-03).GPJ

GEOCON

PROJECT NO. 07647-42-03

SAMPLE NO. B1-2



ASTM D2435

Initial Dry Density (pcf)	117.5	**Initial Saturation (%)**	90
Initial Water Content (%)	16.1	**Sample Saturated at (ksf)**	0.5

CONSOLIDATION CURVE

MODERA MELROSE

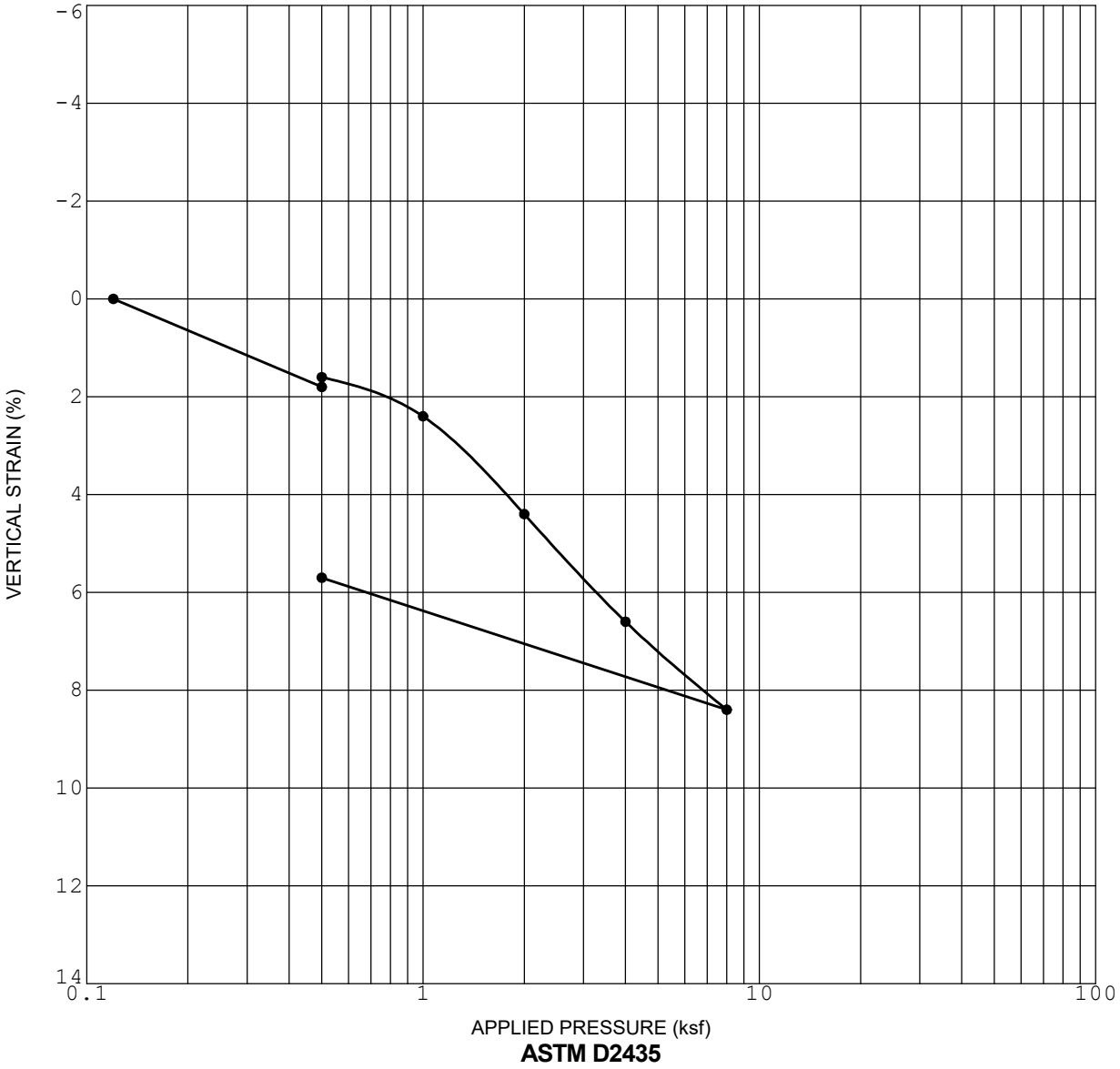
OCEANSIDE, CALIFORNIA

07647-32-04 (FROM 07647-42-03).GPJ

GEOCON

PROJECT NO. 07647-42-03

SAMPLE NO. B5-2



ASTM D2435

Initial Dry Density (pcf)	113.5	**Initial Saturation (%)**	84
Initial Water Content (%)	14.7	**Sample Saturated at (ksf)**	0.5

CONSOLIDATION CURVE

MODERA MELROSE

OCEANSIDE, CALIFORNIA

07647-32-04 (FROM 07647-42-03).GPJ

GEOCON

APPENDIX C

APPENDIX C

PREVIOUS LOGS OF AIR TRACK AND VERIFICATION BORINGS, EXPLORATORY TRENCHES, AND LABORATORY TESTING PERFORMED BY GEOCON INCORPORATED

FOR

MODERA MELROSE
OCEANSIDE, CALIFORNIA

PROJECT NO. 07647-32-04

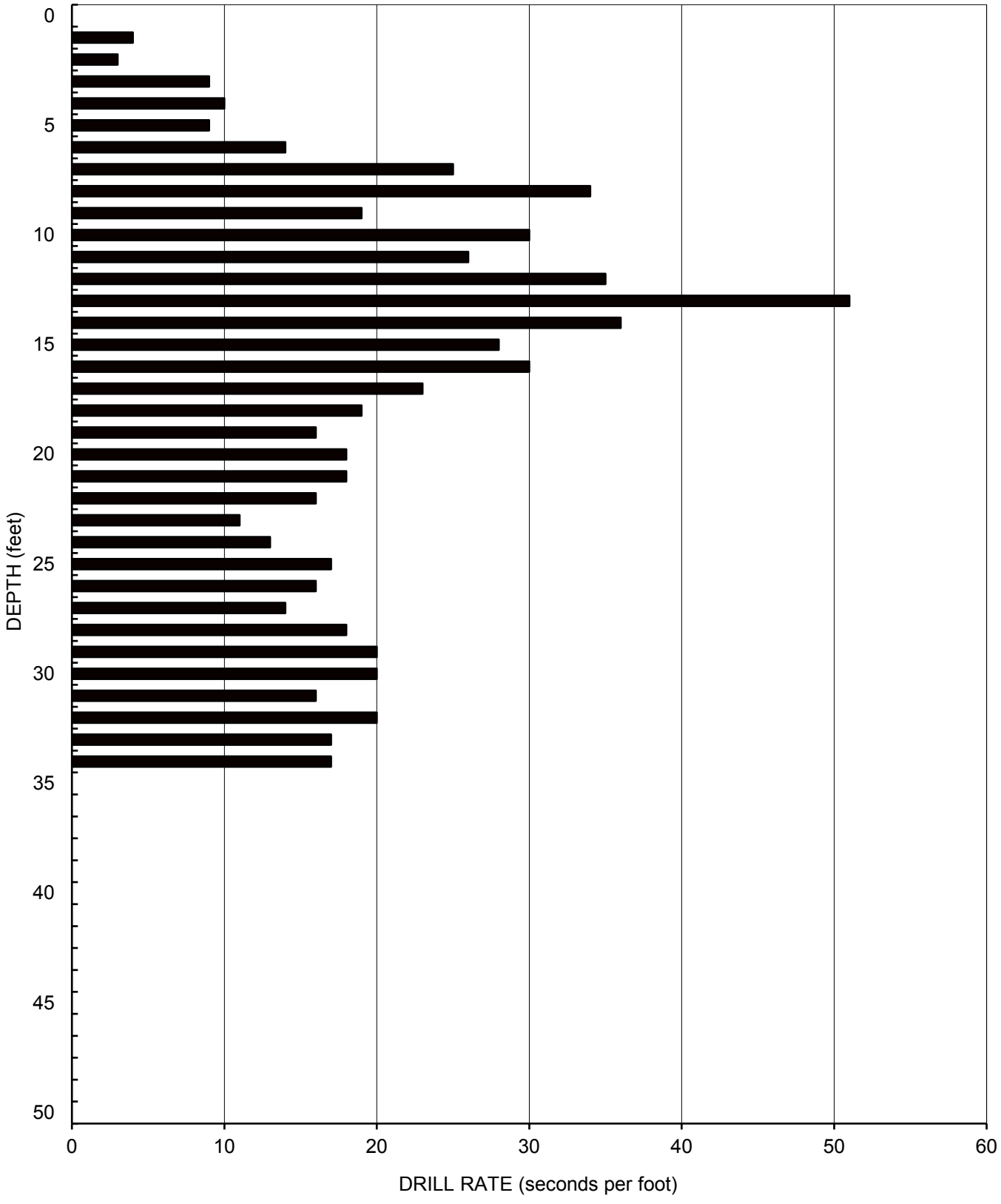
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-1

Elevation - 445 Feet (MSL)

GEOCON
INCORPORATED



AT001.xls

FIGURE C-16

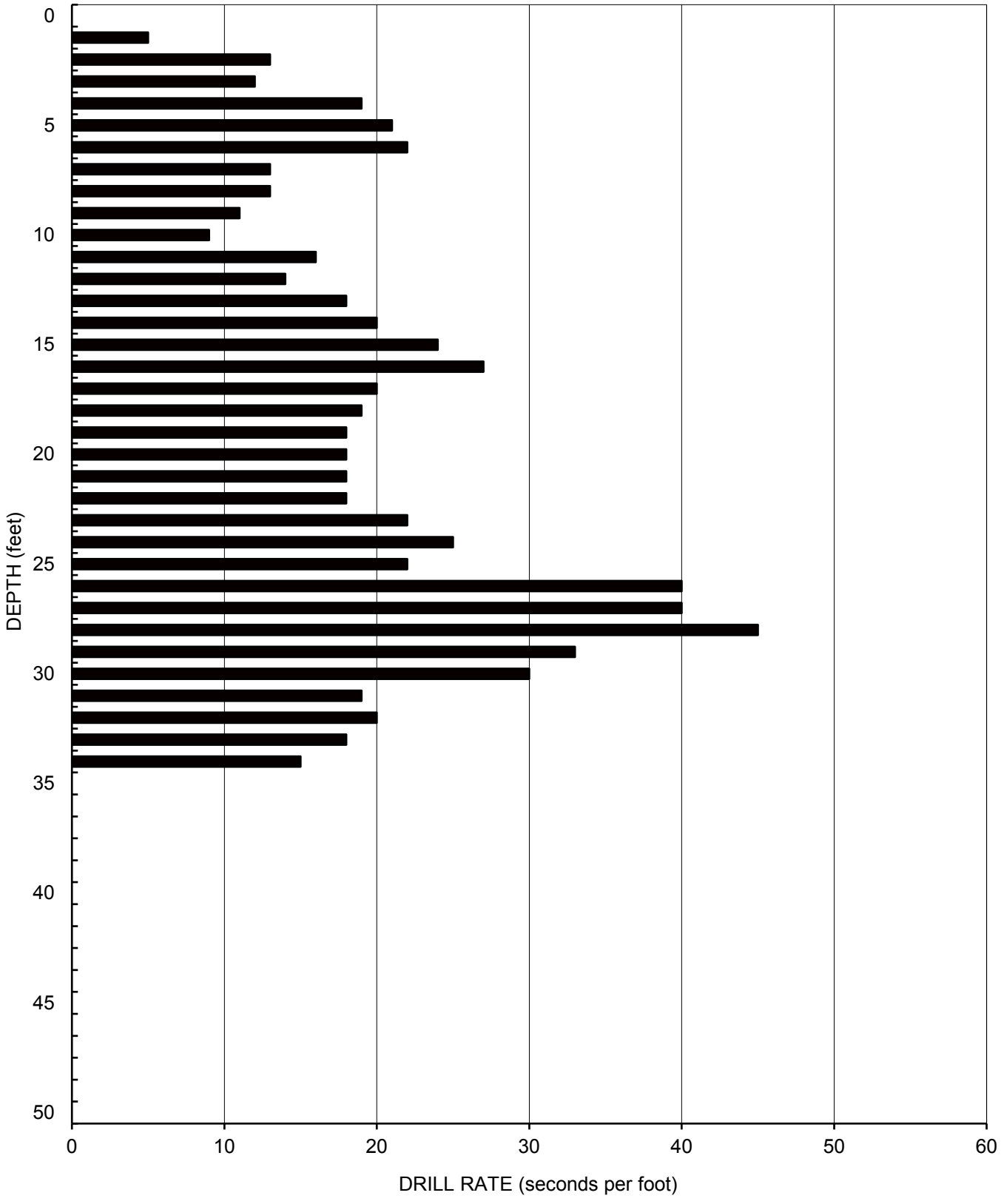
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-2

Elevation - 453 Feet (MSL)

GEOCON
INCORPORATED



AT002.xls

FIGURE C-17

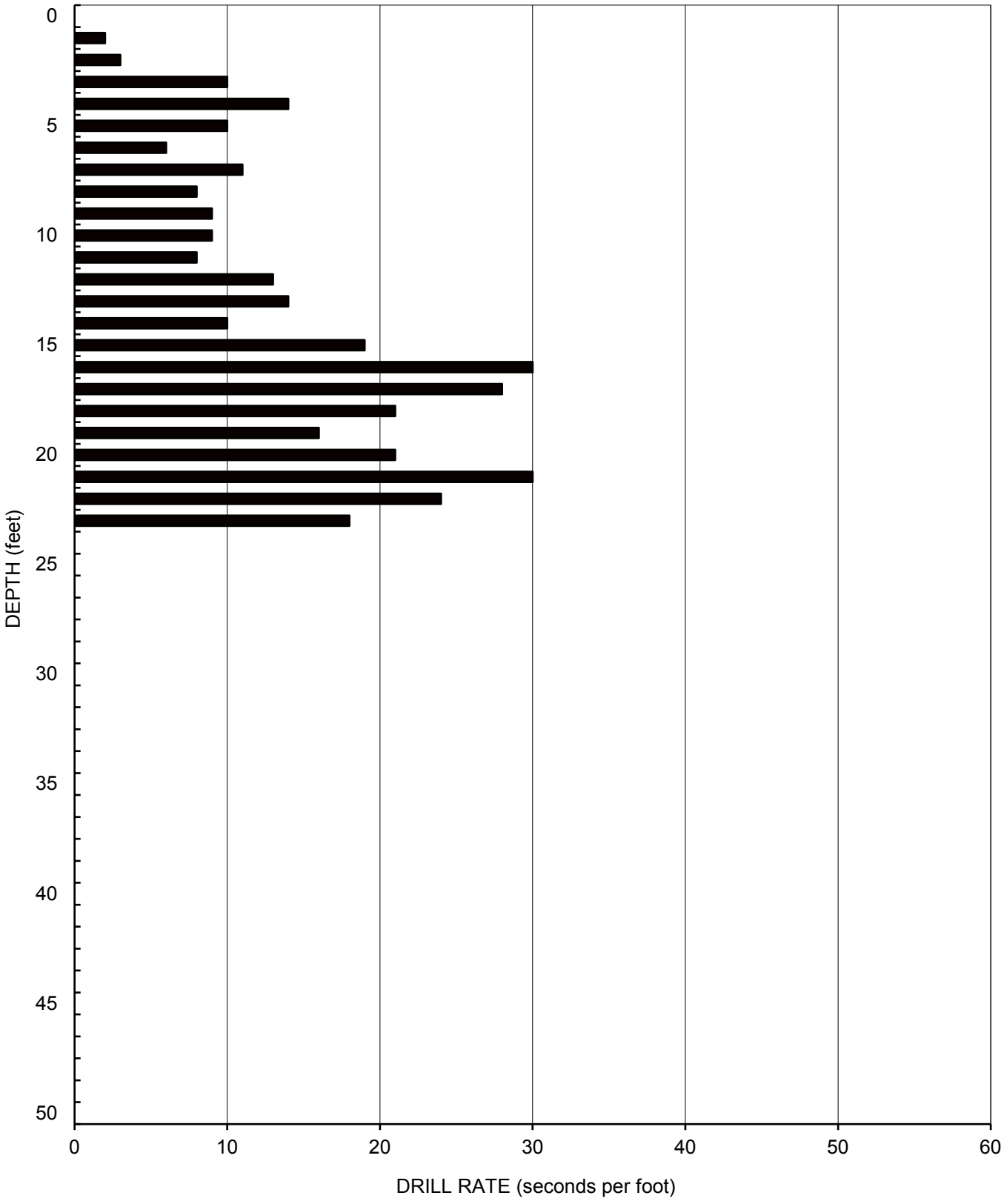
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-3

Elevation - 455 Feet (MSL)

GEOCON
INCORPORATED



AT003.xls

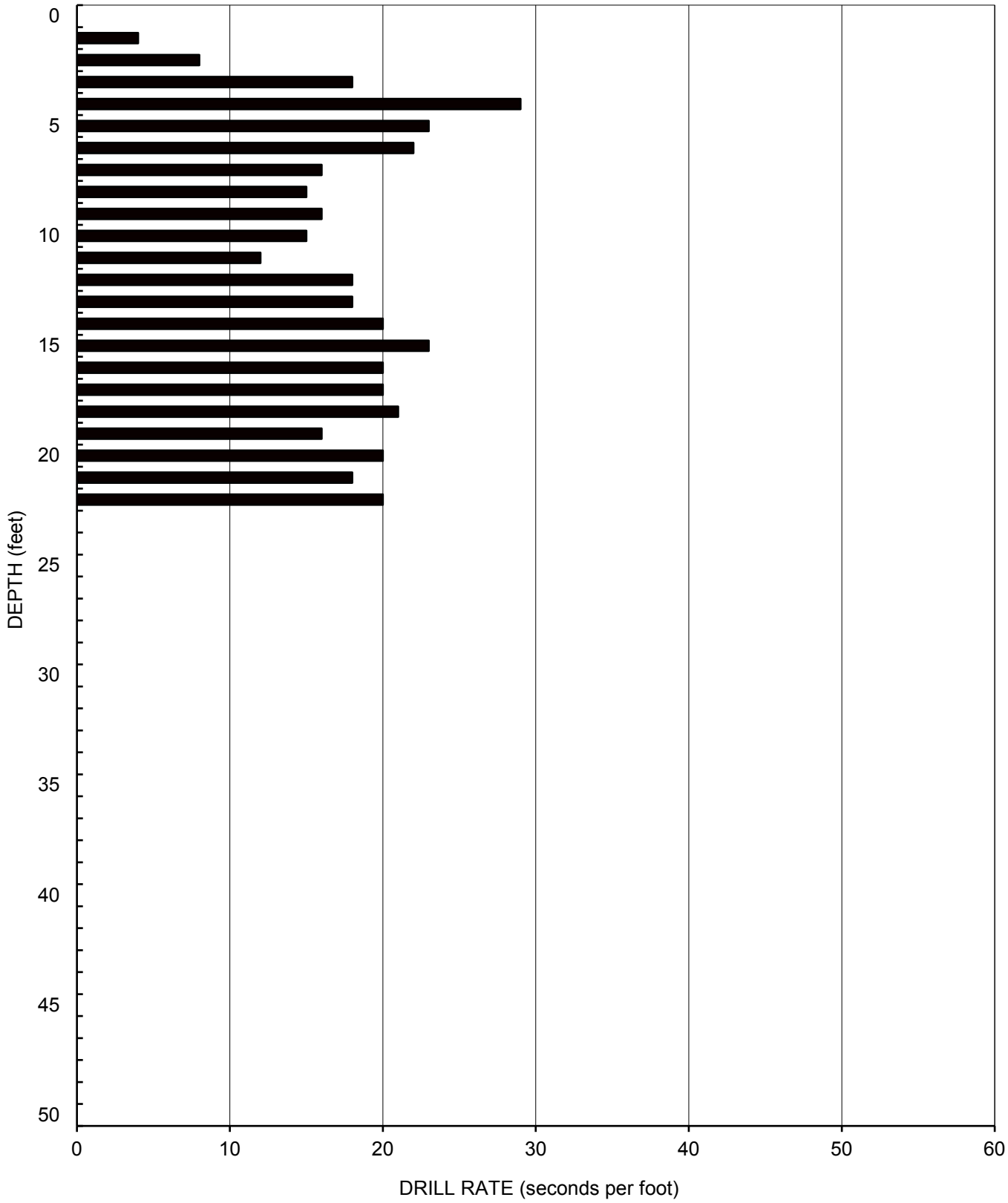
FIGURE C-18

MODERA MELROSE

AIR TRACK BORING AT-4

Elevation - 454 Feet (MSL)

GEOCON INCORPORATED



AT004.xls

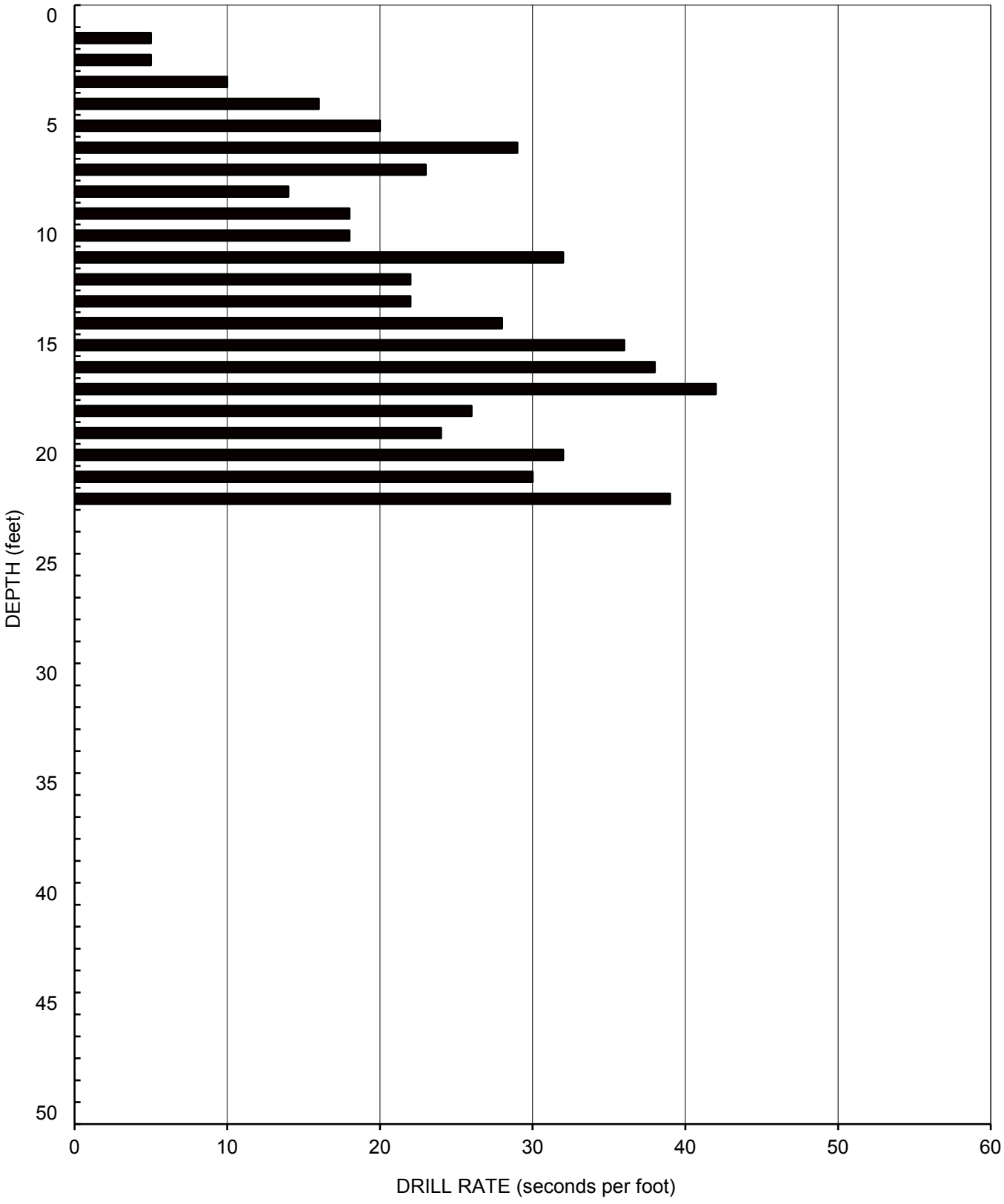
FIGURE C-19

PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-5
Elevation - 450 Feet (MSL)

GEOCON
INCORPORATED



AT005.xls

FIGURE C-20

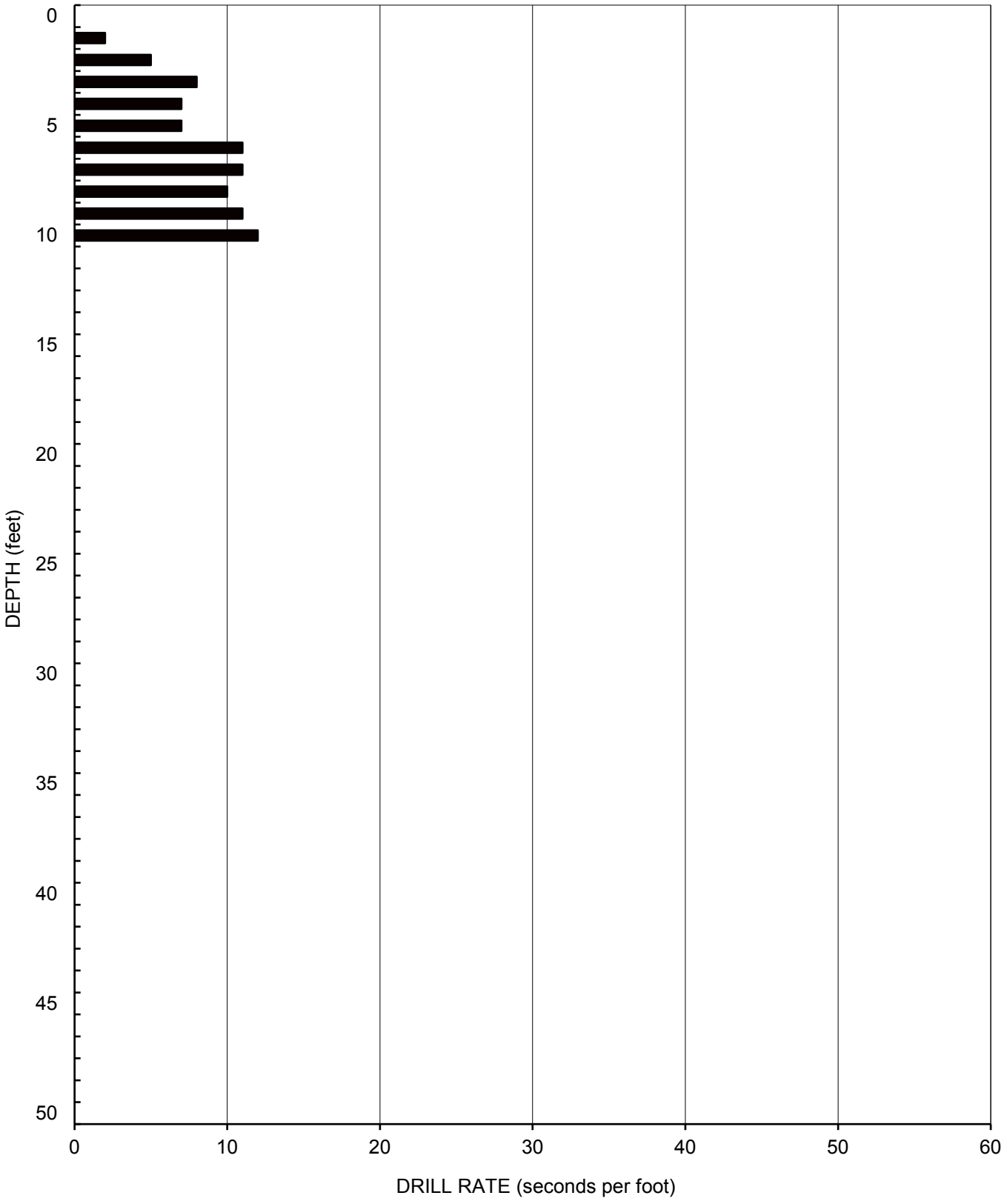
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-6

Elevation - 447 Feet (MSL)

GEOCON
INCORPORATED



AT006.xls

FIGURE C-21

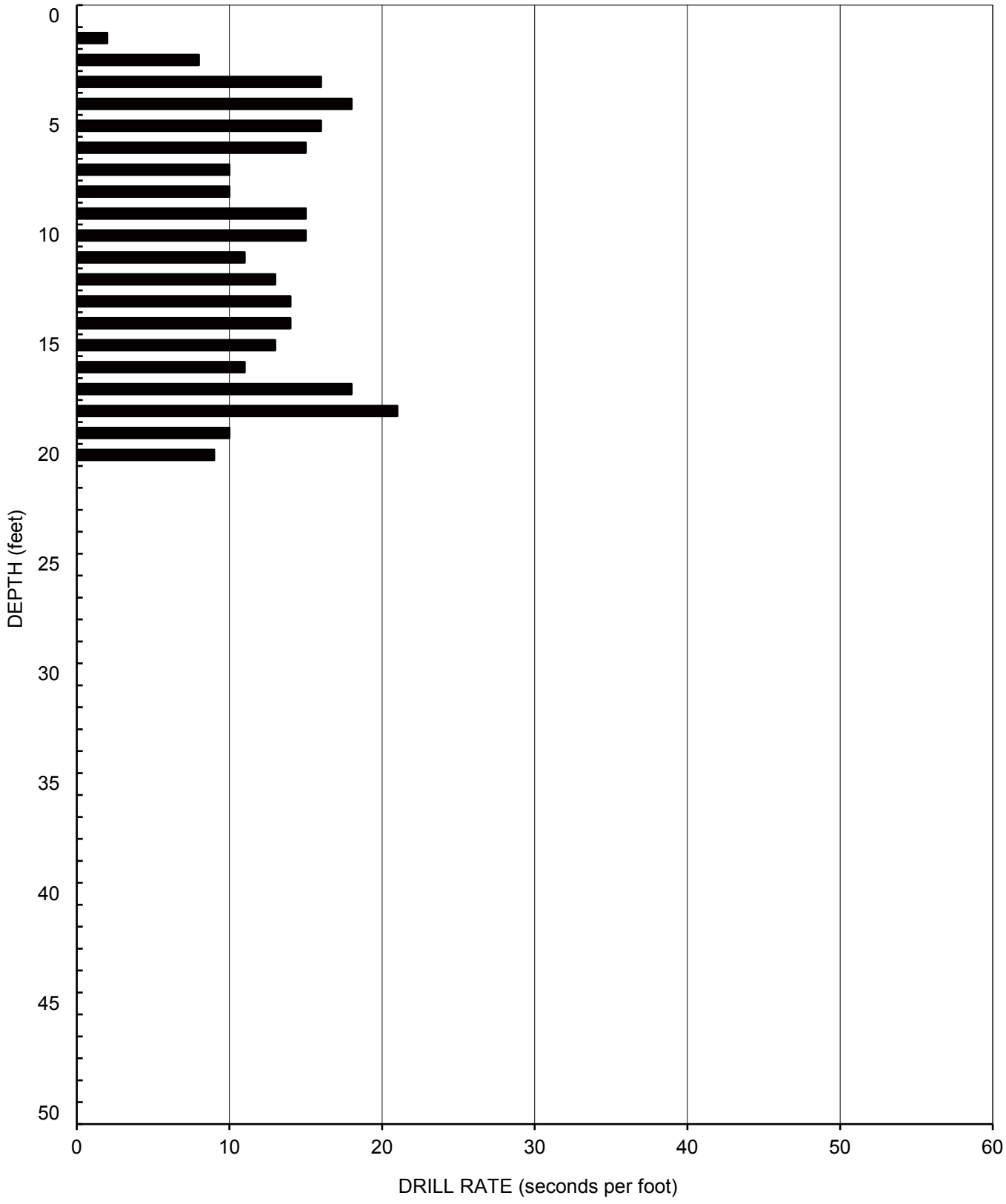
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-7

Elevation - 447 Feet (MSL)

GEOCON
INCORPORATED



AT007.xls

FIGURE C-22

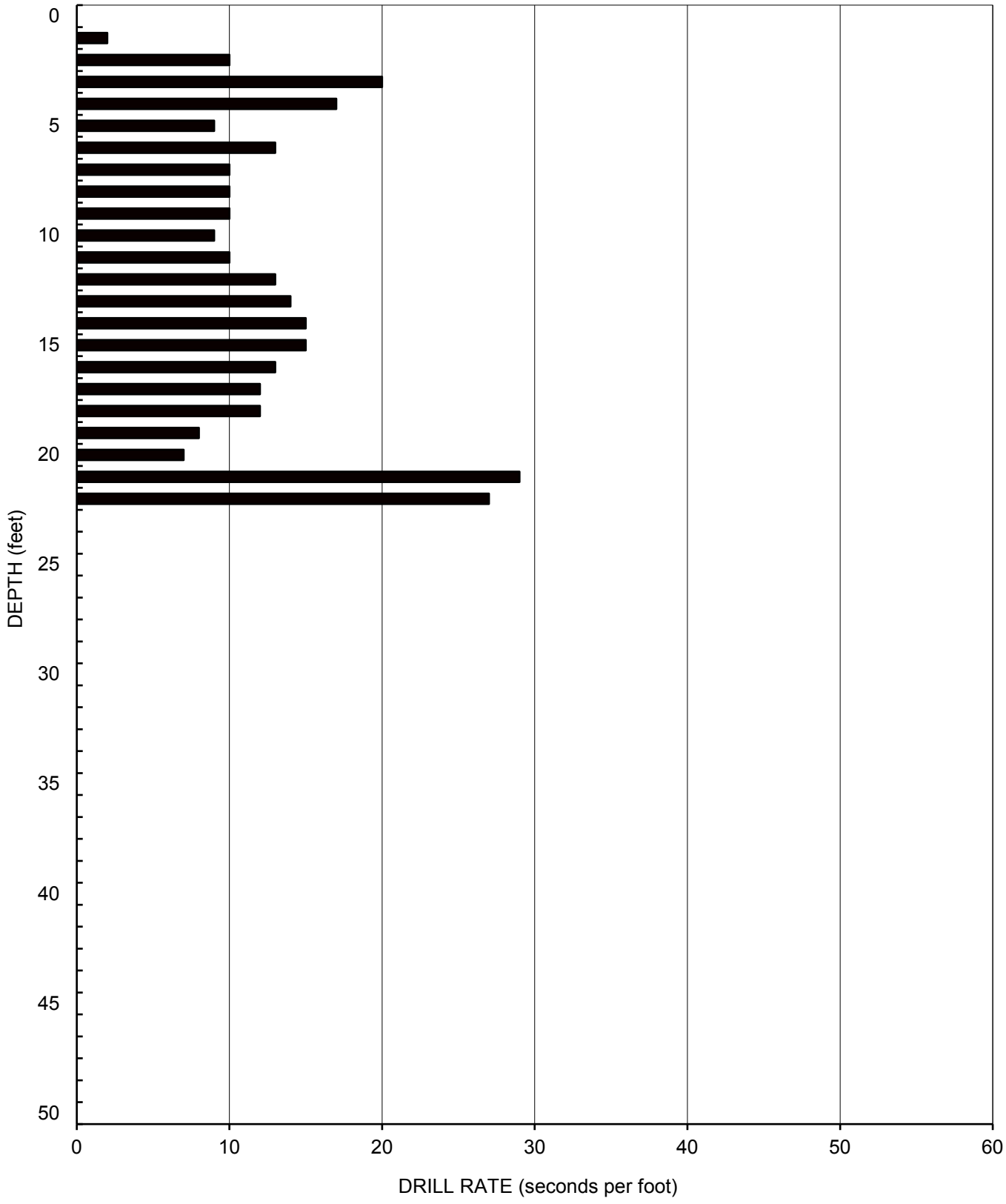
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-8

Elevation - 447 Feet (MSL)

GEOCON
INCORPORATED



AT008.xls

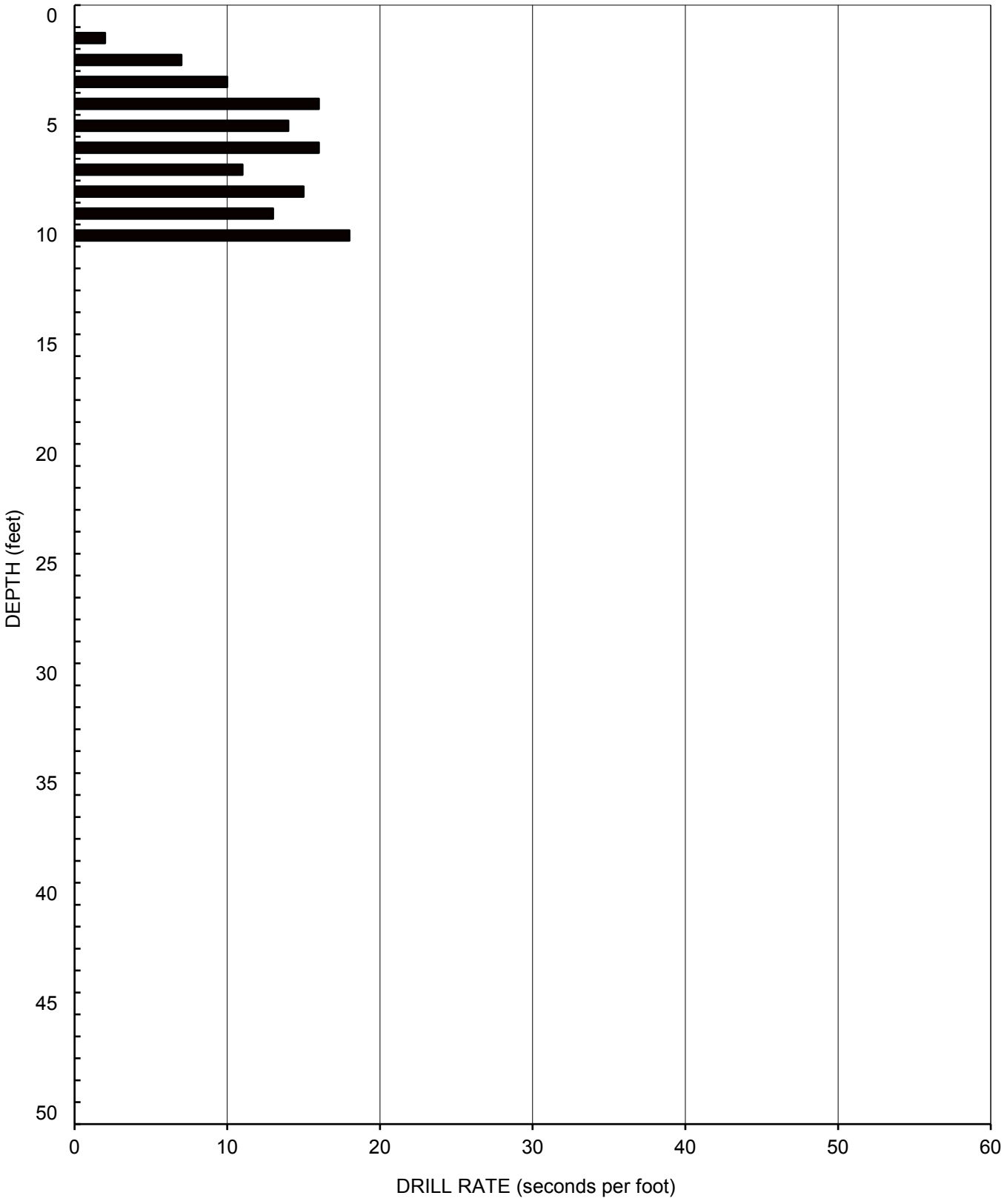
FIGURE C-23

PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-9
Elevation - 446 Feet (MSL)

GEOCON
INCORPORATED



AT009.xls

FIGURE C-24

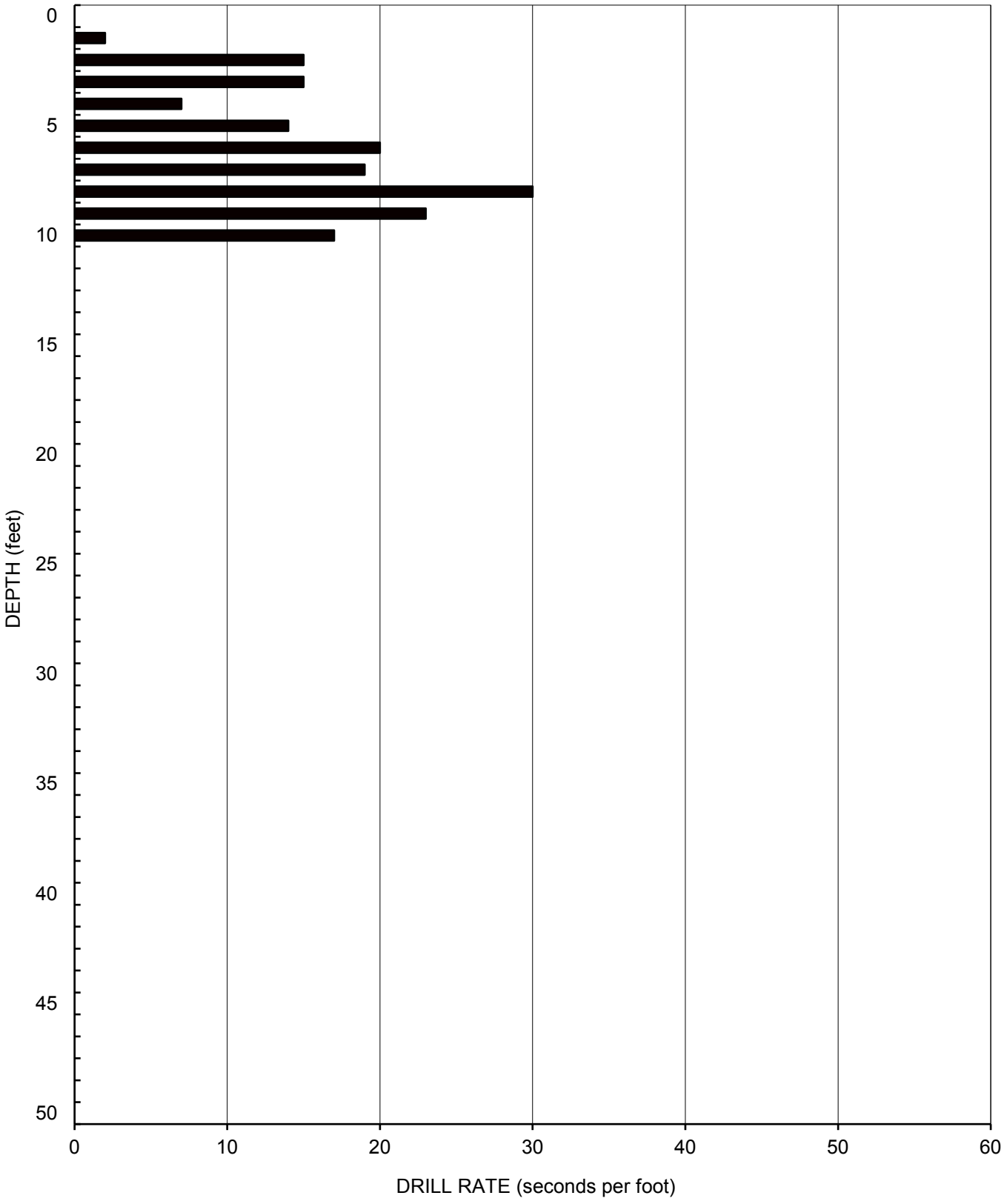
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-10

Elevation - 443 Feet (MSL)

GEOCON
INCORPORATED



AT0010.xls

FIGURE C-25

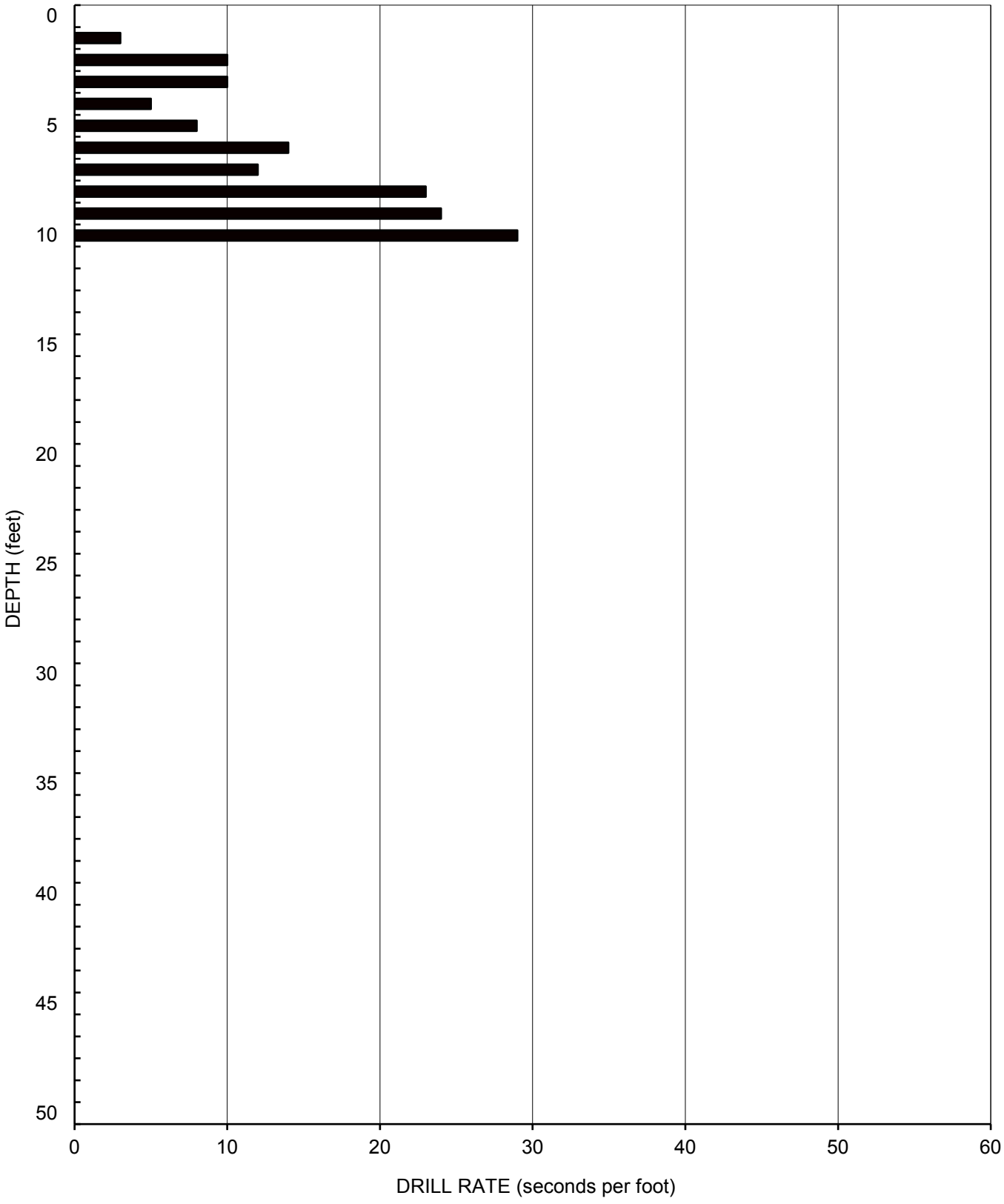
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-11

Elevation - 441 Feet (MSL)

GEOCON
INCORPORATED



AT0011.xls

FIGURE C-26

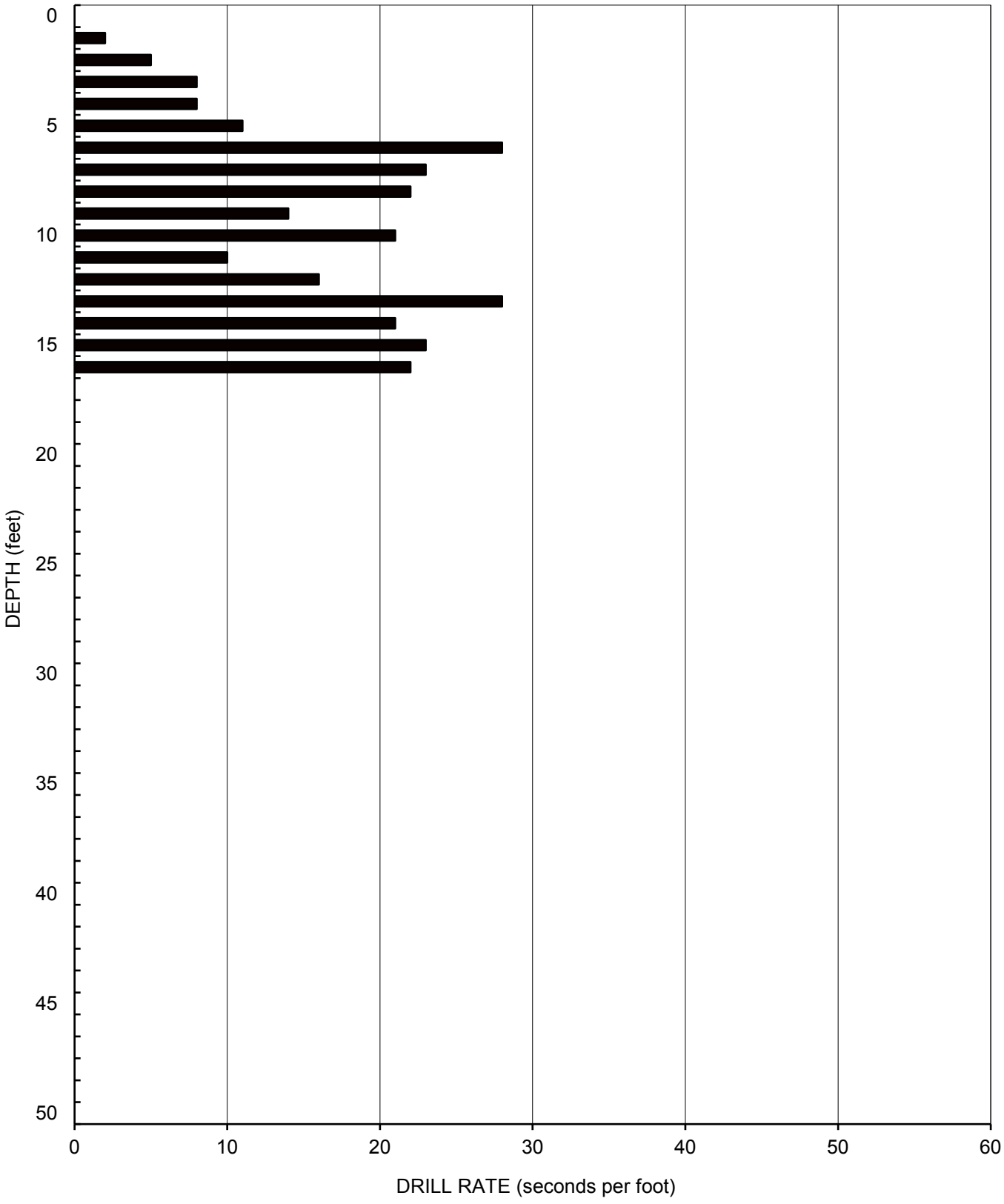
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-12

Elevation - 443 Feet (MSL)

GEOCON
INCORPORATED



AT0012.xls

FIGURE C-27

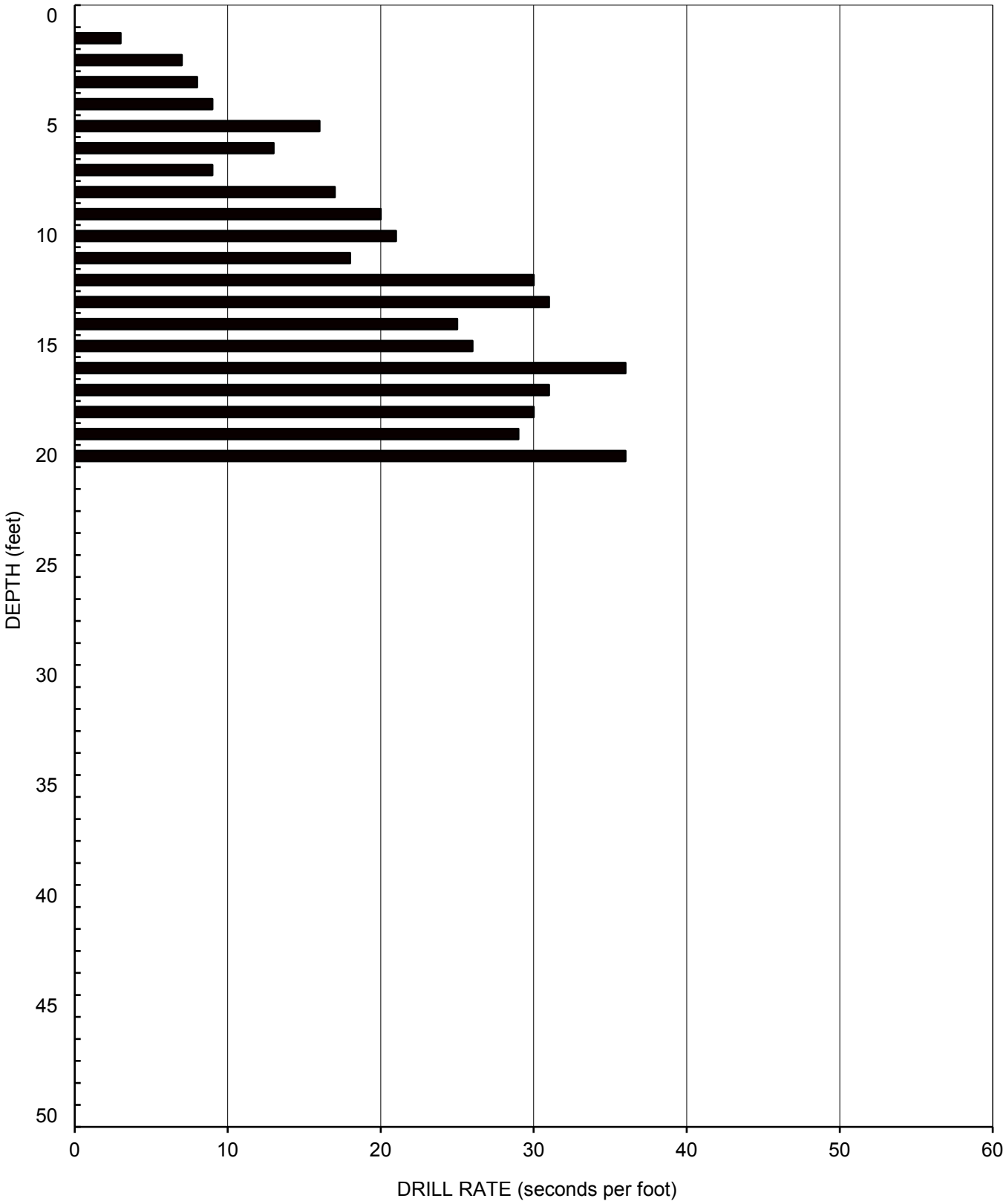
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-13

Elevation - 443 Feet (MSL)

GEOCON
INCORPORATED



AT0013.xls

FIGURE C-28

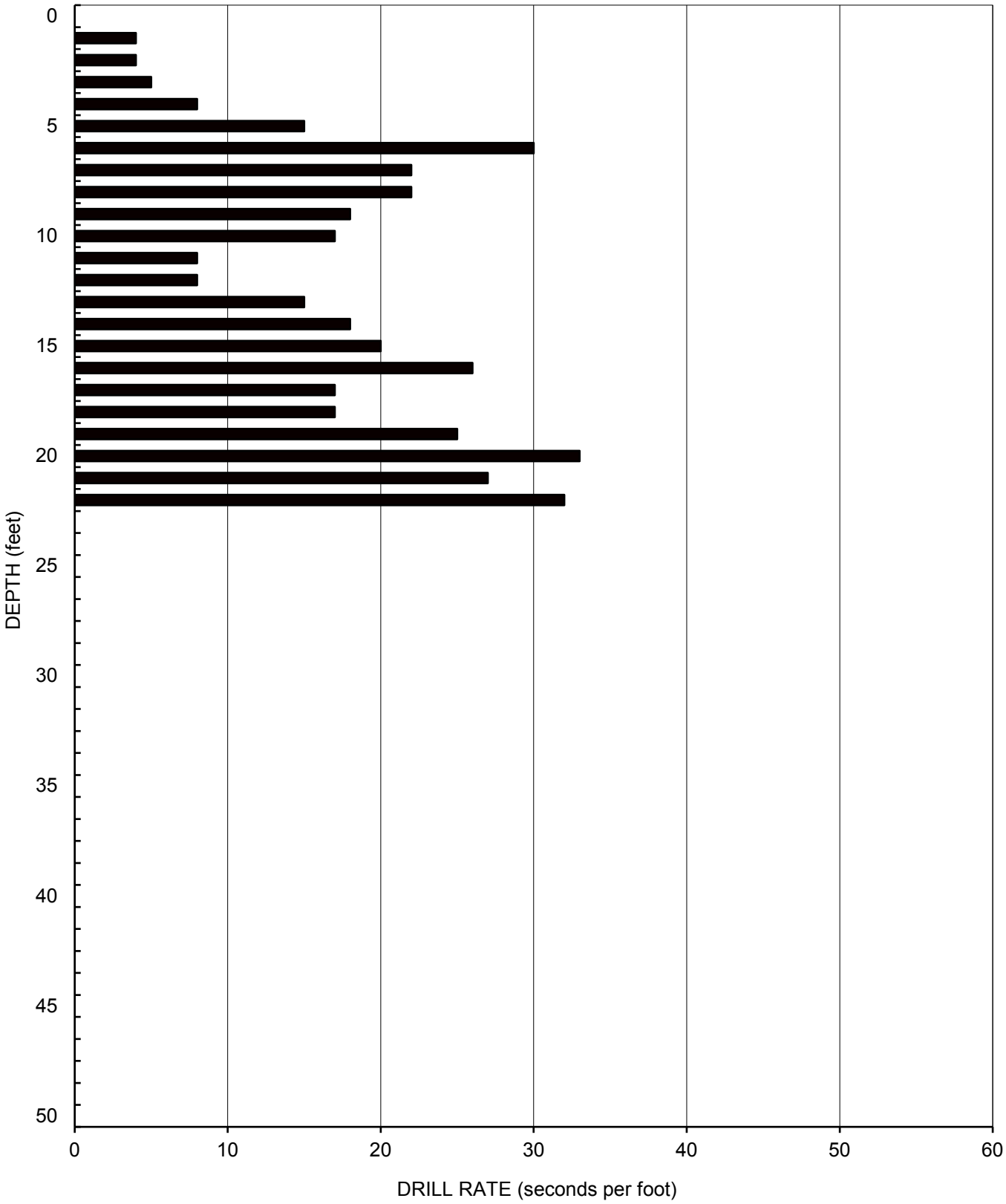
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-14

Elevation - 446 Feet (MSL)

GEOCON
INCORPORATED



AT0014.xls

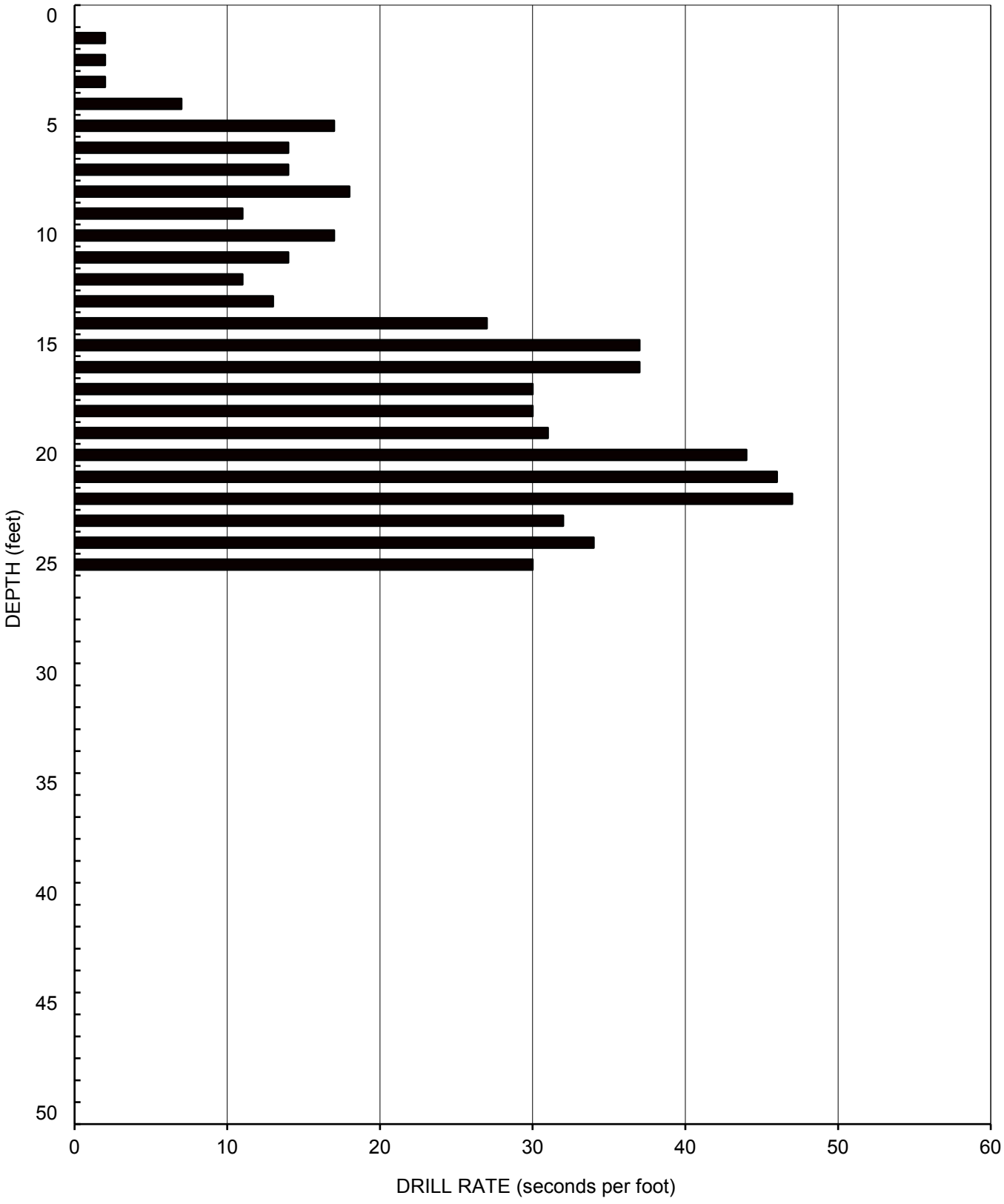
FIGURE C-29

MODERA MELROSE

AIR TRACK BORING AT-15

Elevation - 444 Feet (MSL)

GEOCON INCORPORATED



AT0015.xls

FIGURE C-30

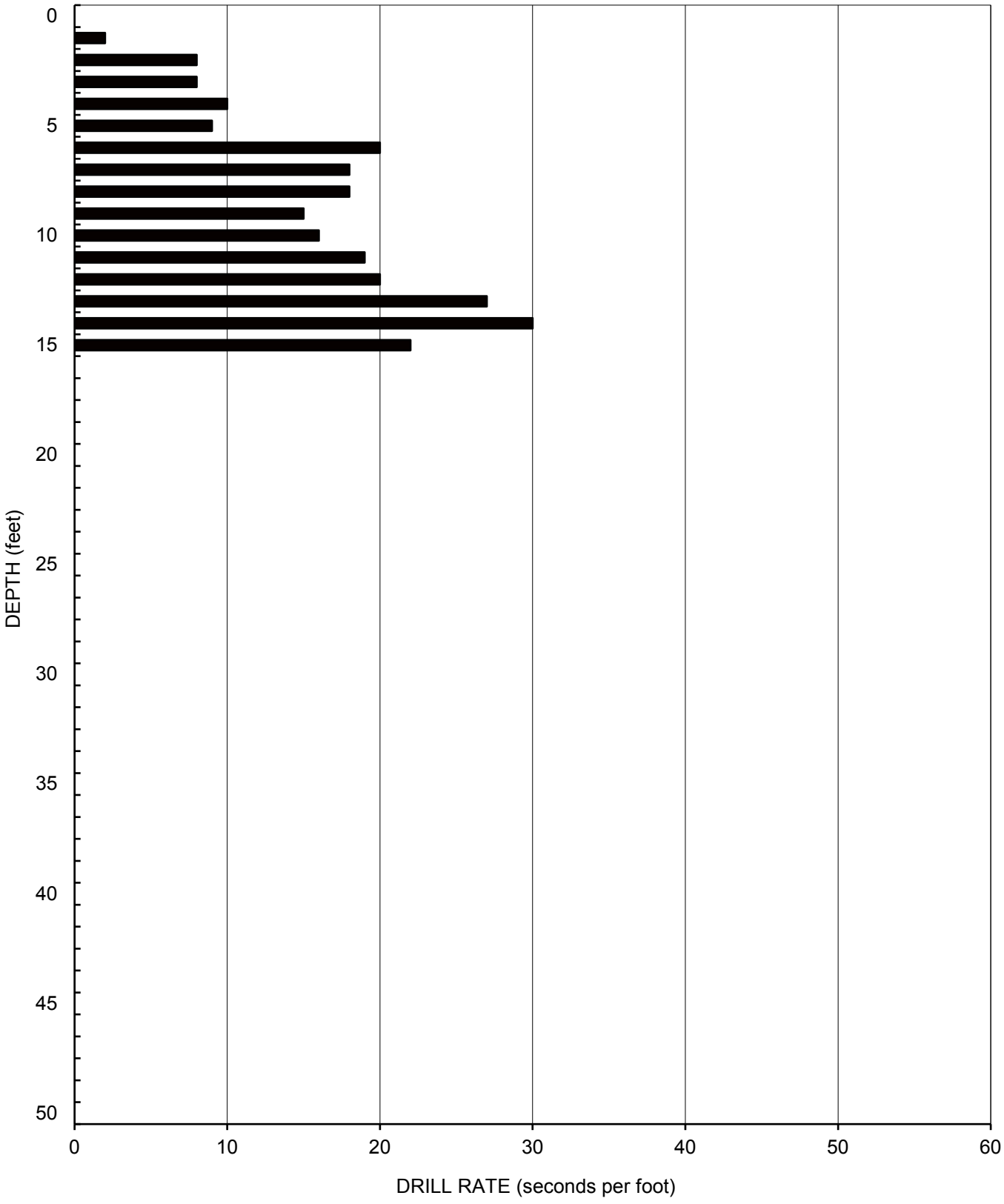
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-16

Elevation - 436 Feet (MSL)

GEOCON
INCORPORATED



AT0016.xls

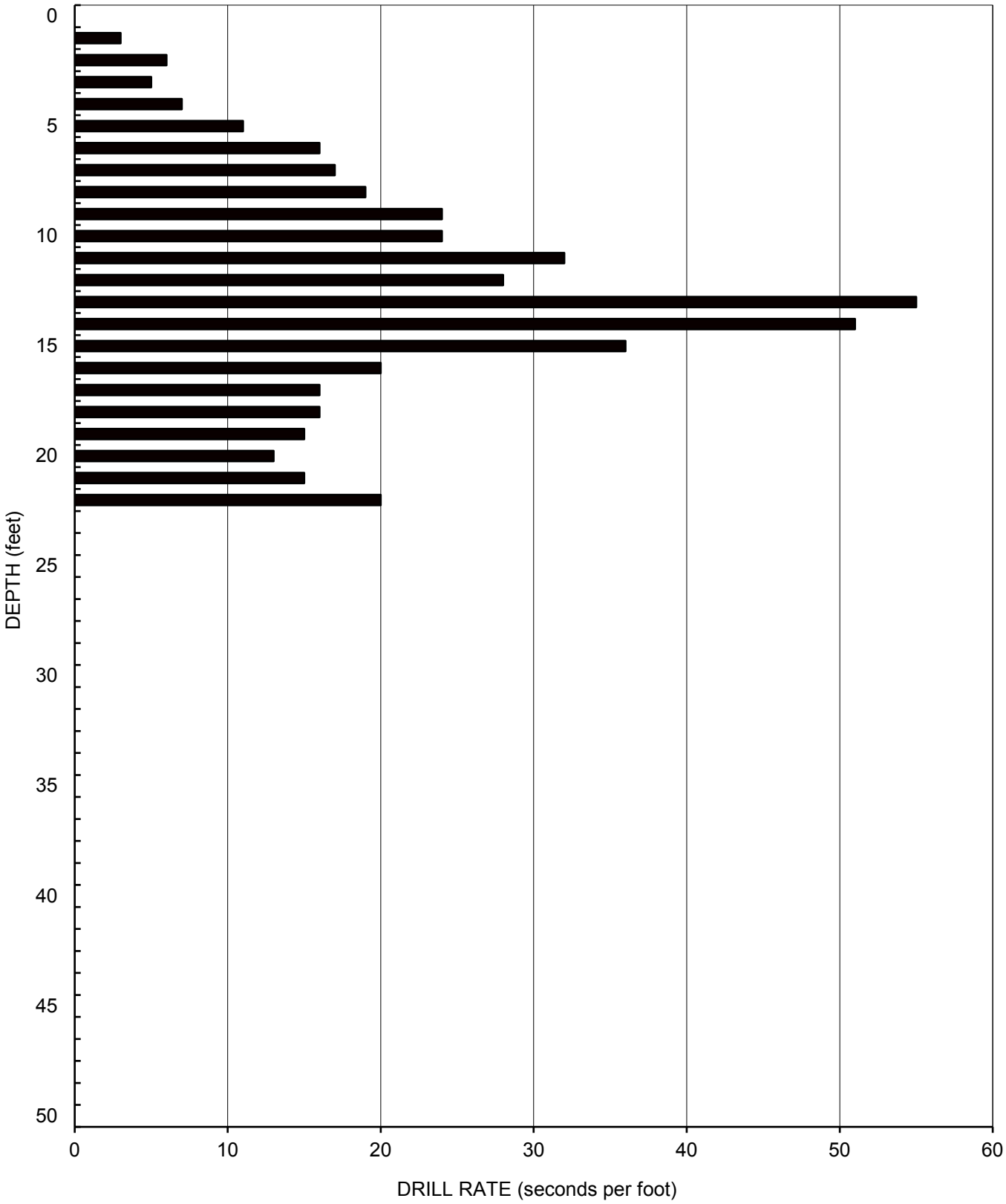
FIGURE C-31

MODERA MELROSE

AIR TRACK BORING AT-17

Elevation - 442 Feet (MSL)

GEOCON INCORPORATED



AT0017.xls

FIGURE C-32

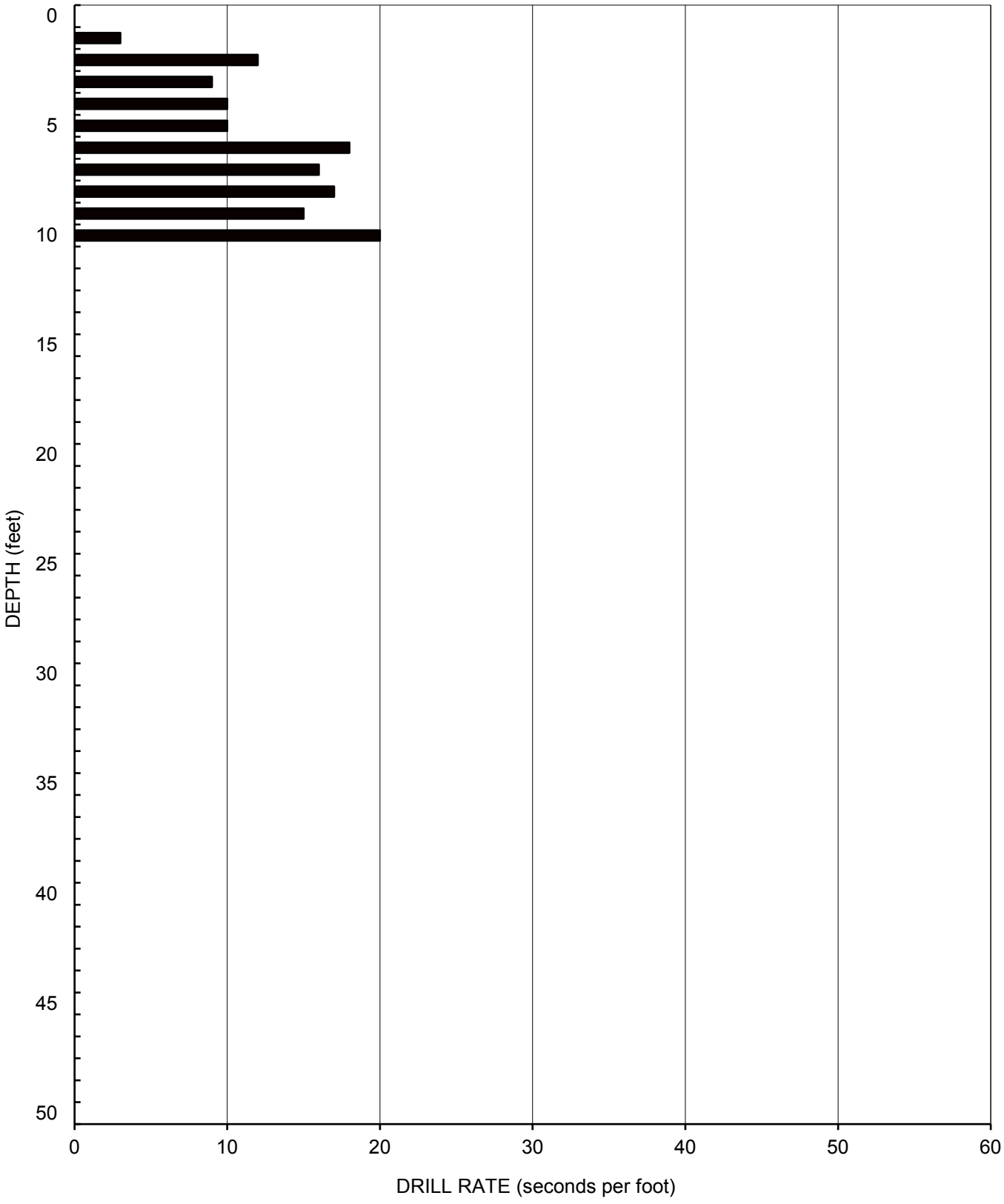
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-18

Elevation - 433 Feet (MSL)

GEOCON
INCORPORATED



AT0018.xls

FIGURE C-33

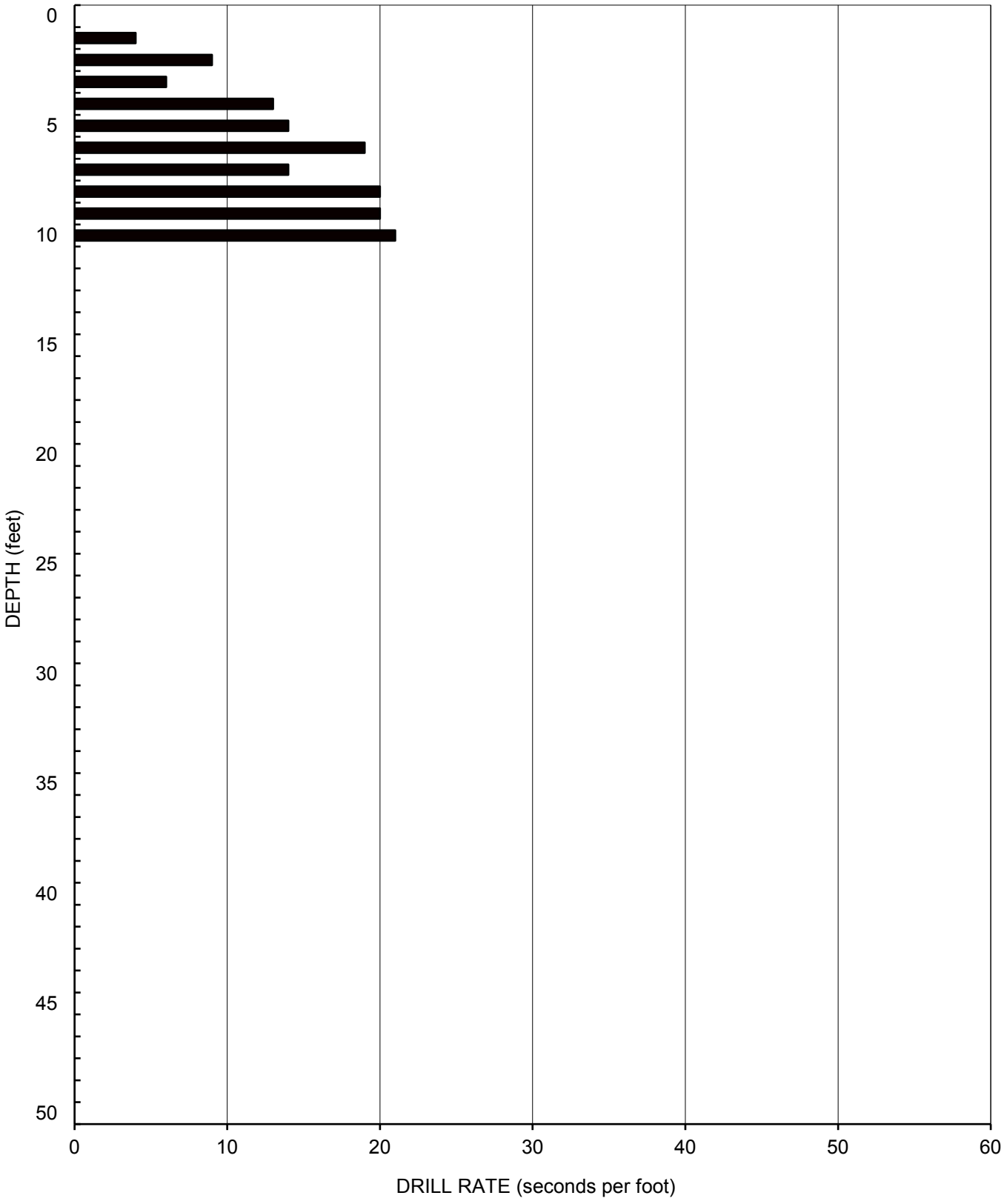
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-19

Elevation - 436 Feet (MSL)

GEOCON
INCORPORATED



AT0019.xls

FIGURE C-34

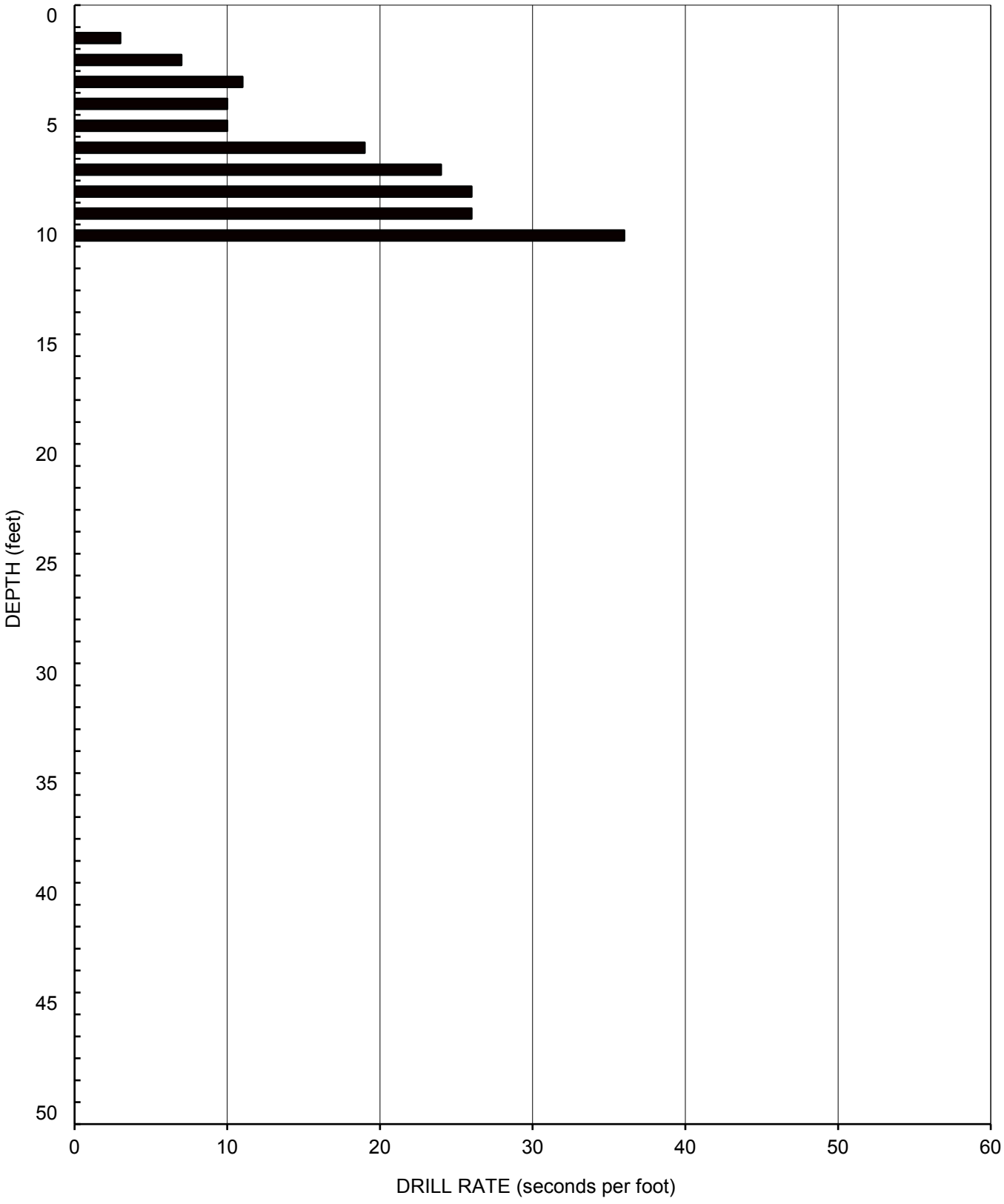
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-20

Elevation - 437 Feet (MSL)

GEOCON INCORPORATED



AT0020.xls

FIGURE C-35

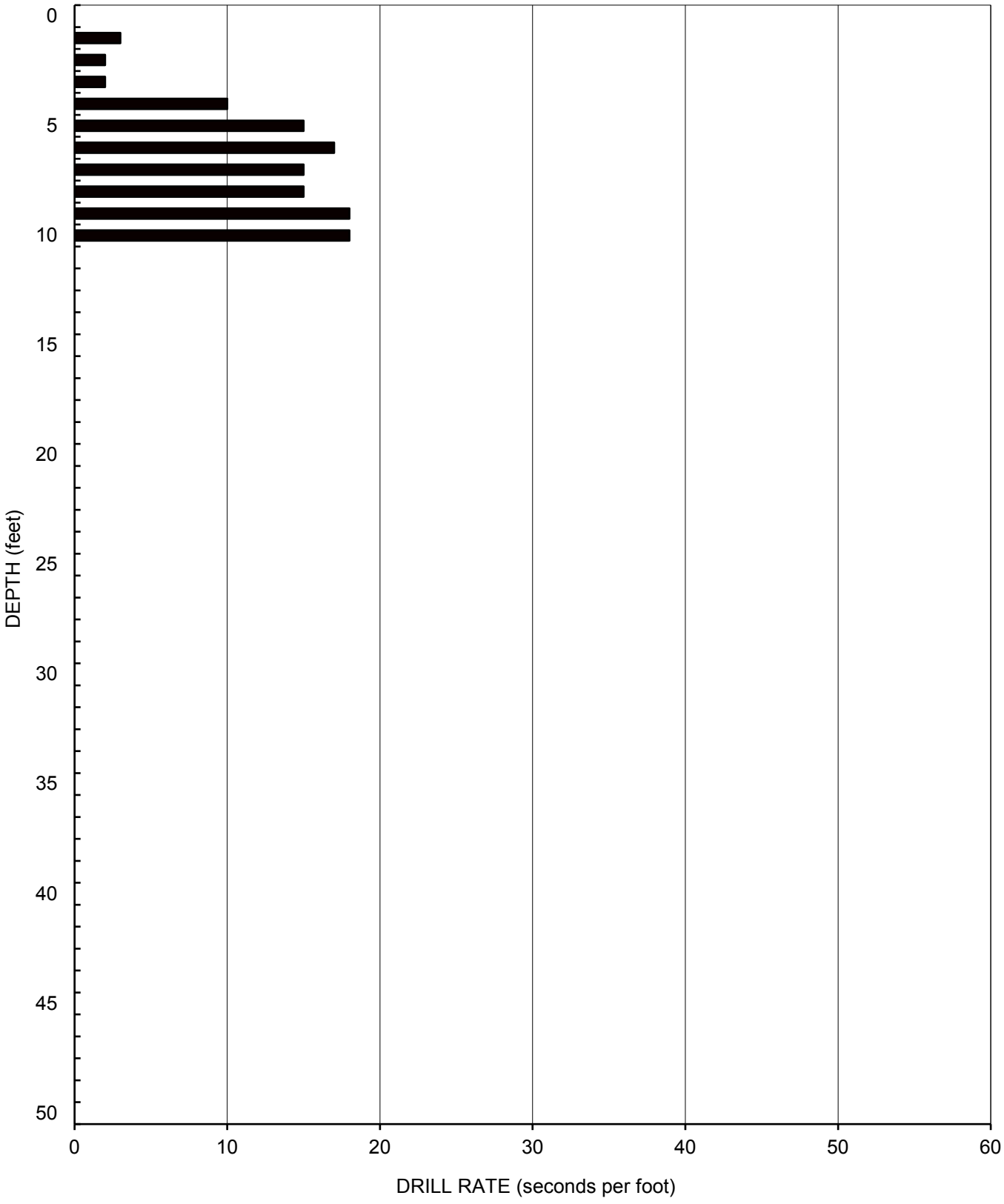
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-21

Elevation - 437 Feet (MSL)

GEOCON
INCORPORATED



AT0021.xls

FIGURE C-36

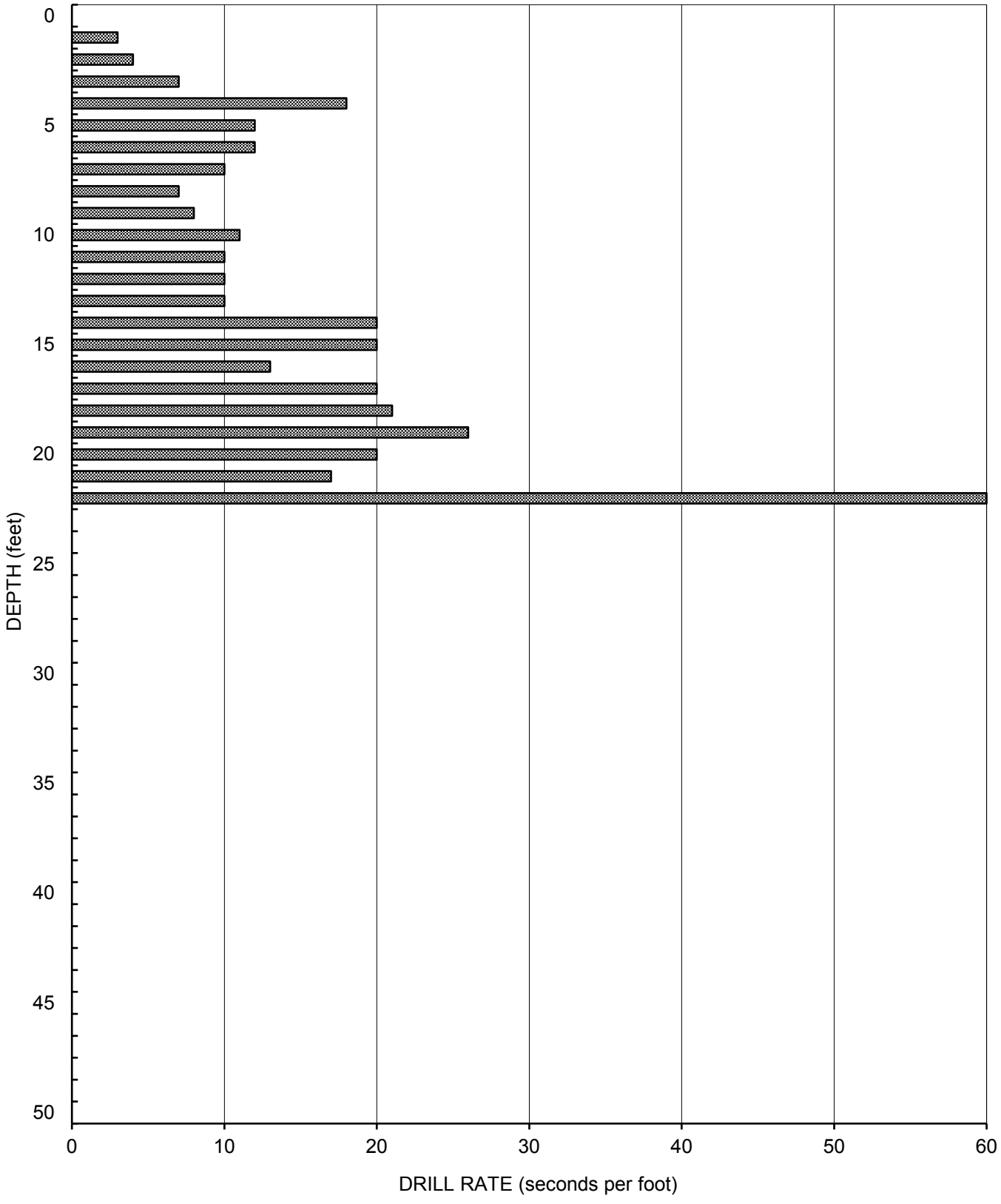
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-22

Elevation - 467 Feet (MSL)

GEOCON
INCORPORATED



AT0022.xls

FIGURE C-37

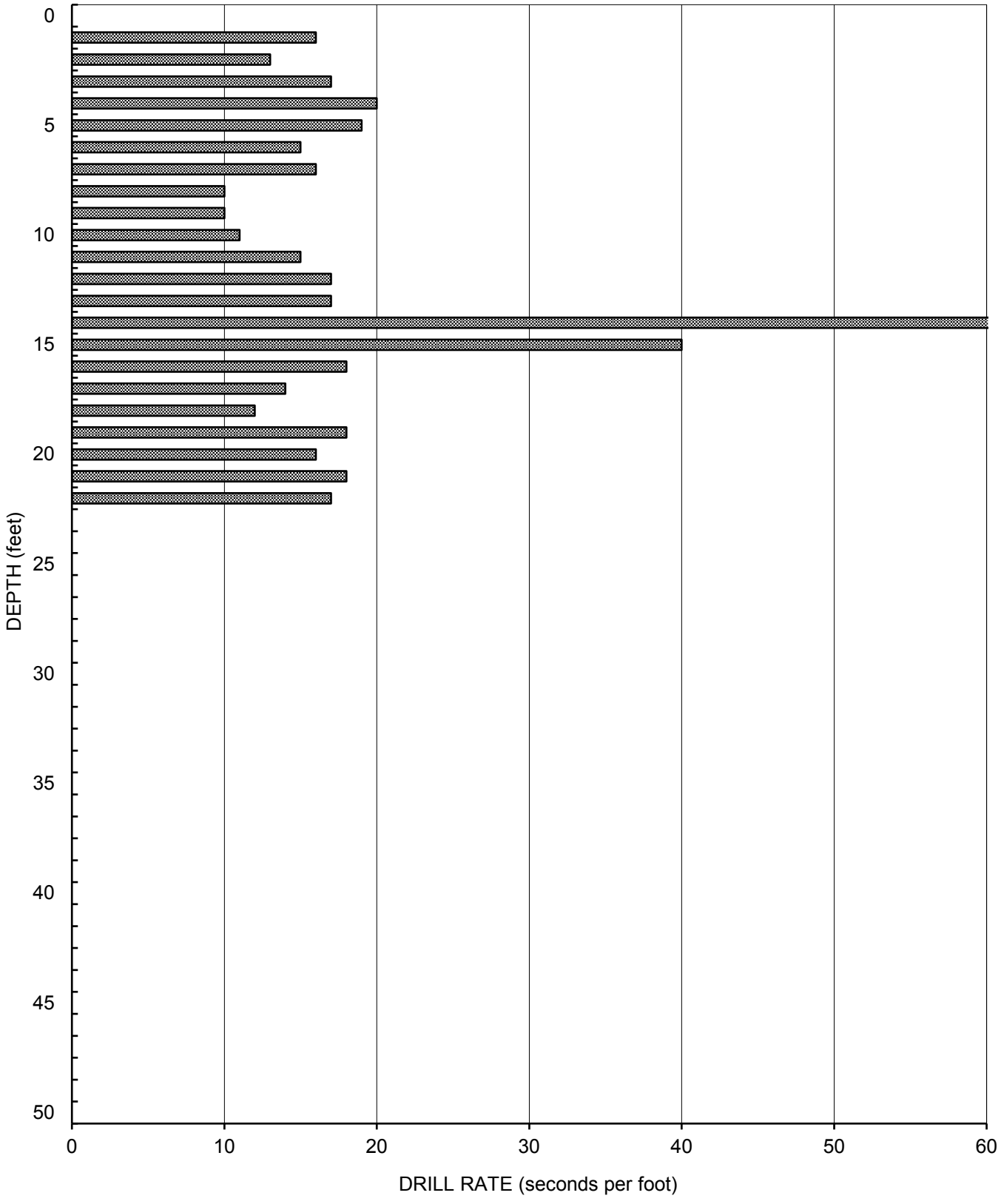
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-23

Elevation - 464 Feet (MSL)

GEOCON
INCORPORATED



AT0023.xls

FIGURE C-38

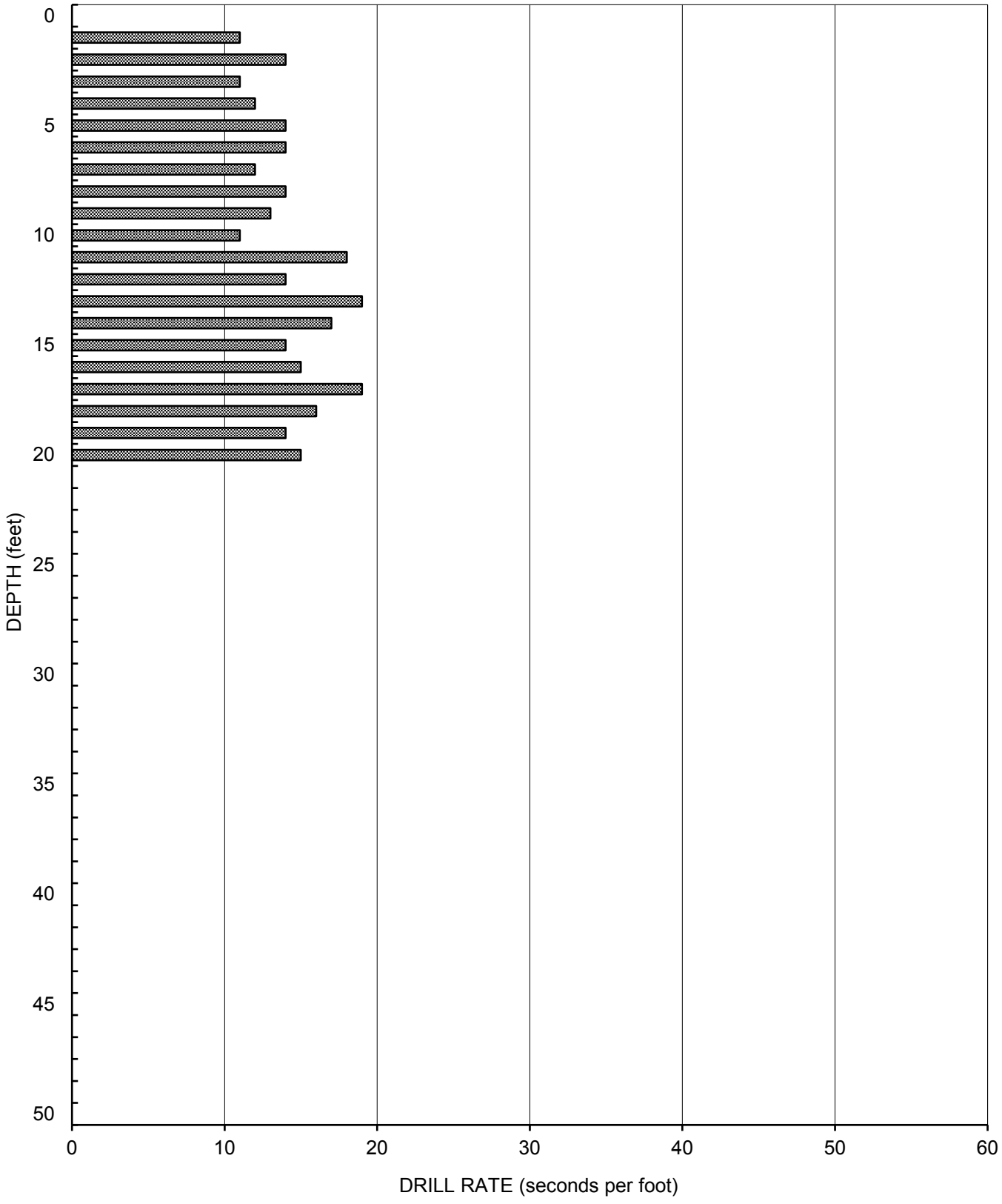
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-24

Elevation - 455 Feet (MSL)

GEOCON
INCORPORATED



AT0024.xls

FIGURE C-39

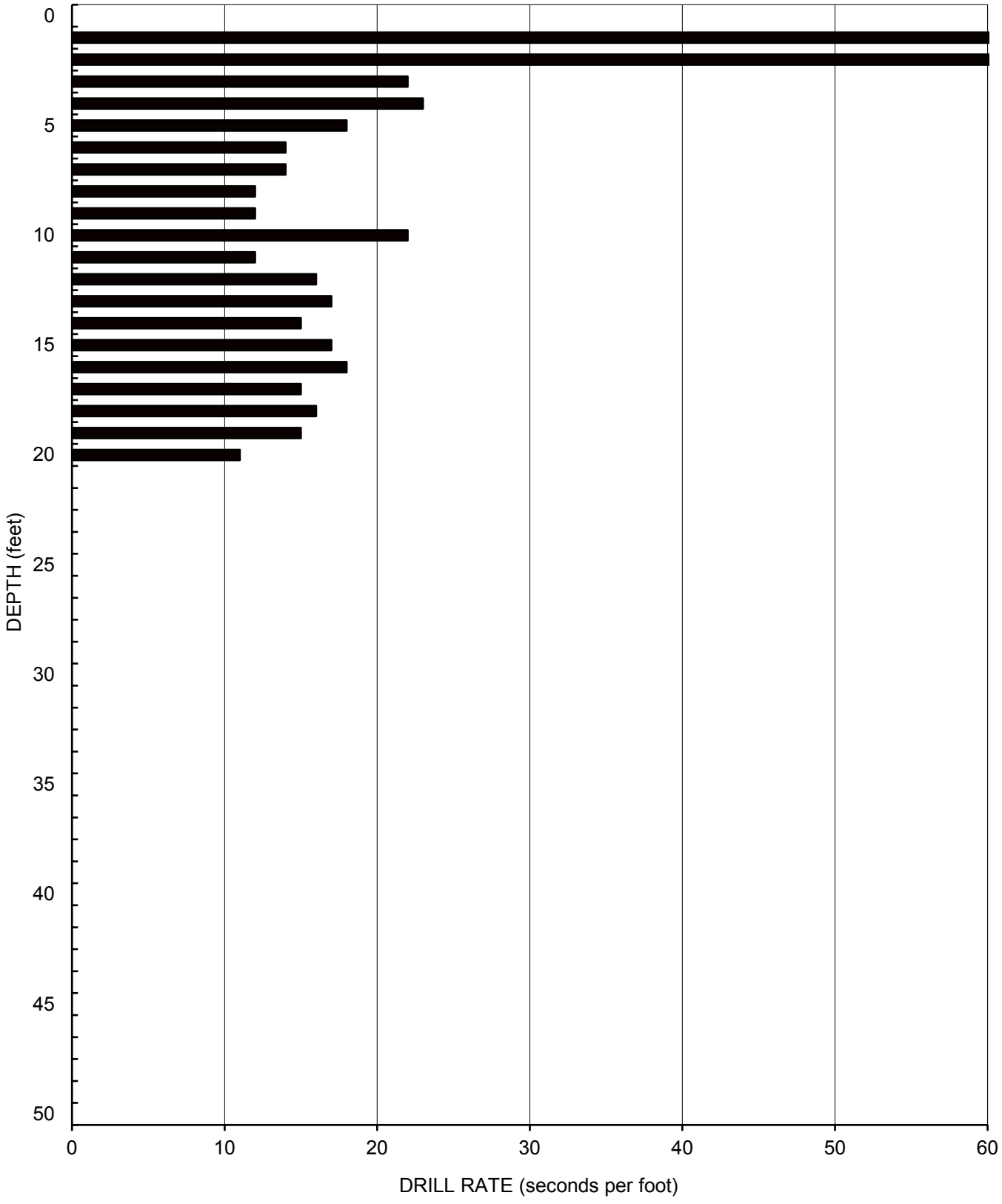
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-25

Elevation - 462 Feet (MSL)

GEOCON
INCORPORATED



AT0025.xls

FIGURE C-40

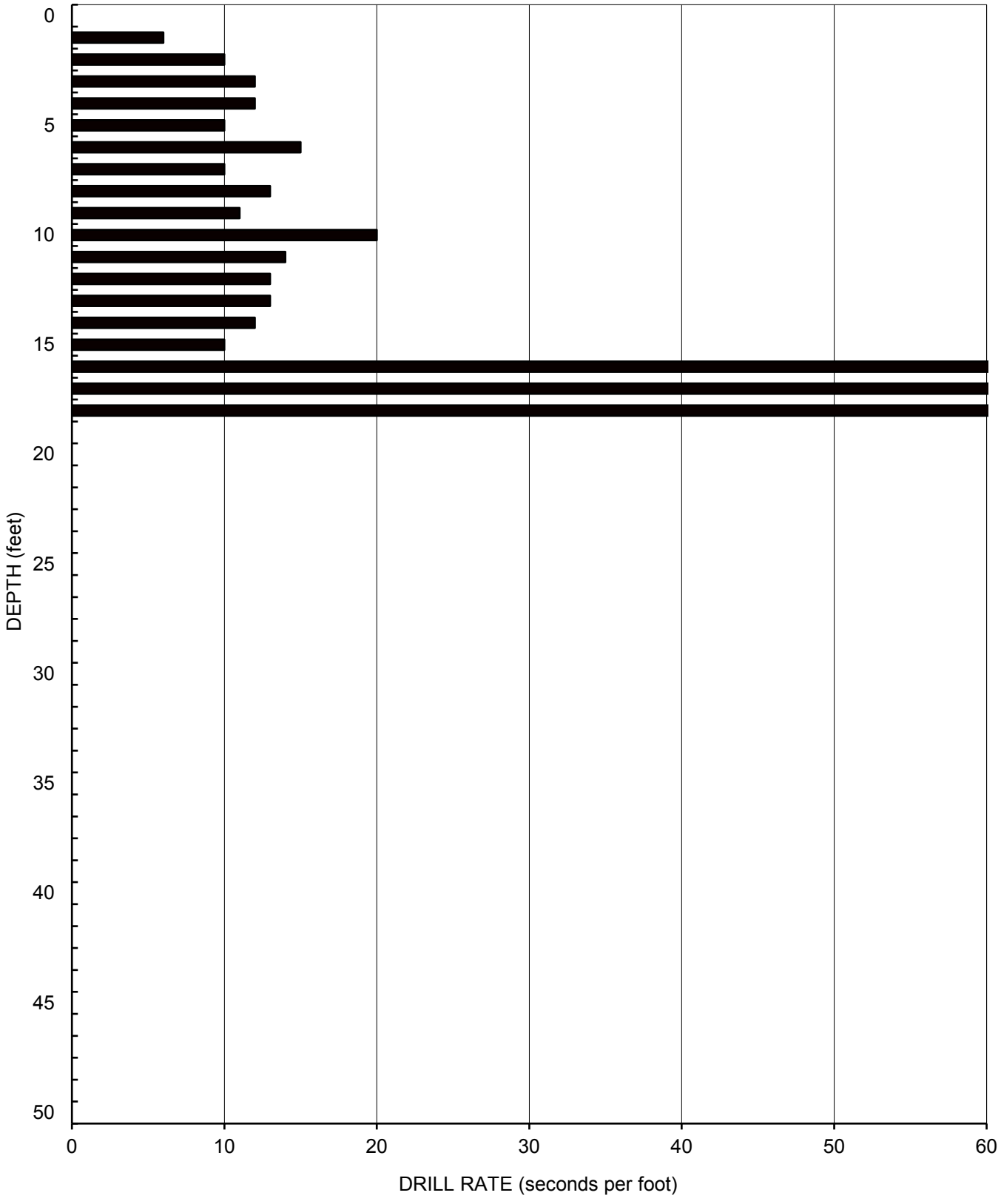
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-26

Elevation - 466 Feet (MSL)

GEOCON
INCORPORATED



AT0026.xls

FIGURE C-41

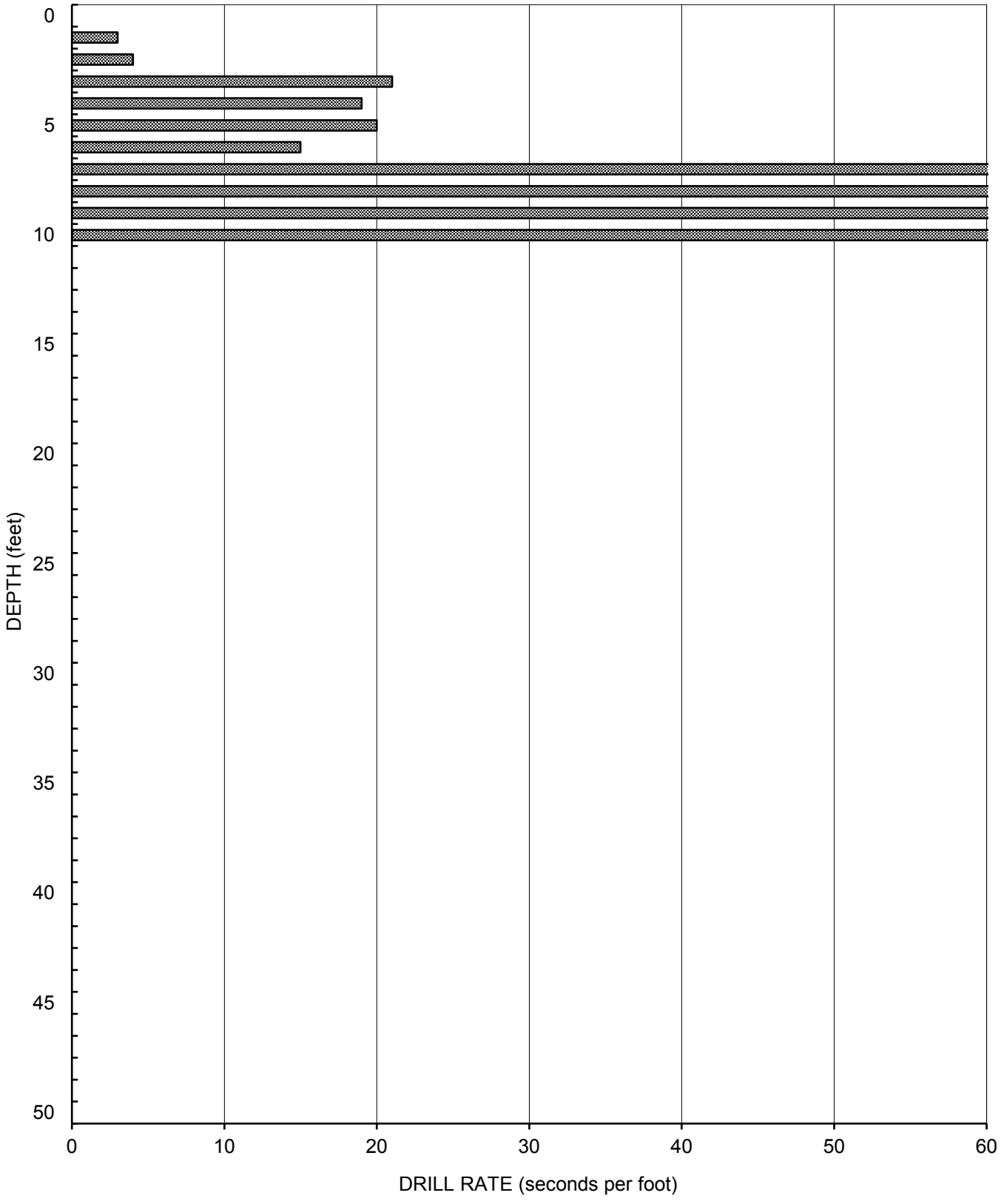
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-27

Elevation - 465 Feet (MSL)

GEOCON
INCORPORATED



AT0027.xls

FIGURE C-42

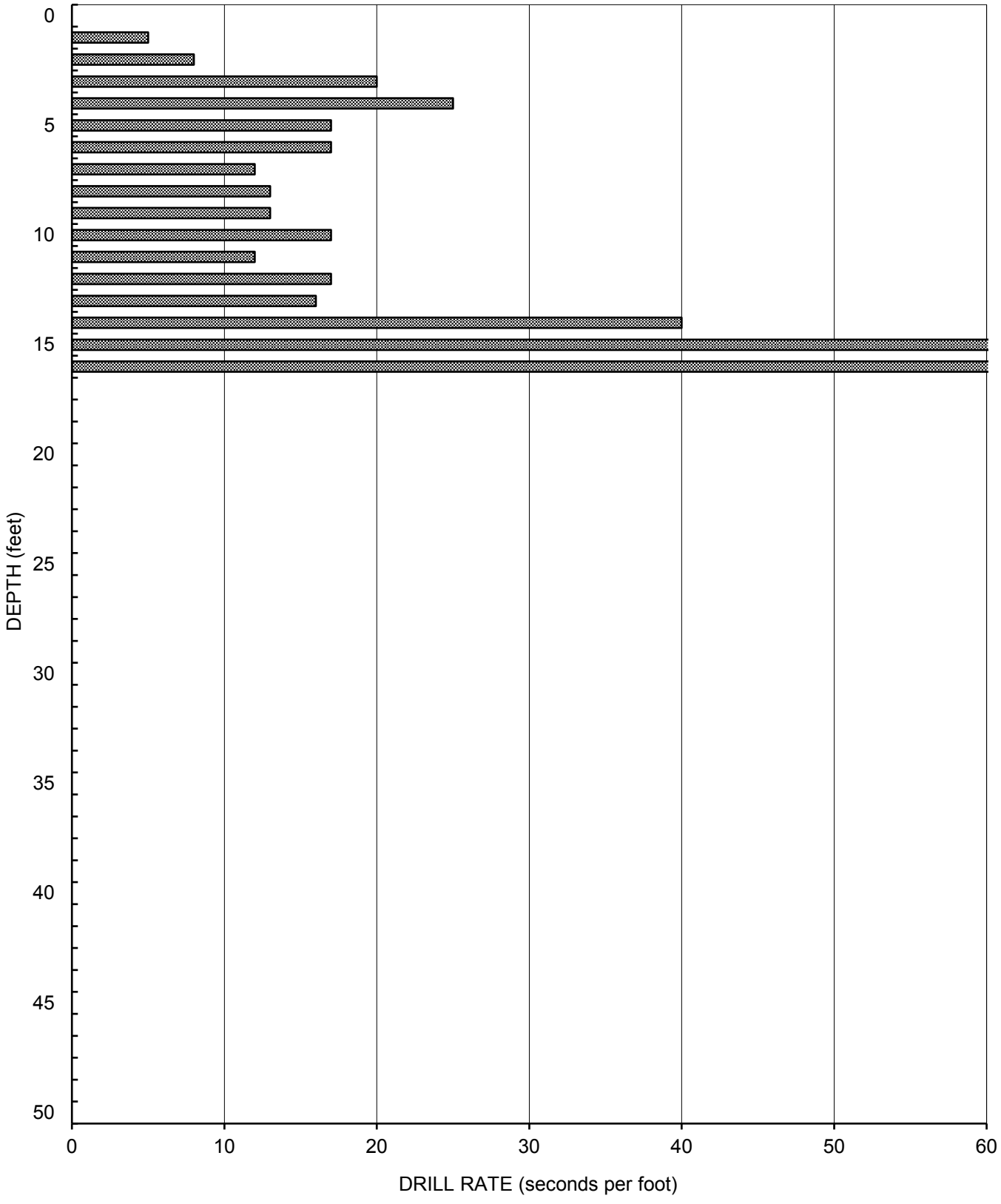
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-28

Elevation - 463 Feet (MSL)

GEOCON
INCORPORATED



AT0028.xls

FIGURE C-43

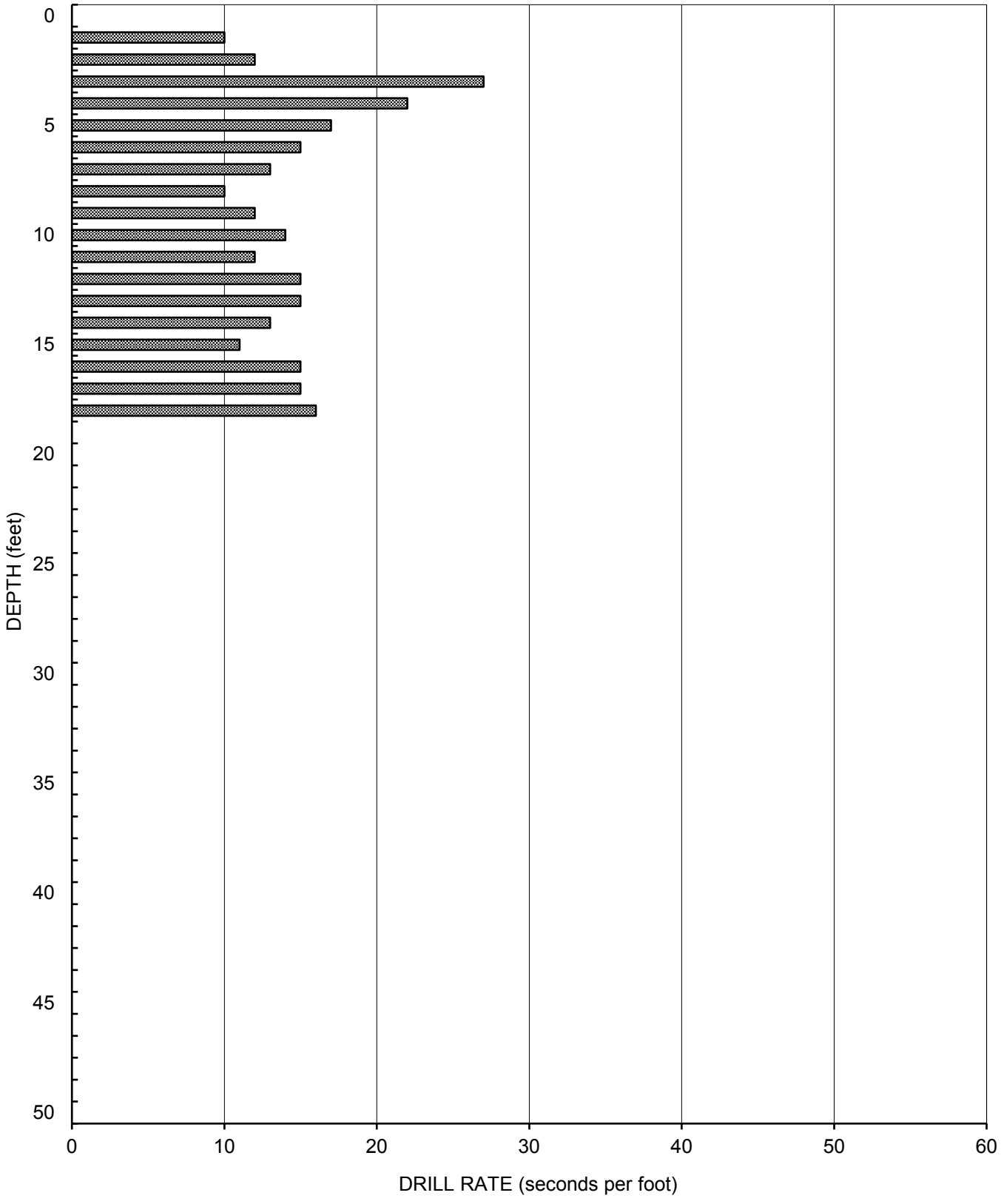
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-29

Elevation - 455 Feet (MSL)

GEOCON
INCORPORATED



AT0029.xls

FIGURE C-45

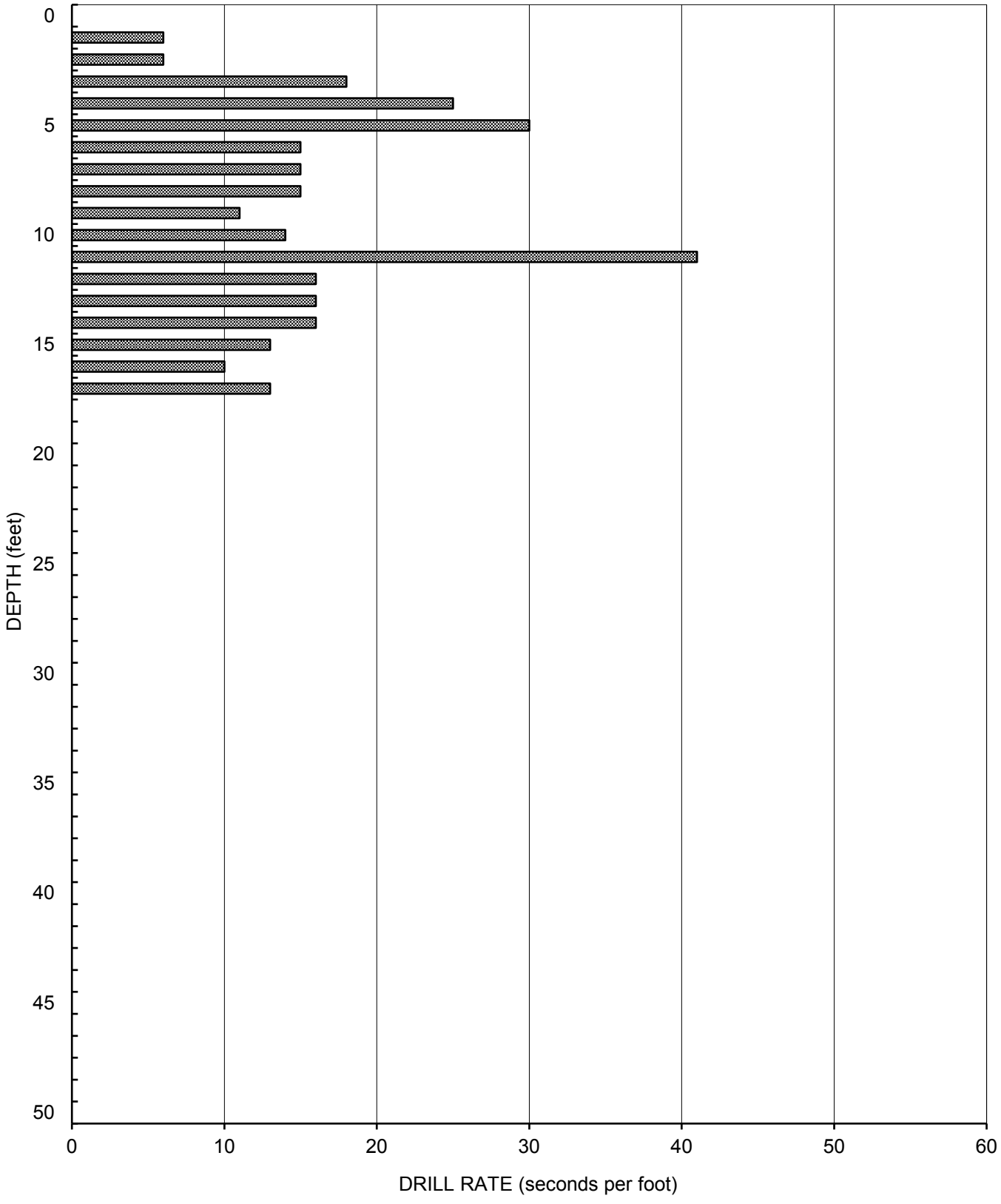
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-30

Elevation - 451 Feet (MSL)

GEOCON
INCORPORATED



AT0030.xls

FIGURE C-45

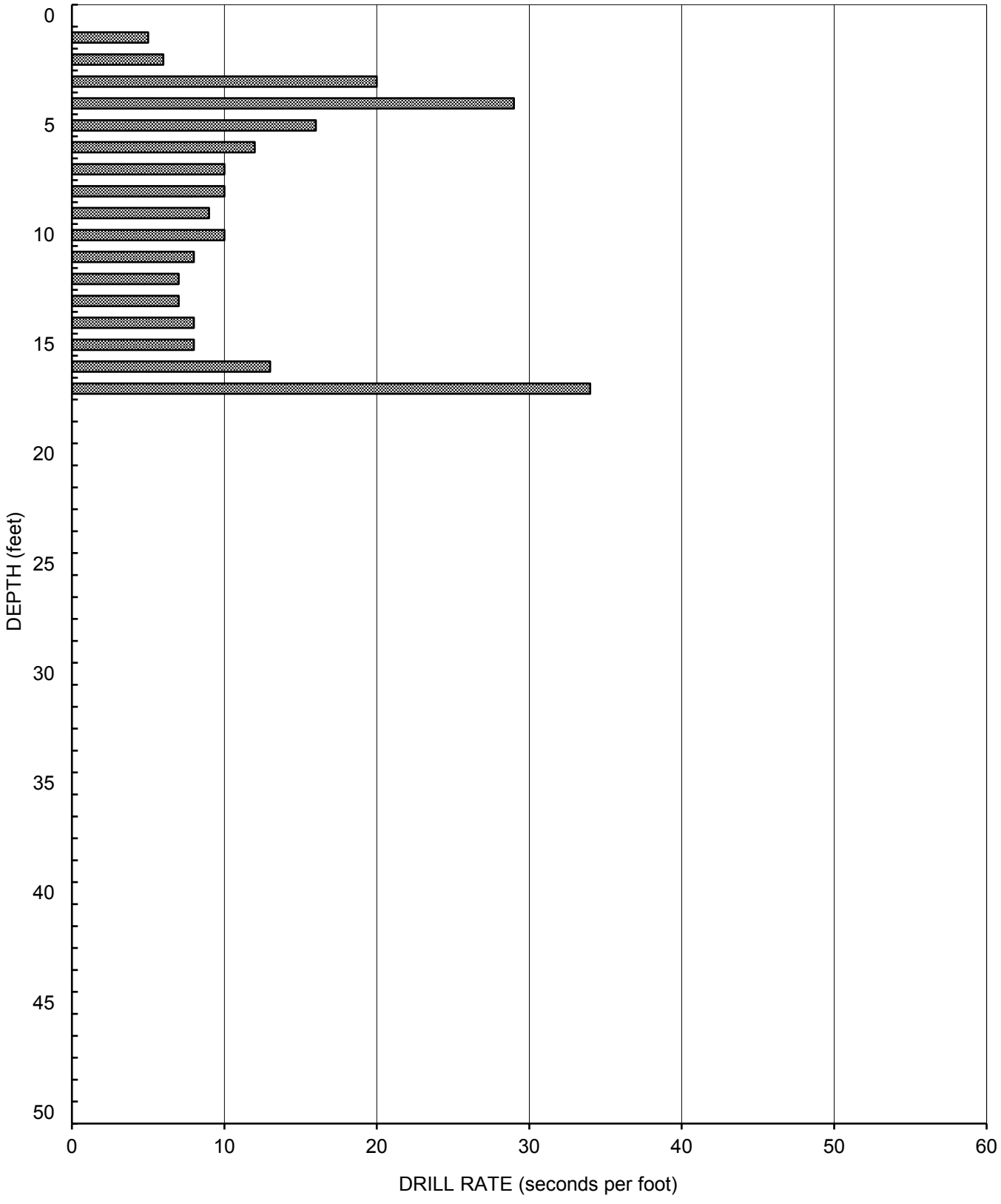
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-31

Elevation - 454 Feet (MSL)

GEOCON
INCORPORATED



AT0031.xls

FIGURE C-46

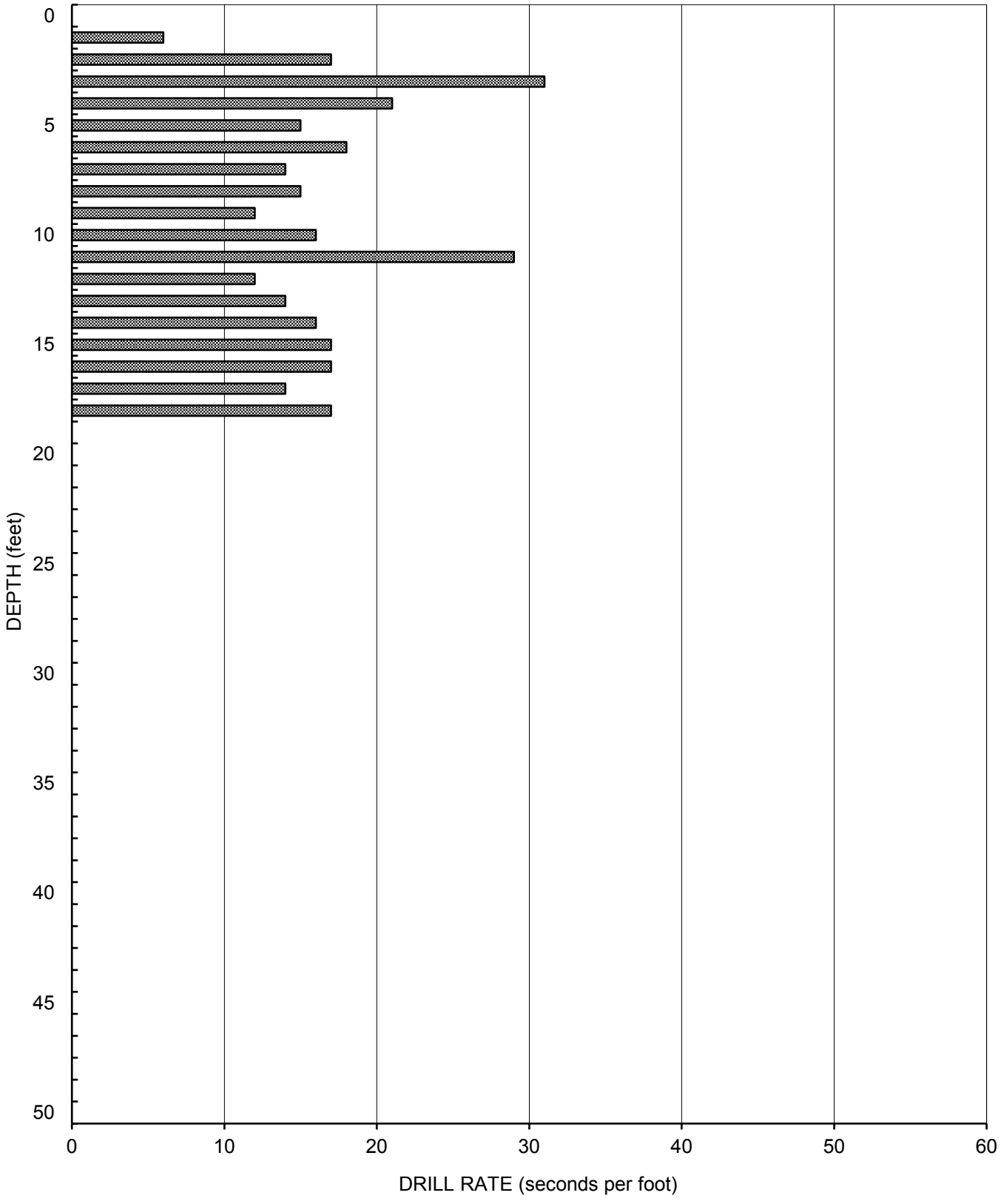
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-32

Elevation - 458 Feet (MSL)

GEOCON
INCORPORATED



AT0032.xls

FIGURE C-47

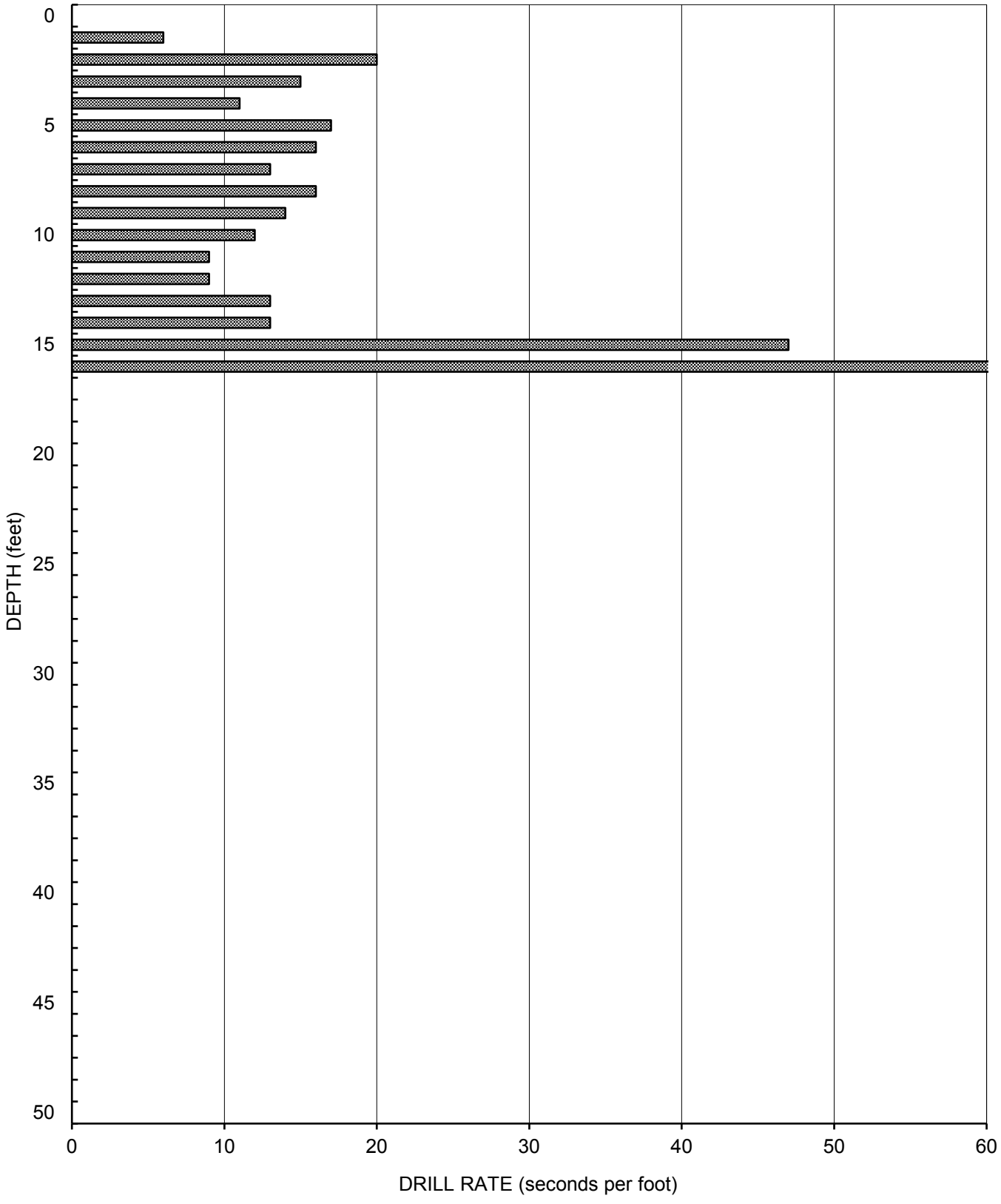
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-33

Elevation - 459 Feet (MSL)

GEOCON
INCORPORATED



AT0033.xls

FIGURE C-48

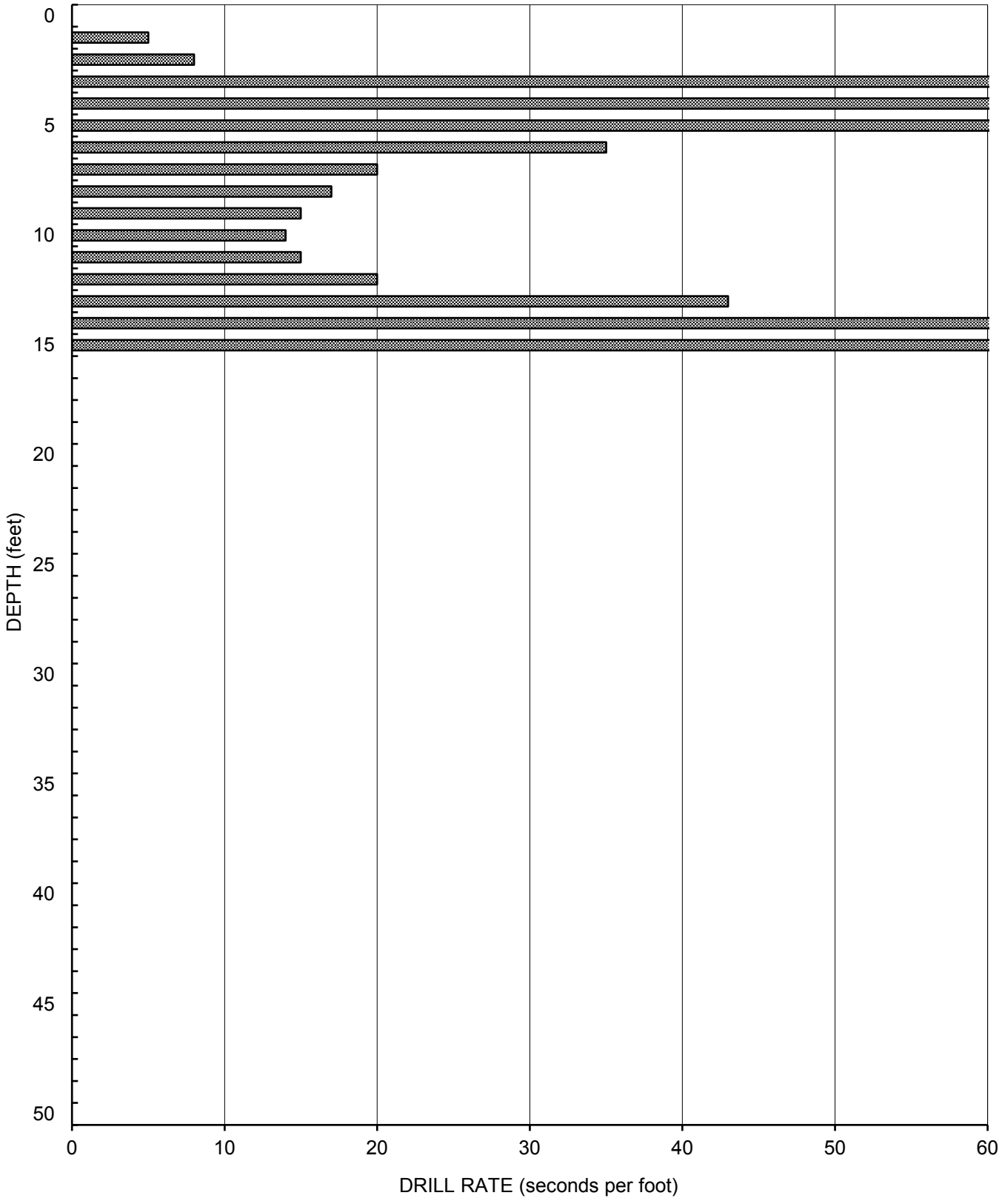
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-34

Elevation - 462 Feet (MSL)

GEOCON
INCORPORATED



AT0034.xls

FIGURE C-49

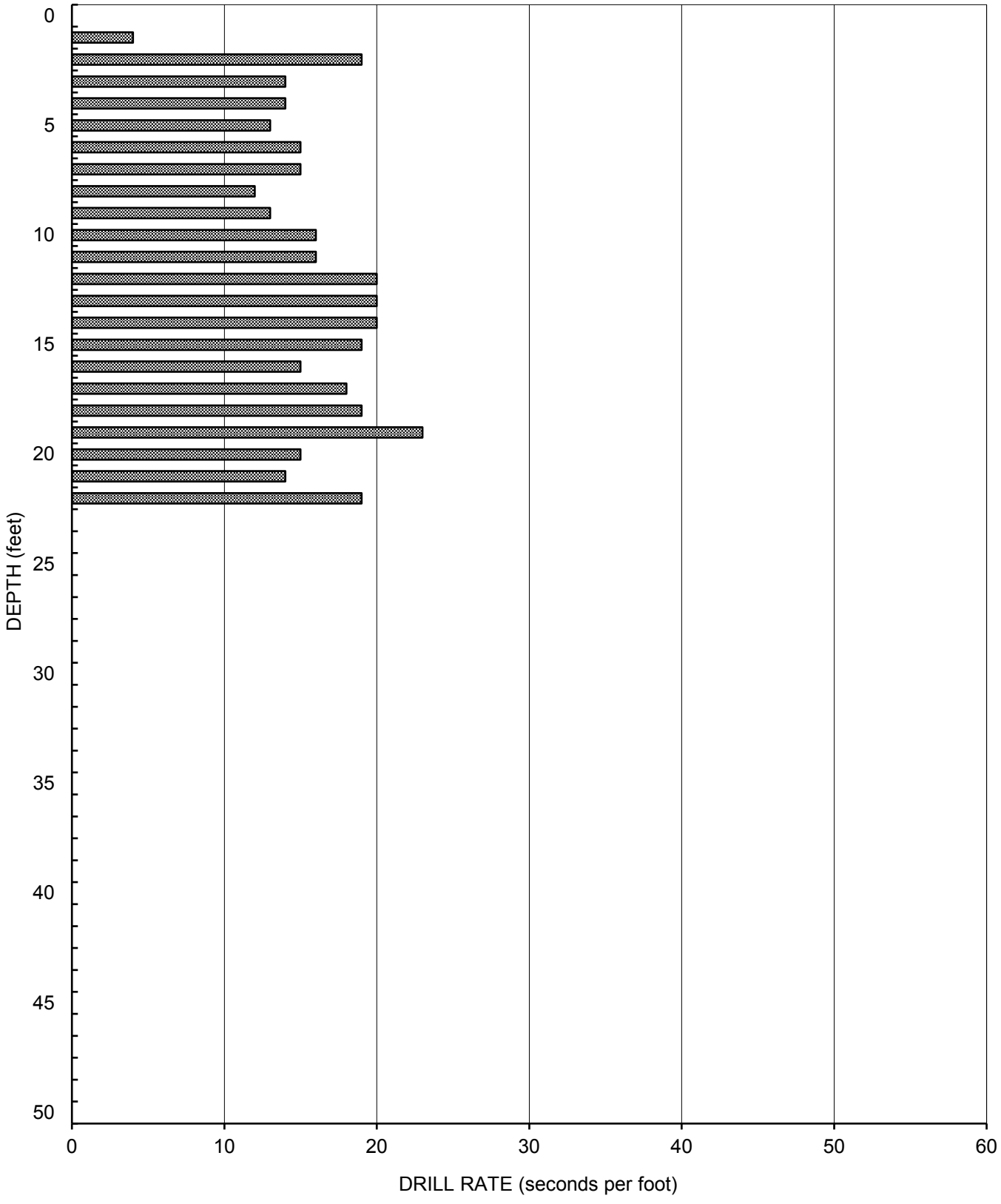
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-35

Elevation - 461 Feet (MSL)

GEOCON
INCORPORATED



AT0035.xls

FIGURE C-50

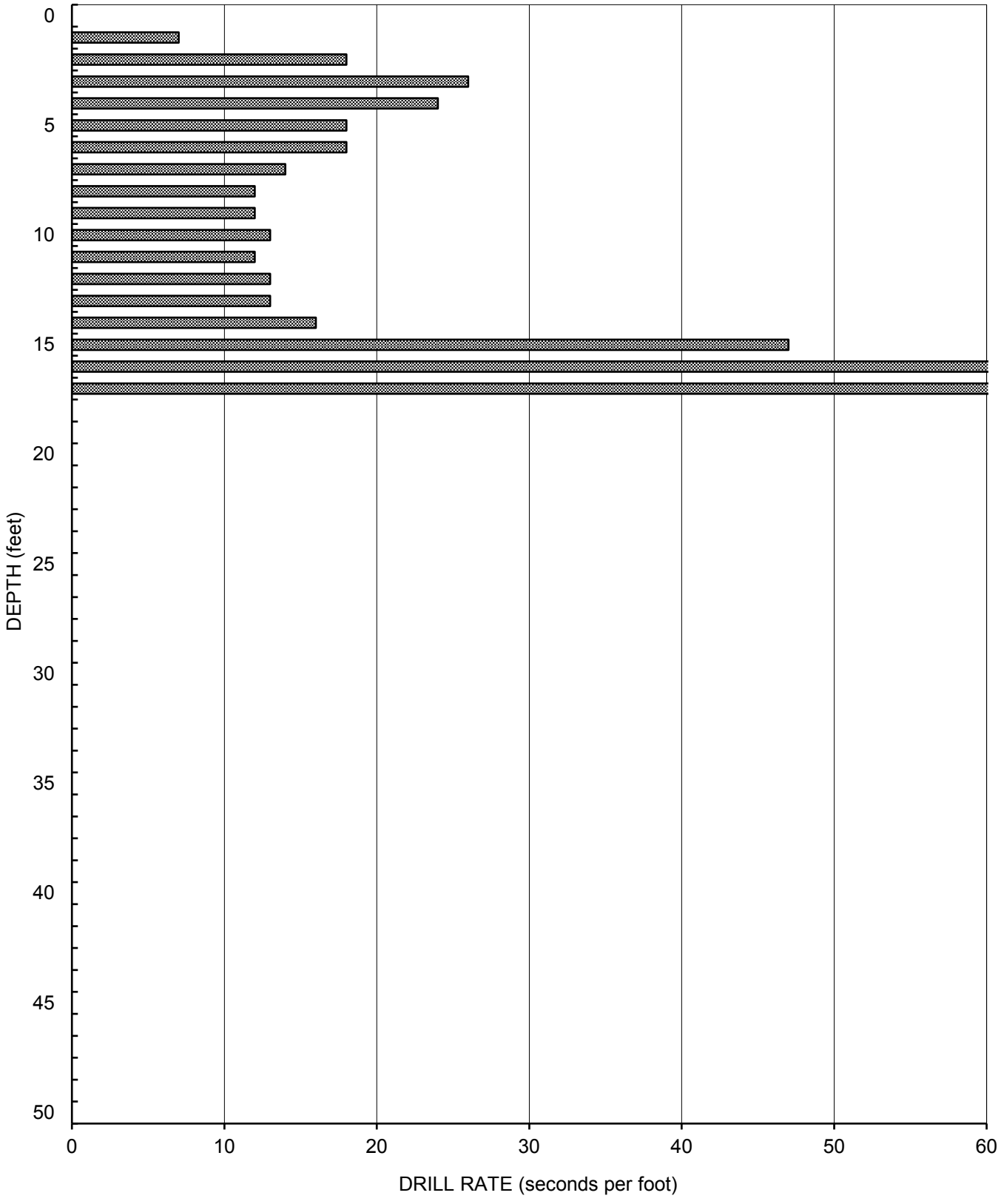
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-36

Elevation - 457 Feet (MSL)

GEOCON
INCORPORATED



AT0036.xls

FIGURE C-51

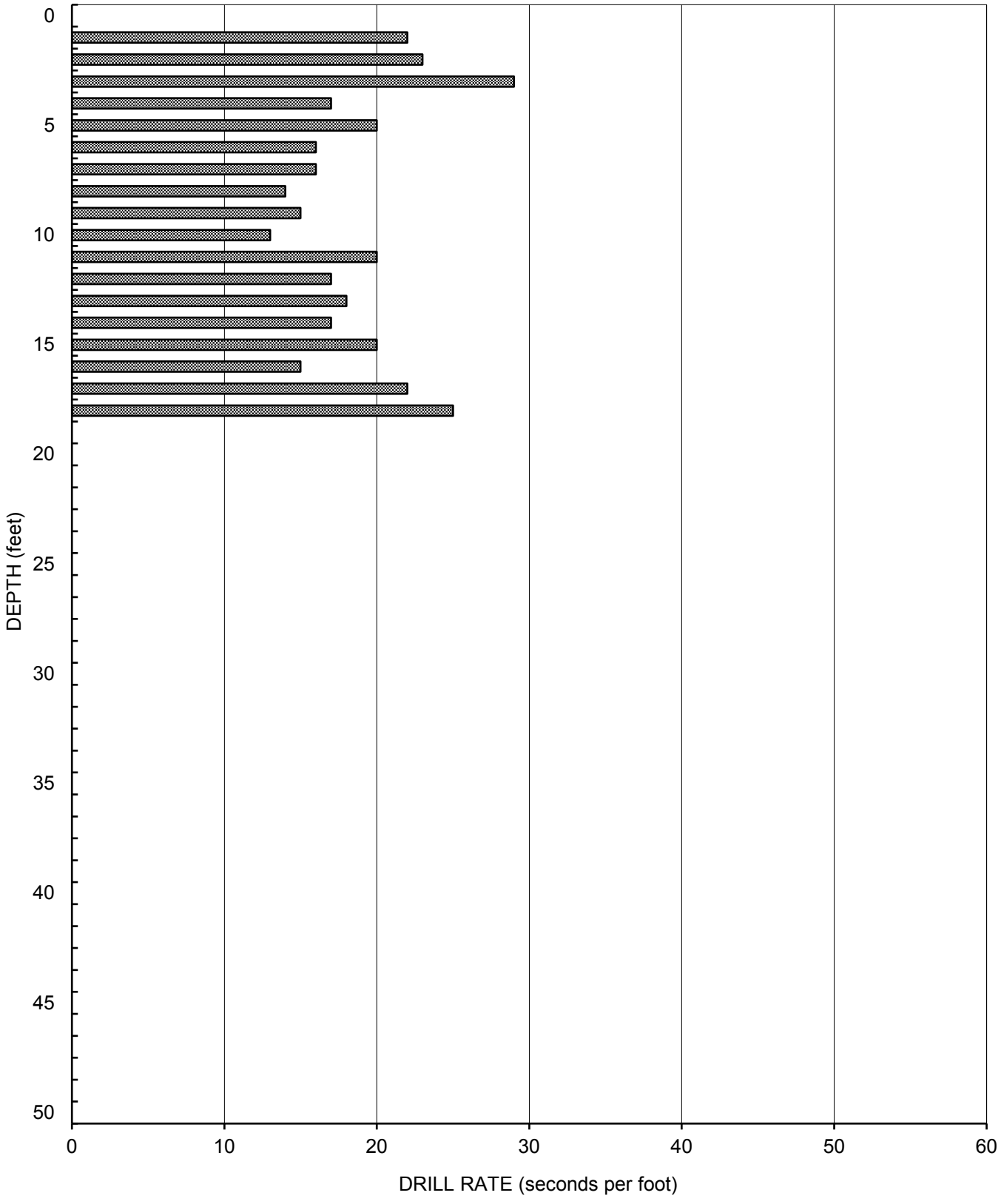
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-37

Elevation - 459 Feet (MSL)

GEOCON
INCORPORATED



AT0037.xls

FIGURE C-52

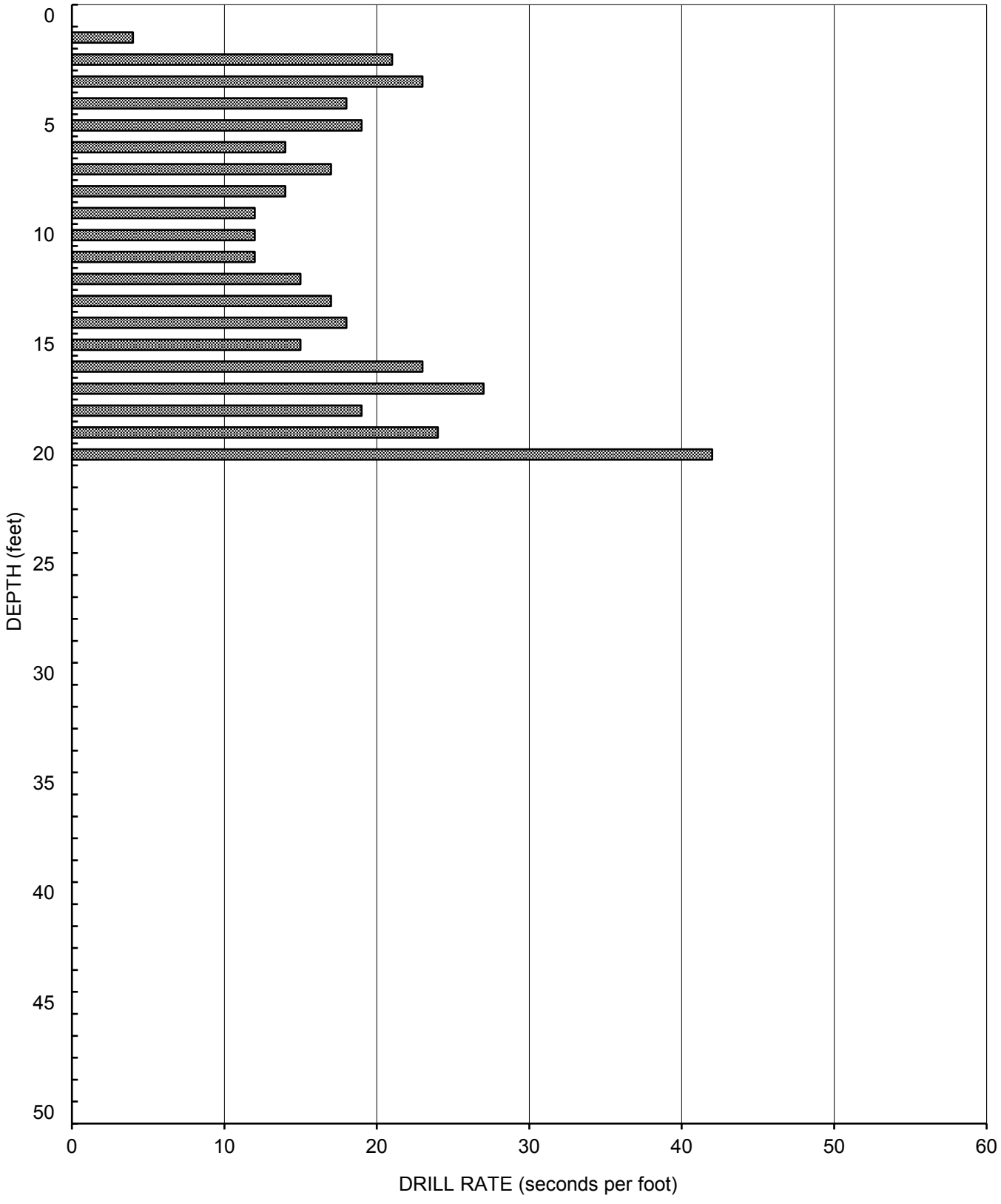
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-38

Elevation - 462 Feet (MSL)

GEOCON
INCORPORATED



AT0038.xls

FIGURE C-53

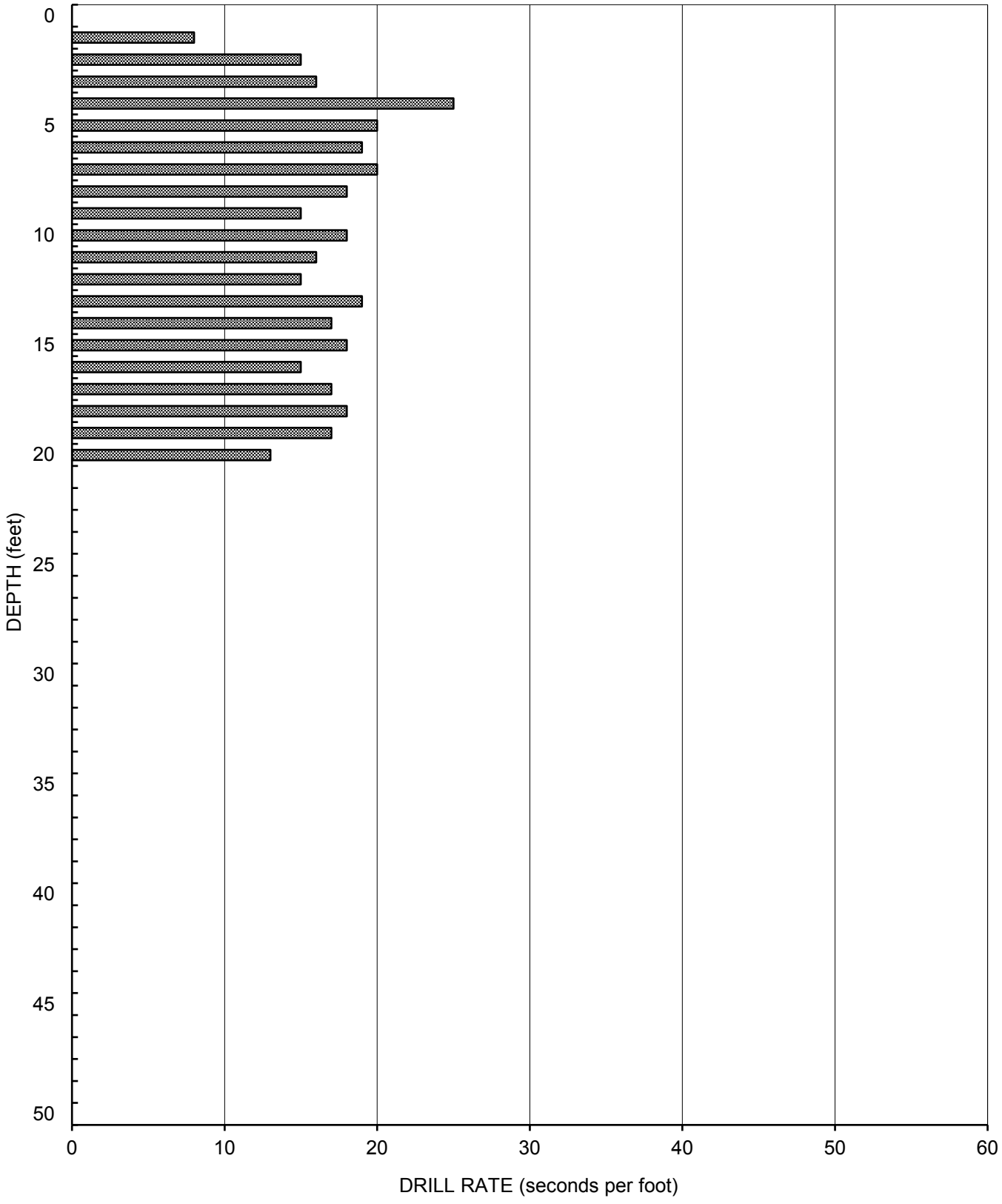
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-39

Elevation - 462 Feet (MSL)

GEOCON
INCORPORATED



AT0039.xls

FIGURE C-54

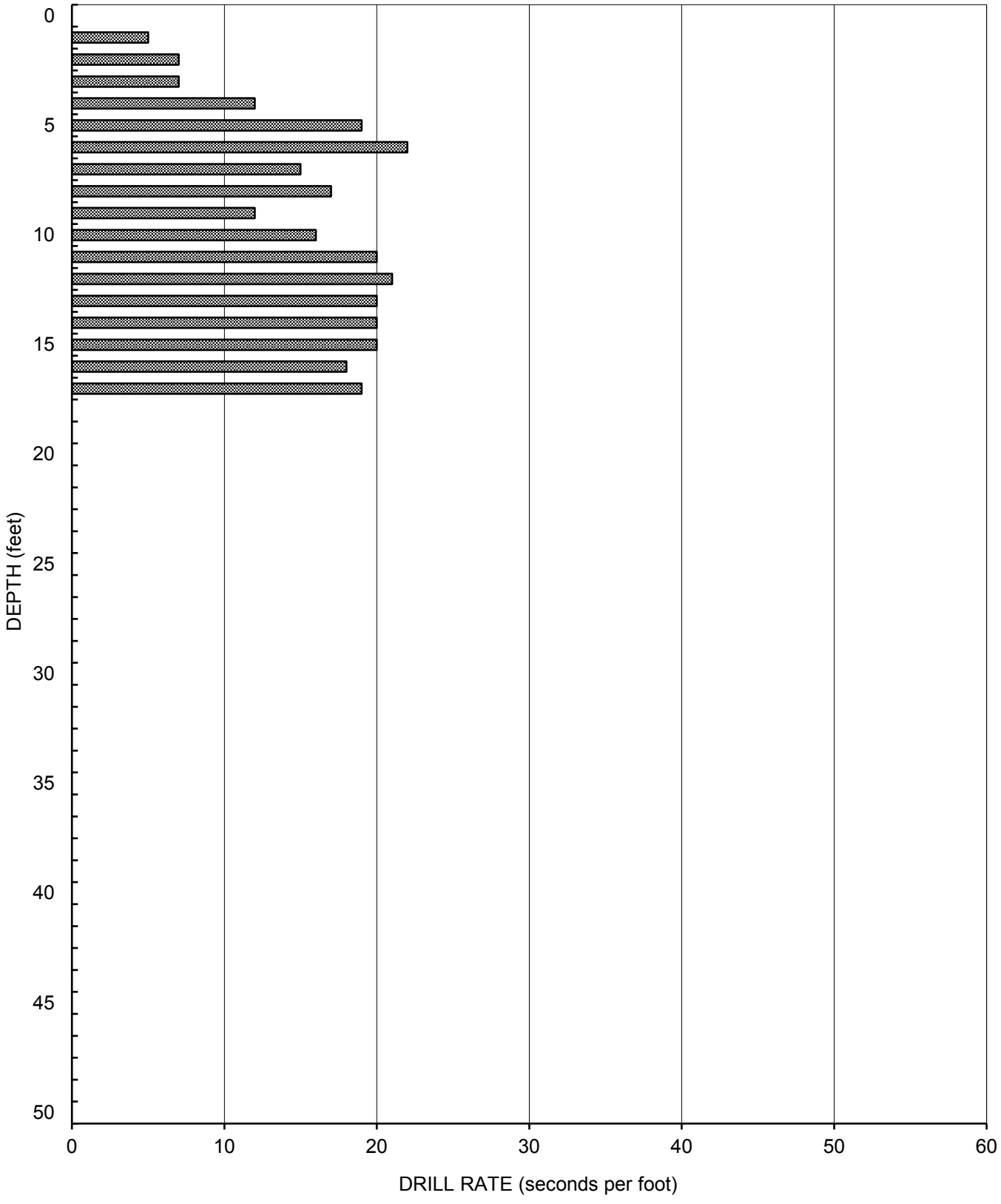
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-40

Elevation - 457 Feet (MSL)

GEOCON
INCORPORATED



AT0040.xls

FIGURE C-55

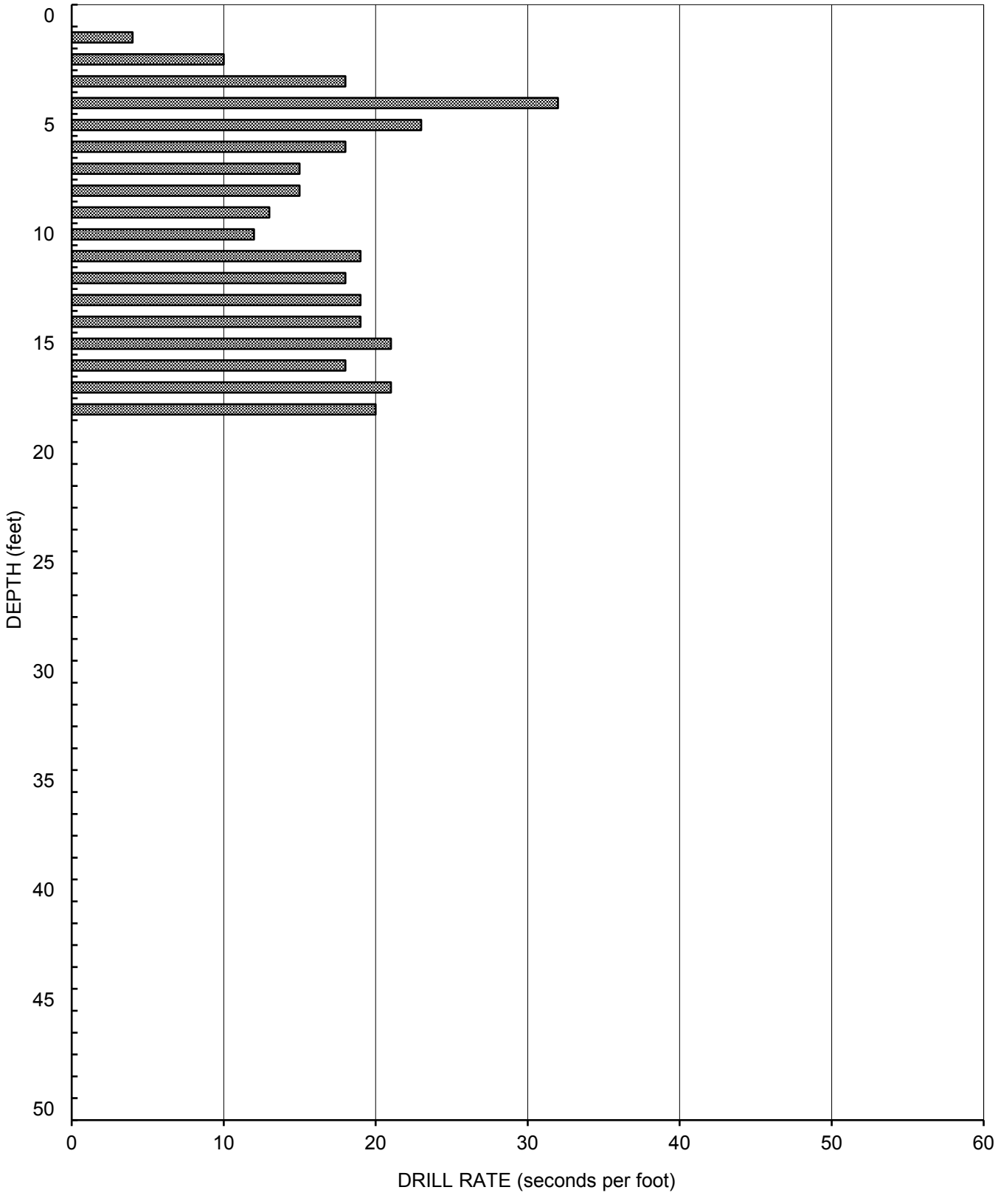
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-41

Elevation - 454 Feet (MSL)

GEOCON
INCORPORATED



AT0041.xls

FIGURE C-56

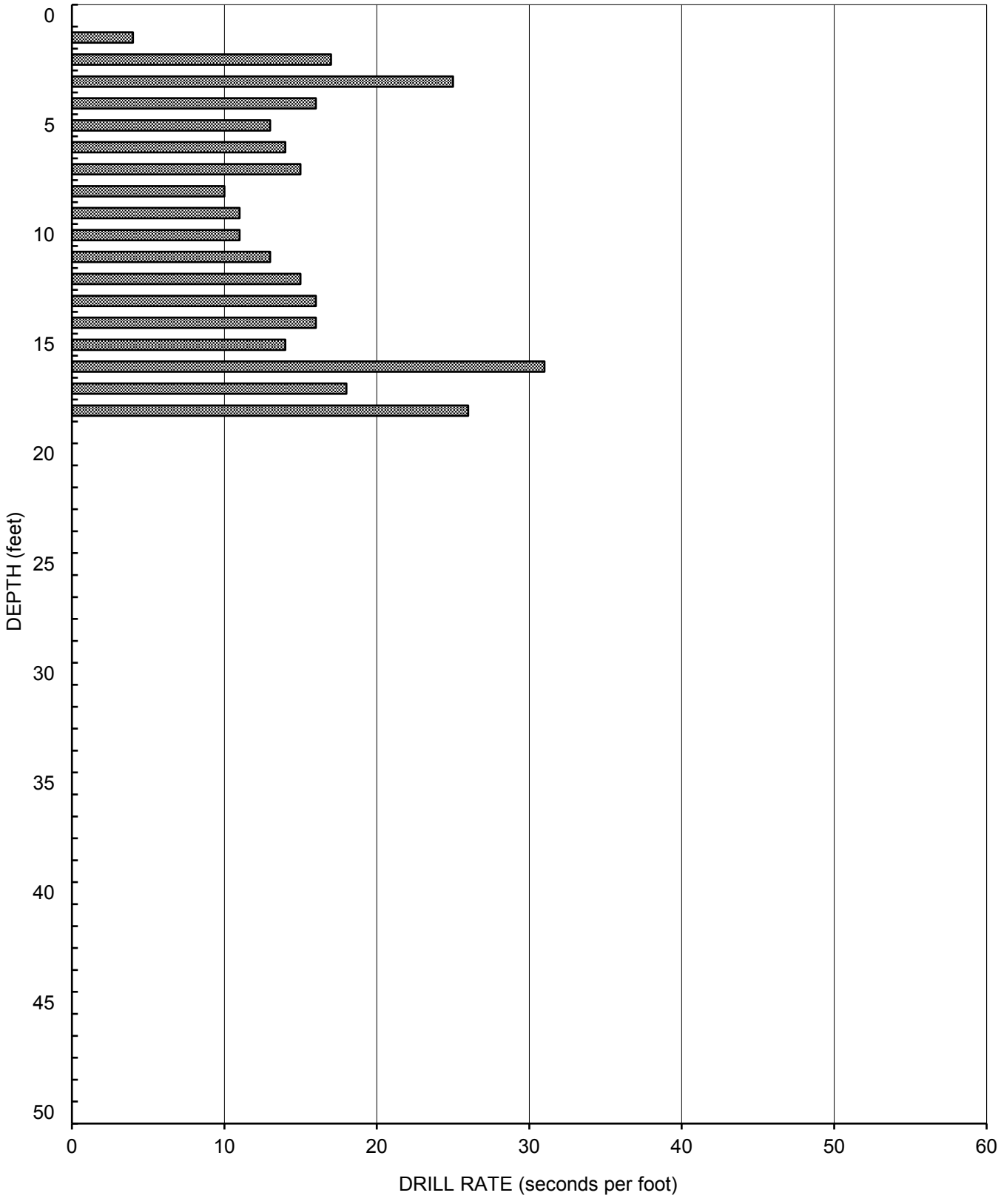
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-42

Elevation - 461 Feet (MSL)

GEOCON
INCORPORATED



AT0042.xls

FIGURE C-57

PROJECT NO. 07647-32-02

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING B 1** ELEV. (MSL.) **454'** DATE COMPLETED **10-10-2006** EQUIPMENT **A-300** BY: **T. MYERS**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0				SM	**COLLUVIUM** Loose, humid, dark brown, Silty, fine to medium SAND			
2					**SANTIAGO FORMATION** Dense, moist, greenish-brown, Sandy SILTSTONE / Silty SANDSTONE			
4								
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26	B1-1							
28					TOTAL DEPTH AT 28½ FEET			

Figure C-58,
Log of Boring B 1, Page 1 of 1

07647-32-04 (FROM 07647-32-02).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-02

BORING B 2

ELEV. (MSL.) **455'** DATE COMPLETED **10-10-2006**

EQUIPMENT **A-300** BY: **T. MYERS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SM	**COLLUVIUM** Loose, humid, brown, Silty, fine to medium SAND			
2					**SANTIAGO FORMATION** Dense, moist, greenish-brown, Clayey SANDSTONE			
4								
6								
8					-Dense, moist, yellowish-brown, fine to coarse SANDSTONE			
10	B2-1							
12								
14								
16								
18					-Dense, moist, greenish-brown, Clayey SANDSTONE			
20	B2-2							
22								
24								
26								
28					TOTAL DEPTH AT 28½ FEET			

Figure C-59,
Log of Boring B 2, Page 1 of 1

07647-32-04 (FROM 07647-32-02).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL
... STANDARD PENETRATION TEST
... DRIVE SAMPLE (UNDISTURBED)
... DISTURBED OR BAG SAMPLE
... CHUNK SAMPLE
... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-02

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING B 3** ELEV. (MSL.) **443'** DATE COMPLETED **10-10-2006** EQUIPMENT **A-300** BY: **T. MYERS**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0				SM	**COLLUVIUM** Loose, humid, brown, Silty, fine to medium SAND			
2								
4					**SANTIAGO FORMATION** Dense, moist, greenish-brown, Silty CLAYSTONE			
6								
8	B3-1							
10								
12								
14								
16								
18								
					TOTAL DEPTH AT 19½ FEET			

Figure C-60,
Log of Boring B 3, Page 1 of 1

07647-32-04 (FROM 07647-32-02).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL
... STANDARD PENETRATION TEST
... DRIVE SAMPLE (UNDISTURBED)
... DISTURBED OR BAG SAMPLE
... CHUNK SAMPLE
... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-02

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING B 4** ELEV. (MSL.) **444'** DATE COMPLETED **10-10-2006** EQUIPMENT **A-300** BY: **T. MYERS**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0				CL	**COLLUVIUM** Loose, humid, dark olive-brown, Silty CLAY			
2								
4					**SANTIAGO FORMATION** Dense, moist, light greenish-brown, Clayey SANDSOTNE			
6								
8								
10					-Dense, moist, light greenish-brown, Silty CLAYSTONE			
12								
14								
16	B4-1							
18								
					TOTAL DEPTH AT 19 FEET			

Figure C-61,
Log of Boring B 4, Page 1 of 1

07647-32-04 (FROM 07647-32-02).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL
... STANDARD PENETRATION TEST
... DRIVE SAMPLE (UNDISTURBED)
... DISTURBED OR BAG SAMPLE
... CHUNK SAMPLE
... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-02

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	BORING B 5 ELEV. (MSL.) 437' DATE COMPLETED 10-10-2006 EQUIPMENT A-300 BY: T. MYERS MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SM	**COLLUVIUM** Loose, humid, dark brown, Silty, fine to medium SAND			
2				CL	Medium dense, moist, dark olive-brown, Sandy CLAY			
4					**SANTIAGO FORMATION** Dense, damp, light reddish-brown, Sandy CLAYSTONE			
6								
8								
10								
12					Dense, damp, light greenish-brown, Sandy SILTSTONE			
14	B5-1				-Silty SANDSTONE			
					TOTAL DEPTH AT 15 FEET			

Figure C-62,
Log of Boring B 5, Page 1 of 1

07647-32-04 (FROM 07647-32-02).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL
... STANDARD PENETRATION TEST
... DRIVE SAMPLE (UNDISTURBED)
... DISTURBED OR BAG SAMPLE
... CHUNK SAMPLE
... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-04

TRENCH T 1

ELEV. (MSL.) **422'** DATE COMPLETED **01-11-2006**

EQUIPMENT **JD 510 BACKHOE** BY: **T. MYERS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	T1-1			SM	**COLLUVIUM** Stiff, moist, brown, Silty, fine to medium SAND; porous			
2				SC	Medium dense, moist, dark olive-brown, Clayey, fine to coarse SAND			
4	T1-2				**BONSALL TONALITE** Highly weathered, white, moderately weak GRANITIC ROCK			
					TRENCH TERMINATED AT 5 FEET No groundwater encountered			

Figure C-1,
Log of Trench T 1, Page 1 of 1

07647-32-04 (FROM 07647-32-01).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-04

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 2 ELEV. (MSL.) **424'** DATE COMPLETED **01-11-2006** EQUIPMENT **JD 510 BACKHOE** BY: **T. MYERS**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0				SC	**UNDOCUMENTED FILL / ORGANIC DEBRIS** Loose, moist, grayish brown, Clayey, fine to coarse SAND; abundant organics (straw, tree branches, plastic bags)			
2				SM	Loose, damp, mottled orange and white, Silty, fine to coarse SAND; abundant organics			
4				SM	**COLLUVIUM** Loose, damp, olive-brown, Silty, fine to medium SAND			
6								
		+ + + + + +			**BONSALL TONALITE** Highly weathered, white, moderately weak GRANITIC ROCK			
8					TRENCH TERMINATED AT 8 FEET No groundwater encountered			

Figure C-2,
Log of Trench T 2, Page 1 of 1

07647-32-04 (FROM 07647-32-01).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-04

TRENCH T 3

ELEV. (MSL.) **435'** DATE COMPLETED **01-11-2006**

EQUIPMENT **JD 510 BACKHOE** BY: **T. MYERS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	T3-1			CL	**COLLUVIUM** Stiff, very moist, fine to coarse, Sandy CLAY with some silt; pinhole porosity, rootlets			
2	T3-2			SC	**SANTIAGO FORMATION** Dense, moist, mottled orange, gray and white, Clayey, fine to coarse SANDSTONE; massive			
4	T3-3							
6					-Change to gray-brown			
8								
					TRENCH TERMINATED AT 9 FEET No groundwater encountered			

Figure C-3,
Log of Trench T 3, Page 1 of 1

07647-32-04 (FROM 07647-32-01).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-04

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 4 ELEV. (MSL.) **430'** DATE COMPLETED **01-11-2006** EQUIPMENT **JD 510 BACKHOE** BY: **T. MYERS**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0				SC	**COLLUVIUM** Loose, moist, dark brown, Clayey, fine to medium SAND			
2				SM	**SANTIAGO FORMATION** Very dense, damp, Silty, fine to medium SANDSTONE; massive			
4								
6					TRENCH TERMINATED AT 6½ FEET No groundwater encountered			

Figure C-4,
Log of Trench T 4, Page 1 of 1

07647-32-04 (FROM 07647-32-01).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL
... STANDARD PENETRATION TEST
... DRIVE SAMPLE (UNDISTURBED)
... DISTURBED OR BAG SAMPLE
... CHUNK SAMPLE
... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-04

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 5 ELEV. (MSL.) 440' DATE COMPLETED 01-11-2006 EQUIPMENT JD 510 BACKHOE BY: T. MYERS MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SM	**COLLUVIUM** Loose, damp to slightly moist, brown, Silty, fine to medium SAND			
2				SC	Medium dense, moist, brown, Clayey, fine to medium SAND			
4				SM	Dense, moist, orange-brown, Silty, fine to medium SAND			
6	T5-1				**BONSALL TONALITE** Moderately weathered, mottled, orange, black and gray, moderately strong GRANITIC ROCK			
8					TRENCH TERMINATED AT 8 FEET No groundwater encountered			

Figure C-5,
Log of Trench T 5, Page 1 of 1

07647-32-04 (FROM 07647-32-01).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL
... STANDARD PENETRATION TEST
... DRIVE SAMPLE (UNDISTURBED)
... DISTURBED OR BAG SAMPLE
... CHUNK SAMPLE
... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-04

TRENCH T 6

ELEV. (MSL.) **447'** DATE COMPLETED **01-11-2006**

EQUIPMENT **JD 510 BACKHOE** BY: **T. MYERS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SM	**COLLUVIUM** Loose, damp, brown, Silty, fine to medium SAND; rootlets			
				SC	Dense, moist, dark brown, Clayey, fine to medium SAND			
2								
	T6-1				**BONSALL TONALITE** Moderately weathered, mottled, black and gray, moderately strong GRANITIC ROCK			
4								
6								
					TRENCH TERMINATED AT 7 FEET No groundwater encountered			

Figure C-6,
Log of Trench T 6, Page 1 of 1

07647-32-04 (FROM 07647-32-01).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL | ... STANDARD PENETRATION TEST | ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE | ... CHUNK SAMPLE | ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-04

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 7 ELEV. (MSL.) **447'** DATE COMPLETED **01-11-2006** EQUIPMENT **JD 510 BACKHOE** BY: **T. MYERS**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0				SM	**COLLUVIUM** Loose, moist, dark brown, Silty, fine to medium SAND; rootlets			
				SC	Medium dense to dense, moist, dark brown, Clayey, fine to coarse SAND; rootlets			
2								
					BONSALL TONALITE Completely weathered, grayish brown, weak GRANITIC ROCK			
4								
					Moderately weathered, mottled black, orange and gray, moderately strong GRANITIC ROCK			
6								
					TRENCH TERMINATED AT 6½ FEET No groundwater encountered			

Figure C-7,
Log of Trench T 7, Page 1 of 1

07647-32-04 (FROM 07647-32-01).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL
... STANDARD PENETRATION TEST
... DRIVE SAMPLE (UNDISTURBED)
... DISTURBED OR BAG SAMPLE
... CHUNK SAMPLE
... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-04

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 8 ELEV. (MSL.) 447' DATE COMPLETED 01-11-2006 EQUIPMENT JD 510 BACKHOE BY: T. MYERS MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SM	**COLLUVIUM** Loose, damp, Silty, fine to medium SAND; rootlets, pinhole porosity			
2	T8-1 T8-2			ML	**SANTIAGO FORMATION** Very dense, damp to slightly moist, mottled white, orange, red, Sandy SILTSTONE; cemented; massive			
4								
6								
8					TRENCH TERMINATED AT 8 FEET No groundwater encountered			

Figure C-8,
Log of Trench T 8, Page 1 of 1

07647-32-04 (FROM 07647-32-01).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-04

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 9 ELEV. (MSL.) **440'** DATE COMPLETED **01-11-2006** EQUIPMENT **JD 510 BACKHOE** BY: **T. MYERS**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0				SC	**COLLUVIUM** Loose, damp, olive-brown, Clayey, fine to medium SAND; rootlets -Medium dense, moist			
2								
				ML/CL	**SANTIAGO FORMATION** Very dense, damp, mottled orange, white, Clayey SILTSTONE/Silty CLAYSTONE; cemented; massive			
4								
6								
					TRENCH TERMINATED AT 7 FEET No groundwater encountered			

Figure C-9,
Log of Trench T 9, Page 1 of 1

07647-32-04 (FROM 07647-32-01).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-04

TRENCH T 10

ELEV. (MSL.) **455'** DATE COMPLETED **01-11-2006**

EQUIPMENT **JD 510 BACKHOE** BY: **T. MYERS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SM	**COLLUVIUM** Loose, damp, dark olive-brown, Silty, fine to medium SAND			
2				SC	medium dense, moist, olive-brown, Clayey, fine to medium SAND			
4				ML/CL	**SANTIAGO FORMATION** Dense, moist, greenish brown, Clayey SILTSTONE/Silty CLAYSTONE; massive			
				SP	Dense, damp to slightly moist, orangish brown, fine to coarse SAND			
6	T10-1			ML/CL	Dense, moist, greenish brown, Clayey SILTSTONE/Silty CLAYSTONE; massive			
				SP	Dense damp, gray, fine to coarse SAND			
8				ML/CL	Very dense, moist, greenish brown, Clayey SILTSTONE/Silty CLAYSTONE; massive			
10					TRENCH TERMINATED AT 10 FEET No groundwater encountered			

Figure C-10,
Log of Trench T 10, Page 1 of 1

07647-32-04 (FROM 07647-32-01).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-04

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 11 ELEV. (MSL.) **455'** DATE COMPLETED **01-11-2006** EQUIPMENT **JD 510 BACKHOE** BY: **T. MYERS**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0				SM	**COLLUVIUM** Loose, damp, olive-brown, Silty, fine to medium SAND			
2	T11-1			ML	**SANTIAGO FORMATION** Dense, damp to moist, orange and tan, fine to medium, Sandy SILTSTONE; massive			
4								
6	T11-2			SM	Very dense, damp to moist, light greenish brown, Silty, fine SANDSTONE; massive			
8								
					TRENCH TERMINATED AT 9 FEET No groundwater encountered			

Figure C-11,
Log of Trench T 11, Page 1 of 1

07647-32-04 (FROM 07647-32-01).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL
... STANDARD PENETRATION TEST
... DRIVE SAMPLE (UNDISTURBED)
... DISTURBED OR BAG SAMPLE
... CHUNK SAMPLE
... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-04

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 12 ELEV. (MSL.) **443'** DATE COMPLETED **01-11-2006** EQUIPMENT **JD 510 BACKHOE** BY: **T. MYERS**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0				SM	**COLLUVIUM** Loose, damp, olive-brown, Silty, fine to medium SAND			
				CL	Medium dense, moist, olive-brown, Sandy CLAY			
2								
4				ML	**SANTIAGO FORMATION** Very dense, damp, light greenish brown, Sandy SILTSTONE; massive			
6								
8					TRENCH TERMINATED AT 8 FEET No groundwater encountered			

Figure C-12,
Log of Trench T 12, Page 1 of 1

07647-32-04 (FROM 07647-32-01).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-04

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 13 ELEV. (MSL.) 433' DATE COMPLETED 01-11-2006 EQUIPMENT JD 510 BACKHOE BY: T. MYERS	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0				SM	**COLLUVIUM** Loose, damp, dark olive-brown, Silty, fine to medium SAND			
				CL	Loose to medium dense, moist, dark olive-brown, Sandy CLAY			
2								
4								
				SM	**SANTIAGO FORMATION** Very dense, moist, mottled orange and gray, Silty, fine to medium SANDSTONE; massive			
6				ML/CL	Very dense, damp, light greenish brown, Clayey SILTSTONE/Silty CLAYSTONE; massive			
					TRENCH TERMINATED AT 7½ FEET No groundwater encountered			

Figure C-13,
Log of Trench T 13, Page 1 of 1

07647-32-04 (FROM 07647-32-01).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-04

TRENCH T 14

ELEV. (MSL.) **435'** DATE COMPLETED **01-11-2006**

EQUIPMENT **JD 510 BACKHOE** BY: **T. MYERS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SM	**COLLUVIUM** Loose, damp, dark brown, Silty, fine to medium SAND			
				CL	Medium dense, moist, dark olive-brown, fine to medium, Sandy CLAY with some silt			
2	T14-1							
4								
				SM	**SANTIAGO FORMATION** Very dense, damp, light greenish brown, Silty, fine to medium SANDSTONE; massive			
6	T14-2							
8								
					TRENCH TERMINATED AT 9 FEET No groundwater encountered			

Figure C-14,
Log of Trench T 14, Page 1 of 1

07647-32-04 (FROM 07647-32-01).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-04

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 15 ELEV. (MSL.) **428'** DATE COMPLETED **01-11-2006** EQUIPMENT **JD 510 BACKHOE** BY: **T. MYERS**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0				SC	**COLLUVIUM** Loose, moist to very moist, Clayey, fine to medium SAND			
2					-Medium dense			
4								
6				ML	**SANTIAGO FORMATION** Very dense, damp to moist, light greenish brown, Sandy SILTSTONE; cemented; massive			
					TRENCH TERMINATED AT 6½ FEET No groundwater encountered			

Figure C-15,
Log of Trench T 15, Page 1 of 1

07647-32-04 (FROM 07647-32-01).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

APPENDIX D

APPENDIX D

PREVIOUS LOGS OF TRENCHES AND LABORATORY TESTING PERFORMED BY EEI

FOR

MODERA MELROSE
OCEANSIDE, CALIFORNIA

PROJECT NO. 07647-32-04

BACKHOE LOG

(Equipment- John Deer 510SC Backhoe)
August 02, 2007

TP-1

0-1 ½'	**TOPSOIL**– clayey SAND (SC), olive gray, slightly moist to moist, loose, fine to coarse sand, minor organics (dry grass and roots).
1 ½'-12'	**SANTIAGO FORMATION**- silty CLAYSTONE (CL), greenish gray, moist soft to medium stiff, fine sand, some yellowish orange color with minor iron staining.
@ 8'	greenish gray, CLAYSTONE (CL), well indurated, waxy luster, some calcium carbonate stringers, moist.
@ 10'	formational material became very dense

T.D. @ 12'
No groundwater
Hole backfilled with native soils

TP- 2

0-1'	**TOPSOIL**- clayey SAND (SC), loose, dry to slightly moist, olive gray, organics (roots and dry grass, root hairs), fine to coarse grained.
1'-3 ½'	**COLLUVIUM**- sandy CLAY (SC), soft, moist, minor fine to medium sand, minor calcium carbonate nodules.
3 ½'-11 ½'	**SANTIAGO FORMATION**- silty CLAYSTONE (SC), minor fine sand, moist, soft to medium, stiff, greenish gray, minor yellowish brown iron staining.
@ 6 ½'	Calcium carbonate (i.e., caliche) layer with white CLAYSTONE (SC), crumbly.
@ 10 ½'	increasing waxy luster and indurated.
11 ½'-12 ½'	green CLAYSTONE (SC) with slickensides.

T.D. @ 12 ½'
No groundwater
Hole backfilled with native soils

TP-3

0- ½'	**TOPSOIL**- silty SAND (SM), common dry roots and dry root hairs, brown, dry.
½'-3'	**COLLUVIUM**- silty CLAY (CL), minor fine to coarse sand, slightly moist to moist, minor calcium carbonate modules(white) from 1.5' to 3'with ¼-inch in largest diameter, root hairs to 2' bgs, brown.
4 ½ '-6'	**SANTIAGO FORMATION**- SANDSTONE (SC), greenish gray, moist, soft, clayey with minor fine to coarse-grained, highly weathered, increasing sand content at 5'.

T.D. @ 6'
No groundwater
Hole backfilled with native soils

TP-4

0-1'	**TOPSOIL/FILL**- Silty SAND (SM), common surface debris, loose, dry, organics consisting of dry grasses and root hairs.
1'-4'	**ALLUVIUM**- silty SAND (SM), brown with yellowish orange iron stains, slightly moist to moist, fine to medium-grained, soft to medium dense, minor calcium carbonate modules.
4'-5 ½'	**SANTIAGO FORMATION**- silty SANSTONE (SM), white to light gray, some yellowish orange and brown, brown sandy inclusions with traces of green claystone inclusion, very dense, fine to medium-grained with some coarse, slightly moist.

T.D. @ 5 ½'
No groundwater
Hole backfilled with native soils

TP-5

0- ½'	**TOPSOIL/SLOPEWASH**- silty SAND (SM), brown, dry, loose, common organics (dry grasses and roots).
½-2 ½ '	**COLLUVIUM**- sandy CLAY (CL), slightly moist to moist, soft to medium, stiff, fine to medium grained.
2½'-4'	**GRANITIC BEDROCK** -completely weathered, excavates to sandy clay (SC), moist, medium stiff, brown, yellowish orange gray, fine to medium, gravelly slickenside, waxy appearance, micaceous.
4'-5'	highly weathered/decomposed GRANITE (DG), excavates to silty sand (SM), fine to coarse, dense, greenish gray, gray, yellowish orange, slightly moist, micaceous.

T.D. @ 5'
No groundwater
Hole backfilled with native soils

TP-6

0-1'	**TOPSOIL**- Silty SAND (SM), loose, brown, dry, organics (grasses, roots, root hairs) fine to medium-grained with some coarse grain.
1'-4 ½'	**SANTIAGO FORMATION**- sandy CLAY (SC), slightly moist to moist, medium stiff to stiff, reddish brown, gray, red, with yellowish orange iron staining, fine to medium grained.

T.D. @ 4 ½'
No groundwater
Hole backfilled with native soils

TP-7

0-1 ½'	**TOPSOIL**- Silty sand, brown, dry, loose, fine to coarse grained, high in organics, hay and wood chips.
1 ½'-2 ½'	**GRANITIC BEDROCK**-completely weathered silty sand, fine to coarse, dense, brown, slightly moist to moist.
2 ½'-3 ½'	highly weathered/decomposed GRANITE (DG), very dense, excavates to silty sand (SM) with to 6- to 12-inch fragments, fine to coarse grained, yellowish orange, brown, minor root hairs, slightly moist to moist, micaceous.

T.D. @ 3 ½'
No groundwater
Hole backfilled with native soils

TP-8

0-1'	**TOPSOIL**- 4" of mulch, wood chips, roots, organics, dry, loose, silty sand, fine to coarse, brown.
1'-2'	**GRANITIC BEDROCK**- Completely weathered, silty sand, fine to coarse, brown, dense, dry to slightly moist, minor root hairs.
2'-3'	highly weathered/decomposed, excavates to silty sand (SM) with 8- to 12-inch fragments, fine to coarse grained, very dense, minor small gravels, brown, yellowish orange, slightly moist to moist, minor root hairs.

T.D. @ 3'
No groundwater
Hole backfilled with native soils

TP-9

0-1'	**TOPSOIL**- Loose, dry, brown, silty SAND (SM), fine to coarse, organics (dry grasses, root hairs).
1'-3'	**COLLUVIUM**- sandy CLAY (CL) to clayey SAND (SC), light gray, brown, yellowish orange, fine to coarse-grained, soft to medium stiff.
3'-5'	**SANTIAGO FORMATION**- clayey SANDSTONE (SC), light gray, slightly moist, medium dense, fine to coarse-grained, minor fine gravels, iron staining.

T.D. @ 5'
No groundwater
Hole backfilled with native soils

TP-10

0-1'	**TOPSOIL**- Silty SAND (SM), brown, fine to coarse-grained, minor organics/root hairs, loose, dry.
1'-3'	**COLLUVIUM**- sandy CLAY (CL), moist, fine to coarse-grained sand, minor root hairs, soft to medium stiff, brown.
3'-5'	**SANTIAGO FORMATION**- sandy CLAYSTONE (CL), greenish gray, slightly moist to moist, dense, minor fine sand.

T.D. @ 5'
No groundwater
Hole backfilled with native soils

TP-11

0-1'	**TOPSOIL**- dry, loose, silty SAND (SM), fine to coarse-grained, minor organics (i.e., root hairs), brown.
1'-3'	**COLLUVIUM**- 1'-2' dry/2'-3' slightly moist, clayey SAND (SC), brown, medium hard, fine to coarse-grained.
3'-4'	**SANTIAGO FORMATION**- SANDSTONE, excavates to silty sand (SM), light gray, yellowish orange, fine to coarse-grained, dense, minor fine gravels, common 8- to 12-inch fragments, white inclusions.

T.D. @ 4'
No groundwater
Hole backfilled with native soils

APPENDIX B
LABORATORY TEST DATA

Table 1 - Laboratory Tests on Soil Samples

EEI
Gatlin Deveolpment, Oceanside, CA
Your #GAT- 70622, SA #07-1071LAB
6-Aug-07

Sample ID			TP2 @ 6-7' CL	TP6 @ 1-4.5' CL
Resistivity		**Units**		
as-received		ohm-cm	14,400	23,200
saturated		ohm-cm	920	640
pH			8.5	7.9
Electrical Conductivity		mS/cm	0.32	0.53
Chemical Analyses				
Cations				
calcium	Ca^{2+}	mg/kg	43	53
magnesium	Mg^{2+}	mg/kg	8.6	30
sodium	Na^{1+}	mg/kg	386	555
potassium	K^{1+}	mg/kg	1.8	6.4
Anions				
carbonate	CO_3^{2-}	mg/kg	53	ND
bicarbonate	HCO_3^{1-}	mg/kg	366	287
flouride	F^{1-}	mg/kg	13	4.9
chloride	Cl^{1-}	mg/kg	23	338
sulfate	SO_4^{2-}	mg/kg	278	372
phosphate	PO_4^{3-}	mg/kg	ND	ND
Other Tests				
ammonium	NH_4^{1+}	mg/kg	ND	ND
nitrate	NO_3^{1-}	mg/kg	6.2	ND
sulfide	S^{2-}	qual	na	na
Redox		mV	na	na

Electrical conductivity in millisiemens/cm and chemical analysis were made on a 1:5 soil-to-water extract.
mg/kg = milligrams per kilogram (parts per million) of dry soil.
Redox = oxidation-reduction potential in millivolts
ND = not detected
na = not analyzed

• ANALYSIS
• DESIGN

LaBelle • Marvin

PROFESSIONAL PAVEMENT ENGINEERING
A CALIFORNIA CORPORATION

• SOILS, ASPHALT TECHNOLOGY

August 24, 2007

Mr. Andy Webb
EEI
2195 Faraday Avenue, Suite K
Carlsbad, California 92008

Awebb@eeitiger.com

Project No. 34817- R1

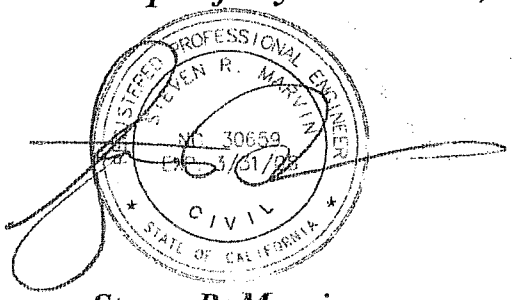
Dear Mr. Webb:

Testing of the bulk soil sample delivered to our laboratory on 8/6/2007 has been completed.

Reference: ***GAT -70622***
Oceanside, CA
Sample: ***TP-1 @ 1 ½'-4'***

R-Value data sheets are attached for your use and file. The opportunity to be of service is sincerely appreciated and should you have any questions, kindly call.

Respectfully Submitted,



Steven R. Marvin
RCE 30659

SRM:lg

2700 S. GRAND AVENUE • SANTA ANA, CA 92705-5404 • (714) 546-3468 • FAX (714) 546-5841
INFO@LABELLEMARVIN.COM

R - VALUE DATA SHEET

P.N. GAT 70622
Nasland, Oceanside

PROJECT NUMBER 34817 BORING NUMBER: TP-1 @ 1.5'-4'

SAMPLE DESCRIPTION: Brown Silty Clay

Item	SPECIMEN		
	a	b	c
Mold Number	7	8	9
Water added, grams	96	146	67
Initial Test Water, %	25.0	29.8	22.2
Compact Gage Pressure,psi	50	30	120
Exudation Pressure, psi	283	155	693
Height Sample, Inches	2.56	2.70	2.56
Gross Weight Mold, grams	3017	3020	2859
Tare Weight Mold, grams	1968	1964	1789
Sample Wet Weight, grams	1049	1056	1070
Expansion, Inches x 10exp-4	31	0	133
Stability 2,000 lbs (160psi)	65 / 143	77 / 160	47 / 121
Turns Displacement	3.59	4.33	2.71
R-Value Uncorrected	8	0	23
R-Value Corrected	8	0	23
Dry Density, pcf	99.3	91.3	103.7
DESIGN CALCULATION DATA			
Traffic Index Assumed:	4.0	4.0	4.0
G.E. by Stability	0.94	1.02	0.79
G. E. by Expansion	1.03	0.00	4.43

Equilibrium R-Value 7 by EXPANSION

Examined & Checked: 8 /7/ 07

REMARKS:
Gf = 1.25
0.0% Retained on the 3/4" Sieve.

Steven R. Marvin, RCE 30659

The data above is based upon processing and testing samples as received from the field. Test procedures in accordance with latest revisions to Department of Transportation, State of California, Materials & Research Test Method No. 301.

LaBelle • Marvin

R-VALUE GRAPHICAL PRESENTATION

PROJECT NO. 34817
P.N. NAS 70622

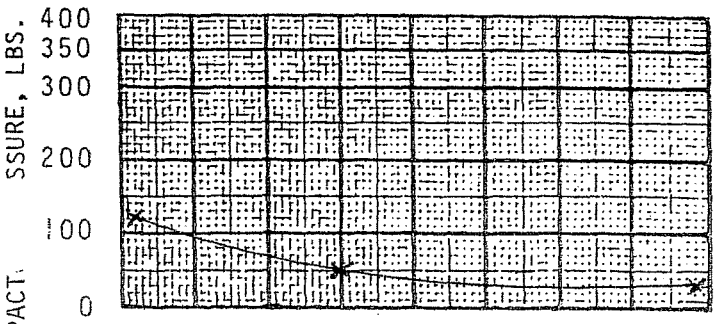
BORING NO. TP-1 @ 1½'-4'
Naslund/Oceanside, CA

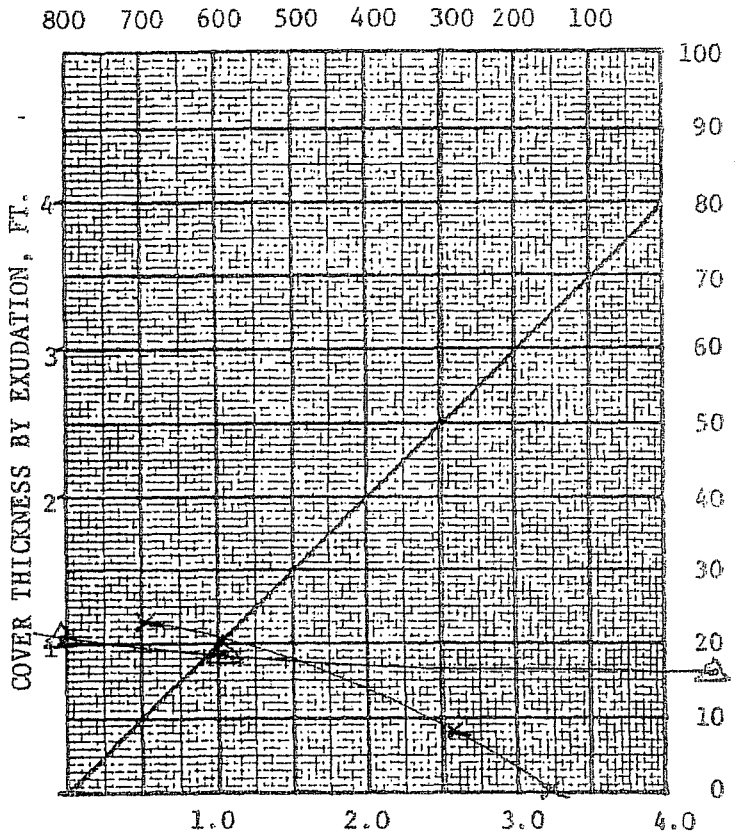
DATE 8-7-07

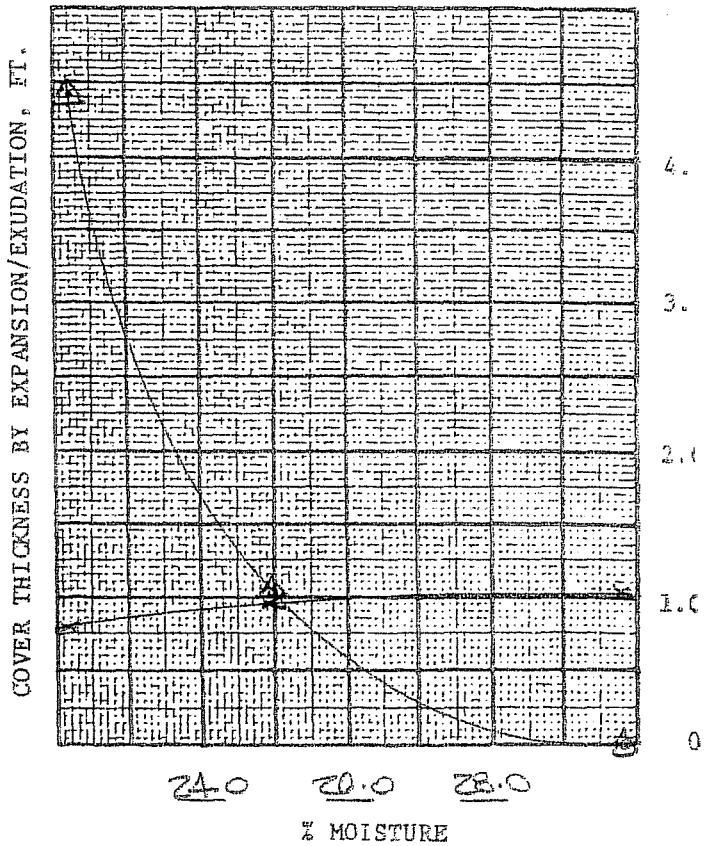
TRAFFIC INDEX Assume 4.0

R-VALUE BY EXUDATION 9

R-VALUE BY EXPANSION 7







R-VALUE vs. EXUD. PRES.

T by EXUDATION

EXUD. T vs. EXPAN. T

T by EXPANSION

REMARKS GF=1.25

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PROFESSIONAL PAVEMENT ENGINEERING

EXPANSION INDEX TEST

ASTM METHOD D 4829

Sample:

Moisture Content of Initial Sample		% Saturation of Re-molded Sample		Moisture Content of Final Sample	
Tare No. -		Wt. of Soil and Ring (g) -	579.2	Wt. of Soil and Ring (g) -	634.9
Wet Weight and Tare (g) -	131.9	Ring Weight (g) -	207.3	Ring Weight (g) -	207.3
Dry Weight and Tare (g) -	119.5	Wet Weight of Soil (g) -	371.9	Wet Weight of Soil (g) -	427.6
Tare Weight (g) -	0.0	Dry Weight of Soil (g) -	336.8	Dry Weight of Soil (g) -	336.8
Water Loss (g) -	12.4	Volume of Ring (ft^3) -	0.0073	Weight of Water (g) -	90.8
Dry Weight (g) -	119.5	Dry Density (pcf) -	101.7	*Final Moisture (%)*	*26.9*
Initial Moisture (%) -	*10.4*	*Initital Saturation (%) -*	*42.8*	*Final Saturation (%) -*	*110.9*

	Expansion Test - UBC (144 PSF)			
	Date	Time	Reading	
Add Weight	8/10/2007	14:58	0.648	
10 Minutes		15:08	0.648	Initial Reading
Add Water		16:40	0.750	
	8/14/2007	9:20	0.757	
		12:01	0.757	Final Reading

EImeasured	=	109
EI_{50}	=	**102**

Expansion Index, EI_{50}	Potential Expansion
0-20	Very Low
21-50	Low
51-90	Medium
91-130	High
>130	Very High

EEI Geotechnical & Environmental Solutions

2195 Faraday Avenue, Suite K, Carlsbad, CA 92008

Client: Nasland Engineering

Project Name: Oceanside, CA

Job Number: GAT-70622

Date: 8-14-07

Boring Number: TP2

Depth: 11.5-12.5 Feet

Soil Description: Clay, CL

Tested by: AW

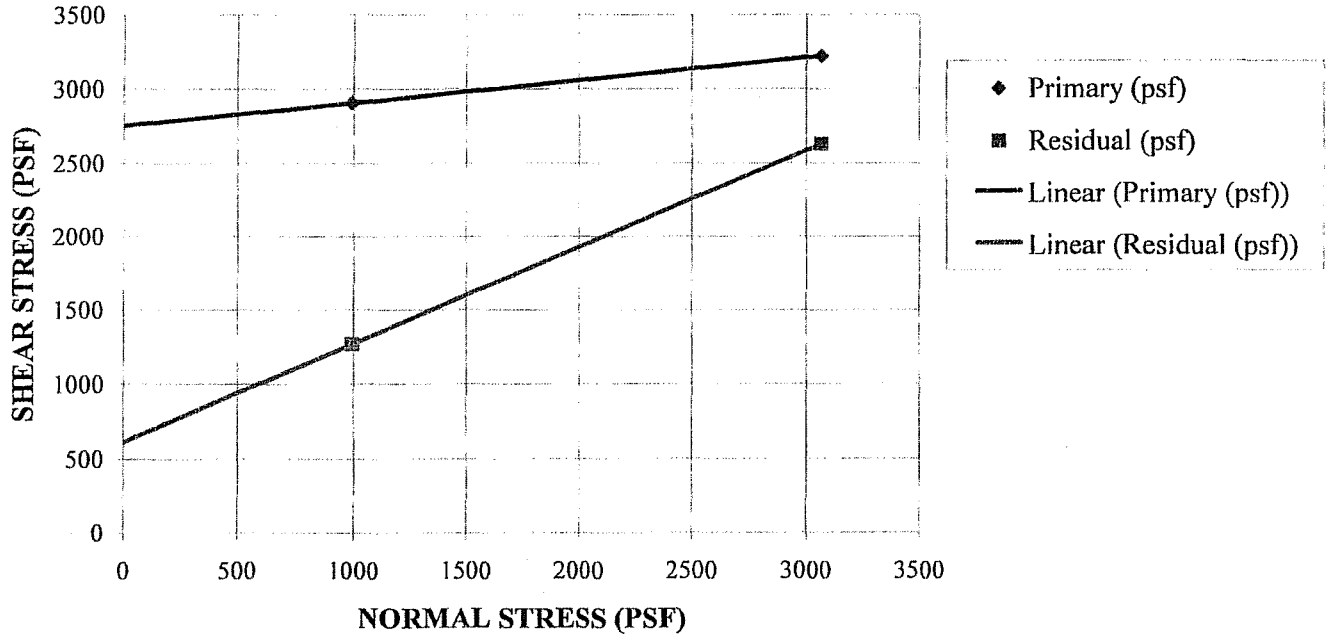
DIRECT SHEAR TEST ASTM D 3080

Job Data	
Job No.:	GAT-70622
Client:	Nasland Engineering
Date:	8/14/07
Sample Data	
Sample:	TP2@11.5-12.5'
Remolded To:	Natural
Remarks:	Sample Innundated Prior to Testing
Soil Description:	Clay, CL

EEI Geotechnical & Environmental Solutions

2195 Faraday Avenue, Suite K, Carlsbad, CA 92008

SHEAR TEST DIAGRAM



Test Results

	Phi		Cohesion	
Primary (psf)	9	degrees	2756	psf
Residual (psf)	33	degrees	613	psf

Average Initial Moisture	11.2%
Average Dry Density	117.4 pcf
Average Final Moisture	15.1%

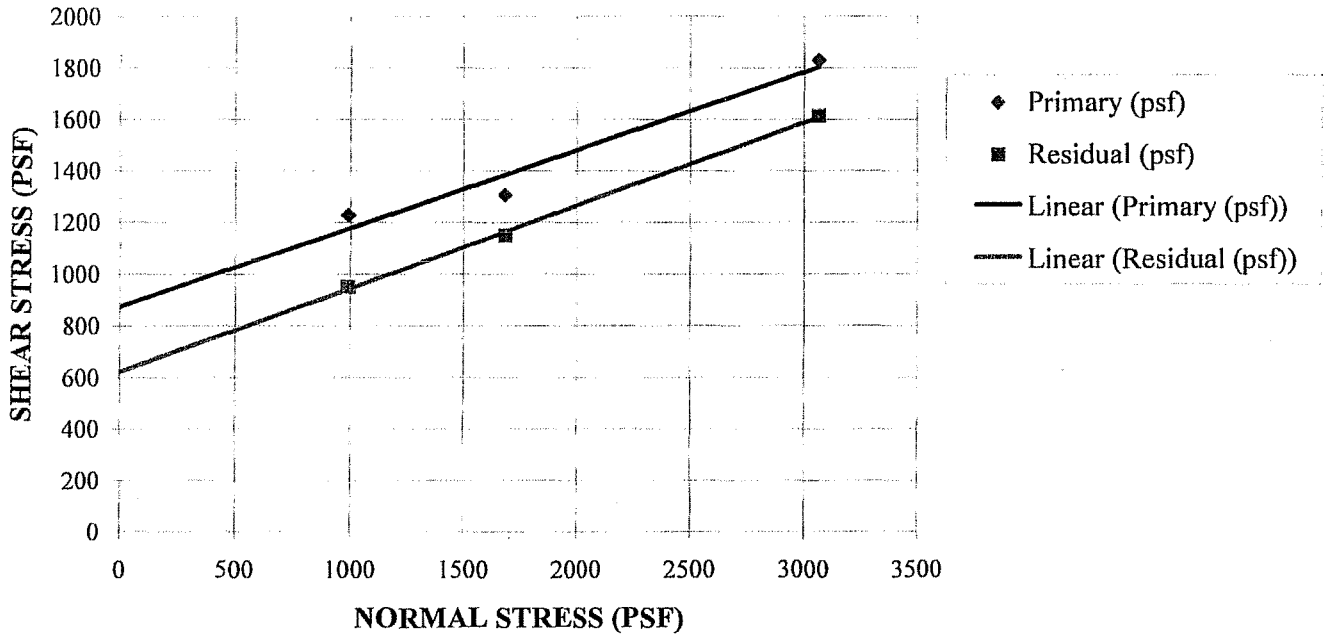
DIRECT SHEAR TEST ASTM D 3080

Job Data	
Job No.:	GAT-70622
Client:	Nasland Engineering
Date:	8/14/07
Sample Data	
Sample:	TP2@11.5-12.5'
Remolded To:	90% of max
Remarks:	Sample Innundated Prior to Testing
Soil Description:	Clay, CL

EEI Geotechnical & Environmental Solutions

2195 Faraday Avenue, Suite K, Carlsbad, CA 92008

SHEAR TEST DIAGRAM



Test Results

	Phi		Cohesion	
Primary (psf)	17	degrees	874	psf
Residual (psf)	18	degrees	621	psf

Average Initial Moisture	16.0%
Average Dry Density	99.4 pcf
Average Final Moisture	28.0%

APPENDIX E

APPENDIX E

RECOMMENDED GRADING SPECIFICATIONS

FOR

MODERA MELROSE
OCEANSIDE, CALIFORNIA

PROJECT NO. 07647-32-04

RECOMMENDED GRADING SPECIFICATIONS

1. GENERAL

1.1 These Recommended Grading Specifications shall be used in conjunction with the Geotechnical Report for the project prepared by Geocon. The recommendations contained in the text of the Geotechnical Report are a part of the earthwork and grading specifications and shall supersede the provisions contained hereinafter in the case of conflict.

1.2 Prior to the commencement of grading, a geotechnical consultant (Consultant) shall be employed for the purpose of observing earthwork procedures and testing the fills for substantial conformance with the recommendations of the Geotechnical Report and these specifications. The Consultant should provide adequate testing and observation services so that they may assess whether, in their opinion, the work was performed in substantial conformance with these specifications. It shall be the responsibility of the Contractor to assist the Consultant and keep them apprised of work schedules and changes so that personnel may be scheduled accordingly.

1.3 It shall be the sole responsibility of the Contractor to provide adequate equipment and methods to accomplish the work in accordance with applicable grading codes or agency ordinances, these specifications and the approved grading plans. If, in the opinion of the Consultant, unsatisfactory conditions such as questionable soil materials, poor moisture condition, inadequate compaction, and/or adverse weather result in a quality of work not in conformance with these specifications, the Consultant will be empowered to reject the work and recommend to the Owner that grading be stopped until the unacceptable conditions are corrected.

2. DEFINITIONS

2.1 **Owner** shall refer to the owner of the property or the entity on whose behalf the grading work is being performed and who has contracted with the Contractor to have grading performed.

2.2 **Contractor** shall refer to the Contractor performing the site grading work.

2.3 **Civil Engineer** or **Engineer of Work** shall refer to the California licensed Civil Engineer or consulting firm responsible for preparation of the grading plans, surveying and verifying as-graded topography.

2.4 **Consultant** shall refer to the soil engineering and engineering geology consulting firm retained to provide geotechnical services for the project.

2.5 **Soil Engineer** shall refer to a California licensed Civil Engineer retained by the Owner, who is experienced in the practice of geotechnical engineering. The Soil Engineer shall be responsible for having qualified representatives on-site to observe and test the Contractor's work for conformance with these specifications.

2.6 **Engineering Geologist** shall refer to a California licensed Engineering Geologist retained by the Owner to provide geologic observations and recommendations during the site grading.

2.7 **Geotechnical Report** shall refer to a soil report (including all addenda) which may include a geologic reconnaissance or geologic investigation that was prepared specifically for the development of the project for which these Recommended Grading Specifications are intended to apply.

3. MATERIALS

3.1 Materials for compacted fill shall consist of any soil excavated from the cut areas or imported to the site that, in the opinion of the Consultant, is suitable for use in construction of fills. In general, fill materials can be classified as *soil* fills, *soil-rock* fills or *rock* fills, as defined below.

3.1.1 **Soil fills** are defined as fills containing no rocks or hard lumps greater than 12 inches in maximum dimension and containing at least 40 percent by weight of material smaller than ¾ inch in size.

3.1.2 **Soil-rock fills** are defined as fills containing no rocks or hard lumps larger than 4 feet in maximum dimension and containing a sufficient matrix of soil fill to allow for proper compaction of soil fill around the rock fragments or hard lumps as specified in Paragraph 6.2. **Oversize rock** is defined as material greater than 12 inches.

3.1.3 **Rock fills** are defined as fills containing no rocks or hard lumps larger than 3 feet in maximum dimension and containing little or no fines. Fines are defined as material smaller than ¾ inch in maximum dimension. The quantity of fines shall be less than approximately 20 percent of the rock fill quantity.

3.2 Material of a perishable, spongy, or otherwise unsuitable nature as determined by the Consultant shall not be used in fills.

3.3 Materials used for fill, either imported or on-site, shall not contain hazardous materials as defined by the California Code of Regulations, Title 22, Division 4, Chapter 30, Articles 9

and 10; 40CFR; and any other applicable local, state or federal laws. The Consultant shall not be responsible for the identification or analysis of the potential presence of hazardous materials. However, if observations, odors or soil discoloration cause Consultant to suspect the presence of hazardous materials, the Consultant may request from the Owner the termination of grading operations within the affected area. Prior to resuming grading operations, the Owner shall provide a written report to the Consultant indicating that the suspected materials are not hazardous as defined by applicable laws and regulations.

3.4 The outer 15 feet of *soil-rock* fill slopes, measured horizontally, should be composed of properly compacted *soil* fill materials approved by the Consultant. *Rock* fill may extend to the slope face, provided that the slope is not steeper than 2:1 (horizontal:vertical) and a soil layer no thicker than 12 inches is track-walked onto the face for landscaping purposes. This procedure may be utilized provided it is acceptable to the governing agency, Owner and Consultant.

3.5 Samples of soil materials to be used for fill should be tested in the laboratory by the Consultant to determine the maximum density, optimum moisture content, and, where appropriate, shear strength, expansion, and gradation characteristics of the soil.

3.6 During grading, soil or groundwater conditions other than those identified in the Geotechnical Report may be encountered by the Contractor. The Consultant shall be notified immediately to evaluate the significance of the unanticipated condition.

4. CLEARING AND PREPARING AREAS TO BE FILLED

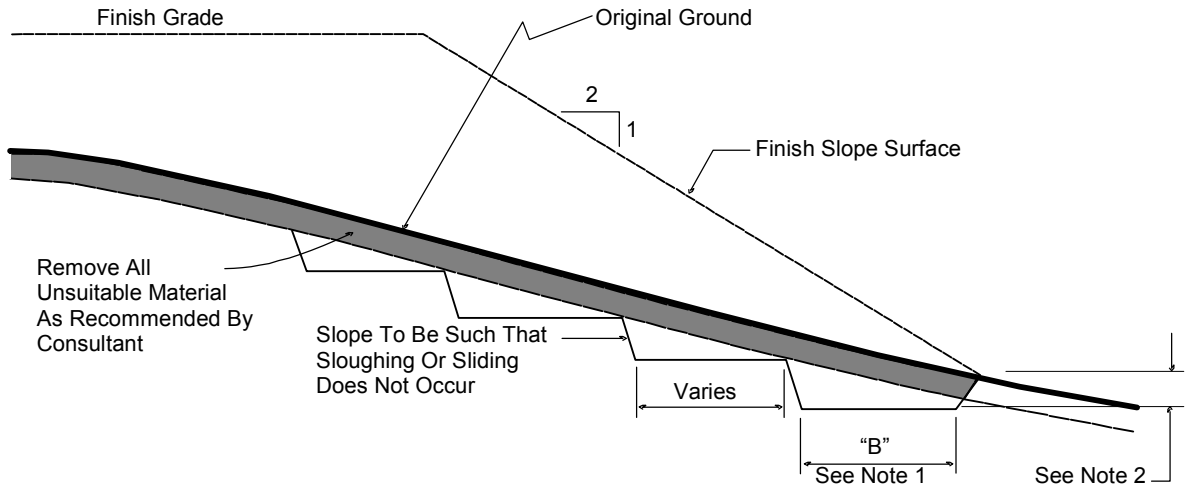
4.1 Areas to be excavated and filled shall be cleared and grubbed. Clearing shall consist of complete removal above the ground surface of trees, stumps, brush, vegetation, man-made structures, and similar debris. Grubbing shall consist of removal of stumps, roots, buried logs and other unsuitable material and shall be performed in areas to be graded. Roots and other projections exceeding 1½ inches in diameter shall be removed to a depth of 3 feet below the surface of the ground. Borrow areas shall be grubbed to the extent necessary to provide suitable fill materials.

4.2 Asphalt pavement material removed during clearing operations should be properly disposed at an approved off-site facility or in an acceptable area of the project evaluated by Geocon and the property owner. Concrete fragments that are free of reinforcing steel may be placed in fills, provided they are placed in accordance with Section 6.2 or 6.3 of this document.

4.3 After clearing and grubbing of organic matter and other unsuitable material, loose or porous soils shall be removed to the depth recommended in the Geotechnical Report. The depth of removal and compaction should be observed and approved by a representative of the Consultant. The exposed surface shall then be plowed or scarified to a minimum depth of 6 inches and until the surface is free from uneven features that would tend to prevent uniform compaction by the equipment to be used.

4.4 Where the slope ratio of the original ground is steeper than 5:1 (horizontal:vertical), or where recommended by the Consultant, the original ground should be benched in accordance with the following illustration.

TYPICAL BENCHING DETAIL



No Scale

DETAIL NOTES:
(1) Key width "B" should be a minimum of 10 feet, or sufficiently wide to permit complete coverage with the compaction equipment used. The base of the key should be graded horizontal, or inclined slightly into the natural slope.

(2) The outside of the key should be below the topsoil or unsuitable surficial material and at least 2 feet into dense formational material. Where hard rock is exposed in the bottom of the key, the depth and configuration of the key may be modified as approved by the Consultant.

4.5 After areas to receive fill have been cleared and scarified, the surface should be moisture conditioned to achieve the proper moisture content, and compacted as recommended in Section 6 of these specifications.

5. COMPACTION EQUIPMENT

5.1 Compaction of *soil* or *soil-rock* fill shall be accomplished by sheepsfoot or segmented-steel wheeled rollers, vibratory rollers, multiple-wheel pneumatic-tired rollers, or other types of acceptable compaction equipment. Equipment shall be of such a design that it will be capable of compacting the *soil* or *soil-rock* fill to the specified relative compaction at the specified moisture content.

5.2 Compaction of *rock* fills shall be performed in accordance with Section 6.3.

6. PLACING, SPREADING AND COMPACTION OF FILL MATERIAL

6.1 *Soil* fill, as defined in Paragraph 3.1.1, shall be placed by the Contractor in accordance with the following recommendations:

6.1.1 *Soil* fill shall be placed by the Contractor in layers that, when compacted, should generally not exceed 8 inches. Each layer shall be spread evenly and shall be thoroughly mixed during spreading to obtain uniformity of material and moisture in each layer. The entire fill shall be constructed as a unit in nearly level lifts. Rock materials greater than 12 inches in maximum dimension shall be placed in accordance with Section 6.2 or 6.3 of these specifications.

6.1.2 In general, the *soil* fill shall be compacted at a moisture content at or above the optimum moisture content as determined by ASTM D 1557.

6.1.3 When the moisture content of *soil* fill is below that specified by the Consultant, water shall be added by the Contractor until the moisture content is in the range specified.

6.1.4 When the moisture content of the *soil* fill is above the range specified by the Consultant or too wet to achieve proper compaction, the *soil* fill shall be aerated by the Contractor by blading/mixing, or other satisfactory methods until the moisture content is within the range specified.

6.1.5 After each layer has been placed, mixed, and spread evenly, it shall be thoroughly compacted by the Contractor to a relative compaction of at least 90 percent. Relative compaction is defined as the ratio (expressed in percent) of the in-place dry density of the compacted fill to the maximum laboratory dry density as determined in accordance with ASTM D 1557. Compaction shall be continuous over the entire area, and compaction equipment shall make sufficient passes so that the specified minimum relative compaction has been achieved throughout the entire fill.

6.1.6 Where practical, soils having an Expansion Index greater than 50 should be placed at least 3 feet below finish pad grade and should be compacted at a moisture content generally 2 to 4 percent greater than the optimum moisture content for the material.

6.1.7 Properly compacted *soil* fill shall extend to the design surface of fill slopes. To achieve proper compaction, it is recommended that fill slopes be over-built by at least 3 feet and then cut to the design grade. This procedure is considered preferable to track-walking of slopes, as described in the following paragraph.

6.1.8 As an alternative to over-building of slopes, slope faces may be back-rolled with a heavy-duty loaded sheepsfoot or vibratory roller at maximum 4-foot fill height intervals. Upon completion, slopes should then be track-walked with a D-8 dozer or similar equipment, such that a dozer track covers all slope surfaces at least twice.

6.2 *Soil-rock* fill, as defined in Paragraph 3.1.2, shall be placed by the Contractor in accordance with the following recommendations:

6.2.1 Rocks larger than 12 inches but less than 4 feet in maximum dimension may be incorporated into the compacted *soil* fill, but shall be limited to the area measured 15 feet minimum horizontally from the slope face and 5 feet below finish grade or 3 feet below the deepest utility, whichever is deeper.

6.2.2 Rocks or rock fragments up to 4 feet in maximum dimension may either be individually placed or placed in windrows. Under certain conditions, rocks or rock fragments up to 10 feet in maximum dimension may be placed using similar methods. The acceptability of placing rock materials greater than 4 feet in maximum dimension shall be evaluated during grading as specific cases arise and shall be approved by the Consultant prior to placement.

6.2.3 For individual placement, sufficient space shall be provided between rocks to allow for passage of compaction equipment.

6.2.4 For windrow placement, the rocks should be placed in trenches excavated in properly compacted *soil* fill. Trenches should be approximately 5 feet wide and 4 feet deep in maximum dimension. The voids around and beneath rocks should be filled with approved granular soil having a Sand Equivalent of 30 or greater and should be compacted by flooding. Windrows may also be placed utilizing an "open-face" method in lieu of the trench procedure, however, this method should first be approved by the Consultant.

6.2.5 Windrows should generally be parallel to each other and may be placed either parallel to or perpendicular to the face of the slope depending on the site geometry. The minimum horizontal spacing for windrows shall be 12 feet center-to-center with a 5-foot stagger or offset from lower courses to next overlying course. The minimum vertical spacing between windrow courses shall be 2 feet from the top of a lower windrow to the bottom of the next higher windrow.

6.2.6 Rock placement, fill placement and flooding of approved granular soil in the windrows should be continuously observed by the Consultant.

6.3 *Rock* fills, as defined in Section 3.1.3, shall be placed by the Contractor in accordance with the following recommendations:

6.3.1 The base of the *rock* fill shall be placed on a sloping surface (minimum slope of 2 percent). The surface shall slope toward suitable subdrainage outlet facilities. The *rock* fills shall be provided with subdrains during construction so that a hydrostatic pressure buildup does not develop. The subdrains shall be permanently connected to controlled drainage facilities to control post-construction infiltration of water.

6.3.2 *Rock* fills shall be placed in lifts not exceeding 3 feet. Placement shall be by rock trucks traversing previously placed lifts and dumping at the edge of the currently placed lift. Spreading of the *rock* fill shall be by dozer to facilitate *seating* of the rock. The *rock* fill shall be watered heavily during placement. Watering shall consist of water trucks traversing in front of the current rock lift face and spraying water continuously during rock placement. Compaction equipment with compactive energy comparable to or greater than that of a 20-ton steel vibratory roller or other compaction equipment providing suitable energy to achieve the required compaction or deflection as recommended in Paragraph 6.3.3 shall be utilized. The number of passes to be made should be determined as described in Paragraph 6.3.3. Once a *rock* fill lift has been covered with *soil* fill, no additional *rock* fill lifts will be permitted over the *soil* fill.

6.3.3 Plate bearing tests, in accordance with ASTM D 1196, may be performed in both the compacted *soil* fill and in the *rock* fill to aid in determining the required minimum number of passes of the compaction equipment. If performed, a minimum of three plate bearing tests should be performed in the properly compacted *soil* fill (minimum relative compaction of 90 percent). Plate bearing tests shall then be performed on areas of *rock* fill having two passes, four passes and six passes of the compaction equipment, respectively. The number of passes required for the *rock* fill shall be determined by comparing the results of the plate bearing tests for the *soil* fill and the *rock* fill and by evaluating the deflection

variation with number of passes. The required number of passes of the compaction equipment will be performed as necessary until the plate bearing deflections are equal to or less than that determined for the properly compacted *soil* fill. In no case will the required number of passes be less than two.

6.3.4 A representative of the Consultant should be present during *rock* fill operations to observe that the minimum number of "passes" have been obtained, that water is being properly applied and that specified procedures are being followed. The actual number of plate bearing tests will be determined by the Consultant during grading.

6.3.5 Test pits shall be excavated by the Contractor so that the Consultant can state that, in their opinion, sufficient water is present and that voids between large rocks are properly filled with smaller rock material. In-place density testing will not be required in the *rock* fills.

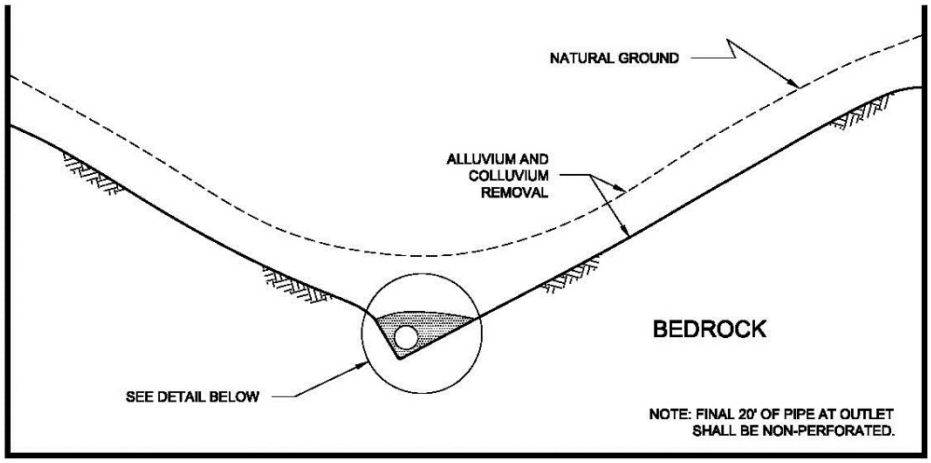
6.3.6 To reduce the potential for "piping" of fines into the *rock* fill from overlying *soil* fill material, a 2-foot layer of graded filter material shall be placed above the uppermost lift of *rock* fill. The need to place graded filter material below the *rock* should be determined by the Consultant prior to commencing grading. The gradation of the graded filter material will be determined at the time the *rock* fill is being excavated. Materials typical of the *rock* fill should be submitted to the Consultant in a timely manner, to allow design of the graded filter prior to the commencement of *rock* fill placement.

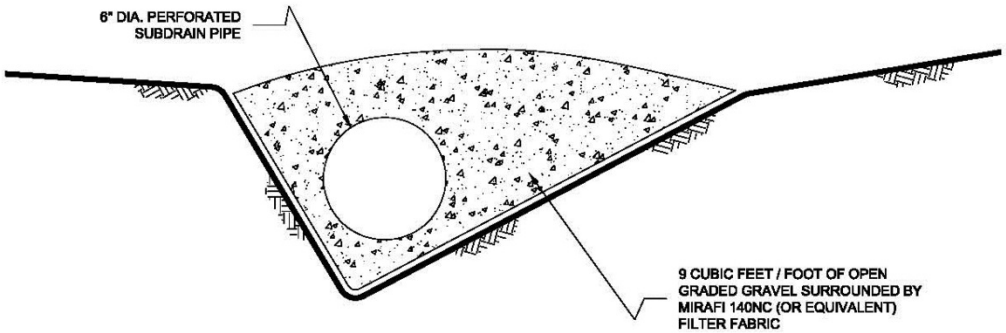
6.3.7 *Rock* fill placement should be continuously observed during placement by the Consultant.

7. SUBDRAINS

7.1 The geologic units on the site may have permeability characteristics and/or fracture systems that could be susceptible under certain conditions to seepage. The use of canyon subdrains may be necessary to mitigate the potential for adverse impacts associated with seepage conditions. Canyon subdrains with lengths in excess of 500 feet or extensions of existing offsite subdrains should use 8-inch-diameter pipes. Canyon subdrains less than 500 feet in length should use 6-inch-diameter pipes.

TYPICAL CANYON DRAIN DETAIL





NOTES:

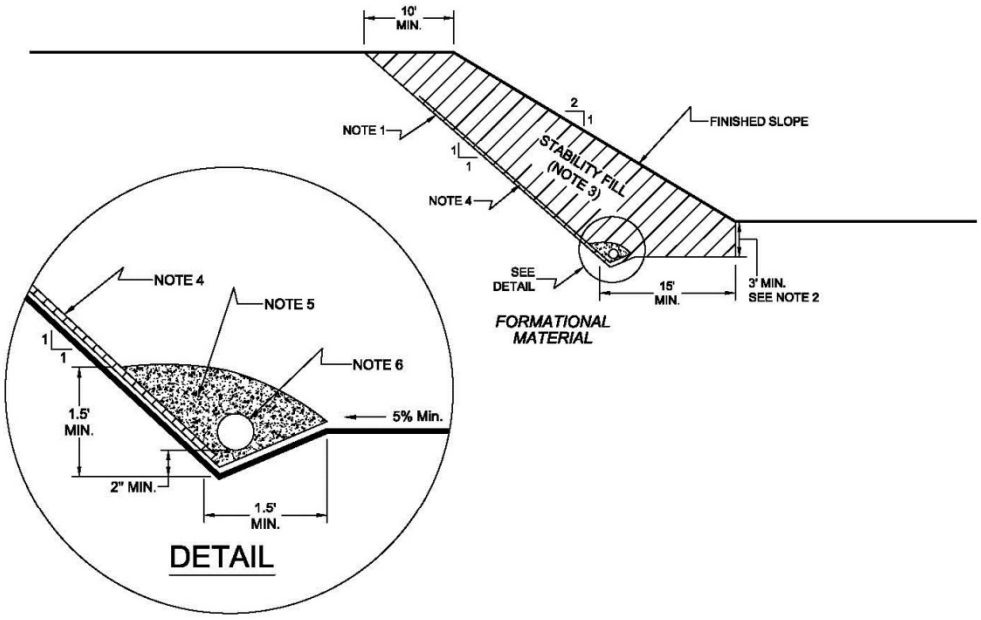
1.....6-INCH DIAMETER, SCHEDULE 80 PVC PERFORATED PIPE FOR FILLS
IN EXCESS OF 100-FEET IN DEPTH OR A PIPE LENGTH OF LONGER THAN 500 FEET.

2.....6-INCH DIAMETER, SCHEDULE 40 PVC PERFORATED PIPE FOR FILLS
LESS THAN 100-FEET IN DEPTH OR A PIPE LENGTH SHORTER THAN 500 FEET.

NO SCALE

7.2 Slope drains within stability fill keyways should use 4-inch-diameter (or lager) pipes.

TYPICAL STABILITY FILL DETAIL



NOTES:

1.....EXCAVATE BACKCUT AT 1:1 INCLINATION (UNLESS OTHERWISE NOTED).

2.....BASE OF STABILITY FILL TO BE 3 FEET INTO FORMATIONAL MATERIAL, SLOPING A MINIMUM 5% INTO SLOPE.

3.....STABILITY FILL TO BE COMPOSED OF PROPERLY COMPACTED GRANULAR SOIL.

4.....CHIMNEY DRAINS TO BE APPROVED PREFABRICATED CHIMNEY DRAIN PANELS (MIRADRAIN G200N OR EQUIVALENT) SPACED APPROXIMATELY 20 FEET CENTER TO CENTER AND 4 FEET WIDE. CLOSER SPACING MAY BE REQUIRED IF SEEPAGE IS ENCOUNTERED.

5.....FILTER MATERIAL TO BE 3/4-INCH, OPEN-GRADED CRUSHED ROCK ENCLOSED IN APPROVED FILTER FABRIC (MIRAFI 140NC).

6.....COLLECTOR PIPE TO BE 4-INCH MINIMUM DIAMETER, PERFORATED, THICK-WALLED PVC SCHEDULE 40 OR EQUIVALENT, AND SLOPED TO DRAIN AT 1 PERCENT MINIMUM TO APPROVED OUTLET.

NO SCALE

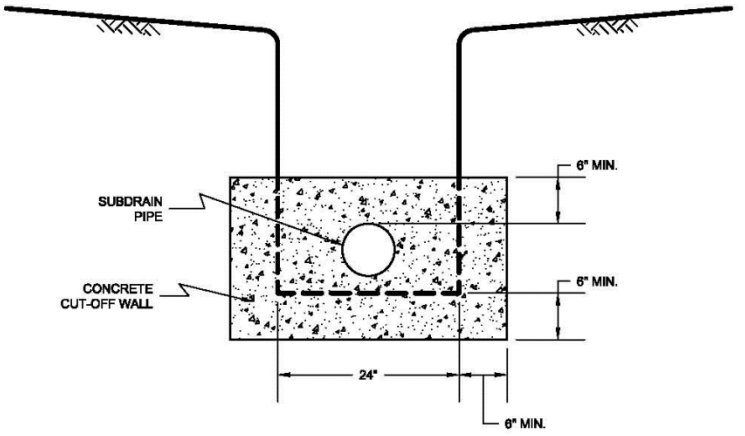
7.3 The actual subdrain locations will be evaluated in the field during the remedial grading operations. Additional drains may be necessary depending on the conditions observed and the requirements of the local regulatory agencies. Appropriate subdrain outlets should be evaluated prior to finalizing 40-scale grading plans.

7.4 *Rock* fill or *soil-rock* fill areas may require subdrains along their down-slope perimeters to mitigate the potential for buildup of water from construction or landscape irrigation. The subdrains should be at least 6-inch-diameter pipes encapsulated in gravel and filter fabric. *Rock* fill drains should be constructed using the same requirements as canyon subdrains.

7.5 Prior to outletting, the final 20-foot segment of a subdrain that will not be extended during future development should consist of non-perforated drainpipe. At the non-perforated/ perforated interface, a seepage cutoff wall should be constructed on the downslope side of the pipe.

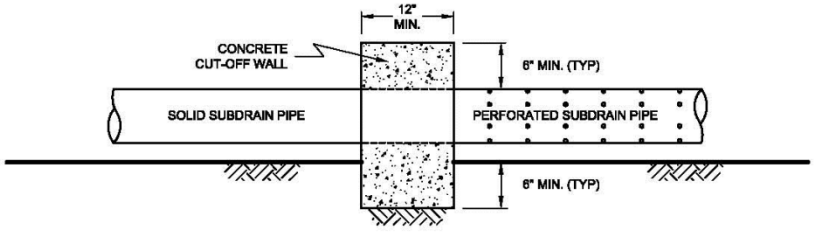
TYPICAL CUT OFF WALL DETAIL

FRONT VIEW



NO SCALE

SIDE VIEW

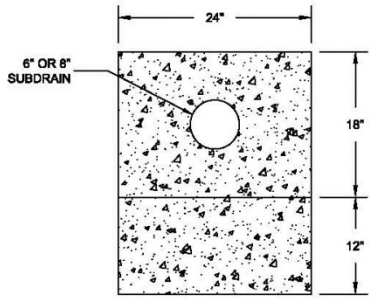


NO SCALE

7.6 Subdrains that discharge into a natural drainage course or open space area should be provided with a permanent headwall structure.

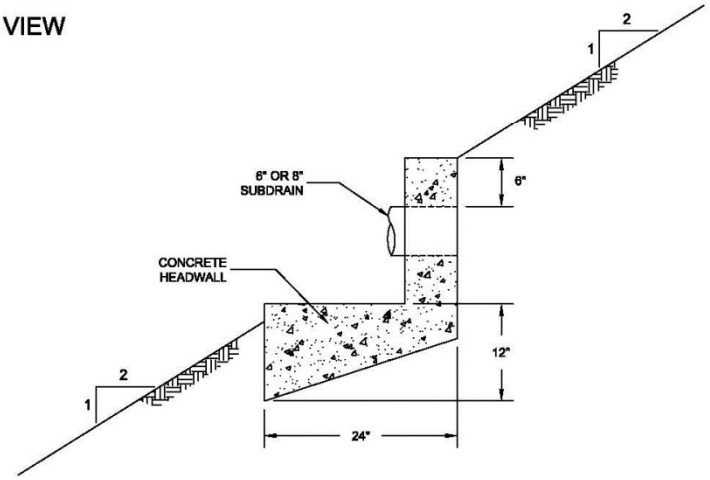
TYPICAL HEADWALL DETAIL

FRONT VIEW



NO SCALE

SIDE VIEW



NOTE: HEADWALL SHOULD OUTLET AT TOE OF FILL SLOPE
OR INTO CONTROLLED SURFACE DRAINAGE

NO SCALE

7.7 The final grading plans should show the location of the proposed subdrains. After completion of remedial excavations and subdrain installation, the project civil engineer should survey the drain locations and prepare an “as-built” map showing the drain locations. The final outlet and connection locations should be determined during grading operations. Subdrains that will be extended on adjacent projects after grading can be placed on formational material and a vertical riser should be placed at the end of the subdrain. The grading contractor should consider videoing the subdrains shortly after burial to check proper installation and functionality. The contractor is responsible for the performance of the drains.

8. OBSERVATION AND TESTING

8.1 The Consultant shall be the Owner's representative to observe and perform tests during clearing, grubbing, filling, and compaction operations. In general, no more than 2 feet in vertical elevation of *soil* or *soil-rock* fill should be placed without at least one field density test being performed within that interval. In addition, a minimum of one field density test should be performed for every 2,000 cubic yards of *soil* or *soil-rock* fill placed and compacted.

8.2 The Consultant should perform a sufficient distribution of field density tests of the compacted *soil* or *soil-rock* fill to provide a basis for expressing an opinion whether the fill material is compacted as specified. Density tests shall be performed in the compacted materials below any disturbed surface. When these tests indicate that the density of any layer of fill or portion thereof is below that specified, the particular layer or areas represented by the test shall be reworked until the specified density has been achieved.

8.3 During placement of *rock* fill, the Consultant should observe that the minimum number of passes have been obtained per the criteria discussed in Section 6.3.3. The Consultant should request the excavation of observation pits and may perform plate bearing tests on the placed *rock* fills. The observation pits will be excavated to provide a basis for expressing an opinion as to whether the *rock* fill is properly seated and sufficient moisture has been applied to the material. When observations indicate that a layer of *rock* fill or any portion thereof is below that specified, the affected layer or area shall be reworked until the *rock* fill has been adequately seated and sufficient moisture applied.

8.4 A settlement monitoring program designed by the Consultant may be conducted in areas of *rock* fill placement. The specific design of the monitoring program shall be as recommended in the Conclusions and Recommendations section of the project Geotechnical Report or in the final report of testing and observation services performed during grading.

8.5 We should observe the placement of subdrains, to check that the drainage devices have been placed and constructed in substantial conformance with project specifications.

8.6 Testing procedures shall conform to the following Standards as appropriate:

8.6.1 Soil and Soil-Rock Fills:

8.6.1.1 Field Density Test, ASTM D 1556, *Density of Soil In-Place By the Sand-Cone Method.*

8.6.1.2 Field Density Test, Nuclear Method, ASTM D 6938, *Density of Soil and Soil-Aggregate In-Place by Nuclear Methods (Shallow Depth).*

8.6.1.3 Laboratory Compaction Test, ASTM D 1557, *Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-Pound Hammer and 18-Inch Drop.*

8.6.1.4. Expansion Index Test, ASTM D 4829, *Expansion Index Test*.

9. PROTECTION OF WORK

9.1 During construction, the Contractor shall properly grade all excavated surfaces to provide positive drainage and prevent ponding of water. Drainage of surface water shall be controlled to avoid damage to adjoining properties or to finished work on the site. The Contractor shall take remedial measures to prevent erosion of freshly graded areas until such time as permanent drainage and erosion control features have been installed. Areas subjected to erosion or sedimentation shall be properly prepared in accordance with the Specifications prior to placing additional fill or structures.

9.2 After completion of grading as observed and tested by the Consultant, no further excavation or filling shall be conducted except in conjunction with the services of the Consultant.

10. CERTIFICATIONS AND FINAL REPORTS

10.1 Upon completion of the work, Contractor shall furnish Owner a certification by the Civil Engineer stating that the lots and/or building pads are graded to within 0.1 foot vertically of elevations shown on the grading plan and that all tops and toes of slopes are within 0.5 foot horizontally of the positions shown on the grading plans. After installation of a section of subdrain, the project Civil Engineer should survey its location and prepare an *as-built* plan of the subdrain location. The project Civil Engineer should verify the proper outlet for the subdrains and the Contractor should ensure that the drain system is free of obstructions.

10.2 The Owner is responsible for furnishing a final as-graded soil and geologic report satisfactory to the appropriate governing or accepting agencies. The as-graded report should be prepared and signed by a California licensed Civil Engineer experienced in geotechnical engineering and by a California Certified Engineering Geologist, indicating that the geotechnical aspects of the grading were performed in substantial conformance with the Specifications or approved changes to the Specifications.

LIST OF REFERENCES

1. *California Highway Design Manual, State of Californian Department of Transportation*, Fifth Edition, July 1, 1995.

2. California Geological Survey, *Seismic Shaking Hazards in California*, Based on the USGS/CGS Probabilistic Seismic Hazards Assessment (PSHA) Model, 2002 (revised April 2003). 10% probability of being exceeded in 50 years. http://redirect.conservation.ca.gov/cgs/rghm/pshamap/pshamain.html

3. *Fault Activity Map of California and Adjacent Areas*, California Division of Mines and Geology, Map No. 6 (1994)

4. *Geotechnical Investigation, Melrose & Bobier Property, Oceanside, California*, prepared by Geocon Incorporated dated February 9, 2006 (Project No. 07647-32-01).

5. *Geotechnical Update for 2007 California Building Code, Melrose Station Market Commercial Development, Southeast Corner of Melrose Drive and Oceanside Boulevard, Oceanside, San Diego County, California*, prepared by EEI, dated July 29, 2008 (Project No. GAT-70622).

6. Kennedy, M. P. and S. S. Tan, 2005, *Geologic Map of the Oceanside 30'x60' Quadrangle, California*, USGS Regional Map Series Map No. 2, Scale 1:100,000.

7. *Preliminary Geotechnical Evaluation, Melrose Station Market, Southeast Corner of Melrose Drive and Oceanside Boulevard, Oceanside and Future Residential Parcel, 552 West Bobier Avenue, Vista, San Diego County, California*, prepared by EEI, dated September 18, 2007 (Project No. GAT-70622).

8. Structural Engineers Association (SEAOC) and OSHPD, Seismic Design Maps, http://seismicmaps.org

9. *Supplemental Rippability Study, Melrose Gateway Shopping Center, Oceanside, California,* prepared by Geocon Incorporated, dated October 23, 2006 (Project No. 07647-42-02).

10. *Transmittal of Supplemental Rippability Information, Melrose Gateway Shopping Center (Multi-Family Portion), Vista, California*, prepared by Geocon Incorporated, dated February 6, 2007 (Project No. 07647-42-02)

11. Unpublished reports and maps on file with Geocon Incorporated.

12. *Updated Geotechnical Considerations, Melrose Station Market Commercial Development, Southeast Corner of Melrose Drive and Oceanside Boulevard, Oceanside, San Diego County, California*, prepared by EEI, dated October 31, 2008 (Project No. GAT-70622).

13. USGS computer program, *Seismic Hazard Curves and Uniform Hazard Response Spectra (version 5.1.0,), February 10, 2011.*

Appendix F

Paleontological Resources Assessment

PALEONTOLOGICAL RESOURCE ASSESSMENT
MELROSE HEIGHTS PROJECT
CITY OF OCEANSIDE
SAN DIEGO COUNTY, CALIFORNIA

Prepared under contract to:

CALIFORNIA WEST COMMUNITIES
5927 Priestly Drive, Suite 110
Carlsbad, CA 92008

Prepared by:

DEPARTMENT OF PALEOSERVICES
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PALEONTOLOGICAL RESOURCE ASSESSMENT
MELROSE HEIGHTS PROJECT
CITY OF OCEANSIDE
SAN DIEGO COUNTY, CALIFORNIA

INTRODUCTION

The Melrose Heights project is a proposed residential development located northeast and northwest of the intersection of Oceanside Boulevard and Melrose Drive, in the City of Oceanside, California (Figures 1 and 2). The project site consists of three separate Planning Areas (PA), including PA-1, PA-2, and PA-3, in addition to an open space parcel (Figure 3). The project site is located north of the North County Transit District's Melrose Drive Sprinter Station and west of the Vista Sports Park and id bisected by a portion of Melrose Drive.

This technical report provides an assessment of issues related to paleontological resources within the project site. The purpose of this report is to assist in planning and design efforts for the purposed project as related to paleontological resource issues. Specifically, this report is intended to summarize existing paleontological resource data in the project site and vicinity; assess potential impacts to paleontological resources from construction of the project; and identify mitigation measures to avoid or reduce project-related impacts wherever feasible. Additional discussion of report methodology is provided below. This report was prepared by Sarah A. Siren and Thomas A. Demeré of the Department of PaleoServices, San Diego Natural History Museum (SDNHM), San Diego, California.

Paleontological Resources

As defined here, paleontological resources (i.e., fossils) are the buried remains and/or traces of prehistoric organisms (i.e., animals, plants, and microbes). Body fossils such as bones, teeth, shells, leaves, and wood, as well as trace fossils such as tracks, trails, burrows, and footprints, are found in the geological deposits (formations) within which they were originally buried. The primary factor determining whether an object is a fossil or not, isn't how the organic remain or trace is preserved (e.g., "petrified"), but rather how old is the organic remain or trace. Although typically it is assumed that fossils must be older than ~10,000 years (i.e., the generally accepted end of the last glacial period of the Pleistocene Epoch), organic remains of early Holocene age can also be considered to represent fossils because they are part of the record of past life.

Fossils are considered important scientific and educational resources because they serve as direct and indirect evidence of prehistoric life and are used to understand the history of life on Earth, the nature of past environments and climates, the membership and structure of ancient ecosystems, and the pattern and process of organic evolution and extinction. In addition, fossils are considered to be non-renewable resources because typically the organisms they represent no longer exist. Thus, once destroyed, a particular fossil can never be replaced. And finally, for the purposes of this report, paleontological resources can be thought of as including not only the actual fossil remains and traces, but also the fossil collecting localities and the geological formations containing those localities.

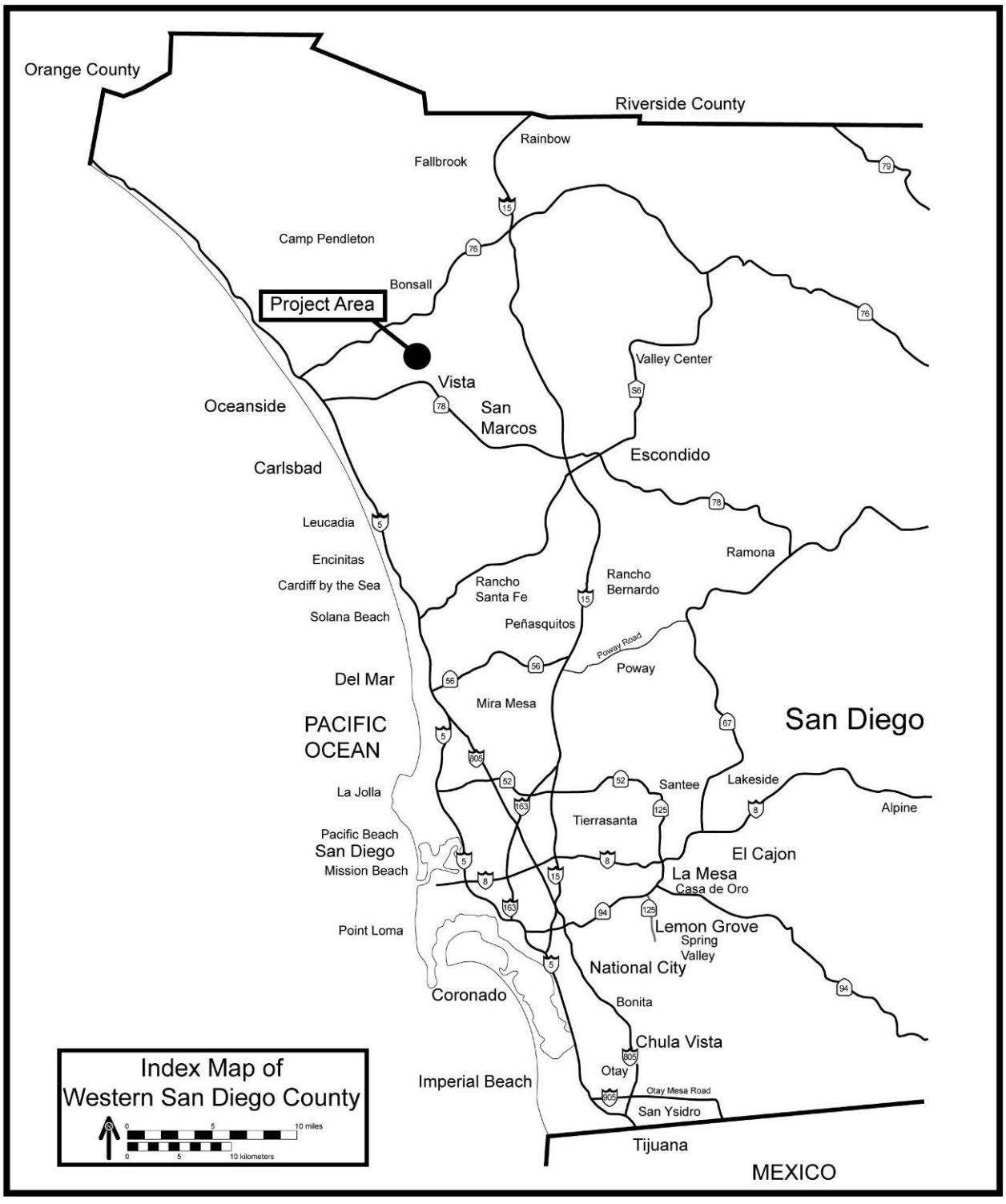


Figure 1. Index map of western San Diego County showing the general location of the Melrose Heights project site.

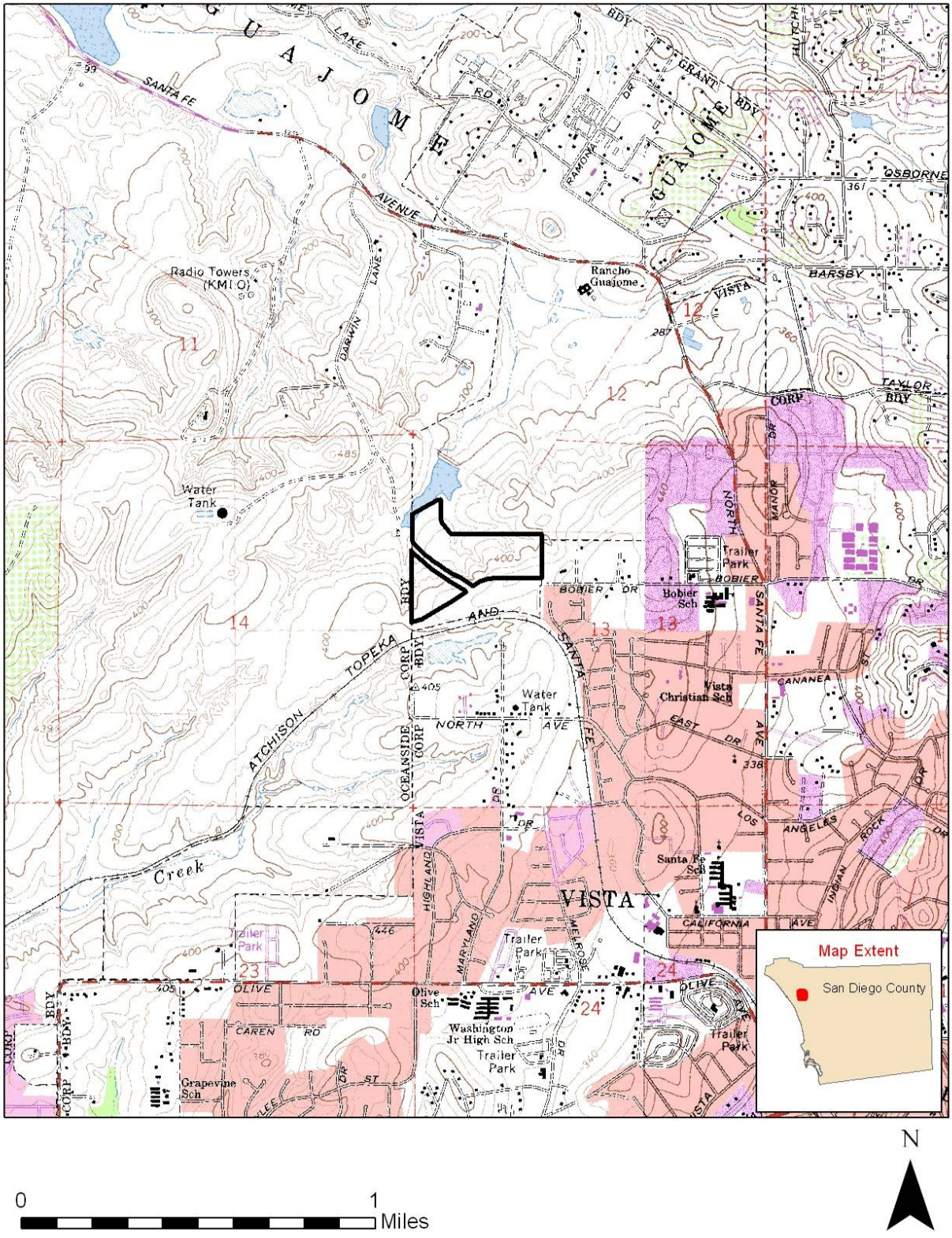


Figure 2. Topographic map of the Melrose Heights project site in the City of Oceanside, California. Base Map: portions of the San Luis Rey and San Marcos, CA 7.5' topographic quadrangles.

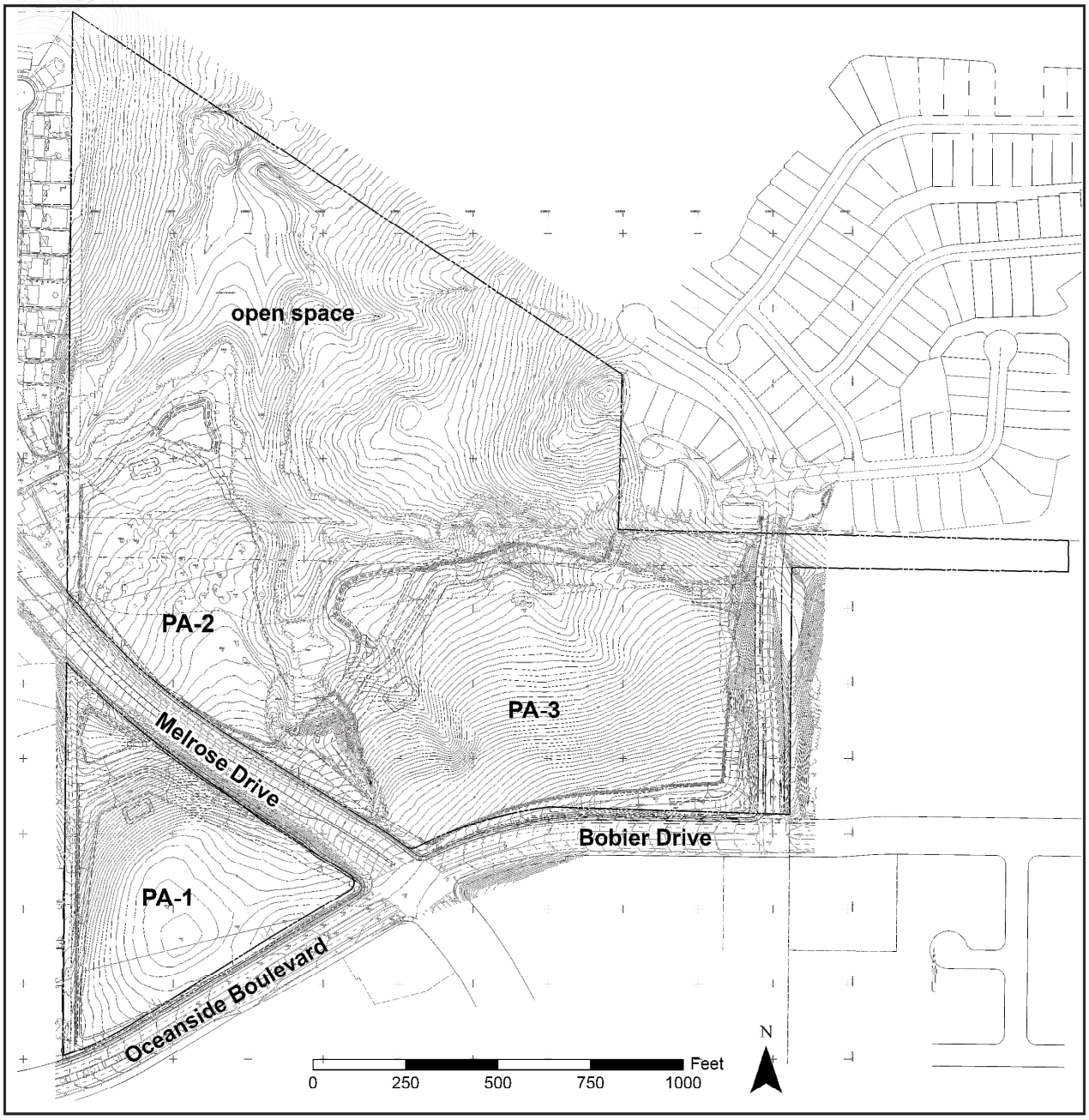


Figure 3. Conceptual grading plan of the Melrose Heights project site showing planning areas PA-1, PA-2, and PA-3, Oceanside, CA.

METHODOLOGY

A review was conducted of relevant published and unpublished geologic reports (Wilson, 1972; Tan and Kennedy, 1996; Kennedy and Tan, 2005), unpublished paleontological reports (Deméré and Walsh, 1993), and museum paleontological locality data (SDNHM, Department of Paleontology; see attached Records Search in the Appendix). This approach was followed in recognition of the direct relationship between paleontological resources and the geologic formations within which they are entombed. Knowing the geology of a particular area and the fossil productivity of formations that occur in that area, it is possible to predict where fossils will, or will not, be encountered.

A pedestrian survey of the project area and immediately surrounding areas was conducted on June 25, 2012 by SDNHM personnel to field check the results of the literature and record searches and to determine the paleontological resource sensitivity of the geologic units that will be affected by the proposed improvements.

EXISTING CONDITIONS

PHYSICAL GEOLOGICAL SETTING

The geology of the project area is relatively complex as described in the geotechnical report by Geocon, Inc. (2012) and depicted on the published geologic maps of Tan and Kennedy (1996) and Kennedy and Tan (2005). The majority of the PA-1, west of Melrose Drive, is underlain by artificial fill to varying depths. These relatively youthful deposits overlie older geologic deposits mapped as Eocene-age sedimentary rocks of the Santiago Formation (Figure 4). In the larger, eastern portion of the project site, east of Melrose Drive, artificial fill is mapped within PA-2 adjacent to Melrose Drive and at the eastern border of the project site, along Sports Park Way (Geocon, Inc., 2012). In both PA-2 and PA-3 weathered plutonic igneous rocks mapped as the Cretaceous-age Bonsall Tonalite are directly overlain by sedimentary rocks of the Eocene-age Santiago Formation, The remainder of the deposits east of Melrose Drive include: Quaternary terrace deposits, Eocene Santiago Formation, and Cretaceous Bonsall Tonalite (Geocon, Inc., 2012; Kennedy and Tan, 2005), as confirmed during the pedestrian survey and presumably underlie the unmapped topsoil and mapped artificial fill materials on site. The Santiago Formation was visible in a roadcut on the south side of Oceanside Boulevard, and documented at shallow depths (<4 feet in Trench T-12; Geocon, Inc., 2012) in the southern portion of PA-3. Older crystalline bedrock underlying the eastern portion of the project site is mapped as Cretaceous-age plutonic rocks of the Peninsular Ranges Batholith (Tan and Kennedy, 1996), and was evident from the boulders encountered onsite.

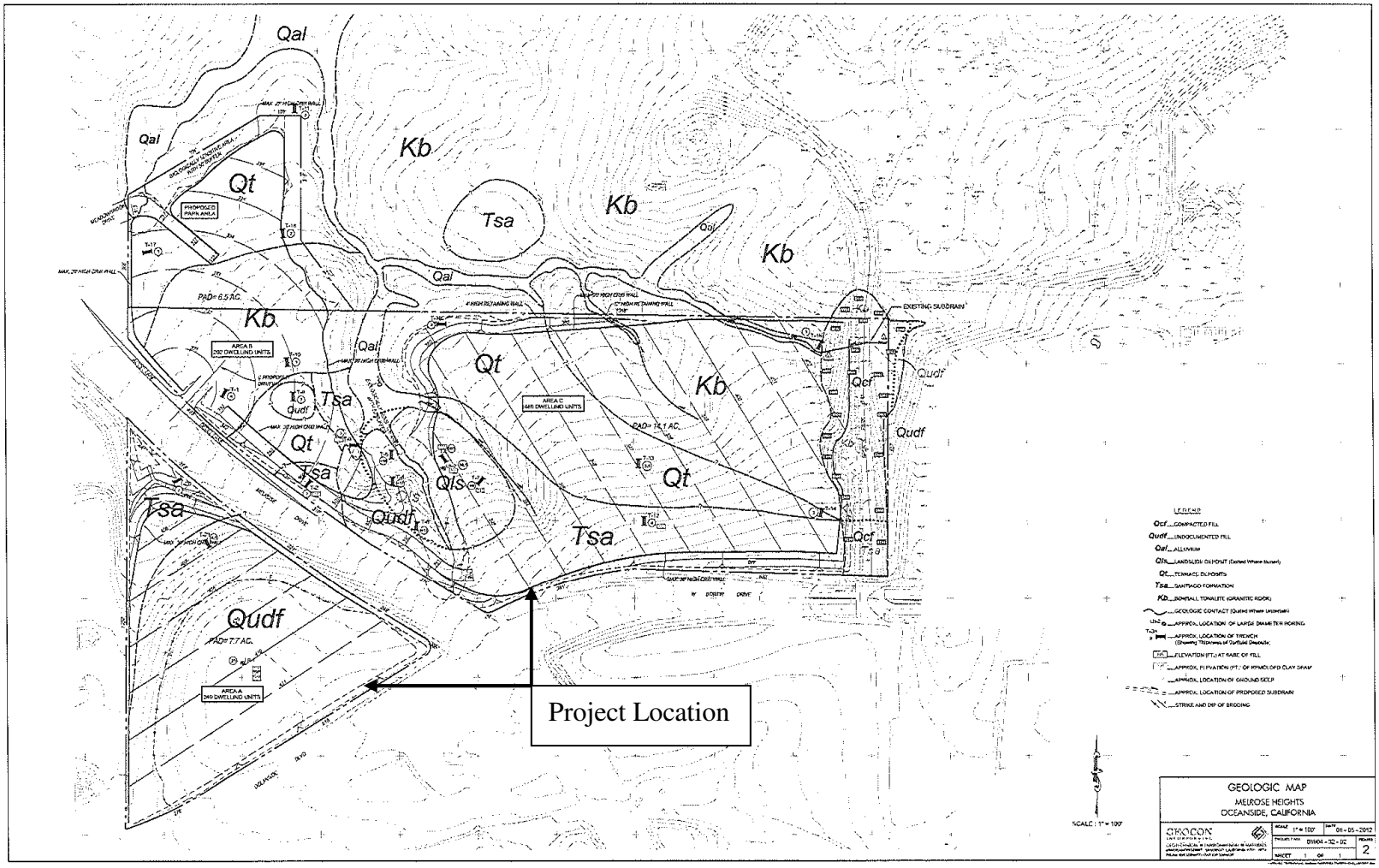


Figure 4. Geology, as mapped by Geocon, Inc. (2012), in eastern Oceanside, San Diego County, California. The Melrose Heights property is underlain by modern artificial fill (Qcf and Qudf), Quaternary alluvium (Qal), landslide deposits (Qls), Quaternary Terrace deposits (Qt), Santiago Formation (Tsa), and Cretaceous Bonsall Tonalite (Kb) as mapped north of Oceanside Boulevard.

PALEONTOLOGICAL RESOURCE ASSESSMENT

The following section provides a general overview of the types of geologic deposits located within the project area.

Modern Artificial Fill Materials (Qcf and Qudf)

Introduction: Artificial fill materials blanket the majority of PA-1, and the south-central and eastern-most portions of PA-2 and PA-3. These fill materials presumably were derived from earlier construction activities and were placed in such a way as to provide topographically high areas for current and future development. The thickness of these "loose/soft" fill materials is variable, with a maximum thickness of 21 feet in PA-1 (Geocon, Inc., 2012).

Paleontology: No fossils of paleontological interest are located in artificial fill materials. Any contained organic remains have lost their original stratigraphic/geologic context due to the disturbed nature of the artificial fill materials.

Site Specific Assessment: Artificial fill materials are assigned a zero paleontological resource sensitivity due to the loss of the stratigraphic/geologic context of any contained organic remains (e.g., fossils).

Quaternary Alluvial Deposits (Qal)

Introduction: Quaternary alluvial deposits occur in the floor of the small drainage that separates PA-2 from PA-3 in the area east of Melrose Drive. Site-specific geotechnical investigations indicate that these alluvial deposits consist of "relatively soft/loose, sandy clays to silty sands (Geocon, Inc., 2012).

Paleontology: Fossils are generally unknown from the younger alluvial deposits in the Coastal Plain of San Diego County. One relevant exception is a mammoth femur that was purportedly recovered from Quaternary alluvial deposits in the Santa Margarita River channel at the south end of Marine Corps Base Camp Pendleton. No fossils are reported from the younger alluvial deposits that occur within the project site.

Site Specific Assessment: Younger alluvial deposits occur within the modern drainages associated with the San Luis Rey River to the north. Based on its post-Pleistocene age, younger alluvium is assigned a low paleontological resource sensitivity.

Quaternary Terrace Deposits (Qt)

Introduction: Within the project area, terrace deposits occur east of Melrose Drive, beneath the future Park Site and in PA-2 and PA-3, east and west of the small drainage that bisects the two planning areas (Geocon, Inc., 2012). These deposits have the potential to be Pleistocene in age (greater than 10,000 years old, but less than ~500,000 years old) and presumably were derived from local streams draining from the mountains to the north and east. In composition, these deposits consist of "reddish to yellowish brown, clayey sand to sandy clay" (Geocon, Inc., 2012). The terrace deposits are locally capped by Holocene alluvium and at depth, rest on Eocene and older Cretaceous igneous rocks (Geocon, Inc., 2012; Kennedy and Tan, 2005).

Paleontology: The record search failed to report any previously recorded paleontological sites within the project site. However, there is one fossil locality that was discovered within these same age deposits less than a mile north of the project site at the North Coast Church in Vista (see Appendix). A mammoth molar tooth was discovered during construction-related excavation activities at this location. A second documented fossil locality discovered in Quaternary terrace deposits occurs approximately two miles to the west of the project site and produced skeletal remains of horse and bison.

Scientifically significant paleontological resources have been recovered from correlative terrace deposits in other areas of northern San Diego County and include fossil plants, invertebrates (terrestrial and freshwater snails), and mammals (ground sloth, rodents, horse, tapir, camel, deer, llama, mastodon, and mammoth) (Deméré and Walsh, 1993).

Site Specific Assessment: Although there are no previous records of fossil localities occurring in the terrace deposits within the project site, there are recorded paleontological collecting sites in correlative deposits as exposed within a two mile radius. Because of these previous records, and following the paleontological guidelines developed by the County of San Diego, these terrace deposits are assigned a high paleontological resource sensitivity rating.

Eocene Santiago Formation (Tsa)

Introduction: Eocene-age sedimentary rocks of the Santiago Formation occur in all three planning areas (PA-1, PA-2, and PA-3) of the project site as discussed in the geotechnical report (Geocon, Inc., 2012). The Santiago Formation was named by Woodring and Popenoe (1945) for a sequence of Eocene strata exposed in the Santa Ana Mountains of Orange County. The Eocene strata of northwestern San Diego County have generally been assigned to the Santiago Formation (Wilson, 1972) rather than to the La Jolla or Poway groups of southwestern San Diego County because the sequence of distinctive conglomerates that serves to divide and define formations of these latter groups does not occur in northwestern San Diego County. As recognized here, the Santiago Formation is broadly correlative with almost the entire middle Eocene stratigraphic sequence exposed to the south in the metropolitan San Diego area (Ardath Shale through Pomerado Conglomerate), approximately 40-49 Ma. Wilson (1972) recognized three members of the Santiago Formation in the Encinitas-Carlsbad area, referring to them as members "A", "B", and "C" in ascending order. Member "C" is composed predominantly of fine- to very coarse-grained, white to gray-white, friable, cross-bedded, arkosic sandstone with interbeds of green to green-brown siltstone, silty mudstone, and claystone" (Wilson, 1972). Member "B" consists largely of green and gray, very fine- to medium-grained, arkosic sandstone, with common calcite-cemented concretions and frequent interbeds of multicolored clayey sandstone and claystone (Wilson, 1972). Member "A" generally consists of green, unfossiliferous, massive mudstone (Wilson, 1972). The Eocene sedimentary rocks exposed in the nearby project sites (e.g., Panorama Ridge and Gordon Property) have fossil localities assigned to Member “B” of the Santiago Formation based the geologic mapping of Wilson (1972).

Paleontology: Fossils locally occur in Member “B” deposits of the Santiago Formation exposed in the Carlsbad, Oceanside, and Vista area and consist of well-preserved shells and tests of estuarine and nearshore marine invertebrates (e.g., clams, oysters, snails, crabs, and sea urchins),

as well as rare skeletal remains aquatic vertebrates (sharks, rays, and bony fish). In Oceanside, Member "B" sandstones have also produced rare, but significant, skeletal remains of terrestrial mammals (Walsh, 1996). These fossil records are noteworthy and serve to document the location and faunal composition of Eocene paleoenvironments in northern San Diego County. Fossil discoveries in member "B" strata of the Santiago Formation are documented within one mile of the project site and produced fossil remains of marine bivalve mollusks (e.g., Arcidae, Veneridae, Pelecyopoda; see Appendix). Additional fossil localities have been discovered in marine sandstones of the Santiago Formation as exposed to the northwest of the project site. These localities also produced fossils of marine invertebrates, but also yielded remains of marine vertebrates, including shark teeth (see Appendix).

Site Specific Assessment: Topsoil, varing in thickness from one to 4.5 feet, overlies the majority of the project site and (Geocon, Inc., 2012) and prevented direct observation of the underlying Santiago Formation. During the pedestrian survey, good exposures of the Santiago Formation were observed along the south side of Oceanside Boulevard, immediately to the south of the project site, due east of the intersection of Melrose Drive and Oceanside Boulevard (Figure 5). Exposed in the outcrop was a basal five foot section of light gray, poorly sorted, fine to coarse grained sandstone with the top of the section obscured by overburden.

Although there are no previous records of fossil localities occurring in the Santiago Formation within the project site, there are five recorded paleontological collecting sites in correlative deposits as exposed less than one mile northwest (Panorama Ridge) and southeast (Gordon Property) of the project site (see Appendix). The majority of these sites were discovered and collected during paleontological monitoring of mass grading operations for residential and municipal construction projects. Because of these previous records, and following the paleontological guidelines developed by the County of San Diego, Member "B" of the Santiago Formation is assigned a high paleontological resource sensitivity rating. There is potential for both members A and B to be encountered during grading of the project site.

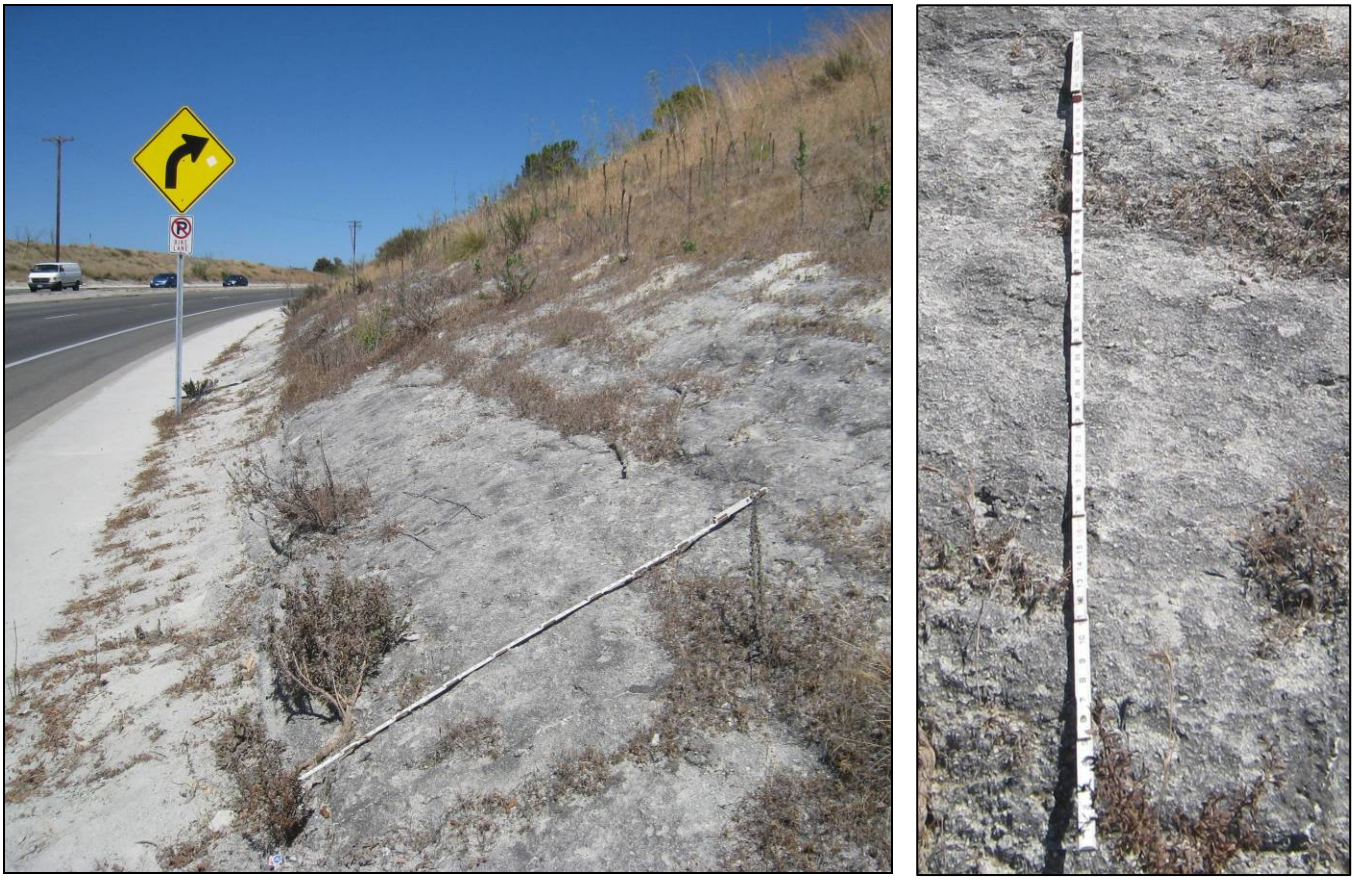


Figure 5. Outcrop of Santiago Formation located on the south side of Oceanside Boulevard, east of the intersection with Melrose Drive, and opposite PA-3 in the eastern portion of the Melrose Heights project site.

Cretaceous Bonsall Tonalite (Kb)

Introduction: Plutonic igneous bedrock units exposed within the PA-2 and PA-3of the project site have been mapped as the Bonsall Tonalite (Geocon, 2012; Kennedy and Tan, 2005; Tan and Kennedy, 1996). These plutonic rocks are part of the Peninsular Ranges Batholith, which extends for several hundred miles south into Baja California, Mexico. Individual plutons of the Peninsular Ranges Batholith in San Diego County range in composition from granite to gabbro, and range in age from early Jurassic to late Cretaceous, approximately 125 to 90 Ma (Krummenacher et al., 1975; Walawender et al., 1991). These rocks were formed directly from magma at a depth of several miles within the earth's crust.

Paleontology: Plutonic igneous rocks do not contain fossils because they directly formed from magma within the earth's crust at high pressures and high temperatures. These rocks were later uplifted and eroded to their present condition. Because they contain no fossils, plutonic rocks have no paleontological sensitivity (zero sensitivity; Deméré and Walsh, 1993).

Site Specific Assessment: Bedrock units with zero potential to yield paleontological resources are mapped in the eastern portion of the project site, specifically west of the Vista Sports Park in

PA-3 and southeast of the intersection between Meadowbrook Drive and Melrose Drive in PA-2 (Geocon, 2012; Kennedy and Tan, 2005; Figure 6). In addition, these bedrock units underlie the younger sedimentary sequence of Santiago Formation, Quaternary terrace deposits, and surficial veneer of younger alluvium and artificial fill.

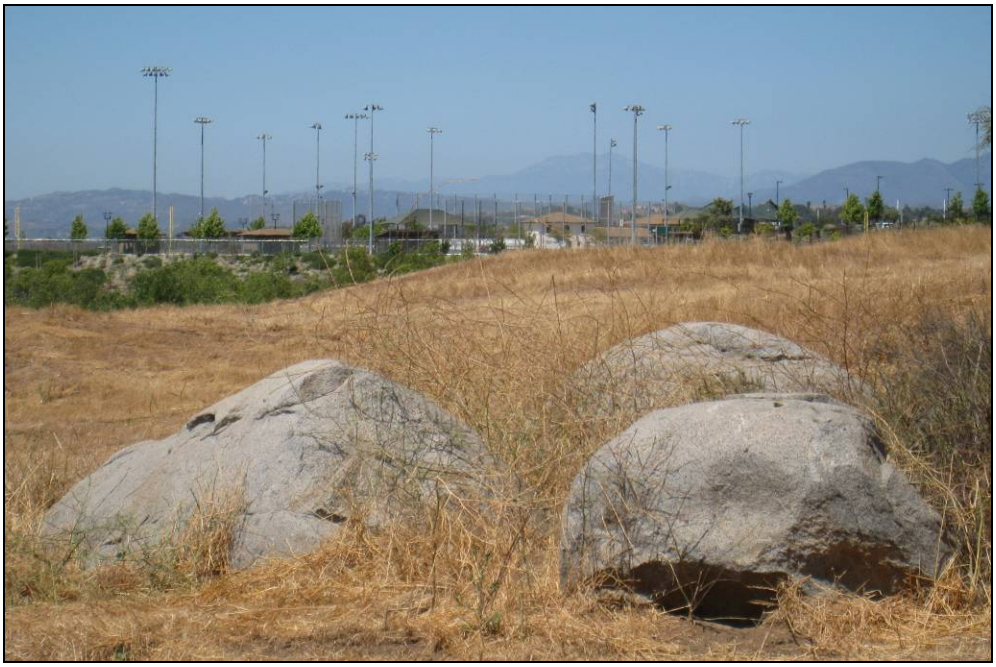


Figure 6. Boulders of Bonsall Tonalite east of Melrose Drive in PA-2 with Vista Sports Park visible in the background to the east.

IMPACT ANALYSIS

INTRODUCTION

Direct impacts to paleontological resources occur when earthwork activities, such as mass grading operations, cut into the geological deposits (formations) within which fossils are buried. These direct impacts are in the form of physical destruction of fossil remains. Since fossils are the remains of prehistoric animal and plant life they are considered to be nonrenewable. Such impacts can be significant and, under CEQA guidelines, require mitigation.

Impacts to paleontological resources are typically rated from high to zero depending upon the resource sensitivity of impacted formations.

High significance

Impacts to high sensitivity formations (Quaternary Terrace Deposits and Santiago Formation).

Moderate significance

Impacts to moderate sensitivity formations (none within the project site).

Low significance

Impacts to low sensitivity formations (Quaternary Alluvium).

Zero significance

Impacts to formations with no fossil potential (Bonsall Tonalite and artificial fill).

SITE SPECIFIC IMPACTS

Preliminary plans for the Melrose Heights project site propose excavations for building foundations and utilities. Any excavations into the potentially fossil-bearing strata within the Quaternary terrace deposits and/or Santiago Formation should be mitigated. These potential negative impacts to paleontological resources can be reduced to below the level of significance through implementation of a paleontological mitigation plan as outlined below.

MITIGATION MEASURES

1. A qualified paleontologist should attend the pre-construction meeting to consult with the grading and excavation contractors concerning excavation schedules, paleontological field techniques, and safety issues. (A qualified paleontologist is defined as an individual with a MS or Ph.D. in paleontology or geology that is familiar with paleontological procedures and techniques, who is knowledgeable in the geology and paleontology of San Diego County, and who has worked as a paleontological mitigation project supervisor in the county for at least one year.)
2. A paleontological monitor should be on-site on a full-time basis during the original cutting of previously undisturbed deposits of high paleontological resource potential (Quaternary Terrace Deposits and Santiago Formation) to inspect exposures for contained fossils. (A

paleontological monitor is defined as an individual who has experience in the collection and salvage of fossil materials. The paleontological monitor should work under the direction of a qualified paleontologist.)

3. When fossils are discovered, the paleontologist (or paleontological monitor) should recover them. In most cases this fossil salvage can be completed in a short period of time. However, some fossil specimens (such as a complete large mammal skeleton) may require an extended salvage period. In these instances the paleontologist (or paleontological monitor) should be allowed to temporarily direct, divert, or halt grading to allow recovery of fossil remains in a timely manner. Because of the potential for the recovering of small fossil remains, such as isolated mammal teeth, it may be necessary to set up a screen-washing operation on the site.
4. Fossil remains collected during monitoring and salvage should be cleaned, repaired, sorted, and cataloged as part of the mitigation program.
5. Prepared fossils, along with copies of all pertinent field notes, photos, and maps, should be deposited (as a donation) in a scientific institution with permanent paleontological collections such as the San Diego Natural History Museum. Donation of the fossils should be accompanied by financial support for initial specimen storage.
6. A final summary report should be completed that outlines the results of the mitigation program. This report should include discussions of the methods used, stratigraphic section(s) exposed, fossils collected, and significance of recovered fossils.

REFERENCES

Deméré, T.A. and Walsh, S.L. 1993. Paleontological Resources, County of San Diego. Prepared for the San Diego Planning Commission, pp. 1-68.

Geocon, Inc., 2012. Geologic Reconnaissance, Melrose Heights, Oceanside, California, unpublished report by Reist, T.K., Project No. 06904-32-02, submitted to M&O Partners, LP., c/o Mr. Nicholas B. Biancamano.

Kennedy, M.P. and Tan. S.S. 2005. Geologic map of the Oceanside 30' X 60' Quadrangle, California. California Geologic Survey, Regional Geologic Map Series, Map No. 2.

Tan, S.S. and Kennedy, M.P. 1996. Geologic maps of the northwestern part of San Diego, California: California Division of Mines and Geology Open-File Report 96-02, 2 sheets (scale 1:24,000).

Walsh, S. L., 1996. Middle Eocene mammal faunas of San Diego County, California. In: D. R. Prothero and R. J. Emry (eds.). the Terrestrial Eocene-Oligocene Transition in North America. Cambridge University Press, Cambridge England, pp. 75-119.

Wilson, K.L. 1972. Eocene and related geology of a portion of the San Luis Rey and Encinitas quadrangles, San Diego County, California. Unpublished M.A. thesis, University of California, Riverside, 135 p.

Woodring, W.P., and Popenoe, W.P. 1945. Paleocene and Eocene stratigraphy of northwestern Santa Ana Mountains, Orange County, California. U. S. Geological Survey Oil and Gas Investigations Preliminary Chart 12.

Appendix G
Phase I ESA



Phase I Environmental Site Assessment

Southeast Corner of North Melrose Drive
and West Bobier Drive
Oceanside, California 92056 and Vista, California 92083

February 5, 2021

Mill Creek Residential Trust
949 South Coast Drive, Suite 400
Costa Mesa, California 92626

Project Number 20-11-015

Prepared by:

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February 5, 2021

John Colletti
VP of Development
Mill Creek Residential Trust
949 South Coast Drive, Suite 400
Costa Mesa, California 92626

Subject: Phase I Environmental Site Assessment
Southeast Corner of North Melrose Drive and West Bobier Drive
Oceanside, California 92056 and Vista, California 92083
Project Number 20-11-015

Dear Mr. Colletti:

Weis Environmental, LLC has completed the contracted environmental consulting services for the above-referenced project. The services were performed in accordance with our proposal and agreement fully executed by all parties. The Phase I Environmental Site Assessment has been performed in accordance with ASTM International (ASTM) Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, ASTM Designation E1527-13 and Title 40 of the Code of Federal Regulations (40 CFR) Part 312. We appreciate the opportunity to be of service to you on this project. Please contact us if you have any questions or comments regarding this report or if we can be of further assistance.

Sincerely,

Weis Environmental, LLC



Daniel Weis, R.E.H.S.
Environmental Manager

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1.0 INTRODUCTION

This report presents the methods and findings of a Phase I ESA of the property located at the southeast corner of North Melrose Drive and West Bobier Drive (San Diego County Assessor's Parcel Numbers 161-030-07-00, 161-030-23-00 and 161-030-24-00) in the Cities of Oceanside and Vista, County of San Diego, California (Site) performed in conformance with the contract/agreement for this assignment and the scope and limitations of ASTM Standard Practice E1527-13 and United States Environmental Protection Agency (EPA) Standards and Practices for All Appropriate Inquiries (AAI) as published in 40 Code of Federal Regulations (CFR) Part 312. EPA promulgated the AAI rule that became effective in November 2006 and has indicated that the ASTM E1527 practice is consistent with the requirements of AAI and may be used to comply with the provisions of the AAI rule.

1.1 Purpose

The purpose of the ASTM E1527 practice (framework for this Phase I ESA) is to define good commercial and customary practice in the United States of America for conducting an ESA of a parcel of real estate with respect to the range of contaminants within the scope of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (Title 42 United States Code (U.S.C.) Section 9601)) and petroleum products. As such, this practice is intended to permit a user to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner, or bona fide prospective purchaser limitations on CERCLA liability (hereinafter, the "landowner liability protections," or "LLPs"): that is, the practice that constitutes all appropriate inquiries into the previous ownership and uses of the property consistent with good commercial and customary practice as defined at 42 U.S.C. Section 9601(35)(B).

In defining a standard of good commercial and customary practice for conducting this Phase I ESA of the Site, the goal of the processes established by the ASTM E1527 practice is to identify, to the extent feasible, recognized environmental conditions. The term recognized environmental conditions is defined as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. In addition, controlled recognized environmental conditions, historical recognized environmental conditions and/or de minimis conditions, if identified during the completion of the assessment, are discussed herein. Definitions of these terms and other key terminology relevant to the practice are included in Section 14.0 of this report.

1.2 Scope of the Assessment

In general terms, this Phase I ESA included the acquisition of readily available/accessible and practically reviewable regulatory records and historical information, a site reconnaissance, interviews, and preparation of this written report of findings. A more detailed description of the four primary components of the Phase I ESA is presented below.

Records Review - A review of Federal, State, Tribal, and local standard ASTM and non-ASTM regulatory databases for a myriad of environmental identifiers including but not limited to properties with underground storage tanks (USTs), properties with leaking USTs, properties that have reported spills/releases that did not occur from a leaking UST, businesses that utilize hazardous materials and/or generate hazardous waste and hazardous waste disposal locations. The regulatory review may also

include public records requests with one or more Federal, State, Tribal and/or local agencies. A review of historical sources is also completed to help ascertain previous land uses of the property in question and in the surrounding area.

Site Reconnaissance - A property inspection and viewing of adjacent and surrounding properties for conditions that could be recognized environmental conditions.

Interviews - Interviews with present and past owners, operators and/or occupants of a property and local government officials.

Reporting - Evaluation of the information gathered during the completion of the Phase I ESA and the subsequent preparation of a written report.

1.3 Limitations and Exceptions

Concerns regarding liability under the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. 9601 et seq. (CERCLA) and analogous State laws, have been a primary driver for Phase I ESA assignments in commercial real estate transactions. While the ASTM E1527 practice can be used in many contexts, a familiarity with CERCLA and its potential LLPs is critical in understanding and applying the ASTM E1527 practice. We advise consultation with legal counsel if further inquiry or information is desired.

AAI represents the minimum level of inquiry necessary to support the LLPs. However, it is important to understand that additional inquiry ultimately may be necessary or desirable for legal as well as business reasons depending upon the outcome of this inquiry and the particular risk tolerances of a given user. For example, additional inquiry may assist a user of a Phase I ESA in determining whether he or she would have continuing obligations in the event he or she acquires a given property and may also assist the user in defining the scope of future steps to be taken to satisfy such obligations. In addition, a user may be concerned about business environmental risks or non-scope ASTM considerations that do not fall within the definition of a recognized environmental condition. In addition, this assessment did not include subsurface or other invasive exploration. Users are also cautioned that Federal, State, Tribal and local laws may impose environmental assessment obligations that are beyond the scope of the ASTM E1527 practice.

The evaluation, opinion and conclusions presented herein are based solely on visual observations and regulatory, historical, and personal knowledge related information that existed at the time our assessment was completed. The use of the gathered information is exclusively for the purposes outlined in this report and only for the Site. Our firm can make no warranty, either express or implied, except that the services conducted were performed in accordance with generally accepted environmental assessment practices applicable at the time and location of the assessment and that the conclusions of the assessment have been based in part on professional judgment/experience, an interpretation of readily available data and the standard of care normally followed by similar professionals practicing in a similar locale and under similar circumstances. Any opinions presented cannot apply to Site changes of which our firm is unaware and has not had the opportunity to evaluate. In addition, this report cannot feasibly include any evaluation of undocumented activities at the Site or on adjacent or nearby properties. Lastly, a Phase I ESA meeting or exceeding this practice and completed less than 180 days prior to the date of acquisition of a given property or (for transactions not involving an acquisition) the date of the intended transaction is presumed to be valid.

1.4 Special Terms and Conditions

This Phase I ESA was prepared in accordance with the terms and conditions of the contract/agreement for the work as executed between our firm and the client. There are no other special terms and conditions established between our firm and the client pertinent to the findings of this ESA or methodology used to complete this assessment. In addition, our firm has no final or other vested interest in the Site or adjacent/surrounding properties, or in any entity that owns or occupies the Site or adjacent/surrounding properties.

1.5 Limiting Conditions and Deviations

There were no significant limiting conditions that would inhibit our ability to identify recognized environmental conditions noted during the completion of this assessment. In addition, there were no deviations from the ASTM E1527 standard noted during the completion of this assessment. Any limiting conditions that are not considered to be ones that would inhibit our ability to identify recognized environmental conditions at the Site are referenced in applicable sections of this report.

1.6 Data Failure and Data Gaps

No instances of data failure were encountered during the completion of this assessment. In addition, no data gaps of significance (i.e. those that would inhibit our ability to identify recognized environmental conditions) were identified during the completion of this assessment. Any data gaps that are not considered to be ones that would inhibit our ability to identify recognized environmental conditions at the Site are referenced in applicable sections of this report.

1.7 Reliance

This report has been prepared for the exclusive use of the client of which our firm has contracted with to complete this assessment. This report may not be relied upon by any other person or entity without the written consent of both our firm and our client. The scope of services performed for this assessment may not be appropriate to satisfy the specific needs of other users, and any use or reuse of this document would be at the sole risk of said users. Any other party seeking liability protection under CERCLA must take independent action to accomplish its objective.

2.0 SITE DESCRIPTION

2.1 Location and Legal Description

The Site is a reported 9.15 acres in size and is situated generally southeast of the intersection of North Melrose Drive and West Bobier Drive (San Diego County Assessor's Parcel Numbers 161-030-07-00, 161-030-23-00 and 161-030-24-00) in the Cities of Oceanside and Vista. The 161-030-07-00 parcel is further identified by a legal address of 552 West Bobier Drive. A Vicinity Map is included as Figure 1. A Site Plan is included as Figure 2.

2.2 Site and Vicinity Characteristics

The Site and the surrounding vicinity are situated in the Cities of Oceanside and Vista in an area consisting primarily of commercial development, residential development, public roadways and train tracks. Additional details pertaining to the Ste and its adjoining properties are provided in the sections below.

2.3 Current Use of the Site

The Site is currently vacant and undeveloped land.

2.4 Description of Site Improvements

There are no habitable structures present at the Site. A concrete slab and concrete constructed gate leading to the Site is present at the northeast corner. Other improvements are limited and consistent primarily of chain-link fencing. Indicators of likely utility systems were observed at the Site, primarily in the northeast corner where former structures were located. The nature of each of the subsurface features is unknown. A higher level of confidence regarding the nature of extent of surface indicators of subsurface features can be obtained from a utility or geophysical consultant.

2.5 Utilities

Utilities that are reported to be present at the Site or provide service in the surrounding area are noted below along with their anticipated municipal provider where applicable. If certain utility systems are not provided by public agencies or entities, they are noted as privately maintained.

Utility	Provider (Where Applicable)
Potable Water	City of Oceanside and City of Vista
Sewage Maintenance	City of Oceanside and City of Vista
Electrical	San Diego Gas & Electric
Natural Gas	San Diego Gas & Electric
Solid Waste Disposal	City of Oceanside and City of Vista

2.6 Description of Adjoining Properties

Adjoining properties are defined as any real property or properties, the border of which is contiguous or partially contiguous with that of the subject property of a Phase I ESA, or that would be contiguous or partially contiguous with that of a subject property but for a street, road, or other public thoroughfare

separating them. To the extent feasible, our firm performed a visual inspection of adjoining properties from the Site boundaries and along public right of ways. We did not encroach on to adjoining private property during the completion of this assessment. The following table identifies the adjoining property uses:

Direction	Adjoining Property Use
North	West Bobier Drive, vacant land, Sports Park Way, and residential properties.
South	Train tracks, open space, then commercial properties.
East	Residential properties.
West	North Melrose Drive, then a gasoline station.

2.7 Summary Relative to Environmental Concerns

No recognized environmental conditions in connection with the land use of the Site and improvements at the Site are noted. In addition, the land uses of adjoining properties and properties in the vicinity of the Site do not represent recognized environmental conditions that are of direct environmental concern to the Site. This includes the western adjacent gasoline station that has not reported unauthorized releases to the subsurface.

3.0 PHYSICAL SETTING

3.1 Topography

The Site is depicted on the United States Geological Survey (USGS) topographic map for the San Luis Rey, California 7.5-minute quadrangle. The Site is shown on the map as being situated at elevations ranging from approximately 420 to 460 feet above mean sea level with a local topographic gradient generally toward the west and southwest. There are no improvements, structures or surface waters depicted on-Site on the map. Adjoining and surrounding roadways and train tracks are depicted on the map. A Topographic Map is included as Figure 3.

3.2 Hydrology

The Site is situated within the Vista Hydrologic Subarea of the Buena Vista Creek Hydrologic Area of the Carlsbad Hydrologic Unit. There are no known substantial hydrologic features at the Site including major storm drain inlets, drainages, channels or surface waters. Infiltration of precipitation is expected over the majority of the Site due to the lack of structures and paving. Any excess water would appear to flow as surface runoff to surrounding areas of lower elevation. The Site does not appear to receive significant drainage from off-Site properties.

3.3 Geology

General geologic information pertaining to the Site is presented in the table below.

Geologic Consideration	Details
California Geomorphic Province	Peninsular Ranges.
Mapped Soils or Formation	Eocene age Santiago Formation followed by mid-Cretaceous age undivided Tonalite.
Description of Soils or Formation	Generally consolidated deposits of sand, silt and clay (Santiago Formation) Mostly massive, coarse-grained sands and cobbles (Tonalite).
Distance/Direction to Mapped Faults	No known faults are mapped on the Site.

3.4 Hydrogeology

General hydrogeologic information pertaining to the Site is presented in the table below.

Hydrogeologic Consideration	Details
Groundwater Basin or Unit	Vista Hydrologic Subarea.
Beneficial Uses	Municipal, agricultural, and industrial.
Estimated Depth to Groundwater	Site-specific data not provided. Estimated at greater than 20 feet.
Estimated Flow of Groundwater	West to southwest.

Hydrogeologic Consideration	Details
Known Site or Regional Groundwater Contamination Issues	None.

3.5 Oil and Gas Exploration

According to online resources provided by the California Department of Conservation, Geologic Energy Management Division (CalGEM), there are no oil, gas or geothermal wells located on the Site or its adjacent properties.

3.6 Summary Relative to Environmental Concerns

No recognized environmental conditions associated with Site physical setting considerations are noted. In addition, physical setting considerations related to the adjoining properties and properties in the vicinity of the Site do not represent recognized environmental conditions that are of direct environmental concern to the Site.

4.0 USER PROVIDED INFORMATION

A representative of the user of this report (Mill Creek Residential Trust) was interviewed during the completion of this assessment. The questions posed during the interview are defined by the ASTM E1527 practice. The client also provided our firm with any land title records and judicial records that may be available for the Site as part of the required evaluation for environmental liens and activity and use limitations (AULs) in connection with the subject property of a Phase I ESA. As stated in the ASTM E1527 practice, it is the responsibility of the user of the report to provide any available records pertaining to environmental liens and AULs that may exist in connection with a given property. Any land title and judicial recorded provided to our firm are discussed below. If such information is not discussed in the sections below, it was not provided by the user of the report.

In addition to the contact information obtained, the user of the report was also asked if they are aware of other useful documents that may exist and if so whether copies can be provided to the environmental professional within reasonable time and cost constraints. A list of typical useful documents is included in Section 10.8.1 of the ASTM E1527 practice and include but are not limited to environmental assessment reports, compliance audits and permits, registrations for tank and other aboveground or underground systems, safety plans, spill prevention and other facility related plans and geological/geotechnical studies and environmental governmental agency notices and/or correspondence.

4.1 Title Records

Our firm was not provided title records pertaining to the Site.

4.2 Environmental Liens

The client is unaware of environmental liens in connection with the Site.

4.3 Activity and Use Limitations

The client is unaware of AULs in connection with the Site.

4.4 Specialized or Actual Knowledge or Experience

The client is unaware of specialized knowledge, actual knowledge or experience that is material to recognized environmental conditions in connection with the Site.

4.5 Commonly Known or Reasonably Ascertainable Information

The client is unaware of commonly known or reasonably ascertainable information within the local community that is material to recognized environmental conditions in connection with the Site.

4.6 Valuation Reduction for Environmental Issues

The client is unaware of information pertaining to an undervalued purchase price of the Site relative to the estimated fair market value of the Site due to the presence of contamination.

4.7 Owner, Property Manager, and Occupant Information

The Site is currently owned and managed by Walmart Stores, Inc. The Site is currently vacant with no known occupants.

4.8 Reason for Performing Phase I ESA

The client has commissioned this Phase I ESA as part of a proposed real estate transaction. The Phase I ESA is also being completed to assist the client in complying with 40 CFR Part 312.

4.9 Proceedings Involving the Site

The client is unaware of pending, threatened, or past litigation and administrative proceedings relevant to hazardous substances or petroleum products in, on, or from the Site. The client is also unaware of notices from any governmental entity regarding any possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products in connection with the Site.

4.10 Other Provided Documents

We reviewed multiple prior environmental documents pertaining to the Site that were provided by the Site owner.

July 2007 Phase I ESA

This report pertains to APNs 161-030-23 and -24. No recognized environmental conditions related to on-Site considerations were noted. The presence of a railroad right-of-way to the south was noted as a condition of potential concern to the Site.

January 10, 2008 Phase II ESA

This report pertains to APNs 161-030-23 and -24. Four soil samples were advanced to six inches below the ground surface along the southern Site boundary and adjacent to the railroad tracks. The samples were analyzed for polycyclic aromatic hydrocarbons (PAHs), Title 22 Metals and organochlorine pesticides (OCPs). PAHs were not detected at or above the reporting limits in any samples. One OCP (DDE) was detected in one soil sample at a concentration well below its residential human health risk based screening level. Metals concentrations were and below its human health risk based screening level. The metals barium, chromium, cobalt, copper, lead, mercury, nickel, vanadium, and zinc were detected in one or more soil samples but also did not exceed their respective human health risk based screening levels. The metal arsenic was also detected and found to be within the range of typical background concentrations of this element in San Diego soils. No further action was recommended.

January 11, 2008 Phase I ESA

The prior Phase I and II ESAs were summarized in this report. The report concluded that no recognized environmental conditions were noted in connection with the Site.

May 20, 2009 Phase I ESA

This report pertains to APN 161-030-07 (552 West Bobier Drive). It was stated in the report that the Site was formerly developed with a residence, a garage and a shop/storage area. Structures were reportedly demolished in 2008. During the physical inspection, a large amount of trash and several containers of what appears to be hazardous substances and petroleum products were observed in the central area of the parcel. During a return visit to the Site, such materials were noted as being removed.

The consultant recommended that soil sampling and analysis be conducted in the area where the former containers were located. It was also noted in the report that soil sampling should be completed in other areas of the Site where former agricultural activities occurred and where structures were formerly present.

May 20, 2009 Soil Sampling Results

This report pertains to APN 161-030-07 (552 West Bobier Drive). Soil samples were collected from six locations at depths of 0.5 and 3.5 feet. The samples were analyzed for volatile organic compounds, total petroleum hydrocarbons, Title 22 Metals and OCPs. Petroleum hydrocarbons in the diesel and oil ranges were detected in three of the samples analyzed with maximum concentrations of 23 mg/kg and 220 mg/kg, respectively. None of the detection exceeded their respective residential human health risk based screening levels. No metals concentrations were found to be of concern (consistent with prior soil sampling results from 2008). The OCPs gamma and alpha chlordane were detected in a single soil sample below their respective residential human health risk based screening levels.

June 1, 2009 Results of Altec Testing and Engineering Sampling

This letter included a report prepared by a subcontractor to the consultant reporting the results of asbestos and lead sampling of eight soil samples. In addition, seven samples of building materials were also analyzed for asbestos. No asbestos was detected in any of the samples. Total lead concentrations in the soil ranged from 4.97 milligrams per kilogram (mg/kg) to 73.5 mg/kg, which are below the California residential human health risk based screening level of 80 mg/kg. Two of the samples contained lead above 50 mg/kg, a threshold where evaluation of lead solubility is warranted. Soluble lead was subsequently evaluated with results reported in a letter dated June 5, 2009. Soluble lead results were reported at 1.6 milligrams per liter (mg/l) and 2.25 mg/l, below the threshold of interest of 5 mg/l.

June 10, 2009 Comparison of Phase II Sampling Results with Residential Screening Levels

This memorandum was prepared to confirm that any detectable concentrations of contaminants were below both residential and commercial human health risk based screening levels.

4.11 Summary Relative to Environmental Concerns

Given the unremarkable concentrations of contaminants of concern detected during the prior assessment work (i.e. below residential screening levels), no recognized environmental conditions associated with the user provided information are noted.

5.0 REGULATORY RECORDS REVIEW

Our firm commissioned the preparation of a regulatory database report from Environmental Risk Information Services (ERIS) as part of the regulatory records review. ERIS searches a myriad of Federal, State, and local government environmental databases during the preparation of their deliverables. Certain databases are specifically required by the ASTM E1527 practice and are referenced as "standard ASTM regulatory databases." Such databases are searched to at least the minimum search distance around a given property as defined in the practice. Other regulatory databases are also searched that are not specifically referenced in ASTM E1527. Such databases are referenced as "non-ASTM regulatory databases" and are searched as varying radii around a given property as selected by ERIS.

Descriptions of each database searched and the dates that the regulatory databases were last updated by the applicable agencies are included in the ERIS report. The extent of historical information varies with each database and current information is determined by what is publicly available to ERIS at the time of an updates. ERIS updates databases in accordance with ASTM E1527 which states that government information from nongovernmental sources may be considered current if the source updates the information at least every 90 days, or, for information that is updated less frequently than quarterly by the government agency, within 90 days of the date the government agency makes the information available to the public.

Our firm also reviewed unplottable sites listed in the database report by cross-referencing reasonably ascertainable information pertaining to such properties that may include facility names, street names, zip codes or other information. Unplottable sites are ones that cannot be formally mapped or geocoded due to various reasons, including limited geographic information. Any unplottable sites that we identify within the specified search radii have been evaluated as part of the preparation of this report. A copy of the regulatory database report is included in Appendix A.

5.1 Standard ASTM Regulatory Database Search

The tables below present the standard Federal, State, Tribal and local ASTM databases that were searched by ERIS including the search distances from the Site. Below the tables are descriptions of any listings for the Site that may appear in the databases. In addition, a discussion of adjoining properties or properties in the Site vicinity that are listed in one or more regulatory databases that in our professional judgment and opinion have the potential to adversely impact the Site due to current or former releases of hazardous substances and/or petroleum products that occurred at said properties is presented. This practice of discussing only properties of potential environmental concern to the Site is noted in ASTM E1527 which states that the environmental professional may make statements applicable to multiple properties listed in regulatory databases that are not likely to have current or former releases of hazardous substances and/or petroleum products with the potential to migrate to the a given subject property. Our professional judgment and opinions discussed herein are based on several factors including the nature of the regulatory database listings, distance of the off-Site listed properties from the Site, orientation of the listed properties relative to the Site, interpreted the direction of groundwater flow and/or regulatory case status information for the various properties as described in the databases.



The following Federal standard ASTM databases were searched:

Standard Environmental Record Source Name	ERIS Regulatory Database Identification	Search Distance From Site (Miles)
National Priorities List (NPL) Site List	NPL – Proposed NPL – Superfund Record of Decision (ROD)	1.0
Delisted NPL Site List	Deleted NPL	0.5
Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) List	CERCLIS - SEMS – SEMS Archive – ODI – IODI – CERCLIS LIENS – SEMS LIENS	0.5
CERCLIS List	CERCLIS LIENS – SEMS LIENS	Site
CERCLIS No Further Remedial Action Planned (NFRAP) Site List	CERCLIS NFRAP	0.5
Resource Conservation and Recovery Act (RCRA) Corrective Action Sites (CORRACTS) Facilities List	RCRA CORRACTS	1.0
RCRA Non-CORRACTS Treatment, Storage and Disposal (TSD) Facilities List	RCRA TSD	0.5
RCRA Generators List	RCRA LQG – RCRA SQG – RCRA CESQG – RCRA NON-GEN – BULK TERMINAL – REFN – FEMA Underground Storage Tank (UST)	0.25
Institutional Control/Engineering Control Registries	FED ENG – FED INST – FED Brownfields	0.5
Emergency Response Notification System (ERNS) List	ERNS – ERNS 1982 to 1986 – ERNS 1987 to 1989	Site

Site – The Site is not listed on any of the standard Federal ASTM regulatory databases.

Adjoining Properties – Four adjoining properties are listed on the standard Federal ASTM regulatory databases as described below:

- **Melrose Auto Park and B&D Auto Repair (1350 N Melrose Drive**) - This south adjoining property is listed on the RCRA NON-GEN database.
- **Melrose Auto Park, Tony's Automotive, and Tavos Auto Repair LLC (1352 N Melrose Drive, Suite E/F**) - This south adjoining property is listed on the RCRA TSD and RCRA NON-GEN databases.
- **Margaret Madden (1354 Waxwing Drive)** – This east adjoining property is listed on the RCRA NON-GEN database.
- **KA Management Inc DBA Melrose Arco (1501 Melrose Drive)** - This west adjoining property is listed on the RCRA NON-GEN database.

These properties have no reported violations and are not listed on databases indicative of releases of hazardous substances or petroleum products to the subsurface. These properties are not considered to have the potential to adversely impact the Site.

Other Properties – There are 23 listings on the standard Federal ASTM regulatory databases pertaining to multiple properties mapped in the surrounding area that are identified on various databases including RCRA TSD (five listings), RCRA SQG (one listing), and RCRA NON-GEN (17 listings). None of these properties are considered to have the potential to adversely impact the Site.

The following State, Tribal and local standard ASTM databases were searched:

Standard Environmental Record Sources Name	ERIS Regulatory Database Identification	Search Distance From Site (Miles)
Equivalent NPL	RESPONSE	1.0
Equivalent CERCLIS	ENVIROSTOR – DELISTED ENVS – HWP - HHSS	0.5
Landfill and/or Solid Waste Disposal Site Lists	SWF/LF – LDS – SWAT – SWRCB SWF – SANDIEGO SWF	0.5
Leaking Storage Tank Lists	LUST – DELISTED LST – UST CLOSURE – CLEANUP SITES – INDIAN LUST – DELISTED ILST – SAN DIEGO LOP – SAN DIEGO SAM	0.5
Registered Storage Tank Lists	UST – AST – DELISTED TNK – CERS TANK – DELISTED CTNK – HIST TANK – INDIAN UST – DELISTED LUST – DELISTED COUNTY – SAN DIEGO UST	Site and Adjoining Properties
Institutional Control/Engineering Control Registries	LUR – HLUR - DEED	Site
Voluntary Cleanup Sites	VCP	0.5
Brownfield Sites	Not Applicable – No Database Exists	0.5

Site – The Site is not listed on any of the State, Tribal and local standard ASTM databases.

Adjoining Properties – One adjoining property is listed on the State, Tribal or local standard ASTM regulatory databases as described below:

- **Melrose Shell, Arco AM/PM (1501 Melrose Drive) -** This west adjoining property is listed on the UST, DELISTED TNK, CERS TANK, and SAN DIEGO UST databases for permitted underground storage tanks. The business has reported administrative related violations which were returned to compliance in May 2019. The Site is not listed on databases indicative of releases of hazardous substances or petroleum products to the subsurface. This property is not considered to have the potential to adversely impact the Site.

Other Properties – There are eight listings on the State, Tribal, and local standard ASTM regulatory databases pertaining to multiple properties mapped in the surrounding area that are identified on the State and local databases including ENVIROSTOR (two listings), SWF/LF (one listing), LDS (one listing), LUR (one listing), VCP (one listing), CLEANUP SITES (one listing), and SAN DIEGO SWF (one listing). None of these properties are considered to have the potential to adversely impact the Site.

5.2 Non-ASTM Regulatory Database Search

A myriad of non-ASTM regulatory databases was searched by ERIS as noted in the regulatory database report.

Site – The Site is not listed on any of the non-ASTM regulatory databases.

Adjoining Properties – Six adjoining properties are listed on the non-ASTM regulatory databases as described below:

- **Margaret Madden (1354 Waxwing Drive)** – This east adjoining property is listed on the FINDS/FRS database.
- **John McMullin (1345 Waxwing Drive)** – This east adjoining property is listed on the HANET database.
- **Melrose Shell, Melrose LLC, and Pearson Fuels -Arco (1501 Melrose Drive)** - This west adjoining property is listed on the SAN DIEGO HAZ, ALT FUELS, and EMISSIONS databases.
- **Fairfield Vista LP (553 West Bobier Drive)** – This north adjoining property is listed on the HAZNET database.
- **B&D Auto Repair (1350 N Melrose Drive**) - This south adjoining property is listed on the CERS HAZ database.
- **Advanced Auto Repair/Care, Oceanside Towing Services Inc, Bob's Quality Auto and Fleet Service, Victor's Brake and Auto Specialists, O and C Automotive Services (1352 N Melrose Drive, Suite E/F**) - This south adjoining property is listed on the SAN DIEGO HAZ database.

These properties have no reported violations and are not listed on databases indicative of releases of hazardous substances or petroleum products to the subsurface. These properties are not considered to have the potential to adversely impact the Site.

Other Properties – There are 30 listings on the non-ASTM regulatory databases pertaining to multiple properties in the surrounding area that are identified on the non-ASTM databases including CERS HAZ (one listing), EMISSIONS (one listing) and SAN DIEGO HAZ (28 listings). None of these properties are not considered to have the potential to adversely impact the Site.

5.3 Regulatory Agency File Reviews

If a property being assessed under a Phase I ESA or any of the adjoining properties are identified on one or more of the above referenced standard environmental record sources, pertinent regulatory files and/or records associated with such listings should be reviewed to assist the environmental professional in evaluating if recognized environmental conditions existing at a given subject property in connection with any listings. However, if in the environmental professional's opinion, such a review is not warranted, file reviews need not be conducted if the environmental professional provides justification for not doing so.

Agency file reviews for the Site completed during this assessment are noted below. No file reviews for adjoining properties or properties in the surrounding area were deemed warranted with the exception researching listings of properties in the surrounding area on the State of California Geotracker database. The agency inquiries were performed by way of on-line searches/queries of published databases and/or

direct inquiries with public records clerks at one or more agencies. Daniel Weis of Weis Environmental conducted the agency file reviews during the completion of this assessment.

Regulatory Agency	Jurisdiction	Date of Inquiry or Request	Contact	Response or Information From Agency
United States EPA	Federal	11/30/2020	Online https://enviro.epa.gov/	No Records Identified
California Department of Toxic Substances Control	State	11/30/2020	Online https://www.envirostor.dtsc.ca.gov/public/ https://hwts.dtsc.ca.gov/report_list.cfm	No Records Identified
State Water Resources Control Board/Regional Water Quality Control Board	State	11/30/2020	Online https://geotracker.waterboards.ca.gov/ https://geotracker.waterboards.ca.gov/historical_ust_facilities	No Records Identified
County of San Diego Department of Environmental Health	Local	11/30/2020	Public Records Clerk	No Records Identified
City of Oceanside	Local	11/30/2020	Public Records Clerk	No Records Identified
City of Vista	Local	11/30/2020	Public Records Clerk	No Records Identified

As shown in the table above, no records pertaining to the Site were identified. Copies of the agency inquiries are included in Appendix B.

5.4 Summary Relative to Environmental Concerns

No recognized environmental conditions associated with regulatory records searches were noted. In addition, regulatory resources related to the adjoining properties and properties in the vicinity of the Site do not represent recognized environmental conditions that are of direct environmental concern to the Site.

6.0 HISTORICAL RESOURCE REVIEW

The objective of consulting historical sources is to develop a history of the previous uses of a property and surrounding area, in order to help identify the likelihood of past uses having led to recognized environmental conditions in connection with a given property. The goal of the historical research is to identify all obvious uses of a subject property from the present, back to the property's first developed use, or back to 1940, whichever is earlier. The environmental professional exercises professional judgment in reviewing only as many of the standard historical sources referenced in ASTM E1527 that are deemed necessary, are reasonably ascertainable and are likely to be useful. Historical resources reviewed during the completion of this assessment are referenced below. Copies of aerial photographs were obtained from the prior 2009 Phase I ESA completed for the Site and are included in Appendix C. As stated in ASTM E1527, standard historical sources reviewed as part of a prior environmental site assessment do not need to be searched for again, but uses of the property since the prior environmental site assessment should be identified either through standard historical sources or by alternatives to standard historical sources. Because the use of the Site has not substantially changed since the prior assessment completed in 2009 (with the exception of some removed structures and other materials), additional historical research other than that which is summarized below is not warranted.

6.1 Aerial Photographs

We reviewed historical aerial photographs from the years 1947, 1953, 1963, 1974, 1980, 1994 and 2002. The table below presents the results of the photograph review.

Photograph Year	Site Observations	Adjoining Property Observations
1947, 1953	Structures are present in the northeastern portion of the Site. The remainder of the Site is used for agricultural purposes and is vacant and undeveloped.	Adjoining properties appear to be primarily vacant and undeveloped with some scattered structures present.
1963 to 2002	Structures remain in the northeastern portion of the Site. The remainder of the Site is vacant and undeveloped.	Adjoining properties are primarily vacant and undeveloped or used for residential purposes. Increased residential development is noted over the years as is some commercial development to the west and southwest.

As stated above, portions of the Site have been previously used for agricultural purposes. During historical agricultural activities throughout the State of California, various pesticides and more specifically organochlorine pesticides were commonly applied during the normal course of agricultural operations. Such compounds have since been banned from production and use in the United States. Based on the regulatory and historical research completed during the preparation of this assessment, no information has been revealed that would lead us to believe that an accidental spill or release of pesticide products has occurred at the Site. In addition, prior soil sampling and analysis activities completed at the Site did not reveal detections of agricultural chemicals or other contaminants of concern at concentrations above residential human health risk based screening levels. As such, the historical Site uses are not considered to be a recognized environmental condition in connection with the Site.

6.2 Other Historical Sources

Other historical sources are referenced in the ASTM E1527 practice as any source or sources other than the standard historical sources referenced in the practice that are credible to a reasonable person and that identify past uses of a subject property. This category includes, but is not limited to miscellaneous maps, newspaper archives, internet sites, community organizations, local libraries, historical societies, current owners or occupants of neighboring properties, or records in the files and/or personal knowledge of the property owner and/or occupants. No historical sources other than the standard source described above were deemed necessary and useful to assist in identifying recognized environmental conditions.

6.3 Summary Relative to Environmental Concerns

No recognized environmental conditions associated with historical resources reviewed are noted. In addition, historical resources related to the adjoining properties and properties in the vicinity of the Site do not represent recognized environmental conditions that are of direct environmental concern to the Site.

7.0 SITE RECONAISSANCE

The objective of the Site reconnaissance is to obtain information indicating the likelihood of identifying recognized environmental conditions in connection with a subject property. The Site visit for our current assessment was completed by Mr. Daniel Weis, on January 23, 2021. Mr. Weis was unaccompanied during the reconnaissance.

7.1 Methodology and Limiting Conditions

The Site reconnaissance consisted of observing visible areas of the Site and walking publicly accessible areas surrounding the Site. Our firm did not physically access the limits of adjoining private properties during the inspection. Select photographs of the Site obtained during the Site reconnaissance are included in Appendix D.

7.2 Current General Site and Vicinity Characteristics

The Site and the surrounding vicinity are situated in the Cities of Oceanside and Vista in an area consisting primarily of commercial development, residential development, public roadways and train tracks. The Site is currently vacant and undeveloped land. The current use of the Site and adjoining properties are not ones that are indicative of the use, treatment, storage disposal or generation of hazardous substances or petroleum products that have significantly impacted the Site. This includes the western adjacent gasoline station that has not reported unauthorized releases to the subsurface.

7.3 Indications of Past Site and Vicinity Uses

There are no material differences between the current and past uses of the Site, adjoining properties and the surrounding area Site that were visually and/or physically observed during the Site reconnaissance that pertain to recognized environmental conditions.

7.4 Site-Specific Observations

We examined visible and accessible areas of the Site for the features and conditions noted in the table below.

Feature or Condition	Details
General Description of Structures	There are no habitable structures present at the Site. A concrete slab and concrete constructed gate leading to the Site is present at the northeast corner. Other improvements are limited and consistent primarily of chain-link fencing. Indicators of likely utility systems were observed at the Site, primarily in the northeast corner where former structures were located..
Drains and Sumps	None observed.
Heating/Cooling Systems	None observed.
Potable Water Supply	Municipal (City of Oceanside and City of Vista)
Roads	None observed. The primary access to the Site is from West Bobier Drive.
Septic Systems / Sewage Disposal System	Municipal (City of Oceanside and City of Vista). It is possible that remnant septic systems are present in the area of former structures.

Feature or Condition	Details
Wastewater and Stormwater Discharges	None observed.
Wells	None observed.
Drums	None observed.
Electrical or Hydraulic Equipment Known to Contain PCBs or Likely to Contain PCBs	None observed.
Hazardous Substances and Petroleum Products in Connection with Identified Uses	None observed.
Hazardous Substance and Petroleum Products Not Necessarily in Connection With Identified Uses	None observed.
Odors	None noted.
Pits, Ponds or Lagoons	None observed.
Pools of Liquid	None observed.
Solid Waste (Including Fill Material)	Concrete debris was observed in the northeastern portion of the Site and in scattered other areas of the Site. Generally sparse household trash and debris was also noted in various areas of the Site. The Site is likely underlain by varying amounts of fill material placed during prior grading activities. No staining or other suspect conditions were noted.
Stained Soil or Pavement	None observed.
Stains or Corrosion	None observed.
Chemical Storage Tanks	None observed.
Stressed Vegetation	None observed.
Unidentified Substance Containers	None observed.

7.5 Summary Relative to Environmental Concerns

No recognized environmental conditions associated with the current use of the Site were noted during the Site reconnaissance. In addition, no current uses of the adjoining properties or properties in the surrounding area that were visually and/or physically observed during the Site reconnaissance were noted as being relevant to recognized environmental conditions that are of direct environmental concern to the Site.

8.0 INTERVIEWS

8.1 Site Owner

We were informed that the Site owner's knowledge regarding environmental conditions at the Site is limited to that which is included in the prior environmental reports pertaining to the Site (see Section 4.10).

8.2 Key Site Manager

The Site owner is also considered to be the Key Site Manager. Please refer to Section 8.1 above.

8.3 Current Occupants

The Site is currently vacant with no known occupants.

8.4 Local Government Official

During the preparation of this assessment, public records clerks of the City of Oceanside, City of Vista, and County of San Diego Department of Environmental Health were contacted by our firm regarding the Site. Representatives of these agencies indicated that public records requests should be conducted in order to obtain information known by the agencies regarding the Site. Public records requests were completed by our firm as described in Section 5.3.

8.5 Other Parties

Interviews with other persons were not conducted during the preparation of this assessment. As stated in the ASTM E1527 practice, interviews with past owners, operators, and occupants of a subject property who are likely to have material information regarding the potential for contamination at a given property shall be conducted to the extent that they have been identified and that the information likely to be obtained is not duplicative of information already obtained from other sources. Interviews with persons with past association with the Site were not deemed warranted during the completion of this assessment.

8.6 Summary Relative to Environmental Concerns

No recognized environmental conditions associated with the interviews completed during the assessment are noted.

9.0 ADDITIONAL SERVICES – NON-SCOPE ASTM CONSIDERATIONS

No additional services were completed by our firm during the preparation of this assessment. Several non-scope ASTM considerations are referenced in the ASTM E1527 practice that a user of a report may wish to evaluate. Listed considerations in the practice include asbestos-containing building materials, biological agents, cultural and historic resources, ecological resources, endangered species, health and safety, indoor air quality (unrelated to releases of hazardous substances or petroleum products into the environment), industrial hygiene, lead-based paint, lead in drinking water, mold, radon, regulatory compliance and wetlands. No implication is intended by the practice as to the relative importance of inquiry into such non-scope considerations, and the list of considerations is not intended to be all-inclusive.

An evaluation of one or more of the non-scope considerations was not requested of our firm as part of the scope of services for the assessment. Therefore, no findings, opinions and conclusions of this assessment are based on said non-scope ASTM considerations.

10.0 FINDINGS AND OPINIONS

No features and/or conditions indicating the presence or likely presence of hazardous substances and/or petroleum products at the Site that are considered to have the potential to adversely impact the Site were identified during the completion of this assessment.

11.0 CONCLUSIONS AND RECOMMENDATIONS

We have performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM International Practice E1527 of the Site located at identified at the southeast corner of North Melrose Drive and West Bobier Drive (San Diego County Assessor's Parcel Numbers 161-030-07-00, 161-030-23-00 and 161-030-24-00) in the Cities of Oceanside and Vista, County of San Diego, California. Any exceptions to, or deletions from, this practice are described in Section 1.5 of this report. This assessment has revealed no evidence of recognized environmental conditions, controlled recognized environmental conditions or historical recognized environmental conditions in connection with the Site. Additional assessment at the Site is not considered to be warranted at this time.

12.0 ENVIRONMENTAL PROFESSIONAL STATEMENT

I declare that, to the best of my professional knowledge and belief, I meet the definition of environmental professional as defined in Section 312.10 of 40 CFR. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the Site. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312. Qualifications of personnel involved with the completion of this report are included in Appendix E.



_____

Daniel Weis, R.E.H.S.
Environmental Manager

13.0 ASSUMPTIONS

No Phase I ESA effort can eliminate uncertainty regarding the potential for recognized environmental conditions to exist in connection with a given property. Performance of the ASTM E1527 practice may reduce such uncertainty but in no way should the findings and report be misconstrued as insurance or a guarantee regarding the potential for recognized environmental conditions in connection with a given property. The ASTM E1527 practice recognizes reasonable limits of time and cost relative to the completion of a Phase I ESA.

During the completion of this ESA, our firm relied on certain information obtained from secondary sources, including but not limited to the user of the report, government agencies, historical research business entities, environmental databases, and interviews with one or more persons. The sources obtained and/or consulted are assumed to be reliable. However, our firm cannot warranty or guarantee that the information provided by these other sources is wholly accurate or complete. Our firm is not responsible for any misrepresentations or false statements that may be provided by others or the lack of pertinent/relevant information that should have been provided/disclosed by others and we assume no responsibility for any consequence as a result of such omissions or withheld information.

Accuracy and completeness of records varies among information sources, including from governmental agencies. As a result, there is a possibility that even with the proper application of the methodologies presented in ASTM E1527, conditions may exist that could not be identified within the scope of this assessment or which were not reasonably identifiable from the available information. In addition, any responses received from Federal, State, Tribal, and local regulatory agency secondary sources of information after the issuance of this report may change certain findings and conclusions of this report.

Estimations and opinions regarding the potential for off-Site properties to adversely impact a given subject property is one of the key components of a Phase I ESA. In most cases, recent property-specific or adjacent-property specific measured groundwater data or other hydrogeological information is not reasonably ascertainable. In the absence of such data, reasonable assumptions regarding the depth and flow of groundwater are made based on various sources including comparisons to surface elevations, land topography and available hydrogeological on the State of California Geotracker database. In addition, estimations and opinions regarding potential impacts from off-Site locations may be based on certain assumptions that a hazardous substance or petroleum product may not migrate laterally within unsaturated soil for a substantial distance and that contaminants that have reached saturated soil and groundwater may attenuate over time and/or may decrease in concentration relative to distance from its source. While any interpretations presented herein may be effective in reducing uncertainty regarding potential impacts to a subject property from off-Site locations, in no way should the findings and report be misconstrued as insurance or a guarantee regarding the potential for such impacts to occur. Greater certainty regarding subsurface conditions at a given property can only be achieved by way of a subsurface sampling effort of one or more media.

14.0 DEFINITIONS

Definitions of key terminology relevant to the ASTM E1527 practice are presented below.

Recognized Environmental Condition - The presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment.

Controlled Recognized Environmental Condition - A recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls).

Data Failure - A failure to achieve the historical research objectives as outlined in the ASTM E1527 practice even after reviewing the standard historical sources that are reasonably ascertainable and likely to be useful. Data failure is one type of data gap.

Data Gap - A lack of or inability to obtain information required by this practice despite good faith efforts by the environmental professional to gather such information. Data gaps may result from incompleteness in any of the activities required by the ASTM E1527 practice, including, but not limited to site reconnaissance (for example, an inability to conduct the site visit), and interviews (for example, an inability to interview the key site manager, regulatory officials, etc.). Data gaps are only considered to be significant if they affect the ability of the environmental professional to identify recognized environmental conditions.

De Minimis Condition - A condition that generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be de minimis conditions are not recognized environmental conditions nor controlled recognized environmental conditions.

Environment - (A) the navigable waters, the waters of the contiguous zone, and the ocean waters of which the natural resources are under the exclusive management authority of the United States under the Magnuson-Stevens Fishery Conservation and Management Act [16 U.S.C. §§ 1801 et seq.], and (B) any other surface water, groundwater, drinking water supply, land surface or subsurface strata, or ambient air within the United States or under the jurisdiction of the United States.

Good Faith - The absence of any intention to seek an unfair advantage or to defraud another party; an honest and sincere intention to fulfill one's obligations in the conduct or transaction concerned.

Hazardous Substance - Includes hazardous substances designated under section 311 of the Clean Water Act (CWA) or Section 102 of CERCLA, any toxic pollutant listed under Section 307(a) of the CWA, any waste that has been listed as a RCRA hazardous waste or possesses a RCRA hazardous waste characteristic, any substance that is identified as a hazardous pollutant under Section 112 of the Clean Air Act (CAA), and any imminently hazardous chemical that EPA has taken action pursuant to Section 7 of the Toxic Substances Control Act (TSCA).

Historical Recognized Environmental Condition - A past release of any hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority or

meeting unrestricted use criteria established by a regulatory authority, without subjecting the property in question to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls).

Petroleum Exclusion – While the definition of a CERCLA hazardous substance specifically excludes petroleum products and crude oil, the EPA has determined that the petroleum exclusion applies to petroleum products such as gasoline and other fuels containing lead, benzene or other hazardous substances that are normally added during the refining process. Notwithstanding the existence of the petroleum exclusion, petroleum products are included within the scope of the ASTM E1527 practice for multiple reasons. Petroleum products have historically been widely used at commercial properties. In addition, other federal and state laws may impose liability for releases or spills of petroleum products.

Reasonably Ascertainable Information - Information that is (1) publicly available, (2) obtainable from its source within reasonable time and cost constraints and (3) practically reviewable.

Release or Threatened Release - Spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing into the environment (including the abandonment or discarding of barrels, containers and other closed receptacles containing any hazardous substance, or pollutant or contaminant).

15.0 REFERENCES

Sources of information consulted during the completion of our Phase I ESA are noted in the sections below.

15.1 Documents, Plans and Reports

- All Appropriate Inquiry" as necessary to satisfy the defenses available under 42 U.S.C. §§ 9607(b)(3), 9607(r)(1), and 9607(q), relying on definitions provided at 42 U.S.C. §§ 9601(35)(B); and as further explained in 40 CFR §§ 312.1 – 312.31.
- ASTM International, "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process," ASTM Designation E 1527-13, Published November 2013.
- California Geological Survey, 2002, California Geomorphic Provinces Note 36, Electronic Copy, Revised December.
- California State Water Resources Control Board, Water Quality Control Plan for the San Diego Region (9), California, Published 2016.
- ERIS Database Report dated November 26, 2020.
- Prior Environmental Reports Summarized in Section 4.10.
- USGS topographic map, San Luis Rey, California Quadrangle (2018).

15.2 Personal Communications

- Public Records Clerk – City of Oceanside
- Public Records Clerk – City of Vista
- Public Records Clerk – County of San Diego Department of Environmental Health

15.3 Agencies Consulted

- California Department of Conservation, Geologic Energy Management Division (CalGEM)
- California Department of Toxic Substances Control
- California State Water Resources Control Board
- County of San Diego Department of Environmental Health
- City of Oceanside
- City of Vista
- United States EPA

FIGURES

FIGURE 1
VICINITY MAP



Figure 1 - Vicinity Map

Southeast Corner of North Melrose Drive and
West Bobier Drive
Oceanside and Vista, California

N

Prepared by:

Weis Environmental
1938 Kellogg Avenue, Suite 116
Carlsbad, CA 92008

Weis ENVIRONMENTAL

FIGURE 2
SITE PLAN



Figure 2 - Site Plan

Southeast Corner of North Melrose Drive and
West Bobier Drive
Oceanside and Vista, California

N

Prepared by:

Weis Environmental
1938 Kellogg Avenue, Suite 116
Carlsbad, CA 92008

FIGURE 3
TOPOGRAPHIC MAP

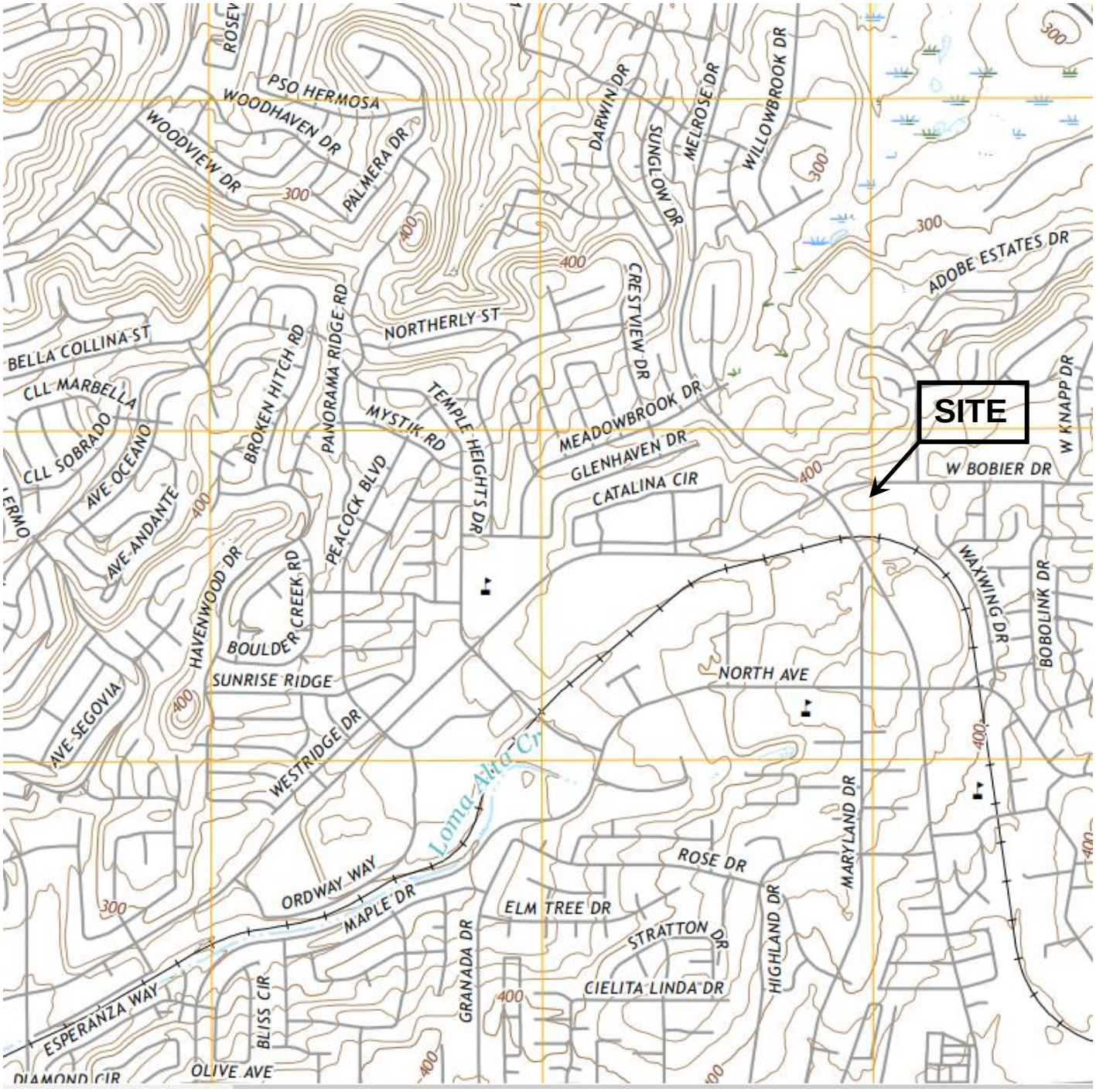


Figure 3 - Topographic Map

Southeast Corner of North Melrose Drive and
West Bobier Drive
Oceanside and Vista, California

N

Prepared by:

Weis Environmental
1938 Kellogg Avenue, Suite 116
Carlsbad, CA 92008

APPENDICES

APPENDIX A
REGULATORY DATABASE REPORT

ENVIRONMENTAL RISK INFORMATION SERVICES

DATABASE REPORT

Project Property:	*552 West Bobier Drive* *552 West Bobier Drive* *Vista CA 92083*
Project No:	
Report Type:	*Database Report*
Order No:	*20312500427*
Requested by:	*Weis Environmental, LLC*
Date Completed:	*November 26, 2020*

Environmental Risk Information Services
A division of Glacier Media Inc.
1.866.517.5204 | info@erisinfo.com | erisinfo.com

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Executive Summary

Property Information:

Project Property:		*552 West Bobier Drive* *552 West Bobier Drive Vista CA 92083*
Project No:		
Coordinates:		
	Latitude:	*33.22050183*
	Longitude:	*-117.25677563*
	UTM Northing:	*3,675,761.60*
	UTM Easting:	*476,072.90*
	UTM Zone:	*11S*
Elevation:		*438 FT*

Order Information:

Order No:	*20312500427*
Date Requested:	*November 25, 2020*
Requested by:	*Weis Environmental, LLC*
Report Type:	*Database Report*

Historicals/Products:

ERIS Xplorer	*ERIS Xplorer*
Excel Add-On	*Excel Add-On*

Executive Summary: Report Summary

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
Standard Environmental Records								
Federal								
FRP	Y	0.25	0	0	0	-	-	0
NPL	Y	1	0	0	0	0	0	0
PROPOSED NPL	Y	1	0	0	0	0	0	0
DELETED NPL	Y	0.5	0	0	0	0	-	0
SEMS	Y	0.5	0	0	0	0	-	0
ODI	Y	0.5	0	0	0	0	-	0
SEMS ARCHIVE	Y	0.5	0	0	0	0	-	0
CERCLIS	Y	0.5	0	0	0	0	-	0
IODI	Y	0.5	0	0	0	0	-	0
CERCLIS NFRAP	Y	0.5	0	0	0	0	-	0
CERCLIS LIENS	Y	PO	0	-	-	-	-	0
RCRA CORRACTS	Y	1	0	0	0	0	0	0
RCRA TSD	Y	0.5	0	0	**3**	**3**	-	**6**
RCRA LQG	Y	0.25	0	0	0	-	-	0
RCRA SQG	Y	0.25	0	0	**1**	-	-	**1**
RCRA CESQG	Y	0.25	0	0	0	-	-	0
RCRA NON GEN	Y	0.25	0	**5**	**19**	-	-	**24**
FED ENG	Y	0.5	0	0	0	0	-	0
FED INST	Y	0.5	0	0	0	0	-	0
ERNS 1982 TO 1986	Y	PO	0	-	-	-	-	0
ERNS 1987 TO 1989	Y	PO	0	-	-	-	-	0
ERNS	Y	PO	0	-	-	-	-	0
FED BROWNFIELDS	Y	0.5	0	0	0	0	-	0
FEMA UST	Y	0.25	0	0	0	-	-	0
REFN	Y	0.25	0	0	0	-	-	0
BULK TERMINAL	Y	0.25	0	0	0	-	-	0
SEMS LIEN	Y	PO	0	-	-	-	-	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
SUPERFUND ROD	Y	1	0	0	0	0	0	0
State								
RESPONSE	Y	1	0	0	0	0	0	0
ENVIROSTOR	Y	1	0	0	0	**1**	**1**	**2**
DELISTED ENVS	Y	1	0	0	0	0	0	0
SWF/LF	Y	0.5	0	0	0	**1**	-	**1**
HWP	Y	1	0	0	0	0	0	0
SWAT	Y	0.5	0	0	0	0	-	0
LDS	Y	0.5	0	0	0	**1**	-	**1**
LUST	Y	0.5	0	0	0	0	-	0
DELISTED LST	Y	0.5	0	0	0	0	-	0
SWRCB SWF	Y	0.5	0	0	0	0	-	0
UST	Y	0.25	0	**1**	0	-	-	**1**
UST CLOSURE	Y	0.5	0	0	0	0	-	0
HHSS	Y	0.25	0	0	0	-	-	0
AST	Y	0.25	0	0	0	-	-	0
TANK OIL GAS	Y	0.25	0	0	0	-	-	0
DELISTED TNK	Y	0.25	0	**1**	0	-	-	**1**
CERS TANK	Y	0.25	0	**1**	0	-	-	**1**
LUR	Y	0.5	0	0	0	**1**	-	**1**
HLUR	Y	0.5	0	0	0	0	-	0
DEED	Y	0.5	0	0	0	0	-	0
VCP	Y	0.5	0	0	0	**1**	-	**1**
CLEANUP SITES	Y	0.5	0	0	0	**1**	-	**1**
DELISTED COUNTY	Y	0.25	0	0	0	-	-	0
DELISTED CTNK	Y	0.25	0	0	0	-	-	0
HIST TANK	Y	0.25	0	0	0	-	-	0
Tribal								
INDIAN LUST	Y	0.5	0	0	0	0	-	0
INDIAN UST	Y	0.25	0	0	0	-	-	0
DELISTED ILST	Y	0.5	0	0	0	0	-	0
DELISTED IUST	Y	0.25	0	0	0	-	-	0
County								
SANDIEGO SWF	Y	0.5	0	0	0	**1**	-	**1**

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
SAN DIEGO LOP	Y	0.5	0	0	0	0	-	0
SANDIEGO HAZ	Y	0.25	0	**6**	**30**	-	-	**36**
SANDIEGO UST	Y	0.25	0	**1**	0	-	-	**1**
SANDIEGO SAM	Y	0.5	0	0	0	0	-	0

Additional Environmental Records

Federal

PFAS NPL	Y	0.5	0	0	0	0	-	0
FINDS/FRS	Y	PO	0	**1**	-	-	-	**1**
TRIS	Y	PO	0	-	-	-	-	0
PFAS TRI	Y	0.5	0	0	0	0	-	0
PFAS WATER	Y	0.5	0	0	0	0	-	0
HMIRS	Y	0.125	0	0	-	-	-	0
NCDL	Y	0.125	0	0	-	-	-	0
TSCA	Y	0.125	0	0	-	-	-	0
HIST TSCA	Y	0.125	0	0	-	-	-	0
FTTS ADMIN	Y	PO	0	-	-	-	-	0
FTTS INSP	Y	PO	0	-	-	-	-	0
PRP	Y	PO	0	-	-	-	-	0
SCRD DRYCLEANER	Y	0.5	0	0	0	0	-	0
ICIS	Y	PO	0	-	-	-	-	0
FED DRYCLEANERS	Y	0.25	0	0	0	-	-	0
DELISTED FED DRY	Y	0.25	0	0	0	-	-	0
FUDS	Y	1	0	0	0	0	0	0
PIPELINE INCIDENT	Y	PO	0	-	-	-	-	0
MLTS	Y	PO	0	-	-	-	-	0
HIST MLTS	Y	PO	0	-	-	-	-	0
MINES	Y	0.25	0	0	0	-	-	0
ALT FUELS	Y	0.25	0	**1**	0	-	-	**1**
SSTS	Y	0.25	0	0	0	-	-	0
PCB	Y	0.5	0	0	0	0	-	0

State

DRYCLEANERS	Y	0.25	0	0	0	-	-	0
DELISTED DRYCLEANERS	Y	0.25	0	0	0	-	-	0
DRYC GRANT	Y	0.25	0	0	0	-	-	0

Database	Searched	Search Radius	Project Property	Within 0.12mi	0.125mi to 0.25mi	0.25mi to 0.50mi	0.50mi to 1.00mi	Total
PFAS	Y	0.5	0	0	0	0	-	0
PFAS GW	Y	0.5	0	0	0	0	-	0
HWSS CLEANUP	Y	0.5	0	0	0	0	-	0
DTSC HWF	Y	0.5	0	0	0	0	-	0
INSP COMP ENF	Y	1	0	0	0	0	0	0
SCH	Y	1	0	0	0	0	0	0
CHMIRS	Y	PO	0	-	-	-	-	0
HAZNET	Y	PO	0	**2**	-	-	-	**2**
HIST CHMIRS	Y	PO	0	-	-	-	-	0
HIST MANIFEST	Y	PO	0	-	-	-	-	0
HIST CORTESE	Y	0.5	0	0	0	0	-	0
CDO/CAO	Y	0.5	0	0	0	0	-	0
CERS HAZ	Y	0.125	0	**2**	-	-	-	**2**
DELISTED HAZ	Y	0.5	0	0	0	0	-	0
GEOTRACKER	Y	0.125	0	0	-	-	-	0
WASTE DISCHG	Y	0.25	0	0	0	-	-	0
EMISSIONS	Y	0.25	0	**1**	**1**	-	-	**2**
CDL	Y	0.125	0	0	-	-	-	0

Tribal ***No Tribal additional environmental record sources available for this State.***

County ***No County additional environmental databases were selected to be included in the search.***

Total:	*0*	***22***	***54***	***10***	***1***	***87***

**** PO – Property Only***
**** 'Property and adjoining properties' database search radii are set at 0.25 miles.***

Executive Summary: Site Report Summary - Project Property

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number

No records found in the selected databases for the project property.

Executive Summary: Site Report Summary - Surrounding Properties

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
1	RCRA NON GEN	MARGARET MADDEN	1354 WAXWING DR VISTA CA 92083 ***EPA Handler ID:*** CAC002974812	E	0.01 / 29.20	17	31
1	RCRA NON GEN	MARGARET MADDEN	1354 WAXWING DR VISTA CA 92083 ***EPA Handler ID:*** CAC002979688	E	0.01 / 29.20	17	32
1	FINDS/FRS	MARGARET MADDEN	1354 WAXWING DR VISTA CA 92083	E	0.01 / 29.20	17	33
2	HAZNET	FAIRFIELD VISTA LP	553 W BOBIER DR VISTA CA 920831908	ENE	0.01 / 52.60	24	33
3	HAZNET	JOHN MCMULLIN	1345 WAXWING DR VISTA CA 92083	ESE	0.02 / 98.38	12	35
4	DELISTED TNK	ARCO AM/PM	1501 MELROSE DR OCEANSIDE CA 92056	W	0.02 / 131.86	9	35
4	SANDIEGO UST	Melrose Shell	1501 N MELROSE DR OCEANSIDE CA 92056 ***Record ID | Permit Status:*** DEH2002-HUPFP-137646 | Permit Renewed	W	0.02 / 131.86	9	36
4	ALT FUELS	Pearson Fuels - Arco	1501 N Melrose Dr Oceanside CA 92056	W	0.02 / 131.86	9	36
4	SANDIEGO HAZ	Melrose Shell	1501 N MELROSE DR OCEANSIDE CA 92056	W	0.02 / 131.86	9	37
4	UST	Melrose Shell	1501 N MELROSE DR OCEANSIDE CA 92056 ***Facility ID:*** 37-000-137646	W	0.02 / 131.86	9	44
4	EMISSIONS	MELROSE LLC	1501 MELROSE DR OCEANSIDE CA 92056	W	0.02 / 131.86	9	44
4	CERS TANK	Melrose Shell	1501 N MELROSE DR OCEANSIDE CA 92056 ***Site ID:*** 93134	W	0.02 / 131.86	9	50
4	RCRA NON GEN	KA MANAGEMENT INC DBA MELROSE ARCO	1501 MELROSE DR OCEANSIDE CA 92056-5393	W	0.02 / 131.86	9	61

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
			EPA Handler ID: CAL000183657				
5	SANDIEGO HAZ	B & D AUTO REPAIR	1350 N MELROSE DR VISTA CA 92083	SSW	0.08 / 411.97	-28	62
5	CERS HAZ	B & D AUTO REPAIR	1350 N MELROSE DR VISTA CA 92083	SSW	0.08 / 411.97	-28	66
5	RCRA NON GEN	B&D AUTO REPAIR	1350 N MELROSE VISTA CA 92083-0000	SSW	0.08 / 411.97	-28	71
			EPA Handler ID: CAL000270885				
6	SANDIEGO HAZ	DOUGLAS TECHNOLOGY GROUP, INC	1340 N MELROSE DR, VISTA, CA 92083 VISTA CA 92083	SSE	0.08 / 447.83	7	72
6	SANDIEGO HAZ	VERIZON WIRELESS	1340 N MELROSE DR, VISTA, CA 92083 VISTA CA 92083	SSE	0.08 / 447.83	7	78
6	SANDIEGO HAZ	DOUGLAS WHEEL, INC	1340 N MELROSE DR CA	SSE	0.08 / 447.83	7	79
6	CERS HAZ	Verizon Wireless: Melrose West	1340 N MELROSE DR VISTA CA 92083	SSE	0.08 / 447.83	7	80
6	RCRA NON GEN	DOUGLAS TECHNOLOGIES GROUP INC	1340 N MELROSE DR VISTA CA 92083	SSE	0.08 / 447.83	7	82
			EPA Handler ID: CAL000347601				
7	SANDIEGO HAZ	Verizon Wireless: Melrose West	1340 MELROSE DR N, VISTA, CA 92083-2916 VISTA CA 92083-2916	S	0.12 / 655.23	-4	83
8	SANDIEGO HAZ	O & C AUTOMOTIVE SERVICES	1352 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.13 / 682.08	-1	84
8	SANDIEGO HAZ	VICTOR'S BRAKE & AUTO SPECIALISTS	1352 N MELROSE DR, SUITE# G&H, VISTA, CA 92083 VISTA CA 92083	S	0.13 / 682.08	-1	85
8	SANDIEGO HAZ	BOB'S QUALITY AUTO AND FLEET SERVICE	1352 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.13 / 682.08	-1	86

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
8	SANDIEGO HAZ	ADVANCE AUTO CARE	1352 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.13 / 682.08	-1	87
8	SANDIEGO HAZ	OCEANSIDE TOWING & SVCS INC	1352 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.13 / 682.08	-1	88
8	SANDIEGO HAZ	ADVANCED AUTO REPAIR	1352 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.13 / 682.08	-1	89
8	RCRA NON GEN	MELROSE AUTO PARK	1350 & 1352 N MELROSE DR VISTA CA 92083 ***EPA Handler ID:*** CAL000300920	S	0.13 / 682.08	-1	90
8	RCRA NON GEN	TONYS AUTOMOTIVE REPAIR	1352 N MELROSE DR STE E VISTA CA 92083 ***EPA Handler ID:*** CAL000409234	S	0.13 / 682.08	-1	92
8	RCRA TSD	TAVOS AUTO REPAIR LLC	1352 N MELROSE DR STE E F VISTA CA 92083 ***EPA Handler ID:*** CAL000446094	S	0.13 / 682.08	-1	93
8	RCRA NON GEN	TAVOS AUTO REPAIR LLC	1352 N MELROSE DR STE E F VISTA CA 92083 ***EPA Handler ID:*** CAL000446094	S	0.13 / 682.08	-1	94
9	EMISSIONS	PERFORMANCE AUTO BODY	1330 MELROSE DR N #A VISTA CA 92083	S	0.13 / 683.01	18	95
10	SANDIEGO HAZ	AT&T Mobility - NORTH MELROSE SELF STORAGE (USID87292)	1317 N MELROSE DR, VISTA, CA 92083-2917 VISTA CA 92083-2917	S	0.14 / 745.45	2	102
10	RCRA NON GEN	EXTRA SPACE MELROSE DR 7360	1317 N MELROSE DR VISTA CA 92083 ***EPA Handler ID:*** CAC003053210	S	0.14 / 745.45	2	103
11	RCRA NON GEN	KEVINS AUTO CAR	1334 N MELROSW DR STE F VISTA CA 92084 ***EPA Handler ID:*** CAL000438517	SSE	0.14 / 752.39	22	104
12	SANDIEGO HAZ	GT AUTOBODY SHOP	1330 N MELROSE DR, VISTA, CA 92083 VISTA CA 92083	S	0.15 / 801.68	17	105
12	SANDIEGO HAZ	PERFORMANCE AUTO BODY	1330 N MELROSE AVE, VISTA, CA 92083 VISTA CA 92083	S	0.15 / 801.68	17	106

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
12	SANDIEGO HAZ	FALLBROOK SOAP AND CHEMICAL	1330 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.15 / 801.68	17	107
12	SANDIEGO HAZ	PERFORMANCE AUTO BODY	1330 N MELROSE DR, VISTA, CA 92083 VISTA CA 92083	S	0.15 / 801.68	17	108
12	SANDIEGO HAZ	MERIDIAN LAB INC	1330 N MELROSE DR E VISTA CA 92083	S	0.15 / 801.68	17	109
12	SANDIEGO HAZ	TOM KENNEDY AUTO REPAIR	1330 N MELROSE DR, SUITE# D, VISTA, CA 92083 VISTA CA 92083	S	0.15 / 801.68	17	110
12	RCRA NON GEN	MERIDIAN LABORATORY INC	1330 E N MELROSE DR VISTA CA 92083-0000 ***EPA Handler ID:*** CAL000072009	S	0.15 / 801.68	17	112
12	RCRA NON GEN	TOM KENNEDY AUTO REPAIR	1330 N MELROSE DR STE D VISTA CA 92083-0000 ***EPA Handler ID:*** CAL000058226	S	0.15 / 801.68	17	113
12	RCRA NON GEN	TJ CROSSMANS AUTO REPAIR INC	1330 N MELROSE DR STE F VISTA CA 92083 ***EPA Handler ID:*** CAL000391541	S	0.15 / 801.68	17	114
12	RCRA NON GEN	ARCHER EXCLUSIVE AUTO SERVICE LLC	1330 N MELROSE DR STE A VISTA CA 92083-2921 ***EPA Handler ID:*** CAL000409740	S	0.15 / 801.68	17	115
12	RCRA NON GEN	ROUGH ROAD AUTOMOTIVE INC	1330 N MELROSE DR STE C VISTA CA 92083 ***EPA Handler ID:*** CAL000448265	S	0.15 / 801.68	17	116
13	SANDIEGO HAZ	CALIFORNIA ENVIRONMENTAL SOLUTIONS, INC	1338 N MELROSE DR, SUITE# D, VISTA, CA 92083 CA 92083	S	0.16 / 838.03	26	117
13	SANDIEGO HAZ	TKO PRODUCTS INC	1338 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.16 / 838.03	26	119
13	SANDIEGO HAZ	BAZOOKA RACING	1338 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.16 / 838.03	26	120

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
13	SANDIEGO HAZ	VISTA MASTER CARBURETORS	1338 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.16 / 838.03	26	121
13	RCRA NON GEN	CALIFORNIA ENVIRONMENTAL SOLUTIONS	1338 N MELROSE DR STE D VISTA CA 92083-2923 **EPA Handler ID:** CAL000381463	S	0.16 / 838.03	26	122
14	SANDIEGO HAZ	PALOMAR CASEWORK INC	1334 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.17 / 890.77	29	123
14	SANDIEGO HAZ	B & D AUTO REPAIR	1334 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.17 / 890.77	29	124
14	SANDIEGO HAZ	AUTO ELECTRIC REPAIR	1334 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.17 / 890.77	29	125
14	SANDIEGO HAZ	CUTTERS SOURCE	1334 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.17 / 890.77	29	126
14	SANDIEGO HAZ	NOVAK AUTO REPAIR	1334 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.17 / 890.77	29	127
14	RCRA NON GEN	VISTA GERMAN AUTO INC	1334 N MELROSE DR STE F VISTA CA 92083-2922 **EPA Handler ID:** CAL000374746	S	0.17 / 890.77	29	128
14	RCRA NON GEN	NAPA AUTO PARTS	1334 N MELROSE STE H VISTA CA 92083 **EPA Handler ID:** CAL000450134	S	0.17 / 890.77	29	129
14	SANDIEGO HAZ	AutoPartsPros, LLC	1334 N Melrose DR E Vista CA 92083	S	0.17 / 890.77	29	130
15	RCRA TSD	HERIBERTO SORIANO	1208 WAXWING DR. VISTA CA 92083 **EPA Handler ID:** CAC003016992	SE	0.20 / 1,078.79	-33	132
15	RCRA NON GEN	HERIBERTO SORIANO	1208 WAXWING DR. VISTA CA 92083 **EPA Handler ID:** CAC003016992	SE	0.20 / 1,078.79	-33	133
16	RCRA SQG	PROFESSIONAL TRUCK & AUTO SERV	1304 N MELROSE DR STE J VISTA CA 92083	S	0.22 / 1,140.82	18	134

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
			EPA Handler ID: CAD982492928				
16	SANDIEGO HAZ	MULLIGAN RACING DEVELOPMENT	1304 N MELROSE DR, SUITE# B, VISTA, CA 92083 VISTA CA 92083	S	0.22 / 1,140.82	18	135
16	SANDIEGO HAZ	ZIMMERMANN AUTOSPORT	1304 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.22 / 1,140.82	18	137
16	SANDIEGO HAZ	BRITISH MASTERS	1304 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.22 / 1,140.82	18	138
16	SANDIEGO HAZ	CORNERSTONE SENSORS, INC	1304 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.22 / 1,140.82	18	139
16	SANDIEGO HAZ	QUALITY THERMISTOR, INC	1304 N MELROSE DR, VISTA, CA 92083 VISTA CA 92083	S	0.22 / 1,140.82	18	140
16	SANDIEGO HAZ	BOB WORKMAN'S EUROPEAN AUTO	1304 N MELROSE DR VISTA CA 92083	S	0.22 / 1,140.82	18	141
16	RCRA NON GEN	MULLIGAN RACING DEVELOPMENT	1304 N MELROSE DR STE B VISTA CA 92083 ***EPA Handler ID:*** CAL000367591	S	0.22 / 1,140.82	18	145
16	RCRA NON GEN	BOB WORKMAN'S EUROPEAN AUTO	1304 N MELROSE AVE SUITE A VISTA CA 92083-0000 ***EPA Handler ID:*** CAL000061984	S	0.22 / 1,140.82	18	146
16	RCRA NON GEN	CHILDREN'S PARADISE	1304 NORTH MELROSE SUITE C VISTA CA 92084 ***EPA Handler ID:*** CAC003068533	S	0.22 / 1,140.82	18	147
17	SANDIEGO HAZ	DIMENSIONAL TECHNOLOGIES	1316 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.22 / 1,167.56	16	148
18	RCRA NON GEN	PASS N GO SMOG CENTER	1310 N MELROSE DR STE D VISTA CA 92083 ***EPA Handler ID:*** CAL000410198	S	0.25 / 1,297.58	8	149
18	RCRA TSD	ALIGNMENT PROS	1310 N MELROSE DR STE C VISTA CA 92083 ***EPA Handler ID:*** CAL000444422	S	0.25 / 1,297.58	8	150

Map Key	DB	Company/Site Name	Address	Direction	Distance (mi/ft)	Elev Diff (ft)	Page Number
18	RCRA NON GEN	ALIGNMENT PROS	1310 N MELROSE DR STE C VISTA CA 92083 ***EPA Handler ID:*** CAL000444422	S	0.25 / 1,297.58	8	151
19	RCRA TSD	RICHENBACK, JACQUELINE	363 DORSEY WAY VISTA CA 92083 ***EPA Handler ID:*** CAC003017889	E	0.29 / 1,521.96	-14	152
20	LUR	VISTA BURN DUMP	1300 LEE DRIVE OCEANSIDE CA 92054 ***Estor/EPA ID	Cleanup Status:*** 70000083 | CERTIFIED / OPERATION & MAINTENANCE AS OF 12/17/2013	WSW	0.29 / 1,542.79	-61	154
20	VCP	VISTA BURN DUMP	1300 LEE DRIVE OCEANSIDE CA 92054 ***Estor/EPA ID	Cleanup Status:*** 70000083 | CERTIFIED / OPERATION & MAINTENANCE AS OF 12/17/2013	WSW	0.29 / 1,542.79	-61	169
20	ENVIROSTOR	VISTA BURN DUMP	1300 LEE DRIVE OCEANSIDE CA 92054 ***Estor/EPA ID	Cleanup Status:*** 70000083 | CERTIFIED / OPERATION & MAINTENANCE AS OF 12/17/2013	WSW	0.29 / 1,542.79	-61	184
21	LDS	VISTA BURN SITE	1300 BLOCK LEE AVENUE OCEANSIDE CA 92056	WSW	0.34 / 1,770.59	-87	199
22	RCRA TSD	1315 LEE DRIVE	1315 LEE DRIVE VISTA CA 92083 ***EPA Handler ID:*** CAL000422248	SW	0.36 / 1,926.00	-31	200
22	CLEANUP SITES	LEE'S METAL RECYCLING	1315 LEE DRIVE VISTA CA 92083 ***Site Facility Type	Status:*** CLEANUP PROGRAM SITE | OPEN - ASSESSMENT & INTERIM REMEDIAL ACTION	SW	0.36 / 1,926.00	-31	201
23	SANDIEGO SWF	Vista Burnsite	1300 Lee Drive, Oceanside 92056 CA	SW	0.38 / 2,014.03	-33	202
23	SWF/LF	Vista Burnsite	1300 Lee Drive Oceanside CA 92054 ***Act Opl Status	Activity:*** Closed | Solid Waste Disposal Site	SW	0.38 / 2,014.03	-33	203
24	RCRA TSD	THORNTON TECHNOLOGY CORPORATION	2555 JASON CT OCEANSIDE CA 92056 ***EPA Handler ID:*** CAL000445594	WSW	0.46 / 2,448.32	-97	204
25	ENVIROSTOR	ALLFAST FASTENING SYSTEMS, INC.	2640 VISTA PACIFIC DRIVE OCEANSIDE CA 92056 ***Estor/EPA ID	Cleanup Status:*** 71002365 | INACTIVE - NEEDS EVALUATION AS OF	SW	0.62 / 3,258.89	-93	205

Executive Summary: Summary by Data Source

Standard

Federal

RCRA TSD - RCRA non-CORRACTS TSD Facilities

A search of the RCRA TSD database, dated Jul 27, 2020 has found that there are 6 RCRA TSD site(s) within approximately 0.50 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
ALIGNMENT PROS	1310 N MELROSE DR STE C VISTA CA 92083 ***EPA Handler ID**: CAL000444422*	S	0.25 / 1,297.58	18

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
TAVOS AUTO REPAIR LLC	1352 N MELROSE DR STE E F VISTA CA 92083 ***EPA Handler ID**: CAL000446094*	S	0.13 / 682.08	8
HERIBERTO SORIANO	1208 WAXWING DR. VISTA CA 92083 ***EPA Handler ID**: CAC003016992*	SE	0.20 / 1,078.79	15
RICHENBACK, JACQUELINE	363 DORSEY WAY VISTA CA 92083 ***EPA Handler ID**: CAC003017889*	E	0.29 / 1,521.96	19
1315 LEE DRIVE	1315 LEE DRIVE VISTA CA 92083 ***EPA Handler ID**: CAL000422248*	SW	0.36 / 1,926.00	22
THORNTON TECHNOLOGY CORPORATION	2555 JASON CT OCEANSIDE CA 92056 ***EPA Handler ID**: CAL000445594*	WSW	0.46 / 2,448.32	24

RCRA SQG - RCRA Small Quantity Generators List

A search of the RCRA SQG database, dated Jul 27, 2020 has found that there are 1 RCRA SQG site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
PROFESSIONAL TRUCK & AUTO SERV	1304 N MELROSE DR STE J VISTA CA 92083 ***EPA Handler ID**: CAD982492928*	S	0.22 / 1,140.82	16

RCRA NON GEN - RCRA Non-Generators

A search of the RCRA NON GEN database, dated Jul 27, 2020 has found that there are 24 RCRA NON GEN site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
MARGARET MADDEN	1354 WAXWING DR VISTA CA 92083 ***EPA Handler ID**: CAC002974812*	E	0.01 / 29.20	1
MARGARET MADDEN	1354 WAXWING DR VISTA CA 92083 ***EPA Handler ID**: CAC002979688*	E	0.01 / 29.20	1
KA MANAGEMENT INC DBA MELROSE ARCO	1501 MELROSE DR OCEANSIDE CA 92056-5393 ***EPA Handler ID**: CAL000183657*	W	0.02 / 131.86	4
DOUGLAS TECHNOLOGIES GROUP INC	1340 N MELROSE DR VISTA CA 92083 ***EPA Handler ID**: CAL000347601*	SSE	0.08 / 447.83	6
EXTRA SPACE MELROSE DR 7360	1317 N MELROSE DR VISTA CA 92083 ***EPA Handler ID**: CAC003053210*	S	0.14 / 745.45	10
KEVINS AUTO CAR	1334 N MELROSW DR STE F VISTA CA 92084 ***EPA Handler ID**: CAL000438517*	SSE	0.14 / 752.39	11
MERIDIAN LABORATORY INC	1330 E N MELROSE DR VISTA CA 92083-0000 ***EPA Handler ID**: CAL000072009*	S	0.15 / 801.68	12
TOM KENNEDY AUTO REPAIR	1330 N MELROSE DR STE D VISTA CA 92083-0000 ***EPA Handler ID**: CAL000058226*	S	0.15 / 801.68	12
TJ CROSSMANS AUTO REPAIR INC	1330 N MELROSE DR STE F VISTA CA 92083 ***EPA Handler ID**: CAL000391541*	S	0.15 / 801.68	12
ARCHER EXCLUSIVE AUTO SERVICE LLC	1330 N MELROSE DR STE A VISTA CA 92083-2921 ***EPA Handler ID**: CAL000409740*	S	0.15 / 801.68	12
ROUGH ROAD AUTOMOTIVE INC	1330 N MELROSE DR STE C VISTA CA 92083 ***EPA Handler ID**: CAL000448265*	S	0.15 / 801.68	12
CALIFORNIA ENVIRONMENTAL SOLUTIONS	1338 N MELROSE DR STE D VISTA CA 92083-2923 ***EPA Handler ID**: CAL000381463*	S	0.16 / 838.03	13

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
VISTA GERMAN AUTO INC	1334 N MELROSE DR STE F VISTA CA 92083-2922 ***EPA Handler ID**: CAL000374746*	S	0.17 / 890.77	14
NAPA AUTO PARTS	1334 N MELROSE STE H VISTA CA 92083 ***EPA Handler ID**: CAL000450134*	S	0.17 / 890.77	14
MULLIGAN RACING DEVELOPMENT	1304 N MELROSE DR STE B VISTA CA 92083 ***EPA Handler ID**: CAL000367591*	S	0.22 / 1,140.82	16
BOB WORKMAN'S EUROPEAN AUTO	1304 N MELROSE AVE SUITE A VISTA CA 92083-0000 ***EPA Handler ID**: CAL000061984*	S	0.22 / 1,140.82	16
CHILDREN'S PARADISE	1304 NORTH MELROSE SUITE C VISTA CA 92084 ***EPA Handler ID**: CAC003068533*	S	0.22 / 1,140.82	16
PASS N GO SMOG CENTER	1310 N MELROSE DR STE D VISTA CA 92083 ***EPA Handler ID**: CAL000410198*	S	0.25 / 1,297.58	18
ALIGNMENT PROS	1310 N MELROSE DR STE C VISTA CA 92083 ***EPA Handler ID**: CAL000444422*	S	0.25 / 1,297.58	18

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
B&D AUTO REPAIR	1350 N MELROSE VISTA CA 92083-0000 ***EPA Handler ID**: CAL000270885*	SSW	0.08 / 411.97	5
MELROSE AUTO PARK	1350 & 1352 N MELROSE DR VISTA CA 92083 ***EPA Handler ID**: CAL000300920*	S	0.13 / 682.08	8
TONYS AUTOMOTIVE REPAIR	1352 N MELROSE DR STE E VISTA CA 92083 ***EPA Handler ID**: CAL000409234*	S	0.13 / 682.08	8
TAVOS AUTO REPAIR LLC	1352 N MELROSE DR STE E F VISTA CA 92083 ***EPA Handler ID**: CAL000446094*	S	0.13 / 682.08	8
HERIBERTO SORIANO	1208 WAXWING DR. VISTA CA 92083 ***EPA Handler ID**: CAC003016992*	SE	0.20 / 1,078.79	15

State

ENVIROSTOR - EnviroStor Database

A search of the ENVIROSTOR database, dated Oct 5, 2020 has found that there are 2 ENVIROSTOR site(s) within approximately 1.00 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
VISTA BURN DUMP	1300 LEE DRIVE OCEANSIDE CA 92054	WSW	0.29 / 1,542.79	20
	***Estor/EPA ID** | **Cleanup Status**: 70000083 | CERTIFIED / OPERATION & MAINTENANCE AS OF 12/17/2013*			
ALLFAST FASTENING SYSTEMS, INC.	2640 VISTA PACIFIC DRIVE OCEANSIDE CA 92056	SW	0.62 / 3,258.89	25
	***Estor/EPA ID** | **Cleanup Status**: 71002365 | INACTIVE - NEEDS EVALUATION AS OF*			

SWF/LF - Solid Waste Information System (SWIS)

A search of the SWF/LF database, dated Oct 15, 2020 has found that there are 1 SWF/LF site(s) within approximately 0.50 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
Vista Burnsite	1300 Lee Drive Oceanside CA 92054	SW	0.38 / 2,014.03	23
	***Act Opl Status** | **Activity**: Closed | Solid Waste Disposal Site*			

LDS - Land Disposal Sites

A search of the LDS database, dated Jul 15, 2020 has found that there are 1 LDS site(s) within approximately 0.50 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
VISTA BURN SITE	1300 BLOCK LEE AVENUE OCEANSIDE CA 92056	WSW	0.34 / 1,770.59	21

UST - Permitted Underground Storage Tank (UST) in GeoTracker

A search of the UST database, dated Jul 12, 2020 has found that there are 1 UST site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
Melrose Shell	1501 N MELROSE DR OCEANSIDE CA 92056	W	0.02 / 131.86	4
	***Facility ID**: 37-000-137646*			

DELISTED TNK - Delisted Storage Tanks

A search of the DELISTED TNK database, dated Oct 14, 2020 has found that there are 1 DELISTED TNK site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
ARCO AM/PM	1501 MELROSE DR OCEANSIDE CA 92056	W	0.02 / 131.86	4

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key

CERS TANK - California Environmental Reporting System (CERS) Tanks

A search of the CERS TANK database, dated Oct 26, 2020 has found that there are 1 CERS TANK site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
Melrose Shell	1501 N MELROSE DR OCEANSIDE CA 92056	W	0.02 / 131.86	4
	***Site ID**: 93134*			

LUR - Site Mitigation and Brownfields Reuse Program Facility Sites with Land Use Restrictions

A search of the LUR database, dated Oct 5, 2020 has found that there are 1 LUR site(s) within approximately 0.50 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
VISTA BURN DUMP	1300 LEE DRIVE OCEANSIDE CA 92054	WSW	0.29 / 1,542.79	20
	***Estor/EPA ID**	**Cleanup Status**: 70000083	CERTIFIED / OPERATION & MAINTENANCE AS OF 12/17/2013*		

VCP - Voluntary Cleanup Program

A search of the VCP database, dated Oct 5, 2020 has found that there are 1 VCP site(s) within approximately 0.50 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
VISTA BURN DUMP	1300 LEE DRIVE OCEANSIDE CA 92054	WSW	0.29 / 1,542.79	20
	***Estor/EPA ID**	**Cleanup Status**: 70000083	CERTIFIED / OPERATION & MAINTENANCE AS OF 12/17/2013*		

CLEANUP SITES - GeoTracker Cleanup Program Sites

A search of the CLEANUP SITES database, dated Jul 15, 2020 has found that there are 1 CLEANUP SITES site(s) within approximately 0.50 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
LEE'S METAL RECYCLING	1315 LEE DRIVE VISTA CA 92083	SW	0.36 / 1,926.00	22
	***Site Facility Type**	**Status**: CLEANUP PROGRAM SITE	OPEN - ASSESSMENT & INTERIM REMEDIAL ACTION*		

County

SANDIEGO SWF - San Diego County - Solid Waste Facility List

A search of the SANDIEGO SWF database, dated Mar 18, 2020 has found that there are 1 SANDIEGO SWF site(s) within approximately 0.50 miles of the project property.

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
Vista Burnsite	1300 Lee Drive, Oceanside 92056 CA	SW	0.38 / 2,014.03	23

SANDIEGO HAZ - San Diego County - Hazardous Materials Management Division Database

A search of the SANDIEGO HAZ database, dated Sep 15, 2020 has found that there are 36 SANDIEGO HAZ site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
Melrose Shell	1501 N MELROSE DR OCEANSIDE CA 92056	W	0.02 / 131.86	4
DOUGLAS WHEEL, INC	1340 N MELROSE DR CA	SSE	0.08 / 447.83	6
VERIZON WIRELESS	1340 N MELROSE DR, VISTA, CA 92083 VISTA CA 92083	SSE	0.08 / 447.83	6
DOUGLAS TECHNOLOGY GROUP, INC	1340 N MELROSE DR, VISTA, CA 92083 VISTA CA 92083	SSE	0.08 / 447.83	6
AT&T Mobility - NORTH MELROSE SELF STORAGE (USID87292)	1317 N MELROSE DR, VISTA, CA 92083-2917 VISTA CA 92083-2917	S	0.14 / 745.45	10
MERIDIAN LAB INC	1330 N MELROSE DR E VISTA CA 92083	S	0.15 / 801.68	12
PERFORMANCE AUTO BODY	1330 N MELROSE DR, VISTA, CA 92083 VISTA CA 92083	S	0.15 / 801.68	12
GT AUTOBODY SHOP	1330 N MELROSE DR, VISTA, CA 92083 VISTA CA 92083	S	0.15 / 801.68	12
PERFORMANCE AUTO BODY	1330 N MELROSE AVE, VISTA, CA 92083 VISTA CA 92083	S	0.15 / 801.68	12
TOM KENNEDY AUTO REPAIR	1330 N MELROSE DR, SUITE# D, VISTA, CA 92083 VISTA CA 92083	S	0.15 / 801.68	12

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
FALLBROOK SOAP AND CHEMICAL	1330 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.15 / 801.68	12
CALIFORNIA ENVIRONMENTAL SOLUTIONS, INC	1338 N MELROSE DR, SUITE# D, VISTA, CA 92083 CA 92083	S	0.16 / 838.03	13
TKO PRODUCTS INC	1338 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.16 / 838.03	13
BAZOOKA RACING	1338 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.16 / 838.03	13
VISTA MASTER CARBURETORS	1338 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.16 / 838.03	13
PALOMAR CASEWORK INC	1334 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.17 / 890.77	14
B & D AUTO REPAIR	1334 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.17 / 890.77	14
AUTO ELECTRIC REPAIR	1334 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.17 / 890.77	14
CUTTERS SOURCE	1334 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.17 / 890.77	14
NOVAK AUTO REPAIR	1334 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.17 / 890.77	14
AutoPartsPros, LLC	1334 N Melrose DR E Vista CA 92083	S	0.17 / 890.77	14
BOB WORKMAN'S EUROPEAN AUTO	1304 N MELROSE DR VISTA CA 92083	S	0.22 / 1,140.82	16
QUALITY THERMISTOR, INC	1304 N MELROSE DR, VISTA, CA 92083 VISTA CA 92083	S	0.22 / 1,140.82	16

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
CORNERSTONE SENSORS, INC	1304 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.22 / 1,140.82	16
BRITISH MASTERS	1304 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.22 / 1,140.82	16
ZIMMERMANN AUTOSPORT	1304 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.22 / 1,140.82	16
MULLIGAN RACING DEVELOPMENT	1304 N MELROSE DR, SUITE# B, VISTA, CA 92083 VISTA CA 92083	S	0.22 / 1,140.82	16
DIMENSIONAL TECHNOLOGIES	1316 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.22 / 1,167.56	17

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
B & D AUTO REPAIR	1350 N MELROSE DR VISTA CA 92083	SSW	0.08 / 411.97	5
Verizon Wireless: Melrose West	1340 MELROSE DR N, VISTA, CA 92083-2916 VISTA CA 92083-2916	S	0.12 / 655.23	7
ADVANCED AUTO REPAIR	1352 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.13 / 682.08	8
OCEANSIDE TOWING & SVCS INC	1352 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.13 / 682.08	8
ADVANCE AUTO CARE	1352 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.13 / 682.08	8
BOB'S QUALITY AUTO AND FLEET SERVICE	1352 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.13 / 682.08	8
VICTOR'S BRAKE & AUTO SPECIALISTS	1352 N MELROSE DR, SUITE# G&H, VISTA, CA 92083 VISTA CA 92083	S	0.13 / 682.08	8

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
O & C AUTOMOTIVE SERVICES	1352 N MELROSE DR, VISTA, CA 92083 CA 92083	S	0.13 / 682.08	8

SANDIEGO UST - San Diego County - UST List

A search of the SANDIEGO UST database, dated Sep 15, 2020 has found that there are 1 SANDIEGO UST site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
Melrose Shell	1501 N MELROSE DR OCEANSIDE CA 92056	W	0.02 / 131.86	4
	***Record ID | Permit Status**: DEH2002-HUPFP-137646 | Permit Renewed*			

Non Standard

Federal

FINDS/FRS - Facility Registry Service/Facility Index

A search of the FINDS/FRS database, dated Jun 15, 2020 has found that there are 1 FINDS/FRS site(s) within approximately 0.02 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
MARGARET MADDEN	1354 WAXWING DR VISTA CA 92083	E	0.01 / 29.20	1

ALT FUELS - Alternative Fueling Stations

A search of the ALT FUELS database, dated Sep 24, 2020 has found that there are 1 ALT FUELS site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
Pearson Fuels - Arco	1501 N Melrose Dr Oceanside CA 92056	W	0.02 / 131.86	4

State

HAZNET - Hazardous Waste Manifest Data

A search of the HAZNET database, dated Oct 24, 2016 has found that there are 2 HAZNET site(s) within approximately 0.02 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
FAIRFIELD VISTA LP	553 W BOBIER DR VISTA CA 920831908	ENE	0.01 / 52.60	2

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
JOHN MCMULLIN	1345 WAXWING DR VISTA CA 92083	ESE	0.02 / 98.38	3

CERS HAZ - California Environmental Reporting System (CERS) Hazardous Waste Sites

A search of the CERS HAZ database, dated Oct 26, 2020 has found that there are 2 CERS HAZ site(s) within approximately 0.12 miles of the project property.

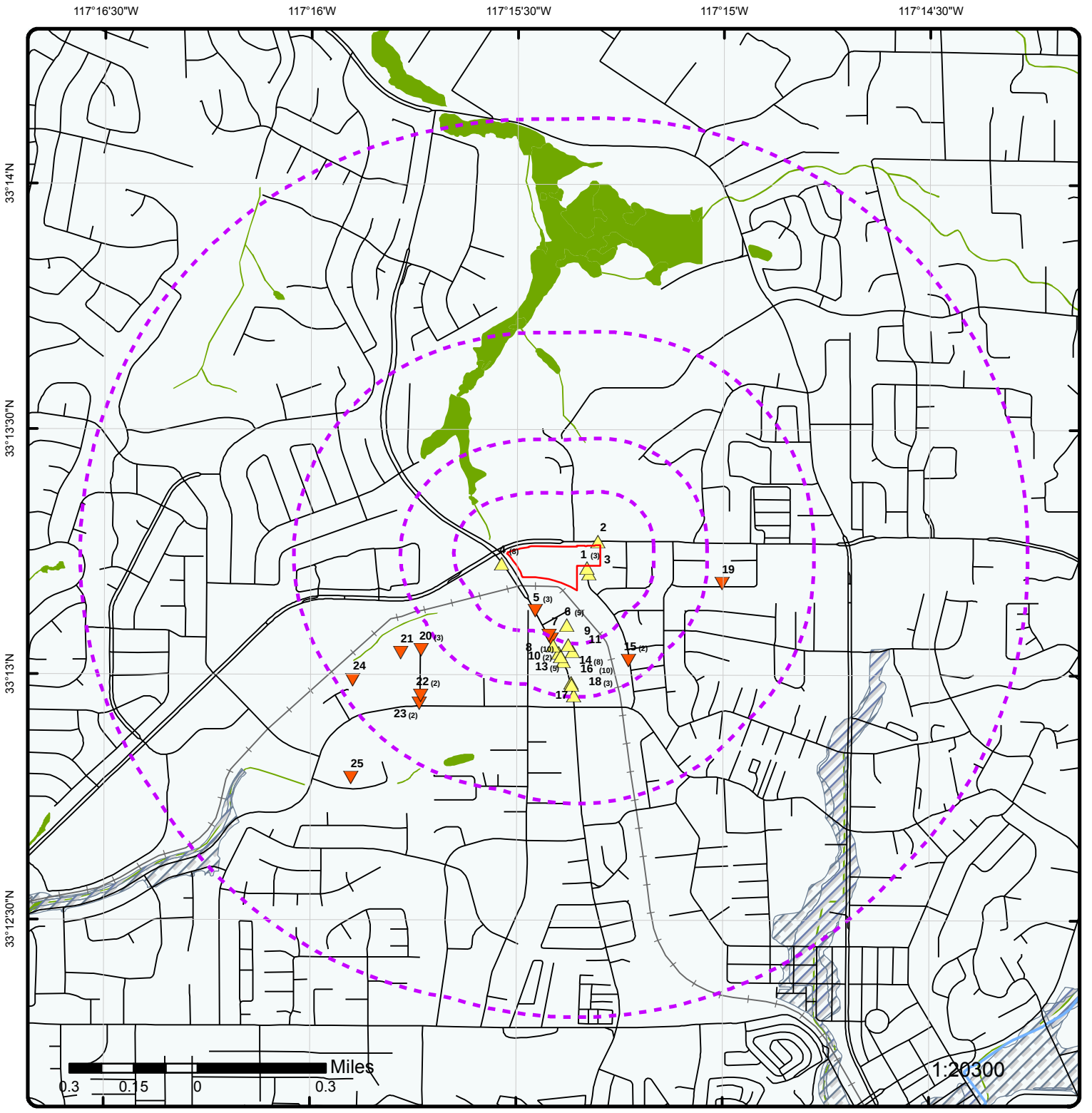
Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
Verizon Wireless: Melrose West	1340 N MELROSE DR VISTA CA 92083	SSE	0.08 / 447.83	6

Lower Elevation	Address	Direction	Distance (mi/ft)	Map Key
B & D AUTO REPAIR	1350 N MELROSE DR VISTA CA 92083	SSW	0.08 / 411.97	5

EMISSIONS - Toxic Pollutant Emissions Facilities

A search of the EMISSIONS database, dated Dec 31, 2018 has found that there are 2 EMISSIONS site(s) within approximately 0.25 miles of the project property.

Equal/Higher Elevation	Address	Direction	Distance (mi/ft)	Map Key
MELROSE LLC	1501 MELROSE DR OCEANSIDE CA 92056	W	0.02 / 131.86	4
PERFORMANCE AUTO BODY	1330 MELROSE DR N #A VISTA CA 92083	S	0.13 / 683.01	9



Map : 1.0 Mile Radius

Order Number: 20312500427

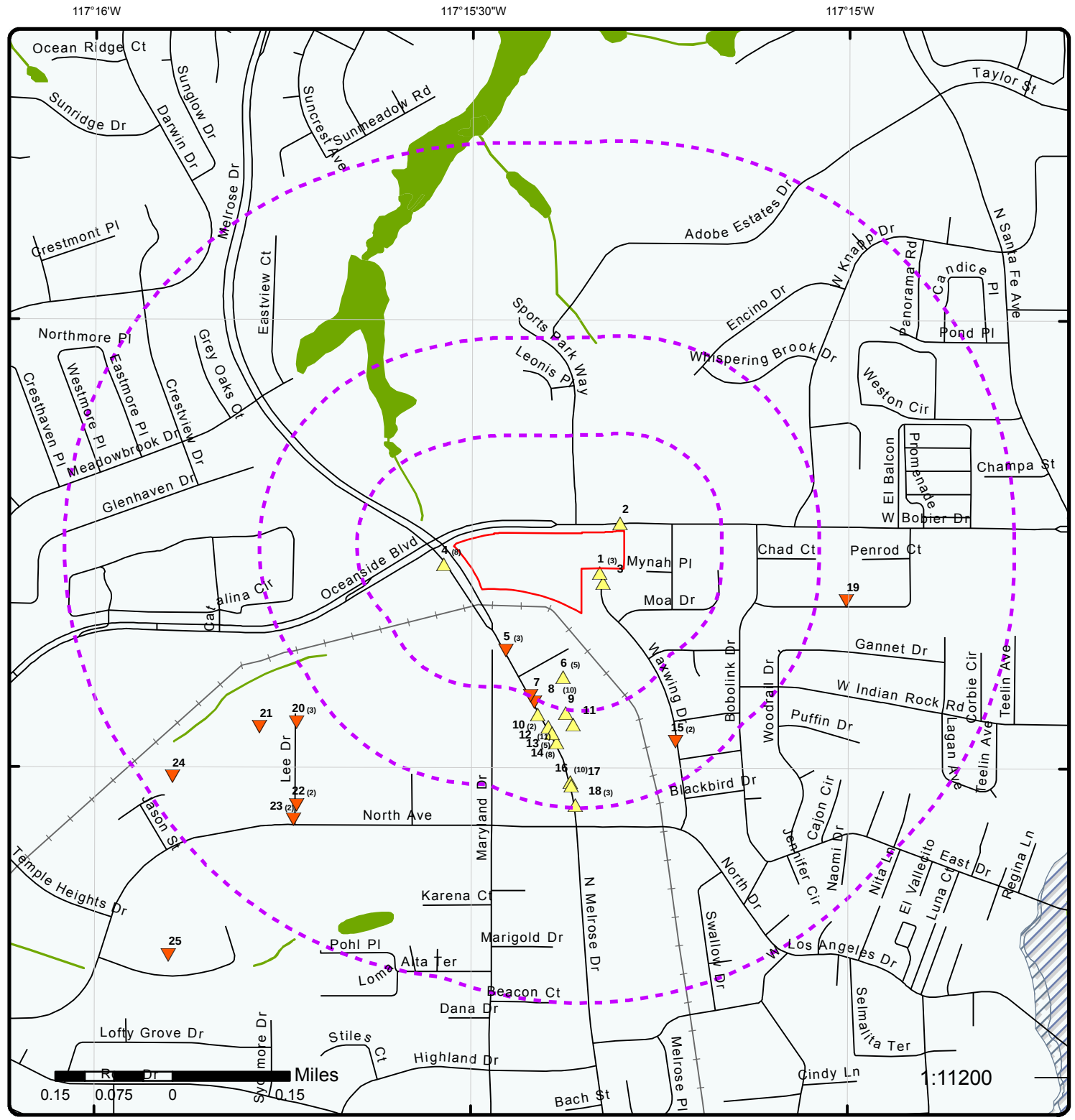
Address: 552 West Bobier Drive, Vista, CA

ENVIRONMENTAL RISK INFORMATION SERVICES

- Project Property
- Buffer Outline
- Eris Sites with Higher Elevation
- Eris Sites with Same Elevation
- Eris Sites with Lower Elevation
- Eris Sites with Unknown Elevation
- County Boundary
- Rails
- Major Highways
- Major Highways Ramps
- Major Roads
- Major Roads Ramps
- Secondary Roads
- Secondary Roads Ramps
- Local Roads and Ramps
- State Boundary
- National Priority List Sites
- National Wetland
- Indian Reserve Land
- Historic Fill
- 100 Year Flood Zone
- 500 Year Flood Zone
- FWS Special Designation Areas
- State Brownfield Sites
- State Brownfield Areas
- State Superfund Areas:Dept. of Defense
- State Superfund Areas:NPL
- WQARF Areas
- Federal Lands: Dept. of Defense (owned/administered areas)

Source: © 2016 ESRI

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Map : 0.5 Mile Radius

Order Number: 20312500427

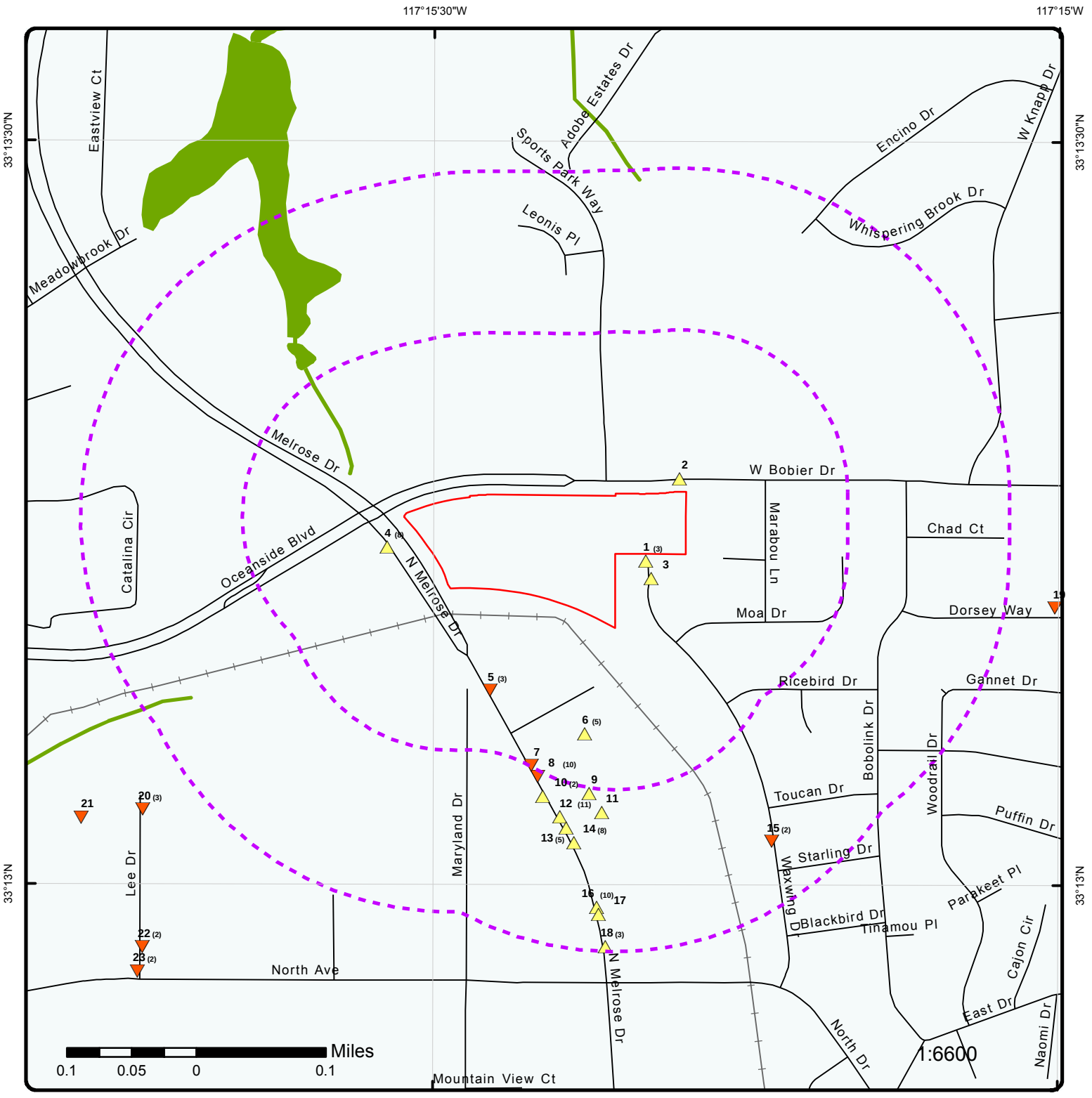
Address: 552 West Bobier Drive, Vista, CA

ENVIRONMENTAL RISK INFORMATION SERVICES

- Project Property
- Buffer Outline
- Eris Sites with Higher Elevation
- Eris Sites with Same Elevation
- Eris Sites with Lower Elevation
- Eris Sites with Unknown Elevation
- County Boundary
- Rails
- Major Highways
- Major Highways Ramps
- Major Roads
- Major Roads Ramps
- Secondary Roads
- Secondary Roads Ramps
- Local Roads and Ramps
- State Boundary
- National Priority List Sites
- National Wetland
- Indian Reserve Land
- Historic Fill
- 100 Year Flood Zone
- 500 Year Flood Zone
- FWS Special Designation Areas
- State Brownfield Sites
- State Brownfield Areas
- State Superfund Areas:Dept. of Defense
- State Superfund Areas:NPL
- WQARF Areas
- Federal Lands: Dept. of Defense (owned/administered areas)

Source: © 2016 ESRI

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Map : 0.25 Mile Radius

Order Number: 20312500427

Address: 552 West Bobier Drive, Vista, CA

ENVIRONMENTAL RISK INFORMATION SERVICES

Project Property	Rails	State Boundary	FWS Special Designation Areas
Buffer Outline	Major Highways	National Priority List Sites	State Brownfield Sites
Eris Sites with Higher Elevation	Major Highways Ramps	National Wetland	State Brownfield Areas
Eris Sites with Same Elevation	Major Roads	Indian Reserve Land	State Superfund Areas:Dept. of Defense
Eris Sites with Lower Elevation	Major Roads Ramps	Historic Fill	State Superfund Areas:NPL
Eris Sites with Unknown Elevation	Secondary Roads	100 Year Flood Zone	WQARF Areas
County Boundary	Secondary Roads Ramps	500 Year Flood Zone	Federal Lands: Dept. of Defense (owned/administered areas)
	Local Roads and Ramps		

Source: © 2016 ESRI

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Aerial

Year: 2015

Address: 552 West Bobier Drive, Vista, CA

Source: ESRI World Imagery

Order Number: 20312500427

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

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Topographic Map

Year: 2015

Address: 552 West Bobier Drive, CA

Quadrangle(s): San Marcos,CA; Morro Hill,CA; San Luis Rey,CA

Source: USGS Topographic Map

Order Number: 20312500427

ERIS ENVIRONMENTAL RISK INFORMATION SERVICES

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Detail Report

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
1	1 of 3	E	0.01 / 29.20	455.40 / 17	MARGARET MADDEN 1354 WAXWING DR VISTA CA 92083	RCRA NON GEN

EPA Handler ID: CAC002974812
Gen Status Universe: No Report
Contact Name: MARGARET MADDEN
Contact Address: 1354 WAXWING DR , , VISTA , CA, 92083 ,
Contact Phone No and Ext: 760-945-6026
Contact Email: VANESSAPIZARRO@ALLIANCE-ENVIRO.COM
Contact Country:
County Name: SAN DIEGO
EPA Region: 09
Land Type:
Receive Date: 20180808

Violation/Evaluation Summary

Note: NO RECORDS: As of May 2020, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20180808
Handler Name: MARGARET MADDEN
Source Type: Implementer
Federal Waste Generator Code: N
Generator Code Description: Not a Generator, Verified

Owner/Operator Details

Owner/Operator Ind: Current Owner
Type: Other
Name: MARGARET MADDEN
Date Became Current:
Date Ended Current:
Street No:
Street 1: 1354 WAXWING DR
Street 2:
City: VISTA
State: CA

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Phone:	760-945-6026	**Country:**	
Source Type:	Implementer	**Zip Code:**	92083
Owner/Operator Ind:	Current Operator	**Street No:**	
Type:	Other	**Street 1:**	1354 WAXWING DR
Name:	MARGARET MADDEN	**Street 2:**	
Date Became Current:		**City:**	VISTA
Date Ended Current:		**State:**	CA
Phone:	760-945-6026	**Country:**	
Source Type:	Implementer	**Zip Code:**	92083

1	2 of 3	E	0.01 / 29.20	455.40 / 17	MARGARET MADDEN 1354 WAXWING DR VISTA CA 92083	RCRA NON GEN

EPA Handler ID:	CAC002979688
Gen Status Universe:	No Report
Contact Name:	MARGARET MADDEN
Contact Address:	1354 WAXWING DR , , VISTA , CA, 92083 ,
Contact Phone No and Ext:	760-945-6026
Contact Email:	CINDYEDWARDS@ALLIANCE-ENVIRO.COM
Contact Country:	
County Name:	SAN DIEGO
EPA Region:	09
Land Type:	
Receive Date:	20180911

Violation/Evaluation Summary

Note:	NO RECORDS: As of May 2020, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility:	No
Onsite Burner Exemption:	No
Furnace Exemption:	No
Underground Injection Activity:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No

Hazardous Waste Handler Details

Sequence No:	1
Receive Date:	20180911
Handler Name:	MARGARET MADDEN
Source Type:	Implementer
Federal Waste Generator Code:	N
Generator Code Description:	Not a Generator, Verified

Owner/Operator Details

Owner/Operator Ind:	Current Operator	**Street No:**	
Type:	Other	**Street 1:**	1354 WAXWING DR

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Name:	MARGARET MADDEN	**Street 2:**	
Date Became Current:		**City:**	VISTA
Date Ended Current:		**State:**	CA
Phone:	760-945-6026	**Country:**	
Source Type:	Implementer	**Zip Code:**	92083
Owner/Operator Ind:	Current Owner	**Street No:**	
Type:	Other	**Street 1:**	1354 WAXWING DR
Name:	MARGARET MADDEN	**Street 2:**	
Date Became Current:		**City:**	VISTA
Date Ended Current:		**State:**	CA
Phone:	760-945-6026	**Country:**	
Source Type:	Implementer	**Zip Code:**	92083

---

1 | ***3 of 3*** | ***E*** | ***0.01 / 29.20*** | ***455.40 / 17*** | ***MARGARET MADDEN
1354 WAXWING DR
VISTA CA 92083*** | ***FINDS/FRS***

Registry ID:	110070401876
FIPS Code:	06073
HUC Code:	
Site Type Name:	STATIONARY
Location Description:	
Supplemental Location:	
Create Date:	31-DEC-18
Update Date:	
Interest Types:	OTHER HAZARDOUS WASTE ACTIVITIES, TRANSPORTER, UNSPECIFIED UNIVERSE
SIC Codes:	
SIC Code Descriptions:	
NAICS Codes:	
NAICS Code Descriptions:	
Conveyor:	
Federal Facility Code:	
Federal Agency Name:	
Tribal Land Code:	
Tribal Land Name:	
Congressional Dist No:	
Census Block Code:	
EPA Region Code:	09
County Name:	SAN DIEGO
US/Mexico Border Ind:	
Latitude:	
Longitude:	
Reference Point:	
Coord Collection Method:	
Accuracy Value:	
Datum:	NAD83
Source:	
Facility Detail Rprt URL:	https://ofmpub.epa.gov/frs_public2/fii_query_detail.disp_program_facility?p_registry_id=110070401876
Program Acronyms:	

RCRAINFO:CAC002974812, RCRAINFO:CAC002979688

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2 | ***1 of 1*** | ***ENE*** | ***0.01 / 52.60*** | ***461.99 / 24*** | ***FAIRFIELD VISTA LP
553 W BOBIER DR
VISTA CA 920831908*** | ***HAZNET***

SIC Code:	8741	**Mailing City:**	SAN DIEGO
NAICS Code:	23322	**Mailing State:**	CA
EPA ID:	CAC002769020	**Mailing Zip:**	921213722
Create Date:	4/25/2014	**Region Code:**	4
Fac Act Ind:	No	**Owner Name:**	FAIRFIELD VISTA LP
Inact Date:	7/25/2014	**Owner Addr 1:**	5510 MOREHOUSE DR STE 200
County Code:	37	**Owner Addr 2:**	
County Name:	San Diego	**Owner City:**	SAN DIEGO

Mail Name:		***Owner State:***	CA
Mailing Addr 1:	5510 MOREHOUSE DR STE 200	***Owner Zip:***	921213722
Mailing Addr 2:		***Owner Phone:***	8586268258
Owner Fax:	8586258633		

Contact Information

--	--
Contact Name:	GREGORY FIANDACH
Street Address 1:	5510 MOREHOUSE DR STE 200
Street Address 2:	
City:	SAN DIEGO
State:	CA
Zip:	921213722
Phone:	9493258530
--	--
--	--

Tanner Information

--	--
Generator EPA ID:	CAC002769020
Generator County Code:	37
Generator County:	San Diego
TSD EPA ID:	NVT330010000
TSD County Code:	99
TSD County:	Unknown
State Waste Code:	122
State Waste Code Desc.:	Alkaline solution without metals pH >= 12.5
Method Code:	H039
Method Description:	OTHER RECOVERY OF RECLAMATION FOR REUSE INCLUDING ACID REGENERATION, ORGANICS RECOVERY ECT
Tons:	0.003
Year:	2014
--	--
Generator EPA ID:	CAC002769020
Generator County Code:	37
Generator County:	San Diego
TSD EPA ID:	NVT330010000
TSD County Code:	99
TSD County:	Unknown
State Waste Code:	141
State Waste Code Desc.:	Off-specification, aged or surplus inorganics
Method Code:	H132
Method Description:	LANDFILL OR SURFACE IMPOUNDMENT THAT WILL BE CLOSED AS LANDFILL(TO INCLUDE ON-SITE TREATMENT AND/OR STABILIZATION)
Tons:	0.025
Year:	2014
--	--
Generator EPA ID:	CAC002769020
Generator County Code:	37
Generator County:	San Diego
TSD EPA ID:	NVD980895338
TSD County Code:	99
TSD County:	Unknown
State Waste Code:	232
State Waste Code Desc.:	Pesticides and other waste associated with pesticide production
Method Code:	H141
Method Description:	STORAGE, BULKING, AND/OR TRANSFER OFF SITE--NO TREATMENT/REOVERY (H010-H129) OR (H131-H135)
Tons:	0.1
Year:	2014
--	--
Generator EPA ID:	CAC002769020
Generator County Code:	37
Generator County:	San Diego
TSD EPA ID:	NVT330010000
TSD County Code:	99
TSD County:	Unknown
State Waste Code:	261
State Waste Code Desc.:	Polychlorinated biphenyls and material containing PCBs
Method Code:	H132

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Method Description:	LANDFILL OR SURFACE IMPOUNDMENT THAT WILL BE CLOSED AS LANDFILL(TO INCLUDE ON-SITE TREATMENT AND/OR STABILIZATION)
Tons:	0.0022
Year:	2014
--	--
Generator EPA ID:	CAC002769020
Generator County Code:	37
Generator County:	San Diego
TSD EPA ID:	NVT330010000
TSD County Code:	99
TSD County:	Unknown
State Waste Code:	791
State Waste Code Desc.:	Liquids with pH <= 2
Method Code:	H039
Method Description:	OTHER RECOVERY OF RECLAMATION FOR REUSE INCLUDING ACID REGENERATION, ORGANICS RECOVERY ECT
Tons:	0.0015
Year:	2014
--	--

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
3	1 of 1	ESE	0.02 / 98.38	450.75 / 12	JOHN MCMULLIN 1345 WAXWING DR VISTA CA 92083	HAZNET

SIC Code:		**Mailing City:**	VISTA
NAICS Code:		**Mailing State:**	CA
EPA ID:	CAC002675201	**Mailing Zip:**	92083
Create Date:	9/7/2011	**Region Code:**	4
Fac Act Ind:	No	**Owner Name:**	JOHN MCMULLIN
Inact Date:	3/6/2012	**Owner Addr 1:**	1345 WAXWING DR
County Code:	37	**Owner Addr 2:**	
County Name:	San Diego	**Owner City:**	VISTA
Mail Name:		**Owner State:**	CA
Mailing Addr 1:	1345 WAXWING DR	**Owner Zip:**	92083
Mailing Addr 2:		**Owner Phone:**	7604584951
Owner Fax:			

Contact Information

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Contact Name:	JOHN MCMULLIN
Street Address 1:	1345 WAXWING DR
Street Address 2:	
City:	VISTA
State:	CA
Zip:	92083
Phone:	7604584951
--	--
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Tanner Information

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Generator EPA ID:	CAC002675201
Generator County Code:	37
Generator County:	San Diego
TSD EPA ID:	AZC950823111
TSD County Code:	99
TSD County:	Unknown
State Waste Code:	151
State Waste Code Desc.:	Asbestos containing waste
Method Code:	H132
Method Description:	LANDFILL OR SURFACE IMPOUNDMENT THAT WILL BE CLOSED AS LANDFILL(TO INCLUDE ON-SITE TREATMENT AND/OR STABILIZATION)
Tons:	0.4
Year:	2011
--	--

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
4	1 of 8	W	0.02 / 131.86	447.14 / 9	ARCO AM/PM 1501 MELROSE DR	DELISTED TNK

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
					OCEANSIDE CA 92056	

Delisted Storage Tanks

Facility ID:	H37646	**Latitude:**	33.22464
Permitting Agency:	SAN DIEGO COUNTY	**Longitude:**	-117.26375
County:	San Diego		
Original Source:	UST		
Record Date:	30-JAN-2017		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
4	2 of 8	W	0.02 / 131.86	447.14 / 9	Melrose Shell 1501 N MELROSE DR OCEANSIDE CA 92056	SANDIEGO UST

Facility ID:	37-000-137646	**RCRA Large Qty. Gen:**	false
Record ID:	DEH2002-HUPFP-137646	**HHW Collection:**	false
CERS ID:	10373227	**Recycle:**	false
EPA ID No:	CAL000183657	**Own or Operate UG:**	true
Permit Status:	Permit Renewed	**Own or Operate AG:**	false
Active Permit:	true	**Business Phone:**	(760) 806-4445
Haz. Mat. On-Site:	true	**Business Fax:**	0.0
Haz. Waste Gen:	true	**Last Updated:**	07/30/2020 02:05:36 AM
Onsite Haz Wt Trt:	false		
Mailing Address:	5820 OBERLIN DR STE 201, SAN DIEGO, CA 92121		

Tank Information

Tank ID:	29236	**Tank Capacity in Gal:**	20000
Tank Status:	Active	**Tank Contents:**	Regular Unleaded
Permit Status:	Permit Renewed	**Tank Use:**	Motor Vehicle Fueling
Active Permit:	true	**Piping Sys Type:**	Pressure
Dt UST Perm Closed:		**Fac Type (UST Fac):**	Motor Vehicle Fueling
Type of Tank:	Double Wall	**Last Updated:**	2020 Jul 30 02:05:36 AM
Tank Owner Name:	KA MANAGEMENT, INC.		

Tank ID:	29237	**Tank Capacity in Gal:**	10000
Tank Status:	Active	**Tank Contents:**	Diesel
Permit Status:	Permit Renewed	**Tank Use:**	Motor Vehicle Fueling
Active Permit:	true	**Piping Sys Type:**	Pressure
Dt UST Perm Closed:		**Fac Type (UST Fac):**	Motor Vehicle Fueling
Type of Tank:	Double Wall	**Last Updated:**	2020 Jul 30 02:05:36 AM
Tank Owner Name:	KA MANAGEMENT, INC.		

Tank ID:	29235	**Tank Capacity in Gal:**	12000
Tank Status:	Active	**Tank Contents:**	Premium Unleaded
Permit Status:	Permit Renewed	**Tank Use:**	Motor Vehicle Fueling
Active Permit:	true	**Piping Sys Type:**	Pressure
Dt UST Perm Closed:		**Fac Type (UST Fac):**	Motor Vehicle Fueling
Type of Tank:	Double Wall	**Last Updated:**	2020 Jul 30 02:05:36 AM
Tank Owner Name:	KA MANAGEMENT, INC.		

Tank ID:	2013-182-1	**Tank Capacity in Gal:**	10000
Tank Status:	Active	**Tank Contents:**	12
Permit Status:	Permit Renewed	**Tank Use:**	Motor Vehicle Fueling
Active Permit:	true	**Piping Sys Type:**	Pressure
Dt UST Perm Closed:		**Fac Type (UST Fac):**	Motor Vehicle Fueling
Type of Tank:	Double Wall	**Last Updated:**	2020 Jul 30 02:05:36 AM
Tank Owner Name:	KA MANAGEMENT, INC.		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
4	3 of 8	W	0.02 / 131.86	447.14 / 9	Pearson Fuels - Arco 1501 N Melrose Dr Oceanside CA 92056	ALT FUELS

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

ID:	53816	**CNG Dispenser No:**	
Federal Agency ID:		**CNG Fill Type Code:**	
Federal Agency:		**CNG Site Renew Src:**	
Fed Agency Name:		**CNG PSI:**	
Status:	Open: The station is open.	**CNG Storage Cap:**	
Facility Type:	CONVENIENCE_STORE	**CNG Tot Compr Cap:**	
Fuel Type Code:	E85: E85 Ethanol	**CNG Vehicle Class:**	
Owner Type Desc:	Privately owned	**LPG Nozzle Types:**	
Expected Date:		**LNG Site Renew Src:**	
Dt Last Confirmed:	2020-07-13	**LNG Vehicle Class:**	
Open Date:	2013-12-31	**Hydrogen is Retail:**	
Updated at:	2020-07-13 20:30:49 UTC	**Hydrogen Pressures:**	
BD Blends:		**Hydrogen Standards:**	
NG PSI:		**Station Phone:**	760-806-4445
NG Fill Type Code:		**Latitude:**	33.220334
NG Fill Type Desc:		**Longitude:**	-117.25931
NG Vehicle Class:			
NG Vehicle Class Desc:			
E85 Blender Pump:	false		
E85 Blender Pump Desc:	The station does not have a blender pump.		
E85 Other Ethanol Blends:			
EV Pricing:			
EV Pricing French:			
EV on Site Renewable Source:			
LPG Primary:			
LPG Primary Desc:			
Intersection Directions:			
Geocode Status Desc:	Premise (building name, property name, shopping center, etc.) level accuracy.		
Hydrogen Status Link:			

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
4	4 of 8	W	0.02 / 131.86	447.14 / 9	Melrose Shell 1501 N MELROSE DR OCEANSIDE CA 92056	SANDIEGO HAZ

Record ID:	DEH2002-HUPFP-137646	**GIS Record ID:**	DEH2002-HUPFP-137646
Facility Name:	Melrose Shell	**GIS Facility City:**	OCEANSIDE
Facility City:	OCEANSIDE	**GIS Facility ZipCode:**	92056
Facility ZipCode:	92056	**GIS Fac Latitude:**	33.2202557
Facility Latitude:		**GIS Fac Longitude:**	-117.2593041
Facility Longitude:			
Facility Address:	1501 N MELROSE DR		
GIS Facility Name:	ARCO AM/PM		
GIS Facility Address:	1501 N MELROSE DR, OCEANSIDE, CA 92056		

Hazardous Materials Facility Data

CERS ID:	10373227	**Onsite H Waste Trtmt:**	false
Facility ID No:	37-000-137646	**Haz Mat on Site:**	true
EPA ID No:	CAL000183657	**Haz Waste Generator:**	true
Active Permit:		**Own/Oper Under:**	true
Permit Status:	Permit Renewed	**Own/Oper Above:**	false
Bus. Phone:	(760) 806-4445	**Recycle:**	false
Bus. Fax:	0.0	**RCRA Large Qty Gen:**	false
Last Updated:	07/30/2020 02:05:36 AM	**HHW Collection:**	false
Zip Codes:		**Atoms:**	
New Georeferenced Column:	(33.22005427284763, -117.25850416558016)		
Mailing Address:	5820 OBERLIN DR STE 201, SAN DIEGO, CA 92121		

Hazardous Waste and Materials

ID:	297750	**Permit Status:**	Permit Renewed
Child Record ID:	DEH2020-HCHEM-0259298	**Active Permit:**	true
CAS No:	64-17-5	**Haz Material Type:**	Pure
Last Updated:	07/30/2020 02:05:36 AM	**Trade Secret:**	
Chemical Name:	E85		

Common Name Inventory: Ethanol

ID: 297749 ***Permit Status:*** Permit Renewed
Child Record ID: DEH2020-HCHEM-0259297 ***Active Permit:*** true
CAS No: 68476-34-6 ***Haz Material Type:*** Pure
Last Updated: 07/30/2020 02:05:36 AM ***Trade Secret:***
Chemical Name: Diesel Fuel
Common Name Inventory: Diesel Fuel

ID: 135277 ***Permit Status:*** Permit Renewed
Child Record ID: DEH2018-HCHEM-0172535 ***Active Permit:*** true
CAS No: 68476-34-6 ***Haz Material Type:*** Pure
Last Updated: 03/06/2018 01:19:28 AM ***Trade Secret:***
Chemical Name: Diesel Fuel
Common Name Inventory: Diesel Fuel

ID: 23471 ***Permit Status:*** Permit Renewed
Child Record ID: DEH2015-HCHEM-0071842 ***Active Permit:*** true
CAS No: 8006-61-9 ***Haz Material Type:*** Pure
Last Updated: 01/17/2018 09:45:55 AM ***Trade Secret:***
Chemical Name: Gasoline
Common Name Inventory: Gasoliine

ID: 135275 ***Permit Status:*** Permit Renewed
Child Record ID: DEH2018-HCHEM-0172533 ***Active Permit:*** true
CAS No: 8006-61-9 ***Haz Material Type:*** Pure
Last Updated: 03/06/2018 01:19:28 AM ***Trade Secret:***
Chemical Name: Gasoline
Common Name Inventory: Gasoliine

ID: 150464 ***Permit Status:*** Permit Renewed
Child Record ID: DEH2018-HCHEM-0177902 ***Active Permit:*** true
CAS No: 64-17-5 ***Haz Material Type:*** Pure
Last Updated: 10/25/2018 11:14:17 PM ***Trade Secret:***
Chemical Name: E85
Common Name Inventory: Ethanol

ID: 23474 ***Permit Status:*** Permit Renewed
Child Record ID: DEH2015-HCHEM-0071845 ***Active Permit:*** true
CAS No: 64-17-5 ***Haz Material Type:*** Pure
Last Updated: 01/17/2018 09:45:55 AM ***Trade Secret:***
Chemical Name: E85
Common Name Inventory: Ethanol

ID: 198464 ***Permit Status:*** Permit Renewed
Child Record ID: DEH2019-HCHEM-0206817 ***Active Permit:*** true
CAS No: 64-17-5 ***Haz Material Type:*** Pure
Last Updated: 10/04/2019 02:35:58 AM ***Trade Secret:***
Chemical Name: E85
Common Name Inventory: Ethanol

ID: 135279 ***Permit Status:*** Permit Renewed
Child Record ID: DEH2018-HWAST-0146552 ***Active Permit:*** true
CAS No: ***Haz Material Type:***
Last Updated: 03/06/2018 01:19:28 AM ***Trade Secret:***
Chemical Name: WASTE 134 AQUEOUS SOL'N W/LESS 10% ORG
Common Name Inventory: FUEL & WATER

ID: 150463 ***Permit Status:*** Permit Renewed
Child Record ID: DEH2018-HCHEM-0177901 ***Active Permit:*** true
CAS No: 68476-34-6 ***Haz Material Type:*** Pure
Last Updated: 10/25/2018 11:14:17 PM ***Trade Secret:***
Chemical Name: Diesel Fuel
Common Name Inventory: Diesel Fuel

ID: 135276 ***Permit Status:*** Permit Renewed
Child Record ID: DEH2018-HCHEM-0172534 ***Active Permit:*** true
CAS No: 8006-61-9 ***Haz Material Type:*** Pure
Last Updated: 03/06/2018 01:19:28 AM ***Trade Secret:***

Chemical Name: Gasoline
Common Name Inventory: Gasoline

ID: 297748
Child Record ID: DEH2020-HCHEM-0259296
CAS No: 8006-61-9
Last Updated: 07/30/2020 02:05:36 AM
Chemical Name: Gasoline
Common Name Inventory: Gasoline
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type: Pure
Trade Secret:

ID: 23472
Child Record ID: DEH2015-HCHEM-0071843
CAS No: 8006-61-9
Last Updated: 01/17/2018 09:45:55 AM
Chemical Name: Gasoline
Common Name Inventory: Gasoline
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type: Pure
Trade Secret:

ID: 297747
Child Record ID: DEH2020-HCHEM-0259295
CAS No: 8006-61-9
Last Updated: 07/30/2020 02:05:36 AM
Chemical Name: Gasoline
Common Name Inventory: Gasoliine
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type: Pure
Trade Secret:

ID: 198463
Child Record ID: DEH2019-HCHEM-0206816
CAS No: 68476-34-6
Last Updated: 10/04/2019 02:35:58 AM
Chemical Name: Diesel Fuel
Common Name Inventory: Diesel Fuel
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type: Pure
Trade Secret:

ID: 23473
Child Record ID: DEH2015-HCHEM-0071844
CAS No: 68476-34-6
Last Updated: 01/17/2018 09:45:55 AM
Chemical Name: Diesel Fuel
Common Name Inventory: Diesel Fuel
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type: Pure
Trade Secret:

ID: 23475
Child Record ID: DEH2015-HWAST-0055764
CAS No:
Last Updated: 01/17/2018 09:45:55 AM
Chemical Name: WASTE 134 AQUEOUS SOL'N W/LESS 10% ORG
Common Name Inventory: FUEL & WATER
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type:
Trade Secret:

ID: 297751
Child Record ID: DEH2020-HWAST-0230524
CAS No:
Last Updated: 07/30/2020 02:05:36 AM
Chemical Name: WASTE 134 AQUEOUS SOL'N W/LESS 10% ORG
Common Name Inventory: FUEL & WATER
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type:
Trade Secret:

ID: 198461
Child Record ID: DEH2019-HCHEM-0206814
CAS No: 8006-61-9
Last Updated: 10/04/2019 02:35:58 AM
Chemical Name: Gasoline
Common Name Inventory: Gasoliine
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type: Pure
Trade Secret:

ID: 150462
Child Record ID: DEH2018-HCHEM-0177900
CAS No: 8006-61-9
Last Updated: 10/25/2018 11:14:17 PM
Chemical Name: Gasoline
Common Name Inventory: Gasoline
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type: Pure
Trade Secret:

ID: 135278
Child Record ID: DEH2018-HCHEM-0172536
CAS No: 64-17-5
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type: Pure

Last Updated: 03/06/2018 01:19:28 AM **Trade Secret:**
Chemical Name: E85
Common Name Inventory: Ethanol

ID: 198462 **Permit Status:** Permit Renewed
Child Record ID: DEH2019-HCHEM-0206815 **Active Permit:** true
CAS No: 8006-61-9 **Haz Material Type:** Pure
Last Updated: 10/04/2019 02:35:58 AM **Trade Secret:**
Chemical Name: Gasoline
Common Name Inventory: Gasoline

ID: 150465 **Permit Status:** Permit Renewed
Child Record ID: DEH2018-HWAST-0152454 **Active Permit:** true
CAS No: **Haz Material Type:**
Last Updated: 10/25/2018 11:14:17 PM **Trade Secret:**
Chemical Name: WASTE 134 AQUEOUS SOL'N W/LESS 10% ORG
Common Name Inventory: FUEL & WATER

ID: 150461 **Permit Status:** Permit Renewed
Child Record ID: DEH2018-HCHEM-0177899 **Active Permit:** true
CAS No: 8006-61-9 **Haz Material Type:** Pure
Last Updated: 10/25/2018 11:14:17 PM **Trade Secret:**
Chemical Name: Gasoline
Common Name Inventory: Gasoliine

ID: 198465 **Permit Status:** Permit Renewed
Child Record ID: DEH2019-HWAST-0178595 **Active Permit:** true
CAS No: **Haz Material Type:**
Last Updated: 10/04/2019 02:35:58 AM **Trade Secret:**
Chemical Name: WASTE 134 AQUEOUS SOL'N W/LESS 10% ORG
Common Name Inventory: FUEL & WATER

Hazardous Materials Inspection Violations

Container Tank ID: **Inspection No:** 5646955
Facility ID No: 37-000-137646 **Inspection Type:** Routine
ID: 12876 **Inspection Date:** 05/22/2017 02:26:00 PM
UST ID: 29235 **Compliance Date:** 06/08/2017 12:00:00 AM
Permit Status: Permit Renewed **Last Updated:** 07/30/2020 02:05:36 AM
Active Permit: true **NOV:** false
Program Element: Underground Storage Tank
Violation Classification:
Violation Code: 2030013 Failure to comply with one or more of the designated operator monthly inspection requirements: failed to inspect the monthly alarm history report; attach a copy of the alarm history; failed to inspect for the presence of liquid or debris in the spill container/spill bucket and under dispenser containment; failed to inspect the under dispenser containment to ensure that monitoring equipment is placed in the proper position; failure to inspect for liquid or debris in the containment sump where an alarm occurred or for which there is no record of a service visit; or failure to check that all testing and maintenance has been completed and documented. 23 CCR 2715

Container Tank ID: **Inspection No:** 5646955
Facility ID No: 37-000-137646 **Inspection Type:** Routine
ID: 12874 **Inspection Date:** 05/22/2017 02:26:00 PM
UST ID: 29235 **Compliance Date:** 05/22/2017 12:00:00 AM
Permit Status: Permit Renewed **Last Updated:** 07/30/2020 02:05:36 AM
Active Permit: true **NOV:** false
Program Element: Underground Storage Tank
Violation Classification:
Violation Code: 2030002 (RD) Failure to test leak detection equipment as required every 12 months (VPH, sensor, LLD, ATG, etc.) and/or submit monitoring system certification to the CUPA within 30 days of completion of the test. 23 CCR 2638

Container Tank ID: **Inspection No:** 6421970
Facility ID No: 37-000-137646 **Inspection Type:** Routine
ID: 52822 **Inspection Date:** 05/28/2020 12:00:00 AM
UST ID: 2013-182-1 **Compliance Date:** 06/23/2020 12:00:00 AM
Permit Status: Permit Renewed **Last Updated:** 07/30/2020 02:05:36 AM
Active Permit: true **NOV:** true
Program Element: Underground Storage Tank
Violation Classification:

Violation Code: 2030062 (TCR 9d) Leak detection equipment disabled or tampered with in a manner that would prevent the monitoring system from detecting and/or alerting the owner/operator of a leak. HSC 25299(a)(9); 23 CCR 2630(d)

Container Tank ID:
Facility ID No: 37-000-137646
ID: 12879
UST ID: 2013-182-1
Permit Status: Permit Renewed
Active Permit: true
Program Element: Underground Storage Tank
Violation Classification:
Violation Code: 2030013 Failure to comply with one or more of the following designated operator (DO) monthly inspection requirements: Be performed by an ICC certified DO. Inspect monthly alarm history report, check that alarms are documented and responded to appropriately, and attach a copy. Inspect for the presence of liquid/debris in spill containers. Inspect for the presence of liquid/debris in under dispenser containment (UDC) and ensure that the monitoring equipment is positioned correctly. Inspect for liquid or debris in containment sumps where an alarm occurred with no service visit. Check that all testing and maintenance has been completed and documented. Verify that all facility employees have been trained in accordance with 23 CCR 2715(f)(2), 2715(c)

Inspection No: 5889515
Inspection Type: Routine
Inspection Date: 05/16/2018 04:00:00 PM
Compliance Date: 06/01/2018 12:00:00 AM
Last Updated: 07/30/2020 02:05:36 AM
NOV: false

Container Tank ID:
Facility ID No: 37-000-137646
ID: 45466
UST ID: 2013-182-1
Permit Status: Permit Renewed
Active Permit: true
Program Element: Underground Storage Tank
Violation Classification:
Violation Code: 2030065 (RD) Failure to maintain the interstitial space such that a breach in the primary or secondary containment is detected before the liquid or vapor phase of the hazardous substance stored in the UST tank is released into the environment, i.e., vapor, pressure, hydrostatic (VPH) monitoring. HSC 25290.1(e); 23 CCR 2630(d)

Inspection No: 6147589
Inspection Type: Routine
Inspection Date: 05/15/2019 12:00:00 AM
Compliance Date: 05/15/2019 12:00:00 AM
Last Updated: 07/30/2020 02:05:36 AM
NOV: false

Container Tank ID:
Facility ID No: 37-000-137646
ID: 12878
UST ID: 29235
Permit Status: Permit Renewed
Active Permit: true
Program Element: Underground Storage Tank
Violation Classification:
Violation Code: 2030025 (RD) Failure of the line leak detector (LLD) monitoring pressurized piping to meet one or more of the following requirements: Monitored at least hourly. with the capability of detecting a release of 3.0 gallons per hour leak at 10 p.s.i.g. and restrict or shut off the flow of product through the piping when a leak is detected. 23 CCR 2636(f)(2)

Inspection No: 5889515
Inspection Type: Routine
Inspection Date: 05/16/2018 04:00:00 PM
Compliance Date: 05/22/2018 12:00:00 AM
Last Updated: 07/30/2020 02:05:36 AM
NOV: false

Container Tank ID:
Facility ID No: 37-000-137646
ID: 52824
UST ID: 2013-182-1
Permit Status: Permit Renewed
Active Permit: true
Program Element: Underground Storage Tank
Violation Classification:
Violation Code: 2030013 (TCR 12) Failure to comply with one or more of the following designated operator (DO) monthly inspection requirements: For designated operator (DO) monthly inspections conducted before October 1, 2018, failure to comply with one or more of the following requirements: Be performed by an ICC certified DO. Inspect monthly alarm history report, check that alarms are documented and responded to appropriately, and attach a copy. Inspect for the presence of liquid/debris in spill containers. Inspect for the presence of liquid/debris in under dispenser containment (UDC) and ensure that the monitoring equipment is positioned correctly. Inspect for liquid or debris in containment sumps where an alarm occurred with no service visit. Check that all testing and maintenance has been completed and documented. Verify that all facility employees have been trained in accordance with 23 CCR, 2715(c). For designated operator (DO) 30 day inspections conducted on and after October 1, 2018, failure to conduct the designated UST operator visual inspection at least once every 30 days. 23CCR 2716 (a-e)

Inspection No: 6421970
Inspection Type: Routine
Inspection Date: 05/28/2020 12:00:00 AM
Compliance Date: 06/18/2020 12:00:00 AM
Last Updated: 07/30/2020 02:05:36 AM
NOV: false

Container Tank ID:
Facility ID No: 37-000-137646
ID: 12870
UST ID: 29236
Permit Status: Permit Renewed
Active Permit: true
Program Element: Underground Storage Tank

Inspection No: 5160878
Inspection Type: Routine
Inspection Date: 06/09/2015 12:00:00 AM
Compliance Date: 06/11/2015 12:00:00 AM
Last Updated: 07/30/2020 02:05:36 AM
NOV: false

Violation Classification:
Violation Code: 2030017 Failure to maintain all product piping outside the dispenser to be fail-safe & shut down the pump when a leak is detected and the monitoring system shuts down the pump or flow restriction occurs when a leak is detected in the under dispenser containment. 23 CCR 2636(f)(5)

Container Tank ID:
Facility ID No: 37-000-137646
ID: 45465
UST ID: 29237
Permit Status: Permit Renewed
Active Permit: true
Program Element: Underground Storage Tank
Inspection No: 6147589
Inspection Type: Routine
Inspection Date: 05/15/2019 12:00:00 AM
Compliance Date: 05/22/2019 12:00:00 AM
Last Updated: 07/30/2020 02:05:36 AM
NOV: false
Violation Classification:
Violation Code: 2030016 (TCR 9d) Failure to continuously monitor the interstitial space of a double-walled tank with an audible and visual alarm system. 23 CCR 2631(g), 2632(c)(2)(A-B)

Container Tank ID:
Facility ID No: 37-000-137646
ID: 12869
UST ID: 85
Permit Status: Permit Renewed
Active Permit: true
Program Element: Underground Storage Tank
Inspection No: 4975539
Inspection Type: Routine
Inspection Date: 06/26/2014 03:10:00 PM
Compliance Date: 06/26/2014 12:00:00 AM
Last Updated: 07/30/2020 02:05:36 AM
NOV: false
Violation Classification:
Violation Code: 2030016 Failure to continuously monitor the interstitial space of the tank, piping and/or sumps sump such that the leak detection activates an audible/visual alarm when a leak is detected. 23 CCR 16 2631(g), 2632(c)(2)(A)&(B), 2633(c), 2636(f).

Container Tank ID:
Facility ID No: 37-000-137646
ID: 12872
UST ID: 29237
Permit Status: Permit Renewed
Active Permit: true
Program Element: Underground Storage Tank
Inspection No: 5450396
Inspection Type: Routine
Inspection Date: 05/23/2016 02:17:00 PM
Compliance Date: 07/26/2016 12:00:00 AM
Last Updated: 07/30/2020 02:05:36 AM
NOV: false
Violation Classification:
Violation Code: 2030026 Failure of line leak detector to detect a leak and/or failure of audible and visual alarm. 23 CCR 2636(f)(2)

Container Tank ID:
Facility ID No: 37-000-137646
ID: 12873
UST ID: 2013-182-1
Permit Status: Permit Renewed
Active Permit: true
Program Element: Underground Storage Tank
Inspection No: 5450396
Inspection Type: Routine
Inspection Date: 05/23/2016 02:17:00 PM
Compliance Date: 07/26/2016 12:00:00 AM
Last Updated: 07/30/2020 02:05:36 AM
NOV: false
Violation Classification:
Violation Code: 2030013 Failure to comply with one or more of the designated operator monthly inspection requirements: failed to inspect the monthly alarm history report; attach a copy of the alarm history; failed to inspect for the presence of liquid or debris in the spill container/spill bucket and under dispenser containment; failed to inspect the under dispenser containment to ensure that monitoring equipment is placed in the proper position; failure to inspect for liquid or debris in the containment sump where an alarm occurred or for which there is no record of a service visit; or failure to check that all testing and maintenance has been completed and documented. 23 CCR 2715

Container Tank ID:
Facility ID No: 37-000-137646
ID: 52823
UST ID: 2013-182-1
Permit Status: Permit Renewed
Active Permit: true
Program Element: Underground Storage Tank
Inspection No: 6421970
Inspection Type: Routine
Inspection Date: 05/28/2020 12:00:00 AM
Compliance Date: 06/23/2020 12:00:00 AM
Last Updated: 07/30/2020 02:05:36 AM
NOV: true
Violation Classification:
Violation Code: 2060023 Failure of a UST system installed on or after July 1, 2004 to be designed and constructed with a monitoring system capable of detecting the entry of the liquid or vapor-phase of the hazardous substance stored in the primary containment into the secondary containment and capable of detecting water intrusion into the secondary containment. HSC 25290.1(d); 23 CCR 2630(d)

Container Tank ID:
Facility ID No: 37-000-137646
ID: 12877
Inspection No: 5889515
Inspection Type: Routine
Inspection Date: 05/16/2018 04:00:00 PM

UST ID: 29235
Permit Status: Permit Renewed
Active Permit: true
Program Element: Underground Storage Tank
Violation Classification:
Violation Code: 2030018 (RD) Failure of the double-walled pressurized piping to be continuously monitored with a system that activates an audible and visual alarm or stops flow at dispenser when a leak is detected. 23 CCR 2636(f)(1)

Compliance Date: 05/28/2018 12:00:00 AM
Last Updated: 07/30/2020 02:05:36 AM
NOV: false

Container Tank ID:
Facility ID No: 37-000-137646
ID: 45467
UST ID: 29235
Permit Status: Permit Renewed
Active Permit: true
Program Element: Underground Storage Tank
Violation Classification:
Violation Code: 2030036 (TCR 9b) Failure to comply with one or more of the following overfill prevention equipment requirements: 1. Alert the transfer operator when the tank is 90% full by restricting the flow into the tank or triggering an audible and visual alarm; or 2. Restrict delivery of flow to the tank at least 30m before the tank overfills, provided the restriction occurs when the tank is filled to no more than 95% of capacity and activate an audible alarm at least 5m before the tank overfills; or 3. Provide positive shut-off of flow to the tank when the tank is filled to no more than 95% of capacity; or 4. Provide positive shut-off of flow to the tank so that none of the fittings located on the top of the tank are exposed to product due to overfilling. 5. Install/retrofit overfill prevention equipment that does not use flow restrictors on vent piping to meet overfill prevention equipment requirements when the overfill prevention equipment is installed, repaired, or replaced on and after October 1, 2018. 6. For USTs installed before October 1, 2018, perform an inspection by October 13, 2018 and every 36 months thereafter. 7. For USTs installed on and after October 1, 2018, perform an inspection at installation and every 36 months thereafter. 8. Inspected within 30 days after a repair to the overfill prevention equipment. 9. Inspected using an applicable manufacturer guidelines, industry codes, engineering standards, or a method approved by a professional engineer. 10. Inspected by a certified UST service technician. 11. Maintain records of overfill prevention equipment inspection for 36 months. 23 CCR 2635(c)(1), 2635(d), 2637.2(a-c), 2665, 2712(b)(1)(G)

Inspection No: 6147589
Inspection Type: Routine
Inspection Date: 05/15/2019 12:00:00 AM
Compliance Date: 05/15/2019 12:00:00 AM
Last Updated: 07/30/2020 02:05:36 AM
NOV: false

Container Tank ID:
Facility ID No: 37-000-137646
ID: 12875
UST ID: 29235
Permit Status: Permit Renewed
Active Permit: true
Program Element: Underground Storage Tank
Violation Classification:
Violation Code: 2060020 (RP) Failure to comply with one or more of the following: failure to install a spill bucket, have a functional drain valve or other method for the removal of liquid from the spill bucket/spill container, and/or be resistant to galvanic corrosion. 23 CCR 2635(b), 2665

Inspection No: 5646955
Inspection Type: Routine
Inspection Date: 05/22/2017 02:26:00 PM
Compliance Date: 06/01/2017 12:00:00 AM
Last Updated: 07/30/2020 02:05:36 AM
NOV: false

Container Tank ID:
Facility ID No: 37-000-137646
ID: 12871
UST ID: 29237
Permit Status: Permit Renewed
Active Permit: true
Program Element: Underground Storage Tank
Violation Classification:
Violation Code: 2030025 (RD) Failure of the pressurized piping to meet one or more of the following requirements: monitored at least hourly with the capability of detecting a release of 3.0 gallons per hour, and will restrict the flow or product through the piping or trigger an alarm when a release occurs. 23 CCR 2636(f)(2)

Inspection No: 5160878
Inspection Type: Routine
Inspection Date: 06/09/2015 12:00:00 AM
Compliance Date: 06/11/2015 12:00:00 AM
Last Updated: 07/30/2020 02:05:36 AM
NOV: false

HMD Permits REST Data

GIS Facility ID: 37-000-137646
GIS CERS ID: 10373227
GIS Record Type: LUEG-DEH/HMD/UPFP/Facility
Per Type:
Per Sub Type:
Per Cat:
Record Status: Permit Renewed
HW Tier: Not Applicable
LRG QTY MW Gener: No
EPA ID No: CAL000183657

Status:
ER Contact:
ER Con Work Ph:
Census Tract: 194.03
Parcel Zip: 92056
Community: Oceanside
Jurisdiction: OCEANSIDE
Basin No: 904.1
BOS Dist: 5
Tbpg Grid: 1087 F 4

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

RMP CAL ARP:	Not Applicable	**Insp Dist:**	HT201
Tank Owner:	8	**Feature ID:**	1610301700
SIC Code:	5541	**X Coord:**	6252997.578
NAICS Code:	447110	**Y Coord:**	2025290.068
Disclose Qty Haz Mat:	Y	**Kiva Per Typ:**	HK07 137646
Exp Date:		**Agency Name:**	COSD
Own/Operate USTs :		**Point X:**	6252997.57787073
UST Facility:	Motor Vehicle Fueling	**Point Y:**	2025290.06784198
Total No USTs:	4	**Lat GS84:**	33.2202557
No of Tanks:		**Lon GS84:**	-117.2593041
Own Oper APS:	N	**Loc Name:**	
Tot APSA Cap:	0	**Score:**	
Capacity LR:		**Match Type:**	
Haz Waste G:	Y	**Side:**	
Recycle100:	N	**X Map Coord:**	
Onsite Haz Waste Tre:	N	**Y Map Coord:**	
RCRA LRG Qty:	N	**User Fld:**	
Haz Wst Coll Site:	N	**Addr Type:**	
Accept Offs:	N	**ARC Address:**	
Universal Waste Han:	N	**ARC City:**	
Toxic Gas:	No	**ARC Zipcode:**	
Hazmat EHS:	N	**ARC State:**	
Hazmat Rad:	No	**ARC APN:**	
Haz Waste Rad:	N	**Zip:**	
Haz Waste EHS:	N	**Farm Nursery:**	
Full Name:	KA MANAGEMENT, INC.	**Indian or Territory:**	N
Email Perm:		**County ID:**	
Phone Perm:	(858) 404-6087	**Bill Code 2:**	
Site Address:	1501 N MELROSE DR	**Bill Code 3:**	
Parcel No:	161-030-17-00	**Univ Waste Gen Type:**	

Record Ali: Unified Program Facility Permit
Address: 1501 N MELROSE DR
Business Type: UST - Retail Site - No Repair Service
Bill Code:
ER Con Name:
ER Con Title:
Water Purv: OCEANSIDE
Fire Agency: OCEANSIDE
Geo SRC: Mapped to record address
Match Addr:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
4	5 of 8	W	0.02 / 131.86	447.14 / 9	**Melrose Shell** **1501 N MELROSE DR** **OCEANSIDE CA 92056**	UST

Facility ID:	37-000-137646	**Latitude:**	33.22026
CERS ID:	10373227	**Longitude:**	-117.2593
County:	San Diego		

Permitting Agency: San Diego County Department of Environmental Health
Note: Information related to facilities can be searched on Geo Tracker Website: https://geotracker.waterboards.ca.gov/search
Site Facility Type: PERMITTED UNDERGROUND STORAGE TANK (UST)
Source: Permitted Underground Storage Tank (UST) Data Download

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Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
4	6 of 8	W	0.02 / 131.86	447.14 / 9	**MELROSE LLC** **1501 MELROSE DR** **OCEANSIDE CA 92056**	EMISSIONS

2004 Criteria Data

Facility ID:	97455	**CERR Code:**	
Facility SIC Code:	5541	**TOGT:**	6.44
CO:	37	**ROGT:**	6.44
Air Basin:	SD	**COT:**	

District:	SD	***NOXT:***	
COID:	SD	***SOXT:***	
DISN:	SAN DIEGO COUNTY APCD	***PMT:***	
CHAPIS:		***PM10T:***	

2004 Toxic Data

Facility ID:	97455	***COID:***	SD
Facility SIC Code:	5541	***DISN:***	SAN DIEGO COUNTY APCD
CO:	37	***CHAPIS:***	
Air Basin:	SD	***CERR Code:***	
District:	SD		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

2005 Criteria Data

Facility ID:	97455	***CERR Code:***	
Facility SIC Code:	5541	***TOGT:***	6.44
CO:	37	***ROGT:***	6.44
Air Basin:	SD	***COT:***	
District:	SD	***NOXT:***	
COID:	SD	***SOXT:***	
DISN:	SAN DIEGO COUNTY APCD	***PMT:***	
CHAPIS:		***PM10T:***	

2005 Toxic Data

Facility ID:	97455	***COID:***	SD
Facility SIC Code:	5541	***DISN:***	SAN DIEGO COUNTY APCD
CO:	37	***CHAPIS:***	
Air Basin:	SD	***CERR Code:***	
District:	SD		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

2006 Criteria Data

Facility ID:	97455	***CERR Code:***	
Facility SIC Code:	5541	***TOGT:***	6.44
CO:	37	***ROGT:***	6.44
Air Basin:	SD	***COT:***	
District:	SD	***NOXT:***	
COID:	SD	***SOXT:***	
DISN:	SAN DIEGO COUNTY APCD	***PMT:***	
CHAPIS:		***PM10T:***	

2006 Toxic Data

Facility ID:	97455	***COID:***	SD
Facility SIC Code:	5541	***DISN:***	SAN DIEGO COUNTY APCD
CO:	37	***CHAPIS:***	
Air Basin:	SD	***CERR Code:***	
District:	SD		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

2007 Criteria Data

Facility ID:	97455	***CERR Code:***	
Facility SIC Code:	5541	***TOGT:***	6.44
CO:	37	***ROGT:***	6.44
Air Basin:	SD	***COT:***	
District:	SD	***NOXT:***	
COID:	SD	***SOXT:***	
DISN:	SAN DIEGO COUNTY APCD	***PMT:***	
CHAPIS:		***PM10T:***	

2007 Toxic Data

Facility ID:	97455	***COID:***	SD
Facility SIC Code:	5541	***DISN:***	SAN DIEGO COUNTY APCD
CO:	37	***CHAPIS:***	
Air Basin:	SD	***CERR Code:***	
District:	SD		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

2008 Criteria Data

Facility ID:	97455	***CERR Code:***	
Facility SIC Code:	5541	***TOGT:***	6.44
CO:	37	***ROGT:***	6.44
Air Basin:	SD	***COT:***	
District:	SD	***NOXT:***	
COID:	SD	***SOXT:***	
DISN:	SAN DIEGO COUNTY APCD	***PMT:***	
CHAPIS:		***PM10T:***	

2008 Toxic Data

Facility ID:	97455	***COID:***	SD
Facility SIC Code:	5541	***DISN:***	SAN DIEGO COUNTY APCD
CO:	37	***CHAPIS:***	
Air Basin:	SD	***CERR Code:***	
District:	SD		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

2009 Criteria Data

Facility ID:	97455	***CERR Code:***	
Facility SIC Code:	5541	***TOGT:***	6.44
CO:	37	***ROGT:***	6.44
Air Basin:	SD	***COT:***	
District:	SD	***NOXT:***	
COID:	SD	***SOXT:***	
DISN:	SAN DIEGO COUNTY APCD	***PMT:***	
CHAPIS:		***PM10T:***	

2009 Toxic Data

Facility ID:	97455	***COID:***	SD
Facility SIC Code:	5541	***DISN:***	SAN DIEGO COUNTY APCD
CO:	37	***CHAPIS:***	

Air Basin: SD
District: SD
TS:
Health Risk Asmt:
Non-Cancer Chronic Haz Ind:
Non-Cancer Acute Haz Ind:
CERR Code:

2010 Toxic Data

Facility ID: 97455
Facility SIC Code: 5541
CO: 37
Air Basin: SD
District: SD
TS:
Health Risk Asmt:
Non-Cancer Chronic Haz Ind:
Non-Cancer Acute Haz Ind:
COID: SD
DISN: SAN DIEGO COUNTY APCD
CHAPIS:
CERR Code:

2011 Criteria Data

Facility ID: 97455
Facility SIC Code: 5541
CO: 37
Air Basin: SD
District: SD
COID: SD
DISN: SAN DIEGO COUNTY APCD
CHAPIS:
CERR Code:
TOGT: 6.44
ROGT: 6.44
COT:
NOXT:
SOXT:
PMT:
PM10T:

2011 Toxic Data

Facility ID: 97455
Facility SIC Code: 5541
CO: 37
Air Basin: SD
District: SD
TS:
Health Risk Asmt:
Non-Cancer Chronic Haz Ind:
Non-Cancer Acute Haz Ind:
COID: SD
DISN: SAN DIEGO COUNTY APCD
CHAPIS:
CERR Code:

2012 Criteria Data

Facility ID: 97455
Facility SIC Code: 5541
CO: 37
Air Basin: SD
District: SD
COID: SD
DISN: SAN DIEGO COUNTY APCD
CHAPIS:
CERR Code:
TOGT: 6.44
ROGT: 6.44
COT:
NOXT:
SOXT:
PMT:
PM10T:

2012 Toxic Data

Facility ID: 97455
Facility SIC Code: 5541
CO: 37
Air Basin: SD
District: SD
TS:
Health Risk Asmt:
Non-Cancer Chronic Haz Ind:
COID: SD
DISN: SAN DIEGO COUNTY APCD
CHAPIS:
CERR Code:

Non-Cancer Acute Haz Ind:

2013 Criteria Data

Facility ID:	97455	***CERR Code:***	
Facility SIC Code:	5541	***TOGT:***	6.44
CO:	37	***ROGT:***	6.44
Air Basin:	SD	***COT:***	
District:	SD	***NOXT:***	
COID:	SD	***SOXT:***	
DISN:	SAN DIEGO COUNTY APCD	***PMT:***	
CHAPIS:		***PM10T:***	

2013 Toxic Data

Facility ID:	97455	***COID:***	SD
Facility SIC Code:	5541	***DISN:***	SAN DIEGO COUNTY APCD
CO:	37	***CHAPIS:***	
Air Basin:	SD	***CERR Code:***	
District:	SD		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

2014 Criteria Data

Facility ID:	97455	***CERR Code:***	
Facility SIC Code:	5541	***TOGT:***	6.44
CO:	37	***ROGT:***	6.44
Air Basin:	SD	***COT:***	
District:	SD	***NOXT:***	
COID:	SD	***SOXT:***	
DISN:	SAN DIEGO COUNTY APCD	***PMT:***	
CHAPIS:		***PM10T:***	

2014 Toxic Data

Facility ID:	97455	***COID:***	SD
Facility SIC Code:	5541	***DISN:***	SAN DIEGO COUNTY APCD
CO:	37	***CHAPIS:***	
Air Basin:	SD	***CERR Code:***	
District:	SD		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

2015 Criteria Data

Facility ID:	97455	***CERR Code:***	
Facility SIC Code:	5541	***TOGT:***	6.44
CO:	37	***ROGT:***	6.44
Air Basin:	SD	***COT:***	
District:	SD	***NOXT:***	
COID:	SD	***SOXT:***	
DISN:	SAN DIEGO COUNTY APCD	***PMT:***	
CHAPIS:		***PM10T:***	

2015 Toxic Data

Facility ID:	97455	***COID:***	SD

Facility SIC Code:	5541	**DISN:**	SAN DIEGO COUNTY APCD
CO:	37	**CHAPIS:**	
Air Basin:	SD	**CERR Code:**	
District:	SD		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

2016 Criteria Data

Facility ID:	97455	**CERR CODE:**	
Facility SIC Code:	5541	**TOGT:**	6.44
CO:	37	**ROGT:**	6.44
Air Basin:	SD	**COT:**	
District:	SD	**NOXT:**	
COID:	SD	**SOXT:**	
DISN:	SAN DIEGO COUNTY APCD	**PMT:**	
CHAPIS:		**PM10T:**	

2016 Toxic Data

Facility ID:	97455	**TS:**	
Facility SIC Code:	5541	**HRA:**	
CERR CODE:		**CH Index:**	
COID:	SD	**AH Index:**	
CO:	37	**Air Basin:**	SD
DISN:	SAN DIEGO COUNTY APCD	**District:**	SD
CHAPIS:			

2017 Criteria Data

Facility ID:	97455	**CERR Code:**	
Facility SIC Code:	5541	**TOGT:**	6.44
CO:	37	**ROGT:**	6.44
Air Basin:	SD	**COT:**	
District:	SD	**NOXT:**	
COID:	SD	**SOXT:**	
DISN:	SAN DIEGO COUNTY APCD	**PMT:**	
CHAPIS:		**PM10T:**	

2017 Toxic Data

Facility ID:	97455	**COID:**	SD
Facility SIC Code:	5541	**DISN:**	SAN DIEGO COUNTY APCD
CO:	37	**CHAPIS:**	
Air Basin:	SD	**CERR Code:**	
District:	SD		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

2018 Criteria Data

Facility ID:	97455	**CERR Code:**	
Facility SIC Code:	5541	**TOGT:**	6.44
CO:	37	**ROGT:**	6.44
Air Basin:	SD	**COT:**	
District:	SD	**NOXT:**	
COID:	SD	**SOXT:**	
DISN:	SAN DIEGO COUNTY APCD	**PMT:**	
CHAPIS:		**PM10T:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

2018 Toxic Data

Facility ID:	97455	***COID:***	SD
Facility SIC Code:	5541	***DISN:***	SAN DIEGO COUNTY APCD
CO:	37	***CHAPIS:***	
Air Basin:	SD	***CERR Code:***	
District:	SD		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
4	7 of 8	W	0.02 / 131.86	447.14 / 9	Melrose Shell 1501 N MELROSE DR OCEANSIDE CA 92056	CERS TANK

Site ID:	93134	***Latitude:***	33.220260
County:	San Diego County	***Longitude:***	-117.259300

Regulated Programs

EI ID:	10373227
EI Description:	Underground Storage Tank
EI ID:	10373227
EI Description:	Hazardous Waste Generator
EI ID:	10373227
EI Description:	Chemical Storage Facilities

Violations

Violation Date:	05/15/2019	***Violation Source:***	CERS
Violation Program:	UST	***Violation Division:***	San Diego County Department of Env Health
Citation:	23 CCR 16 2712(b)(1)(G) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2712(b)(1)(G)		

Violation Notes:

Returned to compliance on 05/15/2019. Inspection Sequence ID:6147589;Tank ID:29235,29236,29237;Violation Description:(TCR 9b) Failure to comply with one or more of the following overfill prevention equipment requirements: 1. Alert the transfer operator when the tank is 90% full by restricting the flow into the tank or triggering an audible and visual alarm; or 2. Restrict delivery of flow to the tank at least 30m before the tank overfills, provided the restriction occurs when the tank is filled to no more than 95% of capacity and activate an audible alarm at least 5m before the tank overfills; or 3. Provide positive shut-off of flow to the tank when the tank is filled to no more than 95% of capacity; or 4. Provide positive shut-off of flow to the tank so that none of the fittings located on the top of the tank are exposed to product due to overfilling. 5. Install/retrofit overfill prevention equipment that does not use flow restrictors on vent piping to meet overfill prevention equipment requirements when the overfill prev

Violation Description:

Failure to comply with one or more of the following overfill prevention equipment requirements:
Alert the transfer operator when the tank is 90 percent full by restricting the flow into the tank or triggering an audible and visual alarm; or
Restrict delivery of flow to the tank at least 30 minutes before the tank overfills, provided the restriction occurs when the tank is filled to no more than 95 percent of capacity; and activate an audible alarm at least five minutes before the tank overfills; or
Provide positive shut-off of flow to the tank when the tank is filled to no more than 95 percent of capacity; or
Provide positive shut-off of flow to the tank so that none of the fittings located on the top of the tank are exposed to product due to overfilling.

Install/retrofit overfill prevention equipment that does not use flow restrictors on vent piping to meet overfill prevention equipment requirements when the overfill prevention equipment is installed, repaired, or replaced on and after October 1, 2018.

For USTs installed before October 1, 2018, perform an inspection by October 13, 2018 and every 36 months thereafter.

For USTs installed on and after October 1, 2018, perform an inspection at installation and every 36 months thereafter.

Inspected within 30 days after a repair to the overfill prevention equipment.

Inspected using an applicable manufacturer guidelines, industry codes, engineering standards, or a method approved by a professional engineer.

Inspected by a certified UST service technician.

Maintain records of overfill prevention equipment inspection for 36 months.

Violations

Violation Date: 05/15/2019 ***Violation Source:*** CERS
Violation Program: UST ***Violation Division:*** San Diego County Department of Env Health
Citation: HSC 6.7 25290.1(e) - California Health and Safety Code, Chapter 6.7, Section(s) 25290.1(e)
Violation Notes:

Returned to compliance on 05/15/2019. Inspection Sequence ID:6147589;Tank ID:2013-182-1;Violation Description:(RD) Failure to maintain the interstitial space such that a breach in the primary or secondary containment is detected before the liquid or vapor phase of the hazardous substance stored in the UST tank is released into the environment, i.e., vapor, pressure, hydrostatic (VPH) monitoring. HSC 25290.1(e); 23 CCR 2630(d)

Violation Description:

Failure to maintain the interstitial space such that a breach in the primary or secondary containment is detected before the liquid or vapor phase of the hazardous substance stored in the UST tank is released into the environment, i.e., vapor, pressure, hydrostatic (VPH) monitoring.

Violations

Violation Date: 05/28/2020 ***Violation Source:*** CERS
Violation Program: UST ***Violation Division:*** San Diego County Department of Env Health
Citation: HSC 6.7 25299(a)(9) - California Health and Safety Code, Chapter 6.7, Section(s) 25299(a)(9)
Violation Notes:

Returned to compliance on 06/23/2020. Inspection Sequence ID:6421970;Tank ID:2013-182-1;Violation Description:(TCR 9d) Leak detection equipment disabled or tampered with in a manner that would prevent the monitoring system from detecting and/or alerting the owner/operator of a leak. HSC 25299 (a)(9); 23 CCR 2630(d)

Violation Description:

Leak detection equipment disabled or tampered with in a manner that would prevent the monitoring system from detecting and/or alerting the owner/operator of a leak.

Violations

Violation Date: 05/16/2018 ***Violation Source:*** CERS
Violation Program: UST ***Violation Division:*** San Diego County Department of Env Health
Citation: 23 CCR 16 2636(f)(1) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2636(f)(1)
Violation Notes:

Returned to compliance on 05/28/2018. Inspection Sequence ID:5889515;Tank ID:29235;Violation Description:(RD) Failure of the double-walled pressurized piping to be continuously monitored with a system that activates an audible and visual alarm or stops flow at dispenser when a leak is detected. 23 CCR 2636(f)(1)

Violation Description:

Failure of the double-walled pressurized piping to be continuously monitored with a system that activates an audible and visual alarm or stops flow at the dispenser when a leak is detected.

Violations

Violation Date: 05/28/2020 ***Violation Source:*** CERS
Violation Program: UST ***Violation Division:*** San Diego County Department of Env Health
Citation: HSC 6.7 25290.1(d) - California Health and Safety Code, Chapter 6.7, Section(s) 25290.1(d)
Violation Notes:

Returned to compliance on 06/23/2020. Inspection Sequence ID:6421970;Tank ID:2013-182-1;Violation Description:Failure of a UST system installed on or after July 1, 2004 to be designed and constructed with a monitoring system capable of detecting the entry of the liquid or vapor-phase of the hazardous substance stored in the primary containment into the secondary containment and capable of detecting water intrusion into the secondary

containment. HSC 25290.1(d); 23 CCR 2630(d)

Violation Description:

Failure of a UST system installed on or after July 1, 2004 to be designed and constructed with a monitoring system capable of detecting the entry of the liquid or vapor-phase of the hazardous substance stored in the primary containment into the secondary containment and capable of detecting water intrusion into the secondary containment.

Violations

Violation Date: 05/15/2019 ***Violation Source:*** CERS
Violation Program: UST ***Violation Division:*** San Diego County Department of Env Health
Citation: 23 CCR 16 2632(c)(2)(A)&(B) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2632(c)(2)(A)&(B)
Violation Notes:

Returned to compliance on 05/22/2019. Inspection Sequence ID:6147589;Tank ID:29237;Violation Description:(TCR 9d) Failure to continuously monitor the interstitial space of a double-walled tank with an audible and visual alarm system. 23 CCR 2631(g), 2632(c)(2)(A-B)

Violation Description:

Failure to continuously monitor the interstitial space of a double-walled tank with an audible and visual alarm system.

Violations

Violation Date: 06/26/2014 ***Violation Source:*** CERS
Violation Program: UST ***Violation Division:*** San Diego County Department of Env Health
Citation: 23 CCR 16 2636(f) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2636(f)
Violation Notes:

Returned to compliance on 06/26/2014.

Violation Description:

Failure to continuously monitor the interstitial space of the tank, piping and/or sumps sump such that the leak detection activates an audible/visual alarm when a leak is detected.

Violations

Violation Date: 05/23/2016 ***Violation Source:*** CERS
Violation Program: UST ***Violation Division:*** San Diego County Department of Env Health
Citation: 23 CCR 16 2666(c) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2666(c)
Violation Notes:

Returned to compliance on 07/26/2016. Inspection Sequence ID:5450396;Tank ID:29237,29235;Violation Description:Failure of line leak detector to detect a leak and/or failure of audible and visual alarm. 23 CCR 2636(f)(2)

Violation Description:

Failure of line leak detector to detect a leak and/or failure of audible and visual alarm.

Violations

Violation Date: 05/22/2017 ***Violation Source:*** CERS
Violation Program: UST ***Violation Division:*** San Diego County Department of Env Health
Citation: 23 CCR 16 2715(c) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2715(c)
Violation Notes:

Returned to compliance on 06/08/2017. Inspection Sequence ID:5646955;Tank ID:29235,29236,29237,2013-182-1;Violation Description:Failure to comply with one or more of the designated operator monthly inspection requirements: failed to inspect the monthly alarm history report; attach a copy of the alarm history; failed to inspect for the presence of liquid or debris in the spill container/spill bucket and under dispenser containment; failed to inspect the under dispenser containment to ensure that monitoring equipment is placed in the proper position; failure to inspect for liquid or debris in the containment sump where an alarm occurred or for which there is no record of a service visit; or failure to check that all testing and maintenance has

been completed and documented. 23 CCR 2715

Violation Description:

Failure to comply with one or more of the following designated operator (DO) monthly inspection requirements:
Be performed by an ICC certified DO.
Inspect monthly alarm history report, check that alarms are documented and responded to appropriately, and attach a copy. Inspect for the presence of liquid/debris in spill containers.
Inspect for the presence of liquid/debris in under dispenser containment (UDC) and ensure that the monitoring equipment is positioned correctly. Inspect for liquid or debris in containment sumps where an alarm occurred with no service visit. Check that all testing and maintenance has been completed and documented.
Verify that all facility employees have been properly trained.

Violations

Violation Date: 06/09/2015 ***Violation Source:*** CERS
Violation Program: UST ***Violation Division:*** San Diego County Department of Env Health
Citation: 23 CCR 16 2636(f)(5) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2636(f)(5)
Violation Notes:

Returned to compliance on 06/11/2015.

Violation Description:

Failure to maintain all product piping outside the dispenser to be fail-safe and shut down the pump when a leak is detected and the monitoring system shuts down the pump or flow restriction occurs when a leak is detected in the under dispenser containment.

Violations

Violation Date: 05/22/2017 ***Violation Source:*** CERS
Violation Program: UST ***Violation Division:*** San Diego County Department of Env Health
Citation: 23 CCR 16 2715(i) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2715(i)
Violation Notes:

Returned to compliance on 05/22/2017. Inspection Sequence ID:5646955;Tank ID:29235,29236,29237,2013-182-1;Violation Description:(RD) Failure to test leak detection equipment as required every 12 months (VPH, sensor, LLD, ATG, etc.) and/or submit monitoring system certification to the CUPA within 30 days of completion of the test. 23 CCR 2638

Violation Description:

Failure to have a properly qualified service technician test leak detection equipment as required every 12 months (vapor, pressure, hydrostatic (VPH) system, sensors, line-leak detectors (LLD), automatic tank gauge (ATG), etc.).

Violations

Violation Date: 06/09/2015 ***Violation Source:*** CERS
Violation Program: UST ***Violation Division:*** San Diego County Department of Env Health
Citation: 23 CCR 16 2636(f)(2) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2636(f)(2)
Violation Notes:

Returned to compliance on 06/11/2015.

Violation Description:

Failure of the pressurized piping to meet one or more of the following requirements: monitored at least hourly with the capability of detecting a release of 3.0 gallons per hour, and will restrict the flow of product through the piping or trigger an alarm when a release occurs.

Violations

Violation Date: 05/16/2018 ***Violation Source:*** CERS
Violation Program: UST ***Violation Division:*** San Diego County Department of Env Health
Citation: 23 CCR 16 2636(f)(2) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2636(f)(2)

Violation Notes:

Returned to compliance on 05/22/2018. Inspection Sequence ID:5889515;Tank ID:29235;Violation Description:(RD) Failure of the line leak detector (LLD) monitoring pressurized piping to meet one or more of the following requirements: Monitored at least hourly. with the capability of detecting a release of 3.0 gallons per hour leak at 10 p.s.i.g. and restrict or shut off the flow of product through the piping when a leak is detected. 23 CCR 2636(f)(2)

Violation Description:

Failure of the functional line leak detector (LLD) monitoring pressurized piping to meet one or more of the following requirements: Monitored at least hourly with the capability of detecting a release of 3.0 gallons per hour leak at 10 p.s.i.g. and restrict or shut off the flow of product through the piping when a leak is detected.

Violations

Violation Date: 05/16/2018 ***Violation Source:*** CERS
Violation Program: UST ***Violation Division:*** San Diego County Department of Env Health
Citation: 23 CCR 16 2715(c) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2715(c)
Violation Notes:

Returned to compliance on 06/01/2018. Inspection Sequence ID:5889515;Tank ID:2013-182-1,29236;Violation Description:Failure to comply with one or more of the following designated operator (DO) monthly inspection requirements: Be performed by an ICC certified DO. Inspect monthly alarm history report, check that alarms are documented and responded to appropriately, and attach a copy. Inspect for the presence of liquid/debris in spill containers. Inspect for the presence of liquid/debris in under dispenser containment (UDC) and ensure that the monitoring equipment is positioned correctly. Inspect for liquid or debris in containment sumps where an alarm occurred with no service visit. Check that all testing and maintenance has been completed and documented. Verify that all facility employees have been trained in accordance with 23 CCR 2715(f)(2), 2715(c)

Violation Description:

Failure to comply with one or more of the following designated operator (DO) monthly inspection requirements:

Be performed by an ICC certified DO.

Inspect monthly alarm history report, check that alarms are documented and responded to appropriately, and attach a copy. Inspect for the presence of liquid/debris in spill containers.

Inspect for the presence of liquid/debris in under dispenser containment (UDC) and ensure that the monitoring equipment is positioned correctly. Inspect for liquid or debris in containment sumps where an alarm occurred with no service visit. Check that all testing and maintenance has been completed and documented.

Verify that all facility employees have been trained in accordance with 23 CCR 2715(f)(2).

Violations

Violation Date: 05/23/2016 ***Violation Source:*** CERS
Violation Program: UST ***Violation Division:*** San Diego County Department of Env Health
Citation: 23 CCR 16 2715 - California Code of Regulations, Title 23, Chapter 16, Section(s) 2715
Violation Notes:

Returned to compliance on 07/26/2016. Inspection Sequence ID:5450396;Tank ID:2013-182-1,29237,29236,29235;Violation Description:Failure to comply with one or more of the designated operator monthly inspection requirements: failed to inspect the monthly alarm history report; attach a copy of the alarm history; failed to inspect for the presence of liquid or debris in the spill container/spill bucket and under dispenser containment; failed to inspect the under dispenser containment to ensure that monitoring equipment is placed in the proper position; failure to inspect for liquid or debris in the containment sump where an alarm occurred or for which there is no record of a service visit; or failure to check that all testing and maintenance has been completed and documented. 23 CCR 2715

Violation Description:

Failure to comply with one or more of the designated operator monthly inspection requirements: failed to inspect the monthly alarm history report; attach a copy of the alarm history; failed to inspect for the presence of liquid or debris in the spill container/spill bucket and under dispenser containment; failed to inspect the under dispenser containment to ensure that monitoring equipment is placed in the proper position; failure to inspect for liquid or debris in the containment sump where an alarm occurred or for which there is no record of a service visit; or failure to check that all testing and maintenance has been completed and documented.

Violations

Violation Date: 05/22/2017 ***Violation Source:*** CERS
Violation Program: UST ***Violation Division:*** San Diego County Department of Env Health
Citation: 23 CCR 16 2665 - California Code of Regulations, Title 23, Chapter 16, Section(s) 2665
Violation Notes:

Returned to compliance on 06/01/2017. Inspection Sequence ID:5646955;Tank ID:29235;Violation Description:(RP) Failure to comply with one or more of the following: failure to install a spill bucket, have a functional drain valve or other method for the removal of liquid from the spill bucket/spill container, and/or be resistant to galvanic corrosion. 23 CCR 2635(b), 2665

Violation Description:

Failure to comply with one or more of the following:

Failure to install or maintain a liquid-tight spill bucket.

Have a minimum capacity of five gallons.

Have a functional drain valve or other method for the removal of liquid from the spill bucket/spill container.

Be resistant to galvanic corrosion.

Violations

Violation Date: 05/28/2020 ***Violation Source:*** CERS
Violation Program: UST ***Violation Division:*** San Diego County Department of Env Health
Citation: 23 CCR 16 2716(e) - California Code of Regulations, Title 23, Chapter 16, Section(s) 2716(e)
Violation Notes:

Returned to compliance on 06/18/2020. Inspection Sequence ID:6421970;Tank ID:2013-182-1,29235,29236,29237;Violation Description:(TCR 12) Failure to comply with one or more of the following designated operator (DO) monthly inspection requirements: For designated operator (DO) monthly inspections conducted before October 1, 2018, failure to comply with one or more of the following requirements: Be performed by an ICC certified DO. Inspect monthly alarm history report, check that alarms are documented and responded to appropriately, and attach a copy. Inspect for the presence of liquid/debris in spill containers. Inspect for the presence of liquid/debris in under dispenser containment (UDC) and ensure that the monitoring equipment is positioned correctly. Inspect for liquid or debris in containment sumps where an alarm occurred with no service visit. Check that all testing and maintenance has been completed and documented. Verify that all facility employees have been trained in accordance with 23 CCR, 2715(c). For designated

Violation Description:

For designated operator (DO) monthly inspections conducted before October 1, 2018, failure to comply with one or more of the following requirements:
Be performed by an ICC certified DO.
Inspect monthly alarm history report, check that alarms are documented and responded to appropriately, and attach a copy.
Inspect for the presence of liquid/debris in spill containers.
Inspect for the presence of liquid/debris in under dispenser containment (UDC) and ensure that the monitoring equipment is positioned correctly.
Inspect for liquid or debris in containment sumps where an alarm occurred with no service visit.
Check that all testing and maintenance has been completed and documented.
Verify that all facility employees have been trained in accordance with 23 CCR 2715(c).
For designated operator (DO) 30 day inspections conducted on and after October 1, 2018, failure to conduct the designated UST operator visual inspection at least once every 30 days.

Evaluations

Eval Date: 05/16/2018
Violations Found: Yes
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: San Diego County Department of Env Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

Inspector: Beacon Ellen Inspection ID:5889515; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 06/09/2015

Violations Found: No
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: San Diego County Department of Env Health
Eval Program: HW
Eval Source: CERS
Eval Notes:

Inspector: Oglesby Margaret Inspection ID:5160878; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 05/15/2019
Violations Found: Yes
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: San Diego County Department of Env Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

Inspector: Beacon Ellen Inspection ID:6147589; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 05/16/2018
Violations Found: No
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: San Diego County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS
Eval Notes:

Inspector: Beacon Ellen Inspection ID:5889515; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 05/16/2018
Violations Found: No
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: San Diego County Department of Env Health
Eval Program: HW
Eval Source: CERS
Eval Notes:

Inspector: Beacon Ellen Inspection ID:5889515; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 06/26/2014
Violations Found: No
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: San Diego County Department of Env Health
Eval Program: HW
Eval Source: CERS
Eval Notes:

Inspector: Oglesby Margaret Inspection ID:4975539; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 05/22/2017
Violations Found: Yes
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: San Diego County Department of Env Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

Inspector: Beacon Ellen Inspection ID:5646955; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 05/28/2020
Violations Found: Yes
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: San Diego County Department of Env Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

Inspector: Beacon Ellen Inspection ID:6421970; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 06/09/2015
Violations Found: No
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: San Diego County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS
Eval Notes:

Inspector: Oglesby Margaret Inspection ID:5160878; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 06/09/2015
Violations Found: Yes
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: San Diego County Department of Env Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

Inspector: Oglesby Margaret Inspection ID:5160878; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 06/26/2014
Violations Found: No
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: San Diego County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS
Eval Notes:

Inspector: Oglesby Margaret Inspection ID:4975539; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 05/15/2019
Violations Found: No
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: San Diego County Department of Env Health
Eval Program: HW
Eval Source: CERS
Eval Notes:

Inspector: Beacon Ellen Inspection ID:6147589; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 05/15/2019
Violations Found: No
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: San Diego County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS
Eval Notes:

Inspector: Beacon Ellen Inspection ID:6147589; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 05/22/2017
Violations Found: No
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: San Diego County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS
Eval Notes:

Inspector: Beacon Ellen Inspection ID:5646955; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 05/22/2017
Violations Found: No
Eval General Type: Compliance Evaluation Inspection
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Eval Division: San Diego County Department of Env Health
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Eval Source: CERS
Eval Notes:

Inspector: Beacon Ellen Inspection ID:5646955; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 05/23/2016
Violations Found: No
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: San Diego County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS
Eval Notes:

Inspector: Oglesby Margaret Inspection ID:5450396; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 05/23/2016
Violations Found: No
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: San Diego County Department of Env Health
Eval Program: HW
Eval Source: CERS
Eval Notes:

Inspector: Oglesby Margaret Inspection ID:5450396; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 06/26/2014
Violations Found: Yes
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: San Diego County Department of Env Health
Eval Program: UST
Eval Source: CERS
Eval Notes:

Inspector: Oglesby Margaret Inspection ID:4975539; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 05/23/2016
Violations Found: Yes
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: San Diego County Department of Env Health
Eval Program: UST
Eval Source: CERS

Eval Notes:

Inspector: Oglesby Margaret Inspection ID:5450396; Note: data in [EVAL Notes] field for some records is truncated from the source.

Affiliations

Affil Type Desc: Operator
Entity Name: KA MANAGEMENT, INC.
Entity Title:
Address:
City:
State:
Country:
Zip Code:
Phone: (858) 404-6087

Affil Type Desc: UST Permit Applicant
Entity Name: TONY CASAREZ
Entity Title: DIRECTOR OF OPERATIONS
Address:
City:
State:
Country:
Zip Code:
Phone: (858) 404-6084

Affil Type Desc: Document Preparer
Entity Name: LYNDA KIRBY
Entity Title:
Address:
City:
State:
Country:
Zip Code:
Phone:

Affil Type Desc: CUPA District
Entity Name: San Diego County Env Health
Entity Title:
Address: PO Box 129261
City: San Diego
State: CA
Country:
Zip Code: 92112-9261
Phone: (858) 505-6880

Affil Type Desc: Legal Owner
Entity Name: KA MANAGEMENT, INC.
Entity Title:
Address: 5820 OBERLIN DR STE 201
City: SAN DIEGO
State: CA
Country: United States
Zip Code: 92121
Phone: (858) 404-6087

Affil Type Desc: UST Tank Operator
Entity Name: KA MANAGEMENT, INC.
Entity Title:
Address: 5820 Oberlin Drive, Suite 201
City: San Diego
State: CA
Country: United States
Zip Code: 92121
Phone: (858) 404-6087

Affil Type Desc: Identification Signer

Entity Name: TONY CASAREZ
Entity Title: DIRECTOR OF OPERATIONS
Address:
City:
State:
Country:
Zip Code:
Phone:

Affil Type Desc: UST Tank Owner
Entity Name: KA Melrose LLC
Entity Title:
Address: 5820 Oberlin Drive, Suite 201
City: San Diego
State: CA
Country: United States
Zip Code: 92121
Phone: (858) 404-6087

Affil Type Desc: Environmental Contact
Entity Name: TONY CASAREZ
Entity Title:
Address: 5820 OBERLIN DR STE 201
City: SAN DIEGO
State: CA
Country:
Zip Code: 92121
Phone:

Affil Type Desc: Parent Corporation
Entity Name: KA MANAGEMENT, INC.
Entity Title:
Address:
City:
State:
Country:
Zip Code:
Phone:

Affil Type Desc: Property Owner
Entity Name: MELROSE, LLC
Entity Title:
Address: 5820 OBERLIN DR STE 201
City: SAN DIEGO
State: CA
Country: United States
Zip Code: 92121
Phone: (858) 404-6087

Affil Type Desc: UST Property Owner Name
Entity Name: KA Melrose LLC
Entity Title:
Address: 5820 Oberlin Drive, Suite 201
City: San Diego
State: CA
Country: United States
Zip Code: 92121
Phone: (858) 404-6087

Affil Type Desc: Facility Mailing Address
Entity Name: Mailing Address
Entity Title:
Address: 5820 OBERLIN DR STE 201
City: SAN DIEGO
State: CA
Country:
Zip Code: 92121
Phone:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
4	8 of 8	W	0.02 / 131.86	447.14 / 9	KA MANAGEMENT INC DBA MELROSE ARCO 1501 MELROSE DR OCEANSIDE CA 92056-5393	RCRA NON GEN

EPA Handler ID: CAL000183657
Gen Status Universe: No Report
Contact Name: TONY CASAREZ
Contact Address: 5820 OBERLIN DR STE 201 , , SAN DIEGO , CA, 92121 ,
Contact Phone No and Ext: 858-404-6084
Contact Email: TONY@KAENTERPRISES.NET
Contact Country:
County Name: SAN DIEGO
EPA Region: 09
Land Type:
Receive Date: 20011217

Violation/Evaluation Summary

Note: NO RECORDS: As of May 2020, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20011217
Handler Name: KA MANAGEMENT INC DBA MELROSE ARCO
Source Type: Implementer
Federal Waste Generator Code: N
Generator Code Description: Not a Generator, Verified

Owner/Operator Details

Owner/Operator Ind: Current Operator
Type: Other
Name: TONY CASAREZ
Date Became Current:
Date Ended Current:
Phone: 858-404-6084
Source Type: Implementer
Street No:
Street 1: 5820 OBERLIN DR STE 201
Street 2:
City: SAN DIEGO
State: CA
Country:
Zip Code: 92121

Owner/Operator Ind: Current Owner
Type: Other
Name: KA MANAGEMENT INC
Date Became Current:
Street No:
Street 1: 5820 OBERLIN DR STE 201
Street 2:
City: SAN DIEGO

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Date Ended Current: | **State:** CA
Phone: 858-404-6080 | **Country:**
Source Type: Implementer | **Zip Code:** 92121-0000

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5 | **1 of 3** | **SSW** | **0.08 / 411.97** | **410.10 / -28** | **B & D AUTO REPAIR**
1350 N MELROSE DR
VISTA CA 92083

SANDIEGO HAZ

Record ID: DEH2003-HUPFP-201664
Facility Name: B & D AUTO REPAIR
Facility City: VISTA
Facility ZipCode: 92083
Facility Latitude:
Facility Longitude:
Facility Address: 1350 N MELROSE DR
GIS Facility Name: B & D AUTO REPAIR
GIS Facility Address: 1350 N MELROSE DR, VISTA, CA 92083

GIS Record ID: DEH2003-HUPFP-201664
GIS Facility City: VISTA
GIS Facility ZipCode: 92083
GIS Fac Latitude: 33.2189011
GIS Fac Longitude: -117.2568874

Hazardous Materials Facility Data

CERS ID: 10378765
Facility ID No: 37-000-201664
EPA ID No: CAL000270885
Active Permit:
Permit Status: Permit Renewed
Bus. Phone: 760-631-2886
Bus. Fax: 0.0
Last Updated: 12/21/2019 03:09:06 AM
Zip Codes:
New Georeferenced Column: (33.2187365851551, -117.25748534284565)
Mailing Address: 1350 N MELROSE DR, VISTA, CA 92083

Onsite H Waste Trtmt: false
Haz Mat on Site: true
Haz Waste Generator: true
Own/Oper Under: false
Own/Oper Above: false
Recycle: false
RCRA Large Qty Gen: false
HHW Collection: false
Atoms:

Hazardous Waste and Materials

ID: 271904
Child Record ID: DEH2019-HCHEM-0240337
CAS No:
Last Updated: 12/21/2019 03:09:07 AM
Chemical Name: OILS, LUBRICATING
Common Name Inventory: Lubricating Oils (DW-AST - ATF, 10W-30)

Permit Status: Permit Renewed
Active Permit: true
Haz Material Type: Pure
Trade Secret:

ID: 271908
Child Record ID: DEH2019-HWAST-0211340
CAS No:
Last Updated: 12/21/2019 03:09:08 AM
Chemical Name:
Common Name Inventory: Non-RCRA Hazardous Waste Solid (Paper Filters)

Permit Status: Permit Renewed
Active Permit: true
Haz Material Type:
Trade Secret:

ID: 33441
Child Record ID: DEH2015-HWAST-0044298
CAS No:
Last Updated: 03/28/2017 10:09:53 AM
Chemical Name: WASTE 342 ORGANIC LIQUIDS W/METALS
Common Name Inventory: USED ANTIFREEZE

Permit Status: Permit Renewed
Active Permit: true
Haz Material Type:
Trade Secret:

ID: 115569
Child Record ID: DEH2017-HCHEM-0160336
CAS No:
Last Updated: 11/23/2019 02:49:21 AM
Chemical Name: OILS, LUBRICATING
Common Name Inventory: Lubricating Oils (DW-AST - ATF, 10W-30)

Permit Status: Permit Renewed
Active Permit: true
Haz Material Type: Pure
Trade Secret:

ID: 271907
Child Record ID: DEH2019-HWAST-0211339
CAS No:
Last Updated: 12/21/2019 03:09:08 AM

Permit Status: Permit Renewed
Active Permit: true
Haz Material Type:
Trade Secret:

Chemical Name: WASTE 342 ORGANIC LIQUIDS W/METALS
Common Name Inventory: USED ANTIFREEZE

ID: 33440 **Permit Status:** Permit Renewed
Child Record ID: DEH2015-HWAST-0044297 **Active Permit:** true
CAS No: **Haz Material Type:**
Last Updated: 03/28/2017 10:09:53 AM **Trade Secret:**
Chemical Name: WASTE 221 WASTE OIL & MIXED OIL
Common Name Inventory: USED OIL

ID: 115570 **Permit Status:** Permit Renewed
Child Record ID: DEH2017-HCHEM-0160337 **Active Permit:** true
CAS No: **Haz Material Type:** Pure
Last Updated: 11/23/2019 02:49:21 AM **Trade Secret:**
Chemical Name: Coolant & Antifreeze
Common Name Inventory: Antifreeze & Coolant (Yellow & Green)

ID: 115572 **Permit Status:** Permit Renewed
Child Record ID: DEH2017-HWAST-0135840 **Active Permit:** true
CAS No: **Haz Material Type:**
Last Updated: 11/23/2019 02:49:21 AM **Trade Secret:**
Chemical Name: WASTE 342 ORGANIC LIQUIDS W/METALS
Common Name Inventory: USED ANTIFREEZE

ID: 33438 **Permit Status:** Permit Renewed
Child Record ID: DEH2015-HCHEM-0058636 **Active Permit:** true
CAS No: **Haz Material Type:** Pure
Last Updated: 03/28/2017 10:09:53 AM **Trade Secret:**
Chemical Name: OILS, LUBRICATING
Common Name Inventory: Lubricating Oils (DW-AST - ATF, 10W-30)

ID: 271905 **Permit Status:** Permit Renewed
Child Record ID: DEH2019-HCHEM-0240338 **Active Permit:** true
CAS No: **Haz Material Type:** Pure
Last Updated: 12/21/2019 03:09:07 AM **Trade Secret:**
Chemical Name: Coolant & Antifreeze
Common Name Inventory: Antifreeze & Coolant (Yellow & Green)

ID: 271906 **Permit Status:** Permit Renewed
Child Record ID: DEH2019-HWAST-0211338 **Active Permit:** true
CAS No: **Haz Material Type:**
Last Updated: 12/21/2019 03:09:08 AM **Trade Secret:**
Chemical Name: WASTE 221 WASTE OIL & MIXED OIL
Common Name Inventory: USED OIL

ID: 33439 **Permit Status:** Permit Renewed
Child Record ID: DEH2015-HCHEM-0058637 **Active Permit:** true
CAS No: **Haz Material Type:** Pure
Last Updated: 03/28/2017 10:09:53 AM **Trade Secret:**
Chemical Name: Coolant & Antifreeze
Common Name Inventory: Antifreeze & Coolant (Yellow & Green)

ID: 115571 **Permit Status:** Permit Renewed
Child Record ID: DEH2017-HWAST-0135839 **Active Permit:** true
CAS No: **Haz Material Type:**
Last Updated: 11/23/2019 02:49:21 AM **Trade Secret:**
Chemical Name: WASTE 221 WASTE OIL & MIXED OIL
Common Name Inventory: USED OIL

Hazardous Materials Inspection Violations

Container Tank ID: **Inspection No:** 4091098
Facility ID No: 37-000-201664 **Inspection Type:** Routine
ID: 16218 **Inspection Date:** 03/03/2015 12:00:00 AM
UST ID: **Compliance Date:** 04/01/2015 12:00:00 AM
Permit Status: Permit Renewed **Last Updated:** 12/21/2019 03:09:02 AM
Active Permit: true **NOV:** false
Program Element: Hazardous Waste Generator

Violation Classification: Minor
Violation Code: 3020002 Failure to provide employees within the first six months after the date of their employment, or assignment to the facility, or to work unsupervised, or to a new position at a facility with hazardous waste training to ensure employees are competent in the following areas: hazardous waste management procedures (including contingency plan implementation) relevant to the positions in which they are employed, emergency response and emergency equipment, and procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment. In addition, the owner/operator shall ensure facility personnel take part in an annual review of the initial training and training records training records on current personnel shall be kept until closure of the facility. Training records on former employees shall be kept for at least three years from the date the employee last worked at the facility. The records shall include the following: the job title for each position at the facility related to hazardous waste management, and the name of the employee filling each job; a written job description for each position, duties of facility personnel assigned to each position, and a written description of the type and amount of both introductory and continuing training that will be given to each person filling a position.; 22 CCR 15 66265.16.

Container Tank ID:
Facility ID No: 37-000-201664
ID: 50242
UST ID:
Permit Status: Permit Renewed
Active Permit: true
Inspection No: 6165042
Inspection Type: Routine
Inspection Date: 11/22/2019 03:31:29 PM
Compliance Date: 11/22/2019 12:00:00 AM
Last Updated: 12/21/2019 03:09:02 AM
NOV: false
Program Element: Hazardous Materials Release Response Plans
Violation Classification: Class II
Violation Code: 1010008 HMBP not certified annually as complete and accurate in CERS. HSC 25508(a)(1)(A), 25508.2, 19 CCR 2654(b)

Container Tank ID:
Facility ID No: 37-000-201664
ID: 16219
UST ID:
Permit Status: Permit Renewed
Active Permit: true
Inspection No: 5646256
Inspection Type: Routine
Inspection Date: 05/02/2017 03:11:00 PM
Compliance Date: 05/02/2017 12:00:00 AM
Last Updated: 12/21/2019 03:09:02 AM
NOV: false
Program Element: Hazardous Waste Generator
Violation Classification: Class II
Violation Code: 3120001 Failed to maintain training records. 22 CCR 66265.16(d) and (e)

Container Tank ID:
Facility ID No: 37-000-201664
ID: 50243
UST ID:
Permit Status: Permit Renewed
Active Permit: true
Inspection No: 6165042
Inspection Type: Routine
Inspection Date: 11/22/2019 03:31:29 PM
Compliance Date: 12/18/2019 12:00:00 AM
Last Updated: 12/21/2019 03:09:02 AM
NOV: false
Program Element: Hazardous Materials Release Response Plans
Violation Classification: Class II
Violation Code: 1020002 Initial &/or annual employee training not conducted in safety procedures for a hazardous material release or threatened release &/or employee training records not available or not maintained for 3 years. HSC 25505(a)(4); 19 CCR 2659(b)

Container Tank ID:
Facility ID No: 37-000-201664
ID: 50240
UST ID:
Permit Status: Permit Renewed
Active Permit: true
Inspection No: 6165042
Inspection Type: Routine
Inspection Date: 11/22/2019 03:31:29 PM
Compliance Date: 12/16/2019 12:00:00 AM
Last Updated: 12/21/2019 03:09:02 AM
NOV: false
Program Element: Hazardous Waste Generator
Violation Classification: Minor
Violation Code: HMD0138 Manifest signed by the TSDF not available for inspection. 22 CCR 66262.40(a); HSC 25185(a)(4)

Container Tank ID:
Facility ID No: 37-000-201664
ID: 16221
UST ID:
Permit Status: Permit Renewed
Active Permit: true
Inspection No: 4091098
Inspection Type: Routine
Inspection Date: 03/03/2015 12:00:00 AM
Compliance Date: 03/03/2015 12:00:00 AM
Last Updated: 12/21/2019 03:09:02 AM
NOV: false
Program Element: Hazardous Materials Release Response Plans
Violation Classification: Class II
Violation Code: 1010002 Owner/Operator failed to complete and/or submit a Hazardous Materials Business Plan when storing hazardous materials at or above the thresholds quantities of 55 gallons/500 lbs/200 cubic feet; HSC 6.95 25508(a) 1A

Container Tank ID:
Inspection No: 6165042

Facility ID No: 37-000-201664 **Inspection Type:** Routine
ID: 50241 **Inspection Date:** 11/22/2019 03:31:29 PM
UST ID: **Compliance Date:** 11/22/2019 12:00:00 AM
Permit Status: Permit Renewed **Last Updated:** 12/21/2019 03:09:02 AM
Active Permit: true **NOV:** false
Program Element: Hazardous Waste Generator
Violation Classification: Class II
Violation Code: HMD0152 Failed to report &/or update the required inventory information for hazardous waste(s) generated at the facility in CERS. SDCC 68.904(a)(2)

Container Tank ID: **Inspection No:** 4091098
Facility ID No: 37-000-201664 **Inspection Type:** Routine
ID: 16217 **Inspection Date:** 03/03/2015 12:00:00 AM
UST ID: **Compliance Date:** 04/14/2015 12:00:00 AM
Permit Status: Permit Renewed **Last Updated:** 12/21/2019 03:09:02 AM
Active Permit: true **NOV:** false
Program Element: Hazardous Waste Generator
Violation Classification: Class II
Violation Code: 3030029 Failure of the owner or operator to conduct inspections and maintain inspection records at the facility of the following tank equipment: 22 CCR 15 66265.195(a).

Container Tank ID: **Inspection No:** 5646256
Facility ID No: 37-000-201664 **Inspection Type:** Routine
ID: 16222 **Inspection Date:** 05/02/2017 03:11:00 PM
UST ID: **Compliance Date:** 10/26/2017 12:00:00 AM
Permit Status: Permit Renewed **Last Updated:** 12/21/2019 03:09:02 AM
Active Permit: true **NOV:** false
Program Element: Hazardous Materials Release Response Plans
Violation Classification: Minor
Violation Code: 1010008 HMBP not certified annually as complete and accurate in CERS. HSC 25508.2

Container Tank ID: **Inspection No:** 6165042
Facility ID No: 37-000-201664 **Inspection Type:** Routine
ID: 50239 **Inspection Date:** 11/22/2019 03:31:29 PM
UST ID: **Compliance Date:**
Permit Status: Permit Renewed **Last Updated:** 12/21/2019 03:09:02 AM
Active Permit: true **NOV:** false
Program Element: Hazardous Waste Generator
Violation Classification: Class II
Violation Code: 3120001 Failed to maintain training documents and records at the facility. 22 CCR 66265.16(d) & (e)

Container Tank ID: **Inspection No:** 5646256
Facility ID No: 37-000-201664 **Inspection Type:** Routine
ID: 16220 **Inspection Date:** 05/02/2017 03:11:00 PM
UST ID: **Compliance Date:** 10/27/2017 12:00:00 AM
Permit Status: Permit Renewed **Last Updated:** 12/21/2019 03:09:02 AM
Active Permit: true **NOV:** false
Program Element: Hazardous Waste Generator
Violation Classification: Class II
Violation Code: 3130012 Failed to conduct daily inspections and/or maintain the inspection records for hazardous waste tank system. 22 CCR 66265.195(a)(c)

HMD Permits REST Data

GIS Facility ID: 37-000-201664 **Status:**
GIS CERS ID: 10378765 **ER Contact:**
GIS Record Type: LUEG-DEH/HMD/UPFP/Facility **ER Con Work Ph:**
Per Type: **Census Tract:** 194.04
Per Sub Type: **Parcel Zip:** 92083
Per Cat: **Community:** Vista
Record Status: Permit Renewed **Jurisdiction:** VISTA
HW Tier: Not Applicable **Basin No:** 904.10
LRG QTY MW Gener: No **BOS Dist:** 5
EPA ID No: CAL000270885 **Tbpg Grid:** 1087 F 4
RMP CAL ARP: Not Applicable **Insp Dist:** HN022
Tank Owner: **Feature ID:** 1610712600
SIC Code: 0000 **X Coord:** 6253733.459
NAICS Code: **Y Coord:** 2024761.343

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Disclose Qty Haz Mat:	Y	**Kiva Per Typ:**	HK07 201664
Exp Date:		**Agency Name:**	COSD
Own/Operate USTs :		**Point X:**	6253733.45894489
UST Facility:		**Point Y:**	2024761.34284957
Total No USTs:		**Lat GS84:**	33.2189011
No of Tanks:		**Lon GS84:**	-117.2568874
Own Oper APS:	N	**Loc Name:**	
Tot APSA Cap:	1060	**Score:**	
Capacity LR:		**Match Type:**	
Haz Waste G:	Y	**Side:**	
Recycle100:	N	**X Map Coord:**	
Onsite Haz Waste Tre:	N	**Y Map Coord:**	
RCRA LRG Qty:	N	**User Fld:**	
Haz Wst Coll Site:	N	**Addr Type:**	
Accept Offs:		**ARC Address:**	
Universal Waste Han:		**ARC City:**	
Toxic Gas:	No	**ARC Zipcode:**	
Hazmat EHS:	N	**ARC State:**	
Hazmat Rad:	No	**ARC APN:**	
Haz Waste Rad:	N	**Zip:**	
Haz Waste EHS:	N	**Farm Nursery:**	
Full Name:	Doug Jones	**Indian or Territory:**	No
Email Perm:		**County ID:**	
Phone Perm:	760-390-2356	**Bill Code 2:**	
Site Address:	1350 N MELROSE DR	**Bill Code 3:**	
Parcel No:	161-071-26-00	**Univ Waste Gen Type:**	

Record Ali: Unified Program Facility Permit
Address: 1350 N MELROSE DR
Business Type: Auto Repair, General - Waste USTs Only
Bill Code:
ER Con Name:
ER Con Title:
Water Purv: VISTA IRRIGATION LAND
Fire Agency: VISTA
Geo SRC: Mapped to record address
Match Addr:

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5 | ***2 of 3*** | ***SSW*** | ***0.08 / 411.97*** | ***410.10 / -28*** | ***B & D AUTO REPAIR***
1350 N MELROSE DR
VISTA CA 92083 | ***CERS HAZ***

Site ID: 10369
Latitude: 33.218929
Longitude: -117.256905
County: San Diego County

Regulated Programs

EI ID:	10378765	**EI Description:**	Hazardous Waste Generator
EI ID:	10378765	**EI Description:**	Chemical Storage Facilities

Violations

Violation Date:	03/03/2015	**Violation Source:**	CERS
Violation Program:	HW	**Violation Division:**	San Diego County Department of Env Health

Citation: 22 CCR 15 66265.16 - California Code of Regulations, Title 22, Chapter 15, Section(s) 66265.16
Violation Notes:

Returned to compliance on 04/01/2015.

Violation Description:

Failure to provide employees within the first six months after the date of their employment, or assignment to the facility, or to work unsupervised, or to a new position at a facility with hazardous waste training to ensure employees are competent in the following areas: hazardous waste management procedures (including contingency plan implementation) relevant to the positions in which they are employed, emergency response and emergency

equipment, and procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment. In addition, the owner/operator shall ensure facility personnel take part in an annual review of the initial training and training records training records on current personnel shall be kept until closure of the facility. Training records on former employees shall be kept for at least three years from the date the employee last worked at the facility. The records shall include the following: the job title for each position at the facility related to hazardous waste management, and the name of the employee filling each job; a written job description for each position, duties of facility personnel assigned to each position, and a written description of the type and amount of both introductory and continuing training that will be given to each person filling a position.

Violations

Violation Date: 03/03/2015 ***Violation Source:*** CERS
Violation Program: HMRRP ***Violation Division:*** San Diego County Department of Env Health
Citation: HSC 6.95 25508(d) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(d)
Violation Notes:

Returned to compliance on 03/03/2015.

Violation Description:

Failure to complete and/or electronically submit a business plan when storing/handling a hazardous material at or above reportable quantities.

Violations

Violation Date: 03/03/2015 ***Violation Source:*** CERS
Violation Program: HW ***Violation Division:*** San Diego County Department of Env Health
Citation: 22 CCR 15 66265.195(a) - California Code of Regulations, Title 22, Chapter 15, Section(s) 66265.195(a)
Violation Notes:

Returned to compliance on 04/14/2015.

Violation Description:

Failure of the owner or operator to conduct inspections and maintain inspection records at the facility of the following tank equipment:
1) Overfill/spill control equipment (e.g., waste-feed cutoff systems, bypass systems, and drainage systems) to ensure that it is in good working order;
2) The aboveground portions of the tank system, if any, to detect corrosion or releases of waste;
3) Data gathered from monitoring equipment and leak-detection equipment, (e.g., pressure and temperature gauges, monitoring wells) to ensure that the tank system is being operated according to its design;
4) The construction materials and the area immediately surrounding the externally accessible portion of the tank system including secondary containment structures (e.g., dikes) to detect erosion or signs of releases of hazardous waste (e.g., wet spots, dead vegetation); and
5) For uncovered tanks, the level of waste in the tank, to ensure compliance with section 66265.194(b)(3).

Violations

Violation Date: 05/02/2017 ***Violation Source:*** CERS
Violation Program: HW ***Violation Division:*** San Diego County Department of Env Health
Citation: 22 CCR 15 66265.16 - California Code of Regulations, Title 22, Chapter 15, Section(s) 66265.16
Violation Notes:

Returned to compliance on 05/02/2017.

Violation Description:

Failure to provide employees with hazardous waste training within the first six months after the date of their employment or assignment to a facility, or to a new position at a facility and annually thereafter. Training records on current personnel shall be kept until closure of the facility and for former employees the record shall be kept for at least three years from the date the employee last worked at the facility.

Violations

Violation Date: 11/22/2019 ***Violation Source:*** CERS
Violation Program: HMRRP ***Violation Division:*** San Diego County Department of Env Health
Citation: HSC 6.95 25505(a)(4) - California Health and Safety Code, Chapter 6.95, Section(s) 25505(a)(4)
Violation Notes:

Inspection Sequence ID:6165042

Violation Description:

Failure to provide initial and annual training to all employees in safety procedures in the event of a release or threatened release of a hazardous material or failure to document and maintain training records for a minimum of three years.

Violations

Violation Date: 11/22/2019 ***Violation Source:*** CERS
Violation Program: HW ***Violation Division:*** San Diego County Department of Env Health
Citation: 22 CCR 15 66265.16 - California Code of Regulations, Title 22, Chapter 15, Section(s) 66265.16
Violation Notes:

Inspection Sequence ID:6165042

Violation Description:

Failure to provide employees with hazardous waste training program of class room instructions or on-the-job training within the first six months after the date of their employment or assignment to a facility, or to a new position at a facility and annually thereafter. Training records on current personnel shall be kept until closure of the facility and for former employees the record shall be kept for at least three years from the date the employee last worked at the facility. The records shall include the following: the job title for each position at the facility related to hazardous waste management, and the name of the employee filling each job; a written job description for each position, duties of facility personnel assigned to each position, and a written description of the type and amount of both introductory and continuing training that will be given to each person filling a position.

Violations

Violation Date: 11/22/2019 ***Violation Source:*** CERS
Violation Program: HMRRP ***Violation Division:*** San Diego County Department of Env Health
Citation: HSC 6.95 25508.2 - California Health and Safety Code, Chapter 6.95, Section(s) 25508.2
Violation Notes:

Inspection Sequence ID:6165042

Violation Description:

Failure to annually review and electronically certify that the business plan is complete and accurate on or before the annual due date.

Violations

Violation Date: 05/02/2017 ***Violation Source:*** CERS
Violation Program: HMRRP ***Violation Division:*** San Diego County Department of Env Health
Citation: HSC 6.95 25508.2 - California Health and Safety Code, Chapter 6.95, Section(s) 25508.2
Violation Notes:

Returned to compliance on 10/26/2017.

Violation Description:

Failure to annually review and electronically certify that the business plan is complete and accurate on or before the annual due date.

Violations

Violation Date: 11/22/2019 ***Violation Source:*** CERS
Violation Program: HW ***Violation Division:*** San Diego County Department of Env Health
Citation: HSC 6.5 Multiple - California Health and Safety Code, Chapter 6.5, Section(s) Multiple
Violation Notes:

Inspection Sequence ID:6165042;Violation:HMD0138 Manifest signed by the TSDF not available for inspection. 22 CCR 66262.40(a); HSC 25185(a)(4)

Violation Description:

Hazardous Waste Generator Program - Administration/Documentation - General

Violations

Violation Date: 11/22/2019 ***Violation Source:*** CERS
Violation Program: HW ***Violation Division:*** San Diego County Department of Env Health
Citation: HSC 6.5 Multiple - California Health and Safety Code, Chapter 6.5, Section(s) Multiple
Violation Notes:

Returned to compliance on 11/22/2019. Inspection Sequence ID:6165042;Violation:HMD0152 Failed to report &/or update the required inventory information for hazardous waste(s) generated at the facility in CERS. SDCC 68.904(a)(2)

Violation Description:

Hazardous Waste Generator Program - Operations/Maintenance - General

Violations

Violation Date: 05/02/2017 ***Violation Source:*** CERS
Violation Program: HW ***Violation Division:*** San Diego County Department of Env Health
Citation: 22 CCR 15 66265.195(c) - California Code of Regulations, Title 22, Chapter 15, Section(s) 66265.195(c)
Violation Notes:

Returned to compliance on 10/27/2017.

Violation Description:

Failure to conduct and document inspections of hazardous waste tank systems each operating day and retain records of those inspections at the facility.

Evaluations

Eval Date: 05/02/2017
Violations Found: Yes
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: San Diego County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS
Eval Notes:

Inspector: Villalvazo Olivia Inspection ID:5646256; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 11/22/2019
Violations Found: Yes
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: San Diego County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS
Eval Notes:

Inspector: Villalvazo Olivia Inspection ID:6165042; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 03/03/2015
Violations Found: Yes
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: San Diego County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS
Eval Notes:

Inspector: Vue Cher Inspection ID:4091098; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 03/03/2015
Violations Found: Yes
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: San Diego County Department of Env Health
Eval Program: HW
Eval Source: CERS
Eval Notes:

Inspector: Vue Cher Inspection ID:4091098; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 11/22/2019
Violations Found: Yes
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: San Diego County Department of Env Health
Eval Program: HW
Eval Source: CERS
Eval Notes:

Inspector: Villalvazo Olivia Inspection ID:6165042; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date: 05/02/2017
Violations Found: Yes
Eval General Type: Compliance Evaluation Inspection
Eval Type: Routine done by local agency
Eval Division: San Diego County Department of Env Health
Eval Program: HW
Eval Source: CERS
Eval Notes:

Inspector: Villalvazo Olivia Inspection ID:5646256; Note: data in [EVAL Notes] field for some records is truncated from the source.

Affiliations

Affil Type Desc: Parent Corporation
Entity Name: B & D AUTO REPAIR
Entity Title:
Address:
City:
State:
Country:
Zip Code:
Phone:

Affil Type Desc: CUPA District
Entity Name: San Diego County Env Health
Entity Title:
Address: PO Box 129261
City: San Diego
State: CA
Country:
Zip Code: 92112-9261
Phone: (858) 505-6880

Affil Type Desc: Legal Owner
Entity Name: DOUG JONES
Entity Title:
Address: 1350 N MELROSE DR
City: VISTA
State: CA
Country: United States
Zip Code: 92083

Phone: (760) 390-2356

Affil Type Desc: Environmental Contact
Entity Name: DOUG JONES
Entity Title:
Address: 1253 WINCHESTER CT
City: VISTA
State: CA
Country:
Zip Code: 92083
Phone:

Affil Type Desc: Facility Mailing Address
Entity Name: Mailing Address
Entity Title:
Address: 1350 N MELROSE DR
City: VISTA
State: CA
Country:
Zip Code: 92083
Phone:

Affil Type Desc: Operator
Entity Name: DOUG JONES
Entity Title:
Address:
City:
State:
Country:
Zip Code:
Phone: (760) 631-1596

Coordinates

Env Int Type Code: HWG
Program ID: 10378765
Latitude: 33.218930
Longitude: -117.256900
Coord Name:
Ref Point Type Desc: Center of a facility or station.

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5 | ***3 of 3*** | ***SSW*** | ***0.08 / 411.97*** | ***410.10 / -28*** | ***B&D AUTO REPAIR 1350 N MELROSE VISTA CA 92083-0000*** | ***RCRA NON GEN***

EPA Handler ID: CAL000270885
Gen Status Universe: No Report
Contact Name: DOUG JONES
Contact Address: 1350 N MELROSE , , VISTA , CA, 92083 ,
Contact Phone No and Ext: 760-631-2886
Contact Email: BNDAUTO@YAHOO.COM
Contact Country:
County Name: SAN DIEGO
EPA Region: 09
Land Type:
Receive Date: 20030528

Violation/Evaluation Summary

Note: NO RECORDS: As of May 2020, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No

Onsite Burner Exemption:	No
Furnace Exemption:	No
Underground Injection Activity:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No

Hazardous Waste Handler Details

Sequence No:	1
Receive Date:	20030528
Handler Name:	B&D AUTO REPAIR
Source Type:	Implementer
Federal Waste Generator Code:	N
Generator Code Description:	Not a Generator, Verified

Owner/Operator Details

Owner/Operator Ind:	Current Operator	**Street No:**	
Type:	Other	**Street 1:**	1350 N MELROSE
Name:	DOUG JONES	**Street 2:**	
Date Became Current:		**City:**	VISTA
Date Ended Current:		**State:**	CA
Phone:	760-631-2886	**Country:**	
Source Type:	Implementer	**Zip Code:**	92083

Owner/Operator Ind:	Current Owner	**Street No:**	
Type:	Other	**Street 1:**	1649 SUNRISE DR
Name:	DOUG JONES	**Street 2:**	
Date Became Current:		**City:**	VISTA
Date Ended Current:		**State:**	CA
Phone:	760-908-5162	**Country:**	
Source Type:	Implementer	**Zip Code:**	92084

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
6	1 of 5	SSE	0.08 / 447.83	445.11 / 7	**DOUGLAS TECHNOLOGY GROUP, INC** **1340 N MELROSE DR, VISTA, CA 92083** **VISTA CA 92083**	SANDIEGO HAZ

Record ID:	DEH2009-HUPFP-211448	**GIS Record ID:**	DEH2009-HUPFP-211448
Facility Name:		**GIS Facility City:**	VISTA
Facility City:		**GIS Facility ZipCode:**	92083
Facility ZipCode:		**GIS Fac Latitude:**	33.2184423
Facility Latitude:		**GIS Fac Longitude:**	-117.2562255
Facility Longitude:			
Facility Address:			
GIS Facility Name:	DOUGLAS TECHNOLOGY GROUP, INC		
GIS Facility Address:	1340 N MELROSE DR, VISTA, CA 92083		

Hazardous Waste and Materials

ID:	52033	**Permit Status:**	Permit Renewed
Child Record ID:	DEH2015-HCHEM-0066532	**Active Permit:**	true
CAS No:	Mixture	**Haz Material Type:**	Mixture
Last Updated:	12/07/2016 02:30:34 AM	**Trade Secret:**	
Chemical Name:	Paraffinic Petroleum Distillates		
Common Name Inventory:	Lubricating Oils		

ID:	186468	**Permit Status:**	Permit Renewed

Child Record ID: DEH2018-HCHEM-0192253 **Active Permit:** true
CAS No: Mixture **Haz Material Type:** Mixture
Last Updated: 11/21/2018 02:32:32 AM **Trade Secret:**
Chemical Name: Paraffinic Petroleum Distillates
Common Name Inventory: Lubricating Oils

ID: 52038 **Permit Status:** Permit Renewed
Child Record ID: DEH2015-HCHEM-0066537 **Active Permit:** true
CAS No: 7440-37-1 **Haz Material Type:**
Last Updated: 12/07/2016 02:30:34 AM **Trade Secret:**
Chemical Name: Argon
Common Name Inventory: Argon Compressed

ID: 101086 **Permit Status:** Permit Renewed
Child Record ID: DEH2017-HCHEM-0157530 **Active Permit:** true
CAS No: 7782-44-7 **Haz Material Type:** Pure
Last Updated: 04/09/2018 03:27:59 PM **Trade Secret:**
Chemical Name: Oxygen
Common Name Inventory: Oxygen

ID: 101087 **Permit Status:** Permit Renewed
Child Record ID: DEH2017-HCHEM-0157531 **Active Permit:** true
CAS No: 74-98-6 **Haz Material Type:** Pure
Last Updated: 04/09/2018 03:27:59 PM **Trade Secret:**
Chemical Name: Propane
Common Name Inventory: Liquefied Petroleum Gas (lpg)

ID: 101089 **Permit Status:** Permit Renewed
Child Record ID: DEH2017-HCHEM-0157533 **Active Permit:** true
CAS No: 12021-95-3 **Haz Material Type:** Pure
Last Updated: 04/09/2018 03:27:59 PM **Trade Secret:**
Chemical Name: CORAL ECO TREAT
Common Name Inventory: CORAL ECO TREAT ACIDIC LIQUID CONCENTRATE

ID: 186473 **Permit Status:** Permit Renewed
Child Record ID: DEH2018-HCHEM-0192258 **Active Permit:** true
CAS No: 12021-95-3 **Haz Material Type:** Pure
Last Updated: 11/21/2018 02:32:32 AM **Trade Secret:**
Chemical Name: CORAL ECO TREAT
Common Name Inventory: CORAL ECO TREAT ACIDIC LIQUID CONCENTRATE

ID: 186470 **Permit Status:** Permit Renewed
Child Record ID: DEH2018-HCHEM-0192255 **Active Permit:** true
CAS No: 7782-44-7 **Haz Material Type:** Pure
Last Updated: 11/21/2018 02:32:32 AM **Trade Secret:**
Chemical Name: Oxygen
Common Name Inventory: Oxygen

ID: 101088 **Permit Status:** Permit Renewed
Child Record ID: DEH2017-HCHEM-0157532 **Active Permit:** true
CAS No: 7440-37-1 **Haz Material Type:** Pure
Last Updated: 04/09/2018 03:27:59 PM **Trade Secret:**
Chemical Name: Argon
Common Name Inventory: Argon Compressed

ID: 101090 **Permit Status:** Permit Renewed
Child Record ID: DEH2017-HCHEM-0157534 **Active Permit:** true
CAS No: **Haz Material Type:** Mixture
Last Updated: 04/09/2018 03:27:59 PM **Trade Secret:**
Chemical Name: CORAL COR CLENE 5011
Common Name Inventory: COR CLENE 5011

ID: 52039 **Permit Status:** Permit Renewed
Child Record ID: DEH2015-HWAST-0050427 **Active Permit:** true
CAS No: **Haz Material Type:**
Last Updated: 12/07/2016 02:30:34 AM **Trade Secret:**
Chemical Name: Waste Absorbent
Common Name Inventory: Waste Absorbent

ID: 52037
Child Record ID: DEH2015-HCHEM-0066536
CAS No: 74-98-6
Last Updated: 12/07/2016 02:30:34 AM
Chemical Name: Propane
Common Name Inventory: Liquefied Petroleum Gas (lpg)
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type: Pure
Trade Secret:

ID: 101083
Child Record ID: DEH2017-HCHEM-0157527
CAS No: Mixture
Last Updated: 04/09/2018 03:27:59 PM
Chemical Name: Paraffinic Petroleum Distillates
Common Name Inventory: Lubricating Oils
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type: Mixture
Trade Secret:

ID: 52032
Child Record ID: DEH2015-HCHEM-0066531
CAS No: 7727-37-9
Last Updated: 12/07/2016 02:30:34 AM
Chemical Name: Nitrogen
Common Name Inventory: Nitrogen
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type: Pure
Trade Secret:

ID: 186475
Child Record ID: DEH2018-HWAST-0166309
CAS No:
Last Updated: 11/21/2018 02:32:32 AM
Chemical Name: Waste Absorbent
Common Name Inventory: Waste Absorbent
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type:
Trade Secret:

ID: 52036
Child Record ID: DEH2015-HCHEM-0066535
CAS No: 7782-44-7
Last Updated: 12/07/2016 02:30:34 AM
Chemical Name: Oxygen
Common Name Inventory: Oxygen
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type: Pure
Trade Secret:

ID: 101091
Child Record ID: DEH2017-HWAST-0133006
CAS No:
Last Updated: 04/09/2018 03:27:59 PM
Chemical Name: Waste Absorbent
Common Name Inventory: Waste Absorbent
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type:
Trade Secret:

ID: 52034
Child Record ID: DEH2015-HCHEM-0066533
CAS No: Mixture
Last Updated: 12/07/2016 02:30:34 AM
Chemical Name: Degreaser
Common Name Inventory: Degreaser
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type: Mixture
Trade Secret:

ID: 101082
Child Record ID: DEH2017-HCHEM-0157526
CAS No: 7727-37-9
Last Updated: 04/09/2018 03:27:59 PM
Chemical Name: Nitrogen
Common Name Inventory: Nitrogen
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type: Pure
Trade Secret:

ID: 186474
Child Record ID: DEH2018-HCHEM-0192259
CAS No:
Last Updated: 11/21/2018 02:32:32 AM
Chemical Name: CORAL COR CLENE 5011
Common Name Inventory: COR CLENE 5011
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type: Mixture
Trade Secret:

ID: 186467
Child Record ID: DEH2018-HCHEM-0192252
CAS No: 7727-37-9
Last Updated: 11/21/2018 02:32:32 AM
Chemical Name: Nitrogen
Common Name Inventory: Nitrogen
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type: Pure
Trade Secret:

ID: 101084
Child Record ID: DEH2017-HCHEM-0157528
CAS No: Mixture
Last Updated: 04/09/2018 03:27:59 PM
Chemical Name: Degreaser
Common Name Inventory: Degreaser
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type: Mixture
Trade Secret:

ID: 186472
Child Record ID: DEH2018-HCHEM-0192257
CAS No: 7440-37-1
Last Updated: 11/21/2018 02:32:32 AM
Chemical Name: Argon
Common Name Inventory: Argon Compressed
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type: Pure
Trade Secret:

ID: 52035
Child Record ID: DEH2015-HCHEM-0066534
CAS No: 7440-37-1
Last Updated: 12/07/2016 02:30:34 AM
Chemical Name: Argon
Common Name Inventory: Argon Liquid
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type: Pure
Trade Secret:

ID: 186471
Child Record ID: DEH2018-HCHEM-0192256
CAS No: 74-98-6
Last Updated: 11/21/2018 02:32:32 AM
Chemical Name: Propane
Common Name Inventory: Liquefied Petroleum Gas (lpg)
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type: Pure
Trade Secret:

ID: 186469
Child Record ID: DEH2018-HCHEM-0192254
CAS No: 7440-37-1
Last Updated: 11/21/2018 02:32:32 AM
Chemical Name: Argon
Common Name Inventory: Argon Liquid
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type: Pure
Trade Secret:

ID: 101085
Child Record ID: DEH2017-HCHEM-0157529
CAS No: 7440-37-1
Last Updated: 04/09/2018 03:27:59 PM
Chemical Name: Argon
Common Name Inventory: Argon Liquid
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type: Pure
Trade Secret:

Hazardous Materials Inspection Violations

Container Tank ID:
Facility ID No: 37-000-211448
ID: 28929
UST ID:
Permit Status: Permit Suspended
Active Permit: false
Inspection No: 4090329
Inspection Type: Routine
Inspection Date: 05/14/2015 12:00:00 AM
Compliance Date: 06/03/2015 12:00:00 AM
Last Updated: 03/30/2020 12:00:00 AM
NOV: false
Program Element: Hazardous Materials Release Response Plans
Violation Classification: Minor
Violation Code: 1010003 Owner/Operator failed to complete and/or submit the Business Activities Page and/or Business Owner Operator Identification Page; 19 CCR 4 2729.2(a)(1).

Container Tank ID:
Facility ID No: 37-000-211448
ID: 28926
UST ID:
Permit Status: Permit Suspended
Active Permit: false
Inspection No: 5660105
Inspection Type: Routine
Inspection Date: 06/21/2017 04:05:00 PM
Compliance Date: 09/19/2017 12:00:00 AM
Last Updated: 03/30/2020 12:00:00 AM
NOV: false
Program Element: Hazardous Waste Generator
Violation Classification: Class II
Violation Code: 3030017 Failed to properly close hazardous waste container(s). (40 CFR 262.34(d)(2); 265.173.) 22 CCR 66262.34(d)(2)

Container Tank ID:
Inspection No: 4090329

Facility ID No: 37-000-211448 **Inspection Type:** Routine
ID: 28930 **Inspection Date:** 05/14/2015 12:00:00 AM
UST ID: **Compliance Date:** 06/03/2015 12:00:00 AM
Permit Status: Permit Suspended **Last Updated:** 03/30/2020 12:00:00 AM
Active Permit: false **NOV:** false
Program Element: Hazardous Materials Release Response Plans
Violation Classification: Class II
Violation Code: 1010002 Owner/Operator failed to complete and/or submit a Hazardous Materials Business Plan when storing hazardous materials at or above the thresholds quantities of 55 gallons/500 lbs/200 cubic feet; HSC 6.95 25508(a) 1A

Container Tank ID: **Inspection No:** 5660105
Facility ID No: 37-000-211448 **Inspection Type:** Routine
ID: 28933 **Inspection Date:** 06/21/2017 04:05:00 PM
UST ID: **Compliance Date:** 09/14/2017 12:00:00 AM
Permit Status: Permit Suspended **Last Updated:** 03/30/2020 12:00:00 AM
Active Permit: false **NOV:** false
Program Element: Hazardous Materials Release Response Plans
Violation Classification: Class II
Violation Code: 1010008 HMBP not certified annually as complete and accurate in CERS. HSC 25508.2

Container Tank ID: **Inspection No:** 5660105
Facility ID No: 37-000-211448 **Inspection Type:** Routine
ID: 28934 **Inspection Date:** 06/21/2017 04:05:00 PM
UST ID: **Compliance Date:** 09/14/2017 12:00:00 AM
Permit Status: Permit Suspended **Last Updated:** 03/30/2020 12:00:00 AM
Active Permit: false **NOV:** false
Program Element: Hazardous Materials Release Response Plans
Violation Classification: Class II
Violation Code: 1010005 Site map not submitted in CERS or not sufficient. HSC 25505(a)(2) and 25508(a)(1)(A)

Container Tank ID: **Inspection No:** 5660105
Facility ID No: 37-000-211448 **Inspection Type:** Routine
ID: 28935 **Inspection Date:** 06/21/2017 04:05:00 PM
UST ID: **Compliance Date:** 09/14/2017 12:00:00 AM
Permit Status: Permit Suspended **Last Updated:** 03/30/2020 12:00:00 AM
Active Permit: false **NOV:** false
Program Element: Hazardous Materials Release Response Plans
Violation Classification: Class II
Violation Code: 1010004 Chemical inventory incomplete or not submitted in CERS. HSC 25505(a)(1); 25506; 25507; and 25508(a)(1)(A)

Container Tank ID: **Inspection No:** 5660105
Facility ID No: 37-000-211448 **Inspection Type:** Routine
ID: 28924 **Inspection Date:** 06/21/2017 04:05:00 PM
UST ID: **Compliance Date:** 01/09/2018 12:00:00 AM
Permit Status: Permit Suspended **Last Updated:** 03/30/2020 12:00:00 AM
Active Permit: false **NOV:** false
Program Element: Hazardous Waste Generator
Violation Classification: Class II
Violation Code: 3030005 Failed to make a proper waste determination. 22 CCR 66262.11, 66262.40(c)

Container Tank ID: **Inspection No:** 5660105
Facility ID No: 37-000-211448 **Inspection Type:** Routine
ID: 28927 **Inspection Date:** 06/21/2017 04:05:00 PM
UST ID: **Compliance Date:** 09/19/2017 12:00:00 AM
Permit Status: Permit Suspended **Last Updated:** 03/30/2020 12:00:00 AM
Active Permit: false **NOV:** false
Program Element: Hazardous Waste Generator
Violation Classification: Minor
Violation Code: HMD0224 Failed to mark date on empty container larger than 5 gallons and/or manage it within one year. 22 CCR 66261.7(e),(f)

Container Tank ID: **Inspection No:** 5660105
Facility ID No: 37-000-211448 **Inspection Type:** Routine
ID: 28936 **Inspection Date:** 06/21/2017 04:05:00 PM
UST ID: **Compliance Date:** 07/19/2017 12:00:00 AM
Permit Status: Permit Suspended **Last Updated:** 03/30/2020 12:00:00 AM
Active Permit: false **NOV:** false

Program Element: Hazardous Materials Release Response Plans
Violation Classification: Class II
Violation Code: 1020002 Initial and/or annual employee training not conducted for hazardous materials management and/or employee training records not available or not maintained for 3 years. HSC 25505(a)(4)

Container Tank ID:
Facility ID No: 37-000-211448
ID: 28931
UST ID:
Permit Status: Permit Suspended
Active Permit: false
Inspection No: 4090329
Inspection Type: Routine
Inspection Date: 05/14/2015 12:00:00 AM
Compliance Date: 06/03/2015 12:00:00 AM
Last Updated: 03/30/2020 12:00:00 AM
NOV: false
Program Element: Hazardous Materials Release Response Plans
Violation Classification: Class II
Violation Code: 1020002 Failure to provide initial and/or annual training to all employees in safety procedures in the event of a release or threatened release of a hazardous material or failure to document and maintain training records for a minimum of three years. HSC 6.95 25505(a)4

Container Tank ID:
Facility ID No: 37-000-211448
ID: 28925
UST ID:
Permit Status: Permit Suspended
Active Permit: false
Inspection No: 5660105
Inspection Type: Routine
Inspection Date: 06/21/2017 04:05:00 PM
Compliance Date: 09/19/2017 12:00:00 AM
Last Updated: 03/30/2020 12:00:00 AM
NOV: false
Program Element: Hazardous Waste Generator
Violation Classification: Class II
Violation Code: 3030007 Failed to properly label/date hazardous waste container and/or tank. 22 CCR 66262.34(f)

Container Tank ID:
Facility ID No: 37-000-211448
ID: 28928
UST ID:
Permit Status: Permit Suspended
Active Permit: false
Inspection No: 5883664
Inspection Type: Re-inspection
Inspection Date: 01/09/2018 12:00:00 AM
Compliance Date: 02/11/2020 12:00:00 AM
Last Updated: 03/30/2020 12:00:00 AM
NOV: false
Program Element: Hazardous Waste Generator
Violation Classification: Class II
Violation Code: 3030005 Failed to make a proper waste determination. 22 CCR 66262.11, 66262.40(c)

Container Tank ID:
Facility ID No: 37-000-211448
ID: 28932
UST ID:
Permit Status: Permit Suspended
Active Permit: false
Inspection No: 4090329
Inspection Type: Routine
Inspection Date: 05/14/2015 12:00:00 AM
Compliance Date: 06/03/2015 12:00:00 AM
Last Updated: 03/30/2020 12:00:00 AM
NOV: false
Program Element: Hazardous Materials Release Response Plans
Violation Classification: Class II
Violation Code: 1010008 Failure to annually review and electronically certify that the business plan is complete, accurate, and up-to-date. For facilities with invenntory that exceed EPCRA thresholds; failure to submit inventory reports (Activities, Owner/Operator, Hazardous Materials Descriptions and Map pages HSC 6.95 25508.2 / 19 CCR 4 2729.5(c)

HMD Permits REST Data

GIS Facility ID: 37-000-211448
GIS CERS ID: 10379086
GIS Record Type: LUEG-DEH/HMD/UPFP/Facility
Per Type:
Per Sub Type:
Per Cat:
Record Status: Permit Renewed
HW Tier: Not Applicable
LRG QTY MW Gener: No
EPA ID No: CAL000347601
RMP CAL ARP: Not Applicable
Tank Owner:
SIC Code: 5085
NAICS Code: 42184
Disclose Qty Haz Mat: Y
Exp Date:
Own/Operate USTs :
Status:
ER Contact:
ER Con Work Ph:
Census Tract: 194.04
Parcel Zip: 92083
Community: Vista
Jurisdiction: VISTA
Basin No: 904.1
BOS Dist: 5
Tbpg Grid: 1087 F 4
Insp Dist: HN022
Feature ID: 1610712300
X Coord: 6253931.401
Y Coord: 2024601.506
Kiva Per Typ: HK07 211448
Agency Name: COSD
Point X: 6253931.4011343

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

UST Facility:		**Point Y:**	2024601.50589889
Total No USTs:		**Lat GS84:**	33.2184423
No of Tanks:		**Lon GS84:**	-117.2562255
Own Oper APS:	N	**Loc Name:**	
Tot APSA Cap:	0	**Score:**	
Capacity LR:		**Match Type:**	
Haz Waste G:	Y	**Side:**	
Recycle100:	N	**X Map Coord:**	
Onsite Haz Waste Tre:	N	**Y Map Coord:**	
RCRA LRG Qty:	N	**User Fld:**	
Haz Wst Coll Site:	N	**Addr Type:**	
Accept Offs:		**ARC Address:**	
Universal Waste Han:		**ARC City:**	
Toxic Gas:	No	**ARC Zipcode:**	
Hazmat EHS:	N	**ARC State:**	
Hazmat Rad:	No	**ARC APN:**	
Haz Waste Rad:	N	**Zip:**	
Haz Waste EHS:	N	**Farm Nursery:**	
Full Name:	RIDAN INVESTMENTS INC	**Indian or Territory:**	
Email Perm:		**County ID:**	
Phone Perm:	951-471-6135	**Bill Code 2:**	
Site Address:	1340 N MELROSE DR	**Bill Code 3:**	
Parcel No:	161-071-23-00	**Univ Waste Gen Type:**	
Record Ali:	Unified Program Facility Permit		
Address:	1340 N MELROSE DR		
Business Type:	Machine Shops/Metal Working Activities		
Bill Code:			
ER Con Name:			
ER Con Title:			
Water Purv:	CWA VISTA IRRIGATION		
Fire Agency:	VISTA		
Geo SRC:	Mapped to record address		
Match Addr:			

6	2 of 5	SSE	0.08 / 447.83	445.11 / 7	**VERIZON WIRELESS** **1340 N MELROSE DR, VISTA, CA 92083** **VISTA CA 92083**	**SANDIEGO HAZ**

Record ID:	DEH2011-HUPFP-214919	**GIS Record ID:**	DEH2011-HUPFP-214919
Facility Name:		**GIS Facility City:**	VISTA
Facility City:		**GIS Facility ZipCode:**	92083
Facility ZipCode:		**GIS Fac Latitude:**	33.2184423
Facility Latitude:		**GIS Fac Longitude:**	-117.2562255
Facility Longitude:			
Facility Address:			
GIS Facility Name:	VERIZON WIRELESS		
GIS Facility Address:	1340 N MELROSE DR, VISTA, CA 92083		

HMD Permits REST Data

GIS Facility ID:		**Status:**	
GIS CERS ID:		**ER Contact:**	
GIS Record Type:	LUEG-DEH/HMD/UPFP/Facility	**ER Con Work Ph:**	
Per Type:		**Census Tract:**	194.04
Per Sub Type:		**Parcel Zip:**	92083
Per Cat:		**Community:**	Vista
Record Status:	Completed	**Jurisdiction:**	VISTA
HW Tier:		**Basin No:**	904.1
LRG QTY MW Gener:		**BOS Dist:**	5
EPA ID No:		**Tbpg Grid:**	1087 F 4
RMP CAL ARP:		**Insp Dist:**	
Tank Owner:		**Feature ID:**	1610712300
SIC Code:		**X Coord:**	6253931.401
NAICS Code:		**Y Coord:**	2024601.506
Disclose Qty Haz Mat:		**Kiva Per Typ:**	HK07 214919
Exp Date:		**Agency Name:**	COSD

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Own/Operate USTs :		**Point X:**	6253931.4011343
UST Facility:		**Point Y:**	2024601.50589889
Total No USTs:		**Lat GS84:**	33.2184423
No of Tanks:		**Lon GS84:**	-117.2562255
Own Oper APS:		**Loc Name:**	
Tot APSA Cap:	0	**Score:**	
Capacity LR:		**Match Type:**	
Haz Waste G:		**Side:**	
Recycle100:		**X Map Coord:**	
Onsite Haz Waste Tre:		**Y Map Coord:**	
RCRA LRG Qty:		**User Fld:**	
Haz Wst Coll Site:		**Addr Type:**	
Accept Offs:		**ARC Address:**	
Universal Waste Han:		**ARC City:**	
Toxic Gas:		**ARC Zipcode:**	
Hazmat EHS:		**ARC State:**	
Hazmat Rad:		**ARC APN:**	
Haz Waste Rad:		**Zip:**	
Haz Waste EHS:		**Farm Nursery:**	
Full Name:	VERIZON WIRELESS	**Indian or Territory:**	
Email Perm:		**County ID:**	
Phone Perm:	949-285-6069	**Bill Code 2:**	
Site Address:		**Bill Code 3:**	
Parcel No:	161-071-23-00	**Univ Waste Gen Type:**	
Record Ali:	Unified Program Facility Permit		
Address:	1340 N MELROSE DR		
Business Type:			
Bill Code:			
ER Con Name:			
ER Con Title:			
Water Purv:	CWA VISTA IRRIGATION		
Fire Agency:	VISTA		
Geo SRC:	Mapped to record APN/parcel center XY		
Match Addr:			

6	3 of 5	SSE	0.08 / 447.83	445.11 / 7	DOUGLAS WHEEL, INC 1340 N MELROSE DR CA	SANDIEGO HAZ

Record ID:	DEH2002-HUPFP-200707	**GIS Record ID:**	DEH2002-HUPFP-200707
Facility Name:		**GIS Facility City:**	
Facility City:		**GIS Facility ZipCode:**	
Facility ZipCode:		**GIS Fac Latitude:**	33.2184423
Facility Latitude:		**GIS Fac Longitude:**	-117.2562255
Facility Longitude:			
Facility Address:			
GIS Facility Name:	DOUGLAS WHEEL, INC		
GIS Facility Address:	1340 N MELROSE DR		

HMD Permits REST Data

GIS Facility ID:		**Status:**	
GIS CERS ID:		**ER Contact:**	
GIS Record Type:	LUEG-DEH/HMD/UPFP/Facility	**ER Con Work Ph:**	
Per Type:		**Census Tract:**	194.04
Per Sub Type:		**Parcel Zip:**	92083
Per Cat:		**Community:**	Vista
Record Status:	Completed	**Jurisdiction:**	VISTA
HW Tier:		**Basin No:**	904.1
LRG QTY MW Gener:		**BOS Dist:**	5
EPA ID No:	CAL000272262	**Tbpg Grid:**	1087 F 4
RMP CAL ARP:		**Insp Dist:**	
Tank Owner:		**Feature ID:**	1610712300
SIC Code:		**X Coord:**	6253931.401
NAICS Code:		**Y Coord:**	2024601.506
Disclose Qty Haz Mat:	Yes	**Kiva Per Typ:**	HK07 200707
Exp Date:		**Agency Name:**	COSD

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Own/Operate USTs :		**Point X:**	6253931.4011343
UST Facility:		**Point Y:**	2024601.50589889
Total No USTs:		**Lat GS84:**	33.2184423
No of Tanks:		**Lon GS84:**	-117.2562255
Own Oper APS:	N	**Loc Name:**	
Tot APSA Cap:	0	**Score:**	
Capacity LR:		**Match Type:**	
Haz Waste G:	Yes	**Side:**	
Recycle100:		**X Map Coord:**	
Onsite Haz Waste Tre:		**Y Map Coord:**	
RCRA LRG Qty:		**User Fld:**	
Haz Wst Coll Site:		**Addr Type:**	
Accept Offs:		**ARC Address:**	
Universal Waste Han:		**ARC City:**	
Toxic Gas:		**ARC Zipcode:**	
Hazmat EHS:	No	**ARC State:**	
Hazmat Rad:		**ARC APN:**	
Haz Waste Rad:	No	**Zip:**	
Haz Waste EHS:	No	**Farm Nursery:**	
Full Name:	DOUGLAS WHEEL, INC	**Indian or Territory:**	
Email Perm:		**County ID:**	
Phone Perm:	760-758-5560	**Bill Code 2:**	
Site Address:		**Bill Code 3:**	
Parcel No:	161-071-23-00	**Univ Waste Gen Type:**	
Record Ali:	Unified Program Facility Permit		
Address:	1340 N MELROSE DR		
Business Type:	Machine Shops/Metal Working Activities		
Bill Code:			
ER Con Name:			
ER Con Title:			
Water Purv:	CWA VISTA IRRIGATION		
Fire Agency:	VISTA		
Geo SRC:	Mapped to record APN/parcel center XY		
Match Addr:			

6	*4 of 5*	*SSE*	*0.08 / 447.83*	*445.11 / 7*	***Verizon Wireless: Melrose West 1340 N MELROSE DR VISTA CA 92083***	***CERS HAZ***

Site ID:	414957
Latitude:	33.218441
Longitude:	-117.256226
County:	San Diego County

Regulated Programs

EI ID:	10163471	**EI Description:**	Chemical Storage Facilities

Evaluations

Eval Date:	06/18/2019
Violations Found:	No
Eval General Type:	Compliance Evaluation Inspection
Eval Type:	Routine done by local agency
Eval Division:	San Diego County Department of Env Health
Eval Program:	HMRRP
Eval Source:	CERS
Eval Notes:	

Inspector: Beacon Ellen Inspection ID:6141158; Note: data in [EVAL Notes] field for some records is truncated from the source.

Eval Date:	04/07/2017
Violations Found:	No
Eval General Type:	Compliance Evaluation Inspection
Eval Type:	Routine done by local agency

Eval Division: San Diego County Department of Env Health
Eval Program: HMRRP
Eval Source: CERS
Eval Notes:

Inspector: Khan Steven Inspection ID:5645159; Note: data in [EVAL Notes] field for some records is truncated from the source.

Affiliations

Affil Type Desc: Facility Mailing Address
Entity Name: Mailing Address
Entity Title:
Address: 15505 Sand Canyon Avenue, MS D-104
City: Irvine
State: CA
Country:
Zip Code: 92618
Phone:

Affil Type Desc: Environmental Contact
Entity Name: Environmental Compliance
Entity Title:
Address: 15505 Sand Canyon Avenue, MS D-104
City: Irvine
State: CA
Country:
Zip Code: 92618
Phone:

Affil Type Desc: Parent Corporation
Entity Name: Verizon Wireless [Southern California]
Entity Title:
Address:
City:
State:
Country:
Zip Code:
Phone:

Affil Type Desc: Operator
Entity Name: Verizon Wireless
Entity Title:
Address:
City:
State:
Country:
Zip Code:
Phone: (949) 286-7000

Affil Type Desc: Document Preparer
Entity Name: Steve Skanderson, Stantec
Entity Title:
Address:
City:
State:
Country:
Zip Code:
Phone:

Affil Type Desc: CUPA District
Entity Name: San Diego County Env Health
Entity Title:
Address: PO Box 129261
City: San Diego
State: CA
Country:
Zip Code: 92112-9261

Phone:	(858) 505-6880
Affil Type Desc:	Identification Signer
Entity Name:	Wilson Rodriguez
Entity Title:	Engr III Spec-RE/Regulatory
Address:	
City:	
State:	
Country:	
Zip Code:	
Phone:	
Affil Type Desc:	Legal Owner
Entity Name:	Verizon Wireless
Entity Title:	
Address:	15505 Sand Canyon Avenue, MS D-104
City:	Irvine
State:	CA
Country:	United States
Zip Code:	92618
Phone:	(949) 286-7000

Coordinates

Env Int Type Code:	HMBP	**Longitude:**	-117.256230
Program ID:	10163471	**Coord Name:**	
Latitude:	33.218440	**Ref Point Type Desc:**	Center of a facility or station.

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
6	5 of 5	SSE	0.08 / 447.83	445.11 / 7	DOUGLAS TECHNOLOGIES GROUP INC 1340 N MELROSE DR VISTA CA 92083	RCRA NON GEN

EPA Handler ID:	CAL000347601
Gen Status Universe:	No Report
Contact Name:	VALERIE BRAVERMAN
Contact Address:	1340 NORTH MELROSE DRIVE , , VISTA , CA, 92083 ,
Contact Phone No and Ext:	760-758-5560
Contact Email:	VALERIE@DWTRACING.COM
Contact Country:	
County Name:	SAN DIEGO
EPA Region:	09
Land Type:	
Receive Date:	20091029

Violation/Evaluation Summary

Note:	NO RECORDS: As of May 2020, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility:	No
Onsite Burner Exemption:	No
Furnace Exemption:	No
Underground Injection Activity:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No

Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20091029
Handler Name: DOUGLAS TECHNOLOGIES GROUP INC
Source Type: Implementer
Federal Waste Generator Code: N
Generator Code Description: Not a Generator, Verified

Owner/Operator Details

Owner/Operator Ind: Current Owner
Type: Other
Name: RIDAN INVESTMENTS INC
Date Became Current:
Date Ended Current:
Phone: 951-471-6135
Source Type: Implementer
Street No:
Street 1: 1340 N MELROSE DR
Street 2:
City: VISTA
State: CA
Country:
Zip Code: 92083-0000

Owner/Operator Ind: Current Operator
Type: Other
Name: VALERIE BRAVERMAN
Date Became Current:
Date Ended Current:
Phone: 760-758-5560
Source Type: Implementer
Street No:
Street 1: 1340 NORTH MELROSE DRIVE
Street 2:
City: VISTA
State: CA
Country:
Zip Code: 92083

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7 | ***1 of 1*** | ***S*** | ***0.12 / 655.23*** | ***434.16 / -4*** | ***Verizon Wireless: Melrose West***
1340 MELROSE DR N, VISTA, CA 92083-2916
VISTA CA 92083-2916 | ***SANDIEGO HAZ***

Record ID: DEH2017-HUPFP-003320
Facility Name:
Facility City:
Facility ZipCode:
Facility Latitude:
Facility Longitude:
Facility Address:
GIS Facility Name: Verizon Wireless: Melrose West
GIS Facility Address: 1340 MELROSE DR N, VISTA, CA 92083-2916
GIS Record ID: DEH2017-HUPFP-003320
GIS Facility City: VISTA
GIS Facility ZipCode: 92083-2916
GIS Fac Latitude: 33.2183942
GIS Fac Longitude: -117.2561958

Hazardous Waste and Materials

ID: 145598
Child Record ID: DEH2018-HCHEM-0168291
CAS No:
Last Updated: 05/04/2018 02:31:49 AM
Chemical Name: Lead Acid Batteries
Common Name Inventory: Lead Acid Batteries
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type: Mixture
Trade Secret:

ID: 209743
Child Record ID: DEH2018-HCHEM-0200284
CAS No:
Last Updated: 06/19/2019 01:44:41 AM
Chemical Name: Lead Acid Batteries
Common Name Inventory: Lead Acid Batteries
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type: Mixture
Trade Secret:

ID: 110831
Child Record ID: DEH2017-HCHEM-0128475
CAS No:
Last Updated: 07/27/2017 06:41:25 AM
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type: Mixture
Trade Secret:

Chemical Name: Lead Acid Batteries
Common Name Inventory: Lead Acid Batteries

HMD Permits REST Data

GIS Facility ID:	37-000-003320	**Status:**	
GIS CERS ID:	10163471	**ER Contact:**	
GIS Record Type:	LUEG-DEH/HMD/UPFP/Facility	**ER Con Work Ph:**	
Per Type:		**Census Tract:**	194.04
Per Sub Type:		**Parcel Zip:**	92083
Per Cat:		**Community:**	Vista
Record Status:	Permit Renewed	**Jurisdiction:**	VISTA
HW Tier:	Not Applicable	**Basin No:**	904.10
LRG QTY MW Gener:	No	**BOS Dist:**	5
EPA ID No:		**Tbpg Grid:**	1087 F 4
RMP CAL ARP:	Not Applicable	**Insp Dist:**	HT201
Tank Owner:		**Feature ID:**	
SIC Code:	4812	**X Coord:**	6253943.198
NAICS Code:	517210	**Y Coord:**	2024574.84
Disclose Qty Haz Mat:	Y	**Kiva Per Typ:**	
Exp Date:		**Agency Name:**	COSD
Own/Operate USTs :		**Point X:**	6253943.19802672
UST Facility:		**Point Y:**	2024574.83994173
Total No USTs:		**Lat GS84:**	33.2183942
No of Tanks:		**Lon GS84:**	-117.2561958
Own Oper APS:	N	**Loc Name:**	
Tot APSA Cap:	0	**Score:**	
Capacity LR:		**Match Type:**	
Haz Waste G:	N	**Side:**	
Recycle100:	N	**X Map Coord:**	
Onsite Haz Waste Tre:	N	**Y Map Coord:**	
RCRA LRG Qty:	N	**User Fld:**	
Haz Wst Coll Site:	N	**Addr Type:**	
Accept Offs:	N	**ARC Address:**	
Universal Waste Han:	N	**ARC City:**	
Toxic Gas:		**ARC Zipcode:**	
Hazmat EHS:	N	**ARC State:**	
Hazmat Rad:	No	**ARC APN:**	
Haz Waste Rad:		**Zip:**	
Haz Waste EHS:		**Farm Nursery:**	
Full Name:	Verizon Wireless	**Indian or Territory:**	
Email Perm:		**County ID:**	
Phone Perm:	949-286-7000	**Bill Code 2:**	
Site Address:	1340 N Melrose Dr	**Bill Code 3:**	
Parcel No:	161-071-23-00	**Univ Waste Gen Type:**	

Record Ali: Unified Program Facility Permit
Address: 1340 MELROSE DR
Business Type: Cellular Site
Bill Code:
ER Con Name:
ER Con Title:
Water Purv: VISTA IRRIGATION LAND
Fire Agency: VISTA
Geo SRC: Mapped to record address
Match Addr:

8	***1 of 10***	***S***	***0.13 / 682.08***	***437.09 / -1***	***O & C AUTOMOTIVE SERVICES 1352 N MELROSE DR, VISTA, CA 92083 CA 92083***	***SANDIEGO HAZ***

Record ID:	DEH2007-HUPFP-207898	**GIS Record ID:**	DEH2007-HUPFP-207898
Facility Name:		**GIS Facility City:**	
Facility City:		**GIS Facility ZipCode:**	92083
Facility ZipCode:		**GIS Fac Latitude:**	
Facility Latitude:		**GIS Fac Longitude:**	
Facility Longitude:			

Facility Address:
GIS Facility Name: O & C AUTOMOTIVE SERVICES
GIS Facility Address: 1352 N MELROSE DR, VISTA, CA 92083

HMD Permits REST Data

GIS Facility ID:		**Status:**	
GIS CERS ID:		**ER Contact:**	760-722-0825
GIS Record Type:	LUEG-DEH/HMD/UPFP/Facility	**ER Con Work Ph:**	760-726-0902
Per Type:		**Census Tract:**	
Per Sub Type:		**Parcel Zip:**	
Per Cat:		**Community:**	
Record Status:	Permit Suspended	**Jurisdiction:**	
HW Tier:		**Basin No:**	
LRG QTY MW Gener:		**BOS Dist:**	
EPA ID No:	CAL000332437	**Tbpg Grid:**	
RMP CAL ARP:		**Insp Dist:**	HN003
Tank Owner:		**Feature ID:**	
SIC Code:		**X Coord:**	
NAICS Code:		**Y Coord:**	
Disclose Qty Haz Mat:		**Kiva Per Typ:**	HK07 207898
Exp Date:		**Agency Name:**	COSD
Own/Operate USTs :		**Point X:**	6253587.56028655
UST Facility:		**Point Y:**	2024633.60754073
Total No USTs:		**Lat GS84:**	
No of Tanks:		**Lon GS84:**	
Own Oper APS:	N	**Loc Name:**	
Tot APSA Cap:	0	**Score:**	
Capacity LR:		**Match Type:**	
Haz Waste G:	Yes	**Side:**	
Recycle100:		**X Map Coord:**	
Onsite Haz Waste Tre:		**Y Map Coord:**	
RCRA LRG Qty:		**User Fld:**	
Haz Wst Coll Site:		**Addr Type:**	
Accept Offs:		**ARC Address:**	
Universal Waste Han:		**ARC City:**	
Toxic Gas:		**ARC Zipcode:**	
Hazmat EHS:		**ARC State:**	
Hazmat Rad:		**ARC APN:**	
Haz Waste Rad:	No	**Zip:**	
Haz Waste EHS:	No	**Farm Nursery:**	
Full Name:	OSCAR VEGA	**Indian or Territory:**	
Email Perm:		**County ID:**	
Phone Perm:	760-726-0902	**Bill Code 2:**	
Site Address:		**Bill Code 3:**	
Parcel No:	161-071-22-00	**Univ Waste Gen Type:**	

Record Ali: Unified Program Facility Permit
Address: 1352 N MELROSE DR
Business Type: Auto Repair, General - Waste USTs Only
Bill Code:
ER Con Name: CESAR IBANEZ
ER Con Title: OWNER
Water Purv:
Fire Agency:
Geo SRC: Mapped to record address
Match Addr:

8	*2 of 10*	*S*	*0.13 / 682.08*	*437.09 / -1*	***VICTOR'S BRAKE & AUTO SPECIALISTS*** ***1352 N MELROSE DR, SUITE#*** ***G&H, VISTA, CA 92083*** ***VISTA CA 92083***	***SANDIEGO HAZ***

Record ID:	DEH2006-HUPFP-207346	**GIS Record ID:**	DEH2006-HUPFP-207346
Facility Name:		**GIS Facility City:**	VISTA
Facility City:		**GIS Facility ZipCode:**	92083
Facility ZipCode:		**GIS Fac Latitude:**	33.2189011

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility Latitude: **GIS Fac Longitude:** -117.2568874
Facility Longitude:
Facility Address:
GIS Facility Name: VICTOR'S BRAKE & AUTO SPECIALISTS
GIS Facility Address: 1352 N MELROSE DR, SUITE# G&H, VISTA, CA 92083

HMD Permits REST Data

GIS Facility ID:		**Status:**	
GIS CERS ID:	10378939	**ER Contact:**	760-505-1378
GIS Record Type:	LUEG-DEH/HMD/UPFP/Facility	**ER Con Work Ph:**	760-941-6075
Per Type:		**Census Tract:**	194.04
Per Sub Type:		**Parcel Zip:**	92083
Per Cat:		**Community:**	Vista
Record Status:	Permit Suspended	**Jurisdiction:**	VISTA
HW Tier:	Not Applicable	**Basin No:**	904.10
LRG QTY MW Gener:	No	**BOS Dist:**	5
EPA ID No:	CAL00030574	**Tbpg Grid:**	1087 F 4
RMP CAL ARP:	Not Applicable	**Insp Dist:**	HN022
Tank Owner:		**Feature ID:**	1610712600
SIC Code:		**X Coord:**	6253733.459
NAICS Code:		**Y Coord:**	2024761.343
Disclose Qty Haz Mat:	Yes	**Kiva Per Typ:**	HK07 207346
Exp Date:		**Agency Name:**	COSD
Own/Operate USTs :		**Point X:**	6253733.45894489
UST Facility:		**Point Y:**	2024761.34284957
Total No USTs:		**Lat GS84:**	33.2189011
No of Tanks:		**Lon GS84:**	-117.2568874
Own Oper APS:	N	**Loc Name:**	
Tot APSA Cap:	0	**Score:**	
Capacity LR:		**Match Type:**	
Haz Waste G:	Yes	**Side:**	
Recycle100:		**X Map Coord:**	
Onsite Haz Waste Tre:		**Y Map Coord:**	
RCRA LRG Qty:		**User Fld:**	
Haz Wst Coll Site:		**Addr Type:**	
Accept Offs:		**ARC Address:**	
Universal Waste Han:		**ARC City:**	
Toxic Gas:	No	**ARC Zipcode:**	
Hazmat EHS:		**ARC State:**	
Hazmat Rad:		**ARC APN:**	
Haz Waste Rad:	No	**Zip:**	
Haz Waste EHS:	No	**Farm Nursery:**	
Full Name:	VICTOR TAPIA	**Indian or Territory:**	
Email Perm:		**County ID:**	
Phone Perm:	760-941-6075	**Bill Code 2:**	
Site Address:		**Bill Code 3:**	
Parcel No:	161-071-26-00	**Univ Waste Gen Type:**	

Record Ali: Unified Program Facility Permit
Address: 1352 N MELROSE DR, SUITE# G&H
Business Type: Auto Repair, General - Waste USTs Only
Bill Code:
ER Con Name: VICTOR TAPIA
ER Con Title: OWNER
Water Purv: VISTA
Fire Agency: VISTA
Geo SRC: Mapped to record APN/parcel center XY
Match Addr:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
8	3 of 10	S	0.13 / 682.08	437.09 / -1	BOB'S QUALITY AUTO AND FLEET SERVICE 1352 N MELROSE DR, VISTA, CA 92083 CA 92083	SANDIEGO HAZ

Record ID: DEH2004-HUPFP-203963 **GIS Record ID:** DEH2004-HUPFP-203963
Facility Name: **GIS Facility City:**

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility City:
Facility ZipCode:
Facility Latitude:
Facility Longitude:
Facility Address:
GIS Facility ZipCode: 92083
GIS Fac Latitude:
GIS Fac Longitude:
GIS Facility Name: BOB'S QUALITY AUTO AND FLEET SERVICE
GIS Facility Address: 1352 N MELROSE DR, VISTA, CA 92083

HMD Permits REST Data

GIS Facility ID:
GIS CERS ID:
GIS Record Type: LUEG-DEH/HMD/UPFP/Facility
Per Type:
Per Sub Type:
Per Cat:
Record Status: Completed
HW Tier:
LRG QTY MW Gener:
EPA ID No: CAL000282219
RMP CAL ARP:
Tank Owner:
SIC Code:
NAICS Code:
Disclose Qty Haz Mat: Yes
Exp Date:
Own/Operate USTs :
UST Facility:
Total No USTs:
No of Tanks:
Own Oper APS: N
Tot APSA Cap: 0
Capacity LR:
Haz Waste G: Yes
Recycle100:
Onsite Haz Waste Tre:
RCRA LRG Qty:
Haz Wst Coll Site:
Accept Offs:
Universal Waste Han:
Toxic Gas:
Hazmat EHS:
Hazmat Rad:
Haz Waste Rad: No
Haz Waste EHS: No
Full Name: ROBERT LACA
Email Perm:
Phone Perm: 760-639-1938
Site Address:
Parcel No: 161-071-22-00
Record Ali: Unified Program Facility Permit
Address: 1352 N MELROSE DR
Business Type: Auto Repair, General - Waste USTs Only
Bill Code:
ER Con Name: ROBERT LACA
ER Con Title: OWNER
Water Purv:
Fire Agency:
Geo SRC: Mapped to record address
Match Addr:
Status:
ER Contact: 760-271-6814
ER Con Work Ph: 760-639-1938
Census Tract:
Parcel Zip:
Community:
Jurisdiction:
Basin No:
BOS Dist:
Tbpg Grid:
Insp Dist:
Feature ID:
X Coord:
Y Coord:
Kiva Per Typ: HK07 203963
Agency Name: COSD
Point X: 6253587.56028655
Point Y: 2024633.60754073
Lat GS84:
Lon GS84:
Loc Name:
Score:
Match Type:
Side:
X Map Coord:
Y Map Coord:
User Fld:
Addr Type:
ARC Address:
ARC City:
ARC Zipcode:
ARC State:
ARC APN:
Zip:
Farm Nursery:
Indian or Territory:
County ID:
Bill Code 2:
Bill Code 3:
Univ Waste Gen Type:

8	4 of 10	S	0.13 / 682.08	437.09 / -1	ADVANCE AUTO CARE 1352 N MELROSE DR, VISTA, CA 92083 CA 92083	SANDIEGO HAZ

Record ID: DEH2006-HUPFP-207318
GIS Record ID: DEH2006-HUPFP-207318

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Facility Name:		**GIS Facility City:**	
Facility City:		**GIS Facility ZipCode:**	92083
Facility ZipCode:		**GIS Fac Latitude:**	
Facility Latitude:		**GIS Fac Longitude:**	
Facility Longitude:			
Facility Address:			
GIS Facility Name:	ADVANCE AUTO CARE		
GIS Facility Address:	1352 N MELROSE DR, VISTA, CA 92083		

HMD Permits REST Data

GIS Facility ID:		**Status:**	
GIS CERS ID:		**ER Contact:**	760-612-7320
GIS Record Type:	LUEG-DEH/HMD/UPFP/Facility	**ER Con Work Ph:**	760-407-0127
Per Type:		**Census Tract:**	
Per Sub Type:		**Parcel Zip:**	
Per Cat:		**Community:**	
Record Status:	Completed	**Jurisdiction:**	
HW Tier:		**Basin No:**	
LRG QTY MW Gener:		**BOS Dist:**	
EPA ID No:	CAL000346782	**Tbpg Grid:**	
RMP CAL ARP:		**Insp Dist:**	
Tank Owner:		**Feature ID:**	
SIC Code:		**X Coord:**	
NAICS Code:		**Y Coord:**	
Disclose Qty Haz Mat:	Yes	**Kiva Per Typ:**	HK07 207318
Exp Date:		**Agency Name:**	COSD
Own/Operate USTs :		**Point X:**	6253587.56028655
UST Facility:		**Point Y:**	2024633.60754073
Total No USTs:		**Lat GS84:**	
No of Tanks:		**Lon GS84:**	
Own Oper APS:	N	**Loc Name:**	
Tot APSA Cap:	0	**Score:**	
Capacity LR:		**Match Type:**	
Haz Waste G:	Yes	**Side:**	
Recycle100:		**X Map Coord:**	
Onsite Haz Waste Tre:		**Y Map Coord:**	
RCRA LRG Qty:		**User Fld:**	
Haz Wst Coll Site:		**Addr Type:**	
Accept Offs:		**ARC Address:**	
Universal Waste Han:		**ARC City:**	
Toxic Gas:		**ARC Zipcode:**	
Hazmat EHS:	No	**ARC State:**	
Hazmat Rad:		**ARC APN:**	
Haz Waste Rad:	No	**Zip:**	
Haz Waste EHS:	No	**Farm Nursery:**	
Full Name:	VINCE FRANANO	**Indian or Territory:**	
Email Perm:		**County ID:**	
Phone Perm:	760-407-0127	**Bill Code 2:**	
Site Address:		**Bill Code 3:**	
Parcel No:	161-071-22-00	**Univ Waste Gen Type:**	
Record Ali:	Unified Program Facility Permit		
Address:	1352 N MELROSE DR		
Business Type:	Auto Repair, General - Waste USTs Only		
Bill Code:			
ER Con Name:	TONY MONTEGNA		
ER Con Title:	MANAGER		
Water Purv:			
Fire Agency:			
Geo SRC:	Mapped to record address		
Match Addr:			

8	***5 of 10***	***S***	***0.13 / 682.08***	***437.09 / -1***	***OCEANSIDE TOWING & SVCS INC 1352 N MELROSE DR, VISTA, CA 92083 CA 92083***	***SANDIEGO HAZ***

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Record ID:	DEH2005-HUPFP-205918	**GIS Record ID:**	DEH2005-HUPFP-205918
Facility Name:		**GIS Facility City:**	
Facility City:		**GIS Facility ZipCode:**	92083
Facility ZipCode:		**GIS Fac Latitude:**	
Facility Latitude:		**GIS Fac Longitude:**	
Facility Longitude:			
Facility Address:			
GIS Facility Name:	OCEANSIDE TOWING & SVCS INC		
GIS Facility Address:	1352 N MELROSE DR, VISTA, CA 92083		

HMD Permits REST Data

GIS Facility ID:		**Status:**	
GIS CERS ID:		**ER Contact:**	760-310-7150
GIS Record Type:	LUEG-DEH/HMD/UPFP/Facility	**ER Con Work Ph:**	760-726-7056
Per Type:		**Census Tract:**	
Per Sub Type:		**Parcel Zip:**	
Per Cat:		**Community:**	
Record Status:	Completed	**Jurisdiction:**	
HW TIer:		**Basin No:**	
LRG QTY MW Gener:		**BOS Dist:**	
EPA ID No:		**Tbpg Grid:**	
RMP CAL ARP:		**Insp Dist:**	
Tank Owner:		**Feature ID:**	
SIC Code:		**X Coord:**	
NAICS Code:		**Y Coord:**	
Disclose Qty Haz Mat:		**Kiva Per Typ:**	HK07 205918
Exp Date:		**Agency Name:**	COSD
Own/Operate USTs :		**Point X:**	6253587.56028655
UST Facility:		**Point Y:**	2024633.60754073
Total No USTs:		**Lat GS84:**	
No of Tanks:		**Lon GS84:**	
Own Oper APS:	N	**Loc Name:**	
Tot APSA Cap:	0	**Score:**	
Capacity LR:		**Match Type:**	
Haz Waste G:	Yes	**Side:**	
Recycle100:		**X Map Coord:**	
Onsite Haz Waste Tre:		**Y Map Coord:**	
RCRA LRG Qty:		**User Fld:**	
Haz Wst Coll Site:		**Addr Type:**	
Accept Offs:		**ARC Address:**	
Universal Waste Han:		**ARC City:**	
Toxic Gas:		**ARC Zipcode:**	
Hazmat EHS:		**ARC State:**	
Hazmat Rad:		**ARC APN:**	
Haz Waste Rad:	No	**Zip:**	
Haz Waste EHS:	No	**Farm Nursery:**	
Full Name:	SANTOS VELENTIN	**Indian or Territory:**	
Email Perm:		**County ID:**	
Phone Perm:	760-726-7056	**Bill Code 2:**	
Site Address:		**Bill Code 3:**	
Parcel No:	161-071-22-00	**Univ Waste Gen Type:**	
Record Ali:	Unified Program Facility Permit		
Address:	1352 N MELROSE DR		
Business Type:	Auto Repair, General - Waste USTs Only		
Bill Code:			
ER Con Name:	SANTOS VELINTIN		
ER Con Title:	OWNER / CO-OPERATOR		
Water Purv:			
Fire Agency:			
Geo SRC:	Mapped to record address		
Match Addr:			

8	***6 of 10***	***S***	***0.13 / 682.08***	***437.09 / -1***	***ADVANCED AUTO REPAIR 1352 N MELROSE DR, VISTA, CA 92083 CA 92083***	***SANDIEGO HAZ***

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Record ID:	DEH2009-HUPFP-211493	**GIS Record ID:**	DEH2009-HUPFP-211493
Facility Name:		**GIS Facility City:**	
Facility City:		**GIS Facility ZipCode:**	92083
Facility ZipCode:		**GIS Fac Latitude:**	
Facility Latitude:		**GIS Fac Longitude:**	
Facility Longitude:			
Facility Address:			
GIS Facility Name:	ADVANCED AUTO REPAIR		
GIS Facility Address:	1352 N MELROSE DR, VISTA, CA 92083		

HMD Permits REST Data

GIS Facility ID:		**Status:**	
GIS CERS ID:		**ER Contact:**	619-569-9308
GIS Record Type:	LUEG-DEH/HMD/UPFP/Facility	**ER Con Work Ph:**	760-763-0454
Per Type:		**Census Tract:**	
Per Sub Type:		**Parcel Zip:**	
Per Cat:		**Community:**	
Record Status:	Completed	**Jurisdiction:**	
HW TIer:		**Basin No:**	
LRG QTY MW Gener:		**BOS Dist:**	
EPA ID No:		**Tbpg Grid:**	
RMP CAL ARP:		**Insp Dist:**	
Tank Owner:		**Feature ID:**	
SIC Code:		**X Coord:**	
NAICS Code:		**Y Coord:**	
Disclose Qty Haz Mat:	Yes	**Kiva Per Typ:**	HK07 211493
Exp Date:		**Agency Name:**	COSD
Own/Operate USTs :		**Point X:**	6253587.56028655
UST Facility:		**Point Y:**	2024633.60754073
Total No USTs:		**Lat GS84:**	
No of Tanks:		**Lon GS84:**	
Own Oper APS:	N	**Loc Name:**	
Tot APSA Cap:	0	**Score:**	
Capacity LR:		**Match Type:**	
Haz Waste G:	Yes	**Side:**	
Recycle100:		**X Map Coord:**	
Onsite Haz Waste Tre:		**Y Map Coord:**	
RCRA LRG Qty:		**User Fld:**	
Haz Wst Coll Site:		**Addr Type:**	
Accept Offs:		**ARC Address:**	
Universal Waste Han:		**ARC City:**	
Toxic Gas:		**ARC Zipcode:**	
Hazmat EHS:	No	**ARC State:**	
Hazmat Rad:		**ARC APN:**	
Haz Waste Rad:	No	**Zip:**	
Haz Waste EHS:	No	**Farm Nursery:**	
Full Name:	IVAN PERKOVICH	**Indian or Territory:**	
Email Perm:		**County ID:**	
Phone Perm:	760-726-2000	**Bill Code 2:**	
Site Address:		**Bill Code 3:**	
Parcel No:	161-071-22-00	**Univ Waste Gen Type:**	
Record Ali:	Unified Program Facility Permit		
Address:	1352 N MELROSE DR		
Business Type:	Auto Repair, General - Waste USTs Only		
Bill Code:			
ER Con Name:	IVAN PERKOICH		
ER Con Title:	MGR		
Water Purv:			
Fire Agency:			
Geo SRC:	Mapped to record address		
Match Addr:			

8	***7 of 10***	***S***	***0.13 / 682.08***	***437.09 / -1***	***MELROSE AUTO PARK 1350 & 1352 N MELROSE DR VISTA CA 92083***	***RCRA NON GEN***

EPA Handler ID:	CAL000300920
Gen Status Universe:	No Report
Contact Name:	CHARLES BRANT MAINTENANCE MGR
Contact Address:	1000 PIONEER WAY , , EL CAJON , CA, 92020 ,
Contact Phone No and Ext:	619-440-7424
Contact Email:	CHARLES@HAMANNCO.COM
Contact Country:	
County Name:	SAN DIEGO
EPA Region:	09
Land Type:	
Receive Date:	20051130

Violation/Evaluation Summary

Note:	NO RECORDS: As of May 2020, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility:	No
Onsite Burner Exemption:	No
Furnace Exemption:	No
Underground Injection Activity:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No

Hazardous Waste Handler Details

Sequence No:	1
Receive Date:	20051130
Handler Name:	MELROSE AUTO PARK
Source Type:	Implementer
Federal Waste Generator Code:	N
Generator Code Description:	Not a Generator, Verified

Owner/Operator Details

Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Other	***Street 1:***	1000 PIONEER WAY
Name:	CHARLES BRANT MAINTENANCE MGR	***Street 2:***	
Date Became Current:		***City:***	EL CAJON
Date Ended Current:		***State:***	CA
Phone:	619-440-7424	***Country:***	
Source Type:	Implementer	***Zip Code:***	92020
Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Other	***Street 1:***	1000 PIONEER WAY
Name:	HAMANN MELROSE 2	***Street 2:***	
Date Became Current:		***City:***	EL CAJON
Date Ended Current:		***State:***	CA
Phone:	619-440-7424	***Country:***	
Source Type:	Implementer	***Zip Code:***	92020-0000

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
8	8 of 10	S	0.13 / 682.08	437.09 / -1	TONYS AUTOMOTIVE REPAIR 1352 N MELROSE DR STE E VISTA CA 92083	RCRA NON GEN

EPA Handler ID: CAL000409234
Gen Status Universe: No Report
Contact Name: LILIA GONZALEZ
Contact Address: 128 TERRACINA WAY , , VISTA , CA, 92083 ,
Contact Phone No and Ext: 760-224-7432
Contact Email: LYLYLY100@YAHOO.COM
Contact Country:
County Name: SAN DIEGO
EPA Region: 09
Land Type:
Receive Date: 20150812

Violation/Evaluation Summary

Note: NO RECORDS: As of May 2020, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20150812
Handler Name: TONYS AUTOMOTIVE REPAIR
Source Type: Implementer
Federal Waste Generator Code: N
Generator Code Description: Not a Generator, Verified

Owner/Operator Details

Owner/Operator Ind: Current Owner
Type: Other
Name: LILIA GONZALEZ
Date Became Current:
Date Ended Current:
Phone: 760-224-7432
Source Type: Implementer
Street No:
Street 1: 128 TERRACINA WAY
Street 2:
City: VISTA
State: CA
Country:
Zip Code: 92083

Owner/Operator Ind: Current Operator
Type: Other
Name: LILIA GONZALEZ
Date Became Current:
Date Ended Current:
Phone: 760-224-7432
Street No:
Street 1: 128 TERRACINA WAY
Street 2:
City: VISTA
State: CA
Country:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
Source Type:	Implementer			**Zip Code:**	92083	

8	9 of 10	S	0.13 / 682.08	437.09 / -1	TAVOS AUTO REPAIR LLC 1352 N MELROSE DR STE E F VISTA CA 92083	RCRA TSD

EPA Handler ID: CAL000446094
Gen Status Universe: No Report
Contact Name: GUSTAVO BARRAZA MARTINEZ
Contact Address: 1352 N MELROSE DR STE E F , , VISTA , CA, 92083 ,
Contact Phone No and Ext: 760-994-6896
Contact Email: FLOR.NBARRAZA@GMAIL.COM
Contact Country:
Land Type:
County Name: SAN DIEGO
EPA Region: 09
Receive Date: 20190520

Violation/Evaluation Summary

Note: NO RECORDS: As of May 2020, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Smelting, Melting and Refining: No
Underground Injection Control: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20190520
Handler Name: TAVOS AUTO REPAIR LLC
Federal Waste Generator Code: N
Generator Code Description: Not a Generator, Verified
Source Type: Implementer

Owner/Operator Details

Owner/Operator Ind: Current Operator
Type: Other
Name: GUSTAVO BARRAZA MARTINEZ
Date Became Current:
Date Ended Current:
Phone: 760-994-6896
Source Type: Implementer
Street No:
Street 1: 1352 N MELROSE DR STE E F
Street 2:
City: VISTA
State: CA
Country:
Zip Code: 92083

Owner/Operator Ind: Current Owner
Type: Other
Name: TAVOS AUTO REPAIR LLC
Street No:
Street 1: 1352 N MELROSE DR STE E F
Street 2:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Date Became Current:		**City:**	VISTA	
Date Ended Current:		**State:**	CA	
Phone:	760-994-6896	**Country:**		
Source Type:	Implementer	**Zip Code:**	92083	

8	10 of 10	S	0.13 / 682.08	437.09 / -1	TAVOS AUTO REPAIR LLC 1352 N MELROSE DR STE E F VISTA CA 92083	RCRA NON GEN

EPA Handler ID:	CAL000446094
Gen Status Universe:	No Report
Contact Name:	GUSTAVO BARRAZA MARTINEZ
Contact Address:	1352 N MELROSE DR STE E F , , VISTA , CA, 92083 ,
Contact Phone No and Ext:	760-994-6896
Contact Email:	FLOR.NBARRAZA@GMAIL.COM
Contact Country:	
County Name:	SAN DIEGO
EPA Region:	09
Land Type:	
Receive Date:	20190520

Violation/Evaluation Summary

Note:	NO RECORDS: As of May 2020, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility:	No
Onsite Burner Exemption:	No
Furnace Exemption:	No
Underground Injection Activity:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No

Hazardous Waste Handler Details

Sequence No:	1
Receive Date:	20190520
Handler Name:	TAVOS AUTO REPAIR LLC
Source Type:	Implementer
Federal Waste Generator Code:	N
Generator Code Description:	Not a Generator, Verified

Owner/Operator Details

Owner/Operator Ind:	Current Owner	**Street No:**	
Type:	Other	**Street 1:**	1352 N MELROSE DR STE E F
Name:	TAVOS AUTO REPAIR LLC	**Street 2:**	
Date Became Current:		**City:**	VISTA
Date Ended Current:		**State:**	CA
Phone:	760-994-6896	**Country:**	
Source Type:	Implementer	**Zip Code:**	92083

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Owner/Operator Ind:	Current Operator	**Street No:**		
Type:	Other	**Street 1:**	1352 N MELROSE DR STE E F	
Name:	GUSTAVO BARRAZA MARTINEZ	**Street 2:**		
Date Became Current:		**City:**	VISTA	
Date Ended Current:		**State:**	CA	
Phone:	760-994-6896	**Country:**		
Source Type:	Implementer	**Zip Code:**	92083	

9	1 of 1	S	0.13 / 683.01	455.91 / 18	**PERFORMANCE AUTO BODY** **1330 MELROSE DR N #A** **VISTA CA 92083**	EMISSIONS

2000 Criteria Data

Facility ID:	95592	**CERR Code:**	
Facility SIC Code:	7532	**TOGT:**	.718636347
CO:	37	**ROGT:**	.6627983028381
Air Basin:	SD	**COT:**	
District:	SD	**NOXT:**	
COID:	SD	**SOXT:**	
DISN:	SAN DIEGO COUNTY APCD	**PMT:**	
CHAPIS:		**PM10T:**	

2000 Toxic Data

Facility ID:	95592	**COID:**	SD
Facility SIC Code:	7532	**DISN:**	SAN DIEGO COUNTY APCD
CO:	37	**CHAPIS:**	
Air Basin:	SD	**CERR Code:**	
District:	SD		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

2001 Criteria Data

Facility ID:	95592	**CERR Code:**	
Facility SIC Code:	7532	**TOGT:**	.72
CO:	37	**ROGT:**	.66
Air Basin:	SD	**COT:**	
District:	SD	**NOXT:**	
COID:	SD	**SOXT:**	
DISN:	SAN DIEGO COUNTY APCD	**PMT:**	
CHAPIS:		**PM10T:**	

2001 Toxic Data

Facility ID:	95592	**COID:**	SD
Facility SIC Code:	7532	**DISN:**	SAN DIEGO COUNTY APCD
CO:	37	**CHAPIS:**	
Air Basin:	SD	**CERR Code:**	
District:	SD		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

2002 Criteria Data

Facility ID:	95592	**CERR Code:**	

Facility SIC Code:	7532	**TOGT:**	.718636347
CO:	37	**ROGT:**	.662805014183
Air Basin:	SD	**COT:**	
District:	SD	**NOXT:**	
COID:	SD	**SOXT:**	
DISN:	SAN DIEGO COUNTY APCD	**PMT:**	
CHAPIS:		**PM10T:**	

2002 Toxic Data

Facility ID:	95592	**COID:**	SD
Facility SIC Code:	7532	**DISN:**	SAN DIEGO COUNTY APCD
CO:	37	**CHAPIS:**	
Air Basin:	SD	**CERR Code:**	
District:	SD		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

2003 Criteria Data

Facility ID:	95592	**CERR Code:**	
Facility SIC Code:	7532	**TOGT:**	.718636347
CO:	37	**ROGT:**	.662805
Air Basin:	SD	**COT:**	
District:	SD	**NOXT:**	
COID:	SD	**SOXT:**	
DISN:	SAN DIEGO COUNTY APCD	**PMT:**	
CHAPIS:		**PM10T:**	

2003 Toxic Data

Facility ID:	95592	**COID:**	SD
Facility SIC Code:	7532	**DISN:**	SAN DIEGO COUNTY APCD
CO:	37	**CHAPIS:**	
Air Basin:	SD	**CERR Code:**	
District:	SD		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

2004 Criteria Data

Facility ID:	95592	**CERR Code:**	
Facility SIC Code:	7532	**TOGT:**	.718636347
CO:	37	**ROGT:**	.662805
Air Basin:	SD	**COT:**	
District:	SD	**NOXT:**	
COID:	SD	**SOXT:**	
DISN:	SAN DIEGO COUNTY APCD	**PMT:**	
CHAPIS:		**PM10T:**	

2004 Toxic Data

Facility ID:	95592	**COID:**	SD
Facility SIC Code:	7532	**DISN:**	SAN DIEGO COUNTY APCD
CO:	37	**CHAPIS:**	
Air Basin:	SD	**CERR Code:**	
District:	SD		
TS:			
Health Risk Asmt:			

Non-Cancer Chronic Haz Ind:
Non-Cancer Acute Haz Ind:

2005 Criteria Data

Facility ID:	95592	***CERR Code:***	
Facility SIC Code:	7532	***TOGT:***	.35
CO:	37	***ROGT:***	.33
Air Basin:	SD	***COT:***	
District:	SD	***NOXT:***	
COID:	SD	***SOXT:***	
DISN:	SAN DIEGO COUNTY APCD	***PMT:***	
CHAPIS:		***PM10T:***	

2005 Toxic Data

Facility ID:	95592	***COID:***	SD
Facility SIC Code:	7532	***DISN:***	SAN DIEGO COUNTY APCD
CO:	37	***CHAPIS:***	
Air Basin:	SD	***CERR Code:***	
District:	SD		

TS:
Health Risk Asmt:
Non-Cancer Chronic Haz Ind:
Non-Cancer Acute Haz Ind:

2006 Criteria Data

Facility ID:	95592	***CERR Code:***	
Facility SIC Code:	7532	***TOGT:***	.35
CO:	37	***ROGT:***	.33
Air Basin:	SD	***COT:***	
District:	SD	***NOXT:***	
COID:	SD	***SOXT:***	
DISN:	SAN DIEGO COUNTY APCD	***PMT:***	
CHAPIS:		***PM10T:***	

2006 Toxic Data

Facility ID:	95592	***COID:***	SD
Facility SIC Code:	7532	***DISN:***	SAN DIEGO COUNTY APCD
CO:	37	***CHAPIS:***	
Air Basin:	SD	***CERR Code:***	
District:	SD		

TS:
Health Risk Asmt:
Non-Cancer Chronic Haz Ind:
Non-Cancer Acute Haz Ind:

2007 Criteria Data

Facility ID:	95592	***CERR Code:***	
Facility SIC Code:	7532	***TOGT:***	.35
CO:	37	***ROGT:***	.33
Air Basin:	SD	***COT:***	
District:	SD	***NOXT:***	
COID:	SD	***SOXT:***	
DISN:	SAN DIEGO COUNTY APCD	***PMT:***	
CHAPIS:		***PM10T:***	

2007 Toxic Data

Facility ID:	95592	**COID:**	SD
Facility SIC Code:	7532	**DISN:**	SAN DIEGO COUNTY APCD
CO:	37	**CHAPIS:**	
Air Basin:	SD	**CERR Code:**	
District:	SD		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

2008 Criteria Data

Facility ID:	95592	**CERR Code:**	
Facility SIC Code:	7532	**TOGT:**	.35
CO:	37	**ROGT:**	.33
Air Basin:	SD	**COT:**	
District:	SD	**NOXT:**	
COID:	SD	**SOXT:**	
DISN:	SAN DIEGO COUNTY APCD	**PMT:**	
CHAPIS:		**PM10T:**	

2008 Toxic Data

Facility ID:	95592	**COID:**	SD
Facility SIC Code:	7532	**DISN:**	SAN DIEGO COUNTY APCD
CO:	37	**CHAPIS:**	
Air Basin:	SD	**CERR Code:**	
District:	SD		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

2009 Criteria Data

Facility ID:	95592	**CERR Code:**	
Facility SIC Code:	7532	**TOGT:**	.35
CO:	37	**ROGT:**	.33
Air Basin:	SD	**COT:**	
District:	SD	**NOXT:**	
COID:	SD	**SOXT:**	
DISN:	SAN DIEGO COUNTY APCD	**PMT:**	
CHAPIS:		**PM10T:**	

2009 Toxic Data

Facility ID:	95592	**COID:**	SD
Facility SIC Code:	7532	**DISN:**	SAN DIEGO COUNTY APCD
CO:	37	**CHAPIS:**	
Air Basin:	SD	**CERR Code:**	
District:	SD		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

2010 Toxic Data

Facility ID:	95592	**COID:**	SD
Facility SIC Code:	7532	**DISN:**	SAN DIEGO COUNTY APCD
CO:	37	**CHAPIS:**	
Air Basin:	SD	**CERR Code:**	
District:	SD		

TS:
Health Risk Asmt:
Non-Cancer Chronic Haz Ind:
Non-Cancer Acute Haz Ind:

2011 Criteria Data

Facility ID:	95592	***CERR Code:***	
Facility SIC Code:	7532	***TOGT:***	.35
CO:	37	***ROGT:***	.33
Air Basin:	SD	***COT:***	
District:	SD	***NOXT:***	
COID:	SD	***SOXT:***	
DISN:	SAN DIEGO COUNTY APCD	***PMT:***	
CHAPIS:		***PM10T:***	

2011 Toxic Data

Facility ID:	95592	***COID:***	SD
Facility SIC Code:	7532	***DISN:***	SAN DIEGO COUNTY APCD
CO:	37	***CHAPIS:***	
Air Basin:	SD	***CERR Code:***	
District:	SD		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

2012 Criteria Data

Facility ID:	95592	***CERR Code:***	
Facility SIC Code:	7532	***TOGT:***	.35
CO:	37	***ROGT:***	.33
Air Basin:	SD	***COT:***	
District:	SD	***NOXT:***	
COID:	SD	***SOXT:***	
DISN:	SAN DIEGO COUNTY APCD	***PMT:***	
CHAPIS:		***PM10T:***	

2012 Toxic Data

Facility ID:	95592	***COID:***	SD
Facility SIC Code:	7532	***DISN:***	SAN DIEGO COUNTY APCD
CO:	37	***CHAPIS:***	
Air Basin:	SD	***CERR Code:***	
District:	SD		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

2013 Criteria Data

Facility ID:	95592	***CERR Code:***	
Facility SIC Code:	7532	***TOGT:***	.35
CO:	37	***ROGT:***	.33
Air Basin:	SD	***COT:***	
District:	SD	***NOXT:***	
COID:	SD	***SOXT:***	
DISN:	SAN DIEGO COUNTY APCD	***PMT:***	
CHAPIS:		***PM10T:***	

2013 Toxic Data

Facility ID:	95592	***COID:***	SD
Facility SIC Code:	7532	***DISN:***	SAN DIEGO COUNTY APCD
CO:	37	***CHAPIS:***	
Air Basin:	SD	***CERR Code:***	
District:	SD		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

2014 Criteria Data

Facility ID:	95592	***CERR Code:***	
Facility SIC Code:	7532	***TOGT:***	.35
CO:	37	***ROGT:***	.33
Air Basin:	SD	***COT:***	
District:	SD	***NOXT:***	
COID:	SD	***SOXT:***	
DISN:	SAN DIEGO COUNTY APCD	***PMT:***	
CHAPIS:		***PM10T:***	

2014 Toxic Data

Facility ID:	95592	***COID:***	SD
Facility SIC Code:	7532	***DISN:***	SAN DIEGO COUNTY APCD
CO:	37	***CHAPIS:***	
Air Basin:	SD	***CERR Code:***	
District:	SD		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

2015 Criteria Data

Facility ID:	95592	***CERR Code:***	
Facility SIC Code:	7532	***TOGT:***	.35
CO:	37	***ROGT:***	.33
Air Basin:	SD	***COT:***	
District:	SD	***NOXT:***	
COID:	SD	***SOXT:***	
DISN:	SAN DIEGO COUNTY APCD	***PMT:***	
CHAPIS:		***PM10T:***	

2015 Toxic Data

Facility ID:	95592	***COID:***	SD
Facility SIC Code:	7532	***DISN:***	SAN DIEGO COUNTY APCD
CO:	37	***CHAPIS:***	
Air Basin:	SD	***CERR Code:***	
District:	SD		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

2016 Criteria Data

Facility ID:	95592	***CERR CODE:***	
Facility SIC Code:	7532	***TOGT:***	.35
CO:	37	***ROGT:***	.33

Air Basin:	SD	***COT:***	
District:	SD	***NOXT:***	
COID:	SD	***SOXT:***	
DISN:	SAN DIEGO COUNTY APCD	***PMT:***	
CHAPIS:		***PM10T:***	

2016 Toxic Data

Facility ID:	95592	***TS:***	
Facility SIC Code:	7532	***HRA:***	
CERR CODE:		***CH Index:***	
COID:	SD	***AH Index:***	
CO:	37	***Air Basin:***	SD
DISN:	SAN DIEGO COUNTY APCD	***District:***	SD
CHAPIS:			

2017 Criteria Data

Facility ID:	95592	***CERR Code:***	
Facility SIC Code:	7532	***TOGT:***	.35
CO:	37	***ROGT:***	.33
Air Basin:	SD	***COT:***	
District:	SD	***NOXT:***	
COID:	SD	***SOXT:***	
DISN:	SAN DIEGO COUNTY APCD	***PMT:***	
CHAPIS:		***PM10T:***	

2017 Toxic Data

Facility ID:	95592	***COID:***	SD
Facility SIC Code:	7532	***DISN:***	SAN DIEGO COUNTY APCD
CO:	37	***CHAPIS:***	
Air Basin:	SD	***CERR Code:***	
District:	SD		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

2018 Criteria Data

Facility ID:	95592	***CERR Code:***	
Facility SIC Code:	7532	***TOGT:***	.35
CO:	37	***ROGT:***	.33
Air Basin:	SD	***COT:***	
District:	SD	***NOXT:***	
COID:	SD	***SOXT:***	
DISN:	SAN DIEGO COUNTY APCD	***PMT:***	
CHAPIS:		***PM10T:***	

2018 Toxic Data

Facility ID:	95592	***COID:***	SD
Facility SIC Code:	7532	***DISN:***	SAN DIEGO COUNTY APCD
CO:	37	***CHAPIS:***	
Air Basin:	SD	***CERR Code:***	
District:	SD		
TS:			
Health Risk Asmt:			
Non-Cancer Chronic Haz Ind:			
Non-Cancer Acute Haz Ind:			

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
10	1 of 2	S	0.14 / 745.45	440.12 / 2	AT&T Mobility - NORTH MELROSE SELF STORAGE (USID87292) 1317 N MELROSE DR, VISTA, CA 92083-2917 VISTA CA 92083-2917	SANDIEGO HAZ

Record ID:	DEH2016-HUPFP-003136	**GIS Record ID:**	DEH2016-HUPFP-003136
Facility Name:		**GIS Facility City:**	VISTA
Facility City:		**GIS Facility ZipCode:**	92083-2917
Facility ZipCode:		**GIS Fac Latitude:**	33.2174224
Facility Latitude:		**GIS Fac Longitude:**	-117.2573896
Facility Longitude:			
Facility Address:			
GIS Facility Name:	AT&T Mobility - NORTH MELROSE SELF STORAGE (USID87292)		
GIS Facility Address:	1317 N MELROSE DR, VISTA, CA 92083-2917		

HMD Permits REST Data

GIS Facility ID:	37-000-003136	**Status:**	
GIS CERS ID:	10675363	**ER Contact:**	
GIS Record Type:	LUEG-DEH/HMD/UPFP/Facility	**ER Con Work Ph:**	
Per Type:		**Census Tract:**	194.03
Per Sub Type:		**Parcel Zip:**	92083
Per Cat:		**Community:**	Vista
Record Status:	Permit Suspended	**Jurisdiction:**	VISTA
HW TIer:	Not Applicable	**Basin No:**	904.10
LRG QTY MW Gener:	No	**BOS Dist:**	5
EPA ID No:		**Tbpg Grid:**	1087 F 4
RMP CAL ARP:		**Insp Dist:**	HT201
Tank Owner:		**Feature ID:**	1610712500
SIC Code:	4812	**X Coord:**	6253574.666
NAICS Code:	517210	**Y Coord:**	2024224.772
Disclose Qty Haz Mat:	Y	**Kiva Per Typ:**	
Exp Date:		**Agency Name:**	COSD
Own/Operate USTs :		**Point X:**	6253574.66595538
UST Facility:		**Point Y:**	2024224.77207232
Total No USTs:		**Lat GS84:**	33.2174224
No of Tanks:		**Lon GS84:**	-117.2573896
Own Oper APS:	N	**Loc Name:**	
Tot APSA Cap:	0	**Score:**	
Capacity LR:		**Match Type:**	
Haz Waste G:	N	**Side:**	
Recycle100:	N	**X Map Coord:**	
Onsite Haz Waste Tre:	N	**Y Map Coord:**	
RCRA LRG Qty:	N	**User Fld:**	
Haz Wst Coll Site:	N	**Addr Type:**	
Accept Offs:	N	**ARC Address:**	
Universal Waste Han:	N	**ARC City:**	
Toxic Gas:		**ARC Zipcode:**	
Hazmat EHS:	N	**ARC State:**	
Hazmat Rad:	No	**ARC APN:**	
Haz Waste Rad:		**Zip:**	
Haz Waste EHS:		**Farm Nursery:**	
Full Name:	New Cingular Wireless PCS, LLC dba AT&T Mobility	**Indian or Territory:**	
Email Perm:		**County ID:**	
Phone Perm:	(214) 741-0630	**Bill Code 2:**	
Site Address:	1317 N Melrose Dr	**Bill Code 3:**	
Parcel No:	161-071-25-00	**Univ Waste Gen Type:**	
Record Ali:	Unified Program Facility Permit		
Address:	1317 N MELROSE DR		
Business Type:	Cellular Site		
Bill Code:			
ER Con Name:			
ER Con Title:			
Water Purv:	VISTA IRRIGATION LAND		
Fire Agency:	VISTA		
Geo SRC:	Mapped to record APN/parcel center XY		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
Match Addr:						
10	2 of 2	S	0.14 / 745.45	440.12 / 2	EXTRA SPACE MELROSE DR 7360 1317 N MELROSE DR VISTA CA 92083	RCRA NON GEN

EPA Handler ID: CAC003053210
Gen Status Universe: No Report
Contact Name: CHRISSY CAREY
Contact Address: 1317 N MELROSE DR , , VISTA , CA, 92083 ,
Contact Phone No and Ext: 760-809-9329
Contact Email: CUSTOMERSERVICE@EFRENVIRO.COM
Contact Country:
County Name: SAN DIEGO
EPA Region: 09
Land Type:
Receive Date: 20200128

Violation/Evaluation Summary

Note: NO RECORDS: As of May 2020, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20200128
Handler Name: EXTRA SPACE MELROSE DR 7360
Source Type: Implementer
Federal Waste Generator Code: N
Generator Code Description: Not a Generator, Verified

Owner/Operator Details

Owner/Operator Ind: Current Operator
Type: Other
Name: CHRISSY CAREY
Date Became Current:
Date Ended Current:
Phone: 760-809-9329
Source Type: Implementer
Street No:
Street 1: 1317 N MELROSE DR
Street 2:
City: VISTA
State: CA
Country:
Zip Code: 92083

Owner/Operator Ind: Current Owner
Type: Other
Name: EXTRA SPACE MANAGEMENT INC
Street No:
Street 1: 2795 EAST COTTONWOOD PARKWAY STE 40
Street 2:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Date Became Current:		**City:**	SALT LAKE CITY
Date Ended Current:		**State:**	UT
Phone:	801-365-4600	**Country:**	
Source Type:	Implementer	**Zip Code:**	84121

11	1 of 1	SSE	0.14 / 752.39	459.85 / 22	KEVINS AUTO CAR 1334 N MELROSW DR STE F VISTA CA 92084	RCRA NON GEN

EPA Handler ID:	CAL000438517
Gen Status Universe:	No Report
Contact Name:	KEVIN TAGHARCHI
Contact Address:	1334 N MELROSW DR STE F , , VISTA , CA, 92084 ,
Contact Phone No and Ext:	760-214-8101
Contact Email:	KEVINCARGUY@GMAILCOM
Contact Country:	
County Name:	SAN DIEGO
EPA Region:	09
Land Type:	
Receive Date:	20180820

Violation/Evaluation Summary

Note:	NO RECORDS: As of May 2020, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility:	No
Onsite Burner Exemption:	No
Furnace Exemption:	No
Underground Injection Activity:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No

Hazardous Waste Handler Details

Sequence No:	1
Receive Date:	20180820
Handler Name:	KEVINS AUTO CAR
Source Type:	Implementer
Federal Waste Generator Code:	N
Generator Code Description:	Not a Generator, Verified

Owner/Operator Details

Owner/Operator Ind:	Current Owner	**Street No:**	
Type:	Other	**Street 1:**	1334 N MELROSW DR STE F
Name:	KEVIN TAGHARCHI	**Street 2:**	
Date Became Current:		**City:**	VISTA
Date Ended Current:		**State:**	CA
Phone:	760-214-8101	**Country:**	
Source Type:	Implementer	**Zip Code:**	92084

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Owner/Operator Ind:	Current Operator	**Street No:**	
Type:	Other	**Street 1:**	1334 N MELROSW DR STE F
Name:	KEVIN TAGHARCHI	**Street 2:**	
Date Became Current:		**City:**	VISTA
Date Ended Current:		**State:**	CA
Phone:	760-214-8101	**Country:**	
Source Type:	Implementer	**Zip Code:**	92084

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
12	1 of 11	S	0.15 / 801.68	455.63 / 17	GT AUTOBODY SHOP 1330 N MELROSE DR, VISTA, CA 92083 VISTA CA 92083	SANDIEGO HAZ

Record ID:	DEH2011-HUPFP-214183	**GIS Record ID:**	DEH2011-HUPFP-214183
Facility Name:		**GIS Facility City:**	VISTA
Facility City:		**GIS Facility ZipCode:**	92083
Facility ZipCode:		**GIS Fac Latitude:**	33.2167781
Facility Latitude:		**GIS Fac Longitude:**	-117.2552579
Facility Longitude:			
Facility Address:			
GIS Facility Name:	GT AUTOBODY SHOP		
GIS Facility Address:	1330 N MELROSE DR, VISTA, CA 92083		

HMD Permits REST Data

GIS Facility ID:		**Status:**	
GIS CERS ID:		**ER Contact:**	760-809-5176
GIS Record Type:	LUEG-DEH/HMD/UPFP/Facility	**ER Con Work Ph:**	760-414-9222
Per Type:		**Census Tract:**	194.04
Per Sub Type:		**Parcel Zip:**	92083
Per Cat:		**Community:**	Vista
Record Status:	Permit Suspended	**Jurisdiction:**	VISTA
HW Tier:		**Basin No:**	904.22
LRG QTY MW Gener:		**BOS Dist:**	5
EPA ID No:		**Tbpg Grid:**	1087 F 4
RMP CAL ARP:		**Insp Dist:**	HN003
Tank Owner:		**Feature ID:**	1610711600
SIC Code:		**X Coord:**	6254224.529
NAICS Code:		**Y Coord:**	2023918.605
Disclose Qty Haz Mat:	Yes	**Kiva Per Typ:**	HK07 214183
Exp Date:		**Agency Name:**	COSD
Own/Operate USTs :		**Point X:**	6254224.52915697
UST Facility:		**Point Y:**	2023918.60503373
Total No USTs:		**Lat GS84:**	33.2167781
No of Tanks:		**Lon GS84:**	-117.2552579
Own Oper APS:	N	**Loc Name:**	
Tot APSA Cap:	0	**Score:**	
Capacity LR:		**Match Type:**	
Haz Waste G:	Yes	**Side:**	
Recycle100:		**X Map Coord:**	
Onsite Haz Waste Tre:		**Y Map Coord:**	
RCRA LRG Qty:		**User Fld:**	
Haz Wst Coll Site:		**Addr Type:**	
Accept Offs:		**ARC Address:**	
Universal Waste Han:		**ARC City:**	
Toxic Gas:		**ARC Zipcode:**	
Hazmat EHS:		**ARC State:**	
Hazmat Rad:		**ARC APN:**	
Haz Waste Rad:	No	**Zip:**	
Haz Waste EHS:	No	**Farm Nursery:**	
Full Name:	VICTOR GUTIERREZ	**Indian or Territory:**	
Email Perm:		**County ID:**	
Phone Perm:	760-414-9222	**Bill Code 2:**	
Site Address:		**Bill Code 3:**	
Parcel No:	161-071-16-00	**Univ Waste Gen Type:**	
Record Ali:	Unified Program Facility Permit		
Address:	1330 N MELROSE DR		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Business Type: Auto/Truck Body Repair
Bill Code:
ER Con Name: VICTOR GUTIERREZ
ER Con Title: OWNER
Water Purv: CWA VISTA IRRIGATION
Fire Agency: VISTA
Geo SRC: Mapped to record APN/parcel center XY
Match Addr:

12	2 of 11	S	0.15 / 801.68	455.63 / 17	PERFORMANCE AUTO BODY 1330 N MELROSE AVE, VISTA, CA 92083 VISTA CA 92083	SANDIEGO HAZ

Record ID: DEH2002-HUPFP-136512
Facility Name:
Facility City:
Facility ZipCode:
Facility Latitude:
Facility Longitude:
Facility Address:
GIS Facility Name: PERFORMANCE AUTO BODY
GIS Facility Address: 1330 N MELROSE AVE, VISTA, CA 92083

GIS Record ID: DEH2002-HUPFP-136512
GIS Facility City: VISTA
GIS Facility ZipCode: 92083
GIS Fac Latitude: 33.1836913
GIS Fac Longitude: -117.2606726

HMD Permits REST Data

GIS Facility ID:
GIS CERS ID:
GIS Record Type: LUEG-DEH/HMD/UPFP/Facility
Per Type:
Per Sub Type:
Per Cat:
Record Status: Completed
HW Tier:
LRG QTY MW Gener:
EPA ID No:
RMP CAL ARP:
Tank Owner:
SIC Code:
NAICS Code:
Disclose Qty Haz Mat:
Exp Date:
Own/Operate USTs :
UST Facility:
Total No USTs:
No of Tanks:
Own Oper APS: N
Tot APSA Cap: 0
Capacity LR:
Haz Waste G:
Recycle100:
Onsite Haz Waste Tre:
RCRA LRG Qty:
Haz Wst Coll Site:
Accept Offs:
Universal Waste Han:
Toxic Gas:
Hazmat EHS:
Hazmat Rad:
Haz Waste Rad:
Haz Waste EHS:
Full Name: PERFORMANCE AUTO BODY
Email Perm:
Phone Perm:
Site Address:
Parcel No: 166-182-11-00
Record Ali: Unified Program Facility Permit

Status:
ER Contact:
ER Con Work Ph:
Census Tract: 197.01
Parcel Zip: 92081
Community: Vista
Jurisdiction: UNINCORPORATED
Basin No: 904.31
BOS Dist: 5
Tbpg Grid: 1107 F 2
Insp Dist:
Feature ID: 1661821100
X Coord: 6252451.809
Y Coord: 2011995.845
Kiva Per Typ: HK07 136512
Agency Name: COSD
Point X: 6252451.80894914
Point Y: 2011995.84508665
Lat GS84: 33.1836913
Lon GS84: -117.2606726
Loc Name:
Score:
Match Type:
Side:
X Map Coord:
Y Map Coord:
User Fld:
Addr Type:
ARC Address:
ARC City:
ARC Zipcode:
ARC State:
ARC APN:
Zip:
Farm Nursery:
Indian or Territory:
County ID:
Bill Code 2:
Bill Code 3:
Univ Waste Gen Type:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Address:	1330 N MELROSE AVE
Business Type:	
Bill Code:	
ER Con Name:	
ER Con Title:	
Water Purv:	CWA VISTA IRRIGATION
Fire Agency:	VISTA FIRE PROT DIST
Geo SRC:	Mapped to record APN/parcel center XY
Match Addr:	

12	3 of 11	S	0.15 / 801.68	455.63 / 17	**FALLBROOK SOAP AND CHEMICAL** **1330 N MELROSE DR, VISTA, CA 92083** **CA 92083**	**SANDIEGO HAZ**

Record ID:	DEH2002-HUPFP-134496	**GIS Record ID:**	DEH2002-HUPFP-134496
Facility Name:		**GIS Facility City:**	
Facility City:		**GIS Facility ZipCode:**	92083
Facility ZipCode:		**GIS Fac Latitude:**	
Facility Latitude:		**GIS Fac Longitude:**	
Facility Longitude:			
Facility Address:			
GIS Facility Name:	FALLBROOK SOAP AND CHEMICAL		
GIS Facility Address:	1330 N MELROSE DR, VISTA, CA 92083		

HMD Permits REST Data

GIS Facility ID:		**Status:**	
GIS CERS ID:		**ER Contact:**	
GIS Record Type:	LUEG-DEH/HMD/UPFP/Facility	**ER Con Work Ph:**	
Per Type:		**Census Tract:**	
Per Sub Type:		**Parcel Zip:**	
Per Cat:		**Community:**	
Record Status:	Completed	**Jurisdiction:**	
HW TIer:		**Basin No:**	
LRG QTY MW Gener:		**BOS Dist:**	
EPA ID No:		**Tbpg Grid:**	
RMP CAL ARP:		**Insp Dist:**	
Tank Owner:		**Feature ID:**	
SIC Code:		**X Coord:**	
NAICS Code:		**Y Coord:**	
Disclose Qty Haz Mat:		**Kiva Per Typ:**	HK07 134496
Exp Date:		**Agency Name:**	COSD
Own/Operate USTs :		**Point X:**	6253829.43414664
UST Facility:		**Point Y:**	2024164.3158284
Total No USTs:		**Lat GS84:**	
No of Tanks:		**Lon GS84:**	
Own Oper APS:	N	**Loc Name:**	
Tot APSA Cap:	0	**Score:**	
Capacity LR:		**Match Type:**	
Haz Waste G:		**Side:**	
Recycle100:		**X Map Coord:**	
Onsite Haz Waste Tre:		**Y Map Coord:**	
RCRA LRG Qty:		**User Fld:**	
Haz Wst Coll Site:		**Addr Type:**	
Accept Offs:		**ARC Address:**	
Universal Waste Han:		**ARC City:**	
Toxic Gas:		**ARC Zipcode:**	
Hazmat EHS:		**ARC State:**	
Hazmat Rad:		**ARC APN:**	
Haz Waste Rad:		**Zip:**	
Haz Waste EHS:		**Farm Nursery:**	
Full Name:	STEVE M SELF	**Indian or Territory:**	
Email Perm:		**County ID:**	
Phone Perm:	619-631-3690	**Bill Code 2:**	
Site Address:		**Bill Code 3:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Parcel No:	161-071-17-00	**Univ Waste Gen Type:**	
Record Ali:	Unified Program Facility Permit		
Address:	1330 N MELROSE DR		
Business Type:	Chemical/Gas/Paint Manufacturers		
Bill Code:			
ER Con Name:			
ER Con Title:			
Water Purv:			
Fire Agency:			
Geo SRC:	Mapped to record address		
Match Addr:			

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
12	4 of 11	S	0.15 / 801.68	455.63 / 17	PERFORMANCE AUTO BODY 1330 N MELROSE DR, VISTA, CA 92083 VISTA CA 92083	SANDIEGO HAZ

Record ID:	DEH2002-HUPFP-129156	**GIS Record ID:**	DEH2002-HUPFP-129156
Facility Name:		**GIS Facility City:**	VISTA
Facility City:		**GIS Facility ZipCode:**	92083
Facility ZipCode:		**GIS Fac Latitude:**	33.2177267
Facility Latitude:		**GIS Fac Longitude:**	-117.2556576
Facility Longitude:			
Facility Address:			
GIS Facility Name:	PERFORMANCE AUTO BODY		
GIS Facility Address:	1330 N MELROSE DR, VISTA, CA 92083		

HMD Permits REST Data

GIS Facility ID:		**Status:**	
GIS CERS ID:		**ER Contact:**	760-231-8995
GIS Record Type:	LUEG-DEH/HMD/UPFP/Facility	**ER Con Work Ph:**	726-6300
Per Type:		**Census Tract:**	194.04
Per Sub Type:		**Parcel Zip:**	92083
Per Cat:		**Community:**	Vista
Record Status:	Completed	**Jurisdiction:**	VISTA
HW Tier:		**Basin No:**	904.22
LRG QTY MW Gener:		**BOS Dist:**	5
EPA ID No:	CAL000175013	**Tbpg Grid:**	1087 F 4
RMP CAL ARP:		**Insp Dist:**	
Tank Owner:		**Feature ID:**	1610712000
SIC Code:		**X Coord:**	6254105.169
NAICS Code:		**Y Coord:**	2024330.633
Disclose Qty Haz Mat:	Yes	**Kiva Per Typ:**	HK07 129156
Exp Date:		**Agency Name:**	COSD
Own/Operate USTs :		**Point X:**	6254105.16915947
UST Facility:		**Point Y:**	2024330.63308106
Total No USTs:		**Lat GS84:**	33.2177267
No of Tanks:		**Lon GS84:**	-117.2556576
Own Oper APS:	N	**Loc Name:**	
Tot APSA Cap:	0	**Score:**	
Capacity LR:		**Match Type:**	
Haz Waste G:	Yes	**Side:**	
Recycle100:		**X Map Coord:**	
Onsite Haz Waste Tre:		**Y Map Coord:**	
RCRA LRG Qty:		**User Fld:**	
Haz Wst Coll Site:		**Addr Type:**	
Accept Offs:		**ARC Address:**	
Universal Waste Han:		**ARC City:**	
Toxic Gas:		**ARC Zipcode:**	
Hazmat EHS:	No	**ARC State:**	
Hazmat Rad:		**ARC APN:**	
Haz Waste Rad:		**Zip:**	
Haz Waste EHS:		**Farm Nursery:**	
Full Name:	DENNIS REINDL	**Indian or Territory:**	
Email Perm:		**County ID:**	
Phone Perm:	760-726-6300	**Bill Code 2:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Site Address:
Parcel No: 161-071-20-00
Record Ali: Unified Program Facility Permit
Address: 1330 N MELROSE DR
Business Type: Auto/Truck Body Repair
Bill Code:
ER Con Name: ROBERT W WALKER
ER Con Title: OWNER
Water Purv: CWA VISTA IRRIGATION
Fire Agency: VISTA
Geo SRC: Mapped to record APN/parcel center XY
Match Addr:
Bill Code 3:
Univ Waste Gen Type:

12	5 of 11	S	0.15 / 801.68	455.63 / 17	MERIDIAN LAB INC 1330 N MELROSE DR E VISTA CA 92083	SANDIEGO HAZ

Record ID: DEH2002-HUPFP-126069
Facility Name: MERIDIAN LAB INC
Facility City: VISTA
Facility ZipCode: 92083
Facility Latitude:
Facility Longitude:
Facility Address: 1330 N MELROSE DR E
GIS Facility Name: MERIDIAN LAB INC
GIS Facility Address: 1330 N MELROSE DR E, VISTA, CA 92083
GIS Record ID: DEH2002-HUPFP-126069
GIS Facility City: VISTA
GIS Facility ZipCode: 92083
GIS Fac Latitude: 33.2177267
GIS Fac Longitude: -117.2556576

Hazardous Materials Facility Data

CERS ID: 10378669
Facility ID No: 37-000-126069
EPA ID No: CAL000072009
Active Permit:
Permit Status: Permit Renewed
Bus. Phone: 760-940-1444
Bus. Fax: 0.0
Last Updated: 04/15/2020 02:32:39 AM
Zip Codes:
New Georeferenced Column: (33.21857280296036, -117.25737698504648)
Mailing Address: 2415 PLEASANT VIEW RD, MIDDLETON, WI 53562
Onsite H Waste Trtmt: false
Haz Mat on Site: true
Haz Waste Generator: true
Own/Oper Under: false
Own/Oper Above: false
Recycle: false
RCRA Large Qty Gen: false
HHW Collection: false
Atoms:

Hazardous Waste and Materials

ID: 16554
Child Record ID: DEH2015-HWAST-0063758
CAS No:
Last Updated: 04/15/2020 02:32:39 AM
Chemical Name: WASTE 212 OXYGENATED SOLVENTS
Common Name Inventory: MEK FOR CLEANING SOLVENT
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type:
Trade Secret:

ID: 16553
Child Record ID: DEH2015-HWAST-0063756
CAS No:
Last Updated: 04/15/2020 02:32:39 AM
Chemical Name: WASTE 221 WASTE OIL & MIXED OIL
Common Name Inventory: OIL FRM MACH
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type:
Trade Secret:

Hazardous Materials Inspection Violations

Container Tank ID:
Facility ID No: 37-000-126069
ID: 8845
UST ID:
Permit Status: Permit Renewed
Active Permit: true
Inspection No: 4093357
Inspection Type: Routine
Inspection Date: 11/02/2015 09:34:00 AM
Compliance Date: 11/06/2015 12:00:00 AM
Last Updated: 04/15/2020 12:00:00 AM
NOV: false

Program Element: Hazardous Waste Generator
Violation Classification: Minor
Violation Code: 3010029 The facility has not submitted complete and accurate facility information in CERS. HSC 25404(e)(4); 27 CCR 15188(b)

HMD Permits REST Data

GIS Facility ID:	37-000-126069	**Status:**	
GIS CERS ID:	10378669	**ER Contact:**	
GIS Record Type:	LUEG-DEH/HMD/UPFP/Facility	**ER Con Work Ph:**	
Per Type:		**Census Tract:**	194.04
Per Sub Type:		**Parcel Zip:**	92083
Per Cat:		**Community:**	Vista
Record Status:	Permit Renewed	**Jurisdiction:**	VISTA
HW Tier:	Not Applicable	**Basin No:**	904.22
LRG QTY MW Gener:	No	**BOS Dist:**	5
EPA ID No:	CAL000072009	**Tbpg Grid:**	1087 F 4
RMP CAL ARP:	Not Applicable	**Insp Dist:**	HN022
Tank Owner:		**Feature ID:**	1610712000
SIC Code:	0000	**X Coord:**	6254105.169
NAICS Code:		**Y Coord:**	2024330.633
Disclose Qty Haz Mat:	Y	**Kiva Per Typ:**	HK07 126069
Exp Date:		**Agency Name:**	COSD
Own/Operate USTs :		**Point X:**	6254105.16915947
UST Facility:		**Point Y:**	2024330.63308106
Total No USTs:		**Lat GS84:**	33.2177267
No of Tanks:		**Lon GS84:**	-117.2556576
Own Oper APS:	N	**Loc Name:**	
Tot APSA Cap:	0	**Score:**	
Capacity LR:		**Match Type:**	
Haz Waste G:	Y	**Side:**	
Recycle100:	N	**X Map Coord:**	
Onsite Haz Waste Tre:	N	**Y Map Coord:**	
RCRA LRG Qty:	N	**User Fld:**	
Haz Wst Coll Site:	N	**Addr Type:**	
Accept Offs:	N	**ARC Address:**	
Universal Waste Han:	N	**ARC City:**	
Toxic Gas:		**ARC Zipcode:**	
Hazmat EHS:		**ARC State:**	
Hazmat Rad:		**ARC APN:**	
Haz Waste Rad:	N	**Zip:**	
Haz Waste EHS:	N	**Farm Nursery:**	
Full Name:	MELROSE BUSINESS CENTER L P	**Indian or Territory:**	
Email Perm:		**County ID:**	
Phone Perm:	(619) 440-7424	**Bill Code 2:**	
Site Address:	1330 N MELROSE DR	**Bill Code 3:**	
Parcel No:	161-071-20-00	**Univ Waste Gen Type:**	

Record Ali: Unified Program Facility Permit
Address: 1330 N MELROSE DR E
Business Type: Machine Shops/Metal Working Activities
Bill Code:
ER Con Name:
ER Con Title:
Water Purv: CWA VISTA IRRIGATION
Fire Agency: VISTA
Geo SRC: Mapped to record address
Match Addr:

12	6 of 11	S	0.15 / 801.68	455.63 / 17	TOM KENNEDY AUTO REPAIR 1330 N MELROSE DR, SUITE# D, VISTA, CA 92083 VISTA CA 92083	SANDIEGO HAZ

Record ID:	DEH2002-HUPFP-125237	**GIS Record ID:**	DEH2002-HUPFP-125237
Facility Name:		**GIS Facility City:**	VISTA
Facility City:		**GIS Facility ZipCode:**	92083
Facility ZipCode:		**GIS Fac Latitude:**	33.2167781

Facility Latitude: ***GIS Fac Longitude:*** -117.2552579
Facility Longitude:
Facility Address:
GIS Facility Name: TOM KENNEDY AUTO REPAIR
GIS Facility Address: 1330 N MELROSE DR, SUITE# D, VISTA, CA 92083

Hazardous Waste and Materials

ID: 16347 ***Permit Status:*** Permit Renewed
Child Record ID: DEH2017-HWAST-0107171 ***Active Permit:*** true
CAS No: ***Haz Material Type:***
Last Updated: 02/21/2018 02:31:20 AM ***Trade Secret:***
Chemical Name: WASTE 221 WASTE OIL & MIXED OIL
Common Name Inventory: USED OIL

Hazardous Materials Inspection Violations

Container Tank ID: ***Inspection No:*** 5541963
Facility ID No: 37-000-125237 ***Inspection Type:*** Routine
ID: 8704 ***Inspection Date:*** 12/29/2016 12:06:00 PM
UST ID: ***Compliance Date:*** 04/18/2017 12:00:00 AM
Permit Status: Permit Suspended ***Last Updated:*** 08/29/2019 12:00:00 AM
Active Permit: false ***NOV:*** false
Program Element: Hazardous Waste Generator
Violation Classification: Minor
Violation Code: 3030004 Failed to properly manage, store, label, and/or recycle used oil filters and/or used fuel filters. HSC 25250.22; 22 CCR 66266.130

Container Tank ID: ***Inspection No:*** 4095471
Facility ID No: 37-000-125237 ***Inspection Type:*** Routine
ID: 8705 ***Inspection Date:*** 11/05/2014 01:19:00 PM
UST ID: ***Compliance Date:*** 11/05/2014 12:00:00 AM
Permit Status: Permit Suspended ***Last Updated:*** 08/29/2019 12:00:00 AM
Active Permit: false ***NOV:*** false
Program Element: Hazardous Materials Release Response Plans
Violation Classification: Class II
Violation Code: 1010006 Failure to update hazardous material inventory within 30 days when one of the following occurs: A 100 percent or more increase in the quantity of a previously disclosed material; Any handling of a previously undisclosed hazardous materials; A change of business address, business ownership, or business name; HSC 6.95 25508.1(a)/(b)/(c)/(d)/(e).

HMD Permits REST Data

GIS Facility ID: 37-000-125237 ***Status:***
GIS CERS ID: 10378705 ***ER Contact:***
GIS Record Type: LUEG-DEH/HMD/UPFP/Facility ***ER Con Work Ph:***
Per Type: ***Census Tract:*** 194.04
Per Sub Type: ***Parcel Zip:*** 92083
Per Cat: ***Community:*** Vista
Record Status: Expired ***Jurisdiction:*** VISTA
HW Tier: Not Applicable ***Basin No:*** 904.22
LRG QTY MW Gener: No ***BOS Dist:*** 5
EPA ID No: CAL000058226 ***Tbpg Grid:*** 1087 F 4
RMP CAL ARP: Not Applicable ***Insp Dist:*** HN022
Tank Owner: ***Feature ID:*** 1610711600
SIC Code: 0000 ***X Coord:*** 6254224.529
NAICS Code: ***Y Coord:*** 2023918.605
Disclose Qty Haz Mat: Y ***Kiva Per Typ:*** HK07 125237
Exp Date: ***Agency Name:*** COSD
Own/Operate USTs : ***Point X:*** 6254224.52915697
UST Facility: ***Point Y:*** 2023918.60503373
Total No USTs: ***Lat GS84:*** 33.2167781
No of Tanks: ***Lon GS84:*** -117.2552579
Own Oper APS: N ***Loc Name:***
Tot APSA Cap: 0 ***Score:***
Capacity LR: ***Match Type:***

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Haz Waste G:	Y	**Side:**	
Recycle100:	N	**X Map Coord:**	
Onsite Haz Waste Tre:	N	**Y Map Coord:**	
RCRA LRG Qty:	N	**User Fld:**	
Haz Wst Coll Site:	N	**Addr Type:**	
Accept Offs:	N	**ARC Address:**	
Universal Waste Han:	N	**ARC City:**	
Toxic Gas:	No	**ARC Zipcode:**	
Hazmat EHS:		**ARC State:**	
Hazmat Rad:		**ARC APN:**	
Haz Waste Rad:	N	**Zip:**	
Haz Waste EHS:	N	**Farm Nursery:**	
Full Name:	TOM KENNEDY	**Indian or Territory:**	
Email Perm:		**County ID:**	
Phone Perm:	760-945-8283	**Bill Code 2:**	
Site Address:	1330 N Melrose Dr Ste D	**Bill Code 3:**	
Parcel No:	161-071-16-00	**Univ Waste Gen Type:**	

Record Ali: Unified Program Facility Permit
Address: 1330 N MELROSE DR, SUITE# D
Business Type: Auto Repair, General - Waste USTs Only
Bill Code:
ER Con Name:
ER Con Title:
Water Purv: CWA VISTA IRRIGATION
Fire Agency: VISTA
Geo SRC: Mapped to record address
Match Addr:

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EPA Handler ID: CAL000072009
Gen Status Universe: No Report
Contact Name: SVEN KRAUSE
Contact Address: 1330 N MELROSE DR STE E , , VISTA , CA, 92083 ,
Contact Phone No and Ext: 760-940-1444
Contact Email: SALES@MERIDIANLAB.COM
Contact Country:
County Name: SAN DIEGO
EPA Region: 09
Land Type:
Receive Date: 19921016

Violation/Evaluation Summary

Note: NO RECORDS: As of May 2020, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility:	No
Onsite Burner Exemption:	No
Furnace Exemption:	No
Underground Injection Activity:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Hazardous Waste Handler Details

Sequence No:	1
Receive Date:	19921016
Handler Name:	MERIDIAN LABORATORY INC
Source Type:	Implementer
Federal Waste Generator Code:	N
Generator Code Description:	Not a Generator, Verified

Owner/Operator Details

Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Other	***Street 1:***	2415 PLEASANT VIEW RD
Name:	MERIDIAN LABORATORY INC	***Street 2:***	
Date Became Current:		***City:***	MIDDLETON
Date Ended Current:		***State:***	WI
Phone:	608-836-7571	***Country:***	
Source Type:	Implementer	***Zip Code:***	53562
Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Other	***Street 1:***	1330 N MELROSE DR STE E
Name:	SVEN KRAUSE	***Street 2:***	
Date Became Current:		***City:***	VISTA
Date Ended Current:		***State:***	CA
Phone:	760-940-1444	***Country:***	
Source Type:	Implementer	***Zip Code:***	92083

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EPA Handler ID:	CAL000058226
Gen Status Universe:	No Report
Contact Name:	TOM KENNEDY
Contact Address:	1330 N MELROSE DR STE D , , VISTA , CA, 92083 ,
Contact Phone No and Ext:	760-945-8283
Contact Email:	KENNEDYAUTOREPAIR@SBCGLOBAL.NET
Contact Country:	
County Name:	SAN DIEGO
EPA Region:	09
Land Type:	
Receive Date:	19920310

Violation/Evaluation Summary

Note:	NO RECORDS: As of May 2020, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility:	No
Onsite Burner Exemption:	No
Furnace Exemption:	No
Underground Injection Activity:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No

Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 19920310
Handler Name: TOM KENNEDY AUTO REPAIR
Source Type: Implementer
Federal Waste Generator Code: N
Generator Code Description: Not a Generator, Verified

Owner/Operator Details

Owner/Operator Ind: Current Owner
Type: Other
Name: TOM KENNEDY
Date Became Current:
Date Ended Current:
Phone: 760-945-8283
Source Type: Implementer
Street No:
Street 1: 1330 N MELROSE DR STE D
Street 2:
City: VISTA
State: CA
Country:
Zip Code: 92083-2921

Owner/Operator Ind: Current Operator
Type: Other
Name: TOM KENNEDY
Date Became Current:
Date Ended Current:
Phone: 760-945-8283
Source Type: Implementer
Street No:
Street 1: 1330 N MELROSE DR STE D
Street 2:
City: VISTA
State: CA
Country:
Zip Code: 92083

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EPA Handler ID: CAL000391541
Gen Status Universe: No Report
Contact Name: ANTHONY CROSSMAN JR
Contact Address: 1148 N MELROSE DR STE A , , VISTA , CA, 92083 ,
Contact Phone No and Ext: 760-908-3381
Contact Email: TJ@TJCROSSMANSAUTOREPAIR.COM
Contact Country:
County Name: SAN DIEGO
EPA Region: 09
Land Type:
Receive Date: 20131122

Violation/Evaluation Summary

Note: NO RECORDS: As of May 2020, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No

Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No

Hazardous Waste Handler Details

Sequence No:	1
Receive Date:	20131122
Handler Name:	TJ CROSSMANS AUTO REPAIR INC
Source Type:	Implementer
Federal Waste Generator Code:	N
Generator Code Description:	Not a Generator, Verified

Owner/Operator Details

Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Other	***Street 1:***	1148 N MELROSE DR STE A
Name:	ANTHONY CROSSMAN JR	***Street 2:***	
Date Became Current:		***City:***	VISTA
Date Ended Current:		***State:***	CA
Phone:	760-908-3381	***Country:***	
Source Type:	Implementer	***Zip Code:***	92083

Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Other	***Street 1:***	1148 N MELROSE DR STE A
Name:	ANTHONY CROSSMAN	***Street 2:***	
Date Became Current:		***City:***	VISTA
Date Ended Current:		***State:***	CA
Phone:	760-908-3381	***Country:***	
Source Type:	Implementer	***Zip Code:***	92083

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EPA Handler ID:	CAL000409740
Gen Status Universe:	No Report
Contact Name:	JESS ARCHER
Contact Address:	43166 SERENO DR , , TEMECULA , CA, 92592 ,
Contact Phone No and Ext:	760-687-5508
Contact Email:	JESSARCHER48@GMAIL.COM
Contact Country:	
County Name:	SAN DIEGO
EPA Region:	09
Land Type:	
Receive Date:	20150828

Violation/Evaluation Summary

Note:	NO RECORDS: As of May 2020, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility:	No

Onsite Burner Exemption:	No
Furnace Exemption:	No
Underground Injection Activity:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No

Hazardous Waste Handler Details

Sequence No:	1
Receive Date:	20150828
Handler Name:	ARCHER EXCLUSIVE AUTO SERVICE LLC
Source Type:	Implementer
Federal Waste Generator Code:	N
Generator Code Description:	Not a Generator, Verified

Owner/Operator Details

Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Other	***Street 1:***	43166 SERENO DR
Name:	ARCHER EXCLUSIVE AUTO SERVICE LLC	***Street 2:***	
Date Became Current:		***City:***	TEMECULA
Date Ended Current:		***State:***	CA
Phone:	760-687-5508	***Country:***	
Source Type:	Implementer	***Zip Code:***	92592

Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Other	***Street 1:***	43166 SERENO DR
Name:	JESS ARCHER	***Street 2:***	
Date Became Current:		***City:***	TEMECULA
Date Ended Current:		***State:***	CA
Phone:	760-687-5508	***Country:***	
Source Type:	Implementer	***Zip Code:***	92592

12	***11 of 11***	***S***	***0.15 / 801.68***	***455.63 / 17***	***ROUGH ROAD AUTOMOTIVE INC 1330 N MELROSE DR STE C VISTA CA 92083***	***RCRA NON GEN***

EPA Handler ID:	CAL000448265
Gen Status Universe:	No Report
Contact Name:	KEVIN TAGHARCHI
Contact Address:	1330 N MELROSE DR STE C , , VISTA , CA, 92083 ,
Contact Phone No and Ext:	760-213-8101
Contact Email:	ROUGHROADAUTOMOTIVE@GMAIL.COM
Contact Country:	
County Name:	SAN DIEGO
EPA Region:	09
Land Type:	
Receive Date:	20190820

Violation/Evaluation Summary

Note:	NO RECORDS: As of May 2020, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No

Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility:	No
Onsite Burner Exemption:	No
Furnace Exemption:	No
Underground Injection Activity:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No

Hazardous Waste Handler Details

Sequence No:	1
Receive Date:	20190820
Handler Name:	ROUGH ROAD AUTOMOTIVE INC
Source Type:	Implementer
Federal Waste Generator Code:	N
Generator Code Description:	Not a Generator, Verified

Owner/Operator Details

Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Other	***Street 1:***	1330 N MELROSE DR STE C
Name:	KEVIN TAGHARCHI	***Street 2:***	
Date Became Current:		***City:***	VISTA
Date Ended Current:		***State:***	CA
Phone:	760-213-8101	***Country:***	
Source Type:	Implementer	***Zip Code:***	92083
Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Other	***Street 1:***	3603 NAPA CT
Name:	SHAYAN JAVAHERIAN	***Street 2:***	
Date Became Current:		***City:***	OCEANSIDE
Date Ended Current:		***State:***	CA
Phone:	760-214-8101	***Country:***	
Source Type:	Implementer	***Zip Code:***	92056

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Record ID:	DEH2014-HUPFP-000354	***GIS Record ID:***	DEH2014-HUPFP-000354
Facility Name:		***GIS Facility City:***	
Facility City:		***GIS Facility ZipCode:***	92083
Facility ZipCode:		***GIS Fac Latitude:***	
Facility Latitude:		***GIS Fac Longitude:***	
Facility Longitude:			
Facility Address:			
GIS Facility Name:	CALIFORNIA ENVIRONMENTAL SOLUTIONS, INC		
GIS Facility Address:	1338 N MELROSE DR, SUITE# D, VISTA, CA 92083		

Hazardous Waste and Materials

ID:	63339	***Permit Status:***	Permit Renewed
Child Record ID:	DEH2016-HWAST-0077431	***Active Permit:***	true
CAS No:		***Haz Material Type:***	
Last Updated:	04/29/2016 02:30:38 AM	***Trade Secret:***	
Chemical Name:	DIESEL EXHAUST ASH WITH WATER		

Common Name Inventory: DIESEL EXHAUST ASH

ID: 106966
Child Record ID: DEH2017-HWAST-0127872
CAS No:
Last Updated: 08/08/2017 02:37:36 AM
Chemical Name: DIESEL EXHAUST ASH WITH WATER
Common Name Inventory: DIESEL EXHAUST ASH
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type:
Trade Secret:

Hazardous Materials Inspection Violations

Container Tank ID:
Facility ID No: 37-000-000354
ID: 37101
UST ID:
Permit Status: Expired
Active Permit: false
Program Element: Hazardous Materials Release Response Plans
Violation Classification: Class II
Violation Code: 1010004 Chemical inventory incomplete or not submitted in CERS. HSC 25505(a)(1); 25507(a); 25508(a)(1)(A); 25508.1(a-b); 19 CCR 2654 (a) or (d)
Inspection No: 5722580
Inspection Type: Routine
Inspection Date: 08/08/2017 03:47:00 PM
Compliance Date: 08/08/2017 12:00:00 AM
Last Updated: 07/30/2020 01:43:03 AM
NOV: false

Container Tank ID:
Facility ID No: 37-000-000354
ID: 37099
UST ID:
Permit Status: Expired
Active Permit: false
Program Element: Hazardous Waste Generator
Violation Classification: Class II
Violation Code: 3030005 Failed to make a proper waste determination. 22 CCR 66262.11, 66262.40(c)
Inspection No: 5722580
Inspection Type: Routine
Inspection Date: 08/08/2017 03:47:00 PM
Compliance Date: 08/17/2017 12:00:00 AM
Last Updated: 07/30/2020 01:43:03 AM
NOV: false

Container Tank ID:
Facility ID No: 37-000-000354
ID: 37100
UST ID:
Permit Status: Expired
Active Permit: false
Program Element: Hazardous Waste Generator
Violation Classification: Minor
Violation Code: 3030007 Failed to properly label/date hazardous waste container &/or tank. 22 CCR 66262.34(f)
Inspection No: 5722580
Inspection Type: Routine
Inspection Date: 08/08/2017 03:47:00 PM
Compliance Date: 08/08/2017 12:00:00 AM
Last Updated: 07/30/2020 01:43:03 AM
NOV: false

Container Tank ID:
Facility ID No: 37-000-000354
ID: 37102
UST ID:
Permit Status: Expired
Active Permit: false
Program Element: Hazardous Materials Release Response Plans
Violation Classification: Minor
Violation Code: 1020002 Initial &/or annual employee training not conducted for hazardous materials management &/or employee training records not available or not maintained for 3 years. HSC 25505(a)(4); 19 CCR 2659(b)
Inspection No: 5722580
Inspection Type: Routine
Inspection Date: 08/08/2017 03:47:00 PM
Compliance Date: 08/30/2017 12:00:00 AM
Last Updated: 07/30/2020 01:43:03 AM
NOV: false

HMD Permits REST Data

GIS Facility ID: 37-000-000354
GIS CERS ID: 10402822
GIS Record Type: LUEG-DEH/HMD/UPFP/Facility
Per Type:
Per Sub Type:
Per Cat:
Record Status: Permit Renewed
HW Tier: Not Applicable
LRG QTY MW Gener: No
EPA ID No: CAL000381463
RMP CAL ARP: Not Applicable
Tank Owner:
Status:
ER Contact:
ER Con Work Ph:
Census Tract:
Parcel Zip:
Community:
Jurisdiction:
Basin No:
BOS Dist:
Tbpg Grid:
Insp Dist: HN022
Feature ID:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

SIC Code:	7538	**X Coord:**	
NAICS Code:	3339	**Y Coord:**	
Disclose Qty Haz Mat:	Y	**Kiva Per Typ:**	
Exp Date:		**Agency Name:**	COSD
Own/Operate USTs :		**Point X:**	6253725.11348914
UST Facility:		**Point Y:**	2024373.87380823
Total No USTs:		**Lat GS84:**	
No of Tanks:		**Lon GS84:**	
Own Oper APS:	N	**Loc Name:**	
Tot APSA Cap:	0	**Score:**	
Capacity LR:		**Match Type:**	
Haz Waste G:	Y	**Side:**	
Recycle100:	N	**X Map Coord:**	
Onsite Haz Waste Tre:	N	**Y Map Coord:**	
RCRA LRG Qty:	N	**User Fld:**	
Haz Wst Coll Site:	N	**Addr Type:**	
Accept Offs:	N	**ARC Address:**	
Universal Waste Han:	N	**ARC City:**	
Toxic Gas:		**ARC Zipcode:**	
Hazmat EHS:	N	**ARC State:**	
Hazmat Rad:	No	**ARC APN:**	
Haz Waste Rad:	N	**Zip:**	
Haz Waste EHS:	N	**Farm Nursery:**	
Full Name:	Britt L Beal SR	**Indian or Territory:**	
Email Perm:		**County ID:**	
Phone Perm:	858-414-2166	**Bill Code 2:**	
Site Address:	1338 N Melrose Dr Ste D	**Bill Code 3:**	
Parcel No:		**Univ Waste Gen Type:**	

Record Ali:	Unified Program Facility Permit
Address:	1338 N MELROSE DR, SUITE# D
Business Type:	Auto Exhaust System Repair Shops
Bill Code:	
ER Con Name:	
ER Con Title:	
Water Purv:	
Fire Agency:	
Geo SRC:	Mapped to record APN/parcel center XY
Match Addr:	

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Record ID:	DEH2002-HUPFP-123525	**GIS Record ID:**	DEH2002-HUPFP-123525
Facility Name:		**GIS Facility City:**	
Facility City:		**GIS Facility ZipCode:**	92083
Facility ZipCode:		**GIS Fac Latitude:**	
Facility Latitude:		**GIS Fac Longitude:**	
Facility Longitude:			
Facility Address:			
GIS Facility Name:	TKO PRODUCTS INC		
GIS Facility Address:	1338 N MELROSE DR, VISTA, CA 92083		

HMD Permits REST Data

GIS Facility ID:		**Status:**	
GIS CERS ID:		**ER Contact:**	
GIS Record Type:	LUEG-DEH/HMD/UPFP/Facility	**ER Con Work Ph:**	
Per Type:		**Census Tract:**	
Per Sub Type:		**Parcel Zip:**	
Per Cat:		**Community:**	
Record Status:	Completed	**Jurisdiction:**	
HW Tier:		**Basin No:**	
LRG QTY MW Gener:		**BOS Dist:**	
EPA ID No:		**Tbpg Grid:**	
RMP CAL ARP:		**Insp Dist:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Tank Owner:		**Feature ID:**	
SIC Code:	8900	**X Coord:**	
NAICS Code:		**Y Coord:**	
Disclose Qty Haz Mat:		**Kiva Per Typ:**	HK07 123525
Exp Date:		**Agency Name:**	COSD
Own/Operate USTs :		**Point X:**	6253725.11348914
UST Facility:		**Point Y:**	2024373.87380823
Total No USTs:		**Lat GS84:**	
No of Tanks:		**Lon GS84:**	
Own Oper APS:	N	**Loc Name:**	
Tot APSA Cap:	0	**Score:**	
Capacity LR:		**Match Type:**	
Haz Waste G:		**Side:**	
Recycle100:		**X Map Coord:**	
Onsite Haz Waste Tre:		**Y Map Coord:**	
RCRA LRG Qty:		**User Fld:**	
Haz Wst Coll Site:		**Addr Type:**	
Accept Offs:		**ARC Address:**	
Universal Waste Han:		**ARC City:**	
Toxic Gas:		**ARC Zipcode:**	
Hazmat EHS:		**ARC State:**	
Hazmat Rad:		**ARC APN:**	
Haz Waste Rad:		**Zip:**	
Haz Waste EHS:		**Farm Nursery:**	
Full Name:	KENNETH ROTH	**Indian or Territory:**	
Email Perm:		**County ID:**	
Phone Perm:	619-726-6640	**Bill Code 2:**	
Site Address:		**Bill Code 3:**	
Parcel No:	161-071-17-00	**Univ Waste Gen Type:**	
Record Ali:	Unified Program Facility Permit		
Address:	1338 N MELROSE DR		
Business Type:			
Bill Code:			
ER Con Name:			
ER Con Title:			
Water Purv:			
Fire Agency:			
Geo SRC:	Mapped to record address		
Match Addr:			

13	3 of 5	S	0.16 / 838.03	464.21 / 26	**BAZOOKA RACING** **1338 N MELROSE DR, VISTA, CA 92083** **CA 92083**	**SANDIEGO HAZ**

Record ID:	DEH2002-HUPFP-134443	**GIS Record ID:**	DEH2002-HUPFP-134443
Facility Name:		**GIS Facility City:**	
Facility City:		**GIS Facility ZipCode:**	92083
Facility ZipCode:		**GIS Fac Latitude:**	
Facility Latitude:		**GIS Fac Longitude:**	
Facility Longitude:			
Facility Address:			
GIS Facility Name:	BAZOOKA RACING		
GIS Facility Address:	1338 N MELROSE DR, VISTA, CA 92083		

HMD Permits REST Data

GIS Facility ID:		**Status:**	
GIS CERS ID:		**ER Contact:**	760-634-0485
GIS Record Type:	LUEG-DEH/HMD/UPFP/Facility	**ER Con Work Ph:**	732-3638
Per Type:		**Census Tract:**	
Per Sub Type:		**Parcel Zip:**	
Per Cat:		**Community:**	
Record Status:	Completed	**Jurisdiction:**	
HW Tier:		**Basin No:**	
LRG QTY MW Gener:		**BOS Dist:**	
EPA ID No:		**Tbpg Grid:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

RMP CAL ARP:		**Insp Dist:**	
Tank Owner:		**Feature ID:**	
SIC Code:		**X Coord:**	
NAICS Code:		**Y Coord:**	
Disclose Qty Haz Mat:		**Kiva Per Typ:**	HK07 134443
Exp Date:		**Agency Name:**	COSD
Own/Operate USTs :		**Point X:**	6253725.11348914
UST Facility:		**Point Y:**	2024373.87380823
Total No USTs:		**Lat GS84:**	
No of Tanks:		**Lon GS84:**	
Own Oper APS:	N	**Loc Name:**	
Tot APSA Cap:	0	**Score:**	
Capacity LR:		**Match Type:**	
Haz Waste G:	Yes	**Side:**	
Recycle100:		**X Map Coord:**	
Onsite Haz Waste Tre:		**Y Map Coord:**	
RCRA LRG Qty:		**User Fld:**	
Haz Wst Coll Site:		**Addr Type:**	
Accept Offs:		**ARC Address:**	
Universal Waste Han:		**ARC City:**	
Toxic Gas:		**ARC Zipcode:**	
Hazmat EHS:		**ARC State:**	
Hazmat Rad:		**ARC APN:**	
Haz Waste Rad:		**Zip:**	
Haz Waste EHS:		**Farm Nursery:**	
Full Name:	AMIR ARNERI	**Indian or Territory:**	
Email Perm:		**County ID:**	
Phone Perm:	619-732-3638	**Bill Code 2:**	
Site Address:		**Bill Code 3:**	
Parcel No:	161-071-17-00	**Univ Waste Gen Type:**	

Record Ali: Unified Program Facility Permit
Address: 1338 N MELROSE DR
Business Type: Auto Repair, General - Waste USTs Only
Bill Code:
ER Con Name: AMIR AVNERI
ER Con Title: OWNER
Water Purv:
Fire Agency:
Geo SRC: Mapped to record address
Match Addr:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
13	4 of 5	S	0.16 / 838.03	464.21 / 26	VISTA MASTER CARBURETORS 1338 N MELROSE DR, VISTA, CA 92083 CA 92083	SANDIEGO HAZ

Record ID:	DEH2002-HUPFP-135096	**GIS Record ID:**	DEH2002-HUPFP-135096
Facility Name:		**GIS Facility City:**	
Facility City:		**GIS Facility ZipCode:**	92083
Facility ZipCode:		**GIS Fac Latitude:**	
Facility Latitude:		**GIS Fac Longitude:**	
Facility Longitude:			
Facility Address:			

GIS Facility Name: VISTA MASTER CARBURETORS
GIS Facility Address: 1338 N MELROSE DR, VISTA, CA 92083

HMD Permits REST Data

GIS Facility ID:		**Status:**	
GIS CERS ID:		**ER Contact:**	
GIS Record Type:	LUEG-DEH/HMD/UPFP/Facility	**ER Con Work Ph:**	
Per Type:		**Census Tract:**	
Per Sub Type:		**Parcel Zip:**	
Per Cat:		**Community:**	
Record Status:	Completed	**Jurisdiction:**	
HW Tier:		**Basin No:**	
LRG QTY MW Gener:		**BOS Dist:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

EPA ID No:		**Tbpg Grid:**	
RMP CAL ARP:		**Insp Dist:**	
Tank Owner:		**Feature ID:**	
SIC Code:		**X Coord:**	
NAICS Code:		**Y Coord:**	
Disclose Qty Haz Mat:		**Kiva Per Typ:**	HK07 135096
Exp Date:		**Agency Name:**	COSD
Own/Operate USTs :		**Point X:**	6253725.11348914
UST Facility:		**Point Y:**	2024373.87380823
Total No USTs:		**Lat GS84:**	
No of Tanks:		**Lon GS84:**	
Own Oper APS:	N	**Loc Name:**	
Tot APSA Cap:	0	**Score:**	
Capacity LR:		**Match Type:**	
Haz Waste G:	Yes	**Side:**	
Recycle100:		**X Map Coord:**	
Onsite Haz Waste Tre:		**Y Map Coord:**	
RCRA LRG Qty:		**User Fld:**	
Haz Wst Coll Site:		**Addr Type:**	
Accept Offs:		**ARC Address:**	
Universal Waste Han:		**ARC City:**	
Toxic Gas:		**ARC Zipcode:**	
Hazmat EHS:		**ARC State:**	
Hazmat Rad:		**ARC APN:**	
Haz Waste Rad:		**Zip:**	
Haz Waste EHS:		**Farm Nursery:**	
Full Name:	VISTA MASTER CARBURETORS	**Indian or Territory:**	
Email Perm:		**County ID:**	
Phone Perm:		**Bill Code 2:**	
Site Address:		**Bill Code 3:**	
Parcel No:	161-071-17-00	**Univ Waste Gen Type:**	

Record Ali:	Unified Program Facility Permit
Address:	1338 N MELROSE DR
Business Type:	Auto Repair, General - Waste USTs Only
Bill Code:	
ER Con Name:	
ER Con Title:	
Water Purv:	
Fire Agency:	
Geo SRC:	Mapped to record address
Match Addr:	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
13	5 of 5	S	0.16 / 838.03	464.21 / 26	CALIFORNIA ENVIRONMENTAL SOLUTIONS 1338 N MELROSE DR STE D VISTA CA 92083-2923	RCRA NON GEN

EPA Handler ID:	CAL000381463
Gen Status Universe:	No Report
Contact Name:	BRITT BEAL SR
Contact Address:	1125 OCEAN RIDGE CT , , OCEANSIDE , CA, 92056 ,
Contact Phone No and Ext:	858-414-2166
Contact Email:	BB@CALIFORNIAENVIRONMENTALSOLUTIONS.COM
Contact Country:	
County Name:	SAN DIEGO
EPA Region:	09
Land Type:	
Receive Date:	20130109

Violation/Evaluation Summary

Note:	NO RECORDS: As of May 2020, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility:	No
Onsite Burner Exemption:	No
Furnace Exemption:	No
Underground Injection Activity:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No

Hazardous Waste Handler Details

Sequence No:	1
Receive Date:	20130109
Handler Name:	CALIFORNIA ENVIRONMENTAL SOLUTIONS
Source Type:	Implementer
Federal Waste Generator Code:	N
Generator Code Description:	Not a Generator, Verified

Owner/Operator Details

Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Other	***Street 1:***	1125 OCEAN RIDGE CT
Name:	BRITT BEAL SR	***Street 2:***	
Date Became Current:		***City:***	OCEANSIDE
Date Ended Current:		***State:***	CA
Phone:	858-414-2166	***Country:***	
Source Type:	Implementer	***Zip Code:***	92056
Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Other	***Street 1:***	1125 OCEAN RIDGE CT
Name:	CALIFORNIA ENVIRONMENTAL SOLUTIONS	***Street 2:***	
Date Became Current:		***City:***	OCEANSIDE
Date Ended Current:		***State:***	CA
Phone:	858-414-2166	***Country:***	
Source Type:	Implementer	***Zip Code:***	92057-0000

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
14	1 of 8	S	0.17 / 890.77	467.06 / 29	***PALOMAR CASEWORK INC*** ***1334 N MELROSE DR, VISTA, CA 92083*** ***CA 92083***	***SANDIEGO HAZ***

Record ID:	DEH2002-HUPFP-126068	***GIS Record ID:***	DEH2002-HUPFP-126068
Facility Name:		***GIS Facility City:***	
Facility City:		***GIS Facility ZipCode:***	92083
Facility ZipCode:		***GIS Fac Latitude:***	
Facility Latitude:		***GIS Fac Longitude:***	
Facility Longitude:			
Facility Address:			
GIS Facility Name:	PALOMAR CASEWORK INC		
GIS Facility Address:	1334 N MELROSE DR, VISTA, CA 92083		

HMD Permits REST Data

GIS Facility ID:		***Status:***	
GIS CERS ID:		***ER Contact:***	
GIS Record Type:	LUEG-DEH/HMD/UPFP/Facility	***ER Con Work Ph:***	
Per Type:		***Census Tract:***	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Per Sub Type:		**Parcel Zip:**	
Per Cat:		**Community:**	
Record Status:	Completed	**Jurisdiction:**	
HW Tier:		**Basin No:**	
LRG QTY MW Gener:		**BOS Dist:**	
EPA ID No:		**Tbpg Grid:**	
RMP CAL ARP:		**Insp Dist:**	
Tank Owner:		**Feature ID:**	
SIC Code:		**X Coord:**	
NAICS Code:		**Y Coord:**	
Disclose Qty Haz Mat:		**Kiva Per Typ:**	HK07 126068
Exp Date:		**Agency Name:**	COSD
Own/Operate USTs :		**Point X:**	6253769.63570981
UST Facility:		**Point Y:**	2024292.87298597
Total No USTs:		**Lat GS84:**	
No of Tanks:		**Lon GS84:**	
Own Oper APS:	N	**Loc Name:**	
Tot APSA Cap:	0	**Score:**	
Capacity LR:		**Match Type:**	
Haz Waste G:		**Side:**	
Recycle100:		**X Map Coord:**	
Onsite Haz Waste Tre:		**Y Map Coord:**	
RCRA LRG Qty:		**User Fld:**	
Haz Wst Coll Site:		**Addr Type:**	
Accept Offs:		**ARC Address:**	
Universal Waste Han:		**ARC City:**	
Toxic Gas:		**ARC Zipcode:**	
Hazmat EHS:		**ARC State:**	
Hazmat Rad:		**ARC APN:**	
Haz Waste Rad:		**Zip:**	
Haz Waste EHS:		**Farm Nursery:**	
Full Name:	PALOMAR CASEWORK INC	**Indian or Territory:**	
Email Perm:		**County ID:**	
Phone Perm:		**Bill Code 2:**	
Site Address:		**Bill Code 3:**	
Parcel No:	161-071-17-00	**Univ Waste Gen Type:**	
Record Ali:	Unified Program Facility Permit		
Address:	1334 N MELROSE DR		
Business Type:	Contractors-Street, Painting, Roofers, Building		
Bill Code:			
ER Con Name:			
ER Con Title:			
Water Purv:			
Fire Agency:			
Geo SRC:	Mapped to record address		
Match Addr:			

14	2 of 8	S	0.17 / 890.77	467.06 / 29	**B & D AUTO REPAIR** **1334 N MELROSE DR, VISTA, CA 92083** **CA 92083**	**SANDIEGO HAZ**

Record ID:	DEH2002-HUPFP-136130	**GIS Record ID:**	DEH2002-HUPFP-136130
Facility Name:		**GIS Facility City:**	
Facility City:		**GIS Facility ZipCode:**	92083
Facility ZipCode:		**GIS Fac Latitude:**	
Facility Latitude:		**GIS Fac Longitude:**	
Facility Longitude:			
Facility Address:			
GIS Facility Name:	B & D AUTO REPAIR		
GIS Facility Address:	1334 N MELROSE DR, VISTA, CA 92083		

HMD Permits REST Data

GIS Facility ID:		**Status:**	
GIS CERS ID:		**ER Contact:**	760-631-1596
GIS Record Type:	LUEG-DEH/HMD/UPFP/Facility	**ER Con Work Ph:**	631-2886

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Per Type:		**Census Tract:**	
Per Sub Type:		**Parcel Zip:**	
Per Cat:		**Community:**	
Record Status:	Completed	**Jurisdiction:**	
HW TIer:		**Basin No:**	
LRG QTY MW Gener:		**BOS Dist:**	
EPA ID No:	CAL000125663	**Tbpg Grid:**	
RMP CAL ARP:		**Insp Dist:**	
Tank Owner:		**Feature ID:**	
SIC Code:		**X Coord:**	
NAICS Code:		**Y Coord:**	
Disclose Qty Haz Mat:		**Kiva Per Typ:**	HK07 136130
Exp Date:		**Agency Name:**	COSD
Own/Operate USTs :		**Point X:**	6253769.63570981
UST Facility:		**Point Y:**	2024292.87298597
Total No USTs:		**Lat GS84:**	
No of Tanks:		**Lon GS84:**	
Own Oper APS:	N	**Loc Name:**	
Tot APSA Cap:	0	**Score:**	
Capacity LR:		**Match Type:**	
Haz Waste G:	Yes	**Side:**	
Recycle100:		**X Map Coord:**	
Onsite Haz Waste Tre:		**Y Map Coord:**	
RCRA LRG Qty:		**User Fld:**	
Haz Wst Coll Site:		**Addr Type:**	
Accept Offs:		**ARC Address:**	
Universal Waste Han:		**ARC City:**	
Toxic Gas:		**ARC Zipcode:**	
Hazmat EHS:		**ARC State:**	
Hazmat Rad:		**ARC APN:**	
Haz Waste Rad:		**Zip:**	
Haz Waste EHS:		**Farm Nursery:**	
Full Name:	DOUG JONES	**Indian or Territory:**	
Email Perm:		**County ID:**	
Phone Perm:	760-631-2886	**Bill Code 2:**	
Site Address:		**Bill Code 3:**	
Parcel No:	161-071-17-00	**Univ Waste Gen Type:**	

Record Ali:	Unified Program Facility Permit
Address:	1334 N MELROSE DR
Business Type:	Auto Repair, General - Waste USTs Only
Bill Code:	
ER Con Name:	DOUG JONES
ER Con Title:	OWNER
Water Purv:	
Fire Agency:	
Geo SRC:	Mapped to record address
Match Addr:	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
14	3 of 8	S	0.17 / 890.77	467.06 / 29	AUTO ELECTRIC REPAIR 1334 N MELROSE DR, VISTA, CA 92083 CA 92083	SANDIEGO HAZ

Record ID:	DEH2011-HUPFP-214968	**GIS Record ID:**	DEH2011-HUPFP-214968
Facility Name:		**GIS Facility City:**	
Facility City:		**GIS Facility ZipCode:**	92083
Facility ZipCode:		**GIS Fac Latitude:**	
Facility Latitude:		**GIS Fac Longitude:**	
Facility Longitude:			
Facility Address:			
GIS Facility Name:	AUTO ELECTRIC REPAIR		
GIS Facility Address:	1334 N MELROSE DR, VISTA, CA 92083		

HMD Permits REST Data

GIS Facility ID:		**Status:**	
GIS CERS ID:		**ER Contact:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

GIS Record Type:	LUEG-DEH/HMD/UPFP/Facility	**ER Con Work Ph:**	
Per Type:		**Census Tract:**	
Per Sub Type:		**Parcel Zip:**	
Per Cat:		**Community:**	
Record Status:	Completed	**Jurisdiction:**	
HW TIer:		**Basin No:**	
LRG QTY MW Gener:		**BOS Dist:**	
EPA ID No:		**Tbpg Grid:**	
RMP CAL ARP:		**Insp Dist:**	
Tank Owner:		**Feature ID:**	
SIC Code:		**X Coord:**	
NAICS Code:		**Y Coord:**	
Disclose Qty Haz Mat:		**Kiva Per Typ:**	HK07 214968
Exp Date:		**Agency Name:**	COSD
Own/Operate USTs :		**Point X:**	6253769.63570981
UST Facility:		**Point Y:**	2024292.87298597
Total No USTs:		**Lat GS84:**	
No of Tanks:		**Lon GS84:**	
Own Oper APS:		**Loc Name:**	
Tot APSA Cap:	0	**Score:**	
Capacity LR:		**Match Type:**	
Haz Waste G:		**Side:**	
Recycle100:		**X Map Coord:**	
Onsite Haz Waste Tre:		**Y Map Coord:**	
RCRA LRG Qty:		**User Fld:**	
Haz Wst Coll Site:		**Addr Type:**	
Accept Offs:		**ARC Address:**	
Universal Waste Han:		**ARC City:**	
Toxic Gas:		**ARC Zipcode:**	
Hazmat EHS:		**ARC State:**	
Hazmat Rad:		**ARC APN:**	
Haz Waste Rad:		**Zip:**	
Haz Waste EHS:		**Farm Nursery:**	
Full Name:		**Indian or Territory:**	
Email Perm:		**County ID:**	
Phone Perm:		**Bill Code 2:**	
Site Address:		**Bill Code 3:**	
Parcel No:	161-071-17-00	**Univ Waste Gen Type:**	
Record Ali:	Unified Program Facility Permit		
Address:	1334 N MELROSE DR		
Business Type:			
Bill Code:			
ER Con Name:			
ER Con Title:			
Water Purv:			
Fire Agency:			
Geo SRC:	Mapped to record address		
Match Addr:			

14	*4 of 8*	*S*	*0.17 / 890.77*	*467.06 / 29*	***CUTTERS SOURCE*** ***1334 N MELROSE DR, VISTA, CA 92083*** ***CA 92083***	***SANDIEGO HAZ***

Record ID:	DEH2002-HUPFP-101948	**GIS Record ID:**	DEH2002-HUPFP-101948
Facility Name:		**GIS Facility City:**	
Facility City:		**GIS Facility ZipCode:**	92083
Facility ZipCode:		**GIS Fac Latitude:**	
Facility Latitude:		**GIS Fac Longitude:**	
Facility Longitude:			
Facility Address:			
GIS Facility Name:	CUTTERS SOURCE		
GIS Facility Address:	1334 N MELROSE DR, VISTA, CA 92083		

HMD Permits REST Data

GIS Facility ID:		**Status:**	

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

GIS CERS ID:		**ER Contact:**	760-458-8828
GIS Record Type:	LUEG-DEH/HMD/UPFP/Facility	**ER Con Work Ph:**	760-726-8979
Per Type:		**Census Tract:**	
Per Sub Type:		**Parcel Zip:**	
Per Cat:		**Community:**	
Record Status:	Completed	**Jurisdiction:**	
HW Tier:		**Basin No:**	
LRG QTY MW Gener:		**BOS Dist:**	
EPA ID No:	CAL000263771	**Tbpg Grid:**	
RMP CAL ARP:		**Insp Dist:**	
Tank Owner:		**Feature ID:**	
SIC Code:		**X Coord:**	
NAICS Code:		**Y Coord:**	
Disclose Qty Haz Mat:		**Kiva Per Typ:**	HK07 101948
Exp Date:		**Agency Name:**	COSD
Own/Operate USTs :		**Point X:**	6253769.63570981
UST Facility:		**Point Y:**	2024292.87298597
Total No USTs:		**Lat GS84:**	
No of Tanks:		**Lon GS84:**	
Own Oper APS:	N	**Loc Name:**	
Tot APSA Cap:	0	**Score:**	
Capacity LR:		**Match Type:**	
Haz Waste G:	Yes	**Side:**	
Recycle100:		**X Map Coord:**	
Onsite Haz Waste Tre:		**Y Map Coord:**	
RCRA LRG Qty:		**User Fld:**	
Haz Wst Coll Site:		**Addr Type:**	
Accept Offs:		**ARC Address:**	
Universal Waste Han:		**ARC City:**	
Toxic Gas:		**ARC Zipcode:**	
Hazmat EHS:		**ARC State:**	
Hazmat Rad:		**ARC APN:**	
Haz Waste Rad:		**Zip:**	
Haz Waste EHS:		**Farm Nursery:**	
Full Name:	MIKE PIPER	**Indian or Territory:**	
Email Perm:		**County ID:**	
Phone Perm:	760-726-8979	**Bill Code 2:**	
Site Address:		**Bill Code 3:**	
Parcel No:	161-071-17-00	**Univ Waste Gen Type:**	

Record Ali: Unified Program Facility Permit
Address: 1334 N MELROSE DR
Business Type: Contractors-Street, Painting, Roofers, Building
Bill Code:
ER Con Name: MIKE PIPER
ER Con Title: OWNER
Water Purv:
Fire Agency:
Geo SRC: Mapped to record address
Match Addr:

14	5 of 8	S	0.17 / 890.77	467.06 / 29	**NOVAK AUTO REPAIR** **1334 N MELROSE DR, VISTA, CA 92083** **CA 92083**	**SANDIEGO HAZ**

Record ID:	DEH2002-HUPFP-134858	**GIS Record ID:**	DEH2002-HUPFP-134858
Facility Name:		**GIS Facility City:**	
Facility City:		**GIS Facility ZipCode:**	92083
Facility ZipCode:		**GIS Fac Latitude:**	
Facility Latitude:		**GIS Fac Longitude:**	
Facility Longitude:			
Facility Address:			

GIS Facility Name: NOVAK AUTO REPAIR
GIS Facility Address: 1334 N MELROSE DR, VISTA, CA 92083

HMD Permits REST Data

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

GIS Facility ID:		**Status:**	
GIS CERS ID:		**ER Contact:**	760-451-9148
GIS Record Type:	LUEG-DEH/HMD/UPFP/Facility	**ER Con Work Ph:**	760-945-4245
Per Type:		**Census Tract:**	
Per Sub Type:		**Parcel Zip:**	
Per Cat:		**Community:**	
Record Status:	Completed	**Jurisdiction:**	
HW Tier:		**Basin No:**	
LRG QTY MW Gener:		**BOS Dist:**	
EPA ID No:	CAL000116759	**Tbpg Grid:**	
RMP CAL ARP:		**Insp Dist:**	
Tank Owner:		**Feature ID:**	
SIC Code:		**X Coord:**	
NAICS Code:		**Y Coord:**	
Disclose Qty Haz Mat:		**Kiva Per Typ:**	HK07 134858
Exp Date:		**Agency Name:**	COSD
Own/Operate USTs :		**Point X:**	6253769.63570981
UST Facility:		**Point Y:**	2024292.87298597
Total No USTs:		**Lat GS84:**	
No of Tanks:		**Lon GS84:**	
Own Oper APS:	N	**Loc Name:**	
Tot APSA Cap:	0	**Score:**	
Capacity LR:		**Match Type:**	
Haz Waste G:	Yes	**Side:**	
Recycle100:		**X Map Coord:**	
Onsite Haz Waste Tre:		**Y Map Coord:**	
RCRA LRG Qty:		**User Fld:**	
Haz Wst Coll Site:		**Addr Type:**	
Accept Offs:		**ARC Address:**	
Universal Waste Han:		**ARC City:**	
Toxic Gas:		**ARC Zipcode:**	
Hazmat EHS:		**ARC State:**	
Hazmat Rad:		**ARC APN:**	
Haz Waste Rad:		**Zip:**	
Haz Waste EHS:		**Farm Nursery:**	
Full Name:	MIROSLAV NOVAK	**Indian or Territory:**	
Email Perm:		**County ID:**	
Phone Perm:	760-945-4243	**Bill Code 2:**	
Site Address:		**Bill Code 3:**	
Parcel No:	161-071-17-00	**Univ Waste Gen Type:**	

Record Ali: Unified Program Facility Permit
Address: 1334 N MELROSE DR
Business Type: Auto Repair, General - Waste USTs Only
Bill Code:
ER Con Name: MIROSLAV NOVAK
ER Con Title: OWNER-AC 760
Water Purv:
Fire Agency:
Geo SRC: Mapped to record address
Match Addr:

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14 | **6 of 8** | **S** | **0.17 / 890.77** | **467.06 / 29** | **VISTA GERMAN AUTO INC**
1334 N MELROSE DR STE F
VISTA CA 92083-2922 | **RCRA NON GEN**

EPA Handler ID: CAL000374746
Gen Status Universe: No Report
Contact Name: GUY MELLOT
Contact Address: 1334 N MELROSE DR STE F , , VISTA , CA, 92083 ,
Contact Phone No and Ext: 760-385-3629
Contact Email: GUY_MELLOTT@YAHOO.COM
Contact Country:
County Name: SAN DIEGO
EPA Region: 09
Land Type:
Receive Date: 20120522

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Violation/Evaluation Summary

Note: NO RECORDS: As of May 2020, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility:	No
Onsite Burner Exemption:	No
Furnace Exemption:	No
Underground Injection Activity:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No

Hazardous Waste Handler Details

Sequence No:	1
Receive Date:	20120522
Handler Name:	VISTA GERMAN AUTO INC
Source Type:	Implementer
Federal Waste Generator Code:	N
Generator Code Description:	Not a Generator, Verified

Owner/Operator Details

Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Other	***Street 1:***	4807 GLENHOLLOW CIR
Name:	VISTA GERMAN AUTO INC	***Street 2:***	
Date Became Current:		***City:***	OCEANSIDE
Date Ended Current:		***State:***	CA
Phone:	760-385-3629	***Country:***	
Source Type:	Implementer	***Zip Code:***	92057-0000
Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Other	***Street 1:***	1334 N MELROSE DR STE F
Name:	GUY MELLOT	***Street 2:***	
Date Became Current:		***City:***	VISTA
Date Ended Current:		***State:***	CA
Phone:	760-385-3629	***Country:***	
Source Type:	Implementer	***Zip Code:***	92083

14	***7 of 8***	***S***	***0.17 / 890.77***	***467.06 / 29***	***NAPA AUTO PARTS 1334 N MELROSE STE H VISTA CA 92083***	***RCRA NON GEN***

EPA Handler ID:	CAL000450134
Gen Status Universe:	No Report
Contact Name:	DEBBIE MCGRATH
Contact Address:	560 W MISSION RD , , SAN MARCOS , CA, 92069 ,
Contact Phone No and Ext:	760-752-1112
Contact Email:	DEBBIEMCGRATH@NAPAHQ.COM
Contact Country:	
County Name:	SAN DIEGO
EPA Region:	09
Land Type:	

Receive Date: 20191021

Violation/Evaluation Summary

Note: NO RECORDS: As of May 2020, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20191021
Handler Name: NAPA AUTO PARTS
Source Type: Implementer
Federal Waste Generator Code: N
Generator Code Description: Not a Generator, Verified

Owner/Operator Details

Owner/Operator Ind: Current Operator
Type: Other
Name: DEBBIE MCGRATH
Date Became Current:
Date Ended Current:
Phone: 760-752-1112
Source Type: Implementer
Street No:
Street 1: 560 W MISSION RD
Street 2:
City: SAN MARCOS
State: CA
Country:
Zip Code: 92069

Owner/Operator Ind: Current Owner
Type: Other
Name: MATT HERR
Date Became Current:
Date Ended Current:
Phone: 760-752-1112
Source Type: Implementer
Street No:
Street 1: 560 W MISSION RD
Street 2:
City: SAN MARCOS
State: CA
Country:
Zip Code: 92069

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14 | **8 of 8** | **S** | **0.17 / 890.77** | **467.06 / 29** | **AutoPartsPros, LLC**
1334 N Melrose DR E
Vista CA 92083 | ***SANDIEGO HAZ***

Record ID: DEH2019-HUPFP-005505
Facility Name: AutoPartsPros, LLC
Facility City: Vista
Facility ZipCode: 92083
Facility Latitude:
Facility Longitude:
Facility Address: 1334 N Melrose DR E
GIS Record ID:
GIS Facility City:
GIS Facility ZipCode:
GIS Fac Latitude:
GIS Fac Longitude:

GIS Facility Name:
GIS Facility Address:

Hazardous Materials Facility Data

CERS ID:	10828135	***Onsite H Waste Trtmt:***	false
Facility ID No:	37-000-005505	***Haz Mat on Site:***	true
EPA ID No:	CAL000450134	***Haz Waste Generator:***	true
Active Permit:		***Own/Oper Under:***	false
Permit Status:	Permit Renewed	***Own/Oper Above:***	false
Bus. Phone:	760-752-1112	***Recycle:***	false
Bus. Fax:	0.0	***RCRA Large Qty Gen:***	false
Last Updated:	11/21/2019 02:31:43 AM	***HHW Collection:***	false
Zip Codes:		***Atoms:***	

New Georeferenced Column:
Mailing Address: 560 W. Mission Road, San Marcos, CA 92069

Hazardous Waste and Materials

ID:	262209	***Permit Status:***	Permit Renewed
Child Record ID:	DEH2019-HWAST-0204951	***Active Permit:***	true
CAS No:		***Haz Material Type:***	
Last Updated:	11/21/2019 02:31:43 AM	***Trade Secret:***	
Chemical Name:	Waste Toxics		
Common Name Inventory:	Waste Toxics		

ID:	262205	***Permit Status:***	Permit Renewed
Child Record ID:	DEH2019-HWAST-0204947	***Active Permit:***	true
CAS No:		***Haz Material Type:***	
Last Updated:	11/21/2019 02:31:43 AM	***Trade Secret:***	
Chemical Name:	Waste Flammables/Aerosols		
Common Name Inventory:	Waste Flammables/Aerosols		

ID:	262207	***Permit Status:***	Permit Renewed
Child Record ID:	DEH2019-HWAST-0204949	***Active Permit:***	true
CAS No:		***Haz Material Type:***	
Last Updated:	11/21/2019 02:31:43 AM	***Trade Secret:***	
Chemical Name:	Waste Corrosive Acids		
Common Name Inventory:	Waste Corrosive Acids		

ID:	262206	***Permit Status:***	Permit Renewed
Child Record ID:	DEH2019-HWAST-0204948	***Active Permit:***	true
CAS No:		***Haz Material Type:***	
Last Updated:	11/21/2019 02:31:43 AM	***Trade Secret:***	
Chemical Name:	Waste Corrosive Bases		
Common Name Inventory:	Waste Corrosive Bases		

ID:	262208	***Permit Status:***	Permit Renewed
Child Record ID:	DEH2019-HWAST-0204950	***Active Permit:***	true
CAS No:		***Haz Material Type:***	
Last Updated:	11/21/2019 02:31:43 AM	***Trade Secret:***	
Chemical Name:	Waste Oxidizers		
Common Name Inventory:	Waste Oxidizers		

Hazardous Materials Inspection Violations

Container Tank ID:		***Inspection No:***	6362507
Facility ID No:	37-000-005505	***Inspection Type:***	Initial Inspection
ID:	49805	***Inspection Date:***	10/28/2019 12:00:00 AM
UST ID:		***Compliance Date:***	10/30/2019 12:00:00 AM
Permit Status:	Permit Renewed	***Last Updated:***	11/21/2019 12:00:00 AM
Active Permit:	true	***NOV:***	false

Program Element: Hazardous Waste Generator
Violation Classification: Class II
Violation Code: HMD0131 Unified Program Facility Permit not obtained &/or maintained for the generation of hazardous waste. SDCC 68.904; 68.905; 68.907.1

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
15	1 of 2	SE	0.20 / 1,078.79	405.51 / -33	HERIBERTO SORIANO 1208 WAXWING DR. VISTA CA 92083	RCRA TSD

EPA Handler ID: CAC003016992
Gen Status Universe: No Report
Contact Name: HERIBERTO SORIANO
Contact Address: 1208 WAXWING DR. , , VISTA , CA, 92083 ,
Contact Phone No and Ext: 760-290-3017
Contact Email: SDABATEMENT@GMAIL.COM
Contact Country:
Land Type:
County Name: SAN DIEGO
EPA Region: 09
Receive Date: 20190529

Violation/Evaluation Summary

Note: NO RECORDS: As of May 2020, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Smelting, Melting and Refining: No
Underground Injection Control: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20190529
Handler Name: HERIBERTO SORIANO
Federal Waste Generator Code: N
Generator Code Description: Not a Generator, Verified
Source Type: Implementer

Owner/Operator Details

Owner/Operator Ind: Current Owner
Type: Other
Name: HERIBERTO SORIANO
Date Became Current:
Date Ended Current:
Phone: 760-290-3017
Source Type: Implementer
Street No:
Street 1: 1208 WAXWING DR.
Street 2:
City: VISTA
State: CA
Country:
Zip Code: 92083

Owner/Operator Ind: Current Operator
Type: Other
Name: HERIBERTO SORIANO
Date Became Current:
Street No:
Street 1: 1208 WAXWING DR.
Street 2:
City: VISTA

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Date Ended Current: | **State:** CA
Phone: 760-290-3017 | **Country:**
Source Type: Implementer | **Zip Code:** 92083

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15 | **2 of 2** | **SE** | **0.20 / 1,078.79** | **405.51 / -33** | **HERIBERTO SORIANO**
1208 WAXWING DR.
VISTA CA 92083

RCRA NON GEN

EPA Handler ID: CAC003016992
Gen Status Universe: No Report
Contact Name: HERIBERTO SORIANO
Contact Address: 1208 WAXWING DR. , , VISTA , CA, 92083 ,
Contact Phone No and Ext: 760-290-3017
Contact Email: SDABATEMENT@GMAIL.COM
Contact Country:
County Name: SAN DIEGO
EPA Region: 09
Land Type:
Receive Date: 20190529

Violation/Evaluation Summary

Note: NO RECORDS: As of May 2020, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20190529
Handler Name: HERIBERTO SORIANO
Source Type: Implementer
Federal Waste Generator Code: N
Generator Code Description: Not a Generator, Verified

Owner/Operator Details

Owner/Operator Ind: Current Operator | **Street No:**
Type: Other | **Street 1:** 1208 WAXWING DR.
Name: HERIBERTO SORIANO | **Street 2:**
Date Became Current: | **City:** VISTA
Date Ended Current: | **State:** CA
Phone: 760-290-3017 | **Country:**
Source Type: Implementer | **Zip Code:** 92083

Owner/Operator Ind: Current Owner | **Street No:**

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Type:	Other	**Street 1:**	1208 WAXWING DR.
Name:	HERIBERTO SORIANO	**Street 2:**	
Date Became Current:		**City:**	VISTA
Date Ended Current:		**State:**	CA
Phone:	760-290-3017	**Country:**	
Source Type:	Implementer	**Zip Code:**	92083

16	1 of 10	S	0.22 / 1,140.82	456.57 / 18	**PROFESSIONAL TRUCK & AUTO SERV** **1304 N MELROSE DR STE J** **VISTA CA 92083**	RCRA SQG

EPA Handler ID:	CAD982492928
Gen Status Universe:	Small Quantity Generator
Contact Name:	ENVIRONMENTAL MANAGER
Contact Address:	1304 N MELROSE DR STE J , , VISTA , CA, 92083 , US
Contact Phone No and Ext:	619-630-6101
Contact Email:	
Contact Country:	US
County Name:	SAN DIEGO
EPA Region:	09
Land Type:	
Receive Date:	19900610

Violation/Evaluation Summary

Note:	NO RECORDS: As of May 2020, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility:	No
Onsite Burner Exemption:	No
Furnace Exemption:	No
Underground Injection Activity:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No

Hazardous Waste Handler Details

Sequence No:	1
Receive Date:	19900610
Handler Name:	PROFESSIONAL TRUCK & AUTO SERV
Federal Waste Generator Code:	2
Generator Code Description:	Small Quantity Generator
Source Type:	Notification

Owner/Operator Details

Owner/Operator Ind:	Current Operator	**Street No:**	
Type:	Private	**Street 1:**	NOT REQUIRED
Name:	NOT REQUIRED	**Street 2:**	
Date Became Current:		**City:**	NOT REQUIRED
Date Ended Current:		**State:**	ME

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Phone: 415-555-1212
Source Type: Notification
Country:
Zip Code: 99999

Owner/Operator Ind: Current Owner
Type: Private
Name: JAMES MARINO
Date Became Current:
Date Ended Current:
Phone: 415-555-1212
Source Type: Notification
Street No:
Street 1: NOT REQUIRED
Street 2:
City: NOT REQUIRED
State: ME
Country:
Zip Code: 99999

16	2 of 10	S	0.22 / 1,140.82	456.57 / 18	MULLIGAN RACING DEVELOPMENT 1304 N MELROSE DR, SUITE# B, VISTA, CA 92083 VISTA CA 92083	SANDIEGO HAZ

Record ID: DEH2007-HUPFP-208675
Facility Name:
Facility City:
Facility ZipCode:
Facility Latitude:
Facility Longitude:
Facility Address:
GIS Facility Name: MULLIGAN RACING DEVELOPMENT
GIS Facility Address: 1304 N MELROSE DR, SUITE# B, VISTA, CA 92083
GIS Record ID: DEH2007-HUPFP-208675
GIS Facility City: VISTA
GIS Facility ZipCode: 92083
GIS Fac Latitude: 33.2167542
GIS Fac Longitude: -117.2552494

Hazardous Materials Inspection Violations

Container Tank ID:
Facility ID No: 37-000-208675
ID: 24096
UST ID:
Permit Status: Expired
Active Permit: false
Program Element: Hazardous Materials Release Response Plans
Violation Classification: Class II
Violation Code: 1010001 HMBP not established/ implemented. HSC 25505(a) and 25507(a)
Inspection No: 5345632
Inspection Type: Re-inspection
Inspection Date: 09/16/2015 11:13:00 AM
Compliance Date: 12/08/2015 12:00:00 AM
Last Updated: 10/25/2018 04:54:22 PM
NOV: true

Container Tank ID:
Facility ID No: 37-000-208675
ID: 24094
UST ID:
Permit Status: Expired
Active Permit: false
Program Element: Hazardous Materials Release Response Plans
Violation Classification: Class II
Violation Code: 1010001 HMBP not established/ implemented. HSC 25505(a) and 25507(a)
Inspection No: 4588150
Inspection Type: Routine
Inspection Date: 06/23/2015 12:00:00 AM
Compliance Date: 12/08/2015 12:00:00 AM
Last Updated: 10/25/2018 04:54:22 PM
NOV: false

Container Tank ID:
Facility ID No: 37-000-208675
ID: 24093
UST ID:
Permit Status: Expired
Active Permit: false
Program Element: Hazardous Waste Generator
Violation Classification: Class I
Violation Code: HMD0131 Unified Program Facility Permit not obtained &/or maintained for the generation of hazardous waste. HSC 25404.1; SDCC 68.905
Inspection No: 5741230
Inspection Type: Routine
Inspection Date: 09/06/2017 04:07:22 PM
Compliance Date: 09/06/2017 12:00:00 AM
Last Updated: 10/25/2018 04:54:22 PM
NOV: true

Container Tank ID:
Facility ID No: 37-000-208675
ID: 24095
UST ID:
Permit Status: Expired
Active Permit: false
Program Element: Hazardous Materials Release Response Plans
Inspection No: 4588150
Inspection Type: Routine
Inspection Date: 06/23/2015 12:00:00 AM
Compliance Date: 12/08/2015 12:00:00 AM
Last Updated: 10/25/2018 04:54:22 PM
NOV: false

Violation Classification: Minor
Violation Code: 1010003 Business Activities and/or Business Owner/Operator Identification not completed in CERS. 19 CCR 2729.2(a)(1); HSC 25404(e)(4)

Container Tank ID:
Facility ID No: 37-000-208675
ID: 24090
UST ID:
Permit Status: Expired
Active Permit: false
Inspection No: 4588150
Inspection Type: Routine
Inspection Date: 06/23/2015 12:00:00 AM
Compliance Date: 06/23/2015 12:00:00 AM
Last Updated: 10/25/2018 04:54:22 PM
NOV: false
Program Element: Hazardous Waste Generator
Violation Classification: Class II
Violation Code: HMD0131 No Unified Program Facility (UPF) permit not obtained for the generation of hazardous waste. SDCC 68.905.

Container Tank ID:
Facility ID No: 37-000-208675
ID: 24092
UST ID:
Permit Status: Expired
Active Permit: false
Inspection No: 5741230
Inspection Type: Routine
Inspection Date: 09/06/2017 04:07:22 PM
Compliance Date: 09/06/2017 12:00:00 AM
Last Updated: 10/25/2018 04:54:22 PM
NOV: false
Program Element: Hazardous Waste Generator
Violation Classification: Class II
Violation Code: 3010002 Failed to obtain &/or maintain an active EPA ID Number. 22 CCR 66262.12(a)

Container Tank ID:
Facility ID No: 37-000-208675
ID: 24089
UST ID:
Permit Status: Expired
Active Permit: false
Inspection No: 4588150
Inspection Type: Routine
Inspection Date: 06/23/2015 12:00:00 AM
Compliance Date: 09/06/2017 12:00:00 AM
Last Updated: 10/25/2018 04:54:22 PM
NOV: false
Program Element: Hazardous Waste Generator
Violation Classification: Minor
Violation Code: 3010002 Failure to obtain and/or maintain an Active EPA ID.; 22 CCR 12 66262.12.

Container Tank ID:
Facility ID No: 37-000-208675
ID: 24098
UST ID:
Permit Status: Expired
Active Permit: false
Inspection No: 5741230
Inspection Type: Routine
Inspection Date: 09/06/2017 04:07:22 PM
Compliance Date: 09/06/2017 12:00:00 AM
Last Updated: 10/25/2018 04:54:22 PM
NOV: true
Program Element: Hazardous Materials Release Response Plans
Violation Classification: Class I
Violation Code: HMD1001 Unified Program Facility permit not obtained for hazardous materials. SDCC 68.905; 68.906, 68.907

Container Tank ID:
Facility ID No: 37-000-208675
ID: 24091
UST ID:
Permit Status: Expired
Active Permit: false
Inspection No: 4588150
Inspection Type: Routine
Inspection Date: 06/23/2015 12:00:00 AM
Compliance Date: 09/06/2017 12:00:00 AM
Last Updated: 10/25/2018 04:54:22 PM
NOV: false
Program Element: Hazardous Waste Generator
Violation Classification: Class II
Violation Code: 3010010 Failure to maintain uniform hazardous waste manifest, consolidated manifest, or bills of lading copies for three years.; 22 CCR 12 66262.40(a).

Container Tank ID:
Facility ID No: 37-000-208675
ID: 24097
UST ID:
Permit Status: Expired
Active Permit: false
Inspection No: 5345632
Inspection Type: Re-inspection
Inspection Date: 09/16/2015 11:13:00 AM
Compliance Date: 12/08/2015 12:00:00 AM
Last Updated: 10/25/2018 04:54:22 PM
NOV: true
Program Element: Hazardous Materials Release Response Plans
Violation Classification: Class II
Violation Code: 1010003 Business Activities and/or Business Owner/Operator Identification not completed in CERS. 19 CCR 2729.2(a)(1); HSC 25404(e)(4)

HMD Permits REST Data

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

GIS Facility ID:	37-000-208675	**Status:**	
GIS CERS ID:	10378993	**ER Contact:**	
GIS Record Type:	LUEG-DEH/HMD/UPFP/Facility	**ER Con Work Ph:**	
Per Type:		**Census Tract:**	194.04
Per Sub Type:		**Parcel Zip:**	92083
Per Cat:		**Community:**	Vista
Record Status:	Expired	**Jurisdiction:**	VISTA
HW TIer:	Not Applicable	**Basin No:**	904.22
LRG QTY MW Gener:	No	**BOS Dist:**	5
EPA ID No:	CAL000367591	**Tbpg Grid:**	1087 F 4
RMP CAL ARP:	Not Applicable	**Insp Dist:**	HN022
Tank Owner:		**Feature ID:**	1610711600
SIC Code:	0000	**X Coord:**	6254226.851
NAICS Code:		**Y Coord:**	2023975.36
Disclose Qty Haz Mat:	Y	**Kiva Per Typ:**	HK07 208675
Exp Date:		**Agency Name:**	COSD
Own/Operate USTs :		**Point X:**	6254226.85100272
UST Facility:		**Point Y:**	2023975.35984148
Total No USTs:		**Lat GS84:**	33.2167542
No of Tanks:		**Lon GS84:**	-117.2552494
Own Oper APS:	N	**Loc Name:**	
Tot APSA Cap:	0	**Score:**	
Capacity LR:		**Match Type:**	
Haz Waste G:	Y	**Side:**	
Recycle100:	N	**X Map Coord:**	
Onsite Haz Waste Tre:	N	**Y Map Coord:**	
RCRA LRG Qty:	N	**User Fld:**	
Haz Wst Coll Site:	N	**Addr Type:**	
Accept Offs:		**ARC Address:**	
Universal Waste Han:		**ARC City:**	
Toxic Gas:		**ARC Zipcode:**	
Hazmat EHS:		**ARC State:**	
Hazmat Rad:		**ARC APN:**	
Haz Waste Rad:	N	**Zip:**	
Haz Waste EHS:	N	**Farm Nursery:**	
Full Name:	MULLIGAN RACING DEVELOPMENT	**Indian or Territory:**	
Email Perm:		**County ID:**	
Phone Perm:	760-945-5991	**Bill Code 2:**	
Site Address:	1304 N Melrose Dr Ste B	**Bill Code 3:**	
Parcel No:	161-071-16-00	**Univ Waste Gen Type:**	
Record Ali:	Unified Program Facility Permit		
Address:	1304 N MELROSE DR, SUITE# B		
Business Type:	Auto Repair, General - Waste USTs Only		
Bill Code:			
ER Con Name:			
ER Con Title:			
Water Purv:	VISTA IRRIGATION LAND		
Fire Agency:	VISTA		
Geo SRC:	Mapped to record address		
Match Addr:			

16	*3 of 10*	*S*	*0.22 / 1,140.82*	*456.57 / 18*	***ZIMMERMANN AUTOSPORT 1304 N MELROSE DR, VISTA, CA 92083 CA 92083***	***SANDIEGO HAZ***

Record ID:	DEH2002-HUPFP-131552	**GIS Record ID:**	DEH2002-HUPFP-131552
Facility Name:		**GIS Facility City:**	
Facility City:		**GIS Facility ZipCode:**	92083
Facility ZipCode:		**GIS Fac Latitude:**	
Facility Latitude:		**GIS Fac Longitude:**	
Facility Longitude:			
Facility Address:			
GIS Facility Name:	ZIMMERMANN AUTOSPORT		
GIS Facility Address:	1304 N MELROSE DR, VISTA, CA 92083		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

HMD Permits REST Data

GIS Facility ID:		***Status:***	
GIS CERS ID:		***ER Contact:***	760-757-3512
GIS Record Type:	LUEG-DEH/HMD/UPFP/Facility	***ER Con Work Ph:***	945-5991
Per Type:		***Census Tract:***	
Per Sub Type:		***Parcel Zip:***	
Per Cat:		***Community:***	
Record Status:	Completed	***Jurisdiction:***	
HW Tier:		***Basin No:***	
LRG QTY MW Gener:		***BOS Dist:***	
EPA ID No:	CAL000066346	***Tbpg Grid:***	
RMP CAL ARP:		***Insp Dist:***	
Tank Owner:		***Feature ID:***	
SIC Code:		***X Coord:***	
NAICS Code:		***Y Coord:***	
Disclose Qty Haz Mat:		***Kiva Per Typ:***	HK07 131552
Exp Date:		***Agency Name:***	COSD
Own/Operate USTs :		***Point X:***	6253967.22225688
UST Facility:		***Point Y:***	2023778.23031448
Total No USTs:		***Lat GS84:***	
No of Tanks:		***Lon GS84:***	
Own Oper APS:	N	***Loc Name:***	
Tot APSA Cap:	0	***Score:***	
Capacity LR:		***Match Type:***	
Haz Waste G:	Yes	***Side:***	
Recycle100:		***X Map Coord:***	
Onsite Haz Waste Tre:		***Y Map Coord:***	
RCRA LRG Qty:		***User Fld:***	
Haz Wst Coll Site:		***Addr Type:***	
Accept Offs:		***ARC Address:***	
Universal Waste Han:		***ARC City:***	
Toxic Gas:		***ARC Zipcode:***	
Hazmat EHS:		***ARC State:***	
Hazmat Rad:		***ARC APN:***	
Haz Waste Rad:		***Zip:***	
Haz Waste EHS:		***Farm Nursery:***	
Full Name:	ZIMMERMANN AUTOSPORT	***Indian or Territory:***	
Email Perm:		***County ID:***	
Phone Perm:	760-945-5991	***Bill Code 2:***	
Site Address:		***Bill Code 3:***	
Parcel No:	161-071-17-00	***Univ Waste Gen Type:***	
Record Ali:	Unified Program Facility Permit		
Address:	1304 N MELROSE DR		
Business Type:	Auto Repair, General - Waste USTs Only		
Bill Code:			
ER Con Name:	FRED ZIMMERMANN		
ER Con Title:	OWNER		
Water Purv:			
Fire Agency:			
Geo SRC:	Mapped to record address		
Match Addr:			

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
16	*4 of 10*	*S*	*0.22 / 1,140.82*	*456.57 / 18*	***BRITISH MASTERS 1304 N MELROSE DR, VISTA, CA 92083 CA 92083***	***SANDIEGO HAZ***

Record ID:	DEH2002-HUPFP-123238	***GIS Record ID:***	DEH2002-HUPFP-123238
Facility Name:		***GIS Facility City:***	
Facility City:		***GIS Facility ZipCode:***	92083
Facility ZipCode:		***GIS Fac Latitude:***	
Facility Latitude:		***GIS Fac Longitude:***	
Facility Longitude:			
Facility Address:			
GIS Facility Name:	BRITISH MASTERS		
GIS Facility Address:	1304 N MELROSE DR, VISTA, CA 92083		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

HMD Permits REST Data

GIS Facility ID:		***Status:***	
GIS CERS ID:		***ER Contact:***	
GIS Record Type:	LUEG-DEH/HMD/UPFP/Facility	***ER Con Work Ph:***	
Per Type:		***Census Tract:***	
Per Sub Type:		***Parcel Zip:***	
Per Cat:		***Community:***	
Record Status:	Completed	***Jurisdiction:***	
HW Tier:		***Basin No:***	
LRG QTY MW Gener:		***BOS Dist:***	
EPA ID No:	CAL000062863	***Tbpg Grid:***	
RMP CAL ARP:		***Insp Dist:***	
Tank Owner:		***Feature ID:***	
SIC Code:		***X Coord:***	
NAICS Code:		***Y Coord:***	
Disclose Qty Haz Mat:		***Kiva Per Typ:***	HK07 123238
Exp Date:		***Agency Name:***	COSD
Own/Operate USTs :		***Point X:***	6253967.22225688
UST Facility:		***Point Y:***	2023778.23031448
Total No USTs:		***Lat GS84:***	
No of Tanks:		***Lon GS84:***	
Own Oper APS:	N	***Loc Name:***	
Tot APSA Cap:	0	***Score:***	
Capacity LR:		***Match Type:***	
Haz Waste G:	Yes	***Side:***	
Recycle100:		***X Map Coord:***	
Onsite Haz Waste Tre:		***Y Map Coord:***	
RCRA LRG Qty:		***User Fld:***	
Haz Wst Coll Site:		***Addr Type:***	
Accept Offs:		***ARC Address:***	
Universal Waste Han:		***ARC City:***	
Toxic Gas:		***ARC Zipcode:***	
Hazmat EHS:		***ARC State:***	
Hazmat Rad:		***ARC APN:***	
Haz Waste Rad:		***Zip:***	
Haz Waste EHS:		***Farm Nursery:***	
Full Name:	ERICK VIDAL	***Indian or Territory:***	
Email Perm:		***County ID:***	
Phone Perm:	619-945-2226	***Bill Code 2:***	
Site Address:		***Bill Code 3:***	
Parcel No:	161-071-17-00	***Univ Waste Gen Type:***	
Record Ali:	Unified Program Facility Permit		
Address:	1304 N MELROSE DR		
Business Type:	Auto Repair, General - Waste USTs Only		
Bill Code:			
ER Con Name:			
ER Con Title:			
Water Purv:			
Fire Agency:			
Geo SRC:	Mapped to record address		
Match Addr:			

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
16	*5 of 10*	*S*	*0.22 / 1,140.82*	*456.57 / 18*	***CORNERSTONE SENSORS, INC 1304 N MELROSE DR, VISTA, CA 92083 CA 92083***	***SANDIEGO HAZ***

Record ID:	DEH2002-HUPFP-133571	***GIS Record ID:***	DEH2002-HUPFP-133571
Facility Name:		***GIS Facility City:***	
Facility City:		***GIS Facility ZipCode:***	92083
Facility ZipCode:		***GIS Fac Latitude:***	
Facility Latitude:		***GIS Fac Longitude:***	
Facility Longitude:			
Facility Address:			
GIS Facility Name:	CORNERSTONE SENSORS, INC		
GIS Facility Address:	1304 N MELROSE DR, VISTA, CA 92083		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

HMD Permits REST Data

GIS Facility ID:		***Status:***	
GIS CERS ID:		***ER Contact:***	760-940-1270
GIS Record Type:	LUEG-DEH/HMD/UPFP/Facility	***ER Con Work Ph:***	732-0111
Per Type:		***Census Tract:***	
Per Sub Type:		***Parcel Zip:***	
Per Cat:		***Community:***	
Record Status:	Completed	***Jurisdiction:***	
HW Tier:		***Basin No:***	
LRG QTY MW Gener:		***BOS Dist:***	
EPA ID No:	CAL000082629	***Tbpg Grid:***	
RMP CAL ARP:		***Insp Dist:***	
Tank Owner:		***Feature ID:***	
SIC Code:		***X Coord:***	
NAICS Code:		***Y Coord:***	
Disclose Qty Haz Mat:	Yes	***Kiva Per Typ:***	HK07 133571
Exp Date:		***Agency Name:***	COSD
Own/Operate USTs :		***Point X:***	6253967.22225688
UST Facility:		***Point Y:***	2023778.23031448
Total No USTs:		***Lat GS84:***	
No of Tanks:		***Lon GS84:***	
Own Oper APS:	N	***Loc Name:***	
Tot APSA Cap:	0	***Score:***	
Capacity LR:		***Match Type:***	
Haz Waste G:	Yes	***Side:***	
Recycle100:		***X Map Coord:***	
Onsite Haz Waste Tre:		***Y Map Coord:***	
RCRA LRG Qty:		***User Fld:***	
Haz Wst Coll Site:		***Addr Type:***	
Accept Offs:		***ARC Address:***	
Universal Waste Han:		***ARC City:***	
Toxic Gas:		***ARC Zipcode:***	
Hazmat EHS:	No	***ARC State:***	
Hazmat Rad:		***ARC APN:***	
Haz Waste Rad:	No	***Zip:***	
Haz Waste EHS:	No	***Farm Nursery:***	
Full Name:	CORNERSTONE SENSORS, INC	***Indian or Territory:***	
Email Perm:		***County ID:***	
Phone Perm:	760-732-0111	***Bill Code 2:***	
Site Address:		***Bill Code 3:***	
Parcel No:	161-071-17-00	***Univ Waste Gen Type:***	
Record Ali:	Unified Program Facility Permit		
Address:	1304 N MELROSE DR		
Business Type:	Contractors-Street, Painting, Roofers, Building		
Bill Code:			
ER Con Name:	DAVE BOTTING		
ER Con Title:	VP/CFO		
Water Purv:			
Fire Agency:			
Geo SRC:	Mapped to record address		
Match Addr:			

16	*6 of 10*	*S*	*0.22 / 1,140.82*	*456.57 / 18*	***QUALITY THERMISTOR, INC*** ***1304 N MELROSE DR, VISTA, CA 92083*** ***VISTA CA 92083***	***SANDIEGO HAZ***

Record ID:	DEH2012-HUPFP-216278	***GIS Record ID:***	DEH2012-HUPFP-216278
Facility Name:		***GIS Facility City:***	VISTA
Facility City:		***GIS Facility ZipCode:***	92083
Facility ZipCode:		***GIS Fac Latitude:***	33.2167542
Facility Latitude:		***GIS Fac Longitude:***	-117.2552494
Facility Longitude:			
Facility Address:			
GIS Facility Name:	QUALITY THERMISTOR, INC		

GIS Facility Address: 1304 N MELROSE DR, VISTA, CA 92083

HMD Permits REST Data

GIS Facility ID:	37-000-216278	***Status:***	
GIS CERS ID:	10379233	***ER Contact:***	
GIS Record Type:	LUEG-DEH/HMD/UPFP/Facility	***ER Con Work Ph:***	
Per Type:		***Census Tract:***	194.04
Per Sub Type:		***Parcel Zip:***	92083
Per Cat:		***Community:***	Vista
Record Status:	Permit Suspended	***Jurisdiction:***	VISTA
HW TIer:	Not Applicable	***Basin No:***	904.22
LRG QTY MW Gener:		***BOS Dist:***	5
EPA ID No:	CAL000373102	***Tbpg Grid:***	1087 F 4
RMP CAL ARP:		***Insp Dist:***	HN003
Tank Owner:		***Feature ID:***	1610711600
SIC Code:	3823	***X Coord:***	6254226.851
NAICS Code:		***Y Coord:***	2023975.36
Disclose Qty Haz Mat:	Y	***Kiva Per Typ:***	HK07 216278
Exp Date:		***Agency Name:***	COSD
Own/Operate USTs :		***Point X:***	6254226.85100272
UST Facility:		***Point Y:***	2023975.35984148
Total No USTs:		***Lat GS84:***	33.2167542
No of Tanks:		***Lon GS84:***	-117.2552494
Own Oper APS:	N	***Loc Name:***	
Tot APSA Cap:	0	***Score:***	
Capacity LR:		***Match Type:***	
Haz Waste G:	Y	***Side:***	
Recycle100:	N	***X Map Coord:***	
Onsite Haz Waste Tre:	N	***Y Map Coord:***	
RCRA LRG Qty:	N	***User Fld:***	
Haz Wst Coll Site:	N	***Addr Type:***	
Accept Offs:	N	***ARC Address:***	
Universal Waste Han:	N	***ARC City:***	
Toxic Gas:		***ARC Zipcode:***	
Hazmat EHS:	N	***ARC State:***	
Hazmat Rad:	No	***ARC APN:***	
Haz Waste Rad:	N	***Zip:***	
Haz Waste EHS:	N	***Farm Nursery:***	
Full Name:	QUALITY THERMISTOR, INC	***Indian or Territory:***	
Email Perm:		***County ID:***	
Phone Perm:	208-377-3373	***Bill Code 2:***	
Site Address:	1304 N MELROSE DR	***Bill Code 3:***	
Parcel No:	161-071-16-00	***Univ Waste Gen Type:***	

Record Ali: Unified Program Facility Permit
Address: 1304 N MELROSE DR
Business Type: Contractors-Street, Painting, Roofers, Building
Bill Code:
ER Con Name:
ER Con Title:
Water Purv: VISTA IRRIGATION LAND
Fire Agency: VISTA
Geo SRC: Mapped to record APN/parcel center XY
Match Addr:

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16 | ***7 of 10*** | ***S*** | ***0.22 / 1,140.82*** | ***456.57 / 18*** | ***BOB WORKMAN'S EUROPEAN AUTO 1304 N MELROSE DR VISTA CA 92083*** | ***SANDIEGO HAZ***

Record ID:	DEH2002-HUPFP-131902	***GIS Record ID:***	DEH2002-HUPFP-131902
Facility Name:	BOB WORKMAN'S EUROPEAN AUTO	***GIS Facility City:***	VISTA
Facility City:	VISTA	***GIS Facility ZipCode:***	92083
Facility ZipCode:	92083	***GIS Fac Latitude:***	33.2167542
Facility Latitude:		***GIS Fac Longitude:***	-117.2552494
Facility Longitude:			

Facility Address: 1304 N MELROSE DR

GIS Facility Name: BOB WORKMAN'S EUROPEAN AUTO
GIS Facility Address: 1304 N MELROSE DR, VISTA, CA 92083

Hazardous Materials Facility Data

CERS ID: 10378483
Facility ID No: 37-000-131902
EPA ID No: CAL000061984
Active Permit:
Permit Status: Permit Renewed
Bus. Phone: 760-630-7674
Bus. Fax: 0.0
Last Updated: 03/21/2020 01:47:59 AM
Zip Codes:
Onsite H Waste Trtmt: false
Haz Mat on Site: true
Haz Waste Generator: true
Own/Oper Under: false
Own/Oper Above: false
Recycle: false
RCRA Large Qty Gen: false
HHW Collection: false
Atoms:
New Georeferenced Column: (33.21835988586918, -117.25723612029007)
Mailing Address: 1304 N MELROSE DR #A, VISTA, CA 92083-2916

Hazardous Waste and Materials

ID: 19220
Child Record ID: DEH2014-HWAST-0031054
CAS No:
Last Updated: 09/26/2017 02:34:35 AM
Chemical Name: WASTE 221 WASTE OIL & MIXED OIL
Common Name Inventory: USED OIL
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type:
Trade Secret:

ID: 262646
Child Record ID: DEH2018-HWAST-0156473
CAS No:
Last Updated: 01/28/2020 04:26:50 AM
Chemical Name: WASTE 343 UNSPEC ORGANIC LIQUID MIXTURE
Common Name Inventory: WASTE ANTIFREEZE
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type:
Trade Secret:

ID: 289870
Child Record ID: DEH2020-HWAST-0226288
CAS No:
Last Updated: 03/21/2020 01:48:01 AM
Chemical Name: Non-Metal Used Oil Filters
Common Name Inventory: Non-Metal Used Oil Filters
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type:
Trade Secret:

ID: 262645
Child Record ID: DEH2018-HWAST-0156472
CAS No:
Last Updated: 01/28/2020 04:26:50 AM
Chemical Name: WASTE 135 UNSPECIFIED AQUEOUS SOL'N
Common Name Inventory: 1-PARTS CLEANING UNITS
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type:
Trade Secret:

ID: 289867
Child Record ID: DEH2020-HWAST-0226285
CAS No:
Last Updated: 03/21/2020 01:48:01 AM
Chemical Name: WASTE 135 UNSPECIFIED AQUEOUS SOL'N
Common Name Inventory: 1-PARTS CLEANING UNITS
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type:
Trade Secret:

ID: 19219
Child Record ID: DEH2014-HWAST-0031053
CAS No:
Last Updated: 09/26/2017 02:34:35 AM
Chemical Name: WASTE 343 UNSPEC ORGANIC LIQUID MIXTURE
Common Name Inventory: WASTE ANTIFREEZE
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type:
Trade Secret:

ID: 19218
Child Record ID: DEH2014-HWAST-0031052
CAS No:
Last Updated: 09/26/2017 02:34:35 AM
Chemical Name: WASTE 135 UNSPECIFIED AQUEOUS SOL'N
Common Name Inventory: 1-PARTS CLEANING UNITS
Permit Status: Permit Renewed
Active Permit: true
Haz Material Type:
Trade Secret:

ID: 289869 **Permit Status:** Permit Renewed
Child Record ID: DEH2020-HWAST-0226287 **Active Permit:** true
CAS No: **Haz Material Type:**
Last Updated: 03/21/2020 01:48:01 AM **Trade Secret:**
Chemical Name: WASTE 221 WASTE OIL & MIXED OIL
Common Name Inventory: USED OIL

ID: 262648 **Permit Status:** Permit Renewed
Child Record ID: DEH2018-HWAST-0156475 **Active Permit:** true
CAS No: **Haz Material Type:**
Last Updated: 01/28/2020 04:26:50 AM **Trade Secret:**
Chemical Name: Non-Metal Used Oil Filters
Common Name Inventory: Non-Metal Used Oil Filters

ID: 289868 **Permit Status:** Permit Renewed
Child Record ID: DEH2020-HWAST-0226286 **Active Permit:** true
CAS No: **Haz Material Type:**
Last Updated: 03/21/2020 01:48:01 AM **Trade Secret:**
Chemical Name: WASTE 343 UNSPEC ORGANIC LIQUID MIXTURE
Common Name Inventory: WASTE ANTIFREEZE

ID: 262647 **Permit Status:** Permit Renewed
Child Record ID: DEH2018-HWAST-0156474 **Active Permit:** true
CAS No: **Haz Material Type:**
Last Updated: 01/28/2020 04:26:50 AM **Trade Secret:**
Chemical Name: WASTE 221 WASTE OIL & MIXED OIL
Common Name Inventory: USED OIL

Hazardous Materials Inspection Violations

Container Tank ID: **Inspection No:** 5899093
Facility ID No: 37-000-131902 **Inspection Type:** Routine
ID: 10536 **Inspection Date:** 05/03/2018 04:53:29 PM
UST ID: **Compliance Date:** 05/03/2018 12:00:00 AM
Permit Status: Permit Renewed **Last Updated:** 03/21/2020 01:47:56 AM
Active Permit: true **NOV:** false
Program Element: Hazardous Materials Release Response Plans
Violation Classification: Class II
Violation Code: 1010008 HMBP not certified annually as complete and accurate in CERS. HSC 25508(a)(1)(A), 25508.2, 19 CCR 2654(b)

Container Tank ID: **Inspection No:** 5428124
Facility ID No: 37-000-131902 **Inspection Type:** Routine
ID: 10530 **Inspection Date:** 05/05/2016 12:50:00 PM
UST ID: **Compliance Date:** 08/14/2017 12:00:00 AM
Permit Status: Permit Renewed **Last Updated:** 03/21/2020 01:47:56 AM
Active Permit: true **NOV:** false
Program Element: Hazardous Waste Generator
Violation Classification: Class II
Violation Code: 3010002 Failed to obtain and/or maintain an active EPA ID. 22 CCR 66262.12

Container Tank ID: **Inspection No:** 4091811
Facility ID No: 37-000-131902 **Inspection Type:** Routine
ID: 10529 **Inspection Date:** 05/01/2014 02:31:00 PM
UST ID: **Compliance Date:** 05/02/2014 12:00:00 AM
Permit Status: Permit Renewed **Last Updated:** 03/21/2020 01:47:56 AM
Active Permit: true **NOV:** false
Program Element: Hazardous Waste Generator
Violation Classification: Minor
Violation Code: 3030007 Failure to properly label hazardous waste accumulation containers with the following requirements: "Hazardous Waste", name and address of the generator, physical and chemical characteristics of the Hazardous Waste, and starting accumulation date.; 22 CCR 12 66262.34(f).

Container Tank ID: **Inspection No:** 5428124
Facility ID No: 37-000-131902 **Inspection Type:** Routine
ID: 10534 **Inspection Date:** 05/05/2016 12:50:00 PM
UST ID: **Compliance Date:** 05/03/2018 12:00:00 AM

Permit Status: Permit Renewed
Last Updated: 03/21/2020 01:47:56 AM
Active Permit: true
NOV: false
Program Element: Hazardous Materials Release Response Plans
Violation Classification: Class II
Violation Code: 1010008 HMBP not certified annually as complete and accurate in CERS. HSC 25508.2

Container Tank ID:
Inspection No: 5428124
Facility ID No: 37-000-131902
Inspection Type: Routine
ID: 10531
Inspection Date: 05/05/2016 12:50:00 PM
UST ID:
Compliance Date: 05/03/2018 12:00:00 AM
Permit Status: Permit Renewed
Last Updated: 03/21/2020 01:47:56 AM
Active Permit: true
NOV: false
Program Element: Hazardous Waste Generator
Violation Classification: Class II
Violation Code: 3030005 Failed to make a proper waste determination. 22 CCR 66262.11, 66262.40(c)

Container Tank ID:
Inspection No: 5899093
Facility ID No: 37-000-131902
Inspection Type: Routine
ID: 10532
Inspection Date: 05/03/2018 04:53:29 PM
UST ID:
Compliance Date: 05/03/2018 12:00:00 AM
Permit Status: Permit Renewed
Last Updated: 03/21/2020 01:47:56 AM
Active Permit: true
NOV: false
Program Element: Hazardous Waste Generator
Violation Classification: Class II
Violation Code: HMD0152 Â Failed to report &/or update the required inventory information for hazardous waste(s) generated at the facility in CERS. Â SDCC 68.904(a)(2)

Container Tank ID:
Inspection No: 4091811
Facility ID No: 37-000-131902
Inspection Type: Routine
ID: 10533
Inspection Date: 05/01/2014 02:31:00 PM
UST ID:
Compliance Date: 08/13/2014 12:00:00 AM
Permit Status: Permit Renewed
Last Updated: 03/21/2020 01:47:56 AM
Active Permit: true
NOV: false
Program Element: Hazardous Materials Release Response Plans
Violation Classification: Minor
Violation Code: 1010008 Failure to submit inventory reports (Activities, Owner/Operator, Hazardous Materials Descriptions and Map pages, if required. Documentation must be resubmitted (for facilities which exceed EPCRA thresholds) or re-certified (for facilities which do not exceed EPCRA thresholds) by March 1; 19 CCR 4 2729.4(b), 2729.5.

Container Tank ID:
Inspection No: 4091811
Facility ID No: 37-000-131902
Inspection Type: Routine
ID: 10528
Inspection Date: 05/01/2014 02:31:00 PM
UST ID:
Compliance Date: 05/06/2014 12:00:00 AM
Permit Status: Permit Renewed
Last Updated: 03/21/2020 01:47:56 AM
Active Permit: true
NOV: false
Program Element: Hazardous Waste Generator
Violation Classification: Class II
Violation Code: 3010002 Failure to obtain and/or maintain an Active EPA ID.; 22 CCR 12 66262.12.

Container Tank ID:
Inspection No: 5428124
Facility ID No: 37-000-131902
Inspection Type: Routine
ID: 10535
Inspection Date: 05/05/2016 12:50:00 PM
UST ID:
Compliance Date: 05/03/2018 12:00:00 AM
Permit Status: Permit Renewed
Last Updated: 03/21/2020 01:47:56 AM
Active Permit: true
NOV: false
Program Element: Hazardous Materials Release Response Plans
Violation Classification: Minor
Violation Code: 1020002 Initial and/or annual employee training not conducted for hazardous materials management and/or employee training records not available or not maintained for 3 years. HSC 25505(a)(4)

HMD Permits REST Data

GIS Facility ID: 37-000-131902
Status:
GIS CERS ID: 10378483
ER Contact:
GIS Record Type: LUEG-DEH/HMD/UPFP/Facility
ER Con Work Ph:
Per Type:
Census Tract: 194.04
Per Sub Type:
Parcel Zip: 92083
Per Cat:
Community: Vista

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Record Status:	Permit Renewed	**Jurisdiction:**	VISTA
HW Tier:	Not Applicable	**Basin No:**	904.22
LRG QTY MW Gener:	No	**BOS Dist:**	5
EPA ID No:	CAL000061984	**Tbpg Grid:**	1087 F 4
RMP CAL ARP:	Not Applicable	**Insp Dist:**	HN022
Tank Owner:		**Feature ID:**	1610711600
SIC Code:	0000	**X Coord:**	6254226.851
NAICS Code:		**Y Coord:**	2023975.36
Disclose Qty Haz Mat:	Y	**Kiva Per Typ:**	HK07 131902
Exp Date:		**Agency Name:**	COSD
Own/Operate USTs :		**Point X:**	6254226.85100272
UST Facility:		**Point Y:**	2023975.35984148
Total No USTs:		**Lat GS84:**	33.2167542
No of Tanks:		**Lon GS84:**	-117.2552494
Own Oper APS:	N	**Loc Name:**	
Tot APSA Cap:	0	**Score:**	
Capacity LR:		**Match Type:**	
Haz Waste G:	Y	**Side:**	
Recycle100:	N	**X Map Coord:**	
Onsite Haz Waste Tre:	N	**Y Map Coord:**	
RCRA LRG Qty:	N	**User Fld:**	
Haz Wst Coll Site:	N	**Addr Type:**	
Accept Offs:		**ARC Address:**	
Universal Waste Han:		**ARC City:**	
Toxic Gas:	No	**ARC Zipcode:**	
Hazmat EHS:		**ARC State:**	
Hazmat Rad:		**ARC APN:**	
Haz Waste Rad:	N	**Zip:**	
Haz Waste EHS:	N	**Farm Nursery:**	
Full Name:	ROBERT WORKMAN	**Indian or Territory:**	
Email Perm:		**County ID:**	
Phone Perm:	760-630-7674	**Bill Code 2:**	
Site Address:	1304 N Melrose Dr Ste A	**Bill Code 3:**	
Parcel No:	161-071-16-00	**Univ Waste Gen Type:**	

Record Ali:	Unified Program Facility Permit
Address:	1304 N MELROSE DR
Business Type:	Auto Repair, General - Waste USTs Only
Bill Code:	
ER Con Name:	
ER Con Title:	
Water Purv:	VISTA IRRIGATION LAND
Fire Agency:	VISTA
Geo SRC:	Mapped to record address
Match Addr:	

16	***8 of 10***	***S***	***0.22 / 1,140.82***	***456.57 / 18***	***MULLIGAN RACING DEVELOPMENT 1304 N MELROSE DR STE B VISTA CA 92083***	***RCRA NON GEN***

EPA Handler ID:	CAL000367591
Gen Status Universe:	No Report
Contact Name:	MICHAEL MULLIGAN
Contact Address:	1304 N MELROSE DR STE B , , VISTA , CA, 92083-0000 ,
Contact Phone No and Ext:	760-945-5991
Contact Email:	MIKE@MULLIGANRACING.COM
Contact Country:	
County Name:	SAN DIEGO
EPA Region:	09
Land Type:	
Receive Date:	20110920

Violation/Evaluation Summary

Note:	NO RECORDS: As of May 2020, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility:	No
Onsite Burner Exemption:	No
Furnace Exemption:	No
Underground Injection Activity:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No

Hazardous Waste Handler Details

Sequence No:	1
Receive Date:	20110920
Handler Name:	MULLIGAN RACING DEVELOPMENT
Source Type:	Implementer
Federal Waste Generator Code:	N
Generator Code Description:	Not a Generator, Verified

Owner/Operator Details

Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Other	***Street 1:***	1304 N MELROSE DR STE B
Name:	MICHAEL MULLIGAN	***Street 2:***	
Date Became Current:		***City:***	VISTA
Date Ended Current:		***State:***	CA
Phone:	760-945-5991	***Country:***	
Source Type:	Implementer	***Zip Code:***	92083-0000
Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Other	***Street 1:***	1304 N MELROSE DR STE B
Name:	MULLIGAN RACING DEVELOPMENT LLC	***Street 2:***	
Date Became Current:		***City:***	VISTA
Date Ended Current:		***State:***	CA
Phone:	760-945-5991	***Country:***	
Source Type:	Implementer	***Zip Code:***	92083

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
16	*9 of 10*	*S*	*0.22 / 1,140.82*	*456.57 / 18*	***BOB WORKMAN'S EUROPEAN AUTO*** ***1304 N MELROSE AVE SUITE A*** ***VISTA CA 92083-0000***	***RCRA NON GEN***

EPA Handler ID:	CAL000061984
Gen Status Universe:	No Report
Contact Name:	ROBERT WORKMAN/OWNER
Contact Address:	1304 N MELROSE DR STE A , , VISTA , CA, 92083 ,
Contact Phone No and Ext:	760-630-7674
Contact Email:	VOLVOBOBWORKMAN@GMAIL.COM
Contact Country:	
County Name:	SAN DIEGO
EPA Region:	09
Land Type:	
Receive Date:	19920311

Violation/Evaluation Summary

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Note: NO RECORDS: As of May 2020, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility:	No
Onsite Burner Exemption:	No
Furnace Exemption:	No
Underground Injection Activity:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No

Hazardous Waste Handler Details

Sequence No:	1
Receive Date:	19920311
Handler Name:	BOB WORKMAN'S EUROPEAN AUTO
Source Type:	Implementer
Federal Waste Generator Code:	N
Generator Code Description:	Not a Generator, Verified

Owner/Operator Details

Owner/Operator Ind:	Current Operator	**Street No:**	
Type:	Other	**Street 1:**	1304 N MELROSE DR STE A
Name:	ROBERT WORKMAN/OWNER	**Street 2:**	
Date Became Current:		**City:**	VISTA
Date Ended Current:		**State:**	CA
Phone:	760-630-7674	**Country:**	
Source Type:	Implementer	**Zip Code:**	92083
Owner/Operator Ind:	Current Owner	**Street No:**	
Type:	Other	**Street 1:**	1304 N MELROSE DR STE A
Name:	ROBERT WORKMAN	**Street 2:**	
Date Became Current:		**City:**	VISTA
Date Ended Current:		**State:**	CA
Phone:	760-630-7674	**Country:**	
Source Type:	Implementer	**Zip Code:**	92083-2918

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
16	10 of 10	S	0.22 / 1,140.82	456.57 / 18	CHILDREN'S PARADISE 1304 NORTH MELROSE SUITE C VISTA CA 92084	RCRA NON GEN

EPA Handler ID:	CAC003068533
Gen Status Universe:	No Report
Contact Name:	ROBERT HICKS
Contact Address:	1304 NORTH MELROSE , SUITE C , VISTA , CA, 92084 ,
Contact Phone No and Ext:	858-333-1788
Contact Email:	RHICKS@CHILDRENSPARADISE.COM
Contact Country:	
County Name:	SAN DIEGO
EPA Region:	09
Land Type:	
Receive Date:	20200528

Violation/Evaluation Summary

Note: NO RECORDS: As of May 2020, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility:	No
Onsite Burner Exemption:	No
Furnace Exemption:	No
Underground Injection Activity:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No

Hazardous Waste Handler Details

Sequence No:	1
Receive Date:	20200528
Handler Name:	CHILDREN'S PARADISE
Source Type:	Implementer
Federal Waste Generator Code:	N
Generator Code Description:	Not a Generator, Verified

Owner/Operator Details

Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Other	***Street 1:***	1304 NORTH MELROSE
Name:	ROBERT HICKS	***Street 2:***	SUITE C
Date Became Current:		***City:***	VISTA
Date Ended Current:		***State:***	CA
Phone:	858-333-1788	***Country:***	
Source Type:	Implementer	***Zip Code:***	92084

Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Other	***Street 1:***	1304 NORTH MELROSE
Name:	JULIE LOWEN	***Street 2:***	SUITE C
Date Became Current:		***City:***	VISTA
Date Ended Current:		***State:***	CA
Phone:	858-333-1788	***Country:***	
Source Type:	Implementer	***Zip Code:***	92084

17	***1 of 1***	***S***	***0.22 / 1,167.56***	***454.72 / 16***	***DIMENSIONAL TECHNOLOGIES 1316 N MELROSE DR, VISTA, CA 92083 CA 92083***	***SANDIEGO HAZ***

Record ID:	DEH2002-HUPFP-131622	***GIS Record ID:***	DEH2002-HUPFP-131622
Facility Name:		***GIS Facility City:***	
Facility City:		***GIS Facility ZipCode:***	92083
Facility ZipCode:		***GIS Fac Latitude:***	
Facility Latitude:		***GIS Fac Longitude:***	
Facility Longitude:			
Facility Address:			
GIS Facility Name:	DIMENSIONAL TECHNOLOGIES		

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

GIS Facility Address: 1316 N MELROSE DR, VISTA, CA 92083

HMD Permits REST Data

GIS Facility ID:		***Status:***	
GIS CERS ID:		***ER Contact:***	
GIS Record Type:	LUEG-DEH/HMD/UPFP/Facility	***ER Con Work Ph:***	
Per Type:		***Census Tract:***	
Per Sub Type:		***Parcel Zip:***	
Per Cat:		***Community:***	
Record Status:	Completed	***Jurisdiction:***	
HW TIer:		***Basin No:***	
LRG QTY MW Gener:		***BOS Dist:***	
EPA ID No:		***Tbpg Grid:***	
RMP CAL ARP:		***Insp Dist:***	
Tank Owner:		***Feature ID:***	
SIC Code:		***X Coord:***	
NAICS Code:		***Y Coord:***	
Disclose Qty Haz Mat:		***Kiva Per Typ:***	HK18 131622
Exp Date:		***Agency Name:***	COSD
Own/Operate USTs :		***Point X:***	6253970.99521522
UST Facility:		***Point Y:***	2023799.09214939
Total No USTs:		***Lat GS84:***	
No of Tanks:		***Lon GS84:***	
Own Oper APS:	N	***Loc Name:***	
Tot APSA Cap:	0	***Score:***	
Capacity LR:		***Match Type:***	
Haz Waste G:		***Side:***	
Recycle100:		***X Map Coord:***	
Onsite Haz Waste Tre:		***Y Map Coord:***	
RCRA LRG Qty:		***User Fld:***	
Haz Wst Coll Site:		***Addr Type:***	
Accept Offs:		***ARC Address:***	
Universal Waste Han:		***ARC City:***	
Toxic Gas:		***ARC Zipcode:***	
Hazmat EHS:		***ARC State:***	
Hazmat Rad:		***ARC APN:***	
Haz Waste Rad:		***Zip:***	
Haz Waste EHS:		***Farm Nursery:***	
Full Name:	HUMBERTO SIMENTAL	***Indian or Territory:***	
Email Perm:		***County ID:***	
Phone Perm:	619-945-7180	***Bill Code 2:***	
Site Address:		***Bill Code 3:***	
Parcel No:	161-071-17-00	***Univ Waste Gen Type:***	
Record Ali:	Unified Program Facility Permit		
Address:	1316 N MELROSE DR		
Business Type:	One (1) Waste Item or One (1) Inventory		
Bill Code:			
ER Con Name:			
ER Con Title:			
Water Purv:			
Fire Agency:			
Geo SRC:	Mapped to record address		
Match Addr:			

18	*1 of 3*	*S*	*0.25 / 1,297.58*	*446.62 / 8*	***PASS N GO SMOG CENTER 1310 N MELROSE DR STE D VISTA CA 92083***	***RCRA NON GEN***

EPA Handler ID:	CAL000410198
Gen Status Universe:	No Report
Contact Name:	KYLE MORMAN
Contact Address:	1310 N MELROSE DR STE D , , VISTA , CA, 92083 ,
Contact Phone No and Ext:	760-295-4356
Contact Email:	KYLEMORMAN@GMAIL.COM
Contact Country:	
County Name:	SAN DIEGO

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

EPA Region: 09
Land Type:
Receive Date: 20150915

Violation/Evaluation Summary

Note: NO RECORDS: As of May 2020, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20150915
Handler Name: PASS N GO SMOG CENTER
Source Type: Implementer
Federal Waste Generator Code: N
Generator Code Description: Not a Generator, Verified

Owner/Operator Details

Owner/Operator Ind: Current Operator
Type: Other
Name: KYLE MORMAN
Date Became Current:
Date Ended Current:
Phone: 760-295-4356
Source Type: Implementer
Street No:
Street 1: 1310 N MELROSE DR STE D
Street 2:
City: VISTA
State: CA
Country:
Zip Code: 92083

Owner/Operator Ind: Current Owner
Type: Other
Name: KYLE MORMAN
Date Became Current:
Date Ended Current:
Phone: 760-295-4356
Source Type: Implementer
Street No:
Street 1: 1310 N MELROSE DR STE D
Street 2:
City: VISTA
State: CA
Country:
Zip Code: 92083

18	2 of 3	S	0.25 / 1,297.58	446.62 / 8	ALIGNMENT PROS 1310 N MELROSE DR STE C VISTA CA 92083	RCRA TSD

EPA Handler ID: CAL000444422
Gen Status Universe: No Report
Contact Name: MARCOS IBARRA
Contact Address: 1310 N MELROSE DR STE C , , VISTA , CA, 92083 ,
Contact Phone No and Ext: 760-724-7767

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Contact Email: ALIGNPROS@GMAIL.COM
Contact Country:
Land Type:
County Name: SAN DIEGO
EPA Region: 09
Receive Date: 20190315

Violation/Evaluation Summary

Note: NO RECORDS: As of May 2020, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Smelting, Melting and Refining: No
Underground Injection Control: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20190315
Handler Name: ALIGNMENT PROS
Federal Waste Generator Code: N
Generator Code Description: Not a Generator, Verified
Source Type: Implementer

Owner/Operator Details

Owner/Operator Ind: Current Operator
Type: Other
Name: MARCOS IBARRA
Date Became Current:
Date Ended Current:
Phone: 760-724-7767
Source Type: Implementer

Street No:
Street 1: 1310 N MELROSE DR STE C
Street 2:
City: VISTA
State: CA
Country:
Zip Code: 92083

Owner/Operator Ind: Current Owner
Type: Other
Name: MARCOS IBARRA
Date Became Current:
Date Ended Current:
Phone: 760-724-7767
Source Type: Implementer

Street No:
Street 1: 1310 N MELROSE DR STE C
Street 2:
City: VISTA
State: CA
Country:
Zip Code: 92083

18	3 of 3	S	0.25 / 1,297.58	446.62 / 8	ALIGNMENT PROS 1310 N MELROSE DR STE C VISTA CA 92083	RCRA NON GEN

EPA Handler ID: CAL000444422
Gen Status Universe: No Report

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Contact Name: MARCOS IBARRA
Contact Address: 1310 N MELROSE DR STE C , , VISTA , CA, 92083 ,
Contact Phone No and Ext: 760-724-7767
Contact Email: ALIGNPROS@GMAIL.COM
Contact Country:
County Name: SAN DIEGO
EPA Region: 09
Land Type:
Receive Date: 20190315

Violation/Evaluation Summary

Note: NO RECORDS: As of May 2020, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Furnace Exemption: No
Underground Injection Activity: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20190315
Handler Name: ALIGNMENT PROS
Source Type: Implementer
Federal Waste Generator Code: N
Generator Code Description: Not a Generator, Verified

Owner/Operator Details

Owner/Operator Ind: Current Owner
Type: Other
Name: MARCOS IBARRA
Date Became Current:
Date Ended Current:
Phone: 760-724-7767
Source Type: Implementer
Street No:
Street 1: 1310 N MELROSE DR STE C
Street 2:
City: VISTA
State: CA
Country:
Zip Code: 92083

Owner/Operator Ind: Current Operator
Type: Other
Name: MARCOS IBARRA
Date Became Current:
Date Ended Current:
Phone: 760-724-7767
Source Type: Implementer
Street No:
Street 1: 1310 N MELROSE DR STE C
Street 2:
City: VISTA
State: CA
Country:
Zip Code: 92083

19	1 of 1	E	0.29 / 1,521.96	424.15 / -14	RICHENBACK, JACQUELINE 363 DORSEY WAY VISTA CA 92083	RCRA TSD

EPA Handler ID:	CAC003017889
Gen Status Universe:	No Report
Contact Name:	RICHENBACK, JACQUELINE
Contact Address:	363 DORSEY WAY , , VISTA , CA, 92083 ,
Contact Phone No and Ext:	760-224-8561
Contact Email:	MAGGIEP@PWSEI.COM
Contact Country:	
Land Type:	
County Name:	SAN DIEGO
EPA Region:	09
Receive Date:	20190603

Violation/Evaluation Summary

Note:	NO RECORDS: As of May 2020, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility:	No
Onsite Burner Exemption:	No
Smelting, Melting and Refining:	No
Underground Injection Control:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No

Hazardous Waste Handler Details

Sequence No:	1
Receive Date:	20190603
Handler Name:	RICHENBACK, JACQUELINE
Federal Waste Generator Code:	N
Generator Code Description:	Not a Generator, Verified
Source Type:	Implementer

Owner/Operator Details

Owner/Operator Ind:	Current Operator	***Street No:***	
Type:	Other	***Street 1:***	363 DORSEY WAY
Name:	RICHENBACK, JACQUELINE	***Street 2:***	
Date Became Current:		***City:***	VISTA
Date Ended Current:		***State:***	CA
Phone:	760-224-8561	***Country:***	
Source Type:	Implementer	***Zip Code:***	92083
Owner/Operator Ind:	Current Owner	***Street No:***	
Type:	Other	***Street 1:***	363 DORSEY WAY
Name:	RICHENBACK, JACQUELINE	***Street 2:***	
Date Became Current:		***City:***	VISTA
Date Ended Current:		***State:***	CA
Phone:	760-224-8561	***Country:***	
Source Type:	Implementer	***Zip Code:***	92083

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
20	1 of 3	WSW	0.29 / 1,542.79	377.11 / -61	VISTA BURN DUMP 1300 LEE DRIVE OCEANSIDE CA 92054	LUR

Estor/EPA ID:	70000083	**Permit Renewal Lead:**	
Site Code:	401292	**Project Manager:**	ANGELA TURNER
Nat Priority List:	NO	**Supervisor:**	EMAD YEMUT
Acres:	9.88 ACRES	**Public Partici Spclst:**	
Special Program:		**Census Tract:**	6073019403
Funding:	SITE PROPONENT	**County:**	SAN DIEGO
Assembly District:	76	**Latitude:**	33.2175
Senate District:	36	**Longitude:**	-117.2622
School District:			

APN: 161-501-09, 161-501-10
Cleanup Status: CERTIFIED / OPERATION & MAINTENANCE AS OF 12/17/2013
Cleanup Oversight Agencies: DTSC - SITE CLEANUP PROGRAM - LEAD AGENCY
Site Type: VOLUNTARY CLEANUP
Office: SOUTHERN CALIFORNIA SCHOOLS & BROWNFIELDS OUTREACH
Past Use that Caused Contam: LANDFILL - DOMESTIC
Potential Media Affected: OTHER GROUNDWATER AFFECTED (USES OTHER THAN DRINKING WATER), SOIL, SOIL VAPOR
Potential Contamin of Concern:

METALS, OTHER, SEMI-VOLATILE ORGANICS (8270 SVOCS), VOLATILE ORGANICS (8260B VOCS)

Site History:

The Site was owned by the Vista Sanitary District from 1931 to 1946 and was operated as a burn dump by the County of San Diego from approximately 1944 to 1967. During Landfill operations, burning was performed on a routine basis from 1946 to 1967. According to a recent environmental report, an estimated 85,000 to 115,000 cubic yards (cy) of fill is present at the site: 40,000 cy "burnash", 25,000 cy debris fill, 55,000 cy artificial fill, and 55,000 burn ash extends onto the adjacent recycling/salvage facility. The adjoining recycling/salvage facility (Lee's Recycling) encroached onto the northeast portion of the Site in the area that they still occupy today sometime between 1967 and 1970. Loma Alta Creek runs through the salvage yard site and former burn dump.

In the early 2000s, the Site consisted of a partially capped former burn dump with exposed burn ash adjacent to the three existing baseball fields. Burned and broken glass and exposed porcelain insulators and waste was observed in the surface soil of at least one of the baseball fields. Reports containing the results of environmental media sampling conducted at the Site indicate that the soil is contaminated with hazardous substances, including burn ash and associated contaminants.

In 2005 the City of Oceanside entered into a Voluntary Cleanup Agreement (VCA) with the Department of Toxic Substances Control (DTSC) to investigate and remediate the Site. Following a series of investigations to identify the extent of contamination, a Removal Action Workplan (RAW) was drafted to propose a remedy for the Site. The RAW and Notice of Exemption was circulated for 30-day comment period and was later finalized and approved in January 2011. In 2011, the Site underwent remedial activities included consolidation of contaminated soils beneath a soil cap using at minimum 1 foot of clean fill material. As part of the remedial efforts, Site improvements and grading was also conducted to resurface the parking lot with asphalt and shotcrete. All remedial activities were completed and a Removal Action Completion Report was approved by DTSC in October 2011.

Since this property was historically used as a burn dump, the San Diego County Solid Waste Local Enforcement Agency (SD LEA) also will have continued interest in the Sites future soil maintenance and monitoring activities. In October 2012, DTSC and the SD LEA approved a joint Operation and Maintenance Plan/Post Closure Monitoring and Maintenance Plan (O&M/PCMMP) document to outline the protocols and requirements for maintaining and periodic monitoring of the condition of the soil cap.

In September 2013, the Land Use Restriction for the Site was executed and filed with the San Diego County Recorder's Office. Annual inspections will be required to be sent to DTSC to assure that the property remains within its intended use as a recreational baseball field. Prohibited activities and uses include: residential development; facility for hospitals, day-cares, or elder care; excavation that would disturb soil cap; and excavation, soil disturbance, or change or ownership without prior agency notification.

Status: CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS
Program Type: VOLUNTARY CLEANUP
CalEnviroScreen Score: 36-40%
Summary Link: http://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=70000083

Land Use Restrictions

Site Management Requirements:
DAY CARE CENTER PROHIBITED
ELDER CARE CENTER PROHIBITED
HOSPITAL USE PROHIBITED
LAND USE COVENANT
NO EXCAVATION OF CONTAMINATED SOILS WITHOUT AGENCY REVIEW AND APPROVAL
NO EXCAVATION OR ACTIVITIES WHICH DISTURB THE SOIL BELOW A SPECIFIED DEPTH (SEE

COVENANT FOR DEPTH) WITHOUT AGENCY REVIEW AND APPROVAL OF A SOIL MANAGEMENT PLAN
NOTIFY AFTER CHANGE OF PROPERTY OWNER
NOTIFY PRIOR TO CHANGE IN LAND USE
NOTIFY PRIOR TO DEVELOPMENT
NOTIFY PRIOR TO SUBSURFACE WORK
RESIDENCE USE PROHIBITED

Title: Land Use Restriction
Title Link: http://www.envirostor.dtsc.ca.gov/public/view_document?docurl=/public/deliverable_documents/1464492619/Land%20Use%20Covenant%20%28Recorded%209%2D24%2D13%29%2Epdf
Date Recorded: 9/24/2013

Future Activities

Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: 5 Year Review Reports
Due Date: 2023

Completed Activities

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397667
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 3/4/2019
Comments: no exceptions noted

Title: Notice of Exemption
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=6017321
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: CEQA - Notice of Exemption
Date Completed: 1/26/2011
Comments: NOE completed and sent to State Clearinghouse for filing.

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397651
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 12/1/2017
Comments: completed

Title: LEA Periodic Closed Disposal Site Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=60367531
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction Monitoring Report
Date Completed: 7/8/2014
Comments: Completed

Title: Land Use Restriction
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60256937
Area Name:
Area Link:

Sub Area:
Sub Area Link:
Document Type: Land Use Restriction
Date Completed: 9/24/2013
Comments: Land Use Restriction was accepted and recorded by the San Diego County Recorders Office

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397680
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 6/11/2020
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 2/3/2020
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397641
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 2/14/2017
Comments: Completed

Title: 2013 Annual Cost Estimate and Schedule
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60285632
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 10/25/2012
Comments: 2013 Annual Cost Estimate letter sent to RP

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397668
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 4/3/2019
Comments: no exceptions noted

Title: Removal Action Completion Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=60256935
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Removal Action Completion Report
Date Completed: 10/18/2011
Comments: Document accepted. Final draft needs to be submitted by RP for upload.

Title: Removal Action Workplan
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=6021462
Area Name:

Area Link:
Sub Area:
Sub Area Link:
Document Type: Removal Action Workplan
Date Completed: 1/26/2011
Comments: Removal Action Workplan approved and fieldwork can commence.

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397672
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 7/31/2019
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397653
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 1/4/2018
Comments:

Title: PEA workplan
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=6014451
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Site Characterization Workplan
Date Completed: 6/8/2006
Comments: Awaiting revised schedule for field activities.

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397682
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 6/11/2020
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397640
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 12/8/2016
Comments: Complete

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397638
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 11/2/2016
Comments: Completed

Title: Tech Memo - Proposed Groundwater Monitoring Well Sampling and Destruction
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=60259424

Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Well Decommissioning Workplan
Date Completed: 12/22/2010
Comments: Tech Memo accepted. Additional information is to be submitted as requested by DTSC in the letter and memo as a response to comments.

Title: Voluntary Cleanup Agreement
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=6007970
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Standard Voluntary Agreement
Date Completed: 10/5/2005
Comments:

Title: LEA Periodic Closed Disposal Site Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=60446262
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction Monitoring Report
Date Completed: 7/9/2018
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397673
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 8/30/2019
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397662
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 9/28/2018
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397643
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 3/9/2017
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397636
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 8/23/2016
Comments: Completed

Title: FY 19/20 Annual Oversight Cost Estimate
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60471878
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 11/14/2019
Comments:

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397657
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 5/1/2018
Comments: completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397669
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 5/9/2019
Comments: no exceptions noted

Title: FY 14/15 Annual Cost Estimate
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60378866
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 9/2/2014
Comments: Annual Cost Estimate letter for FY 14/15 mailed to RP.

Title: 2008 Annual Cost Estimate Letter
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=6011875
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Correspondence
Date Completed: 11/5/2007
Comments: 2008 annual cost estimate letter sent to proponent.

Title: Annual Cost Estimation Letter for 2010
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=6017308
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 9/30/2009
Comments: Cost Estimate letter sent to proponent via U.S. Mail and email

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397671
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 7/9/2019
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397652
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 12/1/2017
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397635
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 6/28/2016
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 3/3/2020
Comments: no exceptions noted

Title: Voluntary Cleanup Agreement Addendum
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=6013119
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Amendment - Order/Agreement
Date Completed: 1/13/2009
Comments: VCA Amendment signed and finalized on January 13, 2009.

Title: 1st Five Year Review Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=60312401
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: 5 Year Review Reports
Date Completed: 9/27/2018
Comments:

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397660
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 7/31/2018
Comments: completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397649
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 10/10/2017

Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397629
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 12/31/2015
Comments: completed

Title: LEA Periodic Closed Disposal Site Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60390863
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 4/1/2015
Comments: Completed.

Title: Notice of Change in Project Manager
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60439028
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Correspondence
Date Completed: 12/11/2017
Comments:

Title: Vista Burn Dump Monthly Inspection Report
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 1/3/2020
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397655
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 3/5/2018
Comments: completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397630
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 2/2/2016
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397644
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit

Date Completed: 4/14/2017
Comments: Complete

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397637
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 9/15/2016
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397631
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 3/1/2016
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397683
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 7/2/2020
Comments: no exceptions noted

Title: 2014 Annual LUC/O&M Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=60312395
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction Monitoring Report
Date Completed: 9/30/2014
Comments: Received

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397675
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 10/30/2019
Comments: no exceptions noted

Title: FY 15/16 Annual Cost Estimate and Schedule
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60285634
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 9/4/2015
Comments:

Title: Preliminary Endangerment Assessment Report/ Site Summary Investigation
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=6018270
Area Name:
Area Link:
Sub Area:
Sub Area Link:

Document Type: Preliminary Endangerment Assessment Report
Date Completed: 7/2/2008
Comments: Final approval letter for Report sent on 7/2/2008.

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397647
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 8/2/2017
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397628
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 12/1/2015
Comments: Completed

Title: FY 18/19 Annual Oversight Cost Estimate
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60445516
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 7/20/2018
Comments: FY 18/19 Estimate: $3,772

Title: 2015 Annual LUC/O&M Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=60312397
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction Monitoring Report
Date Completed: 7/28/2015
Comments: Completed

Title: 2012 Annual Cost Estimate and Schedule
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60256934
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 11/30/2011
Comments: 2012 Annual Cost Estimate and Schedule sent to RP.

Title: Vista Burn Dump Monthly Inspection Report
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 11/27/2017
Comments: Completed

Title: 2017 Annual LUC/O&M Inspection Report
Title Link:
Area Name:
Area Link:
Sub Area:

Sub Area Link:
Document Type: Land Use Restriction Monitoring Report
Date Completed: 10/10/2017
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397645
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 5/3/2017
Comments: Completed

Title: Annual Oversight Cost Estimate for FY 17/18
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60430442
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 9/29/2017
Comments:

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397632
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 4/13/2016
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 10/3/2019
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397656
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 4/11/2018
Comments:

Title: Preliminary Endangerment Assessment/Site Summary Investigation
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=6015387
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Site Characterization Report
Date Completed: 7/2/2008
Comments: Final approval letter for Report sent on 7/2/2008.

Title: 2016 Annual LUC/O&M Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=60312393
Area Name:
Area Link:

Sub Area:
Sub Area Link:
Document Type: Land Use Restriction Monitoring Report
Date Completed: 7/28/2016
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397658
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 6/5/2018
Comments: completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397633
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 5/2/2016
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397661
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 9/4/2018
Comments:

Title: Vista Burn Dump Monthly Inspection Report
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 1/23/2020
Comments: No exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397639
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 12/8/2016
Comments: Complwted

Title: LEA Periodic Closed Disposal Site Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=60378081
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction Monitoring Report
Date Completed: 8/21/2014
Comments: Completed and reviewed

Title: Operation and Maintenance Agreement
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60256936
Area Name:

Area Link:
Sub Area:
Sub Area Link:
Document Type: Operation & Maintenance Order/Agreement
Date Completed: 1/3/2013
Comments: Complete

Title: FY 16/17 Annual Oversight Cost Estimate and Schedule
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60380537
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 10/5/2016
Comments: FY 1617 Annual Oversight Cost Estimate completed and mailed.

Title: Certification with O&M
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60335381
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Certification
Date Completed: 9/25/2013
Comments: LUR and O&M Agreement/Plans have been approved and completed. No FA is required because responsible party is government agency. Site is certified with O&M.

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397646
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 7/31/2017
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397654
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 2/2/2018
Comments: completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397681
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 6/11/2020
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397659
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 6/29/2018
Comments: no exceptions noted

Title: FY 20/21 Annual Oversight Cost Estimate

Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 9/10/2020
Comments: Annual Oversight Cost Estimate Letter completed.

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397627
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 10/28/2015
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 7/9/2019
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 12/5/2018
Comments: no exceptions noted

Title: 2011 Annual Cost Estimate and Schedule
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60256921
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 10/20/2010
Comments: 2011 Annual Cost Estimate and Schedule sent to RP.

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397642
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 2/14/2017
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397634
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 6/10/2016
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 2/5/2019
Comments: No exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397626
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 10/2/2015
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397625
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 8/31/2015
Comments: Completed

Title: 2014 Annual Cost Estimate and Schedule
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60285633
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 11/4/2013
Comments: 2014 Annual Cost Estimate Letter sent to RP.

Title: Operation and Maintenance Plan/PCMMP
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=60261264
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Operations and Maintenance Plan
Date Completed: 10/26/2012
Comments: PCMMP accepted by San Diego LEA nd DTSC

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397665
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 1/3/2019
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 10/26/2018
Comments: No exceptions noted

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
20	2 of 3	WSW	0.29 / 1,542.79	377.11 / -61	VISTA BURN DUMP 1300 LEE DRIVE OCEANSIDE CA 92054	VCP

Estor/EPA ID: 70000083
Site Code: 401292
Nat Priority List: NO
Acres: 9.88 ACRES
Special Program:
Funding: SITE PROPONENT
Assembly District: 76
Senate District: 36
School District:
Permit Renewal Lead:
Project Manager: ANGELA TURNER
Supervisor: EMAD YEMUT
Public Partici Spclst:
Census Tract: 6073019403
County: SAN DIEGO
Latitude: 33.2175
Longitude: -117.2622

APN: 161-501-09, 161-501-10
Cleanup Status: CERTIFIED / OPERATION & MAINTENANCE AS OF 12/17/2013
Cleanup Oversight Agencies: DTSC - SITE CLEANUP PROGRAM - LEAD AGENCY
Site Type: VOLUNTARY CLEANUP
Office: SOUTHERN CALIFORNIA SCHOOLS & BROWNFIELDS OUTREACH
Past Use that Caused Contam: LANDFILL - DOMESTIC
Potential Media Affected: OTHER GROUNDWATER AFFECTED (USES OTHER THAN DRINKING WATER), SOIL, SOIL VAPOR
Potential Contamin of Concern:

METALS, OTHER, SEMI-VOLATILE ORGANICS (8270 SVOCS), VOLATILE ORGANICS (8260B VOCS)

Site History:

The Site was owned by the Vista Sanitary District from 1931 to 1946 and was operated as a burn dump by the County of San Diego from approximately 1944 to 1967. During Landfill operations, burning was performed on a routine basis from 1946 to 1967. According to a recent environmental report, an estimated 85,000 to 115,000 cubic yards (cy) of fill is present at the site: 40,000 cy "burnash", 25,000 cy debris fill, 55,000 cy artificial fill, and 55,000 burn ash extends onto the adjacent recycling/salvage facility. The adjoining recycling/salvage facility (Lee's Recycling) encroached onto the northeast portion of the Site in the area that they still occupy today sometime between 1967 and 1970. Loma Alta Creek runs through the salvage yard site and former burn dump.

In the early 2000s, the Site consisted of a partially capped former burn dump with exposed burn ash adjacent to the three existing baseball fields. Burned and broken glass and exposed porcelain insulators and waste was observed in the surface soil of at least one of the baseball fields. Reports containing the results of environmental media sampling conducted at the Site indicate that the soil is contaminated with hazardous substances, including burn ash and associated contaminants.

In 2005 the City of Oceanside entered into a Voluntary Cleanup Agreement (VCA) with the Department of Toxic Substances Control (DTSC) to investigate and remediate the Site. Following a series of investigations to identify the extent of contamination, a Removal Action Workplan (RAW) was drafted to propose a remedy for the Site. The RAW and Notice of Exemption was circulated for 30-day comment period and was later finalized and approved in January 2011. In 2011, the Site underwent remedial activities included consolidation of contaminated soils beneath a soil cap using at minimum 1 foot of clean fill material. As part of the remedial efforts, Site improvements and grading was also conducted to resurface the parking lot with asphalt and shotcrete. All remedial activities were completed and a Removal Action Completion Report was approved by DTSC in October 2011.

Since this property was historically used as a burn dump, the San Diego County Solid Waste Local Enforcement Agency (SD LEA) also will have continued interest in the Sites future soil maintenance and monitoring activities. In October 2012, DTSC and the SD LEA approved a joint Operation and Maintenance Plan/Post Closure Monitoring and Maintenance Plan (O&M/PCMMP) document to outline the protocols and requirements for maintaining and periodic monitoring of the condition of the soil cap.

In September 2013, the Land Use Restriction for the Site was executed and filed with the San Diego County Recorder's Office. Annual inspections will be required to be sent to DTSC to assure that the property remains within its intended use as a recreational baseball field. Prohibited activities and uses include: residential development; facility for hospitals, day-cares, or elder care; excavation that would disturb soil cap; and excavation, soil disturbance, or change or ownership without prior agency notification.

Status: CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS
Program Type: VOLUNTARY CLEANUP
CalEnviroScreen Score: 36-40%
Summary Link: http://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=70000083

Land Use Restrictions

Site Management Requirements:
DAY CARE CENTER PROHIBITED
ELDER CARE CENTER PROHIBITED
HOSPITAL USE PROHIBITED
LAND USE COVENANT

NO EXCAVATION OF CONTAMINATED SOILS WITHOUT AGENCY REVIEW AND APPROVAL
NO EXCAVATION OR ACTIVITIES WHICH DISTURB THE SOIL BELOW A SPECIFIED DEPTH (SEE COVENANT FOR DEPTH) WITHOUT AGENCY REVIEW AND APPROVAL OF A SOIL MANAGEMENT PLAN
NOTIFY AFTER CHANGE OF PROPERTY OWNER
NOTIFY PRIOR TO CHANGE IN LAND USE
NOTIFY PRIOR TO DEVELOPMENT
NOTIFY PRIOR TO SUBSURFACE WORK
RESIDENCE USE PROHIBITED

Title: Land Use Restriction
Title Link: http://www.envirostor.dtsc.ca.gov/public/view_document?docurl=/public/deliverable_documents/1464492619/Land%20Use%20Covenant%20%28Recorded%209%2D24%2D13%29%2Epdf
Date Recorded: 9/24/2013

Future Activities

Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: 5 Year Review Reports
Due Date: 2023

Completed Activities

Title: Vista Burn Dump Monthly Inspection Report
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 3/3/2020
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397629
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 12/31/2015
Comments: completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 7/9/2019
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397683
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 7/2/2020
Comments: no exceptions noted

Title: Voluntary Cleanup Agreement
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=6007970

Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Standard Voluntary Agreement
Date Completed: 10/5/2005
Comments:

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397639
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 12/8/2016
Comments: Complwted

Title: Annual Oversight Cost Estimate for FY 17/18
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60430442
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 9/29/2017
Comments:

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397647
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 8/2/2017
Comments: Completed

Title: Voluntary Cleanup Agreement Addendum
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=6013119
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Amendment - Order/Agreement
Date Completed: 1/13/2009
Comments: VCA Amendment signed and finalized on January 13, 2009.

Title: Vista Burn Dump Monthly Inspection Report
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 10/3/2019
Comments: no exceptions noted

Title: Land Use Restriction
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60256937
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction
Date Completed: 9/24/2013
Comments: Land Use Restriction was accepted and recorded by the San Diego County Recorders Office

Title: Vista Burn Dump Monthly Inspection Report

Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397653
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 1/4/2018
Comments:

Title: FY 18/19 Annual Oversight Cost Estimate
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60445516
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 7/20/2018
Comments: FY 18/19 Estimate: $3,772

Title: 2014 Annual Cost Estimate and Schedule
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60285633
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 11/4/2013
Comments: 2014 Annual Cost Estimate Letter sent to RP.

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397651
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 12/1/2017
Comments: completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397633
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 5/2/2016
Comments: Completed

Title: LEA Periodic Closed Disposal Site Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=60446262
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction Monitoring Report
Date Completed: 7/9/2018
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397680
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 6/11/2020
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397652
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 12/1/2017
Comments: Completed

Title: 2017 Annual LUC/O&M Inspection Report
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction Monitoring Report
Date Completed: 10/10/2017
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397630
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 2/2/2016
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397671
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 7/9/2019
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397665
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 1/3/2019
Comments: no exceptions noted

Title: FY 19/20 Annual Oversight Cost Estimate
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60471878
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 11/14/2019
Comments:

Title: Notice of Change in Project Manager
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60439028
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Correspondence
Date Completed: 12/11/2017
Comments:

Title: Vista Burn Dump Monthly Inspection Report
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 11/27/2017
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397631
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 3/1/2016
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397654
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 2/2/2018
Comments: completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397643
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 3/9/2017
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397662
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 9/28/2018
Comments: no exceptions noted

Title: LEA Periodic Closed Disposal Site Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=60378081
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction Monitoring Report
Date Completed: 8/21/2014
Comments: Completed and reviewed

Title: 2012 Annual Cost Estimate and Schedule
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60256934
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 11/30/2011

Comments:	2012 Annual Cost Estimate and Schedule sent to RP.
Title:	Removal Action Workplan
Title Link:	http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=6021462
Area Name:	
Area Link:	
Sub Area:	
Sub Area Link:	
Document Type:	Removal Action Workplan
Date Completed:	1/26/2011
Comments:	Removal Action Workplan approved and fieldwork can commence.
Title:	Vista Burn Dump Monthly Inspection Report
Title Link:	
Area Name:	
Area Link:	
Sub Area:	
Sub Area Link:	
Document Type:	Land Use Restriction - Site Inspection/Visit
Date Completed:	1/23/2020
Comments:	No exceptions noted
Title:	Vista Burn Dump Monthly Inspection Report
Title Link:	http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397636
Area Name:	
Area Link:	
Sub Area:	
Sub Area Link:	
Document Type:	Land Use Restriction - Site Inspection/Visit
Date Completed:	8/23/2016
Comments:	Completed
Title:	Vista Burn Dump Monthly Inspection Report
Title Link:	http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397627
Area Name:	
Area Link:	
Sub Area:	
Sub Area Link:	
Document Type:	Land Use Restriction - Site Inspection/Visit
Date Completed:	10/28/2015
Comments:	Completed
Title:	1st Five Year Review Report
Title Link:	http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=60312401
Area Name:	
Area Link:	
Sub Area:	
Sub Area Link:	
Document Type:	5 Year Review Reports
Date Completed:	9/27/2018
Comments:	
Title:	Vista Burn Dump Monthly Inspection Report
Title Link:	http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397672
Area Name:	
Area Link:	
Sub Area:	
Sub Area Link:	
Document Type:	Land Use Restriction - Site Inspection/Visit
Date Completed:	7/31/2019
Comments:	no exceptions noted
Title:	Vista Burn Dump Monthly Inspection Report
Title Link:	http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397675
Area Name:	
Area Link:	
Sub Area:	
Sub Area Link:	
Document Type:	Land Use Restriction - Site Inspection/Visit

Date Completed: 10/30/2019
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397656
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 4/11/2018
Comments:

Title: LEA Periodic Closed Disposal Site Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=60367531
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction Monitoring Report
Date Completed: 7/8/2014
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397649
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 10/10/2017
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397637
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 9/15/2016
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397681
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 6/11/2020
Comments: no exceptions noted

Title: Preliminary Endangerment Assessment Report/ Site Summary Investigation
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=6018270
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Preliminary Endangerment Assessment Report
Date Completed: 7/2/2008
Comments: Final approval letter for Report sent on 7/2/2008.

Title: FY 15/16 Annual Cost Estimate and Schedule
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60285634
Area Name:
Area Link:
Sub Area:
Sub Area Link:

Document Type: Annual Oversight Cost Estimate
Date Completed: 9/4/2015
Comments:

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397635
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 6/28/2016
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397625
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 8/31/2015
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 1/3/2020
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397658
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 6/5/2018
Comments: completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397669
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 5/9/2019
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397634
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 6/10/2016
Comments: Completed

Title: FY 14/15 Annual Cost Estimate
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60378866
Area Name:
Area Link:
Sub Area:

Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 9/2/2014
Comments: Annual Cost Estimate letter for FY 14/15 mailed to RP.

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397659
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 6/29/2018
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397645
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 5/3/2017
Comments: Completed

Title: Tech Memo - Proposed Groundwater Monitoring Well Sampling and Destruction
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=60259424
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Well Decommissioning Workplan
Date Completed: 12/22/2010
Comments: Tech Memo accepted. Additional information is to be submitted as requested by DTSC in the letter and memo as a response to comments.

Title: Operation and Maintenance Plan/PCMMP
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=60261264
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Operations and Maintenance Plan
Date Completed: 10/26/2012
Comments: PCMMP accepted by San Diego LEA nd DTSC

Title: Notice of Exemption
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=6017321
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: CEQA - Notice of Exemption
Date Completed: 1/26/2011
Comments: NOE completed and sent to State Clearinghouse for filing.

Title: Vista Burn Dump Monthly Inspection Report
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 12/5/2018
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link:
Area Name:

Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 2/5/2019
Comments: No exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397626
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 10/2/2015
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397655
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 3/5/2018
Comments: completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397660
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 7/31/2018
Comments: completed

Title: Preliminary Endangerment Assessment/Site Summary Investigation
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=6015387
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Site Characterization Report
Date Completed: 7/2/2008
Comments: Final approval letter for Report sent on 7/2/2008.

Title: FY 16/17 Annual Oversight Cost Estimate and Schedule
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60380537
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 10/5/2016
Comments: FY 1617 Annual Oversight Cost Estimate completed and mailed.

Title: 2008 Annual Cost Estimate Letter
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=6011875
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Correspondence
Date Completed: 11/5/2007
Comments: 2008 annual cost estimate letter sent to proponent.

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397628

Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 12/1/2015
Comments: Completed

Title: Operation and Maintenance Agreement
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60256936
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Operation & Maintenance Order/Agreement
Date Completed: 1/3/2013
Comments: Complete

Title: 2013 Annual Cost Estimate and Schedule
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60285632
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 10/25/2012
Comments: 2013 Annual Cost Estimate letter sent to RP

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397668
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 4/3/2019
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397641
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 2/14/2017
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397661
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 9/4/2018
Comments:

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397638
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 11/2/2016
Comments: Completed

Title: 2011 Annual Cost Estimate and Schedule

Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60256921
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 10/20/2010
Comments: 2011 Annual Cost Estimate and Schedule sent to RP.

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397667
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 3/4/2019
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397644
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 4/14/2017
Comments: Complete

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397632
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 4/13/2016
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397673
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 8/30/2019
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 10/26/2018
Comments: No exceptions noted

Title: 2015 Annual LUC/O&M Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=60312397
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction Monitoring Report
Date Completed: 7/28/2015
Comments: Completed

Title: LEA Periodic Closed Disposal Site Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60390863
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 4/1/2015
Comments: Completed.

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397682
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 6/11/2020
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397640
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 12/8/2016
Comments: Complete

Title: Annual Cost Estimation Letter for 2010
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=6017308
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 9/30/2009
Comments: Cost Estimate letter sent to proponent via U.S. Mail and email

Title: Certification with O&M
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60335381
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Certification
Date Completed: 9/25/2013
Comments: LUR and O&M Agreement/Plans have been approved and completed. No FA is required because responsible party is government agency. Site is certified with O&M.

Title: PEA workplan
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=6014451
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Site Characterization Workplan
Date Completed: 6/8/2006
Comments: Awaiting revised schedule for field activities.

Title: 2016 Annual LUC/O&M Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=60312393
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction Monitoring Report
Date Completed: 7/28/2016

Comments: Completed

Title: 2014 Annual LUC/O&M Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=60312395
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction Monitoring Report
Date Completed: 9/30/2014
Comments: Received

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397646
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 7/31/2017
Comments: Completed

Title: FY 20/21 Annual Oversight Cost Estimate
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 9/10/2020
Comments: Annual Oversight Cost Estimate Letter completed.

Title: Vista Burn Dump Monthly Inspection Report
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 2/3/2020
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397657
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 5/1/2018
Comments: completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397642
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 2/14/2017
Comments: Completed

Title: Removal Action Completion Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=60256935
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Removal Action Completion Report

Date Completed: 10/18/2011
Comments: Document accepted. Final draft needs to be submitted by RP for upload.

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20 | **3 of 3** | **WSW** | **0.29 / 1,542.79** | **377.11 / -61** | **VISTA BURN DUMP**
1300 LEE DRIVE
OCEANSIDE CA 92054 | **ENVIROSTOR**

Estor/EPA ID:	70000083	**Assembly District:**	76
Site Code:	401292	**Senate District:**	36
Nat Priority List:	NO	**Permit Renewal Lead:**	
APN:	161-501-09, 161-501-10	**Public Partici Spclst:**	
Census Tract:	6073019403	**Project Manager:**	ANGELA TURNER
Site Type:	VOLUNTARY CLEANUP	**County:**	SAN DIEGO
Address Description:	1300 LEE DRIVE	**Latitude:**	33.2175
Office:	SOUTHERN CALIFORNIA SCHOOLS & BROWNFIELDS OUTREACH	**Longitude:**	-117.2622
Special Program:		**Acres:**	9.88 ACRES
Funding:	SITE PROPONENT	**Supervisor:**	EMAD YEMUT

Cleanup Status: CERTIFIED / OPERATION & MAINTENANCE AS OF 12/17/2013
Cleanup Oversight Agencies: DTSC - SITE CLEANUP PROGRAM - LEAD AGENCY
School District:
Past Use that Caused Contam: LANDFILL - DOMESTIC
Potential Media Affected: OTHER GROUNDWATER AFFECTED (USES OTHER THAN DRINKING WATER), SOIL, SOIL VAPOR
Potential Contamin of Concern:

METALS, OTHER, SEMI-VOLATILE ORGANICS (8270 SVOCS), VOLATILE ORGANICS (8260B VOCS)

Site History:

The Site was owned by the Vista Sanitary District from 1931 to 1946 and was operated as a burn dump by the County of San Diego from approximately 1944 to 1967. During Landfill operations, burning was performed on a routine basis from 1946 to 1967. According to a recent environmental report, an estimated 85,000 to 115,000 cubic yards (cy) of fill is present at the site: 40,000 cy "burnash", 25,000 cy debris fill, 55,000 cy artificial fill, and 55,000 burn ash extends onto the adjacent recycling/salvage facility. The adjoining recycling/salvage facility (Lee's Recycling) encroached onto the northeast portion of the Site in the area that they still occupy today sometime between 1967 and 1970. Loma Alta Creek runs through the salvage yard site and former burn dump.

In the early 2000s, the Site consisted of a partially capped former burn dump with exposed burn ash adjacent to the three existing baseball fields. Burned and broken glass and exposed porcelain insulators and waste was observed in the surface soil of at least one of the baseball fields. Reports containing the results of environmental media sampling conducted at the Site indicate that the soil is contaminated with hazardous substances, including burn ash and associated contaminants.

In 2005 the City of Oceanside entered into a Voluntary Cleanup Agreement (VCA) with the Department of Toxic Substances Control (DTSC) to investigate and remediate the Site. Following a series of investigations to identify the extent of contamination, a Removal Action Workplan (RAW) was drafted to propose a remedy for the Site. The RAW and Notice of Exemption was circulated for 30-day comment period and was later finalized and approved in January 2011. In 2011, the Site underwent remedial activities included consolidation of contaminated soils beneath a soil cap using at minimum 1 foot of clean fill material. As part of the remedial efforts, Site improvements and grading was also conducted to resurface the parking lot with asphalt and shotcrete. All remedial activities were completed and a Removal Action Completion Report was approved by DTSC in October 2011.

Since this property was historically used as a burn dump, the San Diego County Solid Waste Local Enforcement Agency (SD LEA) also will have continued interest in the Sites future soil maintenance and monitoring activities. In October 2012, DTSC and the SD LEA approved a joint Operation and Maintenance Plan/Post Closure Monitoring and Maintenance Plan (O&M/PCMMP) document to outline the protocols and requirements for maintaining and periodic monitoring of the condition of the soil cap.

In September 2013, the Land Use Restriction for the Site was executed and filed with the San Diego County Recorder's Office. Annual inspections will be required to be sent to DTSC to assure that the property remains within its intended use as a recreational baseball field. Prohibited activities and uses include: residential development; facility for hospitals, day-cares, or elder care; excavation that would disturb soil cap; and excavation, soil disturbance, or change or ownership without prior agency notification.

Status: CERTIFIED / OPERATION & MAINTENANCE - LAND USE RESTRICTIONS
A2 Program Type: VOLUNTARY CLEANUP
CalEnviroScreen Score: 36-40%
Summary Link: http://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=70000083

Land Use Restrictions

Site Management Requirements: DAY CARE CENTER PROHIBITED
ELDER CARE CENTER PROHIBITED

HOSPITAL USE PROHIBITED
LAND USE COVENANT
NO EXCAVATION OF CONTAMINATED SOILS WITHOUT AGENCY REVIEW AND APPROVAL
NO EXCAVATION OR ACTIVITIES WHICH DISTURB THE SOIL BELOW A SPECIFIED DEPTH (SEE COVENANT FOR DEPTH) WITHOUT AGENCY REVIEW AND APPROVAL OF A SOIL MANAGEMENT PLAN
NOTIFY AFTER CHANGE OF PROPERTY OWNER
NOTIFY PRIOR TO CHANGE IN LAND USE
NOTIFY PRIOR TO DEVELOPMENT
NOTIFY PRIOR TO SUBSURFACE WORK
RESIDENCE USE PROHIBITED

Title: Land Use Restriction
Title Link: http://www.envirostor.dtsc.ca.gov/public/view_document?docurl=/public/deliverable_documents/1464492619/Land%20Use%20Covenant%20%28Recorded%209%2D24%2D13%29%2Epdf
Date Recorded: 9/24/2013

Future Activities

Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: 5 Year Review Reports
Due Date: 2023

Completed Activities

Title: Vista Burn Dump Monthly Inspection Report
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 11/27/2017
Comments: Completed

Title: 2017 Annual LUC/O&M Inspection Report
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction Monitoring Report
Date Completed: 10/10/2017
Comments: Completed

Title: 2016 Annual LUC/O&M Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=60312393
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction Monitoring Report
Date Completed: 7/28/2016
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397667
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 3/4/2019
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397659
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 6/29/2018
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397658
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 6/5/2018
Comments: completed

Title: FY 20/21 Annual Oversight Cost Estimate
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 9/10/2020
Comments: Annual Oversight Cost Estimate Letter completed.

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397645
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 5/3/2017
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397643
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 3/9/2017
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397640
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 12/8/2016
Comments: Complete

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397636
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 8/23/2016
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397633
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 5/2/2016
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397627
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 10/28/2015
Comments: Completed

Title: FY 15/16 Annual Cost Estimate and Schedule
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60285634
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 9/4/2015
Comments:

Title: Notice of Exemption
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=6017321
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: CEQA - Notice of Exemption
Date Completed: 1/26/2011
Comments: NOE completed and sent to State Clearinghouse for filing.

Title: FY 19/20 Annual Oversight Cost Estimate
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60471878
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 11/14/2019
Comments:

Title: Vista Burn Dump Monthly Inspection Report
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 7/9/2019
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 12/5/2018

Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397661
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 9/4/2018
Comments:

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397657
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 5/1/2018
Comments: completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397651
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 12/1/2017
Comments: completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397638
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 11/2/2016
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397630
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 2/2/2016
Comments: Completed

Title: Tech Memo - Proposed Groundwater Monitoring Well Sampling and Destruction
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=60259424
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Well Decommissioning Workplan
Date Completed: 12/22/2010
Comments: Tech Memo accepted. Additional information is to be submitted as requested by DTSC in the letter and memo as a response to comments.

Title: 2011 Annual Cost Estimate and Schedule
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60256921
Area Name:
Area Link:
Sub Area:
Sub Area Link:

Document Type: Annual Oversight Cost Estimate
Date Completed: 10/20/2010
Comments: 2011 Annual Cost Estimate and Schedule sent to RP.

Title: Preliminary Endangerment Assessment Report/ Site Summary Investigation
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=6018270
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Preliminary Endangerment Assessment Report
Date Completed: 7/2/2008
Comments: Final approval letter for Report sent on 7/2/2008.

Title: Voluntary Cleanup Agreement
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=6007970
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Standard Voluntary Agreement
Date Completed: 10/5/2005
Comments:

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397669
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 5/9/2019
Comments: no exceptions noted

Title: LEA Periodic Closed Disposal Site Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=60446262
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction Monitoring Report
Date Completed: 7/9/2018
Comments: no exceptions noted

Title: Annual Oversight Cost Estimate for FY 17/18
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60430442
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 9/29/2017
Comments:

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397644
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 4/14/2017
Comments: Complete

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397642
Area Name:
Area Link:
Sub Area:

Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 2/14/2017
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397634
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 6/10/2016
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397632
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 4/13/2016
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 1/23/2020
Comments: No exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 10/3/2019
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397673
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 8/30/2019
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397662
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 9/28/2018
Comments: no exceptions noted

Title: 1st Five Year Review Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=60312401
Area Name:
Area Link:

Sub Area:
Sub Area Link:
Document Type: 5 Year Review Reports
Date Completed: 9/27/2018
Comments:

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397660
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 7/31/2018
Comments: completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397656
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 4/11/2018
Comments:

Title: FY 14/15 Annual Cost Estimate
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60378866
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 9/2/2014
Comments: Annual Cost Estimate letter for FY 14/15 mailed to RP.

Title: LEA Periodic Closed Disposal Site Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=60367531
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction Monitoring Report
Date Completed: 7/8/2014
Comments: Completed

Title: Land Use Restriction
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60256937
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction
Date Completed: 9/24/2013
Comments: Land Use Restriction was accepted and recorded by the San Diego County Recorders Office

Title: 2008 Annual Cost Estimate Letter
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=6011875
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Correspondence
Date Completed: 11/5/2007
Comments: 2008 annual cost estimate letter sent to proponent.

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397680
Area Name:

Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 6/11/2020
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 2/3/2020
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397649
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 10/10/2017
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397647
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 8/2/2017
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397639
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 12/8/2016
Comments: Complwted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397637
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 9/15/2016
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397628
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 12/1/2015
Comments: Completed

Title: LEA Periodic Closed Disposal Site Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=60378081

Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction Monitoring Report
Date Completed: 8/21/2014
Comments: Completed and reviewed

Title: Operation and Maintenance Agreement
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60256936
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Operation & Maintenance Order/Agreement
Date Completed: 1/3/2013
Comments: Complete

Title: Annual Cost Estimation Letter for 2010
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=6017308
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 9/30/2009
Comments: Cost Estimate letter sent to proponent via U.S. Mail and email

Title: Preliminary Endangerment Assessment/Site Summary Investigation
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=6015387
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Site Characterization Report
Date Completed: 7/2/2008
Comments: Final approval letter for Report sent on 7/2/2008.

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397671
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 7/9/2019
Comments: no exceptions noted

Title: FY 18/19 Annual Oversight Cost Estimate
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60445516
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 7/20/2018
Comments: FY 18/19 Estimate: $3,772

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397652
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 12/1/2017
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report

Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397641
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 2/14/2017
Comments: Completed

Title: FY 16/17 Annual Oversight Cost Estimate and Schedule
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60380537
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 10/5/2016
Comments: FY 1617 Annual Oversight Cost Estimate completed and mailed.

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397635
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 6/28/2016
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397631
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 3/1/2016
Comments: Completed

Title: 2015 Annual LUC/O&M Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=60312397
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction Monitoring Report
Date Completed: 7/28/2015
Comments: Completed

Title: Certification with O&M
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60335381
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Certification
Date Completed: 9/25/2013
Comments: LUR and O&M Agreement/Plans have been approved and completed. No FA is required because responsible party is government agency. Site is certified with O&M.

Title: 2013 Annual Cost Estimate and Schedule
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60285632
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 10/25/2012
Comments: 2013 Annual Cost Estimate letter sent to RP

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397668
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 4/3/2019
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 2/5/2019
Comments: No exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397654
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 2/2/2018
Comments: completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397683
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 7/2/2020
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 3/3/2020
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397629
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 12/31/2015
Comments: completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397626
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 10/2/2015

Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397625
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 8/31/2015
Comments: Completed

Title: LEA Periodic Closed Disposal Site Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60390863
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 4/1/2015
Comments: Completed.

Title: 2014 Annual LUC/O&M Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=60312395
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction Monitoring Report
Date Completed: 9/30/2014
Comments: Received

Title: 2014 Annual Cost Estimate and Schedule
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60285633
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 11/4/2013
Comments: 2014 Annual Cost Estimate Letter sent to RP.

Title: Operation and Maintenance Plan/PCMMP
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=60261264
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Operations and Maintenance Plan
Date Completed: 10/26/2012
Comments: PCMMP accepted by San Diego LEA nd DTSC

Title: 2012 Annual Cost Estimate and Schedule
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60256934
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Annual Oversight Cost Estimate
Date Completed: 11/30/2011
Comments: 2012 Annual Cost Estimate and Schedule sent to RP.

Title: Removal Action Completion Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=60256935
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Removal Action Completion Report

Date Completed: 10/18/2011
Comments: Document accepted. Final draft needs to be submitted by RP for upload.

Title: Removal Action Workplan
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=6021462
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Removal Action Workplan
Date Completed: 1/26/2011
Comments: Removal Action Workplan approved and fieldwork can commence.

Title: Voluntary Cleanup Agreement Addendum
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=6013119
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Amendment - Order/Agreement
Date Completed: 1/13/2009
Comments: VCA Amendment signed and finalized on January 13, 2009.

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397672
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 7/31/2019
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397653
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 1/4/2018
Comments:

Title: Notice of Change in Project Manager
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60439028
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Correspondence
Date Completed: 12/11/2017
Comments:

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397681
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 6/11/2020
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397646
Area Name:
Area Link:
Sub Area:
Sub Area Link:

Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 7/31/2017
Comments: Completed

Title: Vista Burn Dump Monthly Inspection Report
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 1/3/2020
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397675
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 10/30/2019
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397665
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 1/3/2019
Comments: no exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link:
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 10/26/2018
Comments: No exceptions noted

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397655
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 3/5/2018
Comments: completed

Title: PEA workplan
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&doc_id=6014451
Area Name:
Area Link:
Sub Area:
Sub Area Link:
Document Type: Site Characterization Workplan
Date Completed: 6/8/2006
Comments: Awaiting revised schedule for field activities.

Title: Vista Burn Dump Monthly Inspection Report
Title Link: http://www.envirostor.dtsc.ca.gov/public/final_documents2?global_id=70000083&enforcement_id=60397682
Area Name:
Area Link:
Sub Area:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Sub Area Link:
Document Type: Land Use Restriction - Site Inspection/Visit
Date Completed: 6/11/2020
Comments: no exceptions noted

21	1 of 1	WSW	0.34 / 1,770.59	351.01 / -87	VISTA BURN SITE 1300 BLOCK LEE AVENUE OCEANSIDE CA 92056	LDS

Global ID: SL0607301183
County: San Diego
Latitude: 33.2174086795878
Longitude: -117.263023853302

LDS Cleanup Sites from GeoTracker Cleanup Sites Data Download - Facilities Detail

RB Case No: SLT90051
Loc Case No: 70000083
Status: Open - Site Assessment
Status Date: 5/16/2002
Begin Date: 1/1/1986
Case Type: Land Disposal Site
Potential COC:
Potential Media of Concern: Soil
How Discovered:
How Discovered Description: FORMER BURN ASH SITE LISTED ON STATEWIDE SWAT LIST IN 1980'S.
Stop Method:
Stop Description:
Calwater Watershed Name: Carlsbad - Loma Alta (904.10)
DWR GW Subbasin Name:
Disadvantaged Community:
Site History:

CUF Case: NO
Lead Agency: SAN DIEGO RWQCB (REGION 9)
Caseworker: ALG
Local Agency:
File Location: DTSC

This is a former burn site now under DTSC lead.

LDS Cleanup Sites from GeoTracker Cleanup Sites Data Download - Regulatory Acitivity

Action: Leak Reported
Date: 1986-01-01 00:00:00
Action Type: Other

LDS Cleanup Sites from GeoTracker Cleanup Sites Data Download - Regulatory Contacts

Contact Type: Regional Board Caseworker
Contact Name: AMY L. GROVE
City: SAN DIEGO
Organization Name: SAN DIEGO RWQCB (REGION 9)
Address: 2375 NORTHSIDE DRIVE, SUITE 100
Email: amy.grove@waterboards.ca.gov
Phone No:

LDS Cleanup Sites from GeoTracker Cleanup Sites Data Download - Status History

Status: Open - Site Assessment
Status Date: 2002-05-16 00:00:00

Status: Open - Case Begin Date
Status Date: 1986-01-01 00:00:00

LDS Sites from GeoTracker Search - Regulatory Profile(as of February 24, 2020)

Site Facility Name: VISTA BURN SITE
Site Facility Type: LAND DISPOSAL SITE
Cleanup Status: OPEN - SITE ASSESSMENT
Project Status:
Potential COC: METALS/HEAVY METALS
Address: 1300 BLOCK LEE AVENUE
City: OCEANSIDE
Zip: 92056
County: SAN DIEGO
CUF Claim:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

WDR Place Type: ***CUF Priority Assig:***
WDR File: ***CUF Amount Paid:***
WDR Order:
Designated Beneficial Use: IND
Designated Beneficl Use Desc: Industrial Service Supply
Project Oversight Agencies:
Report Link: https://geotracker.waterboards.ca.gov/profile_report?global_id=SL0607301183
Cleanup Status Detail: OPEN - SITE ASSESSMENT AS OF 5/16/2002
Cleanup History Link: https://geotracker.waterboards.ca.gov/profile_report_include?global_id=SL0607301183&tabname=regulatoryhistory
Potential Media of Concern: SOIL
User Defined Beneficial Use:
DWR GW Sub Basin:
Calwater Watershed Name: Carlsbad - Loma Alta (904.10)
Post Closure Site Management:
Future Land Use:
Facility Type: BURN DUMP
Composting Method:
Gndwater Monitoring Freque:
Cleanup Oversight Agencies: DEPARTMENT OF TOXIC SUBSTANCES CONTROL (LEAD) - CASE #: 70000083
SAN DIEGO RWQCB (REGION 9) (LEAD) - CASE #: SLT90051
CASEWORKER: AMY L. GROVE
SAN DIEGO RWQCB (REGION 9) - CASE #: 9 000390N00
CASEWORKER: AMY L. GROVE
File Location: DTSC
Site History:

This is a former burn site now under DTSC lead.

LDS Sites from GeoTracker Search - Cleanup Status History History(as of February 24, 2020)

Status: Open - Site Assessment
Date: 5/16/2002

Status: Open - Case Begin Date
Date: 1/1/1986

LDS Sites from GeoTracker Search - Regulatory Activities(as of February 24, 2020)

Action Type: Leak Action
Action Date: 1/1/1986
Received Issue Date:
Action: Leak Reported
Doc Link:
Title Description Comment:

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB
22	1 of 2	SW	0.36 / 1,926.00	407.25 / -31	1315 LEE DRIVE 1315 LEE DRIVE VISTA CA 92083	RCRA TSD

EPA Handler ID: CAL000422248
Gen Status Universe: No Report
Contact Name: STEVEN GLUCOFT
Contact Address: 1315 LEE DRIVE , , VISTA , CA, 92083 ,
Contact Phone No and Ext: 760-724-1330
Contact Email: SGLUCOFT@LEESIRON.COM
Contact Country:
Land Type:
County Name: SAN DIEGO
EPA Region: 09
Receive Date: 20161117

Violation/Evaluation Summary

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Note: NO RECORDS: As of May 2020, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility:	No
Onsite Burner Exemption:	No
Smelting, Melting and Refining:	No
Underground Injection Control:	No
Commercial TSD:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Burner:	No
Used Oil Market Burner:	No
Used Oil Spec Marketer:	No

Hazardous Waste Handler Details

Sequence No:	1
Receive Date:	20161117
Handler Name:	1315 LEE DRIVE
Federal Waste Generator Code:	N
Generator Code Description:	Not a Generator, Verified
Source Type:	Implementer

Owner/Operator Details

Owner/Operator Ind:	Current Operator	**Street No:**	
Type:	Other	**Street 1:**	1315 LEE DRIVE
Name:	STEVEN GLUCOFT	**Street 2:**	
Date Became Current:		**City:**	VISTA
Date Ended Current:		**State:**	CA
Phone:	760-724-1330	**Country:**	
Source Type:	Implementer	**Zip Code:**	92083
Owner/Operator Ind:	Current Owner	**Street No:**	
Type:	Other	**Street 1:**	1315 LEE DRIVE
Name:	STEVEN GLUCORT	**Street 2:**	
Date Became Current:		**City:**	VISTA
Date Ended Current:		**State:**	CA
Phone:	762-724-1330	**Country:**	
Source Type:	Implementer	**Zip Code:**	92083

22	2 of 2	SW	0.36 / 1,926.00	407.25 / -31	**LEE'S METAL RECYCLING** **1315 LEE DRIVE** **VISTA CA 92083**	**CLEANUP SITES**

Global ID:	T10000014678	**Site Facility Type:**	CLEANUP PROGRAM SITE
Status:	OPEN - ASSESSMENT & INTERIM REMEDIAL ACTION	**County:**	SAN DIEGO
Status Date:	5/21/2020	**Latitude:**	33.21752
Longitude:	-117.26148		
Data Source:	Cleanup Program Sites from GeoTracker Search; Cleanup Sites from GeoTracker Cleanup Sites Data Download		

Cleanup Sites from GeoTracker Cleanup Sites Data Download - Facilities Detail

RB Case No:		**CUF Case:**	NO
Local Case No:	DEH2020-LSAM-000619	**Case Worker:**	EM
Begin Date:	5/21/2020	**File Location:**	

Stop Method:
Lead Agency: SAN DIEGO COUNTY LOP
Local Agency: SAN DIEGO COUNTY LOP
Potential COC:
Potential Media of Concern:
How Discovered:
How Discovered Description:
Stop Description:
Calwater Watershed Name:
DWR GW Subbasin Name:
Disadvantaged Community:
Site History:

Cleanup Sites from GeoTracker Cleanup Sites Data Download - Regulatory Activity

Action Type: ENFORCEMENT
Date : 2020-06-01 00:00:00
Action: Letter - Notice

Action Type: ENFORCEMENT
Date : 2020-05-27 00:00:00
Action: Cost Recovery Agreement / N. of Reimbursement

Action Type: ENFORCEMENT
Date : 2020-05-27 00:00:00
Action: Letter - Notice

Action Type: ENFORCEMENT
Date : 2020-05-05 00:00:00
Action: Meeting

Action Type: ENFORCEMENT
Date : 2020-04-28 00:00:00
Action: Meeting

Action Type: ENFORCEMENT
Date : 2020-04-07 00:00:00
Action: Notice of Violation

Cleanup Sites from GeoTracker Cleanup Sites Data Download - Status History

Status: Open - Case Begin Date
Status Date: 2020-05-21 00:00:00

Status: Open - Assessment & Interim Remedial Action
Status Date: 2020-05-21 00:00:00

Cleanup Sites from GeoTracker Cleanup Sites Data Download - Regulatory Contacts

Contact Type: Local Agency Caseworker
Contact Name: EWAN MOFFAT
Phone No:
Organization Name: SAN DIEGO COUNTY LOP
Email: ewan.moffat@sdcounty.ca.gov
Address: P.O. Box 129261
City: San Diego

23	1 of 2	SW	0.38 / 2,014.03	404.93 / -33	Vista Burnsite 1300 Lee Drive, Oceanside 92056 CA	SANDIEGO SWF

Record ID: DEH2002-CLEA-186952
SWIS No: 37-CR-0081
Status (LEA): Permit Renewed
Date (LEA): 05/04/2002
Project Name (LEA): VISTA BURNSITE
EST No (Map): H86952
APN (Map): 1615010900
Activity (Map): J78
Type (Map): SW Burnsite
Typek (Map): K

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Record Type (LEA):	Solid Waste (LEA) Site	**Name (Map):**	Vista
Site (FOIA):	Vista Burnsite	**MrgIst No (Map):**	84
Insp Freq (FOIA):	Quarterly	**Co Owned (Map):**	No
Type of Oper (FOIA):	Solid Waste Burnsite	**X No (Map):**	6251810.50045
Inspection (Map):	Annual	**Y No (Map):**	2024385.37489
Fees (Map):	0		
Address (LEA):	0 AV/SYCAMORE DR, ESCONDIDO CA 92026		
Site Address (FOIA):	1300 Lee Drive, Oceanside 92056		
Address (Map):	North Avenue and Sycamore Dr, Oceans **Note: Many records provided by the source have a truncated [Address] field.		
Data Source:	San Diego County Solid Waste (LEA) Site; LEA site list Jan 2020 (FOIA); DEH Field Use (Map Server)		

23	2 of 2	SW	0.38 / 2,014.03	404.93 / -33	**Vista Burnsite** **1300 Lee Drive** **Oceanside CA 92054**	SWF/LF

SWIS No:	37-CR-0081	**Latitude:**	33.21756
EPA Fed Registry ID:		**Longitude:**	-117.26203
Operational Status:	Closed	**County:**	San Diego
Regulatory Status:	Pre-regulation	**Site ZIP:**	92054
Site is Archived:	No	**ARB District:**	San Diego
Absorbed on:		**SWRCB Region:**	San Diego
Absorbed by:		**Site Point of Contact:**	Abel Martinez-Centeno
Site Inert Debris Eng Fill:	No		
Closed Illegal Aband:	Yes		
Closed Illegal Aband Cat:	B1		
Finance Assuran Responsible:	No		
Incorporated City:	Oceanside		
Local Government:	Oceanside		
Reporting Agency Legal Name:	County of San Diego		
Reporting Agency Department:	Department of Environmental Health		
Enforcing Agency Legal Name:	County of San Diego		
Enforcing Agency Department:	Department of Environmental Health		

Site Owners

Site Type:	Disposal Only	**Contact Name:**	Koger Hans
Owner Name:	City Of Oceanside	**Contact First Name:**	Koger
Owner Address:	300 N Coast Hwy	**Contact Last Name:**	Hans
Owner City:	Oceanside	**Contact Title:**	Assistant City Manager
Owner State:	CA	**Contact Email:**	
Owner ZIP Code:	92054	**Started On:**	8/16/1994
Owner Phone:	(714) 435-5089		

Site Activities

Waste Disch Req No:		**Throughput UOM:**	
Site Regulatory Stat:	Pre-regulation	**Remaining Capacity:**	
Act Opl Status:	Closed	**Remaining Cap Date:**	
Act Regulatory Stat:	Pre-regulations	**Max Permit Capacity:**	
Activity Category:	Disposal	**Capacity UOM:**	
Act Classification:	Solid Waste Disposal Site	**Total Acreage:**	0
Activity is Archived:	No	**Disposal Acreage:**	0
WDR Landfill Class:		**Permitted Elevation:**	
Cease Operation:	12/31/1967	**Permitted Elev Type:**	
Cease Oper Type:	Estimated	**Permitted Depth:**	
Inspection Frequency:	Quarterly	**Permitted Depth Type:**	
Site Name:	Vista Burnsite		
Activity:	Solid Waste Disposal Site		
Max Permitted Throughput:			
Inert Debris Engineered Fill:	No		

Site Waste

Map Key	Number of Records	Direction	Distance (mi/ft)	Elev/Diff (ft)	Site	DB

Site Type: Disposal Only
Waste Type: Ash
Activity Oper Status: Closed
Act Regulatory Stat: Pre-regulations
Activity: Solid Waste Disposal Site
Activity Category: Disposal
Act Classification: Solid Waste Disposal Site
Activity Is Archived: No

Site Type: Disposal Only
Waste Type: Mixed municipal
Activity Oper Status: Closed
Act Regulatory Stat: Pre-regulations
Activity: Solid Waste Disposal Site
Activity Category: Disposal
Act Classification: Solid Waste Disposal Site
Activity Is Archived: No

Extra Details

Enforcement Agency (LEA/EA): San Diego County

24	1 of 1	WSW	0.46 / 2,448.32	341.28 / -97	THORNTON TECHNOLOGY CORPORATION 2555 JASON CT OCEANSIDE CA 92056	RCRA TSD

EPA Handler ID: CAL000445594
Gen Status Universe: No Report
Contact Name: ADAM MARTINEZ
Contact Address: 2608 TEMPLE HEIGHTS DR , , OCEANSIDE , CA, 92056 ,
Contact Phone No and Ext: 760-471-9969
Contact Email: ADAM@THORNTONTECH.COM
Contact Country:
Land Type:
County Name: SAN DIEGO
EPA Region: 09
Receive Date: 20190426

Violation/Evaluation Summary

Note: NO RECORDS: As of May 2020, there are no Compliance Monitoring and Enforcement (violation) records associated with this facility (EPA ID).

Handler Summary

Importer Activity: No
Mixed Waste Generator: No
Transporter Activity: No
Transfer Facility: No
Onsite Burner Exemption: No
Smelting, Melting and Refining: No
Underground Injection Control: No
Commercial TSD: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Burner: No
Used Oil Market Burner: No
Used Oil Spec Marketer: No

Hazardous Waste Handler Details

Sequence No: 1
Receive Date: 20190426
Handler Name: THORNTON TECHNOLOGY CORPORATION
Federal Waste Generator Code: N

Generator Code Description: Not a Generator, Verified
Source Type: Implementer

Owner/Operator Details

Owner/Operator Ind:	Current Operator	**Street No:**	
Type:	Other	**Street 1:**	2608 TEMPLE HEIGHTS DR
Name:	ADAM MARTINEZ	**Street 2:**	
Date Became Current:		**City:**	OCEANSIDE
Date Ended Current:		**State:**	CA
Phone:	760-471-9969	**Country:**	
Source Type:	Implementer	**Zip Code:**	92056

Owner/Operator Ind:	Current Owner	**Street No:**	
Type:	Other	**Street 1:**	2608 TEMPLE HEIGHTS DR
Name:	THORNTON TECHNOLOGY CORP	**Street 2:**	
Date Became Current:		**City:**	OCEANSIDE
Date Ended Current:		**State:**	CA
Phone:	760-471-9969	**Country:**	
Source Type:	Implementer	**Zip Code:**	92056

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25 | **1 of 1** | **SW** | **0.62 / 3,258.89** | **344.87 / -93** | **ALLFAST FASTENING SYSTEMS, INC.**
2640 VISTA PACIFIC DRIVE
OCEANSIDE CA 92056 | **ENVIROSTOR**

Estor/EPA ID:	71002365	**Assembly District:**	76
Site Code:		**Senate District:**	36
Nat Priority List:	NO	**Permit Renewal Lead:**	
APN:	NONE SPECIFIED	**Public Partici Spclst:**	
Census Tract:	6073019403	**Project Manager:**	
Site Type:	TIERED PERMIT	**County:**	SAN DIEGO
Address Description:	2640 VISTA PACIFIC DRIVE	**Latitude:**	33.2131649
Office:	CLEANUP CYPRESS	**Longitude:**	-117.265025
Special Program:		**Acres:**	NONE SPECIFIED
Funding:		**Supervisor:**	

Cleanup Status: INACTIVE - NEEDS EVALUATION AS OF
Cleanup Oversight Agencies: NONE SPECIFIED
School District:
Past Use that Caused Contam: NONE SPECIFIED
Potential Media Affected: NONE SPECIFIED
Potential Contamin of Concern:

NONE SPECIFIED

Site History:

Status: INACTIVE - NEEDS EVALUATION
A2 Program Type: TIERED PERMIT
CalEnviroScreen Score: 36-40%
Summary Link: http://www.envirostor.dtsc.ca.gov/public/profile_report?global_id=71002365

Unplottable Summary

Total: 4 Unplottable sites

DB	Company Name/Site Name	Address	City	Zip	ERIS ID
CHMIRS	Metrolink	Oceanside Blvd, MM 227.2 ***Control No* | *Notified Date:*** 07-1098 |	Oceanside CA		821789999
CHMIRS	San Diego Gas and Electric	Oceanside Blvd. ***Control No* | *Notified Date:*** 4/8/200109:36:02 AM	Oceanside CA		821870163
ERNS		OCEANSIDE BLVD	OCEANSIDE CA		806988988
SANDIEGO HAZ	AMITY WORKS	1316 MELROSE DR, VISTA, CA 92083	CA	92083	821677102

Unplottable Report

Site: ***Metrolink***
Oceanside Blvd, MM 227.2 Oceanside CA

CHMIRS

Control No:	07-1098	***Notified Date:***	
Notified Date Time:		***Year:***	2007
County:	San Diego County		
URL:	https://w3.calema.ca.gov/operational/malhaz.nsf/f1841a103c102734882563e200760c4a/3e9c822be16a63d5882572880035e1c5?OpenDocument		

California Hazardous Material Incident Report System (as of 2006 to 2015)

Contained:	Unknown	***3 Ves >= 300 Tons:***	
1 Substance:	Train vs Auto	***Incident Date:***	2/20/2007
1 Measure:	Gal(s)	***Incident Time:***	32
1 Other:		***Spill Site:***	Rail Road
1 Quantity:	Unknown	***Injuries?:***	
1 Type:	RAILROAD	***No of Injuries:***	0
1 Pipeline:		***Fatals?:***	
1 Vessel >= 300 Tons:		***No of Fatals:***	0
2 Substance:		***Evacs?:***	
2 Quantity:		***No of Evacs:***	0
2 Measure:		***Cleanup:***	Unknown
2 Type:		***Site:***	N/A
2 Other:		***Cause:***	
2 Pipeline:		***Cause Other:***	
2 Vessel >= 300 Tons:		***Dog No:***	1
3 Substance:		***Water:***	No
3 Quantity:		***Water Way:***	N/A
3 Measure:		***City:***	Oceanside
3 Type:		***County:***	San Diego County
3 Other:		***Zip:***	
3 Pipeline:			
Admin Agency:	San Diego County Health Services Dept.		
Notification Area:	AA/CUPA,DFG-OSPR,DTSC,RWQCB,US EPA,USFWS,PUC		
Location:	Oceanside Blvd, MM 227.2		
Description:	Automobile stuck on tracks, occupants abandoned vehicle prior to the train's impact.		

Spill Report View

Amount 1:		***Creation Date:***	02/20/2007 01:48 AM
Amount 2:		***Received By:***	
Amount 3:		***Admin Agency:***	
Type:	RAILROAD	***Admin Agency 2:***	
Water:		***Additional County:***	
On Scene:		***Phone No:***	
Other on Scene:		***Ext:***	
Other Notified:		***Pag Cell:***	
Document Title:	SPILL Report		
Spill Site:	Rail Road		
Cause Desc for Other:			
Person Notifying Cal OES:			

Hazardous Materials Spill Report

Control Cal OES:	07-1098	***Type 3:***	
Control NRC:		***Other 3:***	
Date :	02/20/2007	***Pipeline 3:***	No
Incident Date:	02/20/2007	***Ves >= 300 Tons 3:***	No
Time:	0148	***Name:***	

Incident Time:	0032	***Phone:***	
Water Involved:	No	***Ext:***	
Drink Wtr Impact:	No	***Pag Cell:***	
Qty 1:	=	***PRS Name:***	
Measure 1:	Gal(s)	***PRS Phone:***	
Type 1:	RAILROAD	***PRS Ext:***	
Pipeline 1:	No	***PRS Pag Cell:***	
Ves >= 300 Tons 1:	No	***Received By:***	
Qty 2:	=	***Header Unknown:***	SAN DIEGO COUNTY APCD
Amount 2:		***Incident Desc:***	
Measure 2:		***R R Crssing < 50 Ft:***	
Type 2:		***Uprr Rim :***	
Other 2:		***Notification Info:***	
Pipeline 2:	No	***Notification List:***	
Vessel >= 300 Tns 2:	No	***DOG Unit:***	1
Qty 3:	=	***RWQCB Unit:***	9
Amount 3:		***Injuries:***	No
Measure 3:		***Fatality:***	No

Incident Location:	Oceanside Blvd, MM 227.2
Reported Cause:	
Amount 1:	Unknown
Substance 1:	Train vs Auto
Substance 2:	
Substance 3:	
Waterway:	N/A
Contained:	Unknown
Known Impact:	
Other 1:	
Detail for Other:	
Site:	Rail Road
On Scene:	Fire Dept., Police Dept.
Other on Scene:	Metro Link Track Inspectors
Other Notified:	None
Evacuation:	No
Cleanup By:	Unknown
Agency:	Metrolink
PRS Agency:	
Admin Agency:	San Diego County Health Services Dept.
Sec Agency:	
Additional County:	
Admin Agency 2:	
Description:	Automobile stuck on tracks, occupants abandoned vehicle prior to the train's impact.

Site: ***San Diego Gas and Electric***
Oceanside Blvd. Oceanside CA

CHMIRS

Control No:		***Notified Date:***	4/8/200109:36:02 AM
Notified Date Time:		***Year:***	2001
County:	San Diego County		
URL:			

California Hazardous Material Incident Report System (as of 1997 to 2005)

Contained:	Yes	***Bbls:***	0
Substance:	Mineral Oil;;;	***Cups:***	0
Incident Date:	4/8/200112:00:00 AM	***Cuft:***	0
No of Injuries:	0	***Gals:***	0
No of Fatals:	0	***Grams:***	0
No of Evacs:	0	***Lbs:***	0
Cleanup:	Reporting Party	***Liters:***	0
Water:	Yes	***Oz:***	0
Water Way:	Loma Alta Creek	***Pts:***	1
City:	Oceanside	***Qts:***	0
County:	San Diego County	***Sheen:***	0
Zip:		***Tons:***	0
Site:	Road	***Unknown:***	0.000000
Admin Agency:	San Diego County Health Services Dept.		
Location:	Oceanside Blvd.		
Description:	A vehicle hit pole and the pole fell into creek.		

Site:

OCEANSIDE BLVD OCEANSIDE CA

ERNS

NRC Report No:	826925	***Latitude Degrees:***	
Type of Incident:	RAILROAD NON-RELEASE	***Latitude Minutes:***	
Incident Cause:	OTHER	***Latitude Seconds:***	
Incident Date:	2/20/2007 12:32:00 AM	***Longitude Degrees:***	
Incident Location:	MILE POST 227.2	***Longitude Minutes:***	
Incident Dtg:	OCCURRED	***Longitude Seconds:***	
Distance from City:		***Lat Quad:***	
Distance Units:		***Long Quad:***	
Direction from City:		***Location Section:***	
Location County:	SAN DIEGO	***Location Township:***	
Potential Flag:	No	***Location Range:***	
Year:	Year 2007 Reports		

Description of Incident: CALLER STATED A TRAIN STRUCK AN ABANDONED VEHICLE ON THE TRACKS. THERE WERE NO INJURIES OR FATALITIES.

Calls Information

Date Time Received:	2/20/2007 4:52:44 AM	***Responsible City:***	
Date Time Complete:	2/20/2007 4:58:53 AM	***Responsible State:***	XX
Call Type:	INC	***Responsible Zip:***	
Resp Company:		***Source:***	TELEPHONE
Resp Org Type:	UNKNOWN		

Incident Information

Tank ID:		***Building ID:***	
Tank Regulated:	U	***Location Area ID:***	
Tank Regulated By:		***Location Block ID:***	
Capacity of Tank:		***OCSG No:***	
Capacity Tank Units:		***OCSP No:***	
Description of Tank:		***State Lease No:***	
Actual Amount:		***Pier Dock No:***	
Actual Amount Units:		***Berth Slip No:***	
Tank Above Ground:	ABOVE	***Brake Failure:***	N
NPDES:		***Airbag Deployed:***	U
NPDES Compliance:	U	***Transport Contain:***	U
Init Contin Rel No:		***Location Subdiv:***	SAN DIEGO
Contin Rel Permit:		***Platform Rig Name:***	
Contin Release Type:		***Platform Letter:***	
Aircraft ID:		***Allision:***	N
Aircraft Runway No:		***Type of Structure:***	
Aircraft Spot No:		***Structure Name:***	
Aircraft Type:		***Structure Oper:***	U
Aircraft Model:		***Transit Bus Flag:***	
Aircraft Fuel Cap:		***Date Time Norm Serv:***	
Aircraft Fuel Cap U:		***Serv Disrupt Time:***	
Aircraft Fuel on Brd:		***Serv Disrupt Units:***	
Aircraft Fuel OB U:		***CR Begin Date:***	
Aircraft Hanger:		***CR End Date:***	
Road Mile Marker:		***CR Change Date:***	
Power Gen Facility:	U	***FBI Contact:***	
Generating Capacity:		***FBI Contact Dt Tm:***	
Type of Fixed Obj:		***Passenger Handling:***	
Type of Fuel:		***Passenger Route:***	NO
DOT Crossing No:	026817P	***Passenger Delay:***	NO
DOT Regulated:	U	***Sub Part C Test Req:***	NO
Pipeline Type:		***Conductor Test:***	
Pipeline Abv Ground:	ABOVE	***Engineer Test:***	
Pipeline Covered:	U	***Trainman Test:***	
Exposed Underwater:	N	***Yard Foreman Test:***	
Railroad Hotline:		***RCL Operator Test:***	
Railroad Milepost:	227.2	***Brakeman Test:***	
Grade Crossing:	Y	***Train Dispat Test:***	
Crossing Device Ty:	GATES	***Signalman Test:***	

Ty Vehicle Involved:	PASSENGER CAR	***Oth Employee Test:***	
Device Operational:	Y	***Unknown Test:***	

Incident Details Information

Release Secured:	U	***State Agen Report No:***	N/A
Release Rate:		***State Agen on Scene:***	NONE
Release Rate Unit:		***State Agen Notified:***	PUC
Release Rate Rate:		***Fed Agency Notified:***	NONE
Est Duration of Rel:		***Oth Agency Notified:***	
Desc Remedial Act:	REMOVED THE CAR AND INSPECTED THE TRACT	***Body of Water:***	
Fire Involved:	N	***Tributary of:***	
Fire Extinguished:	U	***Near River Mile Make:***	
Any Evacuations:	N	***Near River Mile Mark:***	
No Evacuated:		***Offshore:***	N
Who Evacuated:		***Weather Conditions:***	UNKNOWN
Radius of Evacu:		***Air Temperature:***	
Any Injuries:	N	***Wind Direction:***	
No. Injured:		***Wind Speed:***	
No. Hospitalized:		***Wind Speed Unit:***	
No. Fatalities:		***Water Supp Contam:***	U
Any Fatalities:	N	***Water Temperature:***	
Any Damages:	N	***Wave Condition:***	
Damage Amount:		***Current Speed:***	
Air Corridor Closed:	N	***Current Direction:***	
Air Corridor Desc:		***Current Speed Unit:***	
Air Closure Time:		***EMPL Fatality:***	
Waterway Closed:	N	***Pass Fatality:***	
Waterway Desc:		***Community Impact:***	N
Waterway Close Time:		***Passengers Transfer:***	NO
Road Closed:	N	***Passenger Injuries:***	
Road Desc:		***Employee Injuries:***	
Road Closure Time:		***Occupant Fatality:***	
Road Closure Units:		***Sheen Size:***	
Closure Direction:		***Sheen Size Units:***	
Major Artery:	No	***Sheen Size Length:***	
Track Closed:	Y	***Sheen Size Length U:***	
Track Desc:	MAIN	***Sheen Size Width:***	
Track Closure Time:	1	***Sheen Size Width U:***	
Track Closure Units:		***Sheen Color:***	
Track Close Dir:	ALL	***Dir of Sheen Travel:***	
Media Interest:	NONE	***Sheen Odor Desc:***	
Medium Desc:	NON-RELEASE (N/A)	***Duration Unit:***	
Addl Medium Info:		***Additional Info:***	NO ADDITIONAL INFORMATION

Site: ***AMITY WORKS***
1316 MELROSE DR, VISTA, CA 92083 CA 92083

SANDIEGO HAZ

Record ID:	DEH2002-HUPFP-138185	***GIS Record ID:***	DEH2002-HUPFP-138185
Facility Name:		***GIS Facility City:***	
Facility City:		***GIS Facility ZipCode:***	92083
Facility ZipCode:		***GIS Fac Latitude:***	
Facility Latitude:		***GIS Fac Longitude:***	
Facility Longitude:			
Facility Address:			
GIS Facility Name:	AMITY WORKS		
GIS Facility Address:	1316 MELROSE DR, VISTA, CA 92083		

HMD Permits REST Data

GIS Facility ID:		***Status:***	
GIS CERS ID:		***ER Contact:***	
GIS Record Type:	LUEG-DEH/HMD/UPFP/Facility	***ER Con Work Ph:***	
Per Type:		***Census Tract:***	
Per Sub Type:		***Parcel Zip:***	
Per Cat:		***Community:***	
Record Status:	Completed	***Jurisdiction:***	

HW TIer:		***Basin No:***	
LRG QTY MW Gener:		***BOS Dist:***	
EPA ID No:		***Tbpg Grid:***	
RMP CAL ARP:		***Insp Dist:***	
Tank Owner:		***Feature ID:***	
SIC Code:		***X Coord:***	
NAICS Code:		***Y Coord:***	
Disclose Qty Haz Mat:		***Kiva Per Typ:***	HK18 138185
Exp Date:		***Agency Name:***	COSD
Own/Operate USTs :		***Point X:***	6253970.99521522
UST Facility:		***Point Y:***	2023799.09214939
Total No USTs:		***Lat GS84:***	
No of Tanks:		***Lon GS84:***	
Own Oper APS:	N	***Loc Name:***	
Tot APSA Cap:	0	***Score:***	
Capacity LR:		***Match Type:***	
Haz Waste G:	Yes	***Side:***	
Recycle100:		***X Map Coord:***	
Onsite Haz Waste Tre:		***Y Map Coord:***	
RCRA LRG Qty:		***User Fld:***	
Haz Wst Coll Site:		***Addr Type:***	
Accept Offs:		***ARC Address:***	
Universal Waste Han:		***ARC City:***	
Toxic Gas:		***ARC Zipcode:***	
Hazmat EHS:		***ARC State:***	
Hazmat Rad:		***ARC APN:***	
Haz Waste Rad:		***Zip:***	
Haz Waste EHS:		***Farm Nursery:***	
Full Name:	AMITY WORKS	***Indian or Territory:***	
Email Perm:		***County ID:***	
Phone Perm:		***Bill Code 2:***	
Site Address:		***Bill Code 3:***	
Parcel No:	161-071-17-00	***Univ Waste Gen Type:***	
Record Ali:	Unified Program Facility Permit		
Address:	1316 MELROSE DR		
Business Type:	One (1) Waste Item or One (1) Inventory		
Bill Code:			
ER Con Name:			
ER Con Title:			
Water Purv:			
Fire Agency:			
Geo SRC:	Mapped to record address		
Match Addr:			

Appendix: Database Descriptions

Environmental Risk Information Services (ERIS) can search the following databases. The extent of historical information varies with each database and current information is determined by what is publicly available to ERIS at the time of update. ERIS updates databases as set out in ASTM Standard E1527-13, Section 8.1.8 Sources of Standard Source Information:

"Government information from nongovernmental sources may be considered current if the source updates the information at least every 90 days, or, for information that is updated less frequently than quarterly by the government agency, within 90 days of the date the government agency makes the information available to the public."

Standard Environmental Record Sources

Federal

Facility Response Plan: FRP

List of facilities that have submitted Facility Response Plans (FRP) to EPA. Facilities that could reasonably be expected to cause "substantial harm" to the environment by discharging oil into or on navigable waters are required to prepare and submit Facility Response Plans (FRPs). Harm is determined based on total oil storage capacity, secondary containment and age of tanks, oil transfer activities, history of discharges, proximity to a public drinking water intake or sensitive environments.

Government Publication Date: Mar 26, 2020

National Priority List: NPL

National Priorities List (Superfund)-NPL: EPA's (United States Environmental Protection Agency) list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under the Superfund program. The NPL, which EPA is required to update at least once a year, is based primarily on the score a site receives from EPA's Hazard Ranking System. A site must be on the NPL to receive money from the Superfund Trust Fund for remedial action.

Government Publication Date: Sep 22, 2020

National Priority List - Proposed: PROPOSED NPL

Includes sites proposed (by the EPA, the state, or concerned citizens) for addition to the NPL due to contamination by hazardous waste and identified by the Environmental Protection Agency (EPA) as a candidate for cleanup because it poses a risk to human health and/or the environment.

Government Publication Date: Sep 22, 2020

Deleted NPL: DELETED NPL

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Government Publication Date: Sep 22, 2020

SEMS List 8R Active Site Inventory: SEMS

The Superfund Program has deployed the Superfund Enterprise Management System (SEMS), which integrates multiple legacy systems into a comprehensive tracking and reporting tool. This inventory contains active sites evaluated by the Superfund program that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The Active Site Inventory Report displays site and location information at active SEMS sites. An active site is one at which site assessment, removal, remedial, enforcement, cost recovery, or oversight activities are being planned or conducted.

Government Publication Date: Aug 26, 2020

Inventory of Open Dumps, June 1985: ODI

The Resource Conservation and Recovery Act (RCRA) provides for publication of an inventory of open dumps. The Act defines "open dumps" as facilities which do not comply with EPA's "Criteria for Classification of Solid Waste Disposal Facilities and Practices" (40 CFR 257).

Government Publication Date: Jun 1985

SEMS List 8R Archive Sites: SEMS ARCHIVE

The Superfund Enterprise Management System (SEMS) Archived Site Inventory displays site and location information at sites archived from SEMS. An archived site is one at which EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program at this time.

Government Publication Date: Aug 26, 2020

Comprehensive Environmental Response, Compensation and Liability Information System - CERCLIS: CERCLIS

Superfund is a program administered by the United States Environmental Protection Agency (EPA) to locate, investigate, and clean up the worst hazardous waste sites throughout the United States. CERCLIS is a database of potential and confirmed hazardous waste sites at which the EPA Superfund program has some involvement. It contains sites that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The EPA administers the Superfund program in cooperation with individual states and tribal governments; this database is made available by the EPA.

Government Publication Date: Oct 25, 2013

EPA Report on the Status of Open Dumps on Indian Lands: IODI

Public Law 103-399, The Indian Lands Open Dump Cleanup Act of 1994, enacted October 22, 1994, identified congressional concerns that solid waste open dump sites located on American Indian or Alaska Native (AI/AN) lands threaten the health and safety of residents of those lands and contiguous areas. The purpose of the Act is to identify the location of open dumps on Indian lands, assess the relative health and environment hazards posed by those sites, and provide financial and technical assistance to Indian tribal governments to close such dumps in compliance with Federal standards and regulations or standards promulgated by Indian Tribal governments or Alaska Native entities.

Government Publication Date: Dec 31, 1998

CERCLIS - No Further Remedial Action Planned: CERCLIS NFRAP

An archived site is one at which EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program at this time. The Archive designation means that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL). This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Government Publication Date: Oct 25, 2013

CERCLIS Liens: CERCLIS LIENS

A Federal Superfund lien exists at any property where EPA has incurred Superfund costs to address contamination ("Superfund site") and has provided notice of liability to the property owner. A Federal CERCLA ("Superfund") lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. This database is made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: Jan 30, 2014

RCRA CORRACTS-Corrective Action: RCRA CORRACTS

RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. At these sites, the Corrective Action Program ensures that cleanups occur. EPA and state regulators work with facilities and communities to design remedies based on the contamination, geology, and anticipated use unique to each site.

Government Publication Date: Jul 27, 2020

RCRA non-CORRACTS TSD Facilities: RCRA TSD

RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. This database includes Non-Corrective Action sites listed as treatment, storage and/or disposal facilities of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA).

Government Publication Date: Jul 27, 2020

RCRA Generator List: RCRA LQG

RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Large Quantity Generators (LQGs) generate 1,000 kilograms per month or more of hazardous waste or more than one kilogram per month of acutely hazardous waste.

Government Publication Date: Jul 27, 2020

RCRA Small Quantity Generators List: RCRA SQG

RCRA Info is the EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Small Quantity Generators (SQGs) generate more than 100 kilograms, but less than 1,000 kilograms, of hazardous waste per month.

Government Publication Date: Jul 27, 2020

RCRA Conditionally Exempt and Very Small Quantity Generators List: RCRA CESQG

RCRA Info is the EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Conditionally Exempt and Very Small Quantity Generators (VSQG and CESQG) generate 100 kilograms or less per month of hazardous waste, or one kilogram or less per month of acutely hazardous waste. Additionally, VSQG and CESQG may not accumulate more than 1,000 kilograms of hazardous waste at any time.

Government Publication Date: Jul 27, 2020

RCRA Non-Generators: RCRA NON GEN

RCRA Info is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA Info replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). A hazardous waste generator is any person or site whose processes and actions create hazardous waste (see 40 CFR 260.10). Non-Generators do not presently generate hazardous waste.

Government Publication Date: Jul 27, 2020

Federal Engineering Controls-ECs: FED ENG

Engineering controls (ECs) encompass a variety of engineered and constructed physical barriers (e.g., soil capping, sub-surface venting systems, mitigation barriers, fences) to contain and/or prevent exposure to contamination on a property. This database is made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: Aug 26, 2020

Federal Institutional Controls- ICs: FED INST

Institutional controls are non-engineered instruments, such as administrative and legal controls, that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy. Although it is EPA's (United States Environmental Protection Agency) expectation that treatment or engineering controls will be used to address principal threat wastes and that groundwater will be returned to its beneficial use whenever practicable, ICs play an important role in site remedies because they reduce exposure to contamination by limiting land or resource use and guide human behavior at a site.

Government Publication Date: Aug 26, 2020

Emergency Response Notification System: ERNS 1982 TO 1986

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories.

Government Publication Date: 1982-1986

Emergency Response Notification System: ERNS 1987 TO 1989

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories.

Government Publication Date: 1987-1989

Emergency Response Notification System: ERNS

Database of oil and hazardous substances spill reports controlled by the National Response Center. The primary function of the National Response Center is to serve as the sole national point of contact for reporting oil, chemical, radiological, biological, and etiological discharges into the environment anywhere in the United States and its territories. This database is made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: May 19, 2020

The Assessment, Cleanup and Redevelopment Exchange System (ACRES) Brownfield Database: FED BROWNFIELDS

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties protects the environment, reduces blight, and takes development pressures off greenspaces and working lands. This database is made available by the United States Environmental Protection Agency (EPA).

Government Publication Date: Sep 3, 2019

FEMA Underground Storage Tank Listing: FEMA UST

The Federal Emergency Management Agency (FEMA) of the Department of Homeland Security maintains a list of FEMA owned underground storage tanks.

Government Publication Date: Dec 31, 2017

Petroleum Refineries: REFN

List of petroleum refineries from the U.S. Energy Information Administration (EIA) Refinery Capacity Report. Includes operating and idle petroleum refineries (including new refineries under construction) and refineries shut down during the previous year located in the 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, and other U.S. possessions. Survey locations adjusted using public data.

Government Publication Date: Jul 10, 2020

Petroleum Product and Crude Oil Rail Terminals: BULK TERMINAL

List of petroleum product and crude oil rail terminals made available by the U.S. Energy Information Administration (EIA). Includes operable bulk petroleum product terminals located in the 50 States and the District of Columbia with a total bulk shell storage capacity of 50,000 barrels or more, and/or the ability to receive volumes from tanker, barge, or pipeline; also rail terminals handling the loading and unloading of crude oil that were active between 2017 and 2018. Petroleum product terminals comes from the EIA-815 Bulk Terminal and Blender Report, which includes working, shell in operation, and shell idle for several major product groupings. Survey locations adjusted using public data.

Government Publication Date: Apr 28, 2020

LIEN on Property: SEMS LIEN

The EPA Superfund Enterprise Management System (SEMS) provides LIEN information on properties under the EPA Superfund Program.

Government Publication Date: Aug 26, 2020

Superfund Decision Documents: SUPERFUND ROD

This database contains a listing of decision documents for Superfund sites. Decision documents serve to provide the reasoning for the choice of (or) changes to a Superfund Site cleanup plan. The decision documents include Records of Decision (ROD), ROD Amendments, Explanations of Significant Differences (ESD), along with other associated memos and files. This information is maintained and made available by the US EPA (Environmental Protection Agency).

Government Publication Date: Sep 22, 2020

State

State Response Sites: RESPONSE

A list of identified confirmed release sites where the Department of Toxic Substances Control (DTSC) is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk. This database is state equivalent NPL.

Government Publication Date: Oct 5, 2020

EnviroStor Database: ENVIROSTOR

The EnviroStor Data Management System is made available by the Department of Toxic Substances Control (DTSC). Includes Corrective Action sites, Tiered Permit sites, Historical Sites and Evaluation/Investigation sites. This database is state equivalent CERCLIS.

Government Publication Date: Oct 5, 2020

Delisted State Response Sites: DELISTED ENVS

Sites removed from the list of State Response Sites made available by the EnviroStor Data Management System, Department of Toxic Substances Control (DTSC).

Government Publication Date: Oct 5, 2020

Solid Waste Information System (SWIS): SWF/LF

The Solid Waste Information System (SWIS) database made available by the Department of Resources Recycling and Recovery (CalRecycle) contains information on solid waste facilities, operations, and disposal sites throughout the State of California. The types of facilities found in this database include landfills, transfer stations, material recovery facilities, composting sites, transformation facilities, waste tire sites, and closed disposal sites.
Government Publication Date: Oct 15, 2020

EnviroStor Hazardous Waste Facilities: HWP
A list of hazardous waste facilities including permitted, post-closure and historical facilities found in the Department of Toxic Substances Control (DTSC) EnviroStor database.
Government Publication Date: Oct 5, 2020

Sites Listed in the Solid Waste Assessment Test (SWAT) Program Report: SWAT
In a 1993 Memorandum of Understanding, the State Water Resources Control Board (SWRCB) agreed to submit a comprehensive report on the Solid Waste Assessment Test (SWAT) Program to the California Integrated Waste Management Board (CIWMB). This report summarizes the work completed to date on the SWAT Program, and addresses both the impacts that leakage from solid waste disposal sites (SWDS) may have upon waters of the State and the actions taken to address such leakage.
Government Publication Date: Dec 31, 1995

Land Disposal Sites: LDS
Land Disposal Sites in GeoTracker, the State Water Resources Control Board (SWRCB)'s data management system. The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units. Waste management units include waste piles, surface impoundments, and landfills.
Government Publication Date: Jul 15, 2020

Leaking Underground Fuel Tank Reports: LUST
List of Leaking Underground Storage Tanks within the Cleanup Sites data in GeoTracker database. GeoTracker is the State Water Resources Control Board's (SWRCB) data management system for managing sites that impact groundwater, especially those that require groundwater cleanup (Underground Storage Tanks, Department of Defense and Site Cleanup Program) as well as permitted facilities such as operating Underground Storage Tanks. The Leak Prevention Program that overlooks LUST sites is the SWRCB in California's Environmental Protection Agency.
Government Publication Date: Jul 15, 2020

Delisted Leaking Storage Tanks: DELISTED LST
List of Leaking Underground Storage Tanks (LUST) cleanup sites removed from GeoTracker, the State Water Resources Control Board (SWRCB)'s database system, as well as sites removed from the SWRCB's list of UST Case closures.
Government Publication Date: Oct 7, 2020

Solid Waste Disposal Sites with Waste Constituents Above Hazardous Waste Levels: SWRCB SWF
This is a list of solid waste disposal sites identified by California State Water Resources Control Board with waste constituents above hazardous waste levels outside the waste management unit.
Government Publication Date: Sep 20, 2006

Permitted Underground Storage Tank (UST) in GeoTracker: UST
List of Permitted Underground Storage Tank (UST) sites made available by the State Water Resources Control Board (SWRCB) in California's Environmental Protection Agency (EPA).
Government Publication Date: Jul 12, 2020

Proposed Closure of Underground Storage Tank Cases: UST CLOSURE
List of UST cases that are being considered for closure by either the California Environmental Protection Agency, State Water Resources Control Board or the Executive Director that have been posted for a 60-day public comment period.
Government Publication Date: Oct 7, 2020

Historical Hazardous Substance Storage Information Database: HHSS
The Historical Hazardous Substance Storage database contains information collected in the 1980s from facilities that stored hazardous substances. The information was originally collected on paper forms, was later transferred to microfiche, and recently indexed as a searchable database. When using this database, please be aware that it is based upon self-reported information submitted by facilities which has not been independently verified. It is unlikely that every facility responded to the survey and the database should not be expected to be a complete inventory of all facilities that were operating at that time. This database is maintained by the California State Water Resources Control Board's (SWRCB) Geotracker.
Government Publication Date: Aug 27, 2015

Aboveground Storage Tanks: AST

A statewide list from 2009 of aboveground storage tanks (ASTs) made available by the Cal FIRE Office of the State Fire Marshal (OSFM). This list is no longer maintained or updated by the Cal FIRE OSFM.

Government Publication Date: Aug 31, 2009

Oil and Gas Facility Tanks: TANK OIL GAS

Locations of oil and gas tanks that fall under the jurisdiction of the Geologic Energy Management Division of the California Department of Conservation (CalGEM) (CCR 1760). CalGEM was formerly the Division of Oil, Gas, and Geothermal Resources (DOGGR).

Government Publication Date: Oct 7, 2020

Delisted Storage Tanks: DELISTED TNK

This database contains a list of storage tank sites that were removed by the State Water Resources Control Board (SWRCB) in California's Environmental Protection Agency (EPA) and the Cal FIRE Office of State Fire Marshal (OSFM).

Government Publication Date: Oct 14, 2020

California Environmental Reporting System (CERS) Tanks: CERS TANK

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs. The CalEPA oversees the statewide implementation of the Unified Program which applies regulatory standards to protect Californians from hazardous waste and materials.

Government Publication Date: Oct 26, 2020

Site Mitigation and Brownfields Reuse Program Facility Sites with Land Use Restrictions: LUR

The Department of Toxic Substances Control (DTSC) Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents land use restrictions that are active. Some sites have multiple land use restrictions.

Government Publication Date: Oct 5, 2020

Hazardous Waste Management Program Facility Sites with Deed / Land Use Restrictions: HLUR

The Department of Toxic Substances Control (DTSC) Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Government Publication Date: Oct 16, 2020

Deed Restrictions and Land Use Restrictions: DEED

List of Deed Restrictions, Land Use Restrictions and Covenants in GeoTracker made available by the State Water Resources Control Board (SWRCB) in California's Environmental Protection Agency. A deed restriction (land use covenant) may be required to facilitate the remediation of past environmental contamination and to protect human health and the environment by reducing the risk of exposure to residual hazardous materials.

Government Publication Date: Jul 15, 2020

Voluntary Cleanup Program: VCP

List of sites in the Voluntary Cleanup Program made available by the Department of Toxic Substances and Control (DTSC). The Voluntary Cleanup Program was designed to respond to lower priority sites. Under the Voluntary Cleanup Program, DTSC enters site-specific agreements with project proponents for DTSC oversight of site assessment, investigation, and/or removal or remediation activities, and the project proponents agree to pay DTSC's reasonable costs for those services.

Government Publication Date: Oct 5, 2020

GeoTracker Cleanup Program Sites: CLEANUP SITES

A list of Cleanup Program sites in the state of California made available by The State Water Resources Control Board (SWRCB) of the California Environmental Protection Agency (EPA). SWRCB tracks leaking underground storage tank cleanups as well as other water board cleanups.

Government Publication Date: Jul 15, 2020

Delisted County Records: DELISTED COUNTY

Records removed from county or CUPA databases. Records may be removed from the county lists made available by the respective county departments because they are inactive, or because they have been deemed to be below reportable thresholds.

Government Publication Date: Oct 2, 2020

Delisted California Environmental Reporting System (CERS) Tanks: DELISTED CTNK

This database contains a list of Aboveground Petroleum Storage and Underground Storage Tank sites that were removed from in the California Environmental Protection Agency (CalEPA) Regulated Site Portal.

Government Publication Date: Oct 26, 2020

Historical Hazardous Substance Storage Container Information - Facility Summary: HIST TANK

The State Water Resources Control Board maintained the Hazardous Substance Storage Containers listing and inventory in th 1980s. This facility summary lists historic tank sites where the following container types were present: farm motor vehicle fuel tanks; waste tanks; sumps; pits, ponds, lagoons, and others; and all other product tanks. This set, published in May 1988, lists facility and owner information, as well as the number of containers. This data is historic and will not be updated.

Government Publication Date: May 27, 1988

Tribal

Leaking Underground Storage Tanks (LUSTs) on Indian Lands: INDIAN LUST

LUSTs on Tribal/Indian Lands in Region 9, which includes California.

Government Publication Date: Apr 8, 2020

Underground Storage Tanks (USTs) on Indian Lands: INDIAN UST

USTs on Tribal/Indian Lands in Region 9, which includes California.

Government Publication Date: Apr 8, 2020

Delisted Tribal Leaking Storage Tanks: DELISTED ILST

Leaking Underground Storage Tank facilities which have been removed from the Regional Tribal LUST lists made available by the EPA.

Government Publication Date: Apr 14, 2020

Delisted Tribal Underground Storage Tanks: DELISTED IUST

Underground Storage Tank facilities which have been removed from the Regional Tribal UST lists made available by the EPA.

Government Publication Date: Apr 14, 2020

County

San Diego County - Solid Waste Facility List: SANDIEGO SWF

A list of open and closed Solid Waste Facilities in the County of San Diego. The County of San Diego Department of Environmental Health Solid Waste Local Enforcement Agency (LEA) is certified by the California Department of Resources Recycling and Recovery to enforce state solid waste laws and regulations in San Diego County, excluding the City of San Diego. The list is made available by San Diego County Department of Environmental Health.

Government Publication Date: Mar 18, 2020

San Diego County - Local Oversight Program List: SAN DIEGO LOP

A list of Underground Storage Tank (UST) release sites in the County of San Diego. This list is made available by San Diego County Department of Environmental Health.

Government Publication Date: Jun 15, 2020

San Diego County - Hazardous Materials Management Division Database: SANDIEGO HAZ

A list of facilities with Unified Program Facility Permit in San Diego County. This list has been made available by County of San Diego Environmental Health.

Government Publication Date: Sep 15, 2020

San Diego County - UST List: SANDIEGO UST

A list of registered Underground Storage Tanks in the County of San Diego. The list is made available by the San Diego County Hazardous Materials Division.

Government Publication Date: Sep 15, 2020

San Diego County - Site Assessment and Mitigation Investigation Sites: SANDIEGO SAM

List of sites which have undergone a Site Assessment and Mitigation investigation. This list is made available by the County of San Diego Department of Environmental Health.

Government Publication Date: Jun 30, 2020

Additional Environmental Record Sources

Federal

PFOA/PFOS Contaminated Sites: PFAS NPL

List of sites where PFOA or PFOS contaminants have been found in drinking water or soil. Made available by the Federal Environmental Protection Agency (EPA).

Government Publication Date: Jul 7, 2020

Facility Registry Service/Facility Index: FINDS/FRS

The Facility Registry Service (FRS) is a centrally managed database that identifies facilities, sites, or places subject to environmental regulations or of environmental interest. FRS creates high-quality, accurate, and authoritative facility identification records through rigorous verification and management procedures that incorporate information from program national systems, state master facility records, and data collected from EPA's Central Data Exchange registrations and data management personnel. This list is made available by the Environmental Protection Agency (US EPA).

Government Publication Date: Jun 15, 2020

Toxics Release Inventory (TRI) Program: TRIS

The EPA's Toxics Release Inventory (TRI) is a database containing data on disposal or other releases of over 650 toxic chemicals from thousands of U. S. facilities and information about how facilities manage those chemicals through recycling, energy recovery, and treatment. One of TRI's primary purposes is to inform communities about toxic chemical releases to the environment.

Government Publication Date: Feb 19, 2020

Perfluorinated Alkyl Substances (PFAS) Releases: PFAS TRI

List of Toxics Release Inventory (TRI) facilities at which the reported chemical is a Per- or polyfluorinated alkyl substance (PFAS) included in the Environmental Protection Agency (EPA)'s consolidated PFAS Master List of PFAS Substances. The EPA's Toxics Release Inventory (TRI) is a database containing data on disposal or other releases of over 650 toxic chemicals from thousands of U.S. facilities and information about how facilities manage those chemicals through recycling, energy recovery, and treatment.

Government Publication Date: Feb 19, 2020

Perfluorinated Alkyl Substances (PFAS) Water Quality: PFAS WATER

The Water Quality Portal (WQP) is a cooperative service sponsored by the United States Geological Survey (USGS), the Environmental Protection Agency (EPA), and the National Water Quality Monitoring Council (NWQMC). This listing includes records from the Water Quality Portal where the characteristic (environmental measurement) is in the Environmental Protection Agency (EPA)'s consolidated PFAS Master List of PFAS Substances.

Government Publication Date: Jul 20, 2020

Hazardous Materials Information Reporting System: HMIRS

US DOT - Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) Incidents Reports Database taken from Hazmat Intelligence Portal, U.S. Department of Transportation.

Government Publication Date: Jan 8, 2020

National Clandestine Drug Labs: NCDL

The U.S. Department of Justice ("the Department") provides this data as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy.

Government Publication Date: Oct 5, 2020

Toxic Substances Control Act: TSCA

The Environmental Protection Agency (EPA) is amending the Toxic Substances Control Act (TSCA) section 8(a) Inventory Update Reporting (IUR) rule and changing its name to the Chemical Data Reporting (CDR) rule.
The CDR enables EPA to collect and publish information on the manufacturing, processing, and use of commercial chemical substances and mixtures (referred to hereafter as chemical substances) on the TSCA Chemical Substance Inventory (TSCA Inventory). This includes current information on chemical substance production volumes, manufacturing sites, and how the chemical substances are used. This information helps the Agency determine whether people or the environment are potentially exposed to reported chemical substances. EPA publishes submitted CDR data that is not Confidential Business Information (CBI).
Government Publication Date: Apr 11, 2019

Hist TSCA: HIST TSCA
The Environmental Protection Agency (EPA) is amending the Toxic Substances Control Act (TSCA) section 8(a) Inventory Update Reporting (IUR) rule and changing its name to the Chemical Data Reporting (CDR) rule.
The 2006 IUR data summary report includes information about chemicals manufactured or imported in quantities of 25,000 pounds or more at a single site during calendar year 2005. In addition to the basic manufacturing information collected in previous reporting cycles, the 2006 cycle is the first time EPA collected information to characterize exposure during manufacturing, processing and use of organic chemicals. The 2006 cycle also is the first time manufacturers of inorganic chemicals were required to report basic manufacturing information.
Government Publication Date: Dec 31, 2006

FTTS Administrative Case Listing: FTTS ADMIN
An administrative case listing from the Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA) and Toxic Substances Control Act (TSCA), together known as FTTS. This database was obtained from the Environmental Protection Agency's (EPA) National Compliance Database (NCDB). The FTTS and NCDB was shut down in 2006.
Government Publication Date: Jan 19, 2007

FTTS Inspection Case Listing: FTTS INSP
An inspection case listing from the Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA) and Toxic Substances Control Act (TSCA), together known as FTTS. This database was obtained from the Environmental Protection Agency's (EPA) National Compliance Database (NCDB). The FTTS and NCDB was shut down in 2006.
Government Publication Date: Jan 19, 2007

Potentially Responsible Parties List: PRP
Early in the cleanup process, the Environmental Protection Agency (EPA) conducts a search to find the potentially responsible parties (PRPs). EPA looks for evidence to determine liability by matching wastes found at the site with parties that may have contributed wastes to the site.
Government Publication Date: Sep 22, 2020

State Coalition for Remediation of Drycleaners Listing: SCRD DRYCLEANER
The State Coalition for Remediation of Drycleaners (SCRD) was established in 1998, with support from the U.S. Environmental Protection Agency (EPA) Office of Superfund Remediation and Technology Innovation. Coalition members are states with mandated programs and funding for drycleaner site remediation. Current members are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.
Government Publication Date: Nov 08, 2017

Integrated Compliance Information System (ICIS): ICIS
The Integrated Compliance Information System (ICIS) is a system that provides information for the Federal Enforcement and Compliance (FE&C) and the National Pollutant Discharge Elimination System (NPDES) programs. The FE&C component supports the Environmental Protection Agency's (EPA) Civil Enforcement and Compliance program activities. These activities include Compliance Assistance, Compliance Monitoring and Enforcement. The NPDES program supports tracking of NPDES permits, limits, discharge monitoring data and other program reports.
Government Publication Date: Nov 18, 2016

Drycleaner Facilities: FED DRYCLEANERS
A list of drycleaner facilities from Enforcement and Compliance History Online (ECHO) online search. The Environmental Protection Agency (EPA) tracks facilities that possess NAIC and SIC codes that classify businesses as drycleaner establishments.
Government Publication Date: Jan 20, 2020

Delisted Drycleaner Facilities: DELISTED FED DRY
List of sites removed from the list of Drycleaner Facilities (sites in the EPA's Integrated Compliance Information System (ICIS) with NAIC or SIC codes identifying the business as a drycleaner establishment).
Government Publication Date: Jan 20, 2020

Formerly Used Defense Sites: FUDS

Formerly Used Defense Sites (FUDS) are properties that were formerly owned by, leased to, or otherwise possessed by and under the jurisdiction of the Secretary of Defense prior to October 1986, where the Department of Defense (DoD) is responsible for an environmental restoration. This list is published by the U.S. Army Corps of Engineers.

Government Publication Date: Jan 28, 2020

PHMSA Pipeline Safety Flagged Incidents: PIPELINE INCIDENT

A list of flagged pipeline incidents made available by the U.S. Department of Transportation (US DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA). PHMSA regulations require incident and accident reports for five different pipeline system types.

Government Publication Date: Jul 7, 2020

Material Licensing Tracking System (MLTS): MLTS

A list of sites that store radioactive material subject to the Nuclear Regulatory Commission (NRC) licensing requirements. This list is maintained by the NRC. As of September 2016, the NRC no longer releases location information for sites. Site locations were last received in July 2016.

Government Publication Date: Aug 5, 2020

Historic Material Licensing Tracking System (MLTS) sites: HIST MLTS

A historic list of sites that have inactive licenses and/or removed from the Material Licensing Tracking System (MLTS). In some cases, a site is removed from the MLTS when the state becomes an "Agreement State". An Agreement State is a State that has signed an agreement with the Nuclear Regulatory Commission (NRC) authorizing the State to regulate certain uses of radioactive materials within the State.

Government Publication Date: Jan 31, 2010

Mines Master Index File: MINES

The Master Index File (MIF) contains mine identification numbers issued by the Department of Labor Mine Safety and Health Administration (MSHA) for mines active or opened since 1971. Note that addresses may or may not correspond with the physical location of the mine itself.

Government Publication Date: May 1, 2020

Alternative Fueling Stations: ALT FUELS

List of alternative fueling stations made available by the US Department of Energy's Office of Energy Efficiency & Renewable Energy. Includes Biodiesel stations, Ethanol (E85) stations, Liquefied Petroleum Gas (Propane) stations, Ethanol (E85) stations, Natural Gas stations, Hydrogen stations, and Electric Vehicle Supply Equipment (EVSE). The National Renewable Energy Laboratory (NREL) obtains information about new stations from trade media, Clean Cities coordinators, a Submit New Station form on the Station Locator website, and through collaborating with infrastructure equipment and fuel providers, original equipment manufacturers (OEMs), and industry groups.

Government Publication Date: Sep 24, 2020

Registered Pesticide Establishments: SSTS

List of active EPA-registered foreign and domestic pesticide-producing and device-producing establishments based on data from the Section Seven Tracking System (SSTS). The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Section 7 requires that facilities producing pesticides, active ingredients, or devices be registered. The list of establishments is made available by the EPA.

Government Publication Date: Mar 31, 2020

Polychlorinated Biphenyl (PCB) Notifiers: PCB

Facilities included in the national list of facilities that have notified the United States Environmental Protection Agency (EPA) of Polychlorinated Biphenyl (PCB) activities. Any company or person storing, transporting or disposing of PCBs or conducting PCB research and development must notify the EPA and receive an identification number.

Government Publication Date: Oct 9, 2019

State

Dry Cleaning Facilities: DRYCLEANERS

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial, linen supply, commercial laundry, dry cleaning and pressing machines - Coin Operated Laundry and Dry Cleaning. This is provided by the Department of Toxic Substance Control.

Government Publication Date: Nov 10, 2020

Delisted Drycleaners: DELISTED DRYCLEANERS

Sites removed from the list of drycleaner related facilities that have EPA ID numbers, made available by the California Department of Toxic Substance Control.

Government Publication Date: Nov 10, 2020

Non-Toxic Dry Cleaning Incentive Program: DRYC GRANT

A list of grant recipients of the Non-Toxic Dry Cleaning Incentive Program made available by the California Air Resources Board (CARB). The program provides grants to eligible dry cleaning businesses to assist them in transitioning away from PERC machines to alternative non-toxic and non-smog forming technologies.

Government Publication Date: Feb 28, 2018

Per- and Polyfluoroalkyl Substances (PFAS): PFAS

List of sites from the State Water Resources Control Board (SWRCB)'s GeoTracker at which one or more of the potential contaminants of concern are in the PFAS Master List of PFAS Substances made available by the Environmental Protection Agency (US EPA).

Government Publication Date: Jul 15, 2020

PFOA/PFOS Groundwater: PFAS GW

A list of water wells from the Groundwater Ambient Monitoring and Assessment Program (GAMA) Groundwater Information System with the groundwater chemical perfluorooctanoic acid (PFOA) (NL = 0.014 UG/L) or perfluorooctanoic sulfonate (PFOS) (NL = 0.013 UG/L). The GAMA Groundwater Information System search is made available by California Water Boards.

Government Publication Date: Oct 22, 2020

Hazardous Waste and Substances Site List - Site Cleanup: HWSS CLEANUP

The Hazardous Waste and Substances Sites (Cortese) List is a planning document used by the State, local agencies and developers to comply with the California Environmental Quality Act requirements in providing information about the location of hazardous materials release sites. This list is published by California Department of Toxic Substance Control.

Government Publication Date: Nov 10, 2020

List of Hazardous Waste Facilities Subject to Corrective Action: DTSC HWF

This is a list of hazardous waste facilities identified in Health and Safety Code (HSC) § 25187.5. These facilities are those where Department of Toxic Substances Control (DTSC) has taken or contracted for corrective action because a facility owner/operator has failed to comply with a date for taking corrective action in an order issued under HSC § 25187, or because DTSC determined that immediate corrective action was necessary to abate an imminent or substantial endangerment.

Government Publication Date: Jul 18, 2016

EnviroStor Inspection, Compliance, and Enforcement: INSP COMP ENF

A list of permitted facilities with inspections and enforcements tracked in the Department of Toxic Substance Control (DTSC) EnviroStor.

Government Publication Date: Oct 7, 2020

School Property Evaluation Program Sites: SCH

A list of sites registered with The Department of Toxic Substances Control (DTSC) School Property Evaluation and Cleanup (SPEC) Division. SPEC is responsible for assessing, investigating and cleaning up proposed school sites. The Division ensures that selected properties are free of contamination or, if the properties were previously contaminated, that they have been cleaned up to a level that protects the students and staff who will occupy the new school.

Government Publication Date: Oct 5, 2020

California Hazardous Material Incident Report System (CHMIRS): CHMIRS

A list of reported hazardous material incidents, spills, and releases from the California Hazardous Material Incident Report System (CHMIRS). This list has been made available by the California Office of Emergency Services (OES).

Government Publication Date: Oct 12, 2020

Hazardous Waste Manifest Data: HAZNET

A list of hazardous waste manifests received each year by Department of Toxic Substances Control (DTSC). The volume of manifests is typically 900,000 - 1,000,000 annually, representing approximately 450,000 - 500,000 shipments.

Government Publication Date: Oct 24, 2016

Historical California Hazardous Material Incident Report System (CHMIRS): HIST CHMIRS

A list of reported hazardous material incidents, spills, and releases from the California Hazardous Material Incident Report System (CHMIRS) prior to 1993. This list has been made available by the California Office of Emergency Services (OES).

Government Publication Date: Jan 1, 1993

Historical Hazardous Waste Manifest Data: HIST MANIFEST

A list of historic hazardous waste manifests received by the Department of Toxic Substances Control (DTSC) from year the 1980 to 1992. The volume of manifests is typically 900,000 - 1,000,000 annually, representing approximately 450,000 - 500,000 shipments.

Government Publication Date: Dec 31, 1992

Historical Cortese List: HIST CORTESE

List of sites which were once included on the Cortese list. The Hazardous Waste and Substances Sites (Cortese) List is a planning document used by the State, local agencies and developers to comply with the California Environmental Quality Act requirements for providing information about the location of hazardous sites.

Government Publication Date: Nov 13, 2008

Cease and Desist Orders and Cleanup and Abatement Orders: CDO/CAO

The California Environment Protection Agency "Cortese List" of active Cease and Desist Orders (CDO) and Cleanup and Abatement Orders (CAO). This list contains many CDOs and CAOs that do NOT concern the discharge of wastes that are hazardous materials. Many of the listed orders concern, as examples, discharges of domestic sewage, food processing wastes, or sediment that do not contain hazardous materials, but the Water Boards' database does not distinguish between these types of orders.

Government Publication Date: Feb 16, 2012

California Environmental Reporting System (CERS) Hazardous Waste Sites: CERS HAZ

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the following regulatory programs: Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, RCRA LQ HW Generator. The CalEPA oversees the statewide implementation of the Unified Program which applies regulatory standards to protect Californians from hazardous waste and materials.

Government Publication Date: Oct 26, 2020

Delisted Environmental Reporting System (CERS) Hazardous Waste Sites: DELISTED HAZ

This database contains a list of sites that were removed from the California Environmental Protection Agency (CalEPA) in the following regulatory programs: Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, RCRA LQ HW Generator.

Government Publication Date: Nov 29, 2018

Sites in GeoTracker: GEOTRACKER

GeoTracker is the State Water Resource Control Boards' data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater. This is a list of sites in GeoTracker that aren't otherwise categorized as LUST, Land Disposal Sites (LDS), Cleanup Sites, or sites having Waste Discharge Requirements (WDR). This listing includes program types such as Underground Injection Control (UIC), Confined Animal Facilities (CAF), Irrigated Lands Regulatory Program, plans, and non-case information.

Government Publication Date: Jul 15, 2020

Waste Discharge Requirements: WASTE DISCHG

List of sites in California State Water Resources Control Board (SWRCB) Waste Discharge Requirements (WDRs) Program in California, made available by the SWRCB via GeoTracker. The WDR program regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Government Publication Date: Jul 15, 2020

Toxic Pollutant Emissions Facilities: EMISSIONS

A list of criteria and toxic pollutant emissions data for facilities in California made available by the California Environmental Protection Agency - Air Resources Board (ARB). Risk data may be based on previous inventory submittals. The toxics data are submitted to the ARB by the local air districts as requirement of the Air Toxics "Hot Spots" Program. This program requires emission inventory updates every four years.

Government Publication Date: Dec 31, 2018

Clandestine Drug Lab Sites: CDL

The Department of Toxic Substances Control (DTSC) maintains a listing of drug lab sites. DTSC is responsible for removal and disposal of hazardous substances discovered by law enforcement officials while investigating illegal/clandestine drug laboratories.

Government Publication Date: Jun 30, 2018

Tribal

No Tribal additional environmental record sources available for this State.

County

No County additional environmental databases were selected to be included in the search.

Definitions

Database Descriptions: This section provides a detailed explanation for each database including: source, information available, time coverage, and acronyms used. They are listed in alphabetic order.

Detail Report: This is the section of the report which provides the most detail for each individual record. Records are summarized by location, starting with the project property followed by records in closest proximity.

Distance: The distance value is the distance between plotted points, not necessarily the distance between the sites' boundaries. All values are an approximation.

Direction: The direction value is the compass direction of the site in respect to the project property and/or center point of the report.

Elevation: The elevation value is taken from the location at which the records for the site address have been plotted. All values are an approximation. Source: Google Elevation API.

Executive Summary: This portion of the report is divided into 3 sections:

'Report Summary'- Displays a chart indicating how many records fall on the project property and, within the report search radii.

'Site Report Summary'-Project Property'- This section lists all the records which fall on the project property. For more details, see the 'Detail Report' section.

'Site Report Summary-Surrounding Properties'- This section summarizes all records on adjacent properties, listing them in order of proximity from the project property. For more details, see the 'Detail Report' section.

Map Key: The map key number is assigned according to closest proximity from the project property. Map Key numbers always start at #1. The project property will always have a map key of '1' if records are available. If there is a number in brackets beside the main number, this will indicate the number of records on that specific property. If there is no number in brackets, there is only one record for that property.

The symbol and colour used indicates 'elevation': the red inverted triangle will dictate 'ERIS Sites with Lower Elevation', the yellow triangle will dictate 'ERIS Sites with Higher Elevation' and the orange square will dictate 'ERIS Sites with Same Elevation.'

Unplottables: These are records that could not be mapped due to various reasons, including limited geographic information. These records may or may not be in your study area, and are included as reference.

APPENDIX B
REGULATORY AGENCY RECORDS

Public Records Request

Office of the City Clerk

clopez@cityofvista.com
(760) 639-6126 Fax

Contact Information

Name:	Samantha Weis	Date:	11/30/2020
Address:	1938 Kellogg Avenue, Suite 116	Phone:	760-672-6339
	Carlsbad, CA 92008	E-Mail:	sw@weisenviro.com

Please see reverse side for instructions.

To help us assist you in retrieving the documents you request, please provide the name, title or description of the document(s) below:

Please provide any building department records and fire department records pertaining to hazardous waste or materials and underground storage tank files.

This would be for the address at 552 W. Bobier Drive, Vista, CA 92083.

The information requested is for a completion of a Phase I ESA.

Service Requested: □ Inspection ■ Electronic files (if available)
□ Hard Copy/DVD (please note there is a fee for this service)

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~**For City Use Only** ~~~~~~~~~~~~~~~~~~~~~~~~~~

Request Received via: □ Walk-in □ Telephone □ Mail □ E-mail □ Facsimile

Routed to:	
Date completed:	
Completed by:	
Copy charge:	
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

Public Records Request

Office of the City Clerk

clopez@cityofvista.com
(760) 639-6126 Fax

INSTRUCTIONS FOR REQUESTING RECORDS

(California Public Records Act, Government Code Section 6250 *et. seq.*)

1. Requests for records should be submitted to the City Clerk, 200 Civic Center Drive, Vista, CA 92084. Requests will be processed in the order in which they are received. A Public Records Request form can be faxed or e-mailed to you by calling 760.639.6125. The form is also available on the City's website www.cityofvista.com under the City Clerk's home page.

2. Requests must be for records in the possession of the City of Vista. Requests must also be focused and specific, and must reasonably describe identifiable records (Gov. Code Sec. 6253). Requests not meeting these criteria may be returned. If you need assistance in making a focused and effective request that reasonably describes an identifiable record, please let us know and we will be glad to assist you.

3. You will be notified within ten (10) days whether your request seeks copies of disclosable public records in the possession of this agency. In most cases, your request will be processed within that time, if possible.

4. If your request is unusual, the City may invoke a fourteen (14) day extension of time. Unusual circumstances may include the need to search or collect records from field facilities, review voluminous records, consult with another agency, or compile data.

5. You will be notified of the length of time it will take to process your request.

6. If your request is to review records (rather than receive copies), an appointment will be made with you for review once the records are gathered.

7. If your request is for electronic files, and they are available in electronic format, they will be sent to the email address you have provided within the time frame communicated to you.

8. There is a charge for the direct cost of regular/legal page duplication of $ .15/per page. Oversized drawings are $5.00 per sheet and DVD/CD copies are $10.00 per disk. Payment must be made prior to release of the records requested. If the documents requested exceed 50 pages, a deposit may be requested.

9. Records available for review and/or copies of records requested will be available for ten (10) days after notification of their availability. If you are unable to pick up or view your records during this time period, notification is required or your request will be considered fulfilled and a new request must be made.

10. Certain records are generally exempt for disclosure pursuant to Government Code Section 6255, where the public interest served by not making the records public clearly outweighs the public interest served by disclosure of the records. The Government Code further provides that certain other records are specifically exempt from disclosure.

Gmail Samantha Weis <sw@weisenviro.com>

Public records request

1 message

Claire Lopez <clopez@ci.vista.ca.us> Mon, Nov 30, 2020 at 1:13 PM
To: "sw@weisenviro.com" <sw@weisenviro.com>

The City of Vista has no records to provide for your request of November 30, 2020. For hazardous materials requests you need to contact the County of San Diego.

This closes your request.



Claire Lopez

Assistant City Clerk

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200 Civic Center Dr | Vista, CA 92084 | Direct (760) 643-5323

www.cityofvista.com

City Hall is now open from 8:00 am – 5:30 pm, Monday through Thursday, and every other Friday from 8:00 am – 4:30 pm. You are encouraged to continue to conduct business with the City remotely whenever possible. Please visit the City's website (CityofVista.com) for COVID-19 information and online services.

Public Records Request

City of Oceanside

Submitted On:
November 29, 2020 5:06pm
America/Los_Angeles

Name of Company Requesting Records	Weis Environmental LLC
Name of Individual Requesting	Samantha Weis
Address	1938 Kellogg Avenue, Suite 116 Carlsbad CA 92008
Do you have Microsoft Outlook?	Yes
Phone Number	7606726339
Email	sw@weisenviro.com
SUBJECT OF REQUEST: (Be specific i.e., name(s), timeframe, date(s), event(s), incident(s) etc.	Please provide any building department records and fire department records pertaining to hazardous waste or material and underground storage tank files. The information requested is for a completion of a Phase I ESA. The subject sites are APN 161-030-23-00 and APN 161-030-24-00, which are both located in the City of Oceanside.
Signature Data	First Name: Samantha Last Name: Weis Email Address: sw@weisenviro.com  Signed at: November 29, 2020 6:03pm America/Los_Angeles

Gmail

Samantha Weis <sw@weisenviro.com>

Public Records Request #8479

Brenna Koch <BKoch@oceansideca.org> Mon, Dec 7, 2020 at 8:45 AM
To: Samantha Weis <sw@weisenviro.com>
Cc: City Clerk - Public Records Request <PublicRecordsRequest@oceansideca.org>

Good Morning,

Thank you for submitting your public records request. Our office has contacted the appropriate departments regarding this inquiry. The City is not in possession of any responsive records.

Please note, you may also contact the County of San Diego Department of Environmental Health (Hazardous Materials Division) for such records (*hazardous materials and/or underground storage tanks*).

Their main contact information:

(858) 505-6700 OR (800) 253-9933

https://www.sandiegocounty.gov/content/sdc/deh.html

This completes your request. Please contact our office if you have any questions.

Thank you,

[Quoted text hidden]

Gmail

Samantha Weis <sw@weisenviro.com>

Records Request- 552 W Bobier Dr, Vista, CA , APN 161-030-23 & -24-00

1 message

DEH, Public Records <PublicRecords.DEH@sdcounty.ca.gov> Mon, Nov 30, 2020 at 11:06 AM
To: Samantha Weis <sw@weisenviro.com>

Good Morning,

No records were found for the provided address and APNs.

New Search Function: Scanned files for closed Site Assessment and Mitigation Program cases and Monitoring Well Program permits can be downloaded directly through the new DEH Document Library at:

http://www.sandiegocounty.gov/content/sdc/deh/doclibrary/

You can search by Record ID, APN, address, document category, or keyword.

Thank you,

Edwin C. Andrus

Edwin C. Andrus

Office Support Specialist

DEH – ADMIN

Help us make sure our customers have a positive experience. Please take 60 seconds to provide us with your feedback.

LIVE WELL SAN DIEGO

For local information and daily updates on COVID-19, please visit **www.coronavirus-sd.com.** To receive updates via text, send **COSD COVID19** to **468-311.**	Coronavirus Disease 2019 COVID-19

From: Samantha Weis <sw@weisenviro.com>
Sent: Sunday, November 29, 2020 5:48 PM
To: DEH, Public Records <PublicRecords.DEH@sdcounty.ca.gov>
Subject: Public Records Request- 552 W Bobier Drive, Vista, CA , APN 161-030-23-00 and APN 161-030-24-00

Hello Public Records Team,

Please find the attached public records request for the properties referenced in the subject line-

552 W Bobier Drive, Vista, CA , APN 161-030-23-00 and APN 161-030-24-00.

Thank you.

Best regards,

Samantha Weis

President

Weis Environmental LLC

1938 Kellogg Avenue, Suite 116

Carlsbad, CA 92008

sw@weisenviro.com

760.585.7070 (Office)

760.672.6339 (Mobile)

APPENDIX C
AERIAL PHOTOGRAPHS

Track Info Services, LLC

Historical Aerial Photo

Site: 552 West Bobier Dr, Vista, CA 92083

Photo Year: 2002



Job Number: NAS_706223 (NAPP-3rd_12504-17)

Original Scale of Photo: 1:40,000

Approximate Scale of This Image: 1 in equals 375 ft

Coverage Area Approximately 1/4 Mile Radius from Subject Site

≈ 375 ft

Copyright: Track Info Services, LLC

Track Info Services, LLC

Historical Aerial Photo

Site: 552 West Bobier Dr, Vista, CA 92083

Photo Year: 1994



Job Number: NAS_706223 (NAPP-2nd_6865-141)

Original Scale of Photo: 1:40,000

Approximate Scale of This Image: 1 in equals 375 ft

Coverage Area Approximately 1/4 Mile Radius from Subject Site

≈ 375 ft

Copyright: Track Info Services, LLC

Track Info Services, LLC

Historical Aerial Photo

Site: 552 West Bobier Dr, Vista, CA 92083

Photo Year: 1980



Job Number: NAS_706223 (AMI-SD-80_9999)

Original Scale of Photo: 1:36,000

Approximate Scale of This Image: 1 in equals 375 ft

Coverage Area Approximately 1/4 Mile Radius from Subject Site

≈ 375 ft

Copyright: Track Info Services, LLC

Track Info Services, LLC

Historical Aerial Photo

Site: 552 West Bobier Dr, Vista, CA 92083

Photo Year: 1974



Job Number: NAS_706223 (AMI-SD-74_6974)

Original Scale of Photo: 1:36,000

Approximate Scale of This Image: 1 in equals 375 ft

Coverage Area Approximately 1/4 Mile Radius from Subject Site

≈ 375 ft

Copyright: Track Info Services, LLC

Track Info Services, LLC

Historical Aerial Photo

Site: 552 West Bobier Dr, Vista, CA 92083

Photo Year: 1963



Job Number: NAS_706223 (CAS-SD_1-42)

Original Scale of Photo: 1:36,000

Approximate Scale of This Image: 1 in equals 375 ft

Coverage Area Approximately 1/4 Mile Radius from Subject Site

≈ 375 ft

Copyright: Track Info Services, LLC

Track Info Services, LLC

Historical Aerial Photo

Site: 552 West Bobier Dr, Vista, CA 92083

Photo Year: 1953



Job Number: NAS_706223 (AXN-1953_8M-27)

Original Scale of Photo: 1:20,000

Approximate Scale of This Image: 1 in equals 375 ft

Coverage Area Approximately 1/4 Mile Radius from Subject Site

≈ 375 ft

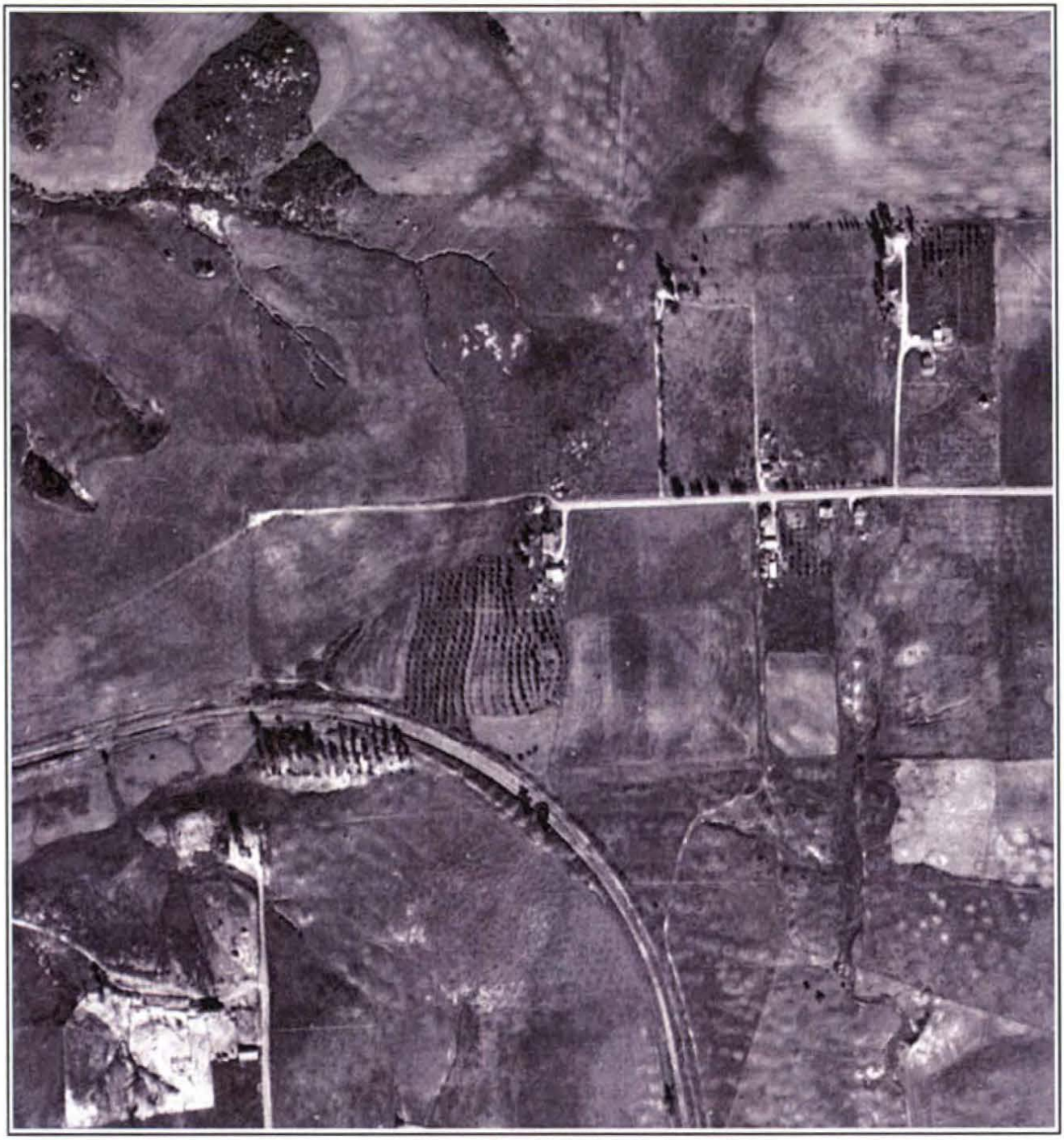
Copyright: Track Info Services, LLC

Track Info Services, LLC

Historical Aerial Photo

Site: 552 West Bobier Dr, Vista, CA 92083

Photo Year: 1947



Job Number: NAS_706223 (GS-CP_9-158)

Original Scale of Photo: 1:23,600

Approximate Scale of This Image: 1 in equals 375 ft

Coverage Area Approximately 1/4 Mile Radius from Subject Site

≈ 375 ft

Copyright: Track Info Services, LLC

APPENDIX D
SITE PHOTOGRAPHS



1. View of the Site from the northeast corner looking southwest.



2. View of the eastern portion of the Site from the south.



3. View of the central-eastern portion of the Site from the south.



4. View of the Site from the east.



5. View of the central portion of the Site from the south.



6. View of the southwestern portion of the Site.



7. Western Site boundary.



8. View of the Site from its northwest corner looking south.



9. View of the Site from the west.



10. Unimproved road in the central portion of the Site.



11. Western portion of the Site. Note soil piles to the right.



12. Concrete slab and entrance gate in the northeast corner of the Site.



13. Rock outcrops and a soil pile in the northeast corner of the Site.



14. Concrete debris in the eastern portion of the Site.



15. Fencing and an automobile tire in the eastern portion of the Site.



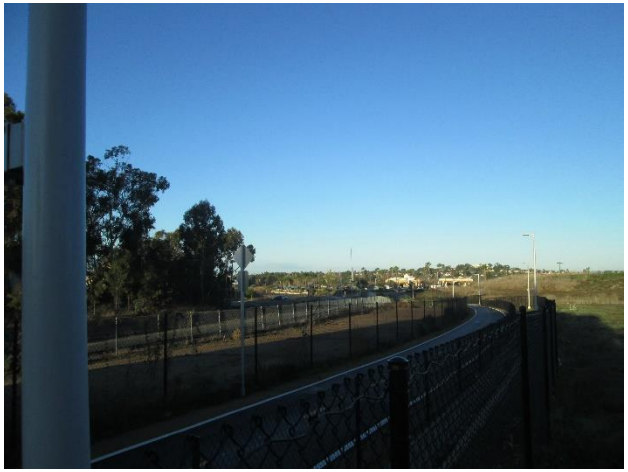
16. Miscellaneous trash and debris in the western portion of the Site.



17. Eastern adjacent residential.



18. Southern adjacent Waxwing Drive and residential.



19. Southern adjacent railroad tracks.



20. Southwestern adjacent North Melrose Drive, open space and residential development.



21. Western adjacent North Melrose Drive and gasoline station.



22. North adjacent West Bobier Drive followed by vacant land.



23. North adjacent Sports Park Way and residential development.



24. North adjacent Sports Park Way and residential development.

APPENDIX E
QUALIFICATIONS

Resume Of Dan Weis, R.E.H.S.
Environmental Manager
Address: 1938 Kellogg Avenue, Suite 116, Carlsbad, CA 92008
Phone: 760.585.7070 | Email:dw@weisenviro.com

Professional Summary

Environmental Manager and California Registered Environmental Health Specialist with extensive expertise in environmental science and assessment, environmental and public health, risk assessment, health and safety, remedial design and implementation, strategic planning and project/program design and implementation. Over 20 years of professional experience and achievement. Successful completion of projects for a wide range of clientele including, but not limited to, local government entities, developers (affordable housing and market rate), educational institutions, Federal government entities, law firms, architectural and engineering firms, lending institutions, life insurance companies, conservancies, commercial/industrial real estate owners/managers, insurance companies, wireless telecommunication carriers and real estate developers. Extensive experienced in the completion of assessment, construction and remediation quality assurance during the completion of urban redevelopment/brownfields projects and public works projects, many of which have been located in downtown areas of San Diego, Los Angeles, Oakland, San Francisco, and other urban communities throughout the State of California. Proven ability to train and mentor professional, technical and support staff. Manages a comprehensive health and safety program. Holds a Master of Science in Public Health with an emphasis in environmental health science, risk assessment, health and safety, toxicology and environmental policy. Registered Environmental Health Specialist #8172 in the State of California.

Education and Professional Certification

- University of Delaware, Bachelor of Arts, 1995
- San Diego State University, Master of Science, Public/Environmental Health, 2001
- State of California Registered Environmental Health Specialist #8172
- Centers for Disease Control and Prevention National Center for Environmental Health Division of Emergency and Environmental Health Services - Environmental Health Training in Emergency Response
- Occupational Safety and Health Administration (OSHA) 40 Hour Hazardous Waste Operations and Emergency Response Standard (HAZWOPER) Training and Annual 8 Hour HAZWOPER Refresher Training
- OSHA 8 Hour HAZWOPER Supervisor Training

Relevant Skills and Qualifications

- Proven ability to manage staff and programs/projects in challenging and diverse environments and regulatory settings. Consistently meets project schedules, goals, deadlines and budgetary restrictions.
- Completed or managed over 3,000 due diligence related environmental assessments and completed or managed over 500 subsurface environmental investigations of soil gas, soil, groundwater and other media. Investigations have included human health and ecological risk assessments, evaluations of indoor air conditions based on interpretations of subsurface conditions, underground storage tank (UST) evaluation/closure and hazardous waste characterization/management. Subsurface activities performed include the completion of soil borings using various drilling technologies, soil and groundwater sampling, installation and sampling of groundwater monitoring wells, free product evaluations, exploratory trenching and real-time delineation using mobile analytical laboratories and other soil screening technology.
- Managed over 100 remediation or construction management related projects primarily related to source removal of subsurface contaminants, including but not limited to, petroleum hydrocarbons, chlorinated solvents, heavy metals, organochlorine pesticides and other agricultural related chemicals, dioxins and furans and polychlorinated biphenyls. Has also assisted in cost recovery efforts from private parties and State/Federal funding programs for environmental assessment and remediation work and has served as an expert witness during legal proceedings pertaining to environmental related claims.
- Strong collaboration and negotiation skills with environmental regulatory agencies regarding project planning, initiation, status, approvals and implementation. Direct experience in interfacing with members of regulatory agencies including but not limited to the United States Environmental Protection Agency (EPA), California EPA Department of Toxic Substances Control and Office of Environmental Health Hazard Assessment, County of San Diego Departments of Environmental Health (DEH), Public Works and Planning and Land Use, San Diego Air Pollution Control District, South Coast Air Quality

Management District, Riverside County DEH, San Francisco City and County Department of Public Health (DPH), Arizona Department of Environmental Quality, County of Los Angeles County DPH and other local Certified Unified Program Agencies. Develop, manage and implement compliance and best practices efforts with Federal and State laws and regulations.

- Conducted and/or managed hundreds of public/environmental health related assessments including electromagnetic field surveys, radionuclide surveys, indoor air quality investigations, radon surveys, drinking water assessments, asbestos containing materials and lead-based paint surveys and mold/microbial evaluations.
- Recovered over $10,000,000 of assessment and cleanup costs for clientele from various sources including State of California Cleanup Funds, United States Environmental Protection Agency Brownfield grants and private parties including major oil companies.
- Responsible for facilitating a safe and healthy work environment in concert with the mission of the company while ensuring compliance with applicable Federal, State, and local regulations.
- Published technical papers pertaining to geogenic concentrations of metals in San Diego County, radioactive dating and pollutant chronologies in estuarine sediments and various urban runoff related implications.
- Delivered presentations pertaining to various environmental topics including human health risk assessment to membership at local and national trade conferences

Project Experience (Projects Completed at Multiple Firms)

- *14th and Island, San Diego, California* – Development of Site Mitigation Plan, contaminated soil management and disposal concurrent with site construction activities at the superblock construction site in downtown San Diego and achievement of regulatory closure with the County of San Diego Department of Environmental Health.
- *2198 Market Street, San Francisco, California* – Phase I and II Environmental Site Assessments, supplemental subsurface investigation, Site Mitigation Plan development, contaminated soil management and disposal concurrent with site construction activities and negotiation/achievement of regulatory closure with the City of San Francisco Department of Public Health.
- *Former EZ Serve, 9305 Mission Gorge Road, Santee, California* – Closure report preparation and San Diego Regional Water Quality Control Board interface and negotiation/achievement of regulatory closure under State of California low-threat policy.
- *French Field – Former Vista Burn Dump, Oceanside, California* – Oversight of the capping of a former burn dump/landfill facility and restoration for public use as a sports facility. Negotiation and achievement of regulatory closure with the California Department of Toxic Substances Control with concurrence from the San Diego Regional Water Quality Control Board and the County of San Diego Local Enforcement Agency.
- *Indoor Skydiving Facility, 1401 Imperial Avenue, San Diego, California* – Development of Soil Management Plan and contaminated soil management and disposal concurrent with site construction activities in downtown San Diego.
- Lemon Grove Avenue Realignment Project, Lemon Grove, California – Development of Impacted Soil Management Plan, Community Health and Safety Plan and Worker Health and Safety Plan and oversight of the implementation of such plans during construction activities.
- *North Side Interior Road and Utilities Project at San Diego International Airport, San Diego, California* - Subsurface assessment, development of Soil Management Plan and Work Health and Safety Plan and implementation and monitoring of soil management strategies.
- *Olympic and Hill, Los Angeles, California* – Removal of multiple underground storage tanks and underlying contaminated soil and achievement of regulatory closure with the City of Los Angeles Fire Department.
- *San Ysidro - U.S. Land Port of Entry, San Diego, California* – Subsurface assessment and development and implementation of soil management strategies.
- *VA Medical Center Long Beach, 5901 East 7th Street, Long Beach, California* - VA Long Beach: Seismic Corrections – Mental Health, Community Living Center and Chiller Replacements Project – Asbestos containing materials and lead-based paint surveys and preparation of abatement contractor bid specifications.

Appendix H
Drainage Report

MODERA MELROSE

PROJECT NO. D21-00011

Drainage Report

MELROSE DRIVE AT OCEANSIDE BOULEVARD
OCEANSIDE, CA 92056
APN: 161-030-23 & 161-030-24

DECEMBER 2021

Applicant:

MILL CREEK RESIDENTIAL TRUST
949 SOUTH COAST DRIVE, SUITE 400
COSTA MESA, CA 92626
CONTACT: JOHN COLLETTI
714.800.1387

Prepared By:

KIMLEY-HORN AND ASSOCIATES, INC.
401 B STREET, SUITE 600
SAN DIEGO, CA 92101
(619)234-9411

This Drainage Report has been prepared by Kimley-Horn and Associates, Inc. under the direct supervision of the following Registered Civil engineer. The undersigned attests to the technical data contained in this study, and to the qualifications of technical specialists providing engineering computations upon which the recommendations and conclusions are based.



4/5/2022

Registered Civil Engineer | Date

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Appendix C	Hydrology Manual Excerpts
Appendix D	Existing Condition Hydrology Calculations
Appendix E	Proposed Condition Hydrology Calculations
Appendix F	Detention Basin Calculations
Appendix G	FEMA Map

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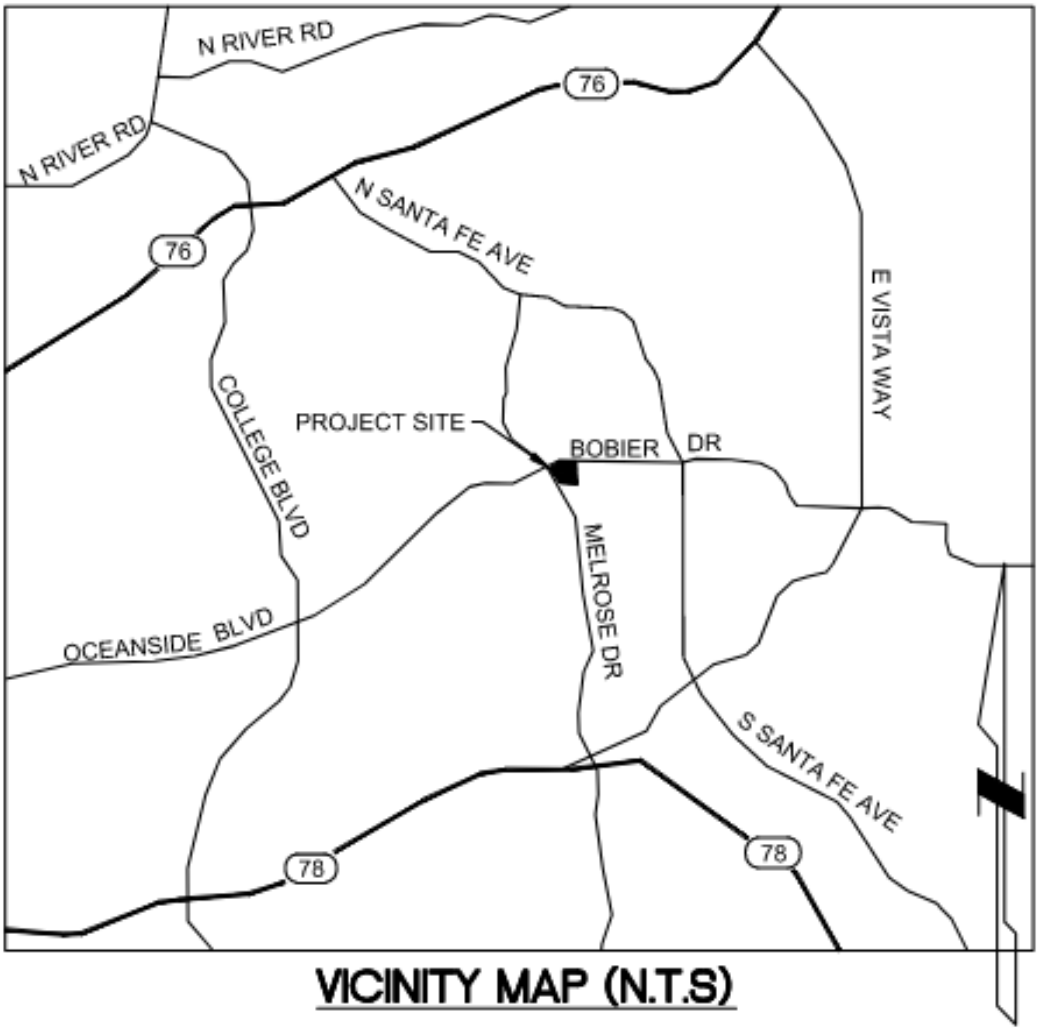
Exhibit A	Existing Drainage Exhibit
Exhibit B	Proposed Drainage Exhibit

1 INTRODUCTION

1.1 PROJECT DESCRIPTION

The Modera Melrose project consists of mixed use commercial and multifamily development on approximately 7.43-acres located in Oceanside, California. The 7.43-acre property is bounded by Oceanside Boulevard to the north, Melrose Drive to the west, residential to the east, and the NCTD Sprinter Line and a bike path to the south, see **Figure 1-1** for the Vicinity Map. The property's Assessor Parcel Numbers are 161-030-23 and 161-030-24. The project includes the grading of the existing parcel for commercial and multifamily development along with parking areas, landscape areas, and open space areas. The purpose of this report is to present the hydrology analysis and drainage calculations for the design of the Modera Melrose project.

Figure 1–1 Vicinity Map



2 PROJECT SETTING

2.1 TOPOGRAPHY

Topographic information for the project was obtained from an aerial survey by C&V Consulting in February 2020. The project is located on the USGS San Luis Rey quadrangle map, see **Appendix A**. The project is located within the Carlsbad watershed with onsite slopes starting in the northeast corner (approximate elevation 455) flowing southwest towards the bike path and NCTD Sprinter line (approximate elevation 420) where runoff enters the existing storm drain system by culverts and headwalls south of the bike trail.

2.2 PRECIPITATION

Storm intensity values were taken from the County of San Diego Hydrology Manual, 2003. The design storm was the 50-year and 100-year rainfall event calculated from the County of San Diego Hydrology Manual Rainfall Isopluvials and Figure 3-1 (see **Appendix C**) and determined to be 2.7 inches for the 50-year 6-hour event and 3.1 for the 100-year 6-hour event.

2.3 SOIL TYPES

The condition and type of soil are major factors affecting infiltration and runoff. The Natural Resources Conservation Service (NRCS) has classified soils into four general categories for comparing infiltration and runoff rates. The categories are based on properties that influence runoff, such as water infiltration rate, texture, natural discharge and moisture condition. The runoff potential is based on the amount storm water runoff at the end of a long duration storm that occurs after the soil is saturated.

Soil types were determined using the United States Department of Agriculture (USDA) Web Soil Survey. The project site consists of a mix of type A and type D soils. Hydrologic soil group D soils have a very slow infiltration rate when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high-water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission. See **Appendix B** for soils information. While A type soils exist on a majority of the site, the preliminary geotechnical report deem infiltration infeasible.

2.4 LAND USE

The zoning of the project site is Neighborhood Commercial (CN). The land use designation is Commercial.

2.5 GROUNDWATER

Based on the Geotechnical Investigation dated January 26, 2021 by Geocon, Inc. at bore hole depths ranging from 10.2’ to 19.8’, groundwater was not encountered onsite. Groundwater elevations may fluctuate seasonally.

2.6 FEMA MAPPING

The project site is not located in a flood zone mapped by the FEMA Flood Insurance Rate Map (FIRM). See **Appendix G** for FEMA map.

3 HYDROLOGIC ANALYSIS

3.1 METHODOLOGY

The Modified Rational Method was used to analyze the hydrology for the project. This methodology is typically used for small basins less than 500 acres in size because a uniform rainfall distribution is assumed for the entire duration. Drainage calculations comply with the requirements outlined in the County of San Diego Hydrology Manual, 2003. The San Diego County Advanced Engineering Software (AES) computer program was used for the Modified Rational Method analysis to calculate peak flow for the 100-year storm event under existing and proposed conditions. This program uses parameters from the County of San Diego Hydrology Manual to estimate times of concentration and peak flow rates.

3.1.1 GEOMETRY

Sub-basin boundaries, initial subareas, and flow paths were delineated for each sub-basin with AutoCAD Civil 3D software. These hydrologic parameters are shown for existing conditions and proposed conditions in **Exhibit A** and **Exhibit B**. Point elevations and surfaces within Civil 3D were also used to determine flow path slopes and estimate the shape of routing reaches. A summary of the existing condition and proposed condition inputs into the AES models are included in **Appendix A.** Topography for the project area was obtained from an aerial survey flown by C&V Consulting in 2020 and is based on the mean sea level (NAVD 88).

3.1.2 INTENSITY AND TIME OF CONCENTRATION

Rainfall data for frequency events were taken from the County of San Diego Hydrology Manual Rainfall Isopluvials to determine the appropriate precipitation for the project site. This duration precipitation value was then inputted directly into AES for each frequency event. AES software was used to calculate the appropriate time of concentration for each sub-basin The AES software then calculates an intensity based on the calculated time of concentration.

3.1.3 RUNOFF COEFFICIENT AND LOSS RATES

AES software was used to calculate loss rates and subsequent runoff coefficients for each sub-basin based on land use type, and hydrologic soil group. The existing conditions land utilized for the model was undeveloped natural grass. The proposed conditions land use is neighborhood commercial, which is defined as 80% impervious and a runoff coefficient of 0.79. Hydrologic soil group D was used for the entire site.

3.2 EXISTING CONDITIONS

The project site has been previously graded but is currently vacant. Overland runoff flows from the northeast corner to the southwest towards the bike path and NCTD sprinter line where runoff enters the existing storm drain system by culverts and headwalls south of the bike path.

Runoff coefficients for the existing site was based on the County of San Diego Hydrology Manual and is identified below in **Table 3-1** for undeveloped sites. See **Exhibit A** for **Existing Drainage Exhibit.** The hydrology model results are presented in **Appendix D.**

Table 3–1 Existing Conditions Hydrology

POC	Runoff Coefficient	Area (acres)	Flow Rate (cfs)
			100 Year
1	0.35	8.5	15.4
2	0.35	2.6	9.2
Total		11.1	24.6

3.3 PROPOSED CONDITIONS

Proposed hydrologic calculations have been prepared for the project. Tributary areas were delineated based on proposed grading for the project. The final development will be approximately 74% impervious area and 26% landscape. The San Diego County Advanced Engineering Software (AES) computer program was used for the Modified Rational Method analysis to calculate peak flow for the 100-year storm event under proposed conditions. Runoff generated from the site will be collected by Modular Wetland Systems or raised planters for water quality treatment then is collected and conveyed through an underground storm drain system, and discharge into onsite underground detention basin to meet hydromodification and detention requirements. The Modular Wetland Systems and raised planters will be designed to filter and treat the water quality storm event volume by means of biofiltration as documented in the project specific SWQMP.

The project will have two discharge locations – the same locations as the existing conditions.

POC 2 collects runoff from the northern landscaped slope that flows into the existing gutter in Oceanside Blvd and N Melrose Dr, where it enters the public storm drain system by the existing curb inlet at the southeast corner of Oceanside Blvd and Melrose Drive. The storm drain flows north and discharges in the East Channel Creek where it flows north to San Luis Rey River where it ultimately discharges into the Pacific Ocean.

POC 1 collects the rest of the site's runoff where it enters the City of Vista's public storm drain system by the existing headwall. The public storm system conveys flows south and discharges into Loma Alta Creek flowing west to ultimately discharge into the Pacific Ocean.

With the project site being 74% impervious the Runoff Coefficient used in the AES calculations was 0.79 which matches closely to the Table A-1 of the San Diego Drainage Design Manual Neighborhood Commercial land use with 80% impervious carrying a runoff coefficient of 0.79. See **Exhibit B** for **Proposed Drainage Exhibit.** The hydrology model results are presented in **Appendix E.**

Table 3–2 Proposed Conditions Hydrology

POC	Runoff Coefficient	Area (acres)	Flow Rate (cfs)
			100 Year
1	0.79	8.6	36.8
2	0.79	2.4	8.7
Total		11.0	45.5

4 HYDRAULIC ANALYSIS

4.1 METHODOLOGY

Drainage structures were designed for the Modera Melrose project according to the procedures and methodologies outlined in the County of San Diego Drainage Design Manual, 2003. The proposed drainage network is included on the **Proposed Drainage Exhibit**, **Exhibit B**.

4.1.1 STORM DRAIN DESIGN

The storm drain network pipe sizes were estimated for preliminary design utilizing the AES computer program for non-pressure pipe flow included in the **Proposed Condition Hydrology Calculations**, see **Appendix E**. The Modified Rational Method was used to calculate peak flow for the 100-year storm event.

4.1.2 DETENTION BASIN CALCULATIONS

The development of this site results in an increase of peak discharge runoff. One underground detention basin is proposed to mitigate the peak flows by storing stormwater runoff and controlling the release of flow. The project is required to mitigate for downstream hydromodification and detain for the 100-year peak flow rate. The project specific Stormwater Quality Management Plan (SWQMP) determined the storage volume and outlet orifice required to mitigate for hydromodification. Orifice calculations were prepared to determine the size of the outlets to meet hydromodification requirements and are used in the flood routing for the peak storm events. See **Appendix F** for the outlet rating curves for each basin. See project specific SWQMP for hydromodification compliance documentation.

To size the peak attenuation volume required, the Rational Method hydrology results were input into Rick Rat Hydrographs to develop a hydrograph. The proposed hydrograph was routed using Hydraflow Hydrographs Computer Software with the calculated orifice sizes and a riser structure to determine peak flow rates and maximum elevation in the underground basin. See **Appendix F** for detention basin calculations and **Table 4-1** summarizing the basin routing results. The project peak flow rates are less than the pre-project peak flow rate for all storm events per the criteria above.

Table 4–1 Proposed Detention Basin Summary

Storm Event	Proposed Runoff into Basin	Proposed Released Out of Basin	Runoff Detained in Basin
(yr)	Q (cfs)	Q (cfs)	Q (cfs)
100	32.6	1.2	30.1
Basin Volume Provided (cubic feet)			49,864 cf

The underground detention tank mitigates the project site runoff to less than pre-project flows, producing mitigated runoff less than the existing runoff at POC 1. Because the area being routed to discharge location 3 increased, the existing City of Vista pipe from discharge location 3 to POC 1 will need to be upsized from a 12” pipe to an 18” pipe, see **Appendix F** for Flowmaster results. Nothing downstream of POC 1 will be negatively affected by the project since the proposed flows at POC 1 are less than the

existing flows at POC 1. The area of runoff going to POC 2 has decreased causing the flows to decrease at POC 2 in the proposed condition as well. **Table 4-2** summarizes this in a comparison table.

The velocity was calculated using the Flowmaster program analyzing the existing pipe at each Point of Connection. The program uses input parameters such as pipe slope, discharge, roughness coefficient, and diameter to calculate the velocity of flows within the pipe. See **Appendix F** for printout and **Table 4-2** for a summary of the results.

Table 4–2 Comparison Table

POC	Existing TC (min)	Existing Q100 (cfs)	Existing V100 (fps)	Proposed TC (min)	Proposed Q100 (cfs)	Proposed V100 (fps)
1	12	13.8	19.7	6.7	8.1*	16.3*
2	13.1	9.2	11.9	13.0	8.7	11.7
**Mitigated runoff from the underground detention basin*						

4.1.3 INLET DESIGN

Inlet design will be provided during final design.

5 WATER QUALITY

5.1 POST CONSTRUCTION BMP

A project specific Storm Water Quality Management Plan (SWQMP) has been prepared. Biofiltration raised planter areas and Modular Wetland Systems are proposed throughout the project to provide stormwater treatment for the pollutants discharged from the proposed improvements. Biofiltration areas and MWS were incorporated into the project where it was practical. These BMPs are a mitigation measure for stormwater runoff treatment. Biofiltration calculations are provided in the project specific SWQMP.

5.2 EROSION AND SEDIMENTATION

The proposed commercial site will be approximately 74% impervious with landscaped slopes and parkway landscaped areas. Graded and disturbed areas will be re-vegetated and landscaped to minimize erosion. The post construction site will have minimal risks of erosion occurring given proper plant establishment and transport of sediments downstream will be significantly reduced by means of pretreatment and onsite biofiltration basins. It will be critical to maintain construction site BMP's throughout the construction duration.

6 DRAINAGE IMPROVEMENTS

This drainage study was prepared to document the storm drain design for Modera Melrose. The project includes the construction of commercial and multi-family buildings, associated parking, landscaping, and utilities. The drainage improvements throughout the project consist of installing inlets, storm drain facilities, biofiltration basins (standard and proprietary), and an underground stormwater detention tank.

The proposed drainage improvements are designed to mitigate flood and water quality impacts such that no adjacent properties will be negatively impacted from runoff generated by the development of this project. This Drainage Study documents that this project does not create any negative drainage impacts to any adjacent properties.

APPENDICES

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APPENDIX A

USGS MAP

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U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

SAN LUIS REY QUADRANGLE
CALIFORNIA-SAN DIEGO CO.
7.5-MINUTE SERIES

Project Site

T11S R4W
T11S R5W
T12S R4W
T12S R5W

Produced by the United States Geological Survey

North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid: Universal Transverse Mercator, Zone 11S
10 000-foot ticks: California Coordinate System of 1983 (zone 6)

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery	NAIP, May 2012
Roads	HERE, ©2013 - 2014
Names	GNIS, 2015
Hydrography	National Hydrography Dataset, 2012
Contours	National Elevation Dataset, 2006
Boundaries	Multiple sources; see metadata file 1972 - 2015
Public Land Survey System	BLM, 2011

MN 11° 53′ 211 MILS
GN 0° 10′ 3 MILS
UTM GRID AND 2015 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000-m Square ID
MS
Grid Zone Designation
11S

SCALE 1:24 000

1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL 20 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.18

CALIFORNIA
QUADRANGLE LOCATION

ROAD CLASSIFICATION

Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

1	2	3
4		5
6	7	8

1 Las Pulgas Canyon
2 Morro Hill
3 Bonsall
4 Oceanside
5 San Marcos
6
7 Encinitas
8 Rancho Santa Fe

ADJOINING QUADRANGLES

SAN LUIS REY, CA
2015

NSN. 7643016357641
NGA REF NO. USGSX24396666

APPENDIX B

SOIL INFORMATION

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Map Scale: 1:1,880 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Diego County Area, California
Survey Area Data: Version 15, May 27, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 24, 2020—Feb 12, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
DaC	Diablo clay, 2 to 9 percent slopes	3.1	26.1%
LeD2	Las Flores loamy fine sand, 9 to 15 percent slopes, eroded	0.0	0.0%
TuB	Tujunga sand, 0 to 5 percent slopes	8.8	73.9%
Totals for Area of Interest		**11.9**	**100.0%**

San Diego County Area, California

LeD2—Las Flores loamy fine sand, 9 to 15 percent slopes, eroded

Map Unit Setting

National map unit symbol: hbdc
Elevation: 700 feet
Mean annual precipitation: 12 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 300 to 340 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Las flores and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Las Flores

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from siliceous calcareous sandstone

Typical profile

H1 - 0 to 14 inches: loamy fine sand
H2 - 14 to 22 inches: sandy clay, clay
H2 - 14 to 22 inches: sandy clay, clay
H3 - 22 to 38 inches: loamy coarse sand
H3 - 22 to 38 inches: weathered bedrock
H4 - 38 to 48 inches:
H5 - 48 to 52 inches:

Properties and qualities

Slope: 9 to 15 percent
Depth to restrictive feature: More than 80 inches; More than 80 inches; 40 to 60 inches to paralithic bedrock
Drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Sodium adsorption ratio, maximum: 30.0
Available water capacity: Very low (about 1.3 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: R019XD061CA
Hydric soil rating: No

Minor Components

Linne

Percent of map unit: 5 percent
Hydric soil rating: No

Huerhuero

Percent of map unit: 5 percent
Hydric soil rating: No

Diablo

Percent of map unit: 5 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: San Diego County Area, California
Survey Area Data: Version 15, May 27, 2020

San Diego County Area, California

TuB—Tujunga sand, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: hbh0
Elevation: 10 to 2,500 feet
Mean annual precipitation: 10 to 25 inches
Mean annual air temperature: 59 to 64 degrees F
Frost-free period: 280 to 350 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Tujunga and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tujunga

Setting

Landform: Flood plains
Landform position (three-dimensional): Riser, flat
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 14 inches: sand
H2 - 14 to 34 inches: loamy sand, fine sand, sand
H2 - 14 to 34 inches: stratified gravelly sand to gravelly loamy sand
H2 - 14 to 34 inches:
H3 - 34 to 60 inches:

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Available water capacity: Moderate (about 6.7 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: R019XD035CA
Hydric soil rating: No

Minor Components

Grangeville
Percent of map unit: 5 percent
Hydric soil rating: No

Ramona
Percent of map unit: 5 percent
Hydric soil rating: No

Visalia
Percent of map unit: 2 percent
Hydric soil rating: No

Riverwash
Percent of map unit: 2 percent
Landform: Drainageways
Hydric soil rating: Yes

Unnamed
Percent of map unit: 1 percent
Landform: Flood plains
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: San Diego County Area, California
Survey Area Data: Version 15, May 27, 2020

San Diego County Area, California

DaC—Diablo clay, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: hbb8
Elevation: 30 to 3,000 feet
Mean annual precipitation: 12 to 35 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 200 to 320 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Diablo and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Diablo

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Calcareous sandstone and shale

Typical profile

H1 - 0 to 15 inches: clay
H2 - 15 to 32 inches: clay, silty clay loam
H2 - 15 to 32 inches: weathered bedrock
H3 - 32 to 36 inches:

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: 24 to 40 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water capacity: Moderate (about 7.7 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Altamont
Percent of map unit: 10 percent
Hydric soil rating: No

Linne
Percent of map unit: 3 percent
Hydric soil rating: No

Olivenhain
Percent of map unit: 2 percent
Hydric soil rating: No

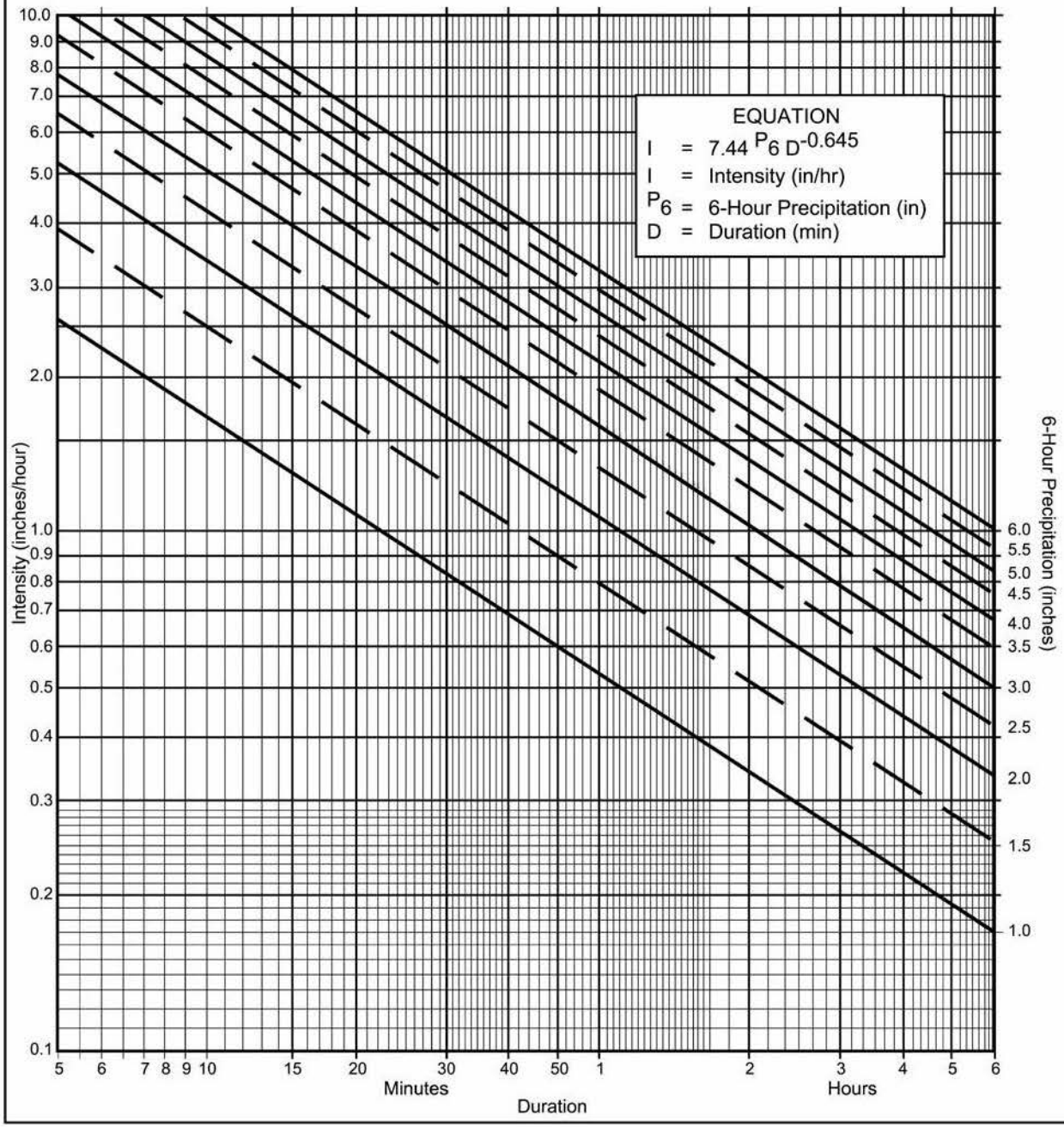
Data Source Information

Soil Survey Area: San Diego County Area, California
Survey Area Data: Version 15, May 27, 2020

APPENDIX C

HYDROLOGY MANUAL EXCERPTS

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Directions for Application:

(1) From precipitation maps determine 6 hr and 24 hr amounts for the selected frequency. These maps are included in the County Hydrology Manual (10, 50, and 100 yr maps included in the Design and Procedure Manual).

(2) Adjust 6 hr precipitation (if necessary) so that it is within the range of 45% to 65% of the 24 hr precipitation (not applicaple to Desert).

(3) Plot 6 hr precipitation on the right side of the chart.

(4) Draw a line through the point parallel to the plotted lines.

(5) This line is the intensity-duration curve for the location being analyzed.

Application Form:

(a) Selected frequency 50 year

(b) P_6 = 2.7 in., P_{24} = 4.9, $\frac{P_6}{P_{24}}$ = 55 %(2)

(c) Adjusted P_6(2) = 2.7 in.

(d) t_x = _____ min.

(e) I = _____ in./hr.

Note: This chart replaces the Intensity-Duration-Frequency curves used since 1965.

P6	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
Duration	I	I	I	I	I	I	I	I	I	I	I
5	2.63	3.95	5.27	6.59	7.90	9.22	10.54	11.86	13.17	14.49	15.81
7	2.12	3.18	4.24	5.30	6.36	7.42	8.48	9.54	10.60	11.66	12.72
10	1.68	2.53	3.37	4.21	5.05	5.90	6.74	7.58	8.42	9.27	10.11
15	1.30	1.95	2.59	3.24	3.89	4.54	5.19	5.84	6.49	7.13	7.78
20	1.08	1.62	2.15	2.69	3.23	3.77	4.31	4.85	5.39	5.93	6.46
25	0.93	1.40	1.87	2.33	2.80	3.27	3.73	4.20	4.67	5.13	5.60
30	0.83	1.24	1.66	2.07	2.49	2.90	3.32	3.73	4.15	4.56	4.98
40	0.69	1.03	1.38	1.72	2.07	2.41	2.76	3.10	3.45	3.79	4.13
50	0.60	0.90	1.19	1.49	1.79	2.09	2.39	2.69	2.98	3.28	3.58
60	0.53	0.80	1.06	1.33	1.59	1.86	2.12	2.39	2.65	2.92	3.18
90	0.41	0.61	0.82	1.02	1.23	1.43	1.63	1.84	2.04	2.25	2.45
120	0.34	0.51	0.68	0.85	1.02	1.19	1.36	1.53	1.70	1.87	2.04
150	0.29	0.44	0.59	0.73	0.88	1.03	1.18	1.32	1.47	1.62	1.76
180	0.26	0.39	0.52	0.65	0.78	0.91	1.04	1.18	1.31	1.44	1.57
240	0.22	0.33	0.43	0.54	0.65	0.76	0.87	0.98	1.08	1.19	1.30
300	0.19	0.28	0.38	0.47	0.56	0.66	0.75	0.85	0.94	1.03	1.13
360	0.17	0.25	0.33	0.42	0.50	0.58	0.67	0.75	0.84	0.92	1.00

Intensity-Duration Design Chart - Template

FIGURE 3-1

County of San Diego Hydrology Manual

Rainfall Isopluvials

50 Year Rainfall Event - 6 Hours

Isopluvial (inches)

Orange County

Riverside County

Imperial County

Mexico

Pacific Ocean

Project Site 2.7

OCEANSIDE
VISTA
CARLSBAD
ESCONDIDO
ENCINITAS
SOLANA BEACH
DEL MAR
POWAY
S.D. COUNTY
SANTEE
SAN DIEGO
EL CAJON
LA MESA
LEMON GROVE
CORONADO
SD
CHULA VISTA
IMPERIAL BEACH

117°30' 117°15' 117°00' 116°45' 116°30' 116°15'
33°30' 33°15' 33°00' 32°45' 32°30'

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3 0 3 Miles

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County of San Diego Hydrology Manual

Rainfall Isopluvials

50 Year Rainfall Event - 24 Hours

Isopluvial (inches)

Project Site 4.9

Orange County

Riverside County

Imperial County

Mexico

Pacific Ocean

OCEANSIDE
VISTA
CARLSBAD
ESCONDIDO
ENCINITAS
SOLANA BEACH
DEL MAR
POWAY
S.D. COUNTY
SANTEE
SAN DIEGO
EL CAJON
LA MESA
LEMON GROVE
CORONADO
SD
CHULA VISTA
IMPERIAL BEACH

117°30' 117°15' 117°00' 116°45' 116°30' 116°15'
33°30' 33°15' 33°00' 32°45' 32°30'

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Department of Public Works
Geographic Information Services

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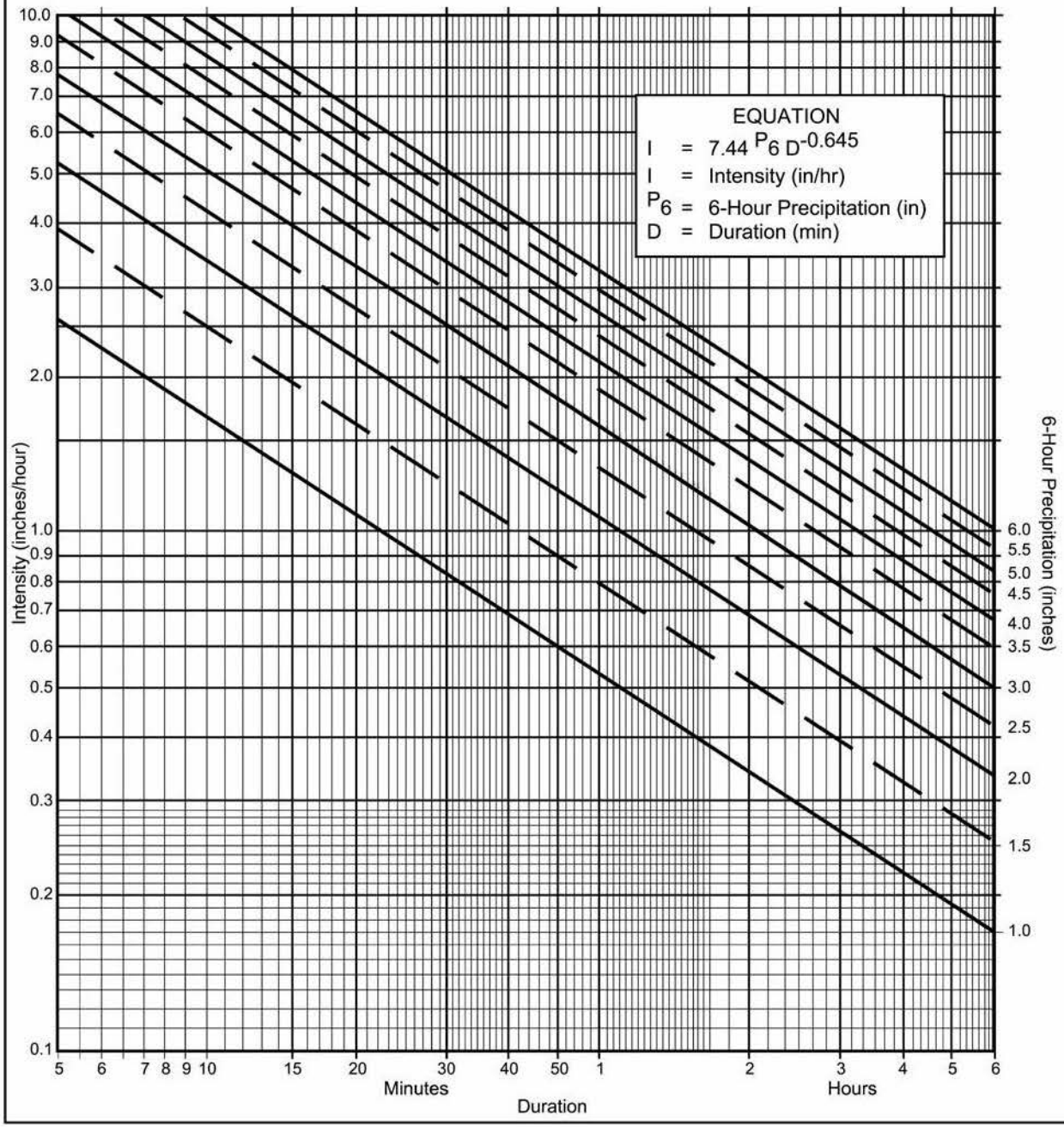
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3 0 3 Miles



Directions for Application:

(1) From precipitation maps determine 6 hr and 24 hr amounts for the selected frequency. These maps are included in the County Hydrology Manual (10, 50, and 100 yr maps included in the Design and Procedure Manual).

(2) Adjust 6 hr precipitation (if necessary) so that it is within the range of 45% to 65% of the 24 hr precipitation (not applicaple to Desert).

(3) Plot 6 hr precipitation on the right side of the chart.

(4) Draw a line through the point parallel to the plotted lines.

(5) This line is the intensity-duration curve for the location being analyzed.

Application Form:

(a) Selected frequency 100 year

(b) P_6 = 3.1 in., P_{24} = 5.4, $\frac{P_6}{P_{24}}$ = 57 %(2)

(c) Adjusted P_6(2) = 3.1 in.

(d) t_x = _____ min.

(e) I = _____ in./hr.

Note: This chart replaces the Intensity-Duration-Frequency curves used since 1965.

P6	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
Duration	I	I	I	I	I	I	I	I	I	I	I
5	2.63	3.95	5.27	6.59	7.90	9.22	10.54	11.86	13.17	14.49	15.81
7	2.12	3.18	4.24	5.30	6.36	7.42	8.48	9.54	10.60	11.66	12.72
10	1.68	2.53	3.37	4.21	5.05	5.90	6.74	7.58	8.42	9.27	10.11
15	1.30	1.95	2.59	3.24	3.89	4.54	5.19	5.84	6.49	7.13	7.78
20	1.08	1.62	2.15	2.69	3.23	3.77	4.31	4.85	5.39	5.93	6.46
25	0.93	1.40	1.87	2.33	2.80	3.27	3.73	4.20	4.67	5.13	5.60
30	0.83	1.24	1.66	2.07	2.49	2.90	3.32	3.73	4.15	4.56	4.98
40	0.69	1.03	1.38	1.72	2.07	2.41	2.76	3.10	3.45	3.79	4.13
50	0.60	0.90	1.19	1.49	1.79	2.09	2.39	2.69	2.98	3.28	3.58
60	0.53	0.80	1.06	1.33	1.59	1.86	2.12	2.39	2.65	2.92	3.18
90	0.41	0.61	0.82	1.02	1.23	1.43	1.63	1.84	2.04	2.25	2.45
120	0.34	0.51	0.68	0.85	1.02	1.19	1.36	1.53	1.70	1.87	2.04
150	0.29	0.44	0.59	0.73	0.88	1.03	1.18	1.32	1.47	1.62	1.76
180	0.26	0.39	0.52	0.65	0.78	0.91	1.04	1.18	1.31	1.44	1.57
240	0.22	0.33	0.43	0.54	0.65	0.76	0.87	0.98	1.08	1.19	1.30
300	0.19	0.28	0.38	0.47	0.56	0.66	0.75	0.85	0.94	1.03	1.13
360	0.17	0.25	0.33	0.42	0.50	0.58	0.67	0.75	0.84	0.92	1.00

Intensity-Duration Design Chart - Template

FIGURE 3-1

County of San Diego Hydrology Manual

Rainfall Isopluvials

100 Year Rainfall Event - 6 Hours

Isopluvial (inches)

Orange County

Riverside County

Imperial County

Mexico

Pacific Ocean

Project Site 3.1

OCEANSIDE
VISTA
CARLSBAD
ESCONDIDO
ENCINITAS
SOLANA BEACH
DEL MAR
POWAY
S.D. COUNTY
SANTEE
SAN DIEGO
EL CAJON
LA MESA
LEMON GROVE
CORONADO
SD
CHULA VISTA
IMPERIAL BEACH

117°30' 117°15' 117°00' 116°45' 116°30' 116°15'
33°30' 33°15' 33°00' 32°45' 32°30'

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3 0 3 Miles

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County of San Diego Hydrology Manual

Rainfall Isopluvials

100 Year Rainfall Event - 24 Hours

Isopluvial (inches)

Orange County

Riverside County

Imperial County

Mexico

Pacific Ocean

Project Site 5.4

OCEANSIDE
VISTA
CARLSBAD
ESCONDIDO
ENCINITAS
SOLANA BEACH
DEL MAR
POWAY
S.D. COUNTY
SANTEE
SAN DIEGO
EL CAJON
LA MESA
LEMON GROVE
CORONADO
CHULA VISTA
IMPERIAL BEACH
SD

117°30' 117°15' 117°00' 116°45' 116°30' 116°15'
33°30' 33°15' 33°00' 32°45' 32°30'

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APPENDIX D

EXISTING CONDITION HYDROLOGY CALCULATIONS

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            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                         2003,1985,1981 HYDROLOGY MANUAL
          (c) Copyright 1982-2011 Advanced Engineering Software (aes)
              Ver. 18.0 Release Date: 07/01/2011  License ID 1499

                            Analysis prepared by:

                        Kimley-Horn and Associates, Inc.
                               765 The City Drive
                                   Suite 200
                                Orange, CA 92868

 ************************** DESCRIPTION OF STUDY **************************
* MODERA MELROSE                                                         *
* EXISTING 100 YR RATIONAL METHOD                                        *
* OCTOBER 2021 ELL                                                       *
 ************************************************************************

  FILE NAME: MOD100EX.DAT
  TIME/DATE OF STUDY: 12:57 10/05/2021
------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
------------------------------------------------------------------------
  2003 SAN DIEGO MANUAL CRITERIA

  USER SPECIFIED STORM EVENT(YEAR) = 100.00
  6-HOUR DURATION PRECIPITATION (INCHES) =   3.100
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  12.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: USE MODIFIED RATIONAL METHOD PROCEDURES FOR CONFLUENCE ANALYSIS
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)   (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.50    1.50 0.0313 0.125 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.50 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint = 10.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
========================================================================
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =  88
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    55.00
  UPSTREAM ELEVATION(FEET) =    467.00
  DOWNSTREAM ELEVATION(FEET) =    462.87
  ELEVATION DIFFERENCE(FEET) =      4.13
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.113
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.051
  SUBAREA RUNOFF(CFS) =      0.28
  TOTAL AREA(ACRES) =      0.10   TOTAL RUNOFF(CFS) =      0.28

************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  51
------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
========================================================================
```

```
  ELEVATION DATA: UPSTREAM(FEET) =    462.87  DOWNSTREAM(FEET) =    416.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   908.00   CHANNEL SLOPE =  0.0516
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =  99.000
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   0.50
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.644
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =  88
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       6.34
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.20
  AVERAGE FLOW DEPTH(FEET) =   0.17   TRAVEL TIME(MIN.) =   6.89
  Tc(MIN.) =   12.00
  SUBAREA AREA(ACRES) =     7.10       SUBAREA RUNOFF(CFS) =   11.54
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =        7.2         PEAK FLOW RATE(CFS) =      11.70

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.22   FLOW VELOCITY(FEET/SEC.) =   2.52
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    102.00 =     963.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.644
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =  88
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.3500
  SUBAREA AREA(ACRES) =    0.64   SUBAREA RUNOFF(CFS) =    1.04
  TOTAL AREA(ACRES) =        7.8   TOTAL RUNOFF(CFS) =      12.74
  TC(MIN.) =   12.00

****************************************************************************
  FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.644
  USER-SPECIFIED RUNOFF COEFFICIENT = .8700
  S.C.S. CURVE NUMBER (AMC II) =  98
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.3909
  SUBAREA AREA(ACRES) =    0.67   SUBAREA RUNOFF(CFS) =    2.71
  TOTAL AREA(ACRES) =        8.5   TOTAL RUNOFF(CFS) =      15.45
  TC(MIN.) =   12.00

****************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    201.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =  88
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    55.00
  UPSTREAM ELEVATION(FEET) =    466.09
  DOWNSTREAM ELEVATION(FEET) =    464.87
  ELEVATION DIFFERENCE(FEET) =      1.22
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    7.677
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.194
  SUBAREA RUNOFF(CFS) =      0.22
  TOTAL AREA(ACRES) =      0.10   TOTAL RUNOFF(CFS) =      0.22

****************************************************************************
  FLOW PROCESS FROM NODE    201.00 TO NODE    202.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    464.87  DOWNSTREAM(FEET) =    458.10
  CHANNEL LENGTH THRU SUBAREA(FEET) =    93.00   CHANNEL SLOPE =  0.0728
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =  99.000
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   0.50
```

```
 100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.614
 USER-SPECIFIED RUNOFF COEFFICIENT = .3500
 S.C.S. CURVE NUMBER (AMC II) =  88
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       0.38
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.23
 AVERAGE FLOW DEPTH(FEET) =   0.06   TRAVEL TIME(MIN.) =   1.26
 Tc(MIN.) =    8.94
 SUBAREA AREA(ACRES) =     0.17       SUBAREA RUNOFF(CFS) =    0.33
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
 TOTAL AREA(ACRES) =        0.3         PEAK FLOW RATE(CFS) =       0.53

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  0.06   FLOW VELOCITY(FEET/SEC.) =   1.31
 LONGEST FLOWPATH FROM NODE    200.00 TO NODE    202.00 =     148.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    202.00 TO NODE    203.00 IS CODE =  62
----------------------------------------------------------------------------
 >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>(STREET TABLE SECTION #  1 USED)<<<<<
============================================================================
 UPSTREAM ELEVATION(FEET) =  458.10  DOWNSTREAM ELEVATION(FEET) =  422.00
 STREET LENGTH(FEET) =   923.00   CURB HEIGHT(INCHES) =  6.0
 STREET HALFWIDTH(FEET) = 30.00

 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
 INSIDE STREET CROSSFALL(DECIMAL) =  0.018
 OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
 STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.82
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) =  0.27
   HALFSTREET FLOOD WIDTH(FEET) =    7.71
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.70
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.99
 STREET FLOW TRAVEL TIME(MIN.) =   4.15   Tc(MIN.) =   13.09
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.390
 USER-SPECIFIED RUNOFF COEFFICIENT = .8700
 S.C.S. CURVE NUMBER (AMC II) =  98
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.815
 SUBAREA AREA(ACRES) =    2.30      SUBAREA RUNOFF(CFS) =    8.78
 TOTAL AREA(ACRES) =        2.6        PEAK FLOW RATE(CFS) =       9.20

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.31   HALFSTREET FLOOD WIDTH(FEET) =  10.35
 FLOW VELOCITY(FEET/SEC.) =  4.27   DEPTH*VELOCITY(FT*FT/SEC.) =   1.34
 LONGEST FLOWPATH FROM NODE    200.00 TO NODE    203.00 =    1071.00 FEET.
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =        2.6  TC(MIN.) =     13.09
 PEAK FLOW RATE(CFS)   =       9.20
============================================================================
============================================================================
 END OF RATIONAL METHOD ANALYSIS
```

APPENDIX E

PROPOSED CONDITION HYDROLOGY CALCULATIONS

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            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                          2003,1985,1981 HYDROLOGY MANUAL
          (c) Copyright 1982-2011 Advanced Engineering Software (aes)
              Ver. 18.0 Release Date: 07/01/2011  License ID 1499

                              Analysis prepared by:

                          Kimley-Horn and Associates, Inc.
                                 765 The City Drive
                                     Suite 200
                                  Orange, CA 92868

 ************************** DESCRIPTION OF STUDY **************************
* MODERA MELROSE                                                          *
* PROPOSED 100 YR RATIONAL METHOD                                         *
* DECEMBER 2021 ELL                                                       *
 ****************************************************************************

  FILE NAME: MOD100PR.DAT
  TIME/DATE OF STUDY: 09:52 12/15/2021
----------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
----------------------------------------------------------------------------
  2003 SAN DIEGO MANUAL CRITERIA

  USER SPECIFIED STORM EVENT(YEAR) = 100.00
  6-HOUR DURATION PRECIPITATION (INCHES) =   3.100
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  12.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: USE MODIFIED RATIONAL METHOD PROCEDURES FOR CONFLUENCE ANALYSIS
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.50    1.50 0.0313 0.125 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.50 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint = 10.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

****************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    65.00
  UPSTREAM ELEVATION(FEET) =    456.08
  DOWNSTREAM ELEVATION(FEET) =    454.24
  ELEVATION DIFFERENCE(FEET) =      1.84
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.180
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.168
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.65
  TOTAL AREA(ACRES) =      0.10   TOTAL RUNOFF(CFS) =      0.65

****************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
```

```
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    454.24  DOWNSTREAM(FEET) =    450.54
  CHANNEL LENGTH THRU SUBAREA(FEET) =   586.00   CHANNEL SLOPE =  0.0063
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   0.50

         ==>>WARNING: FLOW IN CHANNEL EXCEEDS CHANNEL
             CAPACITY( NORMAL DEPTH EQUAL TO SPECIFIED MAXIMUM
             ALLOWABLE DEPTH).
             AS AN APPROXIMATION, FLOWDEPTH IS SET AT MAXIMUM
             ALLOWABLE DEPTH AND IS USED FOR TRAVELTIME CALCULATIONS.

   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.419
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.79
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   3.72
  AVERAGE FLOW DEPTH(FEET) =   0.50   TRAVEL TIME(MIN.) =   2.62
  Tc(MIN.) =    5.80
  SUBAREA AREA(ACRES) =     0.72       SUBAREA RUNOFF(CFS) =    4.22
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.790
  TOTAL AREA(ACRES) =        0.8         PEAK FLOW RATE(CFS) =       4.81

         ==>>WARNING: FLOW IN CHANNEL EXCEEDS CHANNEL
             CAPACITY( NORMAL DEPTH EQUAL TO SPECIFIED MAXIMUM
             ALLOWABLE DEPTH).
             AS AN APPROXIMATION, FLOWDEPTH IS SET AT MAXIMUM
             ALLOWABLE DEPTH AND IS USED FOR TRAVELTIME CALCULATIONS.


  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.50   FLOW VELOCITY(FEET/SEC.) =   6.41

  ==>FLOWDEPTH EXCEEDS MAXIMUM ALLOWABLE DEPTH

  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    102.00 =     651.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.419
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    0.73   SUBAREA RUNOFF(CFS) =    4.28
  TOTAL AREA(ACRES) =        1.6   TOTAL RUNOFF(CFS) =       9.08
  TC(MIN.) =    5.80

****************************************************************************
  FLOW PROCESS FROM NODE    102.00 TO NODE    103.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   445.00  DOWNSTREAM(FEET) =   444.26
  FLOW LENGTH(FEET) =    74.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  12.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.00
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       9.08
  PIPE TRAVEL TIME(MIN.) =   0.18    Tc(MIN.) =    5.98
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    103.00 =     725.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    103.00 TO NODE    103.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.278
```

```
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    0.19   SUBAREA RUNOFF(CFS) =    1.09
  TOTAL AREA(ACRES) =        1.7   TOTAL RUNOFF(CFS) =      10.00
  TC(MIN.) =    5.98

****************************************************************************
  FLOW PROCESS FROM NODE    103.00 TO NODE    104.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   444.26  DOWNSTREAM(FEET) =   444.07
  FLOW LENGTH(FEET) =    19.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  13.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.10
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      10.00
  PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =    6.02
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    104.00 =     744.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    104.00 TO NODE    104.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.243
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    0.14   SUBAREA RUNOFF(CFS) =    0.80
  TOTAL AREA(ACRES) =        1.9   TOTAL RUNOFF(CFS) =      10.76
  TC(MIN.) =    6.02

****************************************************************************
  FLOW PROCESS FROM NODE    104.00 TO NODE    105.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   444.07  DOWNSTREAM(FEET) =   443.70
  FLOW LENGTH(FEET) =    37.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  14.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.15
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      10.76
  PIPE TRAVEL TIME(MIN.) =   0.09    Tc(MIN.) =    6.11
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    105.00 =     781.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    105.00 TO NODE    105.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.177
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    0.12   SUBAREA RUNOFF(CFS) =    0.68
  TOTAL AREA(ACRES) =        2.0   TOTAL RUNOFF(CFS) =      11.34
  TC(MIN.) =    6.11

****************************************************************************
  FLOW PROCESS FROM NODE    105.00 TO NODE    106.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   443.70  DOWNSTREAM(FEET) =   443.05
  FLOW LENGTH(FEET) =    65.00   MANNING'S N =  0.012
```

```
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  12.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.48
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      11.34
  PIPE TRAVEL TIME(MIN.) =   0.14    Tc(MIN.) =    6.26
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    106.00 =     846.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    106.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.069
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    0.20   SUBAREA RUNOFF(CFS) =    1.12
  TOTAL AREA(ACRES) =        2.2   TOTAL RUNOFF(CFS) =      12.29
  TC(MIN.) =    6.26

****************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    106.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.069
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    0.18   SUBAREA RUNOFF(CFS) =    1.01
  TOTAL AREA(ACRES) =        2.4   TOTAL RUNOFF(CFS) =      13.29
  TC(MIN.) =    6.26

****************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    107.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   443.05  DOWNSTREAM(FEET) =   442.14
  FLOW LENGTH(FEET) =    91.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  14.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.72
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      13.29
  PIPE TRAVEL TIME(MIN.) =   0.20    Tc(MIN.) =    6.45
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    107.00 =     937.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    107.00 TO NODE    107.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.929
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    0.07   SUBAREA RUNOFF(CFS) =    0.38
  TOTAL AREA(ACRES) =        2.5   TOTAL RUNOFF(CFS) =      13.41
  TC(MIN.) =    6.45

****************************************************************************
  FLOW PROCESS FROM NODE    107.00 TO NODE    108.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   442.14  DOWNSTREAM(FEET) =   441.69
  FLOW LENGTH(FEET) =    45.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  14.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.73
```

```
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      13.41
  PIPE TRAVEL TIME(MIN.) =   0.10    Tc(MIN.) =    6.55
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    108.00 =     982.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    108.00 TO NODE    108.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.863
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    0.14   SUBAREA RUNOFF(CFS) =    0.76
  TOTAL AREA(ACRES) =        2.6   TOTAL RUNOFF(CFS) =      14.04
  TC(MIN.) =    6.55

****************************************************************************
  FLOW PROCESS FROM NODE    108.00 TO NODE    109.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   441.69  DOWNSTREAM(FEET) =   441.15
  FLOW LENGTH(FEET) =    54.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  14.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.79
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      14.04
  PIPE TRAVEL TIME(MIN.) =   0.12    Tc(MIN.) =    6.66
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    109.00 =    1036.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    109.00 TO NODE    109.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.786
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    0.34   SUBAREA RUNOFF(CFS) =    1.82
  TOTAL AREA(ACRES) =        2.9   TOTAL RUNOFF(CFS) =      15.71
  TC(MIN.) =    6.66

****************************************************************************
  FLOW PROCESS FROM NODE    109.00 TO NODE    110.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   441.15  DOWNSTREAM(FEET) =   438.59
  FLOW LENGTH(FEET) =   256.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  16.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.91
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      15.71
  PIPE TRAVEL TIME(MIN.) =   0.54    Tc(MIN.) =    7.20
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    110.00 =    1292.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    110.00 TO NODE    110.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.454
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    0.39   SUBAREA RUNOFF(CFS) =    1.99
```

```
  TOTAL AREA(ACRES) =        3.3   TOTAL RUNOFF(CFS) =      16.93
  TC(MIN.) =    7.20

****************************************************************************
  FLOW PROCESS FROM NODE    110.00 TO NODE    111.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   438.59  DOWNSTREAM(FEET) =   438.04
  FLOW LENGTH(FEET) =    54.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  14.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.31
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      16.93
  PIPE TRAVEL TIME(MIN.) =   0.11    Tc(MIN.) =    7.31
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    111.00 =    1346.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    111.00 TO NODE    111.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.392
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    0.09   SUBAREA RUNOFF(CFS) =    0.45
  TOTAL AREA(ACRES) =        3.4   TOTAL RUNOFF(CFS) =      17.22
  TC(MIN.) =    7.31

****************************************************************************
  FLOW PROCESS FROM NODE    111.00 TO NODE    112.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   438.04  DOWNSTREAM(FEET) =   437.65
  FLOW LENGTH(FEET) =    39.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  15.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.28
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      17.22
  PIPE TRAVEL TIME(MIN.) =   0.08    Tc(MIN.) =    7.39
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    112.00 =    1385.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    112.00 TO NODE    112.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.348
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    0.20   SUBAREA RUNOFF(CFS) =    1.00
  TOTAL AREA(ACRES) =        3.6   TOTAL RUNOFF(CFS) =      18.10
  TC(MIN.) =    7.39

****************************************************************************
  FLOW PROCESS FROM NODE    112.00 TO NODE    113.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   437.65  DOWNSTREAM(FEET) =   436.60
  FLOW LENGTH(FEET) =   106.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  15.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.33
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      18.10
```

```
  PIPE TRAVEL TIME(MIN.) =   0.21    Tc(MIN.) =    7.60
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    113.00 =    1491.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    113.00 TO NODE    113.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.60
  RAINFALL INTENSITY(INCH/HR) =   6.23
  TOTAL STREAM AREA(ACRES) =     3.61
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     18.10

****************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    201.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    65.00
  UPSTREAM ELEVATION(FEET) =    454.99
  DOWNSTREAM ELEVATION(FEET) =    453.11
  ELEVATION DIFFERENCE(FEET) =      1.88
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.158
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.168
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.65
  TOTAL AREA(ACRES) =      0.10   TOTAL RUNOFF(CFS) =      0.65

****************************************************************************
  FLOW PROCESS FROM NODE    201.00 TO NODE    202.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    453.11  DOWNSTREAM(FEET) =    440.97
  CHANNEL LENGTH THRU SUBAREA(FEET) =   517.00   CHANNEL SLOPE =  0.0235
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   0.50
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.168
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.19
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.37
  AVERAGE FLOW DEPTH(FEET) =   0.45   TRAVEL TIME(MIN.) =   1.61
  Tc(MIN.) =    4.76
  SUBAREA AREA(ACRES) =     0.79       SUBAREA RUNOFF(CFS) =    5.10
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.790
  TOTAL AREA(ACRES) =        0.9         PEAK FLOW RATE(CFS) =       5.74

         ==>>WARNING: FLOW IN CHANNEL EXCEEDS CHANNEL
             CAPACITY( NORMAL DEPTH EQUAL TO SPECIFIED MAXIMUM
             ALLOWABLE DEPTH).
             AS AN APPROXIMATION, FLOWDEPTH IS SET AT MAXIMUM
             ALLOWABLE DEPTH AND IS USED FOR TRAVELTIME CALCULATIONS.


  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.50   FLOW VELOCITY(FEET/SEC.) =   7.66

  ==>FLOWDEPTH EXCEEDS MAXIMUM ALLOWABLE DEPTH

  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    202.00 =     582.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    202.00 TO NODE    202.00 IS CODE =  81
----------------------------------------------------------------------------
```

```
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.168
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    0.72   SUBAREA RUNOFF(CFS) =    4.65
  TOTAL AREA(ACRES) =        1.6   TOTAL RUNOFF(CFS) =      10.39
  TC(MIN.) =    4.76

****************************************************************************
  FLOW PROCESS FROM NODE    202.00 TO NODE    203.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    440.97  DOWNSTREAM(FEET) =    439.50
  CHANNEL LENGTH THRU SUBAREA(FEET) =   209.00   CHANNEL SLOPE =  0.0070
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   0.50

         ==>>WARNING: FLOW IN CHANNEL EXCEEDS CHANNEL
             CAPACITY( NORMAL DEPTH EQUAL TO SPECIFIED MAXIMUM
             ALLOWABLE DEPTH).
             AS AN APPROXIMATION, FLOWDEPTH IS SET AT MAXIMUM
             ALLOWABLE DEPTH AND IS USED FOR TRAVELTIME CALCULATIONS.

   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.168
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      11.10
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =  14.80
  AVERAGE FLOW DEPTH(FEET) =   0.50   TRAVEL TIME(MIN.) =   0.24
  Tc(MIN.) =    5.00
  SUBAREA AREA(ACRES) =     0.22       SUBAREA RUNOFF(CFS) =    1.42
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.790
  TOTAL AREA(ACRES) =        1.8         PEAK FLOW RATE(CFS) =      11.81

         ==>>WARNING: FLOW IN CHANNEL EXCEEDS CHANNEL
             CAPACITY( NORMAL DEPTH EQUAL TO SPECIFIED MAXIMUM
             ALLOWABLE DEPTH).
             AS AN APPROXIMATION, FLOWDEPTH IS SET AT MAXIMUM
             ALLOWABLE DEPTH AND IS USED FOR TRAVELTIME CALCULATIONS.


  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.50   FLOW VELOCITY(FEET/SEC.) =  15.74

  ==>FLOWDEPTH EXCEEDS MAXIMUM ALLOWABLE DEPTH

  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    203.00 =     791.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    203.00 TO NODE    204.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   437.63  DOWNSTREAM(FEET) =   436.81
  FLOW LENGTH(FEET) =   164.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  17.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.61
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      11.81
  PIPE TRAVEL TIME(MIN.) =   0.49    Tc(MIN.) =    5.49
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    204.00 =     955.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    204.00 TO NODE    204.00 IS CODE =  81
```

```
--------------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.694
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    0.29   SUBAREA RUNOFF(CFS) =    1.76
  TOTAL AREA(ACRES) =        2.1   TOTAL RUNOFF(CFS) =      12.89
  TC(MIN.) =    5.49

********************************************************************************
  FLOW PROCESS FROM NODE    204.00 TO NODE    204.00 IS CODE =  81
--------------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.694
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    0.18   SUBAREA RUNOFF(CFS) =    1.09
  TOTAL AREA(ACRES) =        2.3   TOTAL RUNOFF(CFS) =      13.98
  TC(MIN.) =    5.49

********************************************************************************
  FLOW PROCESS FROM NODE    204.00 TO NODE    113.00 IS CODE =  31
--------------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   436.81  DOWNSTREAM(FEET) =   436.60
  FLOW LENGTH(FEET) =    43.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  16.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.95
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      13.98
  PIPE TRAVEL TIME(MIN.) =   0.12    Tc(MIN.) =    5.61
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    113.00 =     998.00 FEET.

********************************************************************************
  FLOW PROCESS FROM NODE    113.00 TO NODE    113.00 IS CODE =   1
--------------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
================================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    5.61
  RAINFALL INTENSITY(INCH/HR) =   7.59
  TOTAL STREAM AREA(ACRES) =     2.30
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     13.98

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       18.10     7.60        6.233          3.61
      2       13.98     5.61        7.587          2.30

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       27.33     5.61       7.587
      2       29.59     7.60       6.233

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      29.59   Tc(MIN.) =    7.60
  TOTAL AREA(ACRES) =        5.9
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    113.00 =    1491.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    113.00 TO NODE    114.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   436.60  DOWNSTREAM(FEET) =   436.42
  FLOW LENGTH(FEET) =    18.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  27.0 INCH PIPE IS  20.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.32
  ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      29.59
  PIPE TRAVEL TIME(MIN.) =   0.03    Tc(MIN.) =    7.63
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    114.00 =    1509.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    114.00 TO NODE    114.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.216
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    0.21   SUBAREA RUNOFF(CFS) =    1.03
  TOTAL AREA(ACRES) =        6.1   TOTAL RUNOFF(CFS) =      30.05
  TC(MIN.) =    7.63

****************************************************************************
  FLOW PROCESS FROM NODE    114.00 TO NODE    115.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   428.10  DOWNSTREAM(FEET) =   418.10
  FLOW LENGTH(FEET) =    92.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  12.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  23.10
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      30.05
  PIPE TRAVEL TIME(MIN.) =   0.07    Tc(MIN.) =    7.70
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    115.00 =    1601.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    115.00 TO NODE    115.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.182
  USER-SPECIFIED RUNOFF COEFFICIENT = .8700
  S.C.S. CURVE NUMBER (AMC II) =  98
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7957
  SUBAREA AREA(ACRES) =    0.47   SUBAREA RUNOFF(CFS) =    2.53
  TOTAL AREA(ACRES) =        6.6   TOTAL RUNOFF(CFS) =      32.41
  TC(MIN.) =    7.70

****************************************************************************
  FLOW PROCESS FROM NODE    115.00 TO NODE    116.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   418.10  DOWNSTREAM(FEET) =   416.00
  FLOW LENGTH(FEET) =    94.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  17.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  12.87
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      32.41
  PIPE TRAVEL TIME(MIN.) =   0.12    Tc(MIN.) =    7.82
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    116.00 =    1695.00 FEET.
```

```
****************************************************************************
 FLOW PROCESS FROM NODE    116.00 TO NODE    116.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.119
 USER-SPECIFIED RUNOFF COEFFICIENT = .3500
 S.C.S. CURVE NUMBER (AMC II) =  88
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.7864
 SUBAREA AREA(ACRES) =    0.14   SUBAREA RUNOFF(CFS) =    0.30
 TOTAL AREA(ACRES) =        6.7   TOTAL RUNOFF(CFS) =      32.41
 TC(MIN.) =    7.82
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE    116.00 TO NODE    116.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.119
 USER-SPECIFIED RUNOFF COEFFICIENT = .3500
 S.C.S. CURVE NUMBER (AMC II) =  88
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.6896
 SUBAREA AREA(ACRES) =    1.92   SUBAREA RUNOFF(CFS) =    4.11
 TOTAL AREA(ACRES) =        8.6   TOTAL RUNOFF(CFS) =      36.50
 TC(MIN.) =    7.82

****************************************************************************
 FLOW PROCESS FROM NODE    400.00 TO NODE    401.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
 USER-SPECIFIED RUNOFF COEFFICIENT = .3500
 S.C.S. CURVE NUMBER (AMC II) =  88
 INITIAL SUBAREA FLOW-LENGTH(FEET) =    55.00
 UPSTREAM ELEVATION(FEET) =    466.09
 DOWNSTREAM ELEVATION(FEET) =    464.87
 ELEVATION DIFFERENCE(FEET) =      1.22
 SUBAREA OVERLAND TIME OF FLOW(MIN.) =    7.677
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.194
 SUBAREA RUNOFF(CFS) =      0.22
 TOTAL AREA(ACRES) =      0.10   TOTAL RUNOFF(CFS) =      0.22

****************************************************************************
 FLOW PROCESS FROM NODE    401.00 TO NODE    402.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    464.87  DOWNSTREAM(FEET) =    458.10
 CHANNEL LENGTH THRU SUBAREA(FEET) =    83.00   CHANNEL SLOPE =  0.0816
 CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =  99.000
 MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   0.50
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.672
 USER-SPECIFIED RUNOFF COEFFICIENT = .3500
 S.C.S. CURVE NUMBER (AMC II) =  88
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       0.39
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.23
 AVERAGE FLOW DEPTH(FEET) =   0.06   TRAVEL TIME(MIN.) =   1.12
 Tc(MIN.) =    8.80
 SUBAREA AREA(ACRES) =     0.17       SUBAREA RUNOFF(CFS) =    0.34
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
 TOTAL AREA(ACRES) =        0.3         PEAK FLOW RATE(CFS) =       0.54

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  0.06   FLOW VELOCITY(FEET/SEC.) =   1.33
 LONGEST FLOWPATH FROM NODE    400.00 TO NODE    402.00 =     138.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    402.00 TO NODE    403.00 IS CODE =  62
```

```
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  1 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  458.10  DOWNSTREAM ELEVATION(FEET) =  422.00
  STREET LENGTH(FEET) =   923.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 30.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.018
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.57
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.26
    HALFSTREET FLOOD WIDTH(FEET) =    7.51
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.66
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.96
  STREET FLOW TRAVEL TIME(MIN.) =   4.21   Tc(MIN.) =   13.01
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.409
  USER-SPECIFIED RUNOFF COEFFICIENT = .8700
  S.C.S. CURVE NUMBER (AMC II) =  98
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.812
  SUBAREA AREA(ACRES) =    2.15      SUBAREA RUNOFF(CFS) =    8.25
  TOTAL AREA(ACRES) =        2.4        PEAK FLOW RATE(CFS) =       8.66

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.31   HALFSTREET FLOOD WIDTH(FEET) =  10.12
  FLOW VELOCITY(FEET/SEC.) =  4.19   DEPTH*VELOCITY(FT*FT/SEC.) =   1.30
  LONGEST FLOWPATH FROM NODE    400.00 TO NODE    403.00 =    1061.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        2.4  TC(MIN.) =     13.01
  PEAK FLOW RATE(CFS)   =       8.66
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

APPENDIX F

DETENTION BASINS CALCULATIONS

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RATIONAL METHOD HYDROGRAPH PROGRAM
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RUN DATE 12/15/2021
HYDROGRAPH FILE NAME Text1
TIME OF CONCENTRATION 5 MIN.
6 HOUR RAINFALL 3.1 INCHES
BASIN AREA 6.1 ACRES
RUNOFF COEFFICIENT 0.79
PEAK DISCHARGE 30.1 CFS

TIME (MIN) = 0	DISCHARGE (CFS) = 0
TIME (MIN) = 5	DISCHARGE (CFS) = 0.9
TIME (MIN) = 10	DISCHARGE (CFS) = 0.9
TIME (MIN) = 15	DISCHARGE (CFS) = 0.9
TIME (MIN) = 20	DISCHARGE (CFS) = 0.9
TIME (MIN) = 25	DISCHARGE (CFS) = 0.9
TIME (MIN) = 30	DISCHARGE (CFS) = 1
TIME (MIN) = 35	DISCHARGE (CFS) = 1
TIME (MIN) = 40	DISCHARGE (CFS) = 1
TIME (MIN) = 45	DISCHARGE (CFS) = 1
TIME (MIN) = 50	DISCHARGE (CFS) = 1
TIME (MIN) = 55	DISCHARGE (CFS) = 1
TIME (MIN) = 60	DISCHARGE (CFS) = 1
TIME (MIN) = 65	DISCHARGE (CFS) = 1.1
TIME (MIN) = 70	DISCHARGE (CFS) = 1.1
TIME (MIN) = 75	DISCHARGE (CFS) = 1.1
TIME (MIN) = 80	DISCHARGE (CFS) = 1.1
TIME (MIN) = 85	DISCHARGE (CFS) = 1.2
TIME (MIN) = 90	DISCHARGE (CFS) = 1.2
TIME (MIN) = 95	DISCHARGE (CFS) = 1.2
TIME (MIN) = 100	DISCHARGE (CFS) = 1.2
TIME (MIN) = 105	DISCHARGE (CFS) = 1.3
TIME (MIN) = 110	DISCHARGE (CFS) = 1.3
TIME (MIN) = 115	DISCHARGE (CFS) = 1.3
TIME (MIN) = 120	DISCHARGE (CFS) = 1.3
TIME (MIN) = 125	DISCHARGE (CFS) = 1.4
TIME (MIN) = 130	DISCHARGE (CFS) = 1.4
TIME (MIN) = 135	DISCHARGE (CFS) = 1.5
TIME (MIN) = 140	DISCHARGE (CFS) = 1.5
TIME (MIN) = 145	DISCHARGE (CFS) = 1.6
TIME (MIN) = 150	DISCHARGE (CFS) = 1.6
TIME (MIN) = 155	DISCHARGE (CFS) = 1.7
TIME (MIN) = 160	DISCHARGE (CFS) = 1.7
TIME (MIN) = 165	DISCHARGE (CFS) = 1.8
TIME (MIN) = 170	DISCHARGE (CFS) = 1.9
TIME (MIN) = 175	DISCHARGE (CFS) = 2
TIME (MIN) = 180	DISCHARGE (CFS) = 2.1
TIME (MIN) = 185	DISCHARGE (CFS) = 2.2
TIME (MIN) = 190	DISCHARGE (CFS) = 2.3
TIME (MIN) = 195	DISCHARGE (CFS) = 2.5
TIME (MIN) = 200	DISCHARGE (CFS) = 2.6
TIME (MIN) = 205	DISCHARGE (CFS) = 2.9
TIME (MIN) = 210	DISCHARGE (CFS) = 3.1
TIME (MIN) = 215	DISCHARGE (CFS) = 3.5
TIME (MIN) = 220	DISCHARGE (CFS) = 3.8
TIME (MIN) = 225	DISCHARGE (CFS) = 4.7
TIME (MIN) = 230	DISCHARGE (CFS) = 5.3
TIME (MIN) = 235	DISCHARGE (CFS) = 7.8
TIME (MIN) = 240	DISCHARGE (CFS) = 20.2
TIME (MIN) = 245	DISCHARGE (CFS) = 30.1
TIME (MIN) = 250	DISCHARGE (CFS) = 6.3
TIME (MIN) = 255	DISCHARGE (CFS) = 4.2
TIME (MIN) = 260	DISCHARGE (CFS) = 3.3
TIME (MIN) = 265	DISCHARGE (CFS) = 2.7
TIME (MIN) = 270	DISCHARGE (CFS) = 2.4
TIME (MIN) = 275	DISCHARGE (CFS) = 2.1
TIME (MIN) = 280	DISCHARGE (CFS) = 1.9
TIME (MIN) = 285	DISCHARGE (CFS) = 1.8
TIME (MIN) = 290	DISCHARGE (CFS) = 1.6
TIME (MIN) = 295	DISCHARGE (CFS) = 1.5
TIME (MIN) = 300	DISCHARGE (CFS) = 1.5
TIME (MIN) = 305	DISCHARGE (CFS) = 1.4
TIME (MIN) = 310	DISCHARGE (CFS) = 1.3
TIME (MIN) = 315	DISCHARGE (CFS) = 1.2
TIME (MIN) = 320	DISCHARGE (CFS) = 1.2
TIME (MIN) = 325	DISCHARGE (CFS) = 1.1
TIME (MIN) = 330	DISCHARGE (CFS) = 1.1
TIME (MIN) = 335	DISCHARGE (CFS) = 1.1
TIME (MIN) = 340	DISCHARGE (CFS) = 1
TIME (MIN) = 345	DISCHARGE (CFS) = 1
TIME (MIN) = 350	DISCHARGE (CFS) = 1
TIME (MIN) = 355	DISCHARGE (CFS) = 0.9
TIME (MIN) = 360	DISCHARGE (CFS) = 0.9

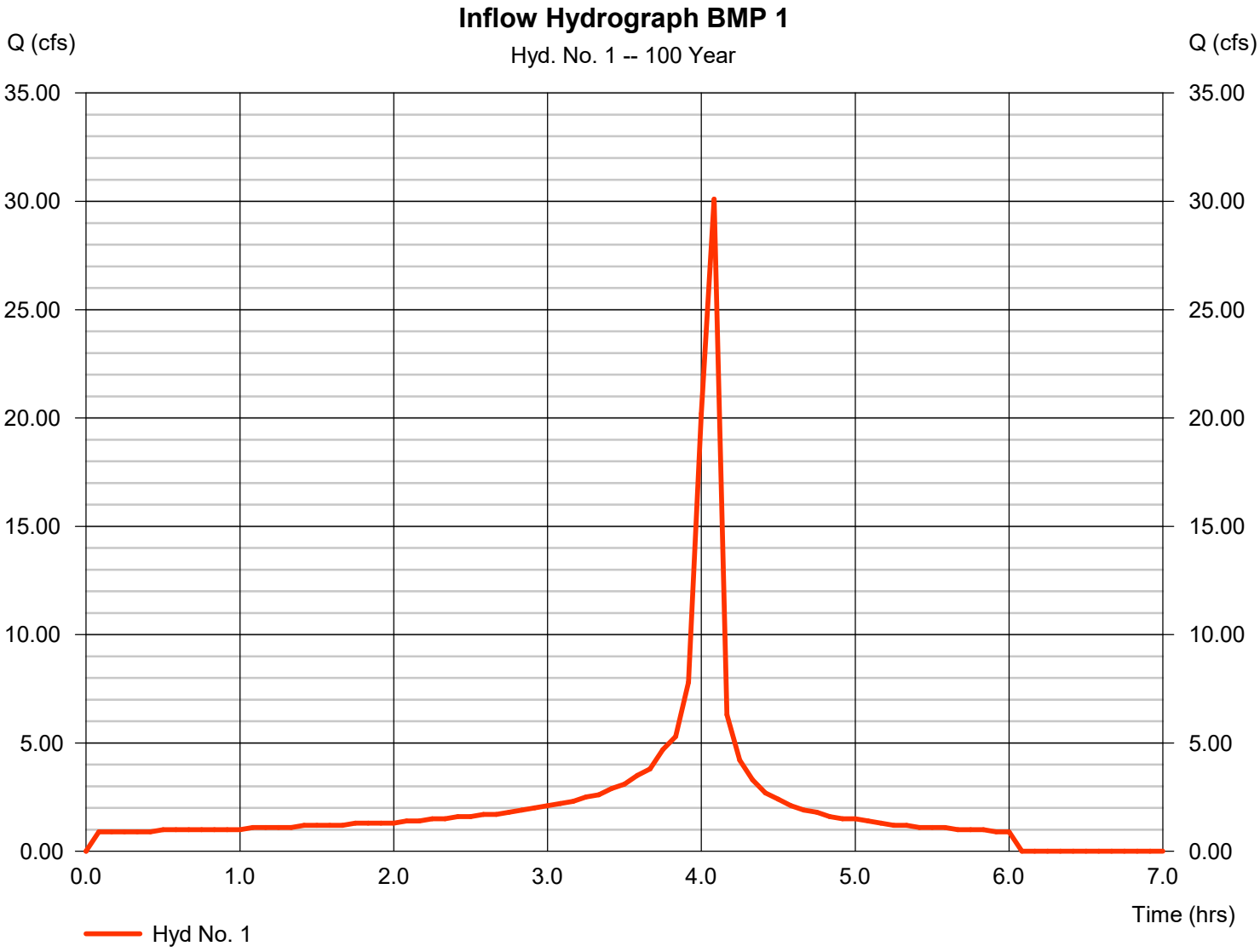
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020.4 Wednesday, 12 / 15 / 2021

Hyd. No. 1

Inflow Hydrograph BMP 1

Hydrograph type	= Manual	Peak discharge	= 30.10 cfs
Storm frequency	= 100 yrs	Time to peak	= 4.08 hrs
Time interval	= 5 min	Hyd. volume	= 53,880 cuft



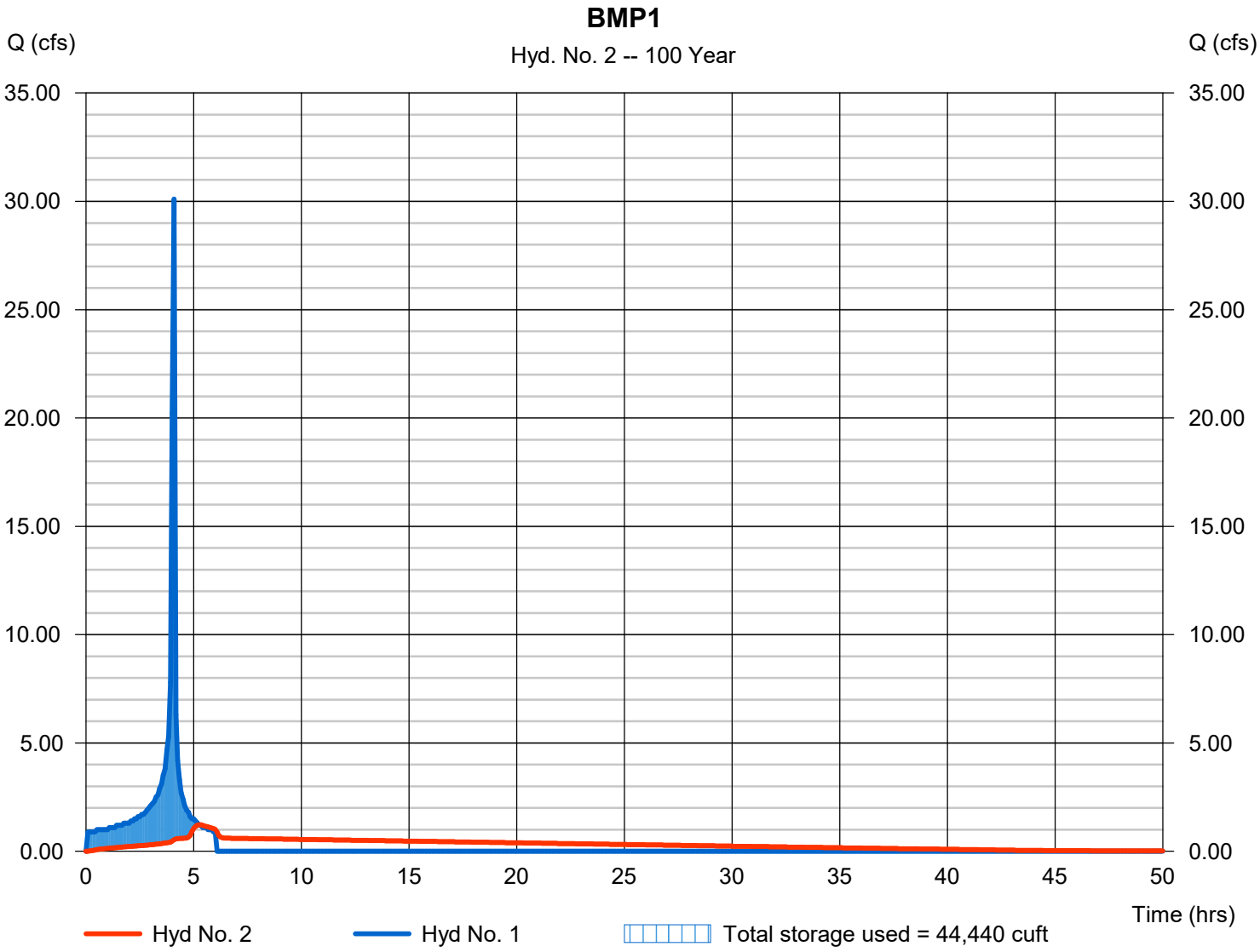
Hydrograph Report

Hyd. No. 2

BMP1

Hydrograph type	=	Reservoir	Peak discharge	=	1.225 cfs
Storm frequency	=	100 yrs	Time to peak	=	5.25 hrs
Time interval	=	5 min	Hyd. volume	=	53,836 cuft
Inflow hyd. No.	=	1 - Inflow Hydrograph BMP 1	Max. Elevation	=	435.23 ft
Reservoir name	=	Underground Detention Vault	Max. Storage	=	44,440 cuft

Storage Indication method used.



Pond Report

Pond No. 1 - Underground Detention Vault

Pond Data

UG Chambers -Invert elev. = 428.10 ft, Rise x Span = 8.00 x 50.00 ft, Barrel Len = 124.66 ft, No. Barrels = 1, Slope = 0.00%, Headers = No

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	428.10	n/a	0	0
0.80	428.90	n/a	4,987	4,987
1.60	429.70	n/a	4,988	9,975
2.40	430.50	n/a	4,987	14,962
3.20	431.30	n/a	4,988	19,950
4.00	432.10	n/a	4,987	24,937
4.80	432.90	n/a	4,987	29,924
5.60	433.70	n/a	4,988	34,912
6.40	434.50	n/a	4,987	39,899
7.20	435.30	n/a	4,988	44,887
8.00	436.10	n/a	4,987	49,874

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 12.00	3.00	0.00	0.00
Span (in)	= 12.00	3.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 428.10	428.10	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 4.00	0.00	0.00	0.00
Crest El. (ft)	= 435.10	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	428.10	0.00	0.00	---	---	0.00	---	---	---	---	---	0.000
0.08	499	428.18	0.01 ic	0.01 ic	---	---	0.00	---	---	---	---	---	0.011
0.16	997	428.26	0.04 ic	0.04 ic	---	---	0.00	---	---	---	---	---	0.041
0.24	1,496	428.34	0.08 ic	0.08 ic	---	---	0.00	---	---	---	---	---	0.077
0.32	1,995	428.42	0.10 ic	0.10 ic	---	---	0.00	---	---	---	---	---	0.098
0.40	2,494	428.50	0.12 ic	0.12 ic	---	---	0.00	---	---	---	---	---	0.115
0.48	2,992	428.58	0.13 ic	0.13 ic	---	---	0.00	---	---	---	---	---	0.131
0.56	3,491	428.66	0.15 ic	0.15 ic	---	---	0.00	---	---	---	---	---	0.145
0.64	3,990	428.74	0.16 ic	0.16 ic	---	---	0.00	---	---	---	---	---	0.158
0.72	4,489	428.82	0.18 ic	0.17 ic	---	---	0.00	---	---	---	---	---	0.170
0.80	4,987	428.90	0.19 ic	0.18 ic	---	---	0.00	---	---	---	---	---	0.182
0.88	5,486	428.98	0.20 ic	0.19 ic	---	---	0.00	---	---	---	---	---	0.193
0.96	5,985	429.06	0.21 ic	0.20 ic	---	---	0.00	---	---	---	---	---	0.203
1.04	6,484	429.14	0.21 ic	0.21 ic	---	---	0.00	---	---	---	---	---	0.214
1.12	6,982	429.22	0.22 ic	0.22 ic	---	---	0.00	---	---	---	---	---	0.223
1.20	7,481	429.30	0.24 ic	0.23 ic	---	---	0.00	---	---	---	---	---	0.232
1.28	7,980	429.38	0.25 ic	0.24 ic	---	---	0.00	---	---	---	---	---	0.241
1.36	8,479	429.46	0.25 ic	0.25 ic	---	---	0.00	---	---	---	---	---	0.250
1.44	8,977	429.54	0.26 ic	0.26 ic	---	---	0.00	---	---	---	---	---	0.258
1.52	9,476	429.62	0.28 ic	0.27 ic	---	---	0.00	---	---	---	---	---	0.266
1.60	9,975	429.70	0.28 ic	0.27 ic	---	---	0.00	---	---	---	---	---	0.274
1.68	10,474	429.78	0.29 ic	0.28 ic	---	---	0.00	---	---	---	---	---	0.282
1.76	10,972	429.86	0.29 ic	0.29 ic	---	---	0.00	---	---	---	---	---	0.290
1.84	11,471	429.94	0.31 ic	0.30 ic	---	---	0.00	---	---	---	---	---	0.296
1.92	11,970	430.02	0.31 ic	0.30 ic	---	---	0.00	---	---	---	---	---	0.304
2.00	12,469	430.10	0.32 ic	0.31 ic	---	---	0.00	---	---	---	---	---	0.311
2.08	12,967	430.18	0.32 ic	0.32 ic	---	---	0.00	---	---	---	---	---	0.318
2.16	13,466	430.26	0.32 ic	0.32 ic	---	---	0.00	---	---	---	---	---	0.324
2.24	13,965	430.34	0.34 ic	0.33 ic	---	---	0.00	---	---	---	---	---	0.331
2.32	14,463	430.42	0.34 ic	0.34 ic	---	---	0.00	---	---	---	---	---	0.337
2.40	14,962	430.50	0.35 ic	0.34 ic	---	---	0.00	---	---	---	---	---	0.344
2.48	15,461	430.58	0.35 ic	0.35 ic	---	---	0.00	---	---	---	---	---	0.350

Continues on next page...

Underground Detention Vault

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
2.56	15,960	430.66	0.36 ic	0.36 ic	---	---	0.00	---	---	---	---	---	0.356
2.64	16,458	430.74	0.37 ic	0.36 ic	---	---	0.00	---	---	---	---	---	0.362
2.72	16,957	430.82	0.37 ic	0.37 ic	---	---	0.00	---	---	---	---	---	0.368
2.80	17,456	430.90	0.39 ic	0.37 ic	---	---	0.00	---	---	---	---	---	0.374
2.88	17,955	430.98	0.39 ic	0.38 ic	---	---	0.00	---	---	---	---	---	0.379
2.96	18,453	431.06	0.39 ic	0.39 ic	---	---	0.00	---	---	---	---	---	0.385
3.04	18,952	431.14	0.40 ic	0.39 ic	---	---	0.00	---	---	---	---	---	0.391
3.12	19,451	431.22	0.40 ic	0.40 ic	---	---	0.00	---	---	---	---	---	0.396
3.20	19,950	431.30	0.40 ic	0.40 ic	---	---	0.00	---	---	---	---	---	0.402
3.28	20,448	431.38	0.41 ic	0.41 ic	---	---	0.00	---	---	---	---	---	0.407
3.36	20,947	431.46	0.42 ic	0.41 ic	---	---	0.00	---	---	---	---	---	0.412
3.44	21,446	431.54	0.42 ic	0.42 ic	---	---	0.00	---	---	---	---	---	0.418
3.52	21,945	431.62	0.42 ic	0.42 ic	---	---	0.00	---	---	---	---	---	0.423
3.60	22,443	431.70	0.44 ic	0.43 ic	---	---	0.00	---	---	---	---	---	0.428
3.68	22,942	431.78	0.44 ic	0.43 ic	---	---	0.00	---	---	---	---	---	0.433
3.76	23,441	431.86	0.44 ic	0.44 ic	---	---	0.00	---	---	---	---	---	0.438
3.84	23,940	431.94	0.44 ic	0.44 ic	---	---	0.00	---	---	---	---	---	0.443
3.92	24,438	432.02	0.46 ic	0.45 ic	---	---	0.00	---	---	---	---	---	0.448
4.00	24,937	432.10	0.46 ic	0.45 ic	---	---	0.00	---	---	---	---	---	0.453
4.08	25,436	432.18	0.46 ic	0.46 ic	---	---	0.00	---	---	---	---	---	0.458
4.16	25,934	432.26	0.46 ic	0.46 ic	---	---	0.00	---	---	---	---	---	0.462
4.24	26,433	432.34	0.48 ic	0.47 ic	---	---	0.00	---	---	---	---	---	0.467
4.32	26,932	432.42	0.48 ic	0.47 ic	---	---	0.00	---	---	---	---	---	0.472
4.40	27,431	432.50	0.48 ic	0.48 ic	---	---	0.00	---	---	---	---	---	0.476
4.48	27,929	432.58	0.48 ic	0.48 ic	---	---	0.00	---	---	---	---	---	0.481
4.56	28,428	432.66	0.50 ic	0.49 ic	---	---	0.00	---	---	---	---	---	0.485
4.64	28,927	432.74	0.50 ic	0.49 ic	---	---	0.00	---	---	---	---	---	0.490
4.72	29,426	432.82	0.50 ic	0.49 ic	---	---	0.00	---	---	---	---	---	0.494
4.80	29,924	432.90	0.50 ic	0.50 ic	---	---	0.00	---	---	---	---	---	0.499
4.88	30,423	432.98	0.52 ic	0.50 ic	---	---	0.00	---	---	---	---	---	0.503
4.96	30,922	433.06	0.52 ic	0.51 ic	---	---	0.00	---	---	---	---	---	0.507
5.04	31,421	433.14	0.52 ic	0.51 ic	---	---	0.00	---	---	---	---	---	0.512
5.12	31,919	433.22	0.52 ic	0.52 ic	---	---	0.00	---	---	---	---	---	0.516
5.20	32,418	433.30	0.52 ic	0.52 ic	---	---	0.00	---	---	---	---	---	0.520
5.28	32,917	433.38	0.54 ic	0.52 ic	---	---	0.00	---	---	---	---	---	0.524
5.36	33,416	433.46	0.54 ic	0.53 ic	---	---	0.00	---	---	---	---	---	0.528
5.44	33,914	433.54	0.54 ic	0.53 ic	---	---	0.00	---	---	---	---	---	0.533
5.52	34,413	433.62	0.54 ic	0.54 ic	---	---	0.00	---	---	---	---	---	0.537
5.60	34,912	433.70	0.54 ic	0.54 ic	---	---	0.00	---	---	---	---	---	0.541
5.68	35,411	433.78	0.56 ic	0.54 ic	---	---	0.00	---	---	---	---	---	0.545
5.76	35,909	433.86	0.56 ic	0.55 ic	---	---	0.00	---	---	---	---	---	0.549
5.84	36,408	433.94	0.56 ic	0.55 ic	---	---	0.00	---	---	---	---	---	0.553
5.92	36,907	434.02	0.56 ic	0.56 ic	---	---	0.00	---	---	---	---	---	0.557
6.00	37,405	434.10	0.56 ic	0.56 ic	---	---	0.00	---	---	---	---	---	0.561
6.08	37,904	434.18	0.58 ic	0.56 ic	---	---	0.00	---	---	---	---	---	0.564
6.16	38,403	434.26	0.58 ic	0.57 ic	---	---	0.00	---	---	---	---	---	0.568
6.24	38,902	434.34	0.58 ic	0.57 ic	---	---	0.00	---	---	---	---	---	0.572
6.32	39,400	434.42	0.58 ic	0.58 ic	---	---	0.00	---	---	---	---	---	0.576
6.40	39,899	434.50	0.58 ic	0.58 ic	---	---	0.00	---	---	---	---	---	0.580
6.48	40,398	434.58	0.58 ic	0.58 ic	---	---	0.00	---	---	---	---	---	0.584
6.56	40,897	434.66	0.60 ic	0.59 ic	---	---	0.00	---	---	---	---	---	0.587
6.64	41,395	434.74	0.60 ic	0.59 ic	---	---	0.00	---	---	---	---	---	0.591
6.72	41,894	434.82	0.60 ic	0.59 ic	---	---	0.00	---	---	---	---	---	0.595
6.80	42,393	434.90	0.60 ic	0.60 ic	---	---	0.00	---	---	---	---	---	0.599
6.88	42,892	434.98	0.60 ic	0.60 ic	---	---	0.00	---	---	---	---	---	0.602
6.96	43,390	435.06	0.62 ic	0.61 ic	---	---	0.00	---	---	---	---	---	0.606
7.04	43,889	435.14	0.71 ic	0.61 ic	---	---	0.11	---	---	---	---	---	0.714
7.12	44,388	435.22	1.16 ic	0.61 ic	---	---	0.55	---	---	---	---	---	1.158
7.20	44,887	435.30	1.79 ic	0.60 ic	---	---	1.19	---	---	---	---	---	1.793
7.28	45,385	435.38	2.57 ic	0.59 ic	---	---	1.97	---	---	---	---	---	2.568
7.36	45,884	435.46	3.46 ic	0.58 ic	---	---	2.88	---	---	---	---	---	3.457
7.44	46,383	435.54	4.44 ic	0.56 ic	---	---	3.89	---	---	---	---	---	4.444
7.52	46,882	435.62	4.44 ic	0.56 ic	---	---	3.88 ic	---	---	---	---	---	4.438
7.60	47,380	435.70	4.72 ic	0.56 ic	---	---	4.16 ic	---	---	---	---	---	4.721
7.68	47,879	435.78	4.98 ic	0.55 ic	---	---	4.43 ic	---	---	---	---	---	4.985
7.76	48,378	435.86	5.23 ic	0.55 ic	---	---	4.69 ic	---	---	---	---	---	5.233
7.84	48,877	435.94	5.47 ic	0.54 ic	---	---	4.93 ic	---	---	---	---	---	5.469
7.92	49,375	436.02	5.69 ic	0.54 ic	---	---	5.16 ic	---	---	---	---	---	5.693
8.00	49,874	436.10	5.91 ic	0.53 ic	---	---	5.38 ic	---	---	---	---	---	5.908

...End

Worksheet for Circular Orifice - BMP 1

Project Description	
Solve For	Discharge

Input Data	
Headwater Elevation	96.00 in
Centroid Elevation	6.00 in
Tailwater Elevation	0.00 in
Discharge Coefficient	0.600
Diameter	3.0 in

Results	
Discharge	0.65 cfs
Headwater Height Above Centroid	90.00 in
Tailwater Height Above Centroid	-6.00 in
Flow Area	0.0 ft^2
Velocity	13.18 ft/s

Worksheet for Circular Pipe - Offsite Pipe Sizing

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.028	
Channel Slope	2.230	%
Diameter	18.0	in
Discharge	3.70	cfs

Results

Normal Depth	9.1	in
Flow Area	0.9	ft²
Wetted Perimeter	2.4	ft
Hydraulic Radius	4.5	in
Top Width	1.50	ft
Critical Depth	8.8	in
Percent Full	50.5	%
Critical Slope	2.468	%
Velocity	4.14	ft/s
Velocity Head	0.27	ft
Specific Energy	1.02	ft
Froude Number	0.945	
Maximum Discharge	7.83	cfs
Discharge Full	7.28	cfs
Slope Full	0.576	%
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	33.0	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	9.1	in
Critical Depth	8.8	in
Channel Slope	2.230	%
Critical Slope	2.468	%

Worksheet for Circular Pipe - POC 1 EX

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data		
Roughness Coefficient	0.013	
Channel Slope	12.500	%
Diameter	24.0	in
Discharge	15.40	cfs

Results		
Normal Depth	7.1	in
Flow Area	0.8	ft²
Wetted Perimeter	2.3	ft
Hydraulic Radius	4.1	in
Top Width	1.83	ft
Critical Depth	17.0	in
Percent Full	29.7	%
Critical Slope	0.643	%
Velocity	19.66	ft/s
Velocity Head	6.01	ft
Specific Energy	6.60	ft
Froude Number	5.297	
Maximum Discharge	86.03	cfs
Discharge Full	79.98	cfs
Slope Full	0.463	%
Flow Type	Supercritical	

GVF Input Data		
Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	29.7	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	7.1	in
Critical Depth	17.0	in
Channel Slope	12.500	%
Critical Slope	0.643	%

Worksheet for Circular Pipe - POC 1 PROP

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data		
Roughness Coefficient	0.013	
Channel Slope	12.500	%
Diameter	24.0	in
Discharge	8.10	cfs

Results		
Normal Depth	5.2	in
Flow Area	0.5	ft²
Wetted Perimeter	1.9	ft
Hydraulic Radius	3.1	in
Top Width	1.64	ft
Critical Depth	12.2	in
Percent Full	21.5	%
Critical Slope	0.491	%
Velocity	16.34	ft/s
Velocity Head	4.15	ft
Specific Energy	4.58	ft
Froude Number	5.247	
Maximum Discharge	86.03	cfs
Discharge Full	79.98	cfs
Slope Full	0.128	%
Flow Type	Supercritical	

GVF Input Data		
Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	21.5	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	5.2	in
Critical Depth	12.2	in
Channel Slope	12.500	%
Critical Slope	0.491	%

Worksheet for Circular Pipe - POC 2 EX

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data		
Roughness Coefficient	0.013	
Channel Slope	4.350	%
Diameter	18.0	in
Discharge	9.20	cfs

Results		
Normal Depth	8.1	in
Flow Area	0.8	ft²
Wetted Perimeter	2.2	ft
Hydraulic Radius	4.2	in
Top Width	1.49	ft
Critical Depth	14.1	in
Percent Full	45.2	%
Critical Slope	0.841	%
Velocity	11.85	ft/s
Velocity Head	2.18	ft
Specific Energy	2.86	ft
Froude Number	2.899	
Maximum Discharge	23.57	cfs
Discharge Full	21.91	cfs
Slope Full	0.767	%
Flow Type	Supercritical	

GVF Input Data		
Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	45.2	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	8.1	in
Critical Depth	14.1	in
Channel Slope	4.350	%
Critical Slope	0.841	%

Worksheet for Circular Pipe - POC 2 PROP

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data		
Roughness Coefficient	0.013	
Channel Slope	4.350	%
Diameter	18.0	in
Discharge	8.70	cfs

Results		
Normal Depth	7.9	in
Flow Area	0.7	ft²
Wetted Perimeter	2.2	ft
Hydraulic Radius	4.1	in
Top Width	1.49	ft
Critical Depth	13.7	in
Percent Full	43.8	%
Critical Slope	0.797	%
Velocity	11.68	ft/s
Velocity Head	2.12	ft
Specific Energy	2.78	ft
Froude Number	2.911	
Maximum Discharge	23.57	cfs
Discharge Full	21.91	cfs
Slope Full	0.686	%
Flow Type	Supercritical	

GVF Input Data		
Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	43.8	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	7.9	in
Critical Depth	13.7	in
Channel Slope	4.350	%
Critical Slope	0.797	%

APPENDIX G

FEMA MAP

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NOTES TO USERS



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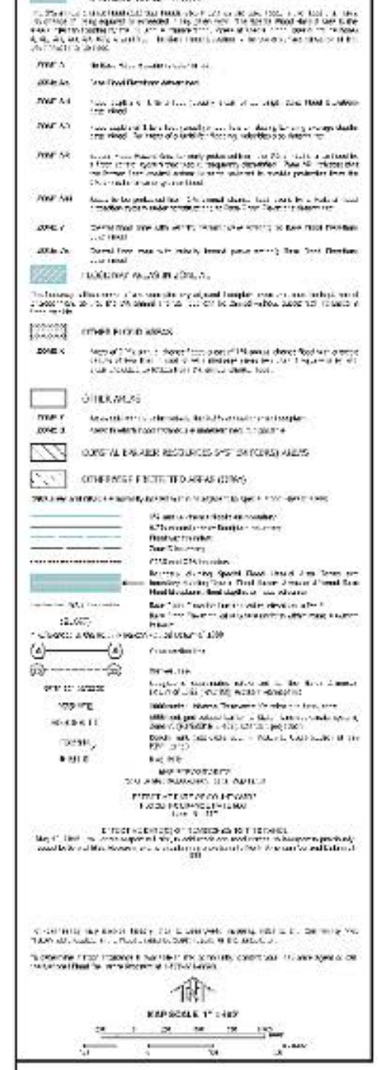
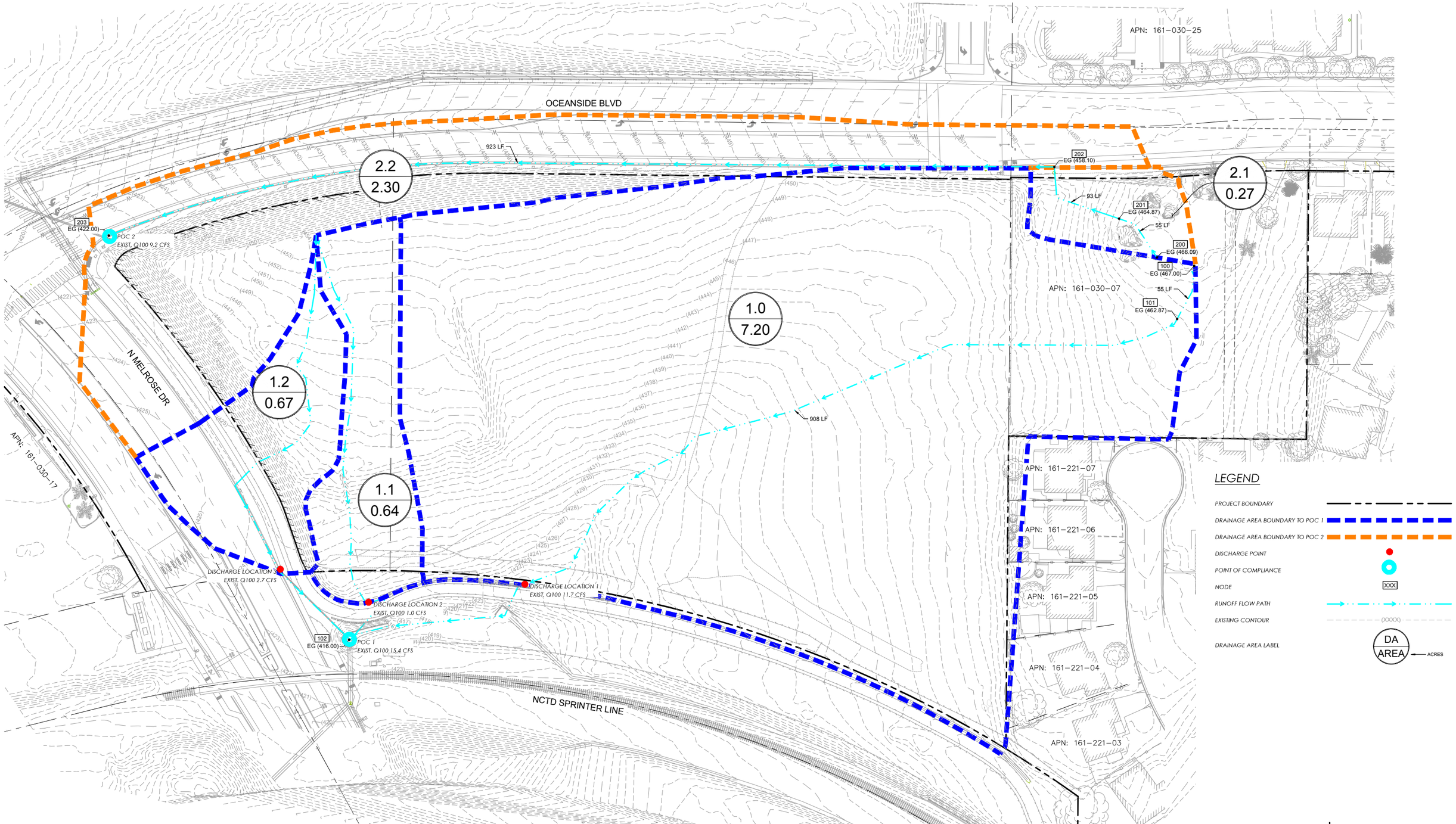




EXHIBIT A

EXISTING DRAINAGE EXHIBIT

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Kimley»Horn

EXISTING DRAINAGE EXHIBIT

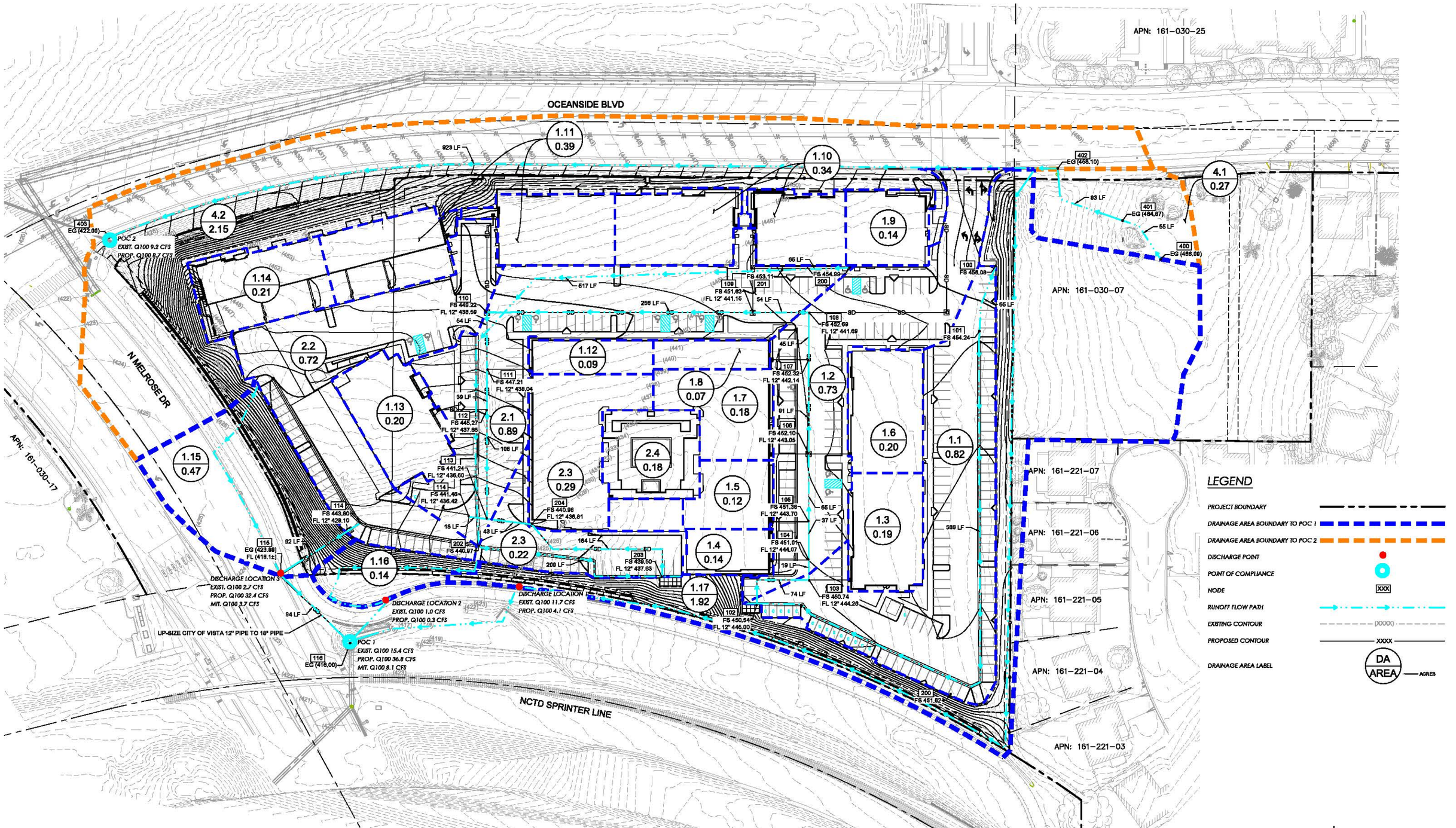
MODERA MELROSE

10/14/2021

EXHIBIT B

PROPOSED DRAINAGE EXHIBIT

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Kimley»Horn

PROPOSED DRAINAGE EXHIBIT
MODERA MELROSE
12/15/2021

Appendix I
SWQMP

PERMIT NUMBER D21-00011

CITY OF OCEANSIDE
ENGINEERING DIVISION

PRIORITY DEVELOPMENT PROJECT

STORM WATER QUALITY MANAGEMENT PLAN

FOR

Modera Melrose

ENGINEER OF WORK

Erin Lee, PE – #92949

PREPARED FOR:

Mill Creek Residential Trust

949 South Coast Drive, Suite 400

Costa Mesa, CA 92626

714.966.9355



PREPARED BY:

Kimley-Horn

401 B Street, Suite 600

San Diego, CA 92101

619.234.9411

How to Use This Template

This template, assembled by GHD Inc. on behalf of the City of Oceanside, is for the development of Storm Water Quality Management Plans (SWQMPs) for Priority Development Projects (PDPs) proposed within Oceanside, CA. It is based on requirements set forth in the Regional Water Quality Control Board's National Pollutant Discharge Elimination System MS4 Permit that covers the San Diego Region (Order No. R9-2013-0001).

All references within the template refer to the City of Oceanside BMP Design Manual dated February 2016 (Manual). Use of this template in conjunction with the Manual is intended to help a project applicant develop a SWQMP compliant with City of Oceanside and MS4 Permit requirements.

Template Date: February 16, 2016

Assembled By:

Quick Reference Guide

Item	Project Information
Project Name	Modera Melrose
Application Number(s)	D21-00011
Project Address	SEC Melrose Dr & Oceanside Blvd
Total Parcel Area	322,275 sq. ft.
Project Description	The project is proposing to develop the 7.40-acre site into a mixed-use multifamily building complex. The site is bounded by single family to the east, Oceanside Blvd to the north, Melrose Drive to west, and the NCTD Sprinter Line to the south.
Proposed Disturbed Area	322,275 sq. ft.
Created or Replaced Impervious	240,257 sq. ft.
Project Hydrologic Unit Watershed	☐ Santa Maria ☒ San Luis Rey ☒ Carlsbad
Required to implement HMP	☒ Yes ☐ No

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CERTIFICATION PAGE

Project Name: Modera Melrose
Permit Application Number: D21-00011

I hereby declare that I am the Engineer in Responsible Charge of design of storm water BMPs for this project, and that I have exercised responsible charge over the design of the project as defined in Section 6703 of the Business and Professions Code, and that the design is consistent with the requirements of the City of Oceanside BMP Design Manual, which is based on the requirements of San Diego Regional Water Quality Control Board Order No. R9-2013-0001 (MS4 Permit).

I have read and understand that the City has adopted minimum requirements for managing urban runoff, including storm water, from land development activities, as described in the BMP Design Manual. I certify that this SWQMP has been completed to the best of my ability and accurately reflects the project being proposed and the applicable source control and site design BMPs proposed to minimize the potentially negative impacts of this project's land development activities on water quality. I understand and acknowledge that the plan check review of this SWQMP by City staff is confined to a review and does not relieve me, as the Engineer in Responsible Charge of design of storm water BMPs for this project, of my responsibilities for project design.

As Engineer of Work, I agree to indemnify, defend, and hold harmless the City of Oceanside, its officers, agents, and employees from any and all liability, claims, damages, or injuries to any person or property which might arise from the negligent acts, errors, or omissions of the Engineer of Work, my employees, agents or consultants.

_____ #92949 12/31/2023

Engineer of Work's Signature, PE Number & Expiration Date

Erin Lee, PE

Print Name

Kimley-Horn

Company

04/05/2022

Date

Engineer's Seal:

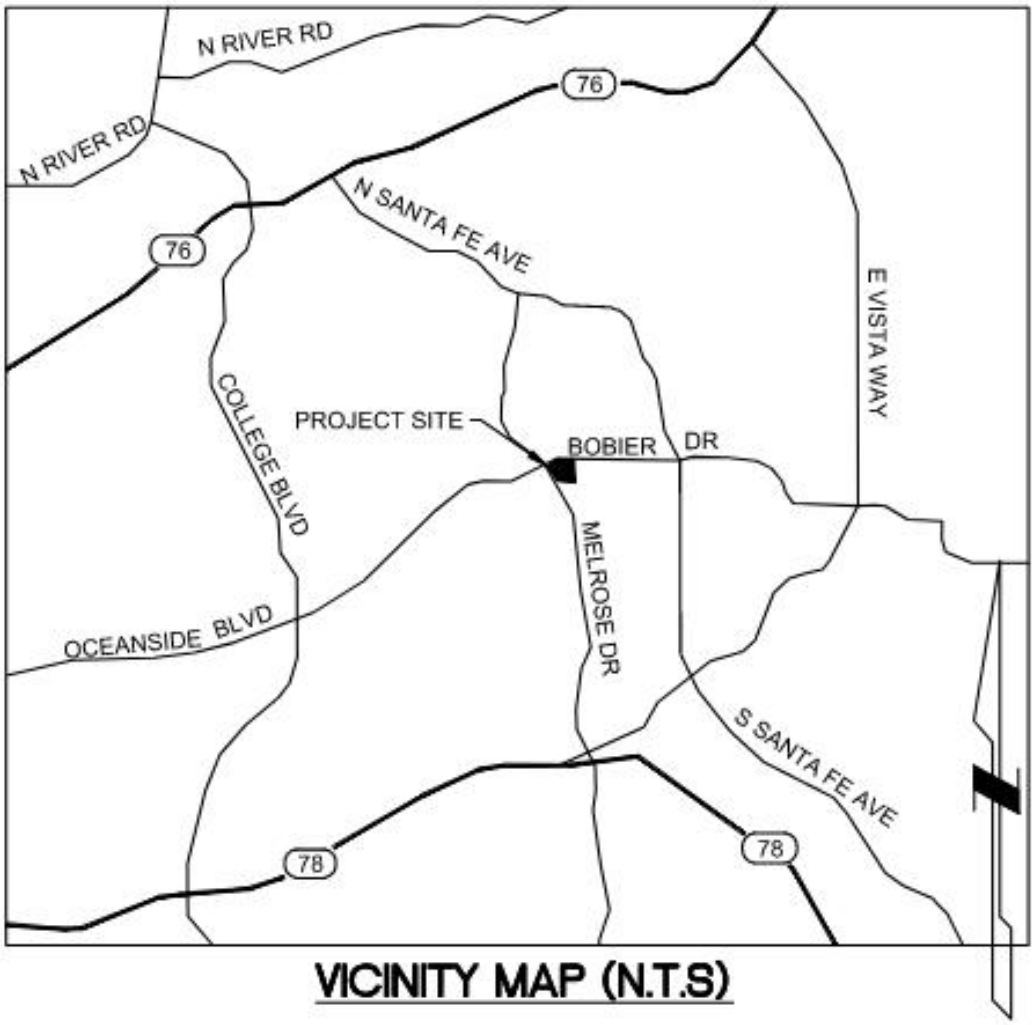


SUBMITTAL RECORD

Use this Table to keep a record of submittals of this SWQMP. Each time the SWQMP is re-submitted, provide the date and status of the project. In last column indicate changes that have been made or indicate if response to plancheck comments is included. When applicable, insert response to plancheck comments behind this page.

Submittal Number	Date	Project Status	Changes
1	8/12/2021	☒ Preliminary Design/ Planning/ CEQA ☐ Final Design	Initial Submittal
2	10/15/2021	☒ Preliminary Design/ Planning/ CEQA ☐ Final Design	Second Submittal
3	12/20/2021	☒ Preliminary Design/ Planning/ CEQA ☐ Final Design	Third Submittal
4	04/05/2022	☒ Preliminary Design/ Planning/ CEQA ☐ Final Design	Fourth Submittal

Placeholder – **Project Vicinity Map**



VICINITY MAP (N.T.S)

Applicability of Permanent, Post-Construction Storm Water BMP Requirements (Storm Water Intake Form for all Development Permit Applications)	Form I-1

Project Identification

Project Name: Modera Melrose

Permit Application Number: D21-00011 | Date: 04/05/2022

Determination of Requirements

The purpose of this form is to identify permanent, post-construction requirements that apply to the project. This form serves as a short summary of applicable requirements, in some cases referencing separate forms that will serve as the backup for the determination of requirements.

Answer each step below, starting with Step 1 and progressing through each step until reaching "Stop".
Refer to the manual sections and/or separate forms referenced in each step below.

Step	Answer	Progression
Step 1: Is the project a "development project"? See Section 1.3 of the manual for guidance.	☒Yes	Go to Step 2.
	☐No	Stop. Permanent BMP requirements do not apply. No SWQMP will be required. Provide discussion below.
Discussion / justification if the project is not a "development project" (e.g., the project includes *only* interior remodels within an existing building):		
Step 2: Is the project a Standard Project, PDP, or exception to PDP definitions? To answer this item, see Section 1.4 of the manual *in its entirety* for guidance, AND complete Form I-2, Project Type Determination.	☐Standard Project	Stop. Standard Project requirements apply, including Standard Project SWQMP.
	☒PDP	PDP requirements apply, including PDP SWQMP. Go to Step 3.
	☐ Exception to PDP definitions	Stop. Standard Project requirements apply. Provide discussion and list any additional requirements below. Prepare Standard Project SWQMP.
Discussion / justification, and additional requirements for exceptions to PDP definitions, if applicable:		

Form I-1 Page 2 of 2		
Step	Answer	Progression
Step 3. Is the project subject to earlier PDP requirements due to a prior lawful approval? See Section 1.10 of the manual for guidance.	☐Yes	Consult the [City Engineer] to determine requirements. Provide discussion and identify requirements below. Go to Step 4.
	☒No	BMP Design Manual PDP requirements apply. Go to Step 4.
Discussion / justification of prior lawful approval, and identify requirements (*not required if prior lawful approval does not apply*):		
Step 4. Do hydromodification control requirements apply? See Section 1.6 of the manual for guidance.	☒Yes	PDP structural BMPs required for pollutant control (Chapter 5) and hydromodification control (Chapter 6). Go to Step 5.
	☐No	Stop. PDP structural BMPs required for pollutant control (Chapter 5) only. Provide brief discussion of exemption to hydromodification control below.
Discussion / justification if hydromodification control requirements do <u>not</u> apply:		
Step 5. Does protection of critical coarse sediment yield areas apply? See Section 6.2 of the manual for guidance.	☒Yes	Management measures required for protection of critical coarse sediment yield areas (Chapter 6.2). Stop.
	☐No	Management measures not required for protection of critical coarse sediment yield areas. Provide brief discussion below. Stop.
Discussion / justification if protection of critical coarse sediment yield areas does <u>not</u> apply:		

Project Type Determination Checklist			Form I-2
Project Information			
Project Name: Modera Melrose			
Permit Application Number: D21-00011			
Project Type Determination: PDP			
The project is (select one): ☒ New Development ☐ Redevelopment			
The total proposed newly created or replaced impervious area is: 240,257 ft² (5.52) acres			
Is the project in any of the following categories, (a) through (f)?			
Yes ☒	No ☐	(a)	New development projects that create 10,000 square feet or more of impervious surfaces (collectively over the entire project site). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.
Yes ☐	No ☒	(b)	Redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface (collectively over the entire project site on an existing site of 10,000 square feet or more of impervious surfaces). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.
Yes ☐	No ☒	(c)	New and redevelopment projects that create 5,000 square feet or more of impervious surface (collectively over the entire project site), and support one or more of the following uses: (i) Restaurants. This category is defined as a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption SIC code 5812). (ii) Hillside development projects. This category includes development on any natural slope that is twenty-five percent or greater. (iii) Parking lots. This category is defined as a land area or facility for the temporary parking or storage of motor vehicles used personally, for business, or for commerce. (iv) Streets, roads, highways, freeways, and driveways. This category is defined as any paved impervious surface used for the transportation of automobiles, trucks, motorcycles, and other vehicles.

Yes ☐	No ☒	(d)	New or redevelopment projects that create or replace 2,500 square feet or more of impervious surface (collectively over the entire project site), and discharging directly to an Environmentally Sensitive Area (ESA). "Discharging directly to" includes flow that is conveyed overland a distance of 200 feet or less from the project to the ESA, or conveyed in a pipe or open channel any distance as an isolated flow from the project to the ESA (i.e. not commingled with flows from adjacent lands). Note: ESAs are areas that include but are not limited to all Clean Water Act Section 303(d) impaired water bodies; areas designated as Areas of Special Biological Significance by the State Water Board and SDRWQCB; State Water Quality Protected Areas; water bodies designated with the RARE beneficial use by the State Water Board and SDRWQCB; and any other equivalent environmentally sensitive areas which have been identified by the Copermittees. See manual Section 1.4.2 for additional guidance.
Yes ☐	No ☒	(e)	New development projects that support one or more of the following uses: (i) Automotive repair shops. This category is defined as a facility that is categorized in any one of the following SIC codes: 5013, 5014, 5541, 7532-7534, or 7536-7539. (ii) Retail gasoline outlets. This category includes retail gasoline outlets that meet the following criteria: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic of 100 or more vehicles per day.
Yes ☒	No ☐	(f)	New or redevelopment projects that result in the disturbance of one or more acres of land and are expected to generate pollutants post construction. *Note: See manual Section 1.4.2 for additional guidance.*

Does the project meet the definition of one or more of the PDP categories (a) through (f) listed above?

☐ No – the project is not a PDP (Standard Project).

☒ Yes – the project is a PDP.

The following is for redevelopment PDPs only:

The area of existing (pre-project) impervious area at the project site is: _____ ft^2 (A)
The total proposed newly created or replaced impervious area is: _____ ft^2 (B)
Percent impervious surface created or replaced (A/B)*100: _____%
The percent impervious surface created or replaced is (select one based on the above calculation):

☐ less than or equal to fifty percent (50%) – only new impervious areas are considered PDP

OR

☐ greater than fifty percent (50%) – the entire project site is a PDP

Site Information Checklist For PDPs	Form I-3B (PDPs)
Project Summary Information	
Project Name	Modera Melrose
Project Address	SEC Melrose Dr and Oceanside Blvd Oceanside, CA 92056
Assessor's Parcel Number(s)	161-030-23-00, 161-030-24-00
Permit Application Number	D21-00011
Project Watershed (Hydrologic Unit)	Select One: ☐Santa Margarita 902 ☒San Luis Rey 903 ☒Carlsbad 904
Parcel Area (total area of Assessor's Parcel(s) associated with the project)	7.40 Acres (322,275 Square Feet)
Area to be disturbed by the project (Project Area)	7.40 Acres (322,275 Square Feet)
Project Proposed Impervious Area (subset of Project Area)	5.52 Acres (240,257 Square Feet)
Project Proposed Pervious Area (subset of Project Area)	1.88 Acres (82,018 Square Feet)
Note: Proposed Impervious Area + Proposed Pervious Area = Area to be Disturbed by the Project. This may be less than the Parcel Area.	

Hydrologic Unit	Hydrologic Area	Hydrologic Sub-Area
Santa Margarita 902.00	☐ Ysidora 902.10	☐ Lower Ysidora 902.11
San Luis Rey 903.00	☒ Lower San Luis 903.10	☒ Mission 903.11
		☐ Bonsall 903.12
Carlsbad 904.00	☒ Loma Alta 904.10	Not Applicable
	☐ Buena Vista Creek 904.20	☐ El Salto 904.21
		☐ Vista 904.22
	☐ Agua Hedionda 4.30	☐ Los Monos 904.31

Description of Existing Site Condition and Drainage Patterns

Current Status of the Site (select all that apply):

☐Existing development

☒Previously graded but not built out

☐Agricultural or other non-impervious use

☐Vacant, undeveloped/natural

Description / Additional Information:

Existing Land Cover Includes (select all that apply):

☒Vegetative Cover

☐Non-Vegetated Pervious Areas

☐Impervious Areas

Description / Additional Information:

Underlying Soil belongs to Hydrologic Soil Group (select all that apply):

☒NRCS Type A

☐NRCS Type B

☐NRCS Type C

☒NRCS Type D

Approximate Depth to Groundwater:

☐Groundwater Depth < 5 feet

☐5 feet < Groundwater Depth < 10 feet

☐10 feet < Groundwater Depth < 20 feet

☒Groundwater Depth > 20 feet

Description of Existing Site Topography and Drainage [How is storm water runoff conveyed from the site? At a minimum, this description should answer (1) whether existing drainage conveyance is natural or urban; (2) describe existing constructed storm water conveyance systems, if applicable; and (3) is runoff from offsite conveyed through the site? If so, describe]:

The project site is currently undeveloped but previously graded and consists of a mixture of bare land and native vegetation. The topography generally slopes from northeast to southwest. Runoff from the property is captured by an existing concrete lined channel along the southern property line where it is collected in the City's storm drain system that ultimately discharges into the Pacific Ocean.

Runoff from the parcels east of the site run onto the eastern portion of the property so it can be collected into the concrete lined channel.

Description of Proposed Site Development and Drainage Patterns

Project Description / Proposed Land Use and/or Activities:

The project is proposing to develop the 7.40-acre site into a mixed-use multifamily building complex. The site is bounded by single family to the east, Oceanside Blvd to the north, Melrose Drive to west, and the Sprinter Light Rail to the south.

List/describe proposed impervious features of the project (e.g., buildings, roadways, parking lots, courtyards, athletic courts, other impervious features):

Impervious features include buildings, roadways, sidewalks, parking lots, and courtyards.

List/describe proposed pervious features of the project (e.g., landscape areas):

Pervious features include planters and landscaping around the perimeter of the site.

Does the project include grading and changes to site topography?

☒Yes

☐No

Description / Additional Information:

The project proposes to drain from the northeast to southwest, as it does today. Topography will be sloped to capture stormwater runoff locally in biofiltration planters and modular wetlands for water quality control.

Does the project include changes to site drainage (e.g., installation of new storm water conveyance systems)?

☒Yes

☐No

Description / Additional Information:

The project proposes to sheet flow stormwater to biofiltration planters and modular wetlands for water quality control and then routes flow to the underground storm detention tank to meet detention and hydromodification requirements. Flow will then be conveyed to connect to the existing public curb inlet along the bike path south of the property where storm water will enter the City's storm drain system.

Identify whether any of the following features, activities, and/or pollutant source areas will be present (select all that apply):

☒Onsite storm drain inlets

☒Interior floor drains and elevator shaft sump pumps

☒Interior parking garages

☐Need for future indoor & structural pest control

☒Landscape/outdoor pesticide use

☒Pools, spas, ponds, decorative fountains, and other water features

☐Food service

☐Refuse areas

☐Industrial processes

☐Outdoor storage of equipment or materials

☐Vehicle and equipment cleaning

☐Vehicle/equipment repair and maintenance

☐Fuel dispensing areas

☐Loading docks

☒Fire sprinkler test water

☐Miscellaneous drain or wash water

☒Plazas, sidewalks, and parking lots

Identification of Receiving Water Pollutants of Concern

Describe path of storm water from the project site to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable):
Flows enter the City storm drain system to the south of the site. The City's storm system discharges into Loma Alta Creek flowing west and ultimately discharges into the Pacific Ocean.

List any 303(d) impaired water bodies within the path of storm water from the project site to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable), identify the pollutant(s)/stressor(s) causing impairment, and identify any TMDLs for the impaired water bodies:

303(d) Impaired Water Body	Pollutant(s)/Stressor(s)	TMDLs
Loma Alta Creek	Selenium Toxicity	
Loma Alta Slough	Eutrophic Indicator Bacteria	
Pacific Ocean Shoreline, Loma Alta HSA, at Loma Alta Creek mouth	Indicator Bacteria Trash	
East Channel Creek	Indicator Bacteria	
Guajome Lake	Eutrophic	
Pacific Ocean Shoreline, San Luis Rey HU, at San Luis Rey River mouth	Enterococcus Total Coliform	TDML Required

Identification of Project Site Pollutants*

*Identification of project site pollutants is only required if flow-thru treatment BMPs are implemented onsite in lieu of retention or biofiltration BMPs (note the project must also participate in **an alternative compliance program unless prior lawful approval to meet earlier PDP requirements is demonstrated)**

Identify pollutants expected from the project site based on all proposed use(s) of the site (see manual Appendix B.6):

Pollutant	Not Applicable to the Project Site	Expected from the Project Site	Also a Receiving Water Pollutant of Concern
Sediment			
Nutrients			
Heavy Metals			
Organic Compounds			
Trash & Debris			
Oxygen Demanding Substances			
Oil & Grease			
Bacteria & Viruses			
Pesticides			

NOT APPLICABLE

Note: **Indicator Bacteria shall be addressed as a Pollutant of Concern (POC) for projects located in** the Lower San Luis Hydrologic Area and for projects that discharge to the Pacific Ocean Shoreline within the boundaries of the City of Oceanside.

Note: Nutrients shall be addressed as a Pollutant of Concern (POC) for projects located in the Loma Alta Hydrologic Area.

Hydromodification Management Requirements

Do hydromodification management requirements apply (see Section 1.6 of the manual)?

☒Yes, hydromodification management flow control structural BMPs required.

☐No, the project will discharge runoff directly to existing underground storm drains discharging directly to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.

☐No, the project will discharge runoff directly to conveyance channels whose bed and bank are concrete-lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.

☐No, the project will discharge runoff directly to an area identified as appropriate for an exemption by the WMAA for the watershed in which the project resides.

Description / Additional Information (to be provided if a 'No' answer has been selected above):

Critical Coarse Sediment Yield Areas*

***This Section only required if hydromodification management requirements apply**

Based on the maps provided within the WMAA, do potential critical coarse sediment yield areas exist within the project drainage boundaries?

☒Yes

☐No, no critical coarse sediment yield areas to be protected based on WMAA maps

If yes, have any of the optional analyses presented in Section 6.2 of the manual been performed?

☒6.2.1 Verification of GLUs Onsite

☒6.2.2 Downstream Systems Sensitivity to Coarse Sediment

☒6.2.3 Optional Additional Analysis of Potential Critical Coarse Sediment Yield Areas Onsite

☐No optional analyses performed, the project will avoid critical coarse sediment yield areas identified based on WMAA maps

If optional analyses were performed, what is the final result?

☐No critical coarse sediment yield areas to be protected based on verification of GLUs onsite.

☒Critical coarse sediment yield areas exist but additional analysis has determined that protection is not required. Documentation attached in Attachment 2 of the SWQMP.

☐Critical coarse sediment yield areas exist and require protection. The project will implement management measures described in Sections 6.2.4 and 6.2.5 as applicable, and the areas are identified on the SWQMP Exhibit.

Discussion / Additional Information:

Optional Additional Analysis of Potential Critical Coarse Sediment Yield Areas Onsite was performed and additional analysis determined that protection onsite is not necessary. See Attachment 2B.

Flow Control for Post-Project Runoff*

*This Section only required if hydromodification management requirements apply

List and describe point(s) of compliance (POCs) for flow control for hydromodification management (see Section 6.3.1). For each POC, provide a POC identification name or number correlating to the project's HMP Exhibit and a receiving channel identification name or number correlating to the project's HMP Exhibit.

The site is proposing to have two POCs. POC 1 is at the southeastern property line where the private storm system connects with the existing public headwall to the north of the bike path where flows enter the City of Vista's public storm system.

POC 2 is at the curb inlet in Oceanside Boulevard at the northwest corner of the site where it enters the City of Oceanside's public storm system.

Has a geomorphic assessment been performed for the receiving channel(s)?

☒No, the low flow threshold is 0.1Q2 (default low flow threshold)

☐Yes, the result is the low flow threshold is 0.1Q2

☐Yes, the result is the low flow threshold is 0.3Q2

☐Yes, the result is the low flow threshold is 0.5Q2

If a geomorphic assessment has been performed, provide title, date, and preparer:

Discussion / Additional Information: (optional)

Other Site Requirements and Constraints

When applicable, list other site requirements or constraints that will influence storm water management design, such as zoning requirements including setbacks and open space, or local codes governing minimum street width, sidewalk construction, allowable pavement types, and drainage requirements.

N/A

Optional Additional Information or Continuation of Previous Sections As Needed

This space provided for additional information or continuation of information from previous sections as needed.

There are two Points of Compliance (POC). The first point is located at the southwest corner of the project site and is displayed as a light blue ring reading POC #1. The second point is located at the northwest corner of the site and is displayed as a light blue ring reading POC #2.

Source Control BMP Checklist for All Development Projects (Standard Projects and PDPs)	Form I-4

Project Identification

Project Name Modera Melrose

Permit Application Number D21-00011

Source Control BMPs

All development projects must implement source control BMPs SC-1 through SC-6 where applicable and feasible. See Chapter 4 and Appendix E of the manual for information to implement source control BMPs shown in this checklist.

Answer each category below pursuant to the following.

- "Yes" means the project will implement the source control BMP as described in Chapter 4 and/or Appendix E of the manual. Discussion / justification is not required.
- "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided.
- "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project has no outdoor materials storage areas). Discussion / justification may be provided.

Source Control Requirement	Implemented?		
SC-1 Prevention of Illicit Discharges into the MS4	☒ Yes	☐ No	☐ N/A
Discussion / justification if SC-1 not implemented:			
SC-2 Storm Drain Stenciling or Signage	☒ Yes	☐ No	☐ N/A
Discussion / justification if SC-2 not implemented:			
SC-3 Protect Outdoor Materials Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☐ No	☒ N/A
Discussion / justification if SC-3 not implemented:			

Form I-4 Page 2 of 3			
Source Control Requirement	Implemented?		
SC-4 Protect Materials Stored in Outdoor Work Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☐ No	☒ N/A
Discussion / justification if SC-4 not implemented:			
SC-5 Protect Trash Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☐ No	☒ N/A
Discussion / justification if SC-5 not implemented:			

Form I-4 Page 3 of 3			
SC-6 Additional BMPs Based on Potential Sources of Runoff Pollutants (must answer for each source listed below)	Implemented?		
Onsite storm drain inlets	☒ Yes	☐ No	☐ N/A
Interior floor drains and elevator shaft sump pumps	☒ Yes	☐ No	☐ N/A
Interior parking garages	☒ Yes	☐ No	☐ N/A
Need for future indoor & structural pest control	☐ Yes	☐ No	☒ N/A
Landscape/outdoor pesticide use	☒ Yes	☐ No	☐ N/A
Pools, spas, ponds, decorative fountains, and other water features	☒ Yes	☐ No	☐ N/A
Food service	☐ Yes	☐ No	☒ N/A
Refuse area	☒ Yes	☐ No	☐ N/A
Industrial processes	☐ Yes	☐ No	☒ N/A
Outdoor storage of equipment or materials	☐ Yes	☐ No	☒ N/A
Vehicle and equipment cleaning	☐ Yes	☐ No	☒ N/A
Vehicle/equipment repair and maintenance	☐ Yes	☐ No	☒ N/A
Fuel dispensing areas	☐ Yes	☐ No	☒ N/A
Loading docks	☐ Yes	☐ No	☒ N/A
Fire sprinkler test water	☒ Yes	☐ No	☐ N/A
Miscellaneous drain or wash water	☐ Yes	☐ No	☒ N/A
Plazas, sidewalks, and parking lots	☒ Yes	☐ No	☐ N/A
Discussion / justification if SC-6 not implemented. Clearly identify which sources of runoff pollutants are discussed. Justification must be provided for all "No" answers shown above.			

Site Design BMP Checklist for All Development Projects (Standard Projects and PDPs)	Form I-5

Project Identification

Project Name **Modera Melrose**

Permit Application Number **D21-00011**

Site Design BMPs

All development projects must implement site design BMPs SD-1 through SD-8 where applicable and feasible. See Chapter 4 and Appendix E of the manual for information to implement site design BMPs shown in this checklist.

Answer each category below pursuant to the following.

- "Yes" means the project will implement the site design BMP as described in Chapter 4 and/or Appendix E of the manual. Discussion / justification is not required.
- "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided.
- "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project site has no existing natural areas to conserve). Discussion / justification may be provided.

Site Design Requirement	Applied?		
SD-1 Maintain Natural Drainage Pathways and Hydrologic Features	☐ Yes	☒ No	☐ N/A
Discussion / justification if SD-1 not implemented: Majority of site will be developed. Flows routed throughout site to get to the underground storage tank before discharge. Natural pathways were infeasible to keep.			
SD-2 Conserve Natural Areas, Soils, and Vegetation	☐ Yes	☒ No	☐ N/A
Discussion / justification if SD-2 not implemented: Majority of site will be developed, with new parkway requirement no natural vegetation will be kept.			
SD-3 Minimize Impervious Area	☒ Yes	☐ No	☐ N/A
Discussion / justification if SD-3 not implemented:			
SD-4 Minimize Soil Compaction	☒ Yes	☐ No	☐ N/A
Discussion / justification if SD-4 not implemented:			

Form I-5 Page 2 of 2			
Site Design Requirement	**Applied?**		
SD-5 Impervious Area Dispersion	☒ Yes	☐ No	☐ N/A
Discussion / justification if SD-5 not implemented:			
SD-6 Runoff Collection	☐ Yes	☐ No	☒ N/A
Discussion / justification if SD-6 not implemented:			
SD-7 Landscaping with Native or Drought Tolerant Species	☒ Yes	☐ No	☐ N/A
Discussion / justification if SD-7 not implemented:			
SD-8 Harvesting and Using Precipitation	☐ Yes	☒ No	☐ N/A
Discussion / justification if SD-8 not implemented: Harvest and Reuse considered infeasible. The 36-hour demand is less than 0.25DCV per Form I-7 Harvest and Use Feasibility Checklist.			

Summary of PDP Structural BMPs	Form I-6 (PDPs)

Project Identification

Project Name Modera Melrose

Permit Application Number D21-00011

PDP Structural BMPs

All PDPs must implement structural BMPs for storm water pollutant control (see Chapter 5 of the manual). Selection of PDP structural BMPs for storm water pollutant control must be based on the selection process described in Chapter 5. PDPs subject to hydromodification management requirements must also implement structural BMPs for flow control for hydromodification management (see Chapter 6 of the manual). Both storm water pollutant control and flow control for hydromodification management can be achieved within the same structural BMP(s).

PDP structural BMPs must be verified by the local jurisdiction at the completion of construction. This may include requiring the project owner or project owner's representative to certify construction of the structural BMPs (see Section 1.12 of the manual). PDP structural BMPs must be maintained into perpetuity, and the local jurisdiction must confirm the maintenance (see Section 7 of the manual).

Use this form to provide narrative description of the general strategy for structural BMP implementation at the project site in the box below. Then complete the PDP structural BMP summary information sheet (page 3 of this form) for each structural BMP within the project (copy the BMP summary information page as many times as needed to provide summary information for each individual structural BMP).

Describe the general strategy for structural BMP implementation at the site. This information must describe how the steps for selecting and designing storm water pollutant control BMPs presented in Section 5.1 of the manual were followed, and the results (type of BMPs selected). For projects requiring hydromodification flow control BMPs, indicate whether pollutant control and flow control BMPs are integrated or separate.

According to the Preliminary Geotechnical Investigation from Geocon dated January 26, 2021, infiltration is considered infeasible.

The proposed BMPs for treatment of the site are raised biofiltration planters for the roof runoff treatment and modular wetlands for the rest of the site's runoff treatment. The raised biofiltration planters were sized according to the Worksheet B.5-1 from the City of Oceanside BMP Design manual. The modular wetlands were sized according to Worksheet J.5-1 of the County of San Diego BMP Design Manual.

Runoff is collected from the modular wetlands and biofiltration planters, then conveyed to the underground detention tank for flow control to meet detention and hydromodification requirements. The underground tank was sized utilizing the criteria in Appendix G of the City of Oceanside BMP Design Manual. The unit sizing factors from Table G.2-7 for cistern sizing were used. See associated BMP sizing worksheets in Attachment 1 and the hydromodification sizing in Attachment 2.

(Continue on page 2 as necessary.)

(Page reserved for continuation of description of general strategy for structural BMP implementation at the site)

(Continued from page 1)

Form I-6 Page 3 of X (Copy as many as needed)	
Structural BMP Summary Information (Copy this page as needed to provide information for each individual proposed structural BMP)	
Structural BMP ID No. BMP 1a, 1b, 2a, 2b, 4, 5a, 5b, 5c, 5d, 5e, 5f, 6a, 6b, 7a, 7b, 9a, & 9b	
Construction Plan Sheet No.	
Type of structural BMP: ☐Retention by harvest and use (HU-1) ☐Retention by infiltration basin (INF-1) ☐Retention by bioretention (INF-2) ☐Retention by permeable pavement (INF-3) ☐Partial retention by biofiltration with partial retention (PR-1) ☒Biofiltration (BF-1) ☐Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) ☐Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ☐Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) ☐Detention pond or vault for hydromodification management ☐Other (describe in discussion section below)	
Purpose: ☒Pollutant control only ☐Hydromodification control only ☐Combined pollutant control and hydromodification control ☐Pre-treatment/forebay for another structural BMP ☐Other (describe in discussion section below)	
Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms if required by the [City Engineer] (See Section 1.12 of the manual)	Kimley-Horn Bryan Nord, PE Bryan.Nord@kimley-horn.com
Who will be the final owner of this BMP?	Mill Creek Residential Trust, LLC
Who will maintain this BMP into perpetuity?	Mill Creek Residential Trust, LLC
What is the funding mechanism for maintenance?	Mill Creek Residential Trust, LLC

Form I-6 Page 4 of X (Copy as many needed)
Structural BMP Summary Information (Copy this page as needed to provide information for each individual proposed structural BMP)
Discussion (as needed): BMP's 1a, 1b, 2a, 2b, 4, 5a, 5b, 5c, 5d, 5e, 5f, 6a, 6b, 7a, 7b, 9a, & 9b are biofiltration raised planters. See Attachment 1 for sizing calculations.

Form I-6 Page 3 of X (Copy as many as needed)	
Structural BMP Summary Information **(Copy this page as needed to provide information for each individual proposed structural BMP)**	
Structural BMP ID No. BMP 3 & 8	
Construction Plan Sheet No.	
Type of structural BMP: ☐Retention by harvest and use (HU-1) ☐Retention by infiltration basin (INF-1) ☐Retention by bioretention (INF-2) ☐Retention by permeable pavement (INF-3) ☐Partial retention by biofiltration with partial retention (PR-1) ☒Biofiltration (BF-1) ☐Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) ☐Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ☐Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) ☐Detention pond or vault for hydromodification management ☐Other (describe in discussion section below)	
Purpose: ☒Pollutant control only ☐Hydromodification control only ☐Combined pollutant control and hydromodification control ☐Pre-treatment/forebay for another structural BMP ☐Other (describe in discussion section below)	
Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms if required by the [City Engineer] (See Section 1.12 of the manual)	Kimley-Horn Bryan Nord, PE Bryan.Nord@kimley-horn.com
Who will be the final owner of this BMP?	Mill Creek Residential Trust, LLC
Who will maintain this BMP into perpetuity?	Mill Creek Residential Trust, LLC
What is the funding mechanism for maintenance?	Mill Creek Residential Trust, LLC

Form I-6 Page 4 of X (Copy as many needed)
Structural BMP Summary Information **(Copy this page as needed to provide information for each individual proposed structural BMP)**
Discussion (as needed): BMP's 3 and 8 are proprietary biofiltration systems, Modular Wetland Systems, designed to treat for pollutant control. The modular wetlands were sized to handle the required DCV. Worksheet B.2-1 was used to find the required DCV per each DMA. Table J.5-1 from Appendix J was used to determine the size of each wetland. See Attachment 1 for full sizing calculations.

Form I-6 Page 3 of X (Copy as many as needed)	
Structural BMP Summary Information (Copy this page as needed to provide information for each individual proposed structural BMP)	
Structural BMP ID No.BMP A	
Construction Plan Sheet No.	
Type of structural BMP: ☐Retention by harvest and use (HU-1) ☐Retention by infiltration basin (INF-1) ☐Retention by bioretention (INF-2) ☐Retention by permeable pavement (INF-3) ☐Partial retention by biofiltration with partial retention (PR-1) ☐Biofiltration (BF-1) ☐Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) ☐Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ☐Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) ☒Detention pond or vault for hydromodification management ☐Other (describe in discussion section below)	
Purpose: ☐Pollutant control only ☒Hydromodification control only ☐Combined pollutant control and hydromodification control ☐Pre-treatment/forebay for another structural BMP ☐Other (describe in discussion section below)	
Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms if required by the [City Engineer] (See Section 1.12 of the manual)	Kimley-Horn Bryan Nord, PE Bryan.Nord@kimley-horn.com
Who will be the final owner of this BMP?	Mill Creek Residential Trust, LLC
Who will maintain this BMP into perpetuity?	Mill Creek Residential Trust, LLC
What is the funding mechanism for maintenance?	Mill Creek Residential Trust, LLC

Form I-6 Page 4 of X (Copy as many needed)
Structural BMP Summary Information (Copy this page as needed to provide information for each individual proposed structural BMP)
Discussion (as needed): BMP A is an underground detention storage tank implemented to meet detention and hydromodification requirements. See Attachment 2 for sizing calculations.

City of Oceanside 300 N Coast Highway Oceanside, CA 92054	**Permanent BMP Construction** **Self Certification Form**	February 2016

Date Prepared:	Project No.: D21-00011
Project Applicant: Mill Creek Residential Trust LLC	Phone: 714.966.9355
Project Address: SEC Melrose Drive and Oceanside Blvd, Oceanside, CA 92056	
Project Engineer: Erin Lee, PE	Phone: 619.234.9411

The purpose of this form is to verify that the site improvements for the project, identified above, have been constructed in conformance with the approved Storm Water Quality Management Plan (SWQMP) documents and drawings.

This form must be completed by the engineer and installing contractor and submitted prior to final inspection of the construction permit. Completion and submittal of this form is required for all new development and redevelopment projects in order to comply with the City's Storm Water ordinances and NDPES Permit Order No. R9-2013-0001. Final inspection for occupancy and/or release of grading or public improvement bonds may be delayed if this form is not submitted and approved by the City of Oceanside.

ENGINEER'S CERTIFICATION:

As the professional in responsible charge for the design of the above project, I certify that I have inspected all constructed Low Impact Development (LID) site design, source control and treatment control BMP's required per the approved SWQMP and Construction Permit No. Click here to enter text.; and that said BMP's have been constructed in compliance with the approved plans and all applicable specifications, permits, ordinances and Order No. R9-2013-0001 of the San Diego Regional Water Quality Control Board.

I understand that this BMP certification statement does not constitute an operation and maintenance verification.

Signature: _____

Date of Signature: _ _

Printed Name: _ Erin Lee, PE_____

Title: _ Civil Engineer_____

Phone No. _619.234.9411_____

Engineer's Stamp

CONTRACTOR'S CERTIFICATION:

As the professional in responsible charge for construction of the above project, I certify that all constructed Low Impact Development (LID) site design, source control and treatment control BMP's required per the approved SWQMP and Construction Permit No. Click here to enter text.; have been constructed in compliance with the approved plans and all applicable specifications, permits, and ordinances.

I understand that this BMP certification statement does not constitute an operation and maintenance verification.

Signature: _____

Date of Signature: _ Click here to enter text._

Printed Name: _ Click here to enter text._____

Title: _ Click here to enter text._____

Phone No. _ Click here to enter text. _____

ATTACHMENT 1

BACKUP FOR PDP POLLUTANT CONTROL BMPS

This is the cover sheet for Attachment 1.

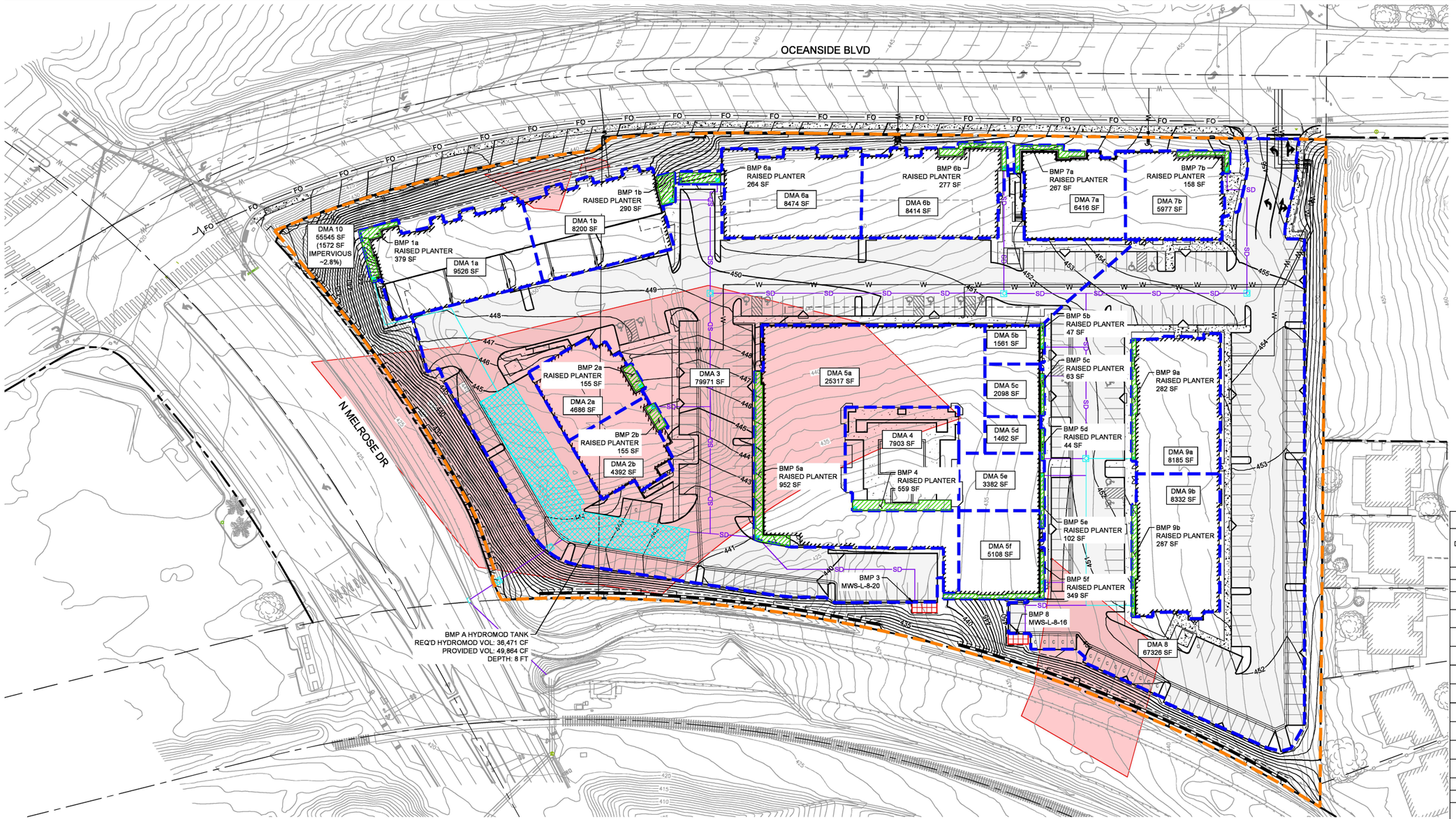
Indicate which Items are Included:

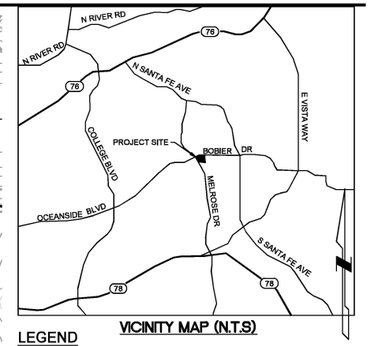
Attachment Sequence	Contents	Checklist
Attachment 1a	DMA Exhibit (Required) See DMA Exhibit Checklist.	☒Included
Attachment 1b	Tabular Summary of DMAs Showing DMA ID matching DMA Exhibit, DMA Area, and DMA Type (Required)* *Provide table in this Attachment OR on DMA Exhibit in Attachment 1a	☒Included on DMA Exhibit in Attachment 1a ☐Included as Attachment 1b, separate from DMA Exhibit
Attachment 1c	Design Capture Volume Worksheet	☒Included
Attachment 1d	Form I-7, Harvest and Use Feasibility Screening Checklist (Required unless the entire project will use infiltration BMPs) Refer to Appendix B.3-1 of the BMP Design Manual to complete Form I-7.	☒Included ☐Not included because the entire project will use infiltration BMPs
Attachment 1e	Form I-8, Categorization of Infiltration Feasibility Condition (Required unless the project will use harvest and use BMPs) Refer to Appendices C and D of the BMP Design Manual to complete Form I-8.	☒Included ☐Not included because the entire project will use harvest and use BMPs
Attachment 1f	Pollutant Control BMP Design Worksheets / Calculations (Required) Refer to Appendices B and E of the BMP Design Manual for structural pollutant control BMP design guidelines	☒Included

Use this checklist to ensure the required information has been included on the DMA Exhibit:

The DMA Exhibit must identify:

☒Underlying hydrologic soil group
☒Approximate depth to groundwater
☒Existing natural hydrologic features (watercourses, seeps, springs, wetlands)
☒Critical coarse sediment yield areas to be protected
☒Existing topography and impervious areas
☒Existing and proposed site drainage network and connections to drainage offsite
☒Proposed grading
☒Proposed impervious features
☒Proposed design features and surface treatments used to minimize imperviousness
☒Drainage management area (DMA) boundaries, DMA ID numbers, and DMA areas (square footage or acreage), and DMA type (i.e., drains to BMP, self-retaining, or self-mitigating)
☒Potential pollutant source areas and corresponding required source controls (see Chapter 4, Appendix E.1, and Form I-3B)
☒Structural BMPs (identify location, type of BMP, and size/detail)





VICINITY MAP (N.T.S)

LEGEND

- PROPERTY BOUNDARY
- DRAINAGE MANAGEMENT AREA BOUNDARY
- SELF MITIGATING DMA BOUNDARY
- EXISTING CONTOUR (XXXX)
- PROPOSED CONTOUR (XXXX)
- STORM DRAIN (SD)
- BIOFILTRATION BMP AREA
- HYDROMOD TANK
- DRAINAGE MANAGEMENT AREA LABEL (DMA AREA — ACRES)
- POTENTIAL CCSYAs
- PROP. AC PAVING
- PROP. CONCRETE SIDEWALK

BMP SUMMARY

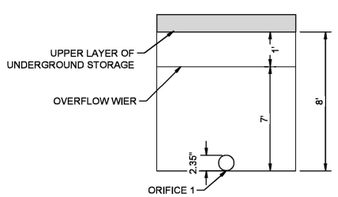
DMA #	DMA AREA (SF)	REQUIRED BMP VOL OR FLOW RATE	PROVIDED BMP VOL OR FLOW*	BMP TYPE
1a	9526	449 CF	558 CF	RAISED PLANTER
1b	8200	386 CF	492 CF	RAISED PLANTER
2a	4686	221 CF	285 CF	RAISED PLANTER
2b	4392	207 CF	264 CF	RAISED PLANTER
3	79971	0.479 CFS	0.577 CFS	MODULAR WETLAND
4	7903	360 CF	388 CF	RAISED PLANTER
5a	25317	1193 CF	1502 CF	RAISED PLANTER
5b	1561	74 CF	96 CF	RAISED PLANTER
5c	2098	100 CF	130 CF	RAISED PLANTER
5d	1462	70 CF	91 CF	RAISED PLANTER
5e	3382	161 CF	210 CF	RAISED PLANTER
5f	5108	235 CF	256 CF	RAISED PLANTER
6a	8474	404 CF	527 CF	RAISED PLANTER
6b	8414	397 CF	512 CF	RAISED PLANTER
7a	6416	302 CF	376 CF	RAISED PLANTER
7b	5977	285 CF	376 CF	RAISED PLANTER
8	67326	0.403 CFS	0.462 CFS	MODULAR WETLAND
9a	8185	386 CF	492 CF	RAISED PLANTER
9b	8332	393 CF	501 CF	RAISED PLANTER
10	55545	–	–	SELF-RETAINING AREA

SITE DESIGN BMPS	
BMP ID	BMP DESCRIPTION
SD-B	MINIMIZE IMPERVIOUS ARES
	LANDSCAPING WITH NATIVE OR DROUGHT TOLERANT LANDSCAPING

SOURCE CONTROL BMPS	
BMP ID	BMP DESCRIPTION
SC-1	PREVENT ILLICIT DISCHARGE INTO MS4 ---> ALL LANDSCAPE AREAS (TYP.)
SC-2	STORM DRAIN STENCILING AND SIGNAGE ---> ALL SD GRATED INLETS (TYP.)
SC-6	ADDITIONAL BMPS BASED ON POTENTIAL SOURCES OF RUNOFF POLLUTANTS
	ON-SITE STORM DRAIN INLETS
	LANDSCAPE / OUTDOOR PESTICIDE USE
	PLAZA, SIDEWALKS, PARKING LOTS

NORTH

GRAPHIC SCALE IN FEET
0 20 40 80



1 BMP 1 OUTLET STRUCTURE
NOT TO SCALE

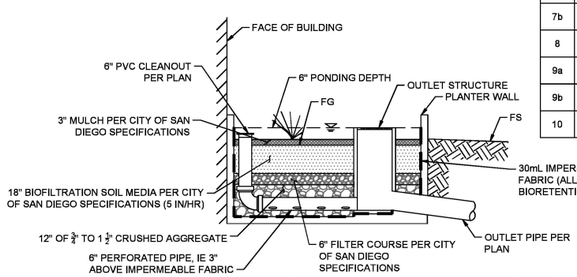
SITE INFORMATION

HYDROLOGIC SOIL GROUP: TYPE A & D

DEPTH TO GROUNDWATER: GREATER THAN 20'

THERE ARE NO EXISTING HYDROLOGIC FEATURES ONSITE

AREAS NOT SHOWN AS ASPHALT, CONCRETE, OR BUILDING ARE PERVIOUS



2 RAISED PLANTER WITH UNDERDRAIN
NOT TO SCALE

Kimley»Horn

DMA EXHIBIT
MODERA MELROSE
4/5/2022

Placeholder – **Tabular Summary of DMAs (if separate from DMA Exhibit)**

Leave placeholder intact if not applicable.

☒Not Applicable – Tabular Summary included on DMA Exhibit

BMP 1a

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.65	inches
2	Area tributary to BMP (s)	A=	0.22	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.87	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	449	cubic-feet

BMP 1b

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.65	inches
2	Area tributary to BMP (s)	A=	0.19	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.87	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	386	cubic-feet

BMP 2a

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.65	inches
2	Area tributary to BMP (s)	A=	0.11	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.87	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	221	cubic-feet

BMP 2b

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.65	inches
2	Area tributary to BMP (s)	A=	0.10	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.87	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	207	cubic-feet

BMP 3

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.65	inches
2	Area tributary to BMP (s)	A=	1.84	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.87	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	3769	cubic-feet

BMP 4

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.65	inches
2	Area tributary to BMP (s)	A=	0.18	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.84	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	360	cubic-feet

BMP 5a

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.65	inches
2	Area tributary to BMP (s)	A=	0.58	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.87	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	1193	cubic-feet

BMP 5b

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.65	inches
2	Area tributary to BMP (s)	A=	0.04	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.88	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	74	cubic-feet

BMP 5c

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.65	inches
2	Area tributary to BMP (s)	A=	0.05	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.88	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	100	cubic-feet

BMP 5d

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.65	inches
2	Area tributary to BMP (s)	A=	0.03	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.88	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	70	cubic-feet

BMP 5e

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.65	inches
2	Area tributary to BMP (s)	A=	0.08	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.88	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	161	cubic-feet

BMP 5f

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.65	inches
2	Area tributary to BMP (s)	A=	0.12	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.85	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	235	cubic-feet

BMP 6a

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.65	inches
2	Area tributary to BMP (s)	A=	0.19	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.88	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	404	cubic-feet

BMP 6b

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.65	inches
2	Area tributary to BMP (s)	A=	0.19	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.87	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	397	cubic-feet

BMP 7a

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.65	inches
2	Area tributary to BMP (s)	A=	0.15	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.87	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	302	cubic-feet

BMP 7b

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.65	inches
2	Area tributary to BMP (s)	A=	0.14	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.88	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	285	cubic-feet

BMP 8

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.65	inches
2	Area tributary to BMP (s)	A=	1.55	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.87	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	3173	cubic-feet

BMP 9a

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.65	inches
2	Area tributary to BMP (s)	A=	0.19	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.87	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	386	cubic-feet

BMP 9b

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.65	inches
2	Area tributary to BMP (s)	A=	0.19	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1)	C=	0.87	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	393	cubic-feet

Harvest and Use Feasibility Checklist	Form I-7

1. Is there a demand for harvested water (check all that apply) at the project site that is reliably present during the wet season?

☒ Toilet and urinal flushing
☒ Landscape irrigation
☐ Other:_____

2. If there is a demand; estimate the anticipated average wet season demand over a period of 36 hours. Guidance for planning level demand calculations for toilet/urinal flushing and landscape irrigation is provided in Section B.3.2

[Prov

Landscape Irrigation
ETWU = ETo(wet) * [[Sum(PF * HA) / IE] + SLA] * 0.015
= 2.8 * [[(0.1 *79,520) / 0.9] + 0] * 0.015 ETWU = 371 CF
Toilet/Urinal Flushing - 400 residences from unit mix.
400 x 9.3 gallons/resident = 3720 gallons per day x 1.5 = 5580 gallons per 36 hours
5580 gallons = 746 cubic feet
12,119 x 0.25 = 3030 cubic feet 746 + 371 = 1117 cubic feet < 3030 cubic feet

3. Calculate the DCV using worksheet B-2.1.

DCV = 12,119 (cubic feet)

3a. Is the 36 hour demand greater than or equal to the DCV?	3b. Is the 36 hour demand greater than 0.25DCV but less than the full DCV?	3c. Is the 36 hour demand less than 0.25DCV?
☐ Yes / ☐ No ⇨ ⇩	☐ Yes / ☐ No ⇨ ⇩	☐ Yes ⇩
Harvest and use appears to be feasible. Conduct more detailed evaluation and sizing calculations to confirm that DCV can be used at an adequate rate to meet drawdown criteria.	Harvest and use may be feasible. Conduct more detailed evaluation and sizing calculations to determine feasibility. Harvest and use may only be able to be used for a portion of the site, or (optionally) the storage may need to be upsized to meet long term capture targets while draining in longer than 36 hours.	Harvest and use is considered to be infeasible.

Is harvest and use feasible based on further evaluation?

☐ Yes, refer to Appendix E to select and size harvest and use BMPs.

☐ No, select alternate BMPs.

Categorization of Infiltration Feasibility Condition	Form I-8

Part 1 - Full Infiltration Feasibility Screening Criteria

Would infiltration of the full design volume be feasible from a physical perspective without any undesirable consequences that cannot be reasonably mitigated?

Criteria	Screening Question	Yes	No
1	**Is the estimated reliable infiltration rate below proposed facility locations greater than 0.5 inches per hour?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.	☐	☒

Provide basis:

Two permeability tests using our constant-head downhole permeameter were performed. The unfactored infiltration rates were measured to be 0.003 and 0.030 inches/hour (iph). After applying a feasibility factor of safety of 2, the design infiltration rates for the Santiago Formation are 0.001 and 0.015 iph. The downhole permeameter test results are attached. The USDA NRCS Web Soil Survey shows that 12% of the property is classified as Diablo Clay (DaC), which belongs to Hydrologic Soil Group D, and 87% belongs to Tujunga Sand (TuB) which is considered Hydrologic Soil Group A. Based on the above information, full infiltration BMP's supported by the onsite soils are not feasible due to the very low infiltration rates. Please refer to the geotechnical investigation, for additional information.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.

2	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.	☐	☒

Provide basis:

Descending fill slopes are planned at 2:1 or flatter, a liquefaction potential is very low to negligible, and the landslide potential is very low to negligible. The storm water BMP's will be founded in compacted fill or Santiago formation. The potential for fill slope instability exists if water is allowed to infiltrate adjacent to fill slopes. The onsite soils are highly expansive. The potential for adverse soil movement and lateral water migration to adversely impact existing and proposed private and public utilities, foundations, roadways and improvements is high. Compacted fill will be placed across the property and result in fills of greater than 5 to 20 feet thick. Infiltration BMP's founded in compacted fill should be avoided to prevent adverse swelling of the expansive soils, and adverse hydro-consolidation of the granular fill soils which causes differential settlement. Groundwater is not encountered during the field investigation, the potential for groundwater mounding is negligible.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.

Form I-8 Page 2 of 4			
Criteria	Screening Question	**Yes**	**No**
3	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of groundwater contamination (shallow water table, storm water pollutants or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	☒	☐
Provide basis: Groundwater was not encountered during the investigation, and is not expected within 10 feet of the bottom of any proposed BMP, therefore the risk of storm water infiltration BMP's adversely impacting groundwater is negligible. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
4	**Can infiltration greater than 0.5 inches per hour be allowed without causing potential water balance issues such as change of seasonality of ephemeral streams or increased discharge of contaminated groundwater to surface waters?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	☒	☐
Provide basis: We are not aware of any water balance issues. Researching downstream water rights or evaluating water balance issues to stream flows is beyond the scope of the geotechnical consultant. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
Part 1 Result *	If all answers to rows 1 - 4 are "**Yes**" a full infiltration design is potentially feasible. The feasibility screening category is **Full Infiltration** If any answer from row 1-4 is "**No**", infiltration may be possible to some extent but would not generally be feasible or desirable to achieve a "full infiltration" design. Proceed to Part 2	☐Full Infiltration ☒No	

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by Agency/Jurisdictions to substantiate findings

Form I-8 Page 3 of 4

Part 2 – Partial Infiltration vs. No Infiltration Feasibility Screening Criteria

Would infiltration of water in any appreciable amount be physically feasible without any negative consequences that cannot be reasonably mitigated?

Criteria	Screening Question	Yes	No
5	**Do soil and geologic conditions allow for infiltration in any appreciable rate or volume?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.	☐	☒

Provide basis:

Two permeability tests using our constant-head downhole permeameter were performed. The unfactored infiltration rates were measured to be 0.003 and 0.030 inches/hour (iph). After applying a feasibility factor of safety of 2, the design infiltration rates for the Santiago Formation are 0.001 and 0.015 iph, which is less than 0.05 iph, the commonly used minimum threshold for partial infiltration. The downhole permeameter test results are attached. The USDA NRCS Web Soil Survey shows that 12% of the property is classified as Diablo Clay (DaC), which belongs to Hydrologic Soil Group D, and 87% belongs to Tujunga Sand (TuB) which is considered Hydrologic Soil Group A. Based on the above information, partial infiltration BMP's supported by the onsite soils are not feasible due to the very low infiltration rates. Please refer to the geotechnical investigation, for additional information.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.

6	**Can Infiltration in any appreciable quantity be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level**? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.	☐	☒

Provide basis:

Descending fill slopes are planned at 2:1 or flatter, a liquefaction potential is very low to negligible, and the landslide potential is very low to negligible. The storm water BMP's will be founded in compacted fill or Santiago formation. The potential for fill slope instability exists if water is allowed to infiltrate adjacent to fill slopes. The onsite soils are highly expansive. The potential for adverse soil movement and lateral water migration to adversely impact existing and proposed private and public utilities, foundations, roadways and improvements is high. Compacted fill will be placed across the property and result in fills of greater than 5 to 20 feet thick. Infiltration BMP's founded in compacted fill should be avoided to prevent adverse swelling of the expansive soils, and adverse hydro-consolidation of the granular fill soils which causes differential settlement. Groundwater is not encountered during the field investigation, the potential for groundwater mounding is negligible.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.

Form I-8 Page 4 of 4			
Criteria	Screening Question	**Yes**	**No**
7	**Can Infiltration in any appreciable quantity be allowed without posing significant risk for groundwater related concerns (shallow water table, storm water pollutants or other factors)?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	☒	☐
Provide basis: Groundwater was not encountered during the investigation and is not expected within 10 feet from the bottom of any proposed storm water BMP, therefore the risk of storm water infiltration BMP's adversely impacting groundwater is negligible. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
8	**Can infiltration be allowed without violating downstream water rights**? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	☒	☐
Provide basis: We are not aware of any downstream water rights. Researching downstream water rights or evaluating water balance issues to stream flows is beyond the scope of the geotechnical consultant. Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
Part 2 Result*	If all answers from row 1-4 are yes then partial infiltration design is potentially feasible. The feasibility screening category is **Partial Infiltration.** If any answer from row 5-8 is no, then infiltration of any volume is considered to be **infeasible** within the drainage area. The feasibility screening category is **No Infiltration.**	☐Partial Infiltration ☒No Infiltration	

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by Agency/Jurisdictions to substantiate findings

Factor of Safety and Design Infiltration Rate Worksheet			Worksheet D.5-1		
Factor Category		Factor Description	Assigned Weight (w)	Factor Value (v)	Product (p) p = w x v
A	Suitability Assessment	Soil assessment methods	0.25	3	0.75
		Predominant soil texture	0.25	2	0.50
		Site soil variability	0.25	2	0.50
		Depth to groundwater / impervious layer	0.25	1	0.25
		Suitability Assessment Safety Factor, $S_A = \Sigma p$			2.0
B	Design	Level of pretreatment/ expected sediment loads	0.5		
		Redundancy/resiliency	0.25		
		Compaction during construction	0.25		
		Design Safety Factor, $S_B = \Sigma p$			
Combined Safety Factor, $S_{total} = S_A \times S_B$					
Observed Infiltration Rate, inch/hr, $K_{observed}$ (corrected for test-specific bias)					
Design Infiltration Rate, in/hr, $K_{design} = K_{observed} / S_{total}$					
Supporting Data					
Briefly describe infiltration test and provide reference to test forms:					

Automated Worksheet B.1: Calculation of Design Capture Volume (V2.0)

Category	#	Description	*i*	*ii*	*iii*	*iv*	*v*	*vi*	*vii*	*viii*	*ix*	*x*	Units
Standard Drainage Basin Inputs	1	Drainage Basin ID or Name	1a	1b	2a	2b	4	5a	5b	5c	5d	5e	unitless
	2	85th Percentile 24-hr Storm Depth	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	inches
	3	Impervious Surfaces Not Directed to Dispersion Area (C=0.90)	9,147	7,910	4,531	4,237	7,344	24,365	1,514	2,035	1,418	3,280	sq-ft
	4	Semi-Pervious Surfaces Not Serving as Dispersion Area (C=0.30)											sq-ft
	5	Engineered Pervious Surfaces Not Serving as Dispersion Area (C=0.10)	379	290	155	155	559	952	47	63	44	102	sq-ft
	6	Natural Type A Soil Not Serving as Dispersion Area (C=0.10)											sq-ft
	7	Natural Type B Soil Not Serving as Dispersion Area (C=0.14)											sq-ft
	8	Natural Type C Soil Not Serving as Dispersion Area (C=0.23)											sq-ft
	9	Natural Type D Soil Not Serving as Dispersion Area (C=0.30)											sq-ft
Dispersion Area, Tree Well & Rain Barrel Inputs (Optional)	10	Does Tributary Incorporate Dispersion, Tree Wells, and/or Rain Barrels?	No	No	No	No	No	No	No	No	No	No	yes/no
	11	Impervious Surfaces Directed to Dispersion Area per SD-B (Ci=0.90)											sq-ft
	12	Semi-Pervious Surfaces Serving as Dispersion Area per SD-B (Ci=0.30)											sq-ft
	13	Engineered Pervious Surfaces Serving as Dispersion Area per SD-B (Ci=0.10)											sq-ft
	14	Natural Type A Soil Serving as Dispersion Area per SD-B (Ci=0.10)											sq-ft
	15	Natural Type B Soil Serving as Dispersion Area per SD-B (Ci=0.14)											sq-ft
	16	Natural Type C Soil Serving as Dispersion Area per SD-B (Ci=0.23)											sq-ft
	17	Natural Type D Soil Serving as Dispersion Area per SD-B (Ci=0.30)											sq-ft
	18	Number of Tree Wells Proposed per SD-A											#
	19	Average Mature Tree Canopy Diameter											ft
	20	Number of Rain Barrels Proposed per SD-E											#
	21	Average Rain Barrel Size											gal
Initial Runoff Factor Calculation	22	Total Tributary Area	9,526	8,200	4,686	4,392	7,903	25,317	1,561	2,098	1,462	3,382	sq-ft
	23	Initial Runoff Factor for Standard Drainage Areas	0.87	0.87	0.87	0.87	0.84	0.87	0.88	0.88	0.88	0.88	unitless
	24	Initial Runoff Factor for Dispersed & Dispersion Areas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	25	Initial Weighted Runoff Factor	0.87	0.87	0.87	0.87	0.84	0.87	0.88	0.88	0.88	0.88	unitless
	26	Initial Design Capture Volume	449	386	221	207	360	1,193	74	100	70	161	cubic-feet
Dispersion Area Adjustments	27	Total Impervious Area Dispersed to Pervious Surface	0	0	0	0	0	0	0	0	0	0	sq-ft
	28	Total Pervious Dispersion Area	0	0	0	0	0	0	0	0	0	0	sq-ft
	29	Ratio of Dispersed Impervious Area to Pervious Dispersion Area	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	ratio
	30	Adjustment Factor for Dispersed & Dispersion Areas	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	ratio
	31	Runoff Factor After Dispersion Techniques	0.87	0.87	0.87	0.87	0.84	0.87	0.88	0.88	0.88	0.88	unitless
	32	Design Capture Volume After Dispersion Techniques	449	386	221	207	360	1,193	74	100	70	161	cubic-feet
Tree & Barrel Adjustments	33	Total Tree Well Volume Reduction	0	0	0	0	0	0	0	0	0	0	cubic-feet
	34	Total Rain Barrel Volume Reduction	0	0	0	0	0	0	0	0	0	0	cubic-feet
Results	35	Final Adjusted Runoff Factor	0.87	0.87	0.87	0.87	0.84	0.87	0.88	0.88	0.88	0.88	unitless
	36	Final Effective Tributary Area	8,288	7,134	4,077	3,821	6,639	22,026	1,374	1,846	1,287	2,976	sq-ft
	37	Initial Design Capture Volume Retained by Site Design Elements	0	0	0	0	0	0	0	0	0	0	cubic-feet
	38	Final Design Capture Volume Tributary to BMP	449	386	221	207	360	1,193	74	100	70	161	cubic-feet

No Warning Messages

Automated Worksheet B.2: Retention Requirements (V2.0)

Category	#	Description	*i*	*ii*	*iii*	*iv*	*v*	*vi*	*vii*	*viii*	*ix*	*x*	Units
Basic Analysis	1	Drainage Basin ID or Name	1a	1b	2a	2b	4	5a	5b	5c	5d	5e	unitless
	2	85th Percentile Rainfall Depth	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	inches
	3	Predominant NRCS Soil Type Within BMP Location	D	D	D	D	D	D	D	D	D	D	unitless
	4	Is proposed BMP location Restricted or Unrestricted for Infiltration Activities?	Restricted	Restricted	Restricted	Restricted	Restricted	Restricted	Restricted	Restricted	Restricted	Restricted	unitless
	5	Nature of Restriction	Soil Type	Soil Type	Soil Type	Soil Type	Soil Type	Soil Type	Soil Type	Soil Type	Soil Type	Soil Type	unitless
	6	Do Minimum Retention Requirements Apply to this Project?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	yes/no
	7	Are Habitable Structures Greater than 9 Stories Proposed?	No	No	No	No	No	No	No	No	No	No	yes/no
Advanced Analysis	8	Has Geotechnical Engineer Performed an Infiltration Analysis?	No	No	No	No	No	No	No	No	No	No	yes/no
	9	Design Infiltration Rate Recommended by Geotechnical Engineer											in/hr
Result	10	Design Infiltration Rate Used To Determine Retention Requirements	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	in/hr
	11	Percent of Average Annual Runoff that Must be Retained within DMA	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	percentage
	12	Fraction of DCV Requiring Retention	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	ratio
	13	Required Retention Volume	4	4	2	2	4	12	1	1	1	2	cubic-feet

No Warning Messages

Automated Worksheet B.3: BMP Performance (V2.0)

Category	#	Description	*i*	*ii*	*iii*	*iv*	*v*	*vi*	*vii*	*viii*	*ix*	*x*	Units
BMP Inputs	1	Drainage Basin ID or Name	1a	1b	2a	2b	4	5a	5b	5c	5d	5e	sq-ft
	2	Design Infiltration Rate Recommended	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	in/hr
	3	Design Capture Volume Tributary to BMP	449	386	221	207	360	1,193	74	100	70	161	cubic-feet
	4	Is BMP Vegetated or Unvegetated?	Vegetated	Vegetated	Vegetated	Vegetated	Vegetated	Vegetated	Vegetated	Vegetated	Vegetated	Vegetated	unitless
	5	Is BMP Impermeably Lined or Unlined?	Lined	Lined	Lined	Lined	Lined	Lined	Lined	Lined	Lined	Lined	unitless
	6	Does BMP Have an Underdrain?	Underdrain	Underdrain	Underdrain	Underdrain	Underdrain	Underdrain	Underdrain	Underdrain	Underdrain	Underdrain	unitless
	7	Does BMP Utilize Standard or Specialized Media?	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	unitless
	8	Provided Surface Area	379	290	155	155	559	952	47	63	44	102	sq-ft
	9	Provided Surface Ponding Depth	6	6	6	6	6	6	6	6	6	6	inches
	10	Provided Soil Media Thickness	18	18	18	18	18	18	18	18	18	18	inches
	11	Provided Gravel Thickness (Total Thickness)	18	18	18	18	18	18	18	18	18	18	inches
	12	Underdrain Offset	3	3	3	3	3	3	3	3	3	3	inches
	13	Diameter of Underdrain or Hydromod Orifice (Select Smallest)	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	inches
	14	Specialized Soil Media Filtration Rate											in/hr
	15	Specialized Soil Media Pore Space for Retention											unitless
	16	Specialized Soil Media Pore Space for Biofiltration											unitless
	17	Specialized Gravel Media Pore Space											unitless
Retention Calculations	18	Volume Infiltrated Over 6 Hour Storm	0	0	0	0	0	0	0	0	0	0	cubic-feet
	19	Ponding Pore Space Available for Retention	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	20	Soil Media Pore Space Available for Retention	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	unitless
	21	Gravel Pore Space Available for Retention (Above Underdrain)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	22	Gravel Pore Space Available for Retention (Below Underdrain)	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	unitless
	23	Effective Retention Depth	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	inches
	24	Fraction of DCV Retained (Independent of Drawdown Time)	0.15	0.13	0.12	0.13	0.27	0.14	0.11	0.11	0.11	0.11	ratio
	25	Calculated Retention Storage Drawdown Time	120	120	120	120	120	120	120	120	120	120	hours
	26	Efficacy of Retention Processes	0.17	0.15	0.14	0.15	0.28	0.16	0.13	0.13	0.13	0.13	ratio
	27	Volume Retained by BMP (Considering Drawdown Time)	77	58	31	31	101	192	10	13	9	21	cubic-feet
	28	Design Capture Volume Remaining for Biofiltration	372	328	190	176	259	1,001	64	87	61	140	cubic-feet
Biofiltration Calculations	29	Max Hydromod Flow Rate through Underdrain	1.6375	1.6375	1.6375	1.6375	1.6375	1.6375	1.6375	1.6375	1.6375	1.6375	cfs
	30	Max Soil Filtration Rate Allowed by Underdrain Orifice	186.65	243.93	456.39	456.39	126.55	74.31	1,505.12	1,122.87	1,607.74	693.53	in/hr
	31	Soil Media Filtration Rate per Specifications	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	in/hr
	32	Soil Media Filtration Rate to be used for Sizing	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	in/hr
	33	Depth Biofiltered Over 6 Hour Storm	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	inches
	34	Ponding Pore Space Available for Biofiltration	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	unitless
	35	Soil Media Pore Space Available for Biofiltration	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	unitless
	36	Gravel Pore Space Available for Biofiltration (Above Underdrain)	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	unitless
	37	Effective Depth of Biofiltration Storage	15.60	15.60	15.60	15.60	15.60	15.60	15.60	15.60	15.60	15.60	inches
	38	Drawdown Time for Surface Ponding	1	1	1	1	1	1	1	1	1	1	hours
	39	Drawdown Time for Effective Biofiltration Depth	3	3	3	3	3	3	3	3	3	3	hours
	40	Total Depth Biofiltered	45.60	45.60	45.60	45.60	45.60	45.60	45.60	45.60	45.60	45.60	inches
	41	Option 1 - Biofilter 1.50 DCV: Target Volume	558	492	285	264	388	1,502	96	130	91	210	cubic-feet
	42	Option 1 - Provided Biofiltration Volume	558	492	285	264	388	1,502	96	130	91	210	cubic-feet
	43	Option 2 - Store 0.75 DCV: Target Volume	279	246	142	132	194	751	48	65	46	105	cubic-feet
	44	Option 2 - Provided Storage Volume	279	246	142	132	194	751	48	65	46	105	cubic-feet
	45	Portion of Biofiltration Performance Standard Satisfied	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	ratio
Result	46	Do Site Design Elements and BMPs Satisfy Annual Retention Requirements?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	yes/no
	47	Overall Portion of Performance Standard Satisfied (BMP Efficacy Factor)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	ratio
	48	Deficit of Effectively Treated Stormwater	0	0	0	0	0	0	0	0	0	0	cubic-feet

No Warning Messages

Automated Worksheet B.1: Calculation of Design Capture Volume (V2.0)

Category	#	Description	*i*	*ii*	*iii*	*iv*	*v*	*vi*	*vii*	*viii*	*ix*	*x*	Units
Standard Drainage Basin Inputs	1	Drainage Basin ID or Name	5f	6a	6b	7a	7b	9a	9b				unitless
	2	85th Percentile 24-hr Storm Depth	0.65	0.65	0.65	0.65	0.65	0.65	0.65				inches
	3	Impervious Surfaces Not Directed to Dispersion Area (C=0.90)	4,759	8,210	8,137	6,149	5,819	7,903	8,045				sq-ft
	4	Semi-Pervious Surfaces Not Serving as Dispersion Area (C=0.30)											sq-ft
	5	Engineered Pervious Surfaces Not Serving as Dispersion Area (C=0.10)	349	264	277	267	158	282	287				sq-ft
	6	Natural Type A Soil Not Serving as Dispersion Area (C=0.10)											sq-ft
	7	Natural Type B Soil Not Serving as Dispersion Area (C=0.14)											sq-ft
	8	Natural Type C Soil Not Serving as Dispersion Area (C=0.23)											sq-ft
	9	Natural Type D Soil Not Serving as Dispersion Area (C=0.30)											sq-ft
Dispersion Area, Tree Well & Rain Barrel Inputs (Optional)	10	Does Tributary Incorporate Dispersion, Tree Wells, and/or Rain Barrels?	No	No	No	No	No	No	No				yes/no
	11	Impervious Surfaces Directed to Dispersion Area per SD-B (Ci=0.90)											sq-ft
	12	Semi-Pervious Surfaces Serving as Dispersion Area per SD-B (Ci=0.30)											sq-ft
	13	Engineered Pervious Surfaces Serving as Dispersion Area per SD-B (Ci=0.10)											sq-ft
	14	Natural Type A Soil Serving as Dispersion Area per SD-B (Ci=0.10)											sq-ft
	15	Natural Type B Soil Serving as Dispersion Area per SD-B (Ci=0.14)											sq-ft
	16	Natural Type C Soil Serving as Dispersion Area per SD-B (Ci=0.23)											sq-ft
	17	Natural Type D Soil Serving as Dispersion Area per SD-B (Ci=0.30)											sq-ft
	18	Number of Tree Wells Proposed per SD-A											#
	19	Average Mature Tree Canopy Diameter											ft
	20	Number of Rain Barrels Proposed per SD-E											#
	21	Average Rain Barrel Size											gal
Initial Runoff Factor Calculation	22	Total Tributary Area	5,108	8,474	8,414	6,416	5,977	8,185	8,332	0	0	0	sq-ft
	23	Initial Runoff Factor for Standard Drainage Areas	0.85	0.88	0.87	0.87	0.88	0.87	0.87	0.00	0.00	0.00	unitless
	24	Initial Runoff Factor for Dispersed & Dispersion Areas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	25	Initial Weighted Runoff Factor	0.85	0.88	0.87	0.87	0.88	0.87	0.87	0.00	0.00	0.00	unitless
	26	Initial Design Capture Volume	235	404	397	302	285	386	393	0	0	0	cubic-feet
Dispersion Area Adjustments	27	Total Impervious Area Dispersed to Pervious Surface	0	0	0	0	0	0	0	0	0	0	sq-ft
	28	Total Pervious Dispersion Area	0	0	0	0	0	0	0	0	0	0	sq-ft
	29	Ratio of Dispersed Impervious Area to Pervious Dispersion Area	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	ratio
	30	Adjustment Factor for Dispersed & Dispersion Areas	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	ratio
	31	Runoff Factor After Dispersion Techniques	0.85	0.88	0.87	0.87	0.88	0.87	0.87	n/a	n/a	n/a	unitless
	32	Design Capture Volume After Dispersion Techniques	235	404	397	302	285	386	393	0	0	0	cubic-feet
Tree & Barrel Adjustments	33	Total Tree Well Volume Reduction	0	0	0	0	0	0	0	0	0	0	cubic-feet
	34	Total Rain Barrel Volume Reduction	0	0	0	0	0	0	0	0	0	0	cubic-feet
Results	35	Final Adjusted Runoff Factor	0.85	0.88	0.87	0.87	0.88	0.87	0.87	0.00	0.00	0.00	unitless
	36	Final Effective Tributary Area	4,342	7,457	7,320	5,582	5,260	7,121	7,249	0	0	0	sq-ft
	37	Initial Design Capture Volume Retained by Site Design Elements	0	0	0	0	0	0	0	0	0	0	cubic-feet
	38	Final Design Capture Volume Tributary to BMP	235	404	397	302	285	386	393	0	0	0	cubic-feet

No Warning Messages

Automated Worksheet B.2: Retention Requirements (V2.0)

Category	#	Description	*i*	*ii*	*iii*	*iv*	*v*	*vi*	*vii*	*viii*	*ix*	*x*	Units
Basic Analysis	1	Drainage Basin ID or Name	5f	6a	6b	7a	7b	9a	9b	-	-	-	unitless
	2	85th Percentile Rainfall Depth	0.65	0.65	0.65	0.65	0.65	0.65	0.65	-	-	-	inches
	3	Predominant NRCS Soil Type Within BMP Location	D	D	D	D	D	D	D				unitless
	4	Is proposed BMP location Restricted or Unrestricted for Infiltration Activities?	Restricted	Restricted	Restricted	Restricted	Restricted	Restricted	Restricted				unitless
	5	Nature of Restriction	Soil Type	Soil Type	Soil Type	Soil Type	Soil Type	Soil Type	Soil Type				unitless
	6	Do Minimum Retention Requirements Apply to this Project?	Yes	Yes	Yes	Yes	Yes	Yes	Yes				yes/no
	7	Are Habitable Structures Greater than 9 Stories Proposed?	No	No	No	No	No	No	No				yes/no
Advanced Analysis	8	Has Geotechnical Engineer Performed an Infiltration Analysis?	No	No	No	No	No	No	No				yes/no
	9	Design Infiltration Rate Recommended by Geotechnical Engineer											in/hr
Result	10	Design Infiltration Rate Used To Determine Retention Requirements	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-	-	in/hr
	11	Percent of Average Annual Runoff that Must be Retained within DMA	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	-	-	-	percentage
	12	Fraction of DCV Requiring Retention	0.01	0.01	0.01	0.01	0.01	0.01	0.01	-	-	-	ratio
	13	Required Retention Volume	2	4	4	3	3	4	4	-	-	-	cubic-feet

No Warning Messages

Automated Worksheet B.3: BMP Performance (V2.0)

Category	#	Description	*i*	*ii*	*iii*	*iv*	*v*	*vi*	*vii*	*viii*	*ix*	*x*	Units
BMP Inputs	1	Drainage Basin ID or Name	5f	6a	6b	7a	7b	9a	9b	-	-	-	sq-ft
	2	Design Infiltration Rate Recommended	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-	-	in/hr
	3	Design Capture Volume Tributary to BMP	235	404	397	302	285	386	393	-	-	-	cubic-feet
	4	Is BMP Vegetated or Unvegetated?	Vegetated	Vegetated	Vegetated	Vegetated	Vegetated	Vegetated	Vegetated				unitless
	5	Is BMP Impermeably Lined or Unlined?	Lined	Lined	Lined	Lined	Lined	Lined	Lined				unitless
	6	Does BMP Have an Underdrain?	Underdrain	Underdrain	Underdrain	Underdrain	Underdrain	Underdrain	Underdrain				unitless
	7	Does BMP Utilize Standard or Specialized Media?	Standard	Standard	Standard	Standard	Standard	Standard	Standard				unitless
	8	Provided Surface Area	349	264	277	267	158	282	287				sq-ft
	9	Provided Surface Ponding Depth	6	6	6	6	6	6	6				inches
	10	Provided Soil Media Thickness	18	18	18	18	18	18	18				inches
	11	Provided Gravel Thickness (Total Thickness)	18	18	18	18	18	18	18				inches
	12	Underdrain Offset	3	3	3	3	3	3	3				inches
	13	Diameter of Underdrain or Hydromod Orifice (Select Smallest)	6.00	6.00	6.00	6.00	6.00	6.00	6.00				inches
	14	Specialized Soil Media Filtration Rate											in/hr
	15	Specialized Soil Media Pore Space for Retention											unitless
	16	Specialized Soil Media Pore Space for Biofiltration											unitless
	17	Specialized Gravel Media Pore Space											unitless
Retention Calculations	18	Volume Infiltrated Over 6 Hour Storm	0	0	0	0	0	0	0	0	0	0	cubic-feet
	19	Ponding Pore Space Available for Retention	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	unitless
	20	Soil Media Pore Space Available for Retention	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	unitless
	21	Gravel Pore Space Available for Retention (Above Underdrain)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.40	0.40	unitless
	22	Gravel Pore Space Available for Retention (Below Underdrain)	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	unitless
	23	Effective Retention Depth	2.10	2.10	2.10	2.10	2.10	2.10	2.10	0.00	0.00	0.00	inches
	24	Fraction of DCV Retained (Independent of Drawdown Time)	0.26	0.11	0.12	0.15	0.10	0.13	0.13	0.00	0.00	0.00	ratio
	25	Calculated Retention Storage Drawdown Time	120	120	120	120	120	120	120	0	0	0	hours
	26	Efficacy of Retention Processes	0.27	0.13	0.14	0.17	0.12	0.15	0.15	0.00	0.00	0.00	ratio
	27	Volume Retained by BMP (Considering Drawdown Time)	64	53	56	52	34	58	59	0	0	0	cubic-feet
	28	Design Capture Volume Remaining for Biofiltration	171	351	341	250	251	328	334	0	0	0	cubic-feet
Biofiltration Calculations	29	Max Hydromod Flow Rate through Underdrain	1.6375	1.6375	1.6375	1.6375	1.6375	1.6375	1.6375	0.0000	0.0000	0.0000	cfs
	30	Max Soil Filtration Rate Allowed by Underdrain Orifice	202.69	267.96	255.38	264.95	447.73	250.85	246.48	0.00	0.00	0.00	in/hr
	31	Soil Media Filtration Rate per Specifications	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	in/hr
	32	Soil Media Filtration Rate to be used for Sizing	5.00	5.00	5.00	5.00	5.00	5.00	5.00	0.00	0.00	0.00	in/hr
	33	Depth Biofiltered Over 6 Hour Storm	30.00	30.00	30.00	30.00	30.00	30.00	30.00	0.00	0.00	0.00	inches
	34	Ponding Pore Space Available for Biofiltration	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	unitless
	35	Soil Media Pore Space Available for Biofiltration	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	unitless
	36	Gravel Pore Space Available for Biofiltration (Above Underdrain)	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	unitless
	37	Effective Depth of Biofiltration Storage	15.60	15.60	15.60	15.60	15.60	15.60	15.60	0.00	0.00	0.00	inches
	38	Drawdown Time for Surface Ponding	1	1	1	1	1	1	1	0	0	0	hours
	39	Drawdown Time for Effective Biofiltration Depth	3	3	3	3	3	3	3	0	0	0	hours
	40	Total Depth Biofiltered	45.60	45.60	45.60	45.60	45.60	45.60	45.60	0.00	0.00	0.00	inches
	41	Option 1 - Biofilter 1.50 DCV: Target Volume	256	527	512	376	376	492	501	0	0	0	cubic-feet
	42	Option 1 - Provided Biofiltration Volume	256	527	512	376	376	492	501	0	0	0	cubic-feet
	43	Option 2 - Store 0.75 DCV: Target Volume	128	263	256	188	188	246	250	0	0	0	cubic-feet
	44	Option 2 - Provided Storage Volume	128	263	256	188	188	246	250	0	0	0	cubic-feet
	45	Portion of Biofiltration Performance Standard Satisfied	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	ratio
Result	46	Do Site Design Elements and BMPs Satisfy Annual Retention Requirements?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-	-	yes/no
	47	Overall Portion of Performance Standard Satisfied (BMP Efficacy Factor)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	ratio
	48	Deficit of Effectively Treated Stormwater	0	0	0	0	0	0	0	n/a	n/a	n/a	cubic-feet

No Warning Messages

Worksheet J.5-1: Flow-Thru Design Flows

DMA 3

Category	#	Description	Value	Units
Flow-Thru BMP Inputs	0	Drainage Basin ID or Name	3	unitless
	1	Total Tributary Area	79971	sq-ft
	2	Final Adjusted Runoff Factor	0.87	unitless
	3	Design Capture Volume	3769	cubic-feet
	4	Volume Effectively Retained and/or Biofiltered	0	cubic-feet
	5	Deficit of Effectively Treated Stormwater Requiring Flow-Thru Treatment	3769	cubic-feet
	6	Maximum Rated Water Quality Flow Rate of Proposed BMP	0.577	CFS
Flow Rate Calculations	7	Adjustment Factor	1	unitless
	8	Design Rainfall Intensity for Flow-Thru BMPs	0.20	in/hr
	9	Water Quality Flow Rate Requiring Flow-Thru Treatment	0.319	CFS
Result	10	Flow thru treatment *1.5 per F.1.2.2 Flow Based Biofiltration BMP	0.479	CFS

Worksheet J.5-1 General Notes:

A. Applicants may use this worksheet to size flow-thru BMPs. Applicants must provide inputs for yellow shaded cells and calculate appropriate values for unshaded cells. Note that applicants proposing on-site flow-thru BMPs must also implement an offsite alternative compliance project to offset the deficit of effectively treated stormwater volume. An automated version of this worksheet is available for download at the County of San Diego Department of Public Works website.

Worksheet J.5-1 Line Item Notes:

0. Populated per Worksheet B.1-1.
1. Populated per Worksheet B.1-1.
2. Populated per Worksheet B.1-1.
3. Populated per Worksheet B.2-1.
4. Populated per Retention and/or Biofiltration treatment determined in Worksheets B.3-1 through B.5-3.
5. Line 4 - Line 3
6. User input per manufacturer's specification sheet.
7. -Line 5 / Line 3
8. Default value of 0.20 inches per hour
9. (Line 1/43,560) x Line 2 x Line 7 x Line 8
10. If Line 6 ≥ Line 9 then "Yes". If Line 6 < Line 9 then "No".

Model #	Dimensions	WetlandMEDIA Surface Area (sq.ft.)	Treatment Flow Rate (cfs)
TIER 1: EXPRESS MODELS Express model options give our customers an opportunity to benefit from optimal lead times, pricing, and the industry's leading MTD.			
MWS-L-4-8	**4'x8'**	**50**	**0.115**
MWS-L-8-8	**8'x8'**	**100**	**0.230**
TIER 2: PREFERRED MODELS Preferred model sizes give our customers a dependable selection with favorable lead times and dependable pricing.			
MWS-L-4-4	4'x4'	23	0.052
MWS-L-4-6	4'x6'	32	0.073
MWS-L-4-8	**4'x8'**	**50**	**0.115**
MWS-L-8-8	**8'x8'**	**100**	**0.230**
MWS-L-8-12	8'x12'	151	0.346
MWS-L-8-16	8'x16'	201	0.462
MWS-L-8-20	8'x20'	252	0.577
MWS-L-8-24	8'x24'	302	0.693
TIER 3: CUSTOM Custom sizes and applications are always available upon project review, but they may include supplemental lead times and pricing.			

Worksheet J.5-1: Flow-Thru Design Flows

DMA 8

Category	#	Description	Value	Units
Flow-Thru BMP Inputs	0	Drainage Basin ID or Name	8	unitless
	1	Total Tributary Area	67,326	sq-ft
	2	Final Adjusted Runoff Factor	0.87	unitless
	3	Design Capture Volume	3173	cubic-feet
	4	Volume Effectively Retained and/or Biofiltered	0	cubic-feet
	5	Deficit of Effectively Treated Stormwater Requiring Flow-Thru Treatment	3173	cubic-feet
	6	Maximum Rated Water Quality Flow Rate of Proposed BMP	0.462	CFS
Flow Rate Calculations	7	Adjustment Factor	1	unitless
	8	Design Rainfall Intensity for Flow-Thru BMPs	0.20	in/hr
	9	Water Quality Flow Rate Requiring Flow-Thru Treatment	0.269	CFS
Result	10	Flow thru treatment *1.5 per F.1.2.2 Flow Based Biofiltration BMP	0.403	CFS

Worksheet J.5-1 General Notes:

A. Applicants may use this worksheet to size flow-thru BMPs. Applicants must provide inputs for yellow shaded cells and calculate appropriate values for unshaded cells. Note that applicants proposing on-site flow-thru BMPs must also implement an offsite alternative compliance project to offset the deficit of effectively treated stormwater volume. An automated version of this worksheet is available for download at the County of San Diego Department of Public Works website.

Worksheet J.5-1 Line Item Notes:

0. Populated per Worksheet B.1-1.
1. Populated per Worksheet B.1-1.
2. Populated per Worksheet B.1-1.
3. Populated per Worksheet B.2-1.
4. Populated per Retention and/or Biofiltration treatment determined in Worksheets B.3-1 through B.5-3.
5. Line 4 - Line 3
6. User input per manufacturer's specification sheet.
7. -Line 5 / Line 3
8. Default value of 0.20 inches per hour
9. (Line 1/43,560) x Line 2 x Line 7 x Line 8
10. If Line 6 ≥ Line 9 then "Yes". If Line 6 < Line 9 then "No".

Model #	Dimensions	WetlandMEDIA Surface Area (sq.ft.)	Treatment Flow Rate (cfs)
TIER 1: EXPRESS MODELS Express model options give our customers an opportunity to benefit from optimal lead times, pricing, and the industry's leading MTD.			
MWS-L-4-8	**4'x8'**	**50**	**0.115**
MWS-L-8-8	**8'x8'**	**100**	**0.230**
TIER 2: PREFERRED MODELS Preferred model sizes give our customers a dependable selection with favorable lead times and dependable pricing.			
MWS-L-4-4	4'x4'	23	0.052
MWS-L-4-6	4'x6'	32	0.073
MWS-L-4-8	**4'x8'**	**50**	**0.115**
MWS-L-8-8	**8'x8'**	**100**	**0.230**
MWS-L-8-12	8'x12'	151	0.346
MWS-L-8-16	8'x16'	201	0.462
MWS-L-8-20	8'x20'	252	0.577
MWS-L-8-24	8'x24'	302	0.693
TIER 3: CUSTOM Custom sizes and applications are always available upon project review, but they may include supplemental lead times and pricing.			

WASHINGTON STATE DEPARTMENT OF ECOLOGY

December 2019

GENERAL USE LEVEL DESIGNATION FOR BASIC, ENHANCED, AND PHOSPHORUS TREATMENT

For the

MWS-Linear Modular Wetland

Ecology's Decision:

Based on Modular Wetland Systems, Inc. application submissions, including the Technical Evaluation Report, dated April 1, 2014, Ecology hereby issues the following use level designation:

1. General use level designation (GULD) for the MWS-Linear Modular Wetland Stormwater Treatment System for Basic treatment

   - Sized at a hydraulic loading rate of 1 gallon per minute (gpm) per square foot (sq ft) of wetland cell surface area. For moderate pollutant loading rates (low to medium density residential basins), size the Prefilters at 3.0 gpm/sq ft of cartridge surface area. For high loading rates (commercial and industrial basins), size the Prefilters at 2.1 gpm/sq ft of cartridge surface area.

2. General use level designation (GULD) for the MWS-Linear Modular Wetland Stormwater Treatment System for Phosphorus treatment

   - Sized at a hydraulic loading rate of 1 gallon per minute (gpm) per square foot (sq ft) of wetland cell surface area. For moderate pollutant loading rates (low to medium density residential basins), size the Prefilters at 3.0 gpm/sq ft of cartridge surface area. For high loading rates (commercial and industrial basins), size the Prefilters at 2.1 gpm/sq ft of cartridge surface area.

3. General use level designation (GULD) for the MWS-Linear Modular Wetland Stormwater Treatment System for Enhanced treatment

   - Sized at a hydraulic loading rate of 1 gallon per minute (gpm) per square foot (sq ft) of wetland cell surface area. For moderate pollutant loading rates (low to medium density residential basins), size the Prefilters at 3.0 gpm/sq ft of cartridge surface area. For high loading rates (commercial and industrial basins), size the Prefilters at 2.1 gpm/sq ft of cartridge surface area.

4. Ecology approves the MWS - Linear Modular Wetland Stormwater Treatment System units for Basic, Phosphorus, and Enhanced treatment at the hydraulic loading rate listed above. Designers shall calculate the water quality design flow rates using the following procedures:

    - Western Washington: For treatment installed upstream of detention or retention, the water quality design flow rate is the peak 15-minute flow rate as calculated using the latest version of the Western Washington Hydrology Model or other Ecology-approved continuous runoff model.
    - Eastern Washington: For treatment installed upstream of detention or retention, the water quality design flow rate is the peak 15-minute flow rate as calculated using one of the three methods described in Chapter 2.2.5 of the Stormwater Management Manual for Eastern Washington (SWMMEW) or local manual.
    - Entire State: For treatment installed downstream of detention, the water quality design flow rate is the full 2-year release rate of the detention facility.

5. These use level designations have no expiration date but may be revoked or amended by Ecology, and are subject to the conditions specified below.

Ecology's Conditions of Use:

Applicants shall comply with the following conditions:

1. Design, assemble, install, operate, and maintain the MWS – Linear Modular Wetland Stormwater Treatment System units, in accordance with Modular Wetland Systems, Inc. applicable manuals and documents and the Ecology Decision.
2. Each site plan must undergo Modular Wetland Systems, Inc. review and approval before site installation. This ensures that site grading and slope are appropriate for use of a MWS – Linear Modular Wetland Stormwater Treatment System unit.
3. MWS – Linear Modular Wetland Stormwater Treatment System media shall conform to the specifications submitted to, and approved by, Ecology.
4. The applicant tested the MWS – Linear Modular Wetland Stormwater Treatment System with an external bypass weir. This weir limited the depth of water flowing through the media, and therefore the active treatment area, to below the root zone of the plants. This GULD applies to MWS – Linear Modular Wetland Stormwater Treatment Systems whether plants are included in the final product or not.
5. Maintenance: The required maintenance interval for stormwater treatment devices is often dependent upon the degree of pollutant loading from a particular drainage basin. Therefore, Ecology does not endorse or recommend a "one size fits all" maintenance cycle for a particular model/size of manufactured filter treatment device.

    - Typically, Modular Wetland Systems, Inc. designs MWS - Linear Modular Wetland systems for a target prefilter media life of 6 to 12 months.
    - Indications of the need for maintenance include effluent flow decreasing to below the design flow rate or decrease in treatment below required levels.
    - Owners/operators must inspect MWS - Linear Modular Wetland systems for a minimum of twelve months from the start of post-construction operation to determine site-specific

maintenance schedules and requirements. You must conduct inspections monthly during the wet season, and every other month during the dry season. (According to the SWMMWW, the wet season in western Washington is October 1 to April 30. According to SWMMEW, the wet season in eastern Washington is October 1 to June 30). After the first year of operation, owners/operators must conduct inspections based on the findings during the first year of inspections.

- Conduct inspections by qualified personnel, follow manufacturer's guidelines, and use methods capable of determining either a decrease in treated effluent flowrate and/or a decrease in pollutant removal ability.
- When inspections are performed, the following findings typically serve as maintenance triggers:
    - Standing water remains in the vault between rain events, or
    - Bypass occurs during storms smaller than the design storm.
    - If excessive floatables (trash and debris) are present (but no standing water or excessive sedimentation), perform a minor maintenance consisting of gross solids removal, not prefilter media replacement.
    - Additional data collection will be used to create a correlation between pretreatment chamber sediment depth and pre-filter clogging (see *Issues to be Addressed by the Company* section below)

6. Discharges from the MWS - Linear Modular Wetland Stormwater Treatment System units shall not cause or contribute to water quality standards violations in receiving waters.

Applicant:	Modular Wetland Systems, Inc.
Applicant's Address:	5796 Armada Drive, Suite 250 Carlsbad, CA 92008

Application Documents:

- *Original Application for Conditional Use Level Designation*, Modular Wetland System, Linear Stormwater Filtration System Modular Wetland Systems, Inc., January 2011
- *Quality Assurance Project Plan*: Modular Wetland system – Linear Treatment System performance Monitoring Project, draft, January 2011.
- *Revised Application for Conditional Use Level Designation*, Modular Wetland System, Linear Stormwater Filtration System Modular Wetland Systems, Inc., May 2011
- *Memorandum: Modular Wetland System-Linear GULD Application Supplementary Data, April 2014*
- *Technical Evaluation Report: Modular Wetland System Stormwater Treatment System Performance Monitoring, April 2014.*

Field Testing

- Modular Wetland Systems, Inc. conducted monitoring of an MWS-Linear (Model # MWS-L-4-13) from April 2012 through May 2013, at a transportation maintenance facility in Portland, Oregon. The manufacturer collected flow-weighted composite samples of the system's influent and effluent during 28 separate storm events. The system treated approximately 75 percent of the runoff from 53.5 inches of rainfall during the monitoring period. The applicant sized the system at 1 gpm/sq ft. (wetland media) and 3gpm/sq ft. (prefilter).
- Influent TSS concentrations for qualifying sampled storm events ranged from 20 to 339 mg/L. Average TSS removal for influent concentrations greater than 100 mg/L (n=7) averaged 85 percent. For influent concentrations in the range of 20-100 mg/L (n=18), the upper 95 percent confidence interval about the mean effluent concentration was 12.8 mg/L.
- Total phosphorus removal for 17 events with influent TP concentrations in the range of 0.1 to 0.5 mg/L averaged 65 percent. A bootstrap estimate of the lower 95 percent confidence limit (LCL95) of the mean total phosphorus reduction was 58 percent.
- The lower 95 percent confidence limit of the mean percent removal was 60.5 percent for dissolved zinc for influent concentrations in the range of 0.02 to 0.3 mg/L (n=11). The lower 95 percent confidence limit of the mean percent removal was 32.5 percent for dissolved copper for influent concentrations in the range of 0.005 to 0.02 mg/L (n=14) at flow rates up to 28 gpm (design flow rate 41 gpm). Laboratory test data augmented the data set, showing dissolved copper removal at the design flow rate of 41 gpm (93 percent reduction in influent dissolved copper of 0.757 mg/L).

Issues to be addressed by the Company:

1. Modular Wetland Systems, Inc. should collect maintenance and inspection data for the first year on all installations in the Northwest in order to assess standard maintenance requirements for various land uses in the region. Modular Wetland Systems, Inc. should use these data to establish required maintenance cycles.
2. Modular Wetland Systems, Inc. should collect pre-treatment chamber sediment depth data for the first year of operation for all installations in the Northwest. Modular Wetland Systems, Inc. will use these data to create a correlation between sediment depth and pre-filter clogging.

Technology Description:
Download at http://www.modularwetlands.com/

Contact Information:

Applicant: Zach Kent
BioClean A Forterra Company.
5796 Armada Drive, Suite 250
Carlsbad, CA 92008
zach.kent@forterrabp.com

2018

Project: All Related

Subject: MWS Linear BMP Classification Per San Diego Manual

To Whom it May Concern:

Based upon definitions of Biofiltration as found in Section 2.2.1 and Appendix F of the Manual the MWS Linear meets the criteria to be classified as biofiltration and therefore is not flow through treatment and thus does not trigger the need for alternative compliance. The MWS Linear has GULD approval for basic, phosphorus and enhanced treatment under the TAPE approval. The system is certified under the TAPE approval at a loading rate of 1 gpm/sq ft for all three pollutant categories. This is consistent with the performance criteria related to the performance of Appendix F.

Let us first address the comment regarding the MWS (referring to the Modular Wetland System Linear) being flow through treatment. To do so let us look at the definition of biofiltration as provided by the Design Manual which states:

> *"For situations where onsite retention of the 85th percentile storm volume is not feasible, biofiltration must be provided to satisfy specific "biofiltration standards" i.e. a set of selection, sizing, design and operation and maintenance (O&M) criteria that must be met for a BMP to be considered a "biofiltration BMP" – see Section 2.2.1 and Appendix F."*

If we look at section 2.2.2 Storm Water Pollutant Control Performance Standard it states:

> *"(i) If it is not technically feasible to implement retention BMPs for the full DCV onsite for a PDP, then the PDP shall utilize biofiltration BMPs for the remaining volume not reliably retained. Biofiltration BMPs must be designed as described in Appendix F to have an appropriate hydraulic loading rate to maximize storm water retention and pollutant removal, as well as to prevent erosion, scour, and channeling within the BMP, and must be sized to:*
>
> > *[a]. Treat 1.5 times the DCV not reliably retained onsite, OR*
> >
> > *[b]. Treat the DCV not reliably retained onsite with a flow-thru design that has a total volume, including pore spaces and pre-filter detention volume, sized to hold at least 0.75 times the portion of the DCV not reliably retained onsite."*

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As the manual states Biofiltration BMPs must be designed as described in Appendix F which states:

> *"A project applicant must be able to affirmatively demonstrate that a given BMP is designed and sized in a manner consistent with this definition to be considered as a "biofiltration BMP" as part of a compliant storm water management plan."*
>
> *"This appendix contains a checklist of the key underlying criteria that must be met for a BMP to be considered a biofiltration BMP. The purpose of this checklist is to facilitate consistent review and approval of biofiltration BMPs that meet the "biofiltration standard" defined by the MS4 Permit."*
>
> *"This checklist includes specific design criteria that are essential to defining a system as a biofiltration BMP; however it does not present a complete design basis. This checklist was used to develop BMP Fact Sheets for PR-1 biofiltration with partial retention and BF-1 biofiltration, which do present a complete design basis. Therefore, biofiltration BMPs that substantially meet all aspects of the Fact sheets PR-1 or BF-1 should be able to complete this checklist without additional documentation beyond what would already be required for a project submittal."*
>
> *"Other biofiltration BMP designs (including both non-proprietary and proprietary designs) may also meet the underlying MS4 Permit requirements to be considered biofiltration BMPs. These BMPs may be classified as biofiltration BMPs if they (1) meet the minimum design criteria listed in this appendix, including the pollutant treatment performance standard in Appendix F.1, (2) are designed and maintained in a manner consistent with their performance certifications (See explanation in Appendix F.2), if applicable, and (3) are acceptable at the discretion of the [City Engineer]. The applicant may be required to provide additional studies and/or required to meet additional design criteria beyond the scope of this document in order to demonstrate that these criteria are met."*

As stated the Biofiltration BMP must meet three objectives. The following outlines how the Modular Wetland System Linear meets these criteria.

Minimum Design Criteria

1. Biofiltration BMPs shall be allowed only as described in the BMP selection process in this manual (i.e., retention feasibility hierarchy).

    a. The Modular Wetland System Linear (MWS Linear) is only being proposed on plans when retention via infiltration or reuse is proven infeasible. Conditions such as soils with little to no infiltration rate or sites in which insufficient landscaping warrant to successful implementation of reuse systems.

2. Biofiltration BMPs must be sized using acceptable sizing methods described in this manual.

    a. Section B.5.2 Basis for Minimum Sizing Factor for Biofiltration BMPs states:

    "The MS4 Permit describes conceptual performance goals for biofiltration BMPs and specifies numeric criteria for sizing biofiltration BMPs (See Section 2.2.1 of this Manual). However, the MS4 Permit does not define a specific footprint sizing factor or design profile that must be provided for the BMP to be considered "biofiltration."

    "Additionally, it does not apply to alternative biofiltration designs that utilize the checklist in Appendix F (Biofiltration Standard and Checklist). Acceptable alternative designs (such as proprietary systems meeting Appendix F criteria) typically include design features intended to allow acceptable performance with a smaller footprint and have undergone field scale testing to evaluate performance and required O&M frequency."

    As stated in the Manual alternative biofiltration designs are allowed. The MWS Linear therefore qualifies as a biofiltration BMP under this definition as it has both undergone field scale testing (TAPE tested and approved with a GULD) and provides requirements on O&M frequency. In addition, the MWS Linear can be sized to treat either 1.5 times the DCV not reliably retained onsite OR 1.0 times the portion of the DCV not reliably retained onsite; and additionally check that the system has a total static (i.e. non-routed) storage volume, including pore spaces and pre-filter detention volume to at least 0.75 times the portion of the DCV not reliably retained onsite.

3. Biofiltration BMPs must be sited and designed to achieve maximum feasible infiltration and evapotranspiration.

    a. The MWS Linear is utilized and placed in the same manner as other types of biofiltration systems. As with other biofiltration systems the MWS Linear includes and underdrain for the remaining portion of the DCV that is not retained via incidental infiltration (as biofiltration if infiltration is not feasible due to poor soils) and evapotranspiration. The MWS Linear can be design with an open bottom to maximize this incidental infiltration. The only exception to this, as with other biofiltration BMPs, is when the geotechnical consultant recommends an impervious liner be used due to specific soil conditions such as expansive clays. Additionally, the MWS Linear utilizes an amended media that is much more porous than the standard prescribed biofiltration media which is a mix of sand and compost. 100% of the media uses in the MWS Linear has interparticle voids of 48% plus and 24% internal void space for each media particle. This is much greater than the sand which has interparticle voids of 35% and internal voids of 0%. As such, the MWS Linear retains greater moisture which allows for greater volume retention and ultimately evapotranspiration via respiration of the contained vegetation.

4. Biofiltration BMPs must be designed with a hydraulic loading rate to maximize pollutant retention, preserve pollutant control/sequestration processes, and minimize potential for pollutant washout.

    a. The manual states:

    "Alternatively, for proprietary designs and custom media mixes not meeting the media specifications contained in the City or County LID Manual, field scale testing data are provided to demonstrate that proposed media meets the pollutant treatment performance criteria in Section F.1 below."

    The MWS Linear has been tested under the Washington State TAPE protocol which is full scale field testing and has received General Use Level Designation under that protocol. Table F.1-1, as shown below, requires a biofiltration BMP to have Basic Treatment, Phosphorus Treatment, and Enhanced Treatment under this protocol. The MWS Linear has GULD approval for all three and therefore meets this minimum requirement 4. A copy of the TAPE approval has been attached to this document.

Table F.1-1: Required Technology Acceptance Protocol-Ecology Certifications for Polltuants of Concern for Biofiltration Performance Standard

Project Pollutant of Concern	Required Technology Acceptance Protocol-Ecology Certification for Biofiltration Performance Standard
Trash	Basic Treatment, Phosphorus Treatment, Enhanced Treatment
Sediments	Basic Treatment, Phosphorus Treatment, Enhanced Treatment
Oil and Grease	Basic Treatment, Phosphorus Treatment, Enhanced Treatment
Nutrients	Phosphorus Treatment[1]
Metals	Enhanced Treatment
Pesticides	Basic Treatment (including filtration)[2] Phosphorus Treatment, Enhanced Treatment
Organics	Basic Treatment (including filtration)[2] Phosphorus Treatment, Enhanced Treatment
Bacteria and Viruses	Basic Treatment (including bacteria removal processes)[3] , Phosphorus Treatment, Enhanced Treatment
Basic Treatment (including filtration)[2] Phosphorus Treatment, Enhanced Treatment	Basic Treatment (including filtration)[2] Phosphorus Treatment, Enhanced Treatment

5. Biofiltration BMPs must be designed to promote appropriate biological activity to support and maintain treatment processes.

    a. The MWS Linear an advanced vegetated biofiltration system based that promote biological processes found in both upland bioretention systems and wetlands. The system utilizes an advanced horizontal flow design to ensure maximum contact with the vegetation root mass. Bacterial growth, supported by the root system in the wetland chamber, performs a number of treatment processes. These vary as a function of moisture, temperature, pH, salinity, and pollutant concentrations. Biologically available forms of nitrogen, phosphorus, and carbon are actively taken into the cells of vegetation and bacteria, and used for metabolic processes (i.e., energy production and growth). Nitrogen and phosphorus are actively taken up as nutrients that are vital for a number of cell functions, growth, and energy production. These processes remove metabolites from the media during and between storm events, making the media available to capture more nutrients from subsequent storms.

    b. Soil organisms in the wetland chamber can break down a wide array of organic compounds into less toxic forms or completely break them down into carbon dioxide and water (Means and Hinchee 1994). Bacteria can also cause metals to precipitate out as salts, bind them within organic material, and accumulate metals in nodules within the cells. Finally, plant growth may metabolize many pollutants, sequester them or rendering them less toxic (Reeves and Baker 2000).

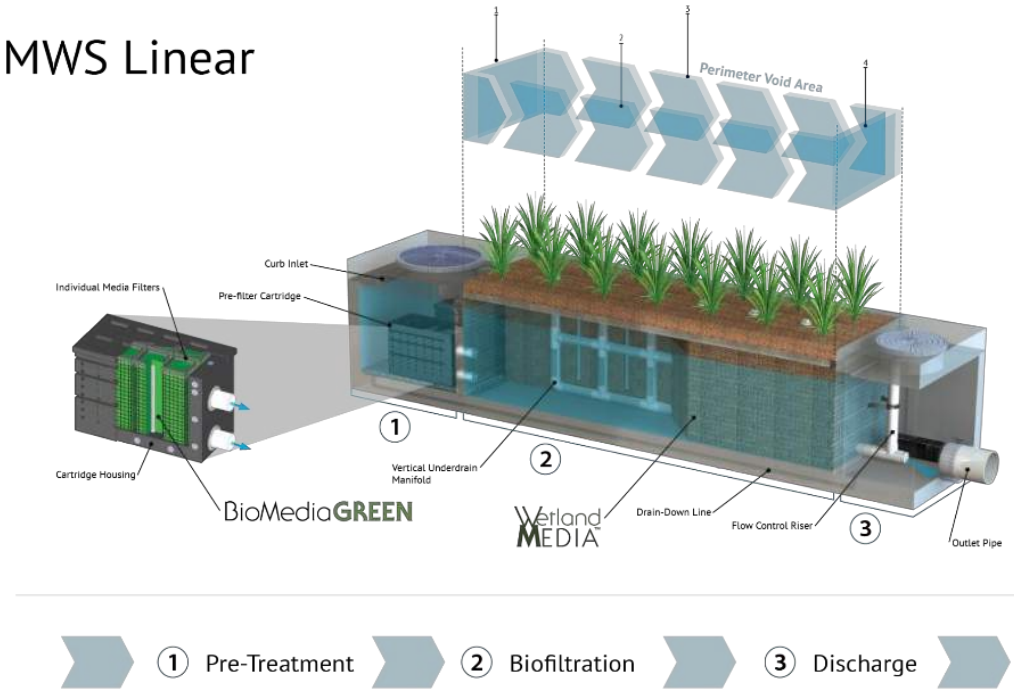
    c. Following are pictures from the plants pulled from a MWS Linear after only 14 months of growth. The media used in the system is designed to maximize biological activity:



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6. Biofiltration BMPs must be designed to prevent erosion, scour, and channeling within the BMP.

    a. The MWS Linear is a self-contained system with a pre-treatment chamber. Unlike other biofiltration BMPs erosion, scour, and channeling with in the BMP is not an issue. Following is a diagram of the BMP. The system pre-treatment chamber prevent any erosion or scour. The system downstream orifice control prevents channeling of the media:



7. Biofiltration BMP must include operations and maintenance design features and planning considerations to provide for continued effectiveness of pollutant and flow control functions.

    a. The MWS Linear provides activation along with the first year of maintenance and inspection free on all installation in the county of San Diego. Unlike other biofiltration BMPs the City and Co-permitees can be assured the system is being properly installed and maintained. The first year of inspections is used the gauge the amount of loading in the system and this information is used to set appropriate maintenance interval for subsequent years. Attached is a copy of the maintenance manual for the MWS Linear.

Designed & Maintained Consistent with their Performance Certifications

We are in agreement that all BMPs should be designed in a manner consistent with the TAPE certification. The MWS Linear is sized in accordance with the TAPE GULD approval which provides certification at a loading rate of 1 gpm/sq ft (100 in/hr) for Basic, Phosphorus and Enhanced treatment. In addition, as stated previously, Modular Wetland System, Inc. provide activation of all system installed in San Diego County along with the first year of inspections and maintenance to ensure appropriate function. As previously stated, a copy of the TAPE GULD approval is attached to support this claim.

Additionally, it should be noted that the manual allows for biofiltration BMPs to be sized in either volume based (DCV) or flow based design. The manual states in section F.2.2 Sizing of Flow-Based Biofiltration *BMPs:*

> *"This sizing method is only available when the BMP meets the pollutant treatment performance standard in Appendix F.1."*
>
> *"Proprietary biofiltration BMPs are typically designed as a flow-based BMPs (i.e., a constant treatment capacity with negligible storage volume). Additionally, proprietary biofiltration is only acceptable if no infiltration is feasible and where site-specific documentation demonstrates that the use of larger footprint biofiltration BMPs would be infeasible. The applicable sizing method for biofiltration is therefore reduced to: Treat 1.5 times the DCV."*
>
> *"The following steps should be followed to demonstrate that the system is sized to treat 1.5 times the DCV."*
>
> > *1. Calculate the flow rate required to meet the pollutant treatment performance standard without scaling for the 1.5 factor. Options include either:*
> >
> > - *Calculate the runoff flow rate from a 0.2 inch per hour uniform intensity precipitation event (See methodology Appendix B.6.3), or*
> >
> > - *Conduct a continuous simulation analysis to compute the size required to capture and treat 80 percent of average annual runoff; for small catchments, 5-minute precipitation data should be used to account for short time of concentration. Nearest rain gage with 5-minute precipitation data is allowed for this analysis.*

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2. Multiply the flow rate from Step 1 by 1.5 to compute the design flow rate for the biofiltration system.

3. Based on the conditions of certification/verification (discussed above), establish the design capacity, as a flow rate, of a given sized unit.

4. Demonstrates that an appropriate unit size and number of units is provided to provide a flow rate that meets the required flow rate from Step 2.

In conclusion, we have closely followed the process and protocol for showing the MWS Linear meets all the criteria to be accepted as Biofiltration as found in Appendix F.

If you have any questions please feel free to contact us directly.

Sincerely,

Sean M. Hasan

Manager San Diego/Riverside, CA

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BIO CLEAN ENVIRONMENTAL SERVICES, INC.

To Whom It May Concern,

The Modular Wetland System – Linear (MWS – Linear) is an advanced stormwater treatment system which utilizes several filtration and pretreatment processes to effectively remove particulate and dissolved stormwater pollutants. The system is based upon subsurface flow wetland technology that has been proven effective for several decades.

The MWS – Linear can be installed at grade with the wetland filter portion planted with various types of vegetation. The system can also be installed underground with lids and risers. When the system is installed underground the wetland filter is not planted.
Here are the effects of not having plants:

- The absence of plants only has a marginal effect on only one pollutant, nitrogen, especially the dissolved nitrogen species.

- In general, plants play a secondary role to the filter media and the indigenous bacteria and microorganisms that populate the system. These beneficial bacteria establish within the biofiltration media with or with plants.

- Plants utilize the nitrogen and phosphorus that is captured on the filter media (soil particles). In doing so, the plants continually replenish the media's ability to absorb nutrients through physical and chemical means.

- The plant root systems transfer oxygen subsurface that increases the populations of beneficial indigenous bacteria and microorganisms which play the primary role in biological filtration.

- Biological filtration is the primary unit process in the removal of soluble nitrogen species. The absence of plants can decrease the removal of soluble nitrogen marginally.

However, biological filtration is not the primary means for the removal of TSS, oils & grease, TPH, particulate nitrogen, particulate and dissolved phosphorus, particulate and dissolved metals, pathogens and oxygen demanding substances.

A performance report titled "Vegetated Rock Filter Treats Stormwater Pollutants in Florida" studied subsurface wetland cells with and without plants. The study concluded that the filter media itself was much more important than the plants. The study said "in addition, the unplanted crushed concrete cells performed better than any other planted cells, suggesting that wetland vegetation had no discernible influence on pollutant removal."

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The Modular Wetland System Linear has been approved by the Washington Department of Ecology under the TAPE protocol for treatment for all three pollutant categories that the agency provides approval for: TSS, nutrients and metals. It is the only system (proprietary or non) that has received approval for all three during the same independent third party multi-year field study. The unit was able to achieve these removal efficiencies with the absence of any vegetation in the active biofiltration media. The system is approved by TAPE without plants. Below is a performance summary from:

- TSS – 85%
- Phosphorus – 65%
- Ortho-phosphorus – 67%
- Nitrogen – 45%
- Dissolved Copper – 38%
- Total Copper – 50%
- Dissolved Zinc – 66%
- Total Zinc – 69%
- Motor Oil – 95%
- Turbidity – 99.19%
- Fecal Coliform – 55%

In addition, the MWS – Linear has been tested in other third party field studies with similar results on installations without plants or vegetation. Based on these test results the MWS – Linear when placed underground will provide the same performance for all pollutants of concern.

If you have any questions regarding MWS - Linear or the information contained in this letter please feel free to contact us.

Sincerely,

Zach J Kent

Stormwater Engineer

zkent@biocleanenvironmental.net

Applicant website: http://www.modularwetlands.com/

Ecology web link: http://www.ecy.wa.gov/programs/wg/stormwater/newtech/index.html

Ecology: Douglas C. Howie, P.E.
Department of Ecology
Water Quality Program
(360) 407-6444
douglas.howie@ecy.wa.gov

Revision History

Date	**Revision**
June 2011	Original use-level-designation document
September 2012	Revised dates for TER and expiration
January 2013	Modified Design Storm Description, added Revision Table, added maintenance discussion, modified format in accordance with Ecology standard
December 2013	Updated name of Applicant
April 2014	Approved GULD designation for Basic, Phosphorus, and Enhanced treatment
December 2015	Updated GULD to document the acceptance of MWS-Linear Modular Wetland installations with or without the inclusion of plants
July 2017	Revised Manufacturer Contact Information (name, address, and email)
December 2019	Revised Manufacturer Contact Address

ATTACHMENT 2
BACKUP FOR PDP HYDROMODIFICATION CONTROL MEASURES

This is the cover sheet for Attachment 2.

☐Mark this box if this attachment is empty because the project is exempt from PDP hydromodification management requirements.

Indicate which Items are Included:

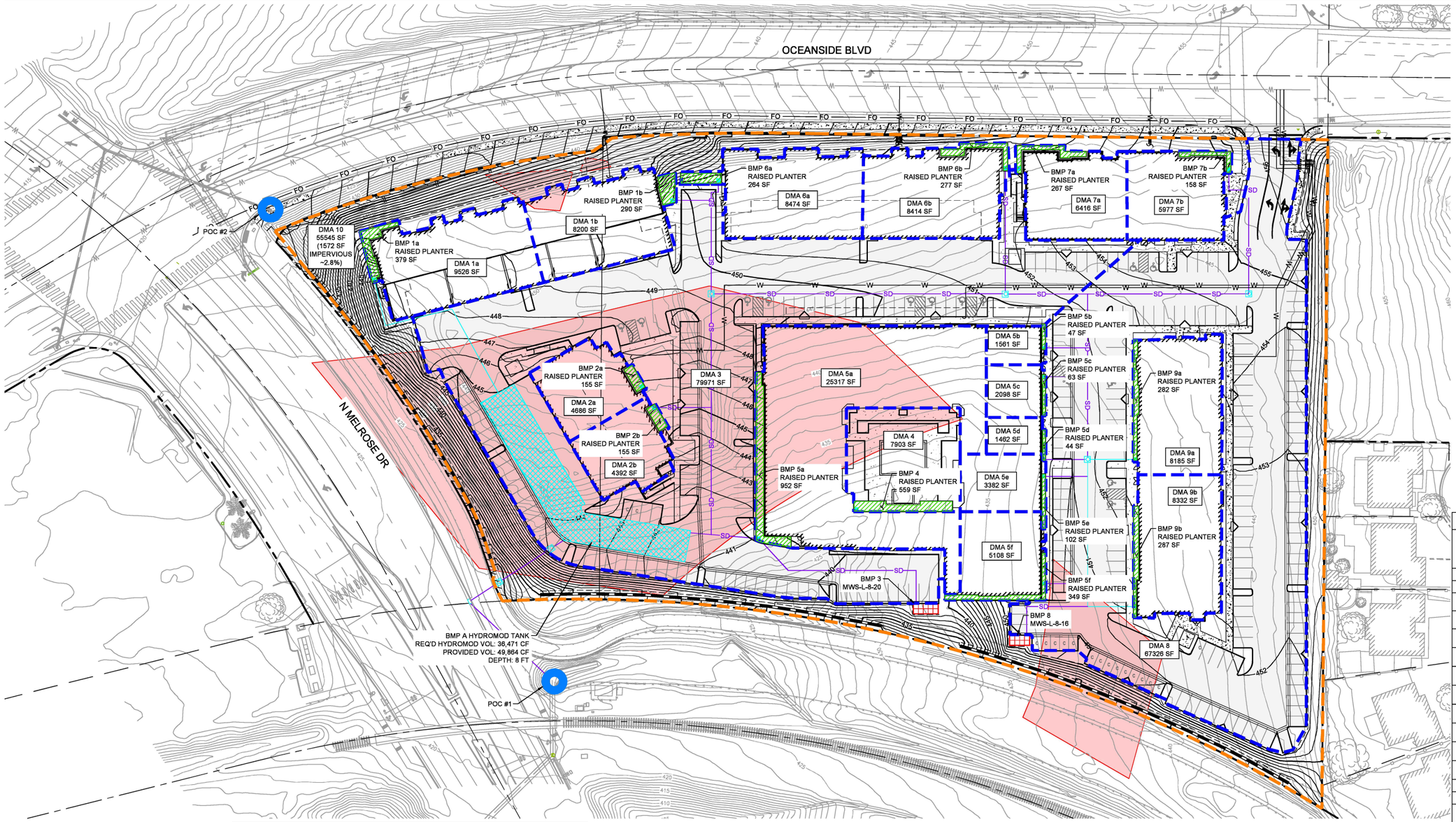
Attachment Sequence	Contents	Checklist
Attachment 2a	1. Hydromodification Management Exhibit (Required)	☒Included See Hydromodification Management Exhibit Checklist.
Attachment 2b	Management of Critical Coarse Sediment Yield Areas (WMAA Exhibit is required, additional analyses are optional) See Section 6.2 of the BMP Design Manual.	☒Exhibit showing project drainage boundaries marked on WMAA Critical Coarse Sediment Yield Area Map (Required) Optional analyses for Critical Coarse Sediment Yield Area Determination ☒6.2.1 Verification of Geomorphic Landscape Units Onsite ☒6.2.2 Downstream Systems Sensitivity to Coarse Sediment ☒6.2.3 Optional Additional Analysis of Potential Critical Coarse Sediment Yield Areas Onsite
Attachment 2c	Geomorphic Assessment of Receiving Channels (Optional) See Section 6.3.4 of the BMP Design Manual.	☒Not performed ☐Included ☐Submitted as separate stand-alone document
Attachment 2d	Flow Control Facility Design and Structural BMP Drawdown Calculations (Required) Overflow Design Summary for each structural BMP See Chapter 6 and Appendix G of the BMP Design Manual	☒Included ☐Submitted as separate stand-alone document
Attachment 2e	Vector Control Plan (Required when structural BMPs will not drain in 96 hours)	☐Included ☒Not required because BMPs will drain in less than 96 hours

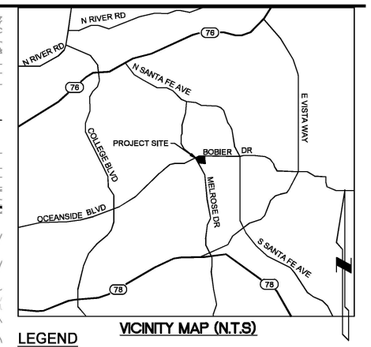
Use this checklist to ensure the required information has been included on the Hydromodification Management Exhibit:

The Hydromodification Management Exhibit must identify:

☒Underlying hydrologic soil group
☒Approximate depth to groundwater
☒Existing natural hydrologic features (watercourses, seeps, springs, wetlands)
☒Critical coarse sediment yield areas to be protected
☒Existing topography
☒Existing and proposed site drainage network and connections to drainage offsite
☒Proposed grading
☒Proposed impervious features
☒Proposed design features and surface treatments used to minimize imperviousness
☒Point(s) of Compliance (POC) for Hydromodification Management
☒Existing and proposed drainage boundary and drainage area to each POC (when necessary, create separate exhibits for pre-development and post-project conditions)
☒Structural BMPs for hydromodification management (identify location, type of BMP, and size/detail)

Please provide the Exhibit in 24”x36” format with map pocket, wet date, and stamp.





LEGEND

- PROPERTY BOUNDARY
- DRAINAGE MANAGEMENT AREA BOUNDARY
- SELF MITIGATING DMA BOUNDARY
- EXISTING CONTOUR (XXXX)
- PROPOSED CONTOUR (XXXX)
- STORM DRAIN (SD)
- BIOFILTRATION BMP AREA
- HYDROMOD TANK
- DRAINAGE MANAGEMENT AREA LABEL (DMA AREA — ACRES)
- POTENTIAL CCSYAs
- PROP. AC PAVING
- PROP. CONCRETE SIDEWALK
- POINT OF COMPLIANCE (POC)

BMP SUMMARY

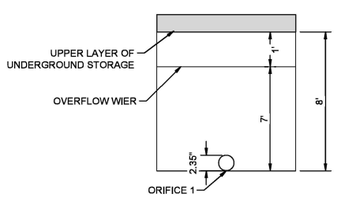
DMA #	DMA AREA (SF)	REQUIRED BMP VOL OR FLOW RATE	PROVIDED BMP VOL OR FLOW*	BMP TYPE
1a	9526	449 CF	558 CF	RAISED PLANTER
1b	8200	386 CF	492 CF	RAISED PLANTER
2a	4686	221 CF	285 CF	RAISED PLANTER
2b	4392	207 CF	264 CF	RAISED PLANTER
3	79971	0.479 CFS	0.577 CFS	MODULAR WETLAND
4	7903	360 CF	388 CF	RAISED PLANTER
5a	25317	1193 CF	1502 CF	RAISED PLANTER
5b	1561	74 CF	96 CF	RAISED PLANTER
5c	2098	100 CF	130 CF	RAISED PLANTER
5d	1462	70 CF	91 CF	RAISED PLANTER
5e	3382	161 CF	210 CF	RAISED PLANTER
5f	5108	235 CF	256 CF	RAISED PLANTER
6a	8474	404 CF	527 CF	RAISED PLANTER
6b	8414	397 CF	512 CF	RAISED PLANTER
7a	6416	302 CF	376 CF	RAISED PLANTER
7b	5977	285 CF	376 CF	RAISED PLANTER
8	67326	0.403 CFS	0.462 CFS	MODULAR WETLAND
9a	8185	386 CF	492 CF	RAISED PLANTER
9b	8332	393 CF	501 CF	RAISED PLANTER
10	55545	–	–	SELF-RETAINING AREA

SITE DESIGN BMPS	
BMP ID	BMP DESCRIPTION
SD-B	MINIMIZE IMPERVIOUS ARES
	LANDSCAPING WITH NATIVE OR DROUGHT TOLERANT LANDSCAPING

SOURCE CONTROL BMPS	
BMP ID	BMP DESCRIPTION
SC-1	PREVENT ILLICIT DISCHARGE INTO MS4 ---> ALL LANDSCAPE AREAS (TYP.)
SC-2	STORM DRAIN STENCILING AND SIGNAGE ---> ALL SD GRATED INLETS (TYP.)
SC-6	ADDITIONAL BMPS BASED ON POTENTIAL SOURCES OF RUNOFF POLLUTANTS
	ON-SITE STORM DRAIN INLETS
	LANDSCAPE / OUTDOOR PESTICIDE USE
	PLAZA, SIDEWALKS, PARKING LOTS

NORTH

GRAPHIC SCALE IN FEET
0 20 40 80



1 BMP 1 OUTLET STRUCTURE
NOT TO SCALE

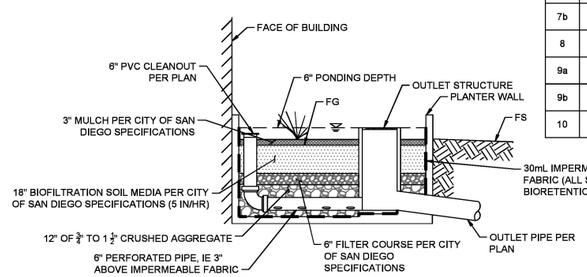
SITE INFORMATION

HYDROLOGIC SOIL GROUP: TYPE A & D

DEPTH TO GROUNDWATER: GREATER THAN 20'

THERE ARE NO EXISTING HYDROLOGIC FEATURES ONSITE

AREAS NOT SHOWN AS ASPHALT, CONCRETE, OR BUILDING ARE PERVIOUS



2 RAISED PLANTER WITH UNDERDRAIN
NOT TO SCALE

Kimley»Horn

HYDROMOD EXHIBIT
MODERA MELROSE
4/5/2022

Legend

- Watershed Boundaries
- Municipal Boundaries
- Rivers & Streams
- Regional WMAA Streams
- Potential Critical Coarse Sediment Yield Areas

WINDMILL LAKE
GUAJOME LAKE
San Luis Rey River
HUBBERT LAKE
OCEANSIDE
Project Site
VISTA
TURNER LAKE
Buena Vista Creek
BUENA VISTA LAGOON
CALAVERAS LAKE
SQUIRES DAM
LAKE WOHLFORD
DIXON RESERVOIR
S.D. COUNTY
AQUA HEDIONDA LAGOON
Agua Hedionda Creek
CARLSBAD
San Marcos Creek
SAN MARCOS
ESCONDIDO
BATIQUITOS LAGOON
Encinitas Creek
Escondido Creek
Santa Ysabel Creek
San Dieguito River
LAKE HODGES
ENCINITAS
SAN DIEGUITO RESERVOIR
SAN DIEGO
LAKE RAMONA
LAKE POWAY
POWAY
Lusardi Creek
Rattlesnake Creek
SAN DIEGUITO LAGOON

PROJECT SITE
Melrose Dr
Shell
Skye Apartm
Image Landsat / Copernicus

Aerial Imagery Source: DigitalGlobe, 06/2012

Miles 0 25 50 100 150

Potential Critical Coarse Sediment Yield Areas

Carlsbad Watershed - HU 904.00, 211 mi2

Exhibit Date: Sept. 8, 2014

Geosyntec consultants | RICK ENGINEERING COMPANY

Placeholder – **6.2.1 Verification of GLUs Onsite** (if applicable)

Replace placeholder with required calculations/documentation.

Leave placeholder intact if not applicable.

☐Not Applicable



Slopes Table				
Number	Minimum Slope	Maximum Slope	Area	Color
1	10.00%	20.00%	177424.14	
2	20.00%	40.00%	97560.44	
3	40.00%	100.00%	71855.47	

LEGEND

POTENTIAL CCSYAs PER WMAA 2018 DATA

NORTH

GRAPHIC SCALE IN FEET
0 20 40 80

Kimley»Horn

GLU SLOPE ANALYSIS EXHIBIT
MODERA MELROSE
10/14/2021

6.2.1 Verification of GLUs Onsite

The Potential Critical Coarse Sediment Yield Area maps in the WMAAs identify areas that are considered potential critical coarse sediment yield areas based on their GLU. A GLU is a combination of slope, geology, and land cover. A regional-level WMAA was prepared that determined GLUs that are considered to be potential critical coarse sediment yield areas. These GLUs are areas with a combination of open (undeveloped) land cover, high relative sediment production based on a normalized revised universal soil loss equation analysis, and coarse grained geologic material (material that is expected to produce greater than 50% sand when weathered).

The maps included in the WMAA are macro-level maps that may not represent project-level detail. If the WMAA maps indicate the presence of potential critical coarse sediment yield areas within the project site, detailed project-level review of GLUs onsite may be performed to verify the presence or absence of potential critical coarse sediment yield areas within the project site. Some jurisdictions may require verification of GLUs for all projects (including projects where the WMAA maps do not indicate the presence of potential critical coarse sediment yield areas).

The following data are needed to verify the GLUs onsite:

- Project boundary
- Classification of pre-project slopes within the project boundary into four (4) categories defined in Appendix H
- Classification of underlying geology within the project boundary into seven (7) categories defined in Appendix H
- Classification of pre-project land cover within the project boundary into six (6) categories defined in Appendix H. In this context, use "pre-project" land cover, including any existing impervious areas. Assumption of "pre-development" land cover is not required for GLU analysis

Intersect the geologic categories, land cover categories, and slope categories within the project boundary to create GLUs. This is a similar procedure to intersecting land uses with soil types to determine runoff coefficients or runoff curve numbers for hydrologic studies, but there are three categories to consider for the GLU analysis (slope, geology, and land cover), and the GLUs are not to be composited into a single GLU. When GLUs have been created, determine whether any of the GLUs listed in Table 6-1 are found within the project boundary. The GLUs listed in Table 6-1 are considered to be potential critical coarse sediment yield areas.

TABLE 6-1. Potential Critical Coarse Sediment Yield Areas

GLU	Geology	Land Cover	Slope (%)
CB-Agricultural/Grass-3	Coarse Bedrock	Agricultural/Grass	20% - 40%
CB-Agricultural/Grass-4	Coarse Bedrock	Agricultural/Grass	>40%
CB-Forest-2	Coarse Bedrock	Forest	10 – 20%
CB-Forest-3	Coarse Bedrock	Forest	20% - 40%
CB-Forest-4	Coarse Bedrock	Forest	>40%
CB-Scrub/Shrub-4	Coarse Bedrock	Scrub/Shrub	>40%
CB-Unknown-4	Coarse Bedrock	Unknown	>40%

GLU	Geology	Land Cover	Slope (%)
CSI-Agricultural/Grass-2	Coarse Sedimentary Impermeable	Agricultural/Grass	10 – 20%
CSI-Agricultural/Grass-3	Coarse Sedimentary Impermeable	Agricultural/Grass	20% - 40%
CSI-Agricultural/Grass-4	Coarse Sedimentary Impermeable	Agricultural/Grass	>40%
CSP-Agricultural/Grass-4	Coarse Sedimentary Permeable	Agricultural/Grass	>40%
CSP-Forest-3	Coarse Sedimentary Permeable	Forest	20% - 40%
CSP-Forest-4	Coarse Sedimentary Permeable	Forest	>40%
CSP-Scrub/Shrub-4	Coarse Sedimentary Permeable	Scrub/Shrub	>40%

If none of the GLUs listed in Table 6-1 are present within the project boundary, no measures for protection of critical coarse sediment yield areas onsite are necessary. If one or more GLUs listed in Table 6-1 are present within the project boundary, they shall be considered critical coarse sediment yield areas and protected with measures described in Section 6.2.4, or the project applicant may elect to continue to Section 6.2.2 to determine whether downstream systems would be sensitive to reduction of coarse sediment yield from the project site. If any of the GLUs listed in Table 6-1 are present offsite within area that drains through the project site, see Section 6.2.5 for management measures for critical coarse sediment yield areas offsite and draining through the project.

6.2.2 Downstream Systems Sensitivity to Coarse Sediment

If it has been determined that potential critical coarse sediment yield areas exist within the project site, the next step is to determine whether downstream systems would be sensitive to reduction of coarse sediment yield from the project site. Protection of critical coarse sediment yield areas is a necessary element of hydromodification management because coarse sediment supply is as much an issue for causing erosive conditions to receiving streams as are accelerated flows. However, not all downstream systems warrant preservation of coarse sediment supply. In some cases, downstream systems are negatively impacted by coarse sediment. For example, existing MS4 systems that cannot convey coarse sediment and become clogged, resulting in urban flood hazards and on-going maintenance needs. In some cases, downstream channels are aggrading with undesirable results (e.g. impacts to habitat or urban flooding). Use Figure 6-1 and the associated node descriptions to determine whether downstream systems require protection.

A checklist based on Figure 6-1 is provided in Appendix I. If, based on Figure 6-1, downstream systems do not warrant preservation of coarse sediment supply, no measures for protection of critical coarse sediment yield areas are necessary. If, based on Figure 6-1, downstream systems must be protected, continue to Section 6.2.3 for optional additional analysis that may refine the extents of critical coarse sediment yield areas onsite, and Section 6.2.4 for management measures.

- Figure 6-1, Node 1 – Determine what type of system receives the project site runoff: does the project connect to an existing hardened MS4 system or discharge to an un-lined channel?
- Figure 6-1, Node 2 – If the project discharges runoff to an existing hardened MS4 system, determine whether the system can convey sediment (self-cleaning system) or will trap (sink) sediment. Existing systems with very low slope, constrictions, existing treatment control (pollutant control) BMPs, or existing detention basins typically will trap sediment, which can result in flooding and increased maintenance costs. When existing systems will trap sediment,

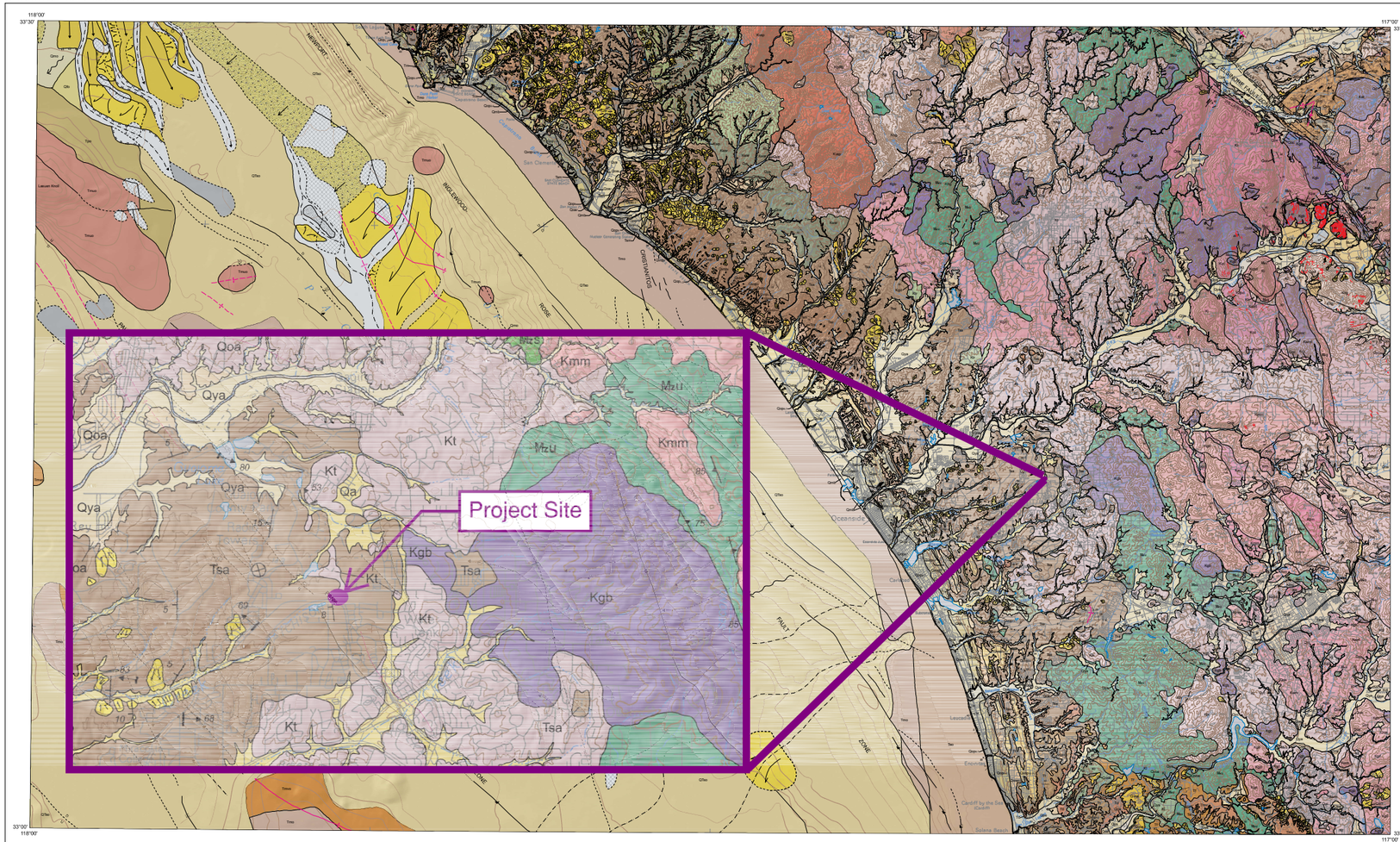
Map Unit	Map Name	Anticipated Grain size of Weathered Material	Bedrock or Sedimentary	Impermeable/ Permeable	Geology Grouping
Kjv	El Cajon 30' x 60'	Coarse	Bedrock	Impermeable	CB
Klb	El Cajon 30' x 60'	Coarse	Bedrock	Impermeable	CB
Klh	Oceanside 30' x 60'	Coarse	Bedrock	Impermeable	CB
Klp	El Cajon 30' x 60'	Coarse	Bedrock	Impermeable	CB
Km	Oceanside 30' x 60'	Coarse	Bedrock	Impermeable	CB
Kmg	Oceanside 30' x 60'	Coarse	Bedrock	Impermeable	CB
Kmgp	El Cajon 30' x 60'	Coarse	Bedrock	Impermeable	CB
Kmm	Oceanside 30' x 60'	Coarse	Bedrock	Impermeable	CB
Kpa	Oceanside 30' x 60'	Coarse	Bedrock	Impermeable	CB
Kpv	El Cajon 30' x 60'	Coarse	Bedrock	Impermeable	CB
Kqbd	Oceanside 30' x 60'	Coarse	Bedrock	Impermeable	CB
Kr	Oceanside 30' x 60'	Coarse	Bedrock	Impermeable	CB
Krm	Oceanside 30' x 60'	Coarse	Bedrock	Impermeable	CB
Krr	Oceanside 30' x 60'	Coarse	Bedrock	Impermeable	CB
Kt	San Diego & Oceanside 30' x 60'	Coarse	Bedrock	Impermeable	CB
Ktr	Oceanside 30' x 60'	Coarse	Bedrock	Impermeable	CB
Kvc	Oceanside 30' x 60'	Coarse	Bedrock	Impermeable	CB
Kwm	Oceanside 30' x 60'	Coarse	Bedrock	Impermeable	CB
Kwp	Oceanside 30' x 60'	Coarse	Bedrock	Impermeable	CB
Kwsr	Oceanside 30' x 60'	Coarse	Bedrock	Impermeable	CB
m	Jennings; CA	Coarse	Bedrock	Impermeable	CB
Mzd	Oceanside 30' x 60'	Coarse	Bedrock	Impermeable	CB
Mzg	Oceanside 30' x 60'	Coarse	Bedrock	Impermeable	CB
Mzq	Oceanside 30' x 60'	Coarse	Bedrock	Impermeable	CB
Mzs	Oceanside 30' x 60'	Coarse	Bedrock	Impermeable	CB
sch	Jennings; CA	Coarse	Bedrock	Impermeable	CB
Kp	San Diego & Oceanside 30' x 60'	Coarse	Bedrock	Impermeable	CB
Ql	El Cajon 30' x 60'	Coarse	Sedimentary	Impermeable	CSI
QTf	El Cajon 30' x 60'	Coarse	Sedimentary	Impermeable	CSI
Ec	Jennings; CA	Coarse	Sedimentary	Impermeable	CSI
K	Jennings; CA	Coarse	Sedimentary	Impermeable	CSI
Kccg	San Diego 30' x 60'	Coarse	Sedimentary	Impermeable	CSI
Kcs	San Diego 30' x 60'	Coarse	Sedimentary	Impermeable	CSI

Map Unit	Map Name	Anticipated Grain size of Weathered Material	Bedrock or Sedimentary	Impermeable/ Permeable	Geology Grouping
Qvop10	San Diego & Oceanside 30' x 60'	Coarse	Sedimentary	Impermeable	CSI
Qvop10a	San Diego 30' x 60'	Coarse	Sedimentary	Impermeable	CSI
Qvop11	San Diego & Oceanside 30' x 60'	Coarse	Sedimentary	Impermeable	CSI
Qvop11a	San Diego 30' x 60'	Coarse	Sedimentary	Impermeable	CSI
Qvop12	San Diego & Oceanside 30' x 60'	Coarse	Sedimentary	Impermeable	CSI
Qvop13	San Diego & Oceanside 30' x 60'	Coarse	Sedimentary	Impermeable	CSI
Qvop2	San Diego & Oceanside 30' x 60'	Coarse	Sedimentary	Impermeable	CSI
Qvop3	San Diego & Oceanside 30' x 60'	Coarse	Sedimentary	Impermeable	CSI
Qvop4	San Diego & Oceanside 30' x 60'	Coarse	Sedimentary	Impermeable	CSI
Qvop5	San Diego & Oceanside 30' x 60'	Coarse	Sedimentary	Impermeable	CSI
Qvop6	San Diego 30' x 60'	Coarse	Sedimentary	Impermeable	CSI
Qvop7	San Diego & Oceanside 30' x 60'	Coarse	Sedimentary	Impermeable	CSI
Qvop8	San Diego & Oceanside 30' x 60'	Coarse	Sedimentary	Impermeable	CSI
Qvop9	San Diego 30' x 60'	Coarse	Sedimentary	Impermeable	CSI
Tsa	Oceanside 30' x 60'	Coarse	Sedimentary	Impermeable	CSI
Qof	Oceanside 30' x 60'	Coarse	Sedimentary	Permeable	CSP
Qof1	Oceanside 30' x 60'	Coarse	Sedimentary	Permeable	CSP
Qof2	Oceanside 30' x 60'	Coarse	Sedimentary	Permeable	CSP
Q	Jennings; CA	Coarse	Sedimentary	Permeable	CSP
Qa	Oceanside 30' x 60'	Coarse	Sedimentary	Permeable	CSP
Qd	Oceanside 30' x 60'	Coarse	Sedimentary	Permeable	CSP
Qf	Oceanside 30' x 60'	Coarse	Sedimentary	Permeable	CSP
Qmb	San Diego & Oceanside 30' x 60'	Coarse	Sedimentary	Permeable	CSP
Qop	San Diego & Oceanside 30' x 60'	Coarse	Sedimentary	Permeable	CSP
Qw	San Diego & Oceanside	Coarse	Sedimentary	Permeable	CSP

CALIFORNIA GEOLOGICAL SURVEY
JOHN G. PARRISH, Ph.D., STATE GEOLOGIST

STATE OF CALIFORNIA - ARNOLD SCHWARZENEGGER, GOVERNOR
THE RESOURCES AGENCY - MIKE CHRISMAN, SECRETARY
DEPARTMENT OF CONSERVATION - BRIDGETT LUTHER, DIRECTOR

GEOLOGIC MAP OF THE OCEANSIDE 30' × 60' QUADRANGLE, CALIFORNIA
Regional Geologic Map Series, 1:100,000 Scale, Map No. 2
Plate 1 of 2



ABBREVIATED EXPLANATION
Approximate stratigraphic relationships only;
see pamphlet and CMU (Plate 2) for more detailed information

Holocene

MODERN SURFICIAL DEPOSITS
- af — Artificial fill (late Holocene)
- Qw — Wash deposits (late Holocene)
- Qf — Alluvial fan deposits (late Holocene)
- Qa — Alluvial flood-plain deposits (late Holocene)
- Qls — Landslide deposits, undivided (Holocene and Pleistocene)
- Qmb — Marine beach deposits (late Holocene)
- Qpe — Paralic estuarine deposits (late Holocene)
- Qmo — Undivided marine deposits in offshore region (late Holocene)
- Qfo — Marine fan deposits (late Holocene)

YOUNG SURFICIAL DEPOSITS
- Qyf — Young alluvial fan deposits (Holocene and late Pleistocene)
- Qya — Young alluvial flood-plain deposits (Holocene and late Pleistocene)
- Qyc — Young colluvial deposits (Holocene and late Pleistocene)
- Qyv — Young alluvial valley deposits (Holocene and late Pleistocene)

OLD SURFICIAL DEPOSITS
- Qof — Old alluvial fan deposits, undivided (late to middle Pleistocene)
- Qof2 — Unit 2
- Qof1 — Unit 1
- Qoa — Old alluvial flood-plain deposits, undivided (late to middle Pleistocene)
- Qoa7 — Unit 7
- Qoa6 — Unit 6
- Qoa5 — Unit 5
- Qoa2-4 — Unit 2-6
- Qoa1-3 — Units 1-2
- Qoc — Old colluvial deposits (late to middle Pleistocene)
- Qop — Old paralic deposits, undivided (late to middle Pleistocene)
- Qop7 — Unit 7
- Qop6 — Unit 6
- Qop4 — Unit 4
- Qop3 — Unit 3
- Qop1 — Unit 1
- Qop6-7 — Units 6-7
- Qop4-6 — Units 4-6
- Qop2-4 — Units 2-4
- Qop1-2 — Units 1-2
- Qop7-8 — Units 7-8
- Qop2-6 — Units 2-6
- Qop1-7 — Units Qop1-Qop7

VERY OLD SURFICIAL UNITS
- Qvof — Very old alluvial fan deposits (middle to early Pleistocene)
- Qvoa — Very old alluvial flood-plain deposits, undivided (middle to early Pleistocene)
- Qvoa13 — Unit 13
- Qvoa12 — Unit 12
- Qvoa11 — Unit 11
- Qvoc — Very old colluvial deposits, undivided (middle to early Pleistocene)
- Qvop — Very old paralic deposits, undivided (middle to early Pleistocene)
- Qvop13 — Unit 13
- Qvop12 — Unit 12
- Qvop11 — Unit 11
- Qvop10 — Unit 10
- Qvop9 — Unit 9
- Qvop8 — Unit 8
- Qvop7 — Unit 7
- Qvop5 — Unit 5
- Qvop4 — Unit 4
- Qvop3 — Unit 3
- Qvop2 — Unit 2
- Qvop1 — Unit 1
- Qvop10-13 — Units 10-13
- Qvop11-12 — Units 11-12
- Qvop10-11 — Units 10-11
- Qvop9-10 — Units 9-10
- Qvop8-9 — Units 8-9
- Qvop7-8 — Units 7-8
- Qvop2-3 — Units 2-3

SEDIMENTARY AND VOLCANIC BEDROCK UNITS

Pliocene / Miocene
- Qpa / Qpf — Pauba Formation (early Pleistocene)
  Qpa - sandstone facies
  Qpf - fanglomerate facies
- Qtl — Dripping Springs Formation (early Pleistocene)
- QTsu — Undivided sediments and sedimentary rocks in offshore region (Holocene, Pleistocene, Pliocene and Miocene)
- Trk — Temecula Arkose (late Pliocene)
- Tn — Niguel Formation (late Pliocene)
- Tpd — Undivided sedimentary rocks in offshore region (Pliocene)
- Tc — Capistrano Formation (early Pliocene and late Miocene)
  Tcs - siltstone facies
  Tct - turbidite facies
- Tpm — San Mateo Formation (early Pliocene and late Miocene)
- Tmr — Santa Rosa basalt of Mann (1955) (late Miocene)
- Tdk — Dacite stock (Miocene)

Miocene
- Tv — Volcanic rocks, undivided (Miocene)
- Tvt — Basalt of Temecula area (Miocene)
- Tmc — Monterey Formation (middle and late Miocene)
- Tsc / Tsss — San Onofre Breccia (middle Miocene)
  Tsb - breccia
  Tsss - sandstone
- Tto — Topanga Formation (middle Miocene)
- Tmv — Undivided sedimentary rocks in offshore region (Miocene)
- Tmvu — Undivided volcanic rocks in offshore region (Miocene)
- Tmsc — Undivided volcanic and sedimentary rocks in offshore region (Miocene)—Tmo or Tmvo

Oligocene / Eocene
- Tso — Sespe and Vaqueros Formations, undivided (early Miocene, Oligocene and late Eocene)
- Tsnd — Sandstone of Redonda Mesa (Paleogene)
- Tmv — Mission Valley Formation (middle Eocene)
- Tst — Stadium Conglomerate (middle Eocene)
- Tf — Friars Formation (middle Eocene)
- Tty — Torrey Sandstone (middle Eocene)
- Td — Delmar Formation (middle Eocene)
- Tsa — Santiago Formation (middle Eocene)
- Tec — Undivided Eocene rocks in the offshore area (Eocene)

Paleocene
- Tsl — Silverado Formation (Paleocene)
- Kp — Point Loma Formation (Upper Cretaceous)
- Kwc / Kwkr — Williams Formation (Upper Cretaceous)
  Kwp - Pleasants Sandstone Member
  Kwkr - Schulz Ranch Sandstone Member
- Kl — Lusardi Formation (Upper Cretaceous)
- Kt — Trabuco Formation (Upper Cretaceous)

UNNAMED CRETACEOUS ROCKS OF THE PENINSULAR RANGES BATHOLITH
- Kgp — Granite pegmatite dike (mid-Cretaceous)
- Kg — Granite, undivided (mid-Cretaceous)
- Kmg — Monzogranite, undivided (mid-Cretaceous)
- Kgd — Granodiorite, undivided (mid-Cretaceous)
- Kgdfg — Granodiorite (fine-grained), undivided (mid-Cretaceous)
- Kt — Tonalite, undivided (mid-Cretaceous)
- Kdqf — Quartz-bearing diorite, undivided (mid-Cretaceous)
- Kd — Diorite, undivided (mid-Cretaceous)
- Kgb — Gabbro, undivided (mid-Cretaceous)
- Khg — Heterogeneous granitic rocks (Cretaceous)

NAMED CRETACEOUS ROCKS OF THE PENINSULAR RANGES BATHOLITH
- Kdf — Granite of Dixon Lake (mid-Cretaceous)
- Kbp — Granite of Bottle Peak (mid-Cretaceous)
- Kia — Granite of Indian Springs (mid-Cretaceous)
- Klh — Leucogranodiorite of Lake Hodges (mid-Cretaceous)
- Kmc — Monzogranite of Valley Center (mid-Cretaceous)
- Kmm — Monzogranite of Merriam Mountain (mid-Cretaceous)
- Kwm — Granodiorite of Woodson Mountain (mid-Cretaceous)
- Kjd — Granodiorite of Jesmond Dean (mid-Cretaceous)
- Kbm — Granodiorite of Burnt Mountain (mid-Cretaceous)
- Kmt — Granodiorite of Mountain Meadows (mid-Cretaceous)
- Kr — Granodiorite of Rimrock (mid-Cretaceous)
- Ki — Granodiorite of Indian Mountain (mid-Cretaceous)
- Kr — Granodiorite of Rainbow (mid-Cretaceous)
- Kpa — Granodiorite of Pala (mid-Cretaceous)
- Kgdf — Granodiorite, undivided within the Elsinore Fault Zone (mid-Cretaceous)
- Ktg — Tonalite of Cole Grade (mid-Cretaceous)
- Kcc — Tonalite of Couser Canyon (mid-Cretaceous)
- Kdm — Quartz-bearing diorite of Red Mountain (mid-Cretaceous)
- Kgr — Gabbro of the Agua Tibia Mountains (mid-Cretaceous)
- Kwmf — Gabbro of Weaver Mountain (mid-Cretaceous)
- Kgdf — Gabbro, undivided within the Elsinore Fault Zone (mid-Cretaceous)
- Kmsg — Santiago Peak Volcanics (Cretaceous)

PREBATHOLITHIC AND SYNBATHOLITHIC METAMORPHIC ROCKS
- Mzv — Metasedimentary and metavolcanic rocks, undivided (Mesozoic)
- Mzd — Metavolcanic dikes (Mesozoic)
- Mzg — Metagranitic rocks (Mesozoic)
- Mzq — Quartzite and quartz conglomerate (Mesozoic)
- Mzs — Schist with minor amphibolite and marble (Mesozoic)

ONSHORE MAP SYMBOLS
- Contact - Contact between geologic units; generally approximately located; dotted where concealed.
- Fault - Solid where accurately located; dashed where approximately located; dotted where concealed. U = upthrown block, D = downthrown block. Arrow and number indicate direction and angle of dip of fault plane.
- Anticline - Solid where accurately located; dotted where concealed.
- Syncline - Solid where accurately located; dotted where concealed.
- Kgp - Granite pegmatite dike.
- Closed depression - Closed depression in Elsinore fault zone.
- Landslide - Arrows indicate principal direction of movement. Queried where existence is questionable.

Strike and dip of beds
- Inclined
- Overturned
- Vertical
- Horizontal

Strike and dip of igneous foliation
- Inclined
- Vertical

Strike and dip of igneous joints
- Inclined
- Vertical

Strike and dip of metamorphic foliation
- Inclined

Strike and dip of sedimentary joints
- Vertical

OFFSHORE MAP SYMBOLS

Contacts
- Contact - All contacts are extrapolated from a combination of seismic reflection data, samples and bathymetry, and are approximate in location.

Faults
- Fault - Solid where well defined; short dash where inferred; dotted where concealed; queried where uncertain. Where fault offsets sea floor, age symbol is shown on bar on downthrown side. Where age was determined, age symbol is shown astride fault and relative offset if known is shown by "D" and "U" on downthrown and upthrown sides. Ages of faults are indicated as follows:
  - cuts strata of Holocene age
  - cuts strata of Pleistocene age
  - cuts strata of Quaternary age
  - cuts Miocene or older strata
- Fault zone - Area of extensively sheared rock within a zone defined by multiple faults.

Folds
- Anticline - Dashed where inferred. Solid arrow indicates direction of axial plunge.
- Syncline - Solid where well defined, dashed where inferred.

Major Structural Features
- Structural High - Dashed line is approximate axis of elongated bedrock highs depicted from deep (>2 sec.) seismic reflection data

Channels
- Active - Dash-dot line marks axis, arrow indicates direction of paleo-sediment transport.
- Filled - Dash-dot line marks axis, arrow indicates direction of paleo-sediment transport. Channel boundary solid where well defined, dashed where inferred.
- Buried - Dash-dot line marks axis, arrow indicates direction of paleo-sediment transport. Channel boundary dotted.

Levees
- Levees - Solid where well defined, dashed where inferred.

Landslides
- Creep - Solid where well defined, dashed where inferred.
- Creep (noted on single survey line) - Arrow indicates apparent direction of sediment movement.
- Slump - Solid where well defined, dashed where inferred. Arrows indicate direction of movement.
- Slump Scarp - Solid where well defined, dashed where inferred.
- Erosional scarp - Solid where well defined. Generally associated with active channels.
- Block Glide - Solid where well defined, dashed where inferred. Arrow indicates direction of movement.
- Sediment Flow - Solid where well defined, dashed where inferred. Arrow indicates direction of movement.

Gas
- Oil and/or gas seep
- Area of acoustic anomaly (possibly indicating trapped shallow gas) - Solid where well defined, dashed where inferred.

Base Map

Onshore base (hypsography, hydrography, and transportation) from U.S.G.S. digital line graph (DLG) data, Oceanside 30' x 60' metric quadrangle. Shaded topographic base from U.S.G.S. digital elevation models (DEM's). Offshore bathymetric contours and shaded bathymetry from N.O.A.A. single and multibeam data. Projection is UTM, zone 11, North American Datum 1927.

SCALE 1:100,000
0 2 0 2 4 6 Miles
0 2 0 2 4 6 Kilometers
Contour Interval: 50 meters (approximately 164 feet)
Bathymetric Contour Interval: 50 meters (approximately 164 feet)

APPROXIMATE MEAN DECLINATION, 2007
13° 00'
13° 00'

Geology compiled 2002-2004

This map was funded in part by the U.S. Geological Survey National Cooperative Geologic Mapping Program, STATEMAP Award no. 01NAG0052.

Prepared in cooperation with the U.S. Geological Survey, Southern California Areal Mapping Project.

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The Department of Conservation makes no warranties as to the suitability of this product for any particular purpose.

GEOLOGIC MAP OF THE OCEANSIDE 30' × 60' QUADRANGLE, CALIFORNIA

Compiled by

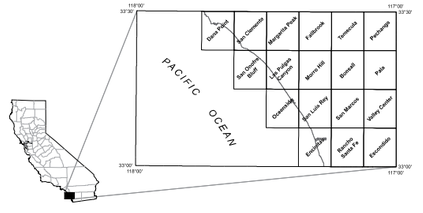
Michael P. Kennedy[1] and Siang S. Tan[1]

2007

Digital preparation by

Kelly R. Bovard[2], Rachel M. Alvarez[2], Michael J. Watson[2], and Carlos I. Gutierrez[1]

1. Department of Conservation, California Geological Survey
2. U.S. Geological Survey, Department of Earth Sciences, University of California, Riverside



ABBREVIATED INDEX TO GEOLOGIC SOURCE DATA
(Primary compilation sources shown in bold type)
See pamphlet for complete citation

Bonsall Quadrangle
Larsen, 1948; **Tan, 2000a**, Weber, 1963.

Dana Point Quadrangle
Edgington, 1974; Kern, 1996a; Kern and others, 1996; Morton and Miller, 1961; Tan, 1984; **Tan, 1999a**; Tan and Weber, 1984; Vedder, 1975.

Encinitas Quadrangle
Kern, 1996a; Tan, 1986; **Tan and Kennedy, 1996**; Tan and Giffen, 1995; Wilson, 1972.

Escondido Quadrangle
Kennedy and Peterson, 1975; Larsen, 1948; Tan and Giffen, 1995; **Tan and Kennedy, 1999**; Weber, 1963.

Fallbrook Quadrangle
Tan, 2000c; Larsen, 1948; Weber, 1963.

Las Pulgas Canyon Quadrangle
Boss and others, 1968; Craig, 1984; Cranham and others, 1994; Ehlig and Farley, 1976; Kern, 1996a; Kern, 1996b; **Kennedy, 2001,**

Margarita Peak Quadrangle
Boss and others, 1958; **Tan, 2001a**; Larsen, 1948.

Morro Hill Quadrangle
Boss and others, 1958; Elliot, 1985; Larsen, 1948; **Tan, 2001b**; Weber, 1963.

Oceanside Quadrangle
Kern, 1996a; **Tan and Kennedy, 1996**; Tan and Giffen, 1995; Weber, 1982.

Pala Quadrangle
Hanley and Johns, 1950; Irwin and Greene, 1970; Johns and Wright, 1951; **Kennedy, 2000a**; Larsen, 1948.

Pechanga Quadrangle
Hanley and Johns, 1950; Irwin and Greene, 1970; Johns and Wright, 1951; Kennedy, 1977; **Kennedy, 2000b**; Larsen, 1948.

Rancho Santa Fe Quadrangle
Larsen, 1948; Nordstrom, 1970; Tan, 1987; Tan and Giffen, 1995; **Tan and Kennedy, 1996**, Weber, 1963.

San Clemente Quadrangle
Blanc and Cleveland, 1968; Boss and others,1958; Ehlig and Farley, 1976; Kern, 1996a; Kern, 1996b; Morton and Miller, 1981; **Tan, 1999b**; Tan and Weber, 1984; Vedder, 1975.

San Luis Rey Quadrangle
Tan and Kennedy, 1996; Tan and Gifton, 1995; Weber, 1982; Wilson, 1972.

San Marcos Quadrangle
Herzig, 1991; **Tan and Kennedy, 1996**; Larsen, 1948; Tan and Giffen, 1995; Weber, 1963, 1982.

San Onofre Bluff Quadrangle
Boss and others, 1958; Ehlig and Farley, 1976; Kern, 1996a; Kern, 1996b; **Tan, 1999c.**

Temecula Quadrangle
Kennedy, 1977; Larsen, 1948; Mann, 1955; **Tan and Kennedy, 2000,**

Valley Center Quadrangle
Kennedy, 1999; Larsen, 1948; Merriam, 1953.

Offshore Region
Clarke and others, 1987; Ryan and others, in preparation; Ryan and others, in review.

Table H.1-2: Land Cover Grouping for SanGIS Ecology-Vegetation Data Set

Id	SanGIS Legend	SanGIS Grouping	Land Cover Grouping
1	42000 Valley and Foothill Grassland	Grasslands, Vernal Pools, Meadows, and Other Herb Communities	Agricultural/Grass
2	42100 Native Grassland		Agricultural/Grass
3	42110 Valley Needlegrass Grassland		Agricultural/Grass
4	42120 Valley Sacaton Grassland		Agricultural/Grass
5	42200 Non-Native Grassland	Grasslands, Vernal Pools, Meadows, and Other Herb Communities	Agricultural/Grass
6	42300 Wildflower Field		Agriculture/Grass
7	42400 Foothill/Mountain Perennial Grassland		Agriculture/Grass
8	42470 Transmontane Dropseed Grassland		Agriculture/Grass
9	45000 Meadow and Seep		Agriculture/Grass
10	45100 Montane Meadow		Agriculture/Grass
11	45110 Wet Montane Meadow		Agriculture/Grass
12	45120 Dry Montane Meadows		Agriculture/Grass
13	45300 Alkali Meadows and Seeps		Agriculture/Grass
14	45320 Alkali Seep		Agriculture/Grass
15	45400 Freshwater Seep		Agriculture/Grass
16	46000 Alkali Playa Community		Agriculture/Grass
17	46100 Badlands/Mudhill Forbs		Agriculture/Grass
18	Non-Native Grassland		Agriculture/Grass
19	18000 General Agriculture	Non-Native Vegetation, Developed Areas, or Unvegetated Habitat	Agriculture/Grass
20	18100 Orchards and Vineyards		Agriculture/Grass
21	18200 Intensive Agriculture		Agriculture/Grass
22	18200 Intensive Agriculture - Dairies, Nurseries, Chicken Ranches		Agriculture/Grass
23	18300 Extensive Agriculture - Field/Pasture, Row Crops		Agriculture/Grass
24	18310 Field/Pasture		Agriculture/Grass
25	18310 Pasture		Agriculture/Grass
26	18320 Row Crops		Agriculture/Grass
27	12000 Urban/Developed		Developed
28	12000 Urban/Develpoed		Developed
29	81100 Mixed Evergreen Forest	Forest	Forest
30	81300 Oak Forest		Forest
31	81310 Coast Live Oak Forest		Forest
32	81320 Canyon Live Oak Forest		Forest
33	81340 Black Oak Forest		Forest

FID	23857
LEGEND	42000 Valley and Foothill Grassland
HOLLAND95	42000
ACRES	5.454182
HISTORICAL	
DISTURBSRC	0
DATASRC	0
EDIT_DATE	1/1/2002
EDITOR	PWD
SCALE	500
DISTURBANC	0
SOURCE	2
CATEGORY	Grasslands, Vernal Pools, Meadows, and Other Herb Communities
Shape_STAr	237583.187313
Shape_STLe	2244.069231

6.2.2 Downstream systems Sensitivity to Course Sediment

Downstream Systems Sensitivity to Course Sediment		Form I-10	
When it has been determined that potential critical coarse sediment yield areas exist within the project site, the next step is to determine whether downstream systems would be sensitive to reduction of coarse sediment yield from the project site. Use this form to document the evaluation of downstream systems requirements for preservation of coarse sediment supply.			
Project Name:			
Project Tracking Number / Permit Application Number:			
1	Will the project discharge runoff to a hardened MS4 system (pipe or lined channel) or an un-lined channel?	☐ Hardened MS4 system	Go to 2
		☒ Un-lined channel	Go to 4
2	Will the hardened MS4 system convey sediment (e.g., a concrete-lined channel with steep slope and cleansing velocity) or sink sediment (e.g., flat slopes, constrictions, treatment BMPs, or ponds with restricted outlets within the system will trap sediment and not allow conveyance of coarse sediment from the project site to an un-lined system).	☐ Convey	Go to 3
		☐ Sink	Go to 7
3	What kind of receiving water will the hardened MS4 system convey the sediment to?	☐ Un-lined channel	Go to 4
		☐ Lake ☐ Reservoir ☐ Bay	Go to 7
		☐ Lagoon ☐ Ocean	Go to 6
4	Is the un-lined channel impacted by deposition of sediment? This condition must be documented by the local agency.	☐ Yes	Go to 7
		☒ No	Go to 5

Form I-10 Page 2 of 2	
5	End – Preserve coarse sediment supply to protect un-lined channels from accelerated erosion due to reduction of coarse sediment yield from the project site unless further investigation determines the sediment is not critical to the receiving stream. Sediment that is critical to receiving streams is the sediment that is a significant source of bed material to the receiving stream (bed sediment supply) (see Section 6.2.3 and Appendix H.2 of the manual).
6	End – Provide management measures for preservation of coarse sediment supply (protect beach sand supply).
7	End – Downstream system does not warrant preservation of coarse sediment supply, no measures for protection of critical coarse sediment yield areas onsite are necessary. Use the space below to describe the basis for this finding for the project.

Further investigation based on additional optional analysis per appendix H.2 of the manual determined that the sediment is not critical for the receiving streams. See 6.2.3 on the following page

Placeholder – **6.2.3 Additional Analysis of Potential Critical Coarse Sediment Yield Areas Onsite** (Optional)

Replace placeholder with required calculations/documentation.

Leave placeholder intact if not applicable.

☐Not Applicable

Kimley»Horn

OPTIONAL ADDITIONAL ANALYSIS WHEN POTENTIAL CRITICAL COARSE SEDIMENT YIELD AREAS ARE PRESENT ONSITE

The following steps will be completed to determine whether the project site is a Significant Source of Bed Sediment Supply to the channel receiving runoff and includes the following components:

A. **Site soil assessment, including an analysis and comparison of the Bed Sediment in the receiving channel and the onsite channel**
B. **Determination of the capability of the channels on the project site to deliver the site Bed Sediment (if present) to the receiving channel**
C. **Present and potential future condition of the receiving channel**

A. Site soil Assessment, including an analysis and comparison of the Bed Sediment in the channel receiving runoff and the onsite channels

A geotechnical analysis was done to assess the soils onsite and in the offsite channel to meet the requirements of conditions of step A. The analysis showed presence of coarse clayey sand and fine sandy clay. The geotechnical engineer determined that the similarity of the onsite sediment to the channel bed sediment is medium and the analysis and results are included in this report. The sample locations onsite GLUs and channels are also included in the geotechnical engineer's report.

B. Determination of the capacity of the channels on the project site to deliver the site Bed Sediment to the receiving channel.

The GLU analysis and subsequent soil analysis showed the presence of critical coarse sediment areas onsite. The site was observed to determine the sediment delivery potential of the site to convey bed material to the receiving stream (bed material sediment delivery potential or ratio). The sediment transport potential is affected by sediment source, proximity to the receiving stream, onsite channel density, project watershed area, slope, length, land use, land cover, and rainfall intensity.

The existing site surface drains to three discharge locations. Each location is collected in the City of Vista's storm drain system and conveyed through pipes, headwalls, lined ditches, and culverts to the downstream offsite channel. The process for stormwater to flow all the way to the downstream channel limits the potential for sediment transport. As storm drains tend to collect sediment at junctions, bends, and manholes, the existing storm drain system inhibits the transport of sediments. A site observation showed the ground cover is vegetated increasing onsite channel roughness, resulting in reduced velocities, limiting the erosion potential, and discouraging sediment transport. Additionally, the areas tributary to coarse grained material is minimal further reducing chance of erosion. Coarse grained samples were found in the flatter areas onsite further reducing potential to deliver sediment to downstream channels. Therefore, in our opinion, the potential to deliver sediment to the downstream receiving waters is low.

C. Present and potential future condition of the channel receiving runoff from the project site.

The receiving channel was visually inspected for bank stability and degradation of bed material. The channel is covered with vegetative cover increasing channel roughness. The vegetative cover reduces velocities, limits erosion potential, and inhibits sediment transport. Observation of this area indicated no signs of instability due to sediment deposition or scour, nor signs of sensitivity to changes in bed material load. Hydromodification (low flow control) and detention (peak flow control) management measures included in the project design assure decreased flow rates through the channel in the future. Therefore, the condition of the receiving channel is expected to remain stable and the potential for adverse response based on a change in bed sediment load due to onsite development is low.

Conclusion

The evaluation using the BMP Manual provide the following results:

A. Site Soil Assessment – **Medium**

B. Sediment Delivery Capacity – **Low**

C. Present and Future Condition – **Low**

The overall score is **Low** and the project site is not a significant source of bed sediment material for the receiving channel. Site design considerations are not recommended for the site to mitigate for CCSYAs. The site is not a critical source of coarse sediment and the proposed development will not have impacts downstream.

INVESTIGATION OF POTENTIAL CRITICAL COARSE SEDIMENT YIELD AREAS

MODERA MELROSE
OCEANSIDE, CALIFORNIA

GEOCON
INCORPORATED

GEOTECHNICAL
ENVIRONMENTAL
MATERIALS

PREPARED FOR

MCRT INVESTMENTS INC.
COSTA MESA, CALIFORNIA

DECEMBER 7, 2021
PROJECT NO. 07647-32-04

Project No. 07647-32-04
December 7, 2021

MCRT Investments LLC
949 South Coast Drive, Suite 400
Costa Mesa, California 92626

Attention: Mr. John Colletti

Subject: INVESTIGATION OF POTENTIAL CRITICAL
COARSE SEDIMENT YIELD AREAS
CITY OF OCEANSIDE BMP DESIGN MANUAL
APPENDIX H: STEP 1A – SITE SOIL ASSESSMENT
MODERA MELROSE
OCEANSIDE, CALIFORNIA

Dear Mr. Colletti:

In accordance with the request of Mr. Bryan Nord with Kimley-Horn Incorporated, we have performed a site soil assessment for the Modera Melrose project located in Oceanside, California. This evaluation is part of an investigation of potential critical coarse sediment yield areas in accordance with the City of Oceanside's storm water management guidelines.

The site is located southeast of the intersection of Oceanside Boulevard and North Melrose Drive, in Oceanside, California, as presented on the Vicinity Map, Figure 1. The property is bounded by Oceanside Boulevard to the north, North Melrose Drive to the west, residential homes and an open space lot to the east, and a bike path and railroad easement to the south. The subject property is undeveloped with gentle southward sloping terrain and a small drainage course near the south-central portion. This drainage course has been partially in-filled with undocumented fill. Existing elevations vary from approximately 424 Mean Sea Level (MSL) in the south-central portion to approximately 455 MSL in the northern portion of the property.

The scope of our services included collecting soil samples, performing laboratory testing, and preparing this report. The soil assessment was performed in accordance with *Appendix H – Guidance for Investigating Potential Critical Coarse Sediment Yield Areas* of the *City of Oceanside BMP Manual*, dated February 2016.

STEP 1A – SITE SOIL ASSESSMENT

Sieve Analysis Results

We collected 8 soil samples (GR-1 through GR-8) on both sides of the south-central drainage. We also collected 2 soil samples from the receiving channel (GR-9 and GR-10). We performed laboratory gradation tests on the samples in accordance with ASTM D 6913. The samples were collected within the upper 3 feet of the existing surface using hand excavation equipment. The locations of Samples GR-1 through GR-10 are presented on Geologic Map, Figure 2. The soil samples are indicated on Table 1 as coarse-grained soils (consisting of less than 50 percent fines) or fine-grained soils (consisting of 50 percent or greater fines). The laboratory test results are summarized in Table 1 and presented in Appendix A.

TABLE 1
SUMMARY OF LABORATORY GRAIN SIZE DISTRIBUTION TEST RESULTS
(ASTM D 6913)

Sample No.	% Gravel	% Sand	% Fines	USCS Classification	Storm Water Classification
GR-1	0	58	42	Clayey SAND (SC)	Coarse Grained
GR-2	0	63	37	Clayey SAND (SC)	Coarse Grained
GR-3	0	63	37	Clayey SAND (SC)	Coarse Grained
GR-4	0	46	54	Sandy, lean CLAY (CL)	Fine Grained
GR-5	0	46	54	Sandy, lean CLAY (CL)	Fine Grained
GR-6	0	42	58	Sandy, lean CLAY (CL)	Fine Grained
GR-7	0	55	45	Silty SAND (SM)	Coarse Grained
GR-8	0	41	59	Sandy, lean CLAY (CL)	Fine Grained
GR-9	0	66	34	Silty, Clayey SAND (SC)	Coarse Grained
GR-10	2	62	36	Silty, Clayey SAND (SC)	Coarse Grained

Soil Erodibility (K) Factor

The State Water Resources Control Board maps the area with a K factor of 0.43 for Santiago Formation (Tsa) and 0.2 for Granitic Rock (Kb/Kt). Our testing of the onsite surface soil generally indicates that the Santiago Formation (Tsa) is relatively fine-grained and the granitic rock (shown as Kb on Figure 2, identified as map symbol Kt on the regional geologic map) is coarse-grained. The distribution of these two geologic formations are shown on the Geologic Map, Figure 2. The onsite coarse-grained soils may be potential generators of sand materials within the downstream drainage. Table 2 presents the estimated soil erodibility K factor based on the laboratory gradation test results and the USDA nomograph (Erikson 1977 as referenced in Goldman et al, 1986).

TABLE 2
SUMMARY OF SITE SPECIFIC SOIL ERODIBILITY K FACTOR

Sample No.	% Gravel	% Sand	% Fines	USCS Classification	Estimated Soil Erodibility K Factor
GR-1	0	58	42	Clayey SAND (SC)	0.20
GR-2	0	63	37	Clayey SAND (SC)	0.16
GR-3	0	63	37	Clayey SAND (SC)	0.16
GR-4	0	46	54	Sandy, lean CLAY (CL)	0.22
GR-5	0	46	54	Sandy, lean CLAY (CL)	0.22
GR-6	0	42	58	Sandy, lean CLAY (CL)	0.26
GR-7	0	55	45	Silty SAND (SM)	0.19
GR-8	0	41	59	Sandy, lean CLAY (CL)	0.26
GR-9	0	66	34	Silty, Clayey SAND (SC)	0.16
GR-10	2	62	36	Silty, Clayey SAND (SC)	0.16

Classification of the Soils on the Project Site

The USCS Classification of the soil samples are presented in Table 1.

Topographic Relief of the Project Area

The property gently slopes towards the south. The perimeter slopes along Melrose Drive and Oceanside Boulevard are 2:1 (H:V), or 50 percent slope. Within the development limits, the existing gradients generally range between 5 to 15 percent. For ease of reference, we are presenting the slope exhibit provided by Kimley Horn as Figure 3.

Site Soil Assessment Rating

In accordance with Appendix H of the SWS, the *user should rate the similarity of onsite Bed Sediment and Bed Sediment collected in the receiving channel as high, medium, or low.*

We reviewed the grain size distributions from the on-site soils (GR-1 through GR-8) and the off-site receiving channel (GR-9 and GR-10). It is our opinion that the soil in the receiving channel is generally similar to the granitic rock (Kb/Kt). Therefore, it is our opinion that a rating of **"medium"** is appropriate.

Should you have questions regarding this report, or if we may be of further service, please contact the undersigned at your convenience.

Very truly yours,

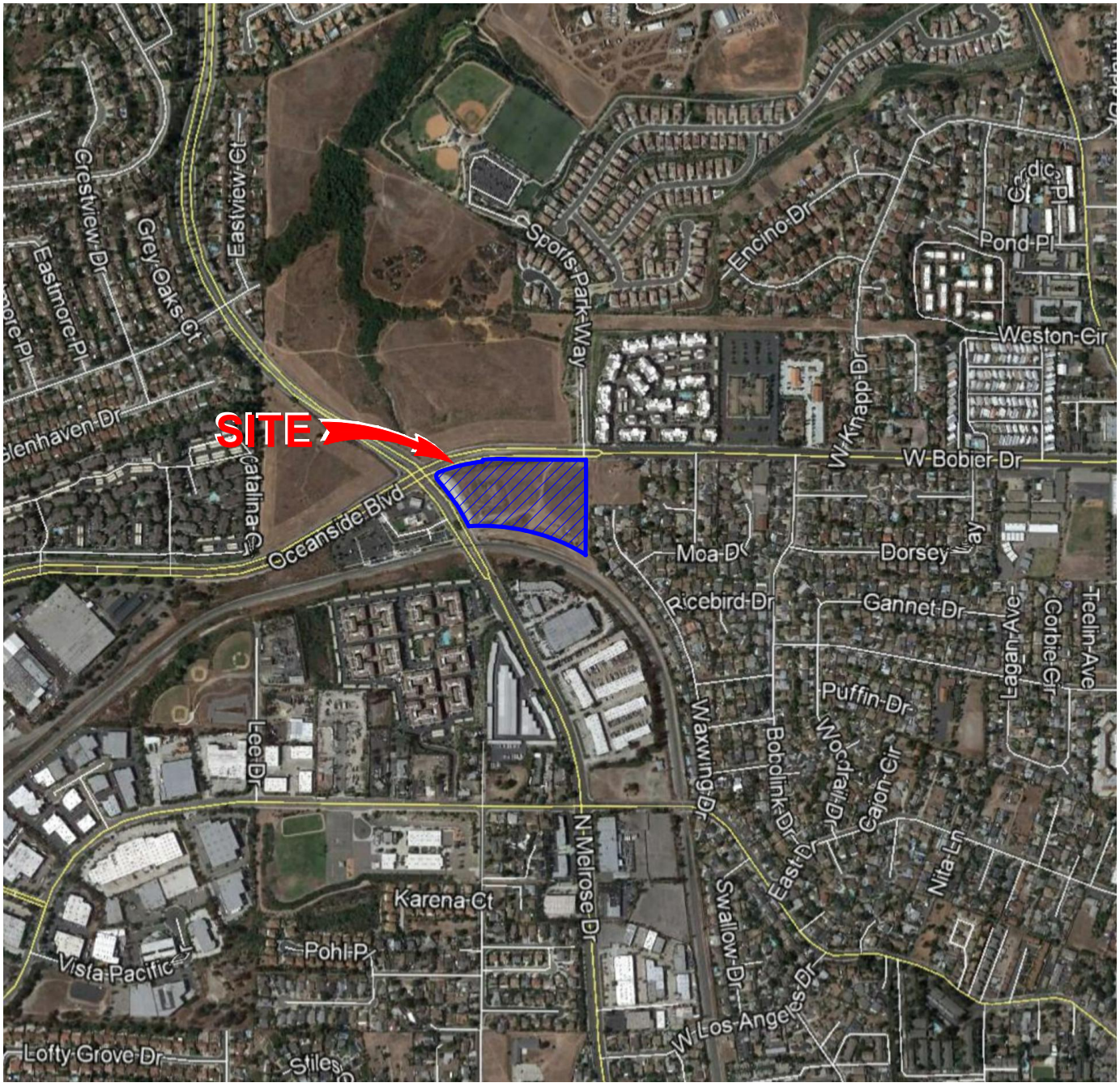
GEOCON INCORPORATED

Trevor E. Myers
RCE 63773

David B. Evans
CEG 1860

TEM:DBE:am

(e-mail) Addressee



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N

NO SCALE

VICINITY MAP

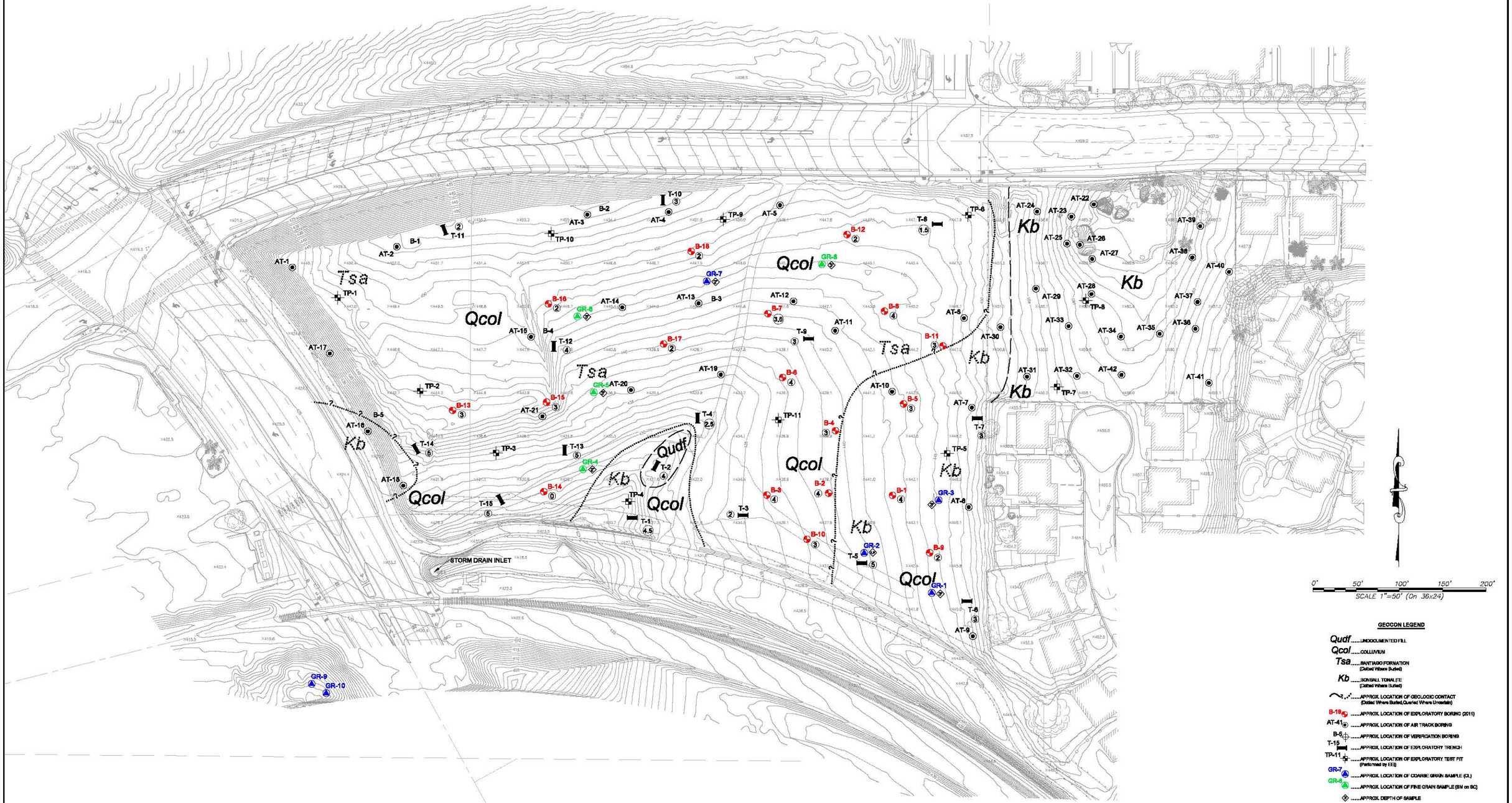
GEOCON INCORPORATED
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS
6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121 - 2974
PHONE 858 558-6900 - FAX 858 558-6159

RM / AML		DSK/GTYPD

MODERA MELROSE
OCEANSIDE, CALIFORNIA

DATE 12 - 07 - 2021	PROJECT NO. 07647 - 32 - 04	FIG. 1

Plotted:12/07/2021 7:32AM | By:JONATHAN WILKINS | File Location:Y:\PROJECTS\07647-32-04 (Modera Melrose)\DETAILS\07647-32-04 Vic Map.dwg



GEOLOGIC MAP

MODERA MELROSE
OCEANSIDE, CALIFORNIA

GEOCON INCORPORATED
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS
6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121-2974
PHONE 858 558-6900 - FAX 858 558-6159

SCALE	1" = 50'
DATE	12 - 07 - 2021
PROJECT NO.	07647 - 32 - 04
FIGURE	2
SHEET	1 OF 1

MODERA MELROSE
OCEANSIDE, CALIFORNIA



Slopes Table				
Number	Minimum Slope	Maximum Slope	Area	Color
1	10.00%	20.00%	177424.14	
2	20.00%	40.00%	97560.44	
3	40.00%	100.00%	71855.47	

LEGEND

POTENTIAL CCSYAs PER WMAA 2018 DATA

0' 100' 200'

SCALE 1"= 100' (On 11x17)

GEOCON INCORPORATED

GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS
6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121 - 2974
PHONE 858 558-6900 - FAX 858 558-6159

PROJECT NO. 07647 - 32 - 04
FIGURE 3
DATE 12 - 07 - 2021

SLOPE EXHIBIT

Kimley»Horn

GLU SLOPE ANALYSIS EXHIBIT
MODERA MELROSE
10/14/2021

Plotted:12/07/2021 7:10AM | By:JONATHAN WILKINS | File Location:Y:\PROJECTS\07647-32-04 (Modera Melrose)\SHEETS\07647-32-04 Slope Exhibit.dwg

APPENDIX A

APPENDIX A

LABORATORY TEST RESULTS

FOR

MODERA MELROSE
OCEANSIDE, CALIFORNIA

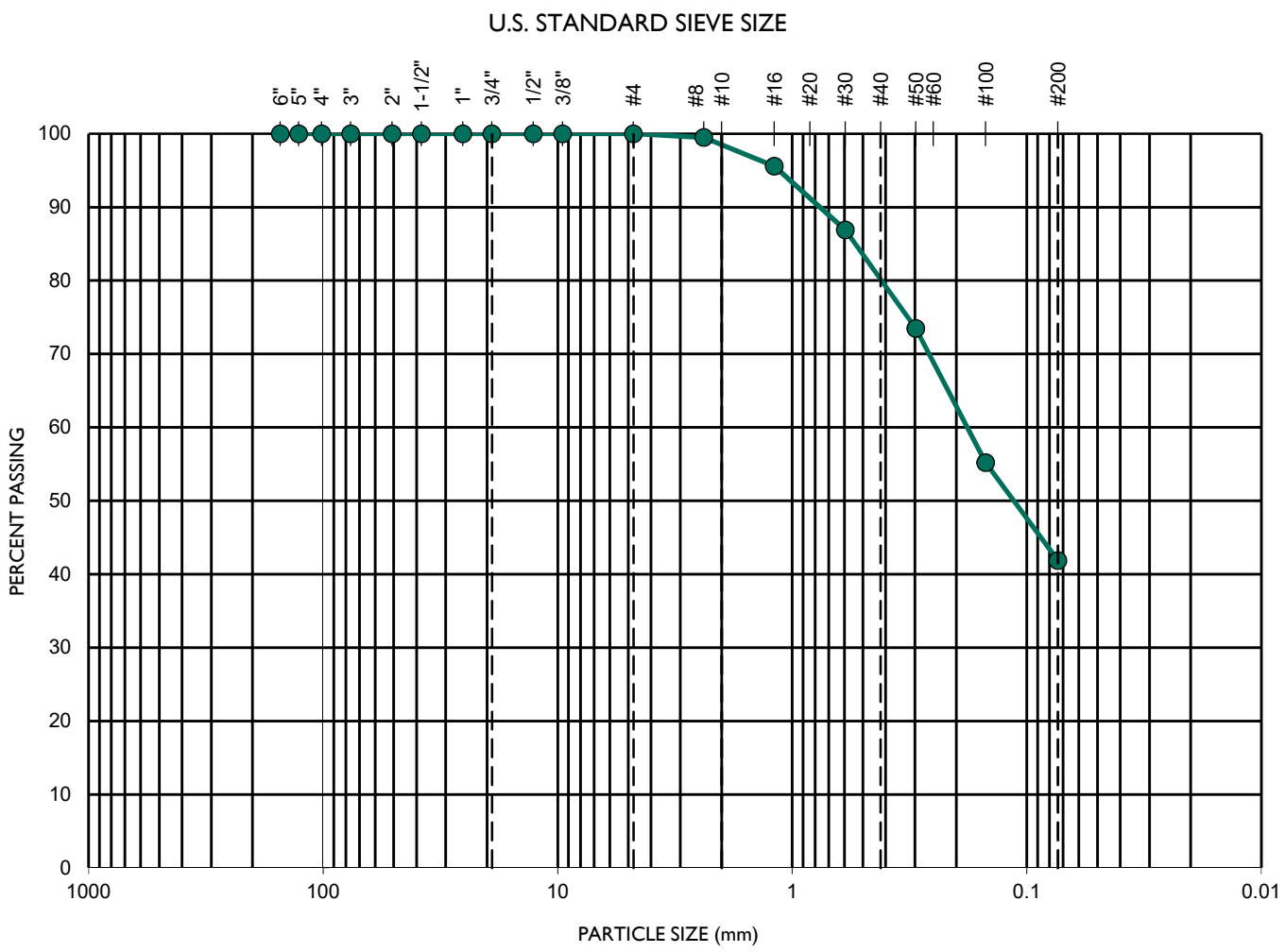
PROJECT NO. 07647-32-04

SAMPLE NO.: **GR-1**

SAMPLE DEPTH (FT.): **3**

GEOLOGIC UNIT: **Kb**

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



TEST DATA					
D_{10} (mm)	D_{30} (mm)	D_{60} (mm)	C_c	C_u	SOIL DESCRIPTION
0.018	0.053	0.189	0.8	10.7	SC - Clayey SAND

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GEOTECHNICAL CONSULTANTS
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PHONE 858 558-6900 - FAX 858 558-6159

SIEVE ANALYSES - ASTM D 6913

MODERA MELROSE

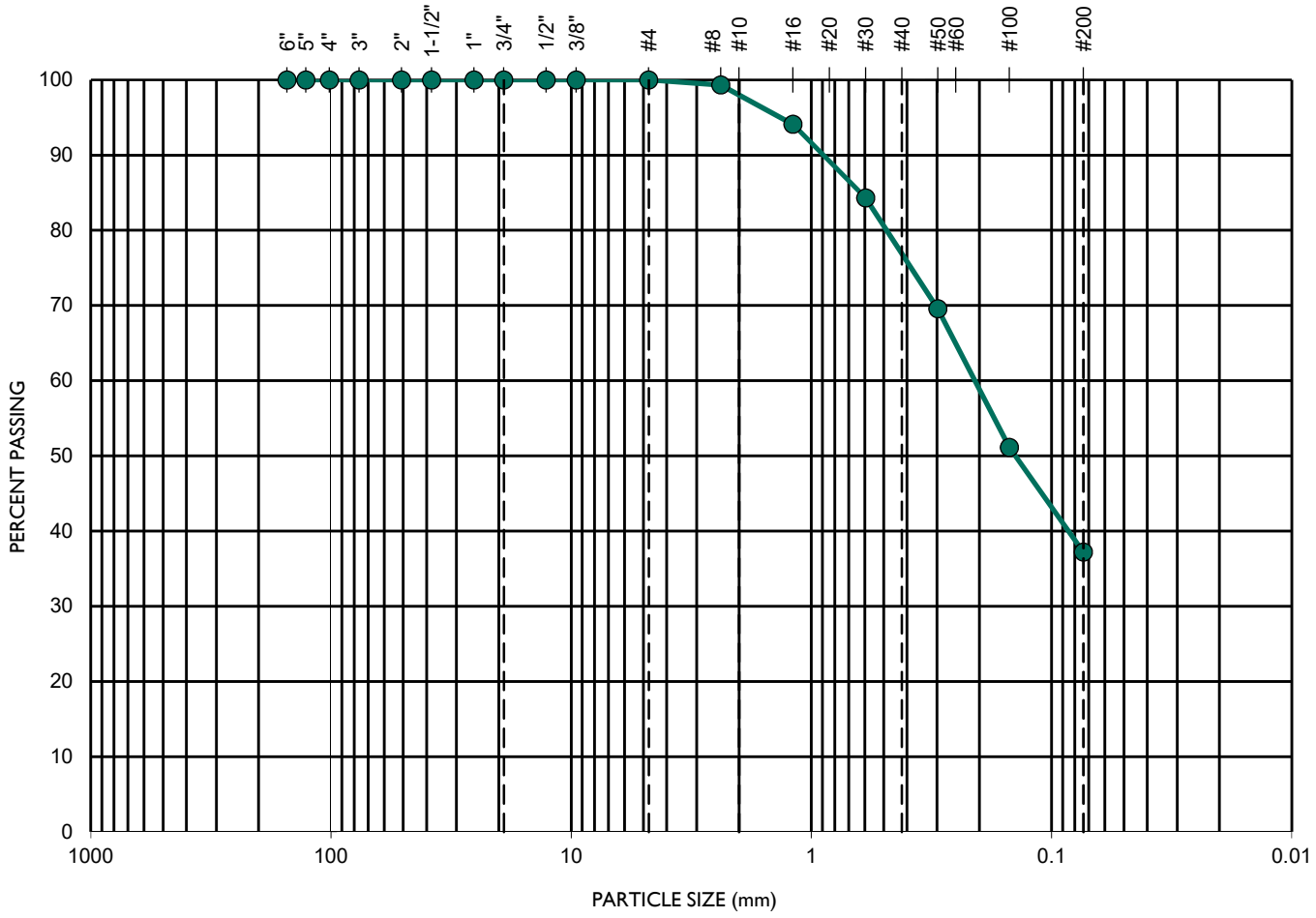
PROJECT NO.: 7647-32-04

SAMPLE NO.: **GR-2**

SAMPLE DEPTH (FT.): **2.5**

GEOLOGIC UNIT: **Kb**

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



TEST DATA					
D_{10} (mm)	D_{30} (mm)	D_{60} (mm)	C_c	C_u	SOIL DESCRIPTION
0.020	0.059	0.221	0.8	11.1	SC - Clayey SAND

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MODERA MELROSE

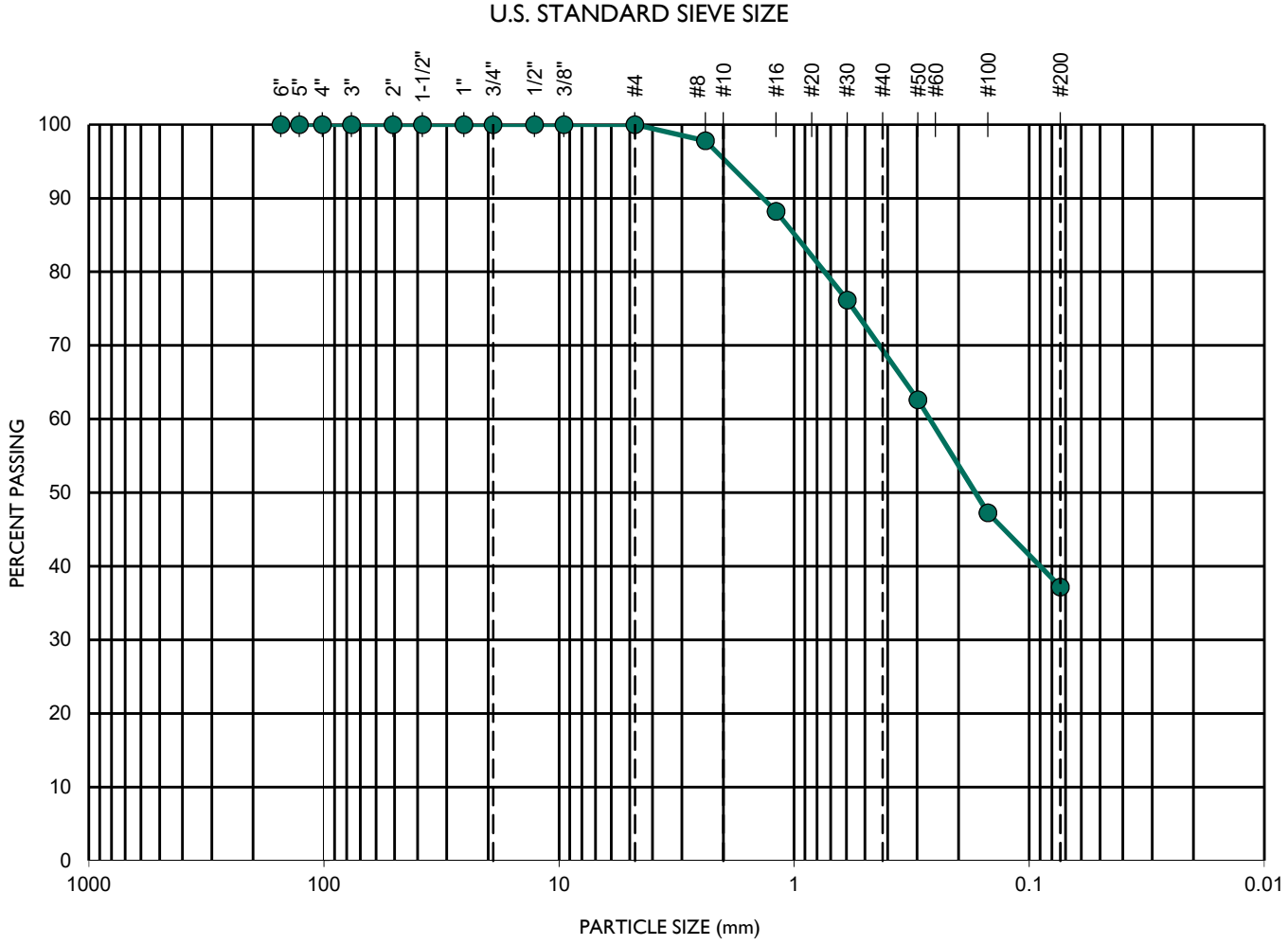
PROJECT NO.: 7647-32-04

SAMPLE NO.: **GR-3**

SAMPLE DEPTH (FT.): **3**

GEOLOGIC UNIT: **Kb**

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



TEST DATA					
D_{10} (mm)	D_{30} (mm)	D_{60} (mm)	C_c	C_u	SOIL DESCRIPTION
0.020	0.059	0.272	0.7	13.7	SC - Clayey SAND

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MODERA MELROSE

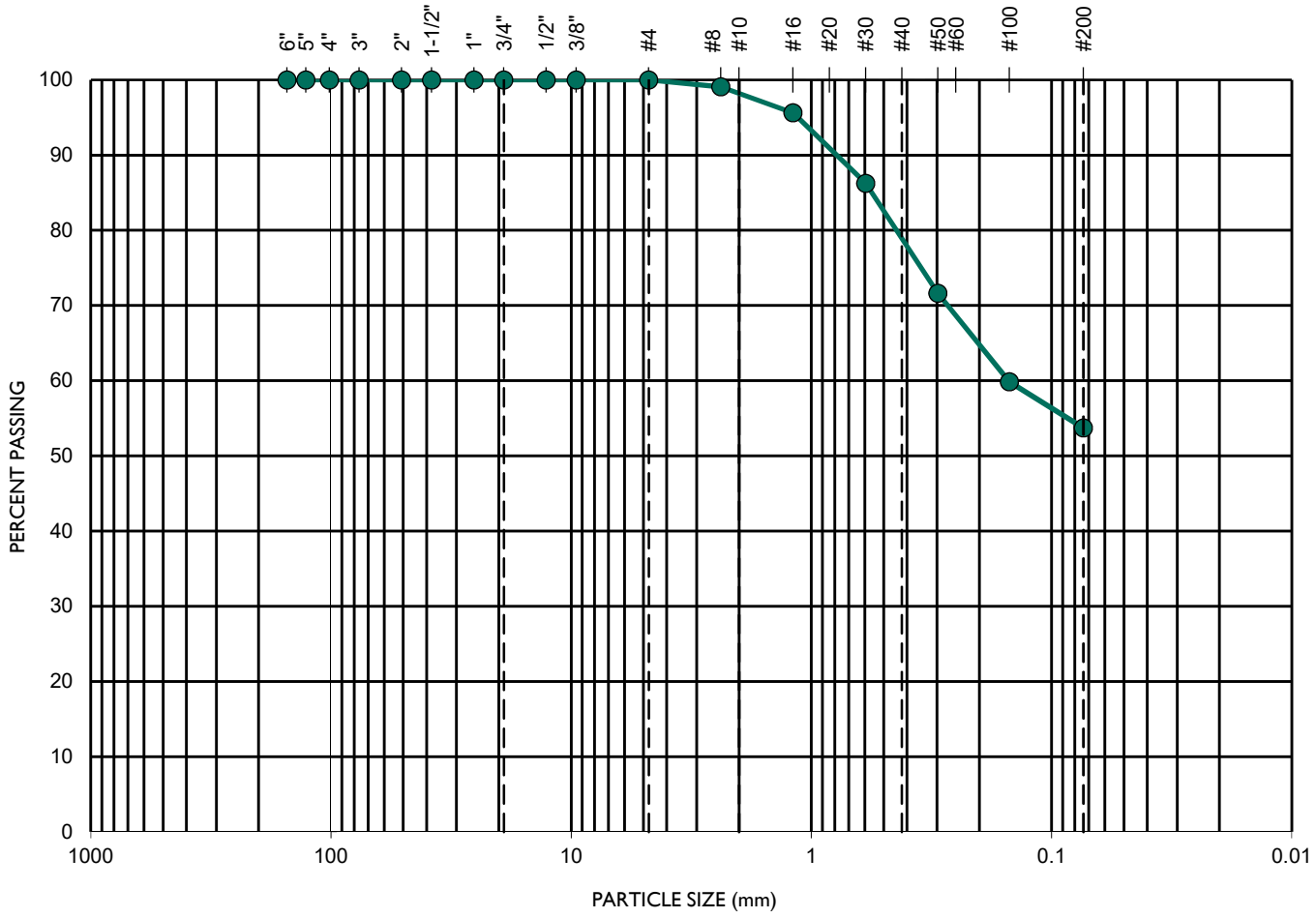
PROJECT NO.: 7647-32-04

SAMPLE NO.: **GR-4**

SAMPLE DEPTH (FT.): **2**

GEOLOGIC UNIT: **Tsa**

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



TEST DATA					
D_{10} (mm)	D_{30} (mm)	D_{60} (mm)	C_c	C_u	SOIL DESCRIPTION
0.014	0.041	0.152	0.8	11.0	CL - Sandy, lean CLAY

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MODERA MELROSE

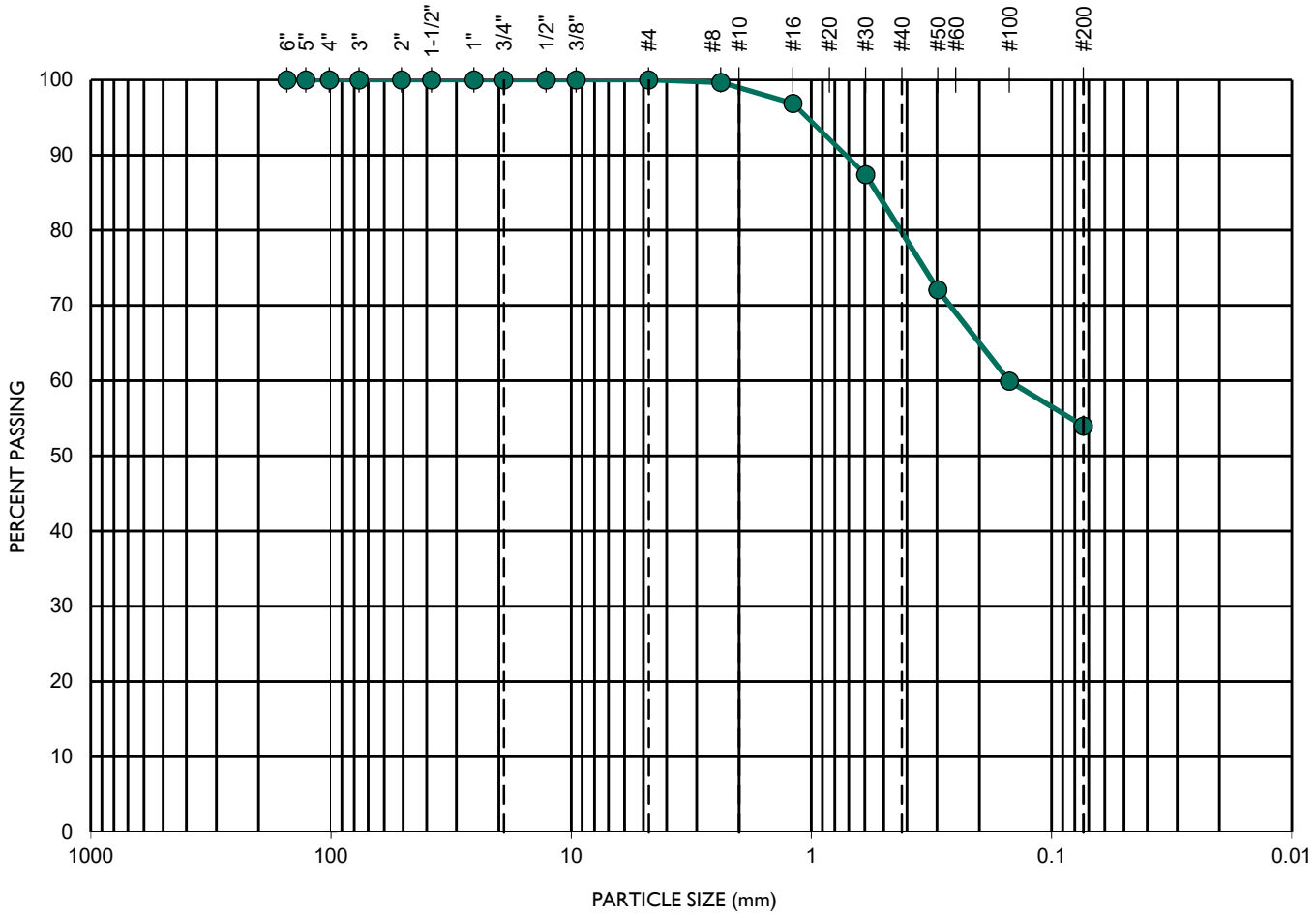
PROJECT NO.: 7647-32-04

SAMPLE NO.: **GR-5**

SAMPLE DEPTH (FT.): **3**

GEOLOGIC UNIT: **Tsa**

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



TEST DATA					
D_{10} (mm)	D_{30} (mm)	D_{60} (mm)	C_c	C_u	SOIL DESCRIPTION
0.014	0.041	0.151	0.8	11.0	CL - Sandy, lean CLAY

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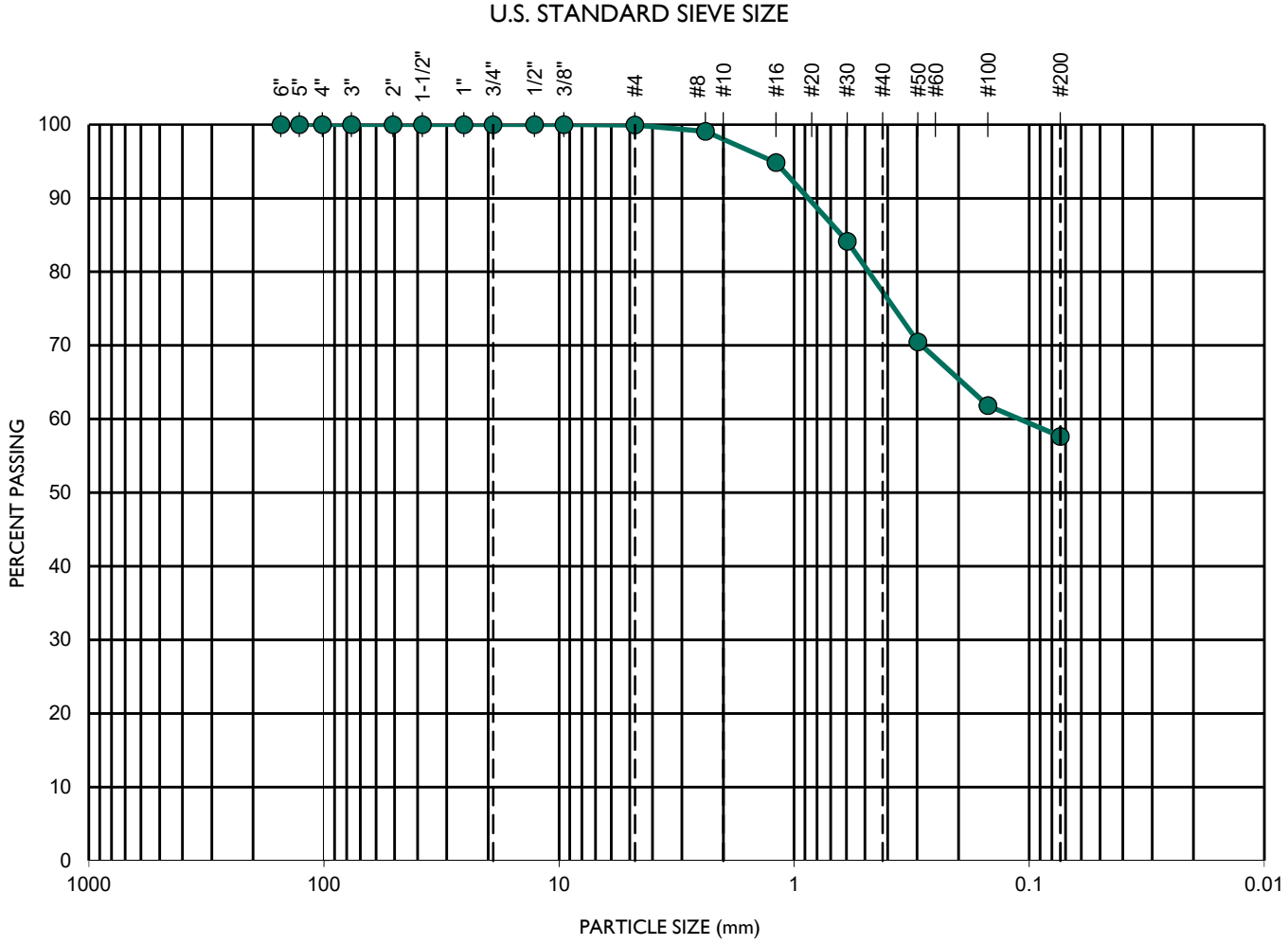
PROJECT NO.: 7647-32-04

SAMPLE NO.: **GR-6**

SAMPLE DEPTH (FT.): **3**

GEOLOGIC UNIT: **Tsa**

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



TEST DATA					
D_{10} (mm)	D_{30} (mm)	D_{60} (mm)	C_c	C_u	SOIL DESCRIPTION
0.013	0.038	0.117	1.0	9.1	CL - Sandy, lean CLAY

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MODERA MELROSE

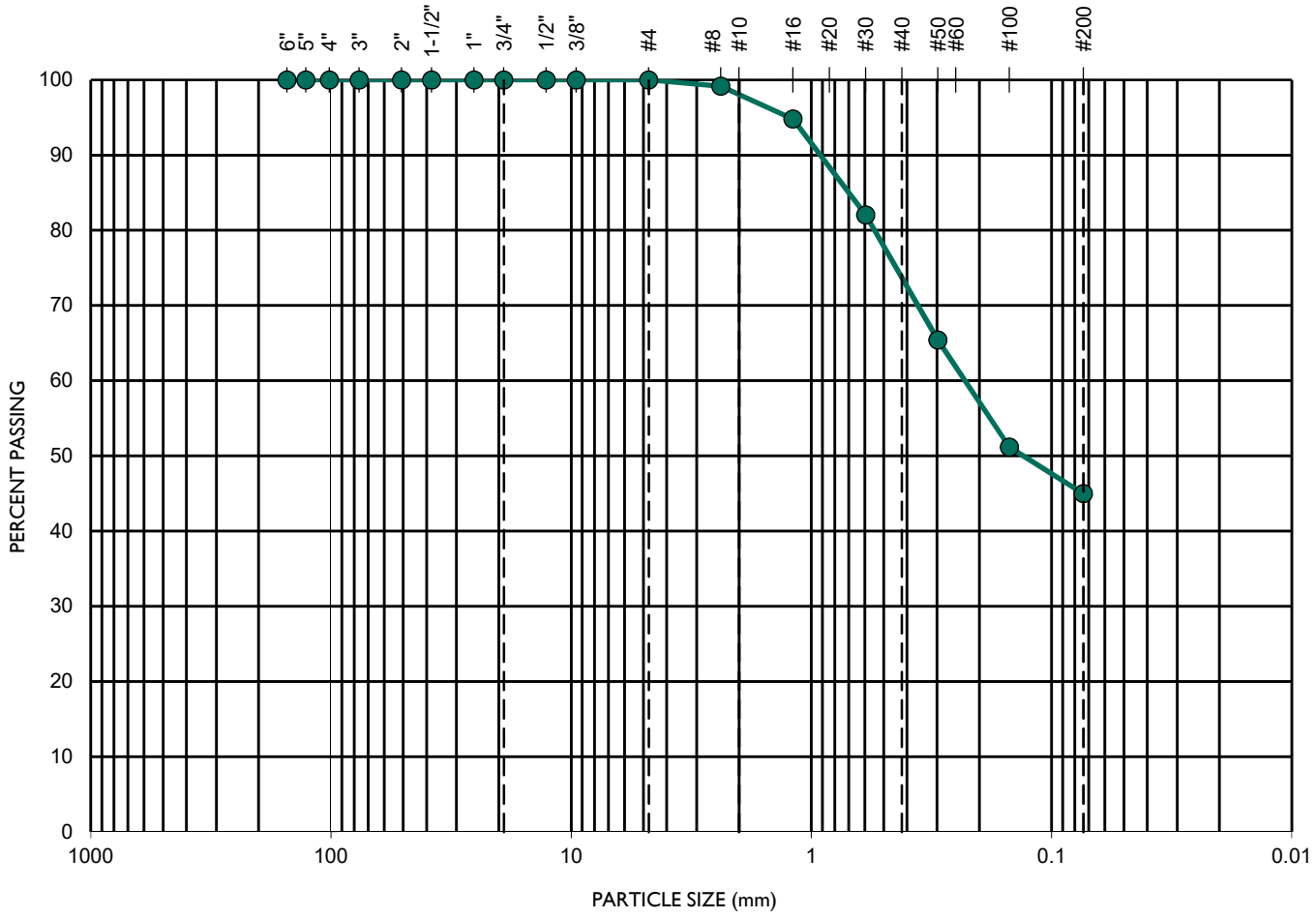
PROJECT NO.: 7647-32-04

SAMPLE NO.: **GR-7**

SAMPLE DEPTH (FT.): **2**

GEOLOGIC UNIT: **Tsa**

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



TEST DATA					
D_{10} (mm)	D_{30} (mm)	D_{60} (mm)	C_c	C_u	SOIL DESCRIPTION
0.016	0.049	0.241	0.6	14.7	SM - Silty SAND

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SIEVE ANALYSES - ASTM D 6913

MODERA MELROSE

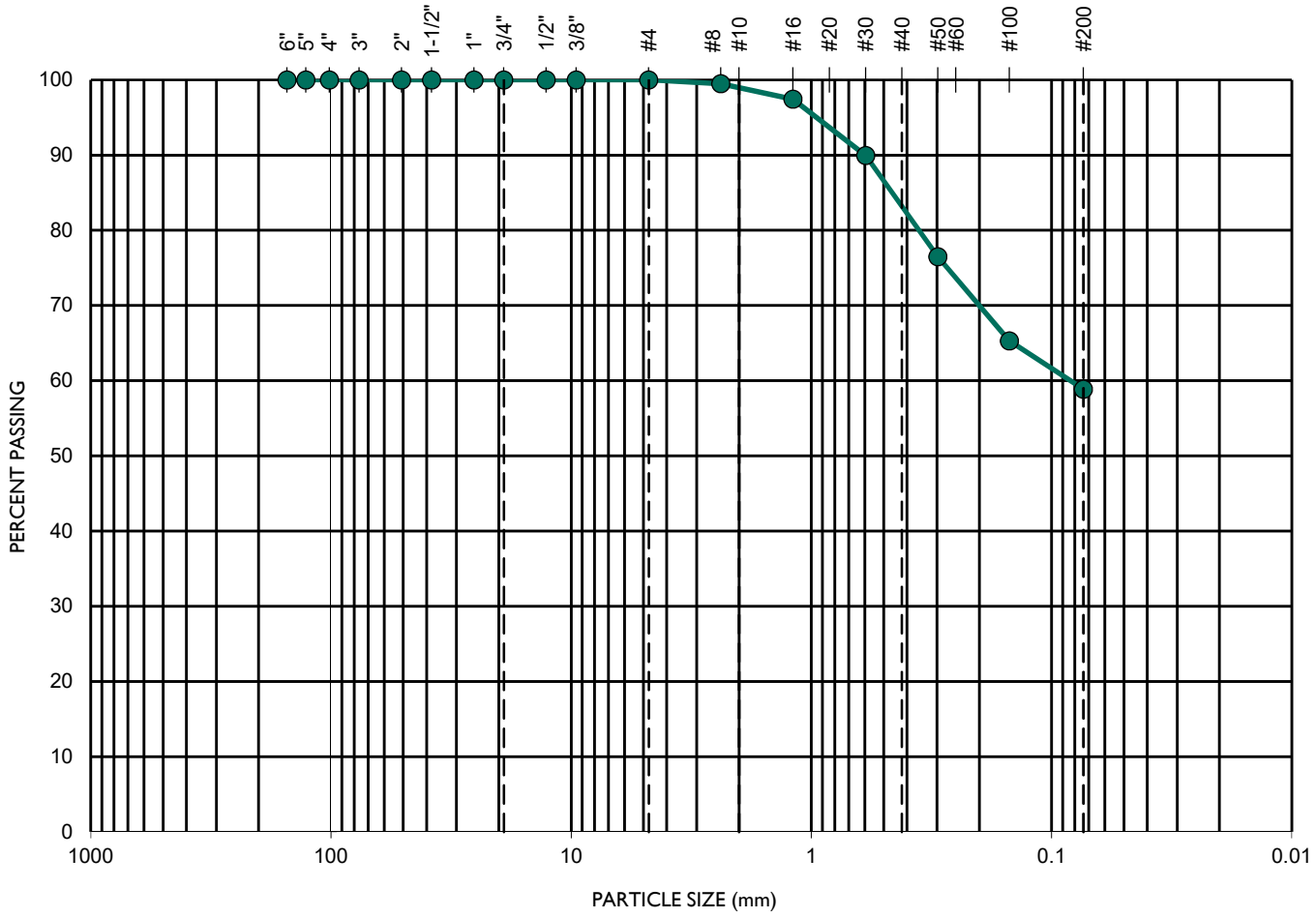
PROJECT NO.: 7647-32-04

SAMPLE NO.: **GR-8**

SAMPLE DEPTH (FT.): **3**

GEOLOGIC UNIT: **Tsa**

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



TEST DATA					
D_{10} (mm)	D_{30} (mm)	D_{60} (mm)	C_c	C_u	SOIL DESCRIPTION
0.013	0.038	0.087	1.3	6.9	CL - Sandy, lean CLAY

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SIEVE ANALYSES - ASTM D 6913

MODERA MELROSE

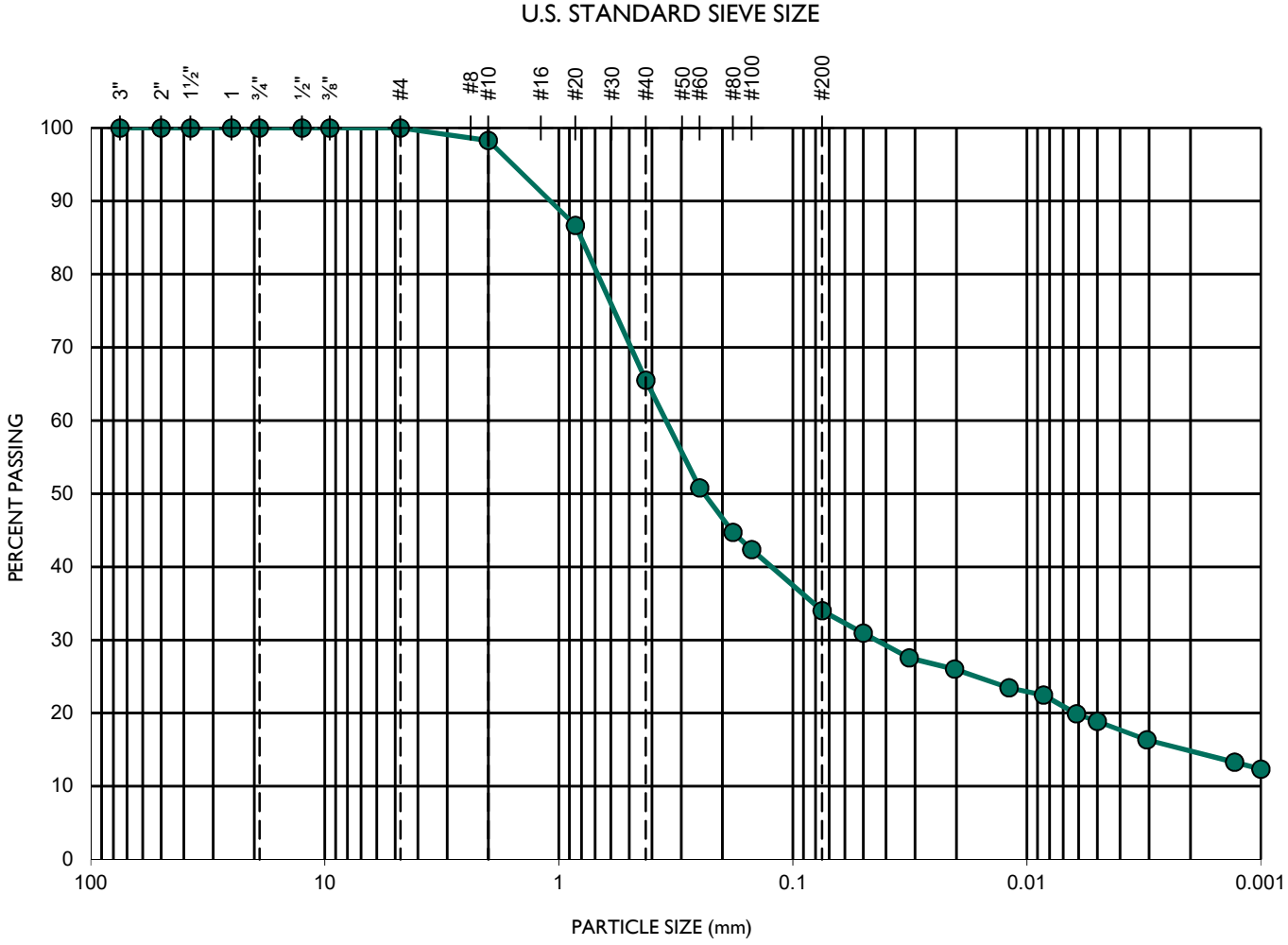
PROJECT NO.: 7647-32-04

SAMPLE NO.: **GR-9**

SAMPLE DEPTH (FT.): **0**

GEOLOGIC UNIT: **Tsa**

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



TEST DATA					
D_{10} (mm)	D_{30} (mm)	D_{60} (mm)	C_c	C_u	SOIL DESCRIPTION
0.00025	0.04492	0.35971	22.5	1441.5	Silty Clayey SAND

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MODERA MELROSE

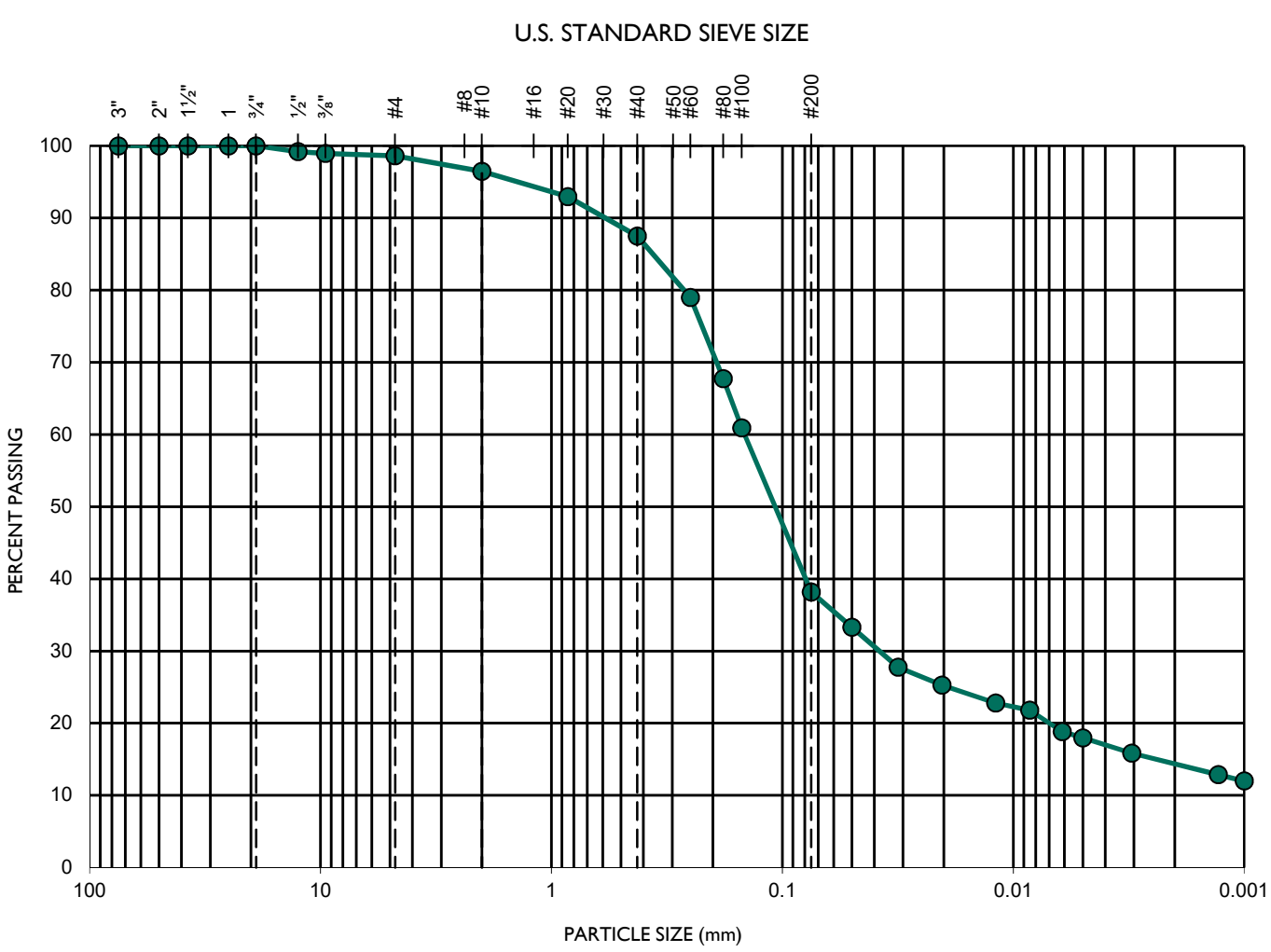
PROJECT NO.: 7647-32-04

SAMPLE NO.: **GR-10**

SAMPLE DEPTH (FT.): **0**

GEOLOGIC UNIT: **Tsa**

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



TEST DATA					
D_{10} (mm)	D_{30} (mm)	D_{60} (mm)	C_c	C_u	SOIL DESCRIPTION
0.00034	0.03901	0.14704	30.0	427.0	Silty Clayey SAND

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MODERA MELROSE

PROJECT NO.: 7647-32-04

Placeholder – **6.3.4 Geomorphic Assessment of Receiving Channels** (Optional)

Replace placeholder with required calculations/documentation.

Leave placeholder intact if not applicable.

☒Not Applicable

Placeholder - **Flow Control Facility Design and Structural BMP Drawdown Calculations**

Replace placeholder with required calculations/documentation.

See Chapter 6 and Appendix G of the BMP Design Manual

BMP Sizing Spreadsheet V3.1			
Project Name:	Modera Melrose	Hydrologic Unit:	Carlsbad
Project Applicant:	Mill Creek Residential Trust	Rain Gauge:	Oceanside
Jurisdiction:	City of Oceanside	Total Project Area:	319,919
Parcel (APN):	161-030-23-00, 161-030-24-00	Low Flow Threshold:	0.1Q2
BMP Name:	BMP A	BMP Type:	Cistern
BMP Native Soil Type:	D	BMP Infiltration Rate (in/hr):	NA

Areas Draining to BMP						HMP Sizing Factors	Minimum BMP Size
DMA Name	Area (sf)	Pre Project Soil Type	Pre-Project Slope	Post Project Surface Type	Area Weighted Runoff Factor (Table G.2-1)[1]	Volume	Volume (CF)
DMA 1a-9b	319,919	D	Moderate	Concrete	0.95	0.12	36471
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
BMP Tributary Area	319,919					Minimum BMP Size	36471
						Proposed BMP Size*	49864

* Assumes standard configuration

Standard Cistern Depth (Overflow Elevation)	3.5	ft
Provided Cistern Depth (Overflow Elevation)	7.0	ft
Minimum Required Cistern Footprint)	5210	CF

Notes:

1. Runoff factors which are used for hydromodification management flow control (Table G.2-1) are different from the runoff factors used for pollutant control BMP sizing (Table B.1-1). Table references are taken from the San Diego Region Model BMP Design Manu

Describe the BMP's in sufficient detail in your PDP SWQMP to demonstrate the area, volume, and other criteria can be met within the constraints of the site.

BMP's must be adapted and applied to the conditions specific to the development project such as unstable slopes or the lack of available head.
Designated Staff have final review and approval authority over the project design.

This BMP Sizing Spreadsheet has been updated in conformance with the San Diego Region Model BMP Design Manual, May 2018. For questions or concerns please contact the jurisdiction in which your project is located.

BMP Sizing Spreadsheet V3.1			
Project Name:	Modera Melrose	Hydrologic Unit:	Carlsbad
Project Applicant:	Mill Creek Residential Trust	Rain Gauge:	Oceanside
Jurisdiction:	City of Oceanside	Total Project Area:	319,919
Parcel (APN):	161-030-23-00, 161-030-24-00	Low Flow Threshold:	0.1Q2
BMP Name	BMP A	BMP Type:	Cistern

DMA Name	Rain Gauge	Pre-developed Condition		Unit Runoff Ratio (cfs/ac)	DMA Area (ac)	Orifice Flow - $\%Q_2$ (cfs)	Orifice Area (in^2)
		Soil Type	Slope				
DMA 1a-9b	Oceanside	D	Moderate	0.575	7.344	0.422	4.41

7.00	0.422	4.41	2.37
Max Orifice Head (feet)	Max Tot. Allowable Orifice Flow (cfs)	Max Tot. Allowable Orifice Area (in^2)	Max Orifice Diameter (in)

Provide Hand Calc.	0.416	4.34	2.350
Average outflow during surface drawdown (cfs)	Max Orifice Outflow (cfs)	Actual Orifice Area (in^2)	Selected Orifice Diameter (in)

Drawdown (Hrs)	Provide Hand Calculation

Worksheet G.2-1: Sizing Factor Worksheet

Site Information			
Project Name:	Modera Melrose	**Hydrologic Unit**	Carlsbad
Project Applicant:	Bryan Nord	**Rain: Gauge:**	Oceanside
Jurisdiction:	City of Oceanside	**Total Project Area:**	319,919
Assessor's Parcel Number :	161-030-23-00 161-030-24-00	**Low Flow Threshold:**	0.1Q2
BMP Name:	BMP A	**BMP Type:**	Cistern

Areas Draining to BMP						Sizing Factors			Minimum BMP Size		
DMA Name	**Area (sf)**	**Soil Type**	**Pre-Project Slope**	**Post Project Surface Type**	**Runoff Factor (From Table G.2-1)**	**Surface Area**	**Surface Volume**	**Subsurface Volume**	**Surface Area (sf)**	**Surface Volume (cf)**	**Subsurface Volume (cf)**
DMA 1a-9b	319,919	D	Moderate	Concrete	0.95		0.12			36471	
Total DMA Area								**Minimum BMP Size***		36471	
								Proposed BMP Size*		49864	

***Minimum BMP Size = Total of rows above.**

***Proposed BMP Size ≥ Minimum BMP size.**

BASIN DRAWDOWN CALCULATIONS

	LOW FLOW HYDROMOD Q2 (CFS)	ORIFICE DIAMETER (IN)	WEIR HEIGHT (FT)	DISCHARGE FROM ORIFICE (CFS)	DISCHARGE FROM ORIFICE (CF/HR)	PROPOSED BASIN VOLUME (CF)	TIME TO DISCHARGE BASIN VOLUME (HR)	LESS THAN 48 HRS?
BMP A	0.42	2.3	7.0	0.42	1512.00	49864	33	YES

Placeholder – **Vector Control Plan** (required when structural BMPs will drain in 96 hours)

Replace placeholder with required documentation.

Leave placeholder intact if not applicable.

☒Not Applicable

ATTACHMENT 3
STRUCTURAL BMP MAINTENANCE INFORMATION

This is the cover sheet for Attachment 3.

Indicate which Items are Included:

Attachment Sequence	Contents	Checklist
Attachment 3a	Structural BMP Maintenance Thresholds and Actions (Required)	☒Included See Structural BMP Maintenance Information Checklist.
Attachment 3b	Draft Maintenance Agreement (when applicable)	☒Included ☐Not Applicable ☐To be Provided during final design

RECORDING REQUESTED BY AND
WHEN RECORDED RETURN TO:

CITY OF OCEANSIDE
OFFICE OF THE CITY CLERK
300 NORTH COAST HIGHWAY
OCEANSIDE, CA 92054

Above Space for Recorder's Use

STORMWATER FACILITIES MAINTENANCE AGREEMENT WITH ACCESS RIGHTS AND COVENANTS

Modera Melrose
Permit Application No. D21-00011

DRAFT

This AGREEMENT for the maintenance and repair of certain Stormwater Management Facilities is entered into between Mill Creek Residential Trust, LLC (hereinafter referred to as "OWNER") and the City of Oceanside (hereinafter referred to as "CITY") for the benefit of the CITY, the OWNER, the successors in interest to the CITY or the OWNER, and the public generally.

RECITALS

A. OWNER is the owner of certain real property located in the City of Oceanside, California, more particularly described in Exhibit "A" attached hereto and made a part of (hereinafter referred to as the "PROPERTY"), and has proposed that the PROPERTY be developed as a mixed-use multifamily building complex in accordance with applications for Site Development Plan No. D21-00011 and Grading Plan (Permit) No. xxxx which are on file with the CITY. This Agreement is required as a condition of approval for such development as set forth in Resolution No. xxxxxxxx .

B. In accordance with the City of Oceanside's Urban Runoff Regulations, Oceanside City Code, Chapter 40 (the "Stormwater Ordinance"), the City of Oceanside Subdivision Ordinance, the City of Oceanside Zoning Ordinance, The City of Oceanside Grading Ordinance and/or other ordinances or regulations of CITY which regulate land development and urban runoff, OWNER has prepared and submitted to CITY, a Stormwater Quality Mitigation Plan (hereinafter referred to as SWQMP), which is on file at the CITY. The SWQMP proposes that stormwater runoff from the PROPERTY be managed by the use of Stormwater Management Facilities which are identified in the SWQMP as "Best Management Practices" or "BMPs".

The precise location(s) and extent of the post construction BMPs are indicated in the approved SWQMP dated [xxxxx]. The SWQMP specifies the manner and standards by which the BMP's must be repaired and maintained in order to retain their effectiveness, as set forth in the Operation Maintenance Plan (hereinafter referred to as "O&M PLAN"). The approved SWQMP and O&M PLAN containing any revisions thereto are on file with the CITY.

C. The information contained in the SWQMP and OWNER's representations that the BMPs will be maintained pursuant to the SWQMP have been relied upon by CITY in approving OWNER's development applications. It is the purpose of this Agreement to assure that the BMPs are maintained, by creating obligations which are enforceable against the OWNER and the OWNER's successors in interest in the PROPERTY. It is intended that these obligations be enforceable notwithstanding other provisions related to BMP maintenance which are provided by law.

AGREEMENT

NOW, THEREFORE, for consideration of (a) CITY's approval of the above development applications and (b) the mutual covenants set forth herein, IT IS HEREBY AGREED AS FOLLOWS:

1. **Maintenance of Stormwater Management Facilities.** OWNER agrees, for itself and its successors in interest, to all or any portion of the PROPERTY, to comply in all respects with the requirements of the Stormwater Ordinance and the SWQMP with regards to the maintenance of BMPs designated in the SWQMP, and in particular agrees to perform, at its sole cost, expense and liability, the following "MAINTENANCE ACTIVITIES": all inspections, cleaning, repairs, servicing, maintenance and other actions specified in the O&M PLAN, with respect to all of the BMPs listed at Recital "B" above, at the times and in the manner specified in the O&M PLAN. OWNER shall initiate, perform and complete all MAINTENANCE ACTIVITIES at the required time, without request or demand from CITY or any other agency. OWNER further agrees that "MAINTENANCE ACTIVITIES" shall include replacement or modification of the BMPs in the event that said BMPs do not function as intended. Replacement shall be with an identical type, size and model of BMP, except that:

(a) The CITY Engineer may authorize substitution of an alternative BMP if he or she determines that it will function as well or better than the original BMP; and

(b) Pursuant to Section 40.2.3(c) of the Stormwater Ordinance, if the failure of the BMP, in the judgment of the CITY Engineer indicates that the BMP in use is inappropriate or inadequate to the circumstances, the BMP must be modified or replaced with an upgraded BMP to prevent future failure.

DRAFT

2. **Notices.** OWNER further agrees that it shall, prior to transferring ownership of any land on which any of the above BMPs are located, and also prior to transferring ownership of any such BMP, provide clear written notice of the above maintenance obligations associated with that BMP to the transferee. OWNER further agrees to provide evidence to CITY that OWNER has requested the California Department of Real Estate to include in the public report issued for the development of the PROPERTY, a notification regarding the BMP maintenance requirements described herein.

3. **CITY's Right to Perform Maintenance.** It is agreed that CITY shall have the right, but not the obligation, to elect to perform any or all of the MAINTENANCE ACTIVITIES if, in the CITY's sole judgment, OWNER has failed to perform the same. It is recognized and understood that the CITY makes no representation that it intends to or will perform any of the MAINTENANCE ACTIVITIES and any election by CITY to perform any of the MAINTENANCE ACTIVITIES, shall in no way relieve OWNER of its continuing maintenance obligations under this agreement. If CITY elects to perform any of the MAINTENANCE ACTIVITIES, it is understood that CITY shall be deemed to be acting as the agent of the OWNER and said work shall be without warranty or representation by CITY as to safety or effectiveness, shall be deemed to be accepted by OWNER "as is", and shall be covered by OWNER's indemnity provisions below.

If CITY performs any of the MAINTENANCE ACTIVITIES, after CITY has demanded that OWNER perform the same and OWNER has failed to do so within a reasonable time stated in the CITY's demand, then OWNER shall pay all of CITY's costs incurred in performing the MAINTENANCE ACTIVITIES. OWNER's obligation to pay CITY's costs of performing MAINTENANCE ACTIVITIES is a continuing obligation and shall apply whether or not CITY has utilized all or any portion of the security provided pursuant to Paragraph 5.

DRAFT

4. **CITY'S Access Rights.** OWNER hereby authorizes the CITY to access perpetually over, under and across [insert either "all of the PROPERTY" or "that portion of the PROPERTY described in Exhibit "B" hereto"] , for purposes of accessing the BMPs and performing any of the MAINTENANCE ACTIVITIES specified in Paragraph 1 above. CITY shall have the right, at any time and without prior notice to OWNER, to enter upon any part of said area as may be necessary or convenient for such purposes. OWNER shall at all times maintain the PROPERTY so as to make CITY's access clear and unobstructed.

5. **Security.** OWNER has provided CITY with non-refundable security to assure the faithful performance of the obligations of this agreement. The security is in the form of a Cash Deposit in the amount of $_____. CITY may utilize the security to provide funding for the cost of CITY performing any of the MAINTENANCE ACTIVITIES under Paragraph 3 above. CITY may utilize all or any part of the security at any time pursuant to this Agreement. Should any portion of the security be used by CITY,

OWNER or a Subsequent Owner, as applicable, shall deposit additional funds in the amount utilized by CITY, thereby restoring the security to the amount initially deposited by OWNER.

6. **Administration of Agreement for CITY.** CITY hereby designates its Engineer as the officer charged with responsibility and authority to administer this Agreement on behalf of CITY. Any notice or communication related to the implementation of this Agreement desired or required to be delivered to CITY shall be addressed to:

City Engineer
City of Oceanside
300 North Coast Highway
Oceanside, CA 92054

The City Engineer is also granted authority to enter into appropriate amendments to this Agreement on behalf of CITY, provided that the amendment is consistent with the purposes of this Agreement as set forth above.

DRAFT

7. **Defense and Indemnity.** CITY shall not be liable for, and OWNER and its successors in interest shall defend and indemnify CITY and the employees and agents of CITY (collectively "CITY PARTIES") against any and all claims, demands, liability, judgments, awards, fines, mechanics' liens or other liens, labor disputes, losses, damages, expenses, charges or costs of any kind or character, including attorneys' fees and court costs (hereinafter collectively referred to as "CLAIMS"), related to this Agreement and arising either directly or indirectly from any act, error, omission or negligence of OWNER, OWNER's successors, or their contractors, licensees, agents, servants or employees, including, without limitation, claims caused by the concurrent negligent act, error or omission, whether active or passive, of CITY PARTIES. OWNER shall have no obligation, however, to defend or indemnify CITY PARTIES from a claim if it is determined by a court of competent jurisdiction that such claim was caused by the sole negligence or willful misconduct of CITY PARTIES. Nothing in this Agreement, CITY's approval of the subdivision or other applications or plans and specifications, or inspection of the work, is intended to acknowledge responsibility for any such matter, and CITY PARTIES shall have absolutely no responsibility or liability therefor unless otherwise provided by applicable law.

8. **Common Interest Developments.** If the PROPERTY is developed as a "Common Interest Development" as defined in Civil Code section 1351(c) which will include membership in or ownership of an "ASSOCIATION" as defined in Civil Code section 1351(a), then the following provisions of this Paragraph 8 shall apply during such time as the PROPERTY is encumbered by a "DECLARATION" as defined in Civil Code section 1351(h), and the Common Area, as "Common Area" is defined in Civil Code section 1351(b), of the PROPERTY is managed and controlled by the ASSOCIATION:

(a) The ASSOCIATION, through its Board of Directors, shall assume full responsibility to perform the MAINTENANCE ACTIVITIES pursuant to this Agreement, and shall undertake all actions and efforts necessary to accomplish the MAINTENANCE ACTIVITIES, including but not limited to, levying regular or special assessments against each member of the ASSOCIATION sufficient to provide funding for the MAINTENANCE ACTIVITIES, conducting a vote of the membership related to such assessments if required by law. In the event insufficient votes have been obtained to authorize an assessment, the ASSOCIATION shall seek authority from a court of competent jurisdiction for a reduced percentage of affirmative votes necessary to authorize the assessment, re-conducting the vote of the membership in order to obtain the votes necessary to authorize an assessment, and the ASSOCIATION shall take all action authorized by the DECLARATION or California law to collect delinquent assessments, including but not limited to, the recording and foreclosure of assessment liens.

(b) No provision of the DECLARATION, nor any other governing document of the ASSOCIATION or grant of authority to its members, shall grant or recognize a right of any member or other person to alter, improve, maintain or repair any of the PROPERTY in any manner which would impair the functioning of the BMPs to manage drainage or stormwater runoff as described in the SWQMP. In the event of any conflict between the terms of this Agreement and the DECLARATION or other ASSOCIATION governing documents, the provisions of this Agreement shall prevail.

DRAFT

9. **Agreement Binds Successors and Runs with the PROPERTY.** It is understood and agreed that the terms, covenants and conditions herein contained shall constitute covenants running with the land and shall be binding upon the heirs, executors, administrators, successors and assigns of OWNER and CITY, shall be deemed to be for the benefit of all persons owning any interest in the PROPERTY (including the interest of CITY or its successors in the Access Rights authorized herein). It is the intent of the parties hereto that this Agreement may be recorded and shall be binding upon all persons purchasing or otherwise acquiring all or any lot, unit or other portion of the PROPERTY, who shall be deemed to have consented to and become bound by all the provisions hereof.

10. **OWNER's Continuing Responsibilities Where Work Commenced or Permit Obtained.** Notwithstanding any other provision of this Agreement, no transfer or conveyance of the PROPERTY or any portion thereof shall in any way relieve OWNER of

or otherwise affect OWNER's responsibilities for installation or maintenance of BMPs which may have arisen under the ordinances or regulations of CITY referred to in Recital B above, or other federal, state or CITY laws, on account of OWNER having obtained a permit which creates such obligations or having commenced grading, construction or other land disturbance work.

11. **Amendment and Release.** The terms of this Agreement may be modified only by a written amendment approved and signed by the City Council or the CITY Engineer acting on behalf of CITY and by OWNER or OWNER's successor(s) in interest. This Agreement may be terminated and OWNER and the PROPERTY released from the covenants set forth herein, by a Release which CITY may execute if it determines that another mechanism will assure the ongoing maintenance of the BMPs or that it is no longer necessary to assure such maintenance.

12. **Governing Law and Severability.** This Agreement shall be governed by the laws of the State of California. Venue in any action related to this Agreement shall be in the Superior Court of the State of California, County of San Diego, North County Division. In the event that any of the provisions of this Agreement are held to be unenforceable or invalid by any court of competent jurisdiction, the validity, and enforceability of the remaining provisions shall not be affected thereby.

DRAFT

IN WITNESS WHEREOF, the parties hereto for themselves, their heirs, executors, administrators, successors and assigns do hereby agree to the full performance of the covenants herein contained and have caused this Agreement to be executed by setting hereunto their signatures on the dates indicated below:

OWNER(s):

By: _____
Name/Title

Date: _____

By: _____
Name/Title

Date: _____

CITY OF OCEANSIDE:

By: _____
City Engineer

Date: _____

APPROVED AS TO FORM:

_____
City Attorney

NOTARY ACKNOWLEDGEMENT MUST BE ATTACHED

I:\City Attorney\SWFMA-Stormwater Facilities Maintenance Agreement FORMAT(Rev September 2018)

Use this checklist to ensure the required information has been included in the Structural BMP Maintenance Information Attachment:

Preliminary Design / Planning / CEQA level submittal:

- Attachment 3a must identify:

☒Typical maintenance indicators and actions for proposed structural BMP(s) based on Section 7.7 of the BMP Design Manual

- Attachment 3b is not required for preliminary design / planning / CEQA level submittal.

Final Design level submittal:

Attachment 3a must identify:

☐Specific maintenance indicators and actions for proposed structural BMP(s). This shall be based on Section 7.7 of the BMP Design Manual and enhanced to reflect actual proposed components of the structural BMP(s)
☐How to access the structural BMP(s) to inspect and perform maintenance
☐Features that are provided to facilitate inspection (e.g., observation ports, cleanouts, silt posts, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds)
☐Manufacturer and part number for proprietary parts of structural BMP(s) when applicable
☐Maintenance thresholds specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP)
☐Recommended equipment to perform maintenance
☐When applicable, necessary special training or certification requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management
Attachment 3b: For private entity operation and maintenance, Attachment 3b shall include a draft maintenance agreement in the local jurisdiction's standard format (PDP applicant to contact the City Engineer to obtain the current maintenance agreement forms).

Biofiltration Raised Planters O&M	
Typical Maintenance Indicators for Vegetated BMPs	Maintenance Actions
Accumulation of sediment, litter, or debris	Remove and properly dispose of accumulated materials, without damage to the vegetation.
Poor vegetation establishment	Re-seed, re-plant, or re-establish vegetation per original plans
Overgrown vegetation	Mow or trim as appropriate, but not less than the design height of the vegetation per original plans when applicable (e.g. a vegetated swale may require a minimum vegetation height).
Erosion due to concentrated storm water runoff flow	Repair/re-seed/re-plant eroded areas, and make appropriate corrective measures such as adding erosion control blankets, adding stone at flow entry points, or minor re-grading to restore proper drainage according to the original plan. If the issue is not corrected by restoring the BMP to the original plan and grade, the City Engineer shall be contacted prior to any additional repairs or reconstruction.
Standing water in bioretention, biofiltration with partial retention, or biofiltration areas, or flow-through planter boxes for longer than 96 hours following a storm event*	Make appropriate corrective measures such as adjusting irrigation system, removing obstructions of debris or invasive vegetation, clearing underdrains (where applicable), or repairing/replacing clogged or compacted soils.
Obstructed inlet or outlet structure	Clear obstructions.
Damage to structural components such as weirs, inlet or outlet structures	Repair or replace as applicable.

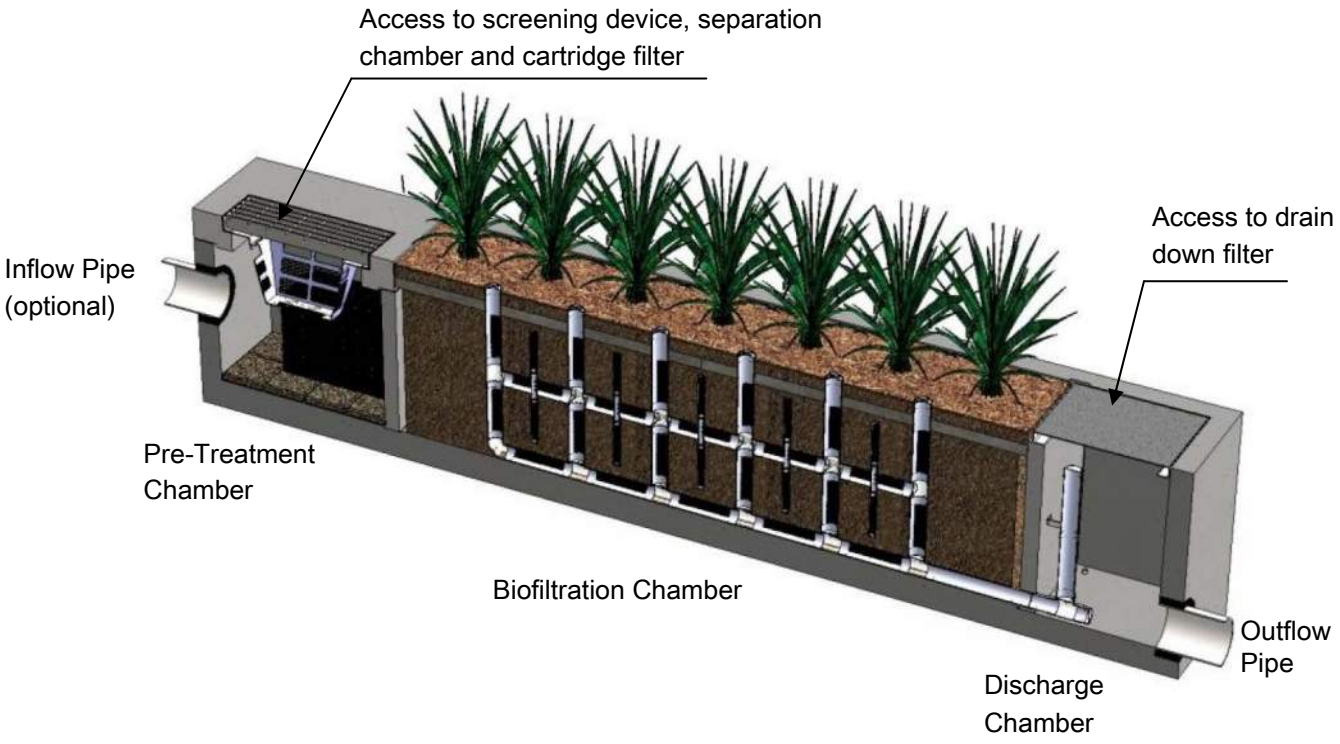
Detention Tank O&M	
Accumulation of sediment, litter, or debris	Remove and properly dispose of accumulated materials.
Standing water	Make appropriate corrective measures such as adjusting irrigation system, removing obstructions of debris or invasive vegetation, or minor re-grading for proper drainage.
Obstructed inlet or outlet structure	Clear obstructions.
Damage to structural components such as weirs, inlet or outlet structures	Repair or replace as applicable.

Maintenance Guidelines for Modular Wetland System - Linear

Maintenance Summary

- Remove Trash from Screening Device – average maintenance interval is 6 to 12 months.
  - (*5 minute average service time*).
- Remove Sediment from Separation Chamber – average maintenance interval is 12 to 24 months.
  - (*10 minute average service time*).
- Replace Cartridge Filter Media – average maintenance interval 12 to 24 months.
  - (*10-15 minute per cartridge average service time*).
- Replace Drain Down Filter Media – average maintenance interval is 12 to 24 months.
  - (*5 minute average service time*).
- Trim Vegetation – average maintenance interval is 6 to 12 months.
  - (*Service time varies*).

System Diagram



Maintenance Procedures

Screening Device

1. Remove grate or manhole cover to gain access to the screening device in the Pre-Treatment Chamber. Vault type units do not have screening device. Maintenance can be performed without entry.
2. Remove all pollutants collected by the screening device. Removal can be done manually or with the use of a vacuum truck. The hose of the vacuum truck will not damage the screening device.
3. Screening device can easily be removed from the Pre-Treatment Chamber to gain access to separation chamber and media filters below. Replace grate or manhole cover when completed.

Separation Chamber

1. Perform maintenance procedures of screening device listed above before maintaining the separation chamber.
2. With a pressure washer spray down pollutants accumulated on walls and cartridge filters.
3. Vacuum out Separation Chamber and remove all accumulated pollutants. Replace screening device, grate or manhole cover when completed.

Cartridge Filters

1. Perform maintenance procedures on screening device and separation chamber before maintaining cartridge filters.
2. Enter separation chamber.
3. Unscrew the two bolts holding the lid on each cartridge filter and remove lid.
4. Remove each of 4 to 8 media cages holding the media in place.
5. Spray down the cartridge filter to remove any accumulated pollutants.
6. Vacuum out old media and accumulated pollutants.
7. Reinstall media cages and fill with new media from manufacturer or outside supplier. Manufacturer will provide specification of media and sources to purchase.
8. Replace the lid and tighten down bolts. Replace screening device, grate or manhole cover when completed.

Drain Down Filter

1. Remove hatch or manhole cover over discharge chamber and enter chamber.
2. Unlock and lift drain down filter housing and remove old media block. Replace with new media block. Lower drain down filter housing and lock into place.
3. Exit chamber and replace hatch or manhole cover.

Maintenance Notes

1. Following maintenance and/or inspection, it is recommended the maintenance operator prepare a maintenance/inspection record. The record should include any maintenance activities performed, amount and description of debris collected, and condition of the system and its various filter mechanisms.

2. The owner should keep maintenance/inspection record(s) for a minimum of five years from the date of maintenance. These records should be made available to the governing municipality for inspection upon request at any time.

3. Transport all debris, trash, organics and sediments to approved facility for disposal in accordance with local and state requirements.

4. Entry into chambers may require confined space training based on state and local regulations.

5. No fertilizer shall be used in the Biofiltration Chamber.

6. Irrigation should be provided as recommended by manufacturer and/or landscape architect. Amount of irrigation required is dependent on plant species. Some plants may require irrigation.

Maintenance Procedure Illustration

Screening Device

The screening device is located directly under the manhole or grate over the Pre-Treatment Chamber. It's mounted directly underneath for easy access and cleaning. Device can be cleaned by hand or with a vacuum truck.



Separation Chamber

The separation chamber is located directly beneath the screening device. It can be quickly cleaned using a vacuum truck or by hand. A pressure washer is useful to assist in the cleaning process.







Cartridge Filters

The cartridge filters are located in the Pre-Treatment chamber connected to the wall adjacent to the biofiltration chamber. The cartridges have removable tops to access the individual media filters. Once the cartridge is open media can be easily removed and replaced by hand or a vacuum truck.







Drain Down Filter

The drain down filter is located in the Discharge Chamber. The drain filter unlocks from the wall mount and hinges up. Remove filter block and replace with new block.



Trim Vegetation

Vegetation should be maintained in the same manner as surrounding vegetation and trimmed as needed. No fertilizer shall be used on the plants. Irrigation per the recommendation of the manufacturer and or landscape architect. Different types of vegetation requires different amounts of irrigation.









Inspection Form



Modular Wetland System, Inc.
P. 760.433-7640
F. 760-433-3176
E. Info@modularwetlands.com

www.modularwetlands.com

Inspection Report
Modular Wetlands System

Project Name _____

Project Address _____ (city) (Zip Code)

Owner / Management Company _____

Contact _____ Phone ( ) –

Inspector Name _____ Date ____/____/____ Time _____ AM / PM

For Office Use Only
(Reviewed By)
(Date)
Office personnel to complete section to the left.

Type of Inspection ☐ Routine ☐ Follow Up ☐ Complaint ☐ Storm Storm Event in Last 72-hours? ☐ No ☐ Yes

Weather Condition _____ Additional Notes _____

Inspection Checklist

Modular Wetland System Type (Curb, Grate or UG Vault): _____ Size (22', 14' or etc.): _____

Structural Integrity:	**Yes**	**No**	**Comments**
Damage to pre-treatment access cover (manhole cover/grate) or cannot be opened using normal lifting pressure?			
Damage to discharge chamber access cover (manhole cover/grate) or cannot be opened using normal lifting pressure?			
Does the MWS unit show signs of structural deterioration (cracks in the wall, damage to frame)?			
Is the inlet/outlet pipe or drain down pipe damaged or otherwise not functioning properly?			
Working Condition:			
Is there evidence of illicit discharge or excessive oil, grease, or other automobile fluids entering and clogging the unit?			
Is there standing water in inappropriate areas after a dry period?			
Is the filter insert (if applicable) at capacity and/or is there an accumulation of debris/trash on the shelf system?			
Does the depth of sediment/trash/debris suggest a blockage of the inflow pipe, bypass or cartridge filter? If yes, specify which one in the comments section. Note depth of accumulation in in pre-treatment chamber.			Depth:
Does the cartridge filter media need replacement in pre-treatment chamber and/or discharge chamber?			Chamber:
Any signs of improper functioning in the discharge chamber? Note issues in comments section.			
Other Inspection Items:			
Is there an accumulation of sediment/trash/debris in the wetland media (if applicable)?			
Is it evident that the plants are alive and healthy (if applicable)? Please note Plant Information below.			
Is there a septic or foul odor coming from inside the system?			

Waste:	**Yes**	**No**
Sediment / Silt / Clay		
Trash / Bags / Bottles		
Green Waste / Leaves / Foliage		

Recommended Maintenance	
No Cleaning Needed	
Schedule Maintenance as Planned	
Needs Immediate Maintenance	

Plant Information	
Damage to Plants	
Plant Replacement	
Plant Trimming	

Additional Notes: _____

2972 San Luis Rey Road, Oceanside, CA 92058 P (760) 433-7640 F (760) 433-3176

Maintenance Report



Modular Wetland System, Inc.
P. 760.433-7640
F. 760-433-3176
E. Info@modularwetlands.com

www.modularwetlands.com

Cleaning and Maintenance Report
Modular Wetlands System

Project Name _____

Project Address _____
(city) (Zip Code)

Owner / Management Company _____

Contact _____ Phone ( ) –

Inspector Name _____ Date ____/____/____ Time _____ AM / PM

Type of Inspection ☐ Routine ☐ Follow Up ☐ Complaint ☐ Storm Storm Event in Last 72-hours? ☐ No ☐ Yes

Weather Condition _____ Additional Notes _____

For Office Use Only
(Reviewed By)
(Date)
Office personnel to complete section to the left.

Site Map #	GPS Coordinates of Insert	Manufacturer / Description / Sizing	Trash Accumulation	Foliage Accumulation	Sediment Accumulation	Total Debris Accumulation	Condition of Media 25/50/75/100 (will be changed @ 75%)	Operational Per Manufactures' Specifications (If not, why?)
	Lat: Long:	MWS Catch Basins						
		MWS Sedimentation Basin						
		Media Filter Condition						
		Plant Condition						
		Drain Down Media Condition						
		Discharge Chamber Condition						
		Drain Down Pipe Condition						
		Inlet and Outlet Pipe Condition						

Comments:

2972 San Luis Rey Road, Oceanside, CA 92058 P. 760.433.7640 F. 760.433.3176

Placeholder – **Structural BMP Maintenance Information**

Replace placeholder with required documentation.

ATTACHMENT 4
Copy of Plan Sheets Showing Permanent Storm Water BMPs

This is the cover sheet for Attachment 4.

Use this checklist to ensure the required information has been included on the plans:

The plans must identify:

☒Structural BMP(s) with ID numbers matching Form I-6 Summary of PDP Structural BMPs
☒The grading and drainage design shown on the plans must be consistent with the delineation of DMAs shown on the DMA exhibit
☒Details and specifications for construction of structural BMP(s)
☒Signage indicating the location and boundary of structural BMP(s) as required by the City Engineer
☒How to access the structural BMP(s) to inspect and perform maintenance
☒Features that are provided to facilitate inspection (e.g., observation ports, cleanouts, silt posts, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds)
☒Manufacturer and part number for proprietary parts of structural BMP(s) when applicable
☒Maintenance thresholds specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP)
☒Recommended equipment to perform maintenance
☒When applicable, necessary special training or certification requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management
☒Include landscaping plan sheets showing vegetation requirements for vegetated structural BMP(s)
☒All BMPs must be fully dimensioned on the plans
☒When proprietary BMPs are used, site specific cross section with outflow, inflow and model number shall be provided. Brochure photocopies are not allowed.

OCEANSIDE BLVD

SPORTS PARK WAY

EXIST. 8" VCP SEWER PER DWG NO. 1772

EXIST. 18" RCP STORM DRAIN PER DWG NO. 1772

R=1000.00' L=525.27' Δ=30°05'45"

C/L

S00°27'36"W 10.00'

R=948.00' L=98.43' Δ=5°56'57"

N89°19'01"W 498.67'

EXIST. 12" ACP WATER PER DWG NO. 1772

N89°19'01"W 498.72'

ROW

MULTI-FAMILY RESIDENTIAL STRUCTURE BUILDING HEIGHT 30'± 3 STORIES

EXIST. LOT LINE

EXIST. LOT LINE TO BE MERGED

EXIST. 10" ACP WATER PER DWG NO. 1772

EXIST. 12" ACP WATER PER DWG NO. 1772

R=25.00' L=22.84' Δ=51°55'57"

R=1000.00' L=374.37'

PARCEL B

APN: 161-030-23

AREA 5.26 ACRES

TOTAL GROSS LAND AREA 7.40 ACRES

PARCEL A

APN: 161-030-24

AREA 2.14 ACRES

PARCEL C

APN: 161-030-07

NOT A PART

EX. DIRT PATH

P/L

S00°30'55"W 240.00'

S00°30'55"W 302.36'

SINGLE-FAMILY RESIDENTIAL STRUCTURE BUILDING HEIGHT 10'± 1 STORY

MELROSE DRIVE

EXIST. SHELL GAS STATION

R=180.00' L=27.99' Δ=10°01'20"

S18°45'35"E 40.38'

S28°47'55"E 51.10'

R=90.00' L=12.38' Δ=7°52'06"

N28°45'35"W 713.94'

EXIST. 12" CSP STORM DRAIN PER DWG NO. 1772

EXIST. 48" RCP STORM DRAIN PER DWG NO. 1772

EXIST. 48" CSP STORM DRAIN PER DWG NO. 1772

EXIST. 24" CSP STORM DRAIN PER DWG NO. 1772

LOT LINE

NCTD SPRINTER ROW

R=1174.68' L=706.76' Δ=34°28'21"

R=1074.68'

EXIST. LOT LINE

100.0'

EXISTING EASEMENTS

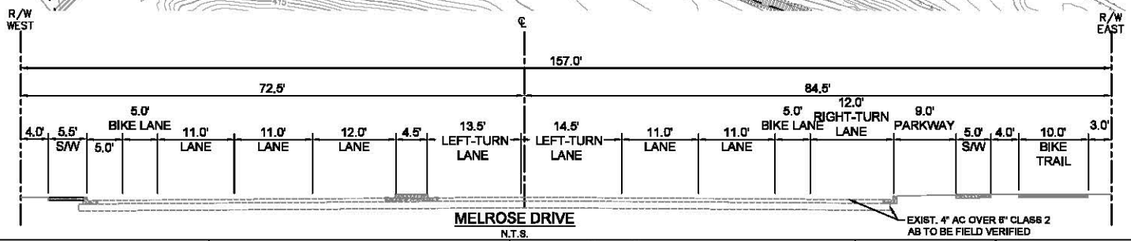
2 AN EASEMENT FOR PUBLIC HIGHWAY, DRAINAGE STRUCTURES AND EXCAVATION AND EBANKMENT SLOPES AND INCIDENTAL PURPOSES, RECORDED AUGUST 09, 1934 AS BOOK 311, PAGE 333 OF OFFICIAL RECORDS
IN FAVOR OF: THE COUNTY OF SAN DIEGO
(EASEMENT LOCATION IS OUT OF AREA, LIES WITHIN OCEANSIDE BLVD.)

3 AN EASEMENT FOR COUNTY HIGHWAY AND INCIDENTAL PURPOSES, RECORDED MARCH 11, 1980 AS INSTRUMENT NO. 80-083354 OF OFFICIAL RECORDS.
IN FAVOR OF: THE COUNTY OF SAN DIEGO
(EASEMENT LOCATION IS OUT OF AREA, LIES WITHIN WEST OCEANSIDE BLVD.)

5 AN EASEMENT FOR RIGHT TO EXTEND AND MAINTAIN DRAINAGE STRUCTURES AND EXCAVATION AND EMBANKMENT SLOPES BEYOND THE LIMITS OF THE RIGHT OF WAY GRANTED THEREIN WHERE REQUIRED FOR CONSTRUCTION AND MAINTENANCE AND INCIDENTAL PURPOSES, RECORDED MARCH 11, 1980 AS INSTRUMENT NO. 80-083354 OF OFFICIAL RECORDS. IN FAVOR OF: COUNTY OF SAN DIEGO
(EASEMENT LOCATION IS OUT OF AREA, LIES WITHIN MELROSE DRIVE AND OCEANSIDE BLVD.)

(8) A 30' WIDE DRIVEWAY ACCESS EASEMENT & RIGHTS INCIDENTAL THERETO PER PARCEL MAP NO. 17266. PLOTTED.

9 ABUTTER'S RIGHTS OF INGRESS AND EGRESS TO OR FROM MELROSE DRIVE AND OCEANSIDE BOULEVARD HAVE BEEN DEDICATED OR RELINQUISHED ON THE MAP OF PARCEL MAP NO. 17266 OF MAPS RECORDED DECEMBER 03, 1993.
(PLOTTED AS: //////)



BENCHMARK STATEMENT

CITY OF OCEANSIDE BENCHMARK NO. GPS 1049
ELEV: 417.22 NAVD88
DESCRIBED AS: 2.5" BRASS DISK SET IN CURB INLET, ON TOP OF WESTERLY CURB INLET OF MELROSE DRIVE (+/-) 150' SOUTH OF SPRINTER RAIL ROAD TRACKS.

CITY PROJECT# D21-00011

LAND SURVEYOR:
C&V CONSULTING, INC. CIVIL ENGINEERING LAND PLANNING AND SURVEYING
6 ORCHARD, SUITE 200, LAKE FOREST, CA 92630
(949) 916-3500

GEOTECHNICAL ENGINEER:
GEOCON INCORPORATED
6960 FLANDERS DRIVE, SAN DIEGO, CA, 92121
(858) 558.6158

REVISIONS					
⚠	SHT.	DESCRIPTION	DATE	BY	APRD

APPROVALS			
		INITIAL	DATE
	PROJECT ENG.		

Kimley»Horn

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401 B STREET, SUITE 600, SAN DIEGO, CA 92101
PHONE: 619-234-9411

PREPARED BY: R.C.E. NO.:
FIRST LASTNAME DATE: 4/5/2022

REGISTERED PROFESSIONAL ENGINEER ERIN L. YEE No. 92949 CIVIL STATE OF CALIFORNIA

SCALE:	AS SHOWN
DESIGN:	EL
DRAWN:	SM
CHECKED:	BN
APPROVED:	—
DATE:	4/5/22

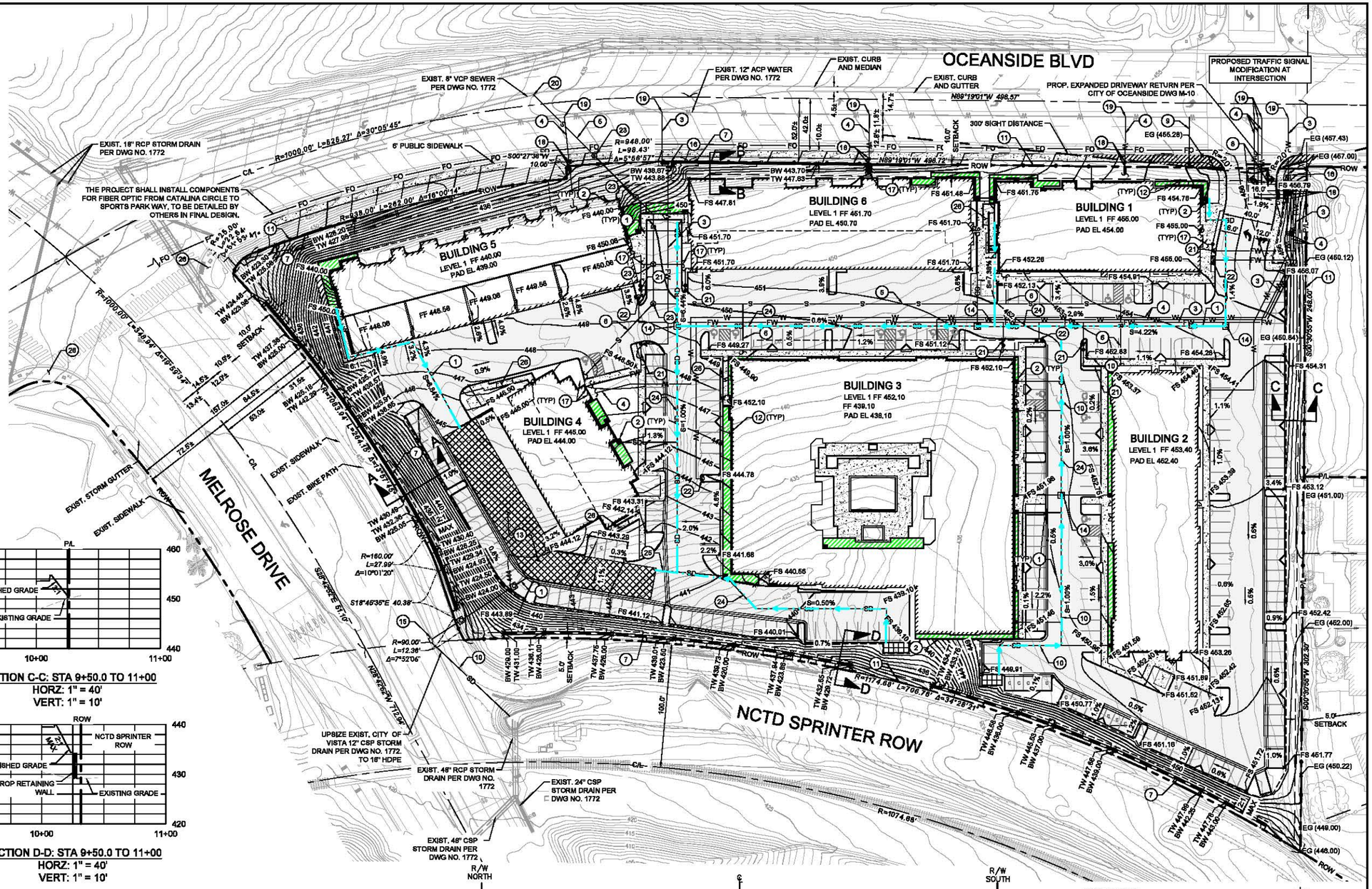
CITY OF OCEANSIDE

EXISTING CONDITIONS PLAN

C-1

GRADING NOTES

1. PROPOSED PRIVATE 12" HDPE STORM DRAIN
2. PROPOSED BIOFILTRATION RAISED PLANTER OVERFLOW
3. PROPOSED PRIVATE 10" PVC FIRE SERVICE
4. PROPOSED PRIVATE 2" DOMESTIC WATER SERVICE
5. PROPOSED PRIVATE 8" PVC SEWER
6. PROPOSED PRIVATE 6" PVC SEWER
7. PROPOSED RETAINING WALL
8. PROPOSED DOMESTIC WATER EASEMENT
9. RELOCATE EXIST. WATER BLOW-OFF
10. PROPOSED PRIVATE 18" HDPE STORM DRAIN
11. PROPOSED FENCE PER LANDSCAPE
12. PROPOSED BIOFILTRATION RAISED PLANTER BMP
13. PROPOSED UNDERGROUND STORMWATER VAULT
14. PROPOSED PRIVATE STORM DRAIN CLEANOUT
15. CONNECT TO EXIST. STORM DRAIN INLET
16. PROPOSED PRIVATE 10" RPDA
17. PROPOSED BUILDING POINT OF CONNECTION
18. PROPOSED 1.5" DOMESTIC METER AND BACKFLOW
19. CONNECT TO EXIST. 12" PUBLIC WATER MAIN
20. CONNECT TO EXIST. 8" PUBLIC SEWER MAIN
21. PROPOSED PRIVATE 6" BUILDING FIRE SERVICE WITH PIV AND FDC
22. PROPOSED PRIVATE 6" FIRE HYDRANT AND SERVICE
23. PROPOSED PRIVATE SEWER MANHOLE
24. PROPOSED PRIVATE 24" HDPE STORM DRAIN
25. PROPOSED PRIVATE 30" HDPE STORM DRAIN
26. ADA SIDEWALK TO BE PROVIDED IN FINAL DESIGN, ANY MODIFICATION TO EXISTING UTILITIES TO ACCOMMODATE SIDEWALK WILL BE PROVIDED IN FINAL DESIGN.



SECTION A-A: STA 9+50.0 TO 11+00
HORZ: 1" = 40'
VERT: 1" = 10'

SECTION B-B: STA 9+50.0 TO 11+00
HORZ: 1" = 40'
VERT: 1" = 10'

SECTION C-C: STA 9+50.0 TO 11+00
HORZ: 1" = 40'
VERT: 1" = 10'

SECTION D-D: STA 9+50.0 TO 11+00
HORZ: 1" = 40'
VERT: 1" = 10'

LEGEND

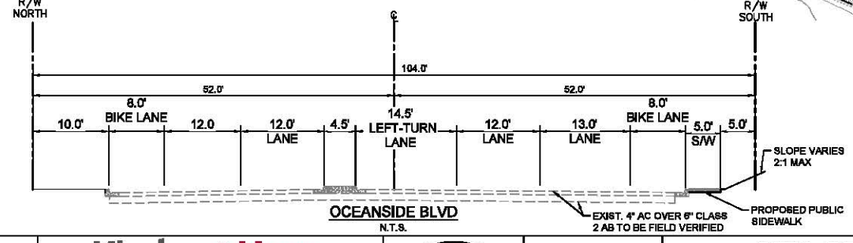
- PROP PAVING
- PROP STORM WATER VAULT
- BUILDING OUTLINE
- RETAINING WALL
- BIOFILTRATION PLANTERS BMP
- MODULAR WETLAND SYSTEM
- PROP PRIVATE STORM DRAIN
- PROP PRIVATE FIRE SERVICE
- PROJECT BOUNDARY
- PROP CONCRETE SIDEWALK
- PROP FENCE
- SITE TRIANGLE
- LINE OF SIGHT

SITE DATA

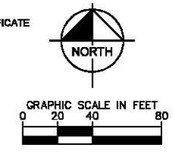
LOT AREA = 322,275 SF (7.40 AC)
BUILDING COVERAGE = 104,523 SF
LOT COVERAGE = 32.4%
PAVED AREA = 136,734 SF (3.12 AC) , 42.1%
PERMEABLE SURFACE AREA = 82,018 SF (1.88 AC), 25.5%
FRONT SETBACK = 10'
CORNER SIDE SETBACK = 10'
REAR SETBACK = 10'
RESIDENTIAL SIDE SET BACK = 10'
SITE IN ZONE X PER FEMA PANEL MAP NO. PANEL MAP NO. 06073C0757G, EFF. 5/16/2021

EARTH WORK

CUT 22,700 CY
FILL 86,000 CY
NET 42,300 CY FILL



MAPPING NOTE:
2 EXISTING LOTS TO BE MERGED BY CERTIFICATE OF COMPLIANCE



CITY PROJECT# D21-00011

REVISIONS				
⚠ SHT.	DESCRIPTION	DATE	BY	APRD

APPROVALS		INITIAL	DATE
	PROJECT ENG.		

Kimley»Horn

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401 B STREET, SUITE 600, SAN DIEGO, CA 92101
PHONE: 619-234-9411

PREPARED BY:
FIRST LASTNAME
R.C.E. NO.:
DATE: 4/5/2022

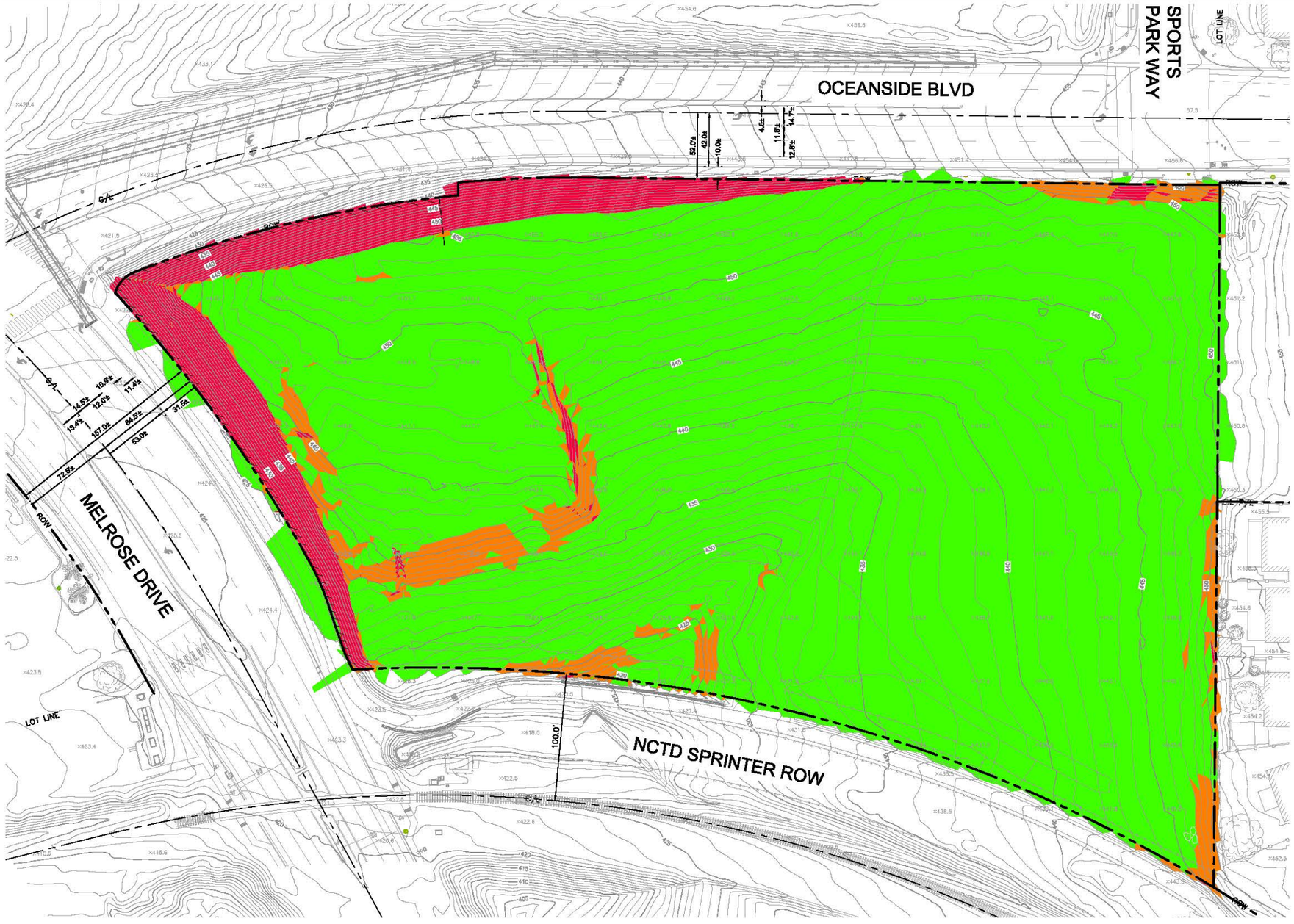
REGISTERED PROFESSIONAL ENGINEER ERIN L. VEE No. 92949 CIVIL STATE OF CALIFORNIA

SCALE:	AS SHOWN
DESIGN:	EL
DRAWN:	SM
CHECKED:	BN
APPROVED:	—
DATE:	4/5/22

CITY OF OCEANSIDE

CONCEPTUAL GRADING PLAN

C-2



Slopes Table				
Number	Minimum Slope	Maximum Slope	Area	Color
1	0.00%	20.00%	1025465.87	
2	20.00%	40.00%	97560.44	
3	40.00%	100.00%	71855.47	

CITY PROJECT# D21-00011

REVISIONS					
⚠	SHT.	DESCRIPTION	DATE	BY	APRD

APPROVALS		INITIAL	DATE
	PROJECT ENG.		

Kimley»Horn

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PREPARED BY: FIRST LASTNAME
R.C.E. NO.:
DATE: 4/5/2022

REGISTERED PROFESSIONAL ENGINEER — ERIN L. LEE — No. 92949 — CIVIL — STATE OF CALIFORNIA

SCALE:	AS SHOWN
DESIGN:	EL
DRAWN:	SM
CHECKED:	BN
APPROVED:	—
DATE:	4/5/22

CITY OF OCEANSIDE

SLOPE ANALYSIS PLAN

C-3

ATTACHMENT 5
Drainage Report

This is the cover sheet for Attachment 5.

MODERA MELROSE

PROJECT NO. D21-00011

Drainage Report

MELROSE DRIVE AT OCEANSIDE BOULEVARD
OCEANSIDE, CA 92056
APN: 161-030-23 & 161-030-24

DECEMBER 2021

Applicant:

MILL CREEK RESIDENTIAL TRUST
949 SOUTH COAST DRIVE, SUITE 400
COSTA MESA, CA 92626
CONTACT: JOHN COLLETTI
714.800.1387

Prepared By:

KIMLEY-HORN AND ASSOCIATES, INC.
401 B STREET, SUITE 600
SAN DIEGO, CA 92101
(619)234-9411

This Drainage Report has been prepared by Kimley-Horn and Associates, Inc. under the direct supervision of the following Registered Civil engineer. The undersigned attests to the technical data contained in this study, and to the qualifications of technical specialists providing engineering computations upon which the recommendations and conclusions are based.



04/05/2022

Registered Civil Engineer

Date

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Appendix C	Hydrology Manual Excerpts
Appendix D	Existing Condition Hydrology Calculations
Appendix E	Proposed Condition Hydrology Calculations
Appendix F	Detention Basin Calculations
Appendix G	FEMA Map

Exhibits

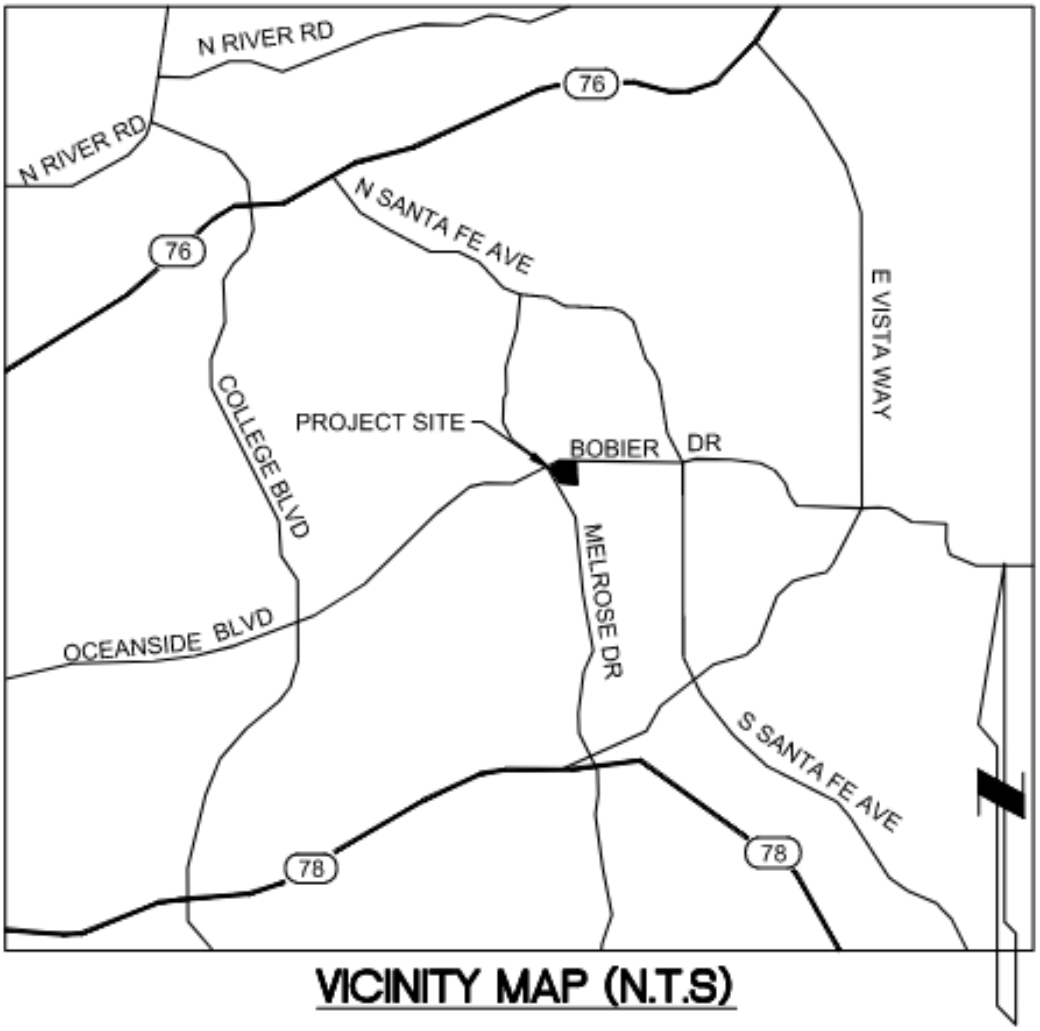
Exhibit A	Existing Drainage Exhibit
Exhibit B	Proposed Drainage Exhibit

1 INTRODUCTION

1.1 PROJECT DESCRIPTION

The Modera Melrose project consists of mixed use commercial and multifamily development on approximately 7.43-acres located in Oceanside, California. The 7.43-acre property is bounded by Oceanside Boulevard to the north, Melrose Drive to the west, residential to the east, and the NCTD Sprinter Line and a bike path to the south, see **Figure 1-1** for the Vicinity Map. The property's Assessor Parcel Numbers are 161-030-23 and 161-030-24. The project includes the grading of the existing parcel for commercial and multifamily development along with parking areas, landscape areas, and open space areas. The purpose of this report is to present the hydrology analysis and drainage calculations for the design of the Modera Melrose project.

Figure 1–1 Vicinity Map



2 PROJECT SETTING

2.1 TOPOGRAPHY

Topographic information for the project was obtained from an aerial survey by C&V Consulting in February 2020. The project is located on the USGS San Luis Rey quadrangle map, see **Appendix A**. The project is located within the Carlsbad watershed with onsite slopes starting in the northeast corner (approximate elevation 455) flowing southwest towards the bike path and NCTD Sprinter line (approximate elevation 420) where runoff enters the existing storm drain system by culverts and headwalls south of the bike trail.

2.2 PRECIPITATION

Storm intensity values were taken from the County of San Diego Hydrology Manual, 2003. The design storm was the 50-year and 100-year rainfall event calculated from the County of San Diego Hydrology Manual Rainfall Isopluvials and Figure 3-1 (see **Appendix C**) and determined to be 2.7 inches for the 50-year 6-hour event and 3.1 for the 100-year 6-hour event.

2.3 SOIL TYPES

The condition and type of soil are major factors affecting infiltration and runoff. The Natural Resources Conservation Service (NRCS) has classified soils into four general categories for comparing infiltration and runoff rates. The categories are based on properties that influence runoff, such as water infiltration rate, texture, natural discharge and moisture condition. The runoff potential is based on the amount storm water runoff at the end of a long duration storm that occurs after the soil is saturated.

Soil types were determined using the United States Department of Agriculture (USDA) Web Soil Survey. The project site consists of a mix of type A and type D soils. Hydrologic soil group D soils have a very slow infiltration rate when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high-water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission. See **Appendix B** for soils information. While A type soils exist on a majority of the site, the preliminary geotechnical report deem infiltration infeasible.

2.4 LAND USE

The zoning of the project site is Neighborhood Commercial (CN). The land use designation is Commercial.

2.5 GROUNDWATER

Based on the Geotechnical Investigation dated January 26, 2021 by Geocon, Inc. at bore hole depths ranging from 10.2’ to 19.8’, groundwater was not encountered onsite. Groundwater elevations may fluctuate seasonally.

2.6 FEMA MAPPING

The project site is not located in a flood zone mapped by the FEMA Flood Insurance Rate Map (FIRM). See **Appendix G** for FEMA map.

3 HYDROLOGIC ANALYSIS

3.1 METHODOLOGY

The Modified Rational Method was used to analyze the hydrology for the project. This methodology is typically used for small basins less than 500 acres in size because a uniform rainfall distribution is assumed for the entire duration. Drainage calculations comply with the requirements outlined in the County of San Diego Hydrology Manual, 2003. The San Diego County Advanced Engineering Software (AES) computer program was used for the Modified Rational Method analysis to calculate peak flow for the 100-year storm event under existing and proposed conditions. This program uses parameters from the County of San Diego Hydrology Manual to estimate times of concentration and peak flow rates.

3.1.1 GEOMETRY

Sub-basin boundaries, initial subareas, and flow paths were delineated for each sub-basin with AutoCAD Civil 3D software. These hydrologic parameters are shown for existing conditions and proposed conditions in **Exhibit A** and **Exhibit B**. Point elevations and surfaces within Civil 3D were also used to determine flow path slopes and estimate the shape of routing reaches. A summary of the existing condition and proposed condition inputs into the AES models are included in **Appendix A.** Topography for the project area was obtained from an aerial survey flown by C&V Consulting in 2020 and is based on the mean sea level (NAVD 88).

3.1.2 INTENSITY AND TIME OF CONCENTRATION

Rainfall data for frequency events were taken from the County of San Diego Hydrology Manual Rainfall Isopluvials to determine the appropriate precipitation for the project site. This duration precipitation value was then inputted directly into AES for each frequency event. AES software was used to calculate the appropriate time of concentration for each sub-basin The AES software then calculates an intensity based on the calculated time of concentration.

3.1.3 RUNOFF COEFFICIENT AND LOSS RATES

AES software was used to calculate loss rates and subsequent runoff coefficients for each sub-basin based on land use type, and hydrologic soil group. The existing conditions land utilized for the model was undeveloped natural grass. The proposed conditions land use is neighborhood commercial, which is defined as 80% impervious and a runoff coefficient of 0.79. Hydrologic soil group D was used for the entire site.

3.2 EXISTING CONDITIONS

The project site has been previously graded but is currently vacant. Overland runoff flows from the northeast corner to the southwest towards the bike path and NCTD sprinter line where runoff enters the existing storm drain system by culverts and headwalls south of the bike path.

Runoff coefficients for the existing site was based on the County of San Diego Hydrology Manual and is identified below in **Table 3-1** for undeveloped sites. See **Exhibit A** for **Existing Drainage Exhibit.** The hydrology model results are presented in **Appendix D.**

Table 3–1 Existing Conditions Hydrology

POC	Runoff Coefficient	Area (acres)	Flow Rate (cfs)
			100 Year
1	0.35	8.5	15.4
2	0.35	2.6	9.2
Total		11.1	24.6

3.3 PROPOSED CONDITIONS

Proposed hydrologic calculations have been prepared for the project. Tributary areas were delineated based on proposed grading for the project. The final development will be approximately 74% impervious area and 26% landscape. The San Diego County Advanced Engineering Software (AES) computer program was used for the Modified Rational Method analysis to calculate peak flow for the 100-year storm event under proposed conditions. Runoff generated from the site will be collected by Modular Wetland Systems or raised planters for water quality treatment then is collected and conveyed through an underground storm drain system, and discharge into onsite underground detention basin to meet hydromodification and detention requirements. The Modular Wetland Systems and raised planters will be designed to filter and treat the water quality storm event volume by means of biofiltration as documented in the project specific SWQMP.

The project will have two discharge locations – the same locations as the existing conditions.

POC 2 collects runoff from the northern landscaped slope that flows into the existing gutter in Oceanside Blvd and N Melrose Dr, where it enters the public storm drain system by the existing curb inlet at the southeast corner of Oceanside Blvd and Melrose Drive. The storm drain flows north and discharges in the East Channel Creek where it flows north to San Luis Rey River where it ultimately discharges into the Pacific Ocean.

POC 1 collects the rest of the site's runoff where it enters the City of Vista's public storm drain system by the existing headwall. The public storm system conveys flows south and discharges into Loma Alta Creek flowing west to ultimately discharge into the Pacific Ocean.

With the project site being 74% impervious the Runoff Coefficient used in the AES calculations was 0.79 which matches closely to the Table A-1 of the San Diego Drainage Design Manual Neighborhood Commercial land use with 80% impervious carrying a runoff coefficient of 0.79. See **Exhibit B** for **Proposed Drainage Exhibit.** The hydrology model results are presented in **Appendix E.**

Table 3–2 Proposed Conditions Hydrology

POC	Runoff Coefficient	Area (acres)	Flow Rate (cfs)
			100 Year
1	0.79	8.6	36.8
2	0.79	2.4	8.7
Total		11.0	45.5

4 HYDRAULIC ANALYSIS

4.1 METHODOLOGY

Drainage structures were designed for the Modera Melrose project according to the procedures and methodologies outlined in the County of San Diego Drainage Design Manual, 2003. The proposed drainage network is included on the **Proposed Drainage Exhibit**, **Exhibit B**.

4.1.1 STORM DRAIN DESIGN

The storm drain network pipe sizes were estimated for preliminary design utilizing the AES computer program for non-pressure pipe flow included in the **Proposed Condition Hydrology Calculations**, see **Appendix E**. The Modified Rational Method was used to calculate peak flow for the 100-year storm event.

4.1.2 DETENTION BASIN CALCULATIONS

The development of this site results in an increase of peak discharge runoff. One underground detention basin is proposed to mitigate the peak flows by storing stormwater runoff and controlling the release of flow. The project is required to mitigate for downstream hydromodification and detain for the 100-year peak flow rate. The project specific Stormwater Quality Management Plan (SWQMP) determined the storage volume and outlet orifice required to mitigate for hydromodification. Orifice calculations were prepared to determine the size of the outlets to meet hydromodification requirements and are used in the flood routing for the peak storm events. See **Appendix F** for the outlet rating curves for each basin. See project specific SWQMP for hydromodification compliance documentation.

To size the peak attenuation volume required, the Rational Method hydrology results were input into Rick Rat Hydrographs to develop a hydrograph. The proposed hydrograph was routed using Hydraflow Hydrographs Computer Software with the calculated orifice sizes and a riser structure to determine peak flow rates and maximum elevation in the underground basin. See **Appendix F** for detention basin calculations and **Table 4-1** summarizing the basin routing results. The project peak flow rates are less than the pre-project peak flow rate for all storm events per the criteria above.

Table 4–1 Proposed Detention Basin Summary

Storm Event	Proposed Runoff into Basin	Proposed Released Out of Basin	Runoff Detained in Basin
(yr)	Q (cfs)	Q (cfs)	Q (cfs)
100	32.6	1.2	30.1
Basin Volume Provided (cubic feet)			49,864 cf

The underground detention tank mitigates the project site runoff to less than pre-project flows, producing mitigated runoff less than the existing runoff at POC 1. Because the area being routed to discharge location 3 increased, the existing City of Vista pipe from discharge location 3 to POC 1 will need to be upsized from a 12” pipe to an 18” pipe, see **Appendix F** for Flowmaster results. Nothing downstream of POC 1 will be negatively affected by the project since the proposed flows at POC 1 are less than the

existing flows at POC 1. The area of runoff going to POC 2 has decreased causing the flows to decrease at POC 2 in the proposed condition as well. **Table 4-2** summarizes this in a comparison table.

The velocity was calculated using the Flowmaster program analyzing the existing pipe at each Point of Connection. The program uses input parameters such as pipe slope, discharge, roughness coefficient, and diameter to calculate the velocity of flows within the pipe. See **Appendix F** for printout and **Table 4-2** for a summary of the results.

Table 4–2 Comparison Table

POC	Existing TC (min)	Existing Q100 (cfs)	Existing V100 (fps)	Proposed TC (min)	Proposed Q100 (cfs)	Proposed V100 (fps)
1	12	13.8	19.7	6.7	8.1*	16.3*
2	13.1	9.2	11.9	13.0	8.7	11.7
**Mitigated runoff from the underground detention basin*						

4.1.3 INLET DESIGN

Inlet design will be provided during final design.

5 WATER QUALITY

5.1 POST CONSTRUCTION BMP

A project specific Storm Water Quality Management Plan (SWQMP) has been prepared. Biofiltration raised planter areas and Modular Wetland Systems are proposed throughout the project to provide stormwater treatment for the pollutants discharged from the proposed improvements. Biofiltration areas and MWS were incorporated into the project where it was practical. These BMPs are a mitigation measure for stormwater runoff treatment. Biofiltration calculations are provided in the project specific SWQMP.

5.2 EROSION AND SEDIMENTATION

The proposed commercial site will be approximately 74% impervious with landscaped slopes and parkway landscaped areas. Graded and disturbed areas will be re-vegetated and landscaped to minimize erosion. The post construction site will have minimal risks of erosion occurring given proper plant establishment and transport of sediments downstream will be significantly reduced by means of pretreatment and onsite biofiltration basins. It will be critical to maintain construction site BMP's throughout the construction duration.

6 DRAINAGE IMPROVEMENTS

This drainage study was prepared to document the storm drain design for Modera Melrose. The project includes the construction of commercial and multi-family buildings, associated parking, landscaping, and utilities. The drainage improvements throughout the project consist of installing inlets, storm drain facilities, biofiltration basins (standard and proprietary), and an underground stormwater detention tank.

The proposed drainage improvements are designed to mitigate flood and water quality impacts such that no adjacent properties will be negatively impacted from runoff generated by the development of this project. This Drainage Study documents that this project does not create any negative drainage impacts to any adjacent properties.

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APPENDICES

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APPENDIX A

USGS MAP

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U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

SAN LUIS REY QUADRANGLE
CALIFORNIA-SAN DIEGO CO.
7.5-MINUTE SERIES

Project Site

Produced by the United States Geological Survey

North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid: Universal Transverse Mercator, Zone 11S
10 000-foot ticks: California Coordinate System of 1983 (zone 6)

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery.....NAIP, May 2012
Roads..... HERE, ©2013 - 2014
Names.....GNIS, 2015
Hydrography.....National Hydrography Dataset, 2012
Contours.....National Elevation Dataset, 2006
Boundaries.....Multiple sources; see metadata file 1972 - 2015
Public Land Survey System.....BLM, 2011

UTM GRID AND 2015 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET
MN 11° 53′ 211 MILS
GN 0° 10′ 3 MILS

U.S. National Grid
100,000-m Square ID
MS
Grid Zone Designation
11S

SCALE 1:24 000

1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL 20 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the
National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.18

CALIFORNIA
QUADRANGLE LOCATION

ROAD CLASSIFICATION
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

1	2	3
4		5
6	7	8

1 Las Pulgas Canyon
2 Morro Hill
3 Bonsall
4 Oceanside
5 San Marcos
6
7 Encinitas
8 Rancho Santa Fe
ADJOINING QUADRANGLES

SAN LUIS REY, CA
2015

NSN. 7643016357641
NGA REF NO. USGSX24396666

APPENDIX B

SOIL INFORMATION

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Map Scale: 1:1,880 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Diego County Area, California
Survey Area Data: Version 15, May 27, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 24, 2020—Feb 12, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
DaC	Diablo clay, 2 to 9 percent slopes	3.1	26.1%
LeD2	Las Flores loamy fine sand, 9 to 15 percent slopes, eroded	0.0	0.0%
TuB	Tujunga sand, 0 to 5 percent slopes	8.8	73.9%
Totals for Area of Interest		**11.9**	**100.0%**

San Diego County Area, California

LeD2—Las Flores loamy fine sand, 9 to 15 percent slopes, eroded

Map Unit Setting

National map unit symbol: hbdc
Elevation: 700 feet
Mean annual precipitation: 12 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 300 to 340 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Las flores and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Las Flores

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from siliceous calcareous sandstone

Typical profile

H1 - 0 to 14 inches: loamy fine sand
H2 - 14 to 22 inches: sandy clay, clay
H2 - 14 to 22 inches: sandy clay, clay
H3 - 22 to 38 inches: loamy coarse sand
H3 - 22 to 38 inches: weathered bedrock
H4 - 38 to 48 inches:
H5 - 48 to 52 inches:

Properties and qualities

Slope: 9 to 15 percent
Depth to restrictive feature: More than 80 inches; More than 80 inches; 40 to 60 inches to paralithic bedrock
Drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Sodium adsorption ratio, maximum: 30.0
Available water capacity: Very low (about 1.3 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: R019XD061CA
Hydric soil rating: No

Minor Components

Linne

Percent of map unit: 5 percent
Hydric soil rating: No

Huerhuero

Percent of map unit: 5 percent
Hydric soil rating: No

Diablo

Percent of map unit: 5 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: San Diego County Area, California
Survey Area Data: Version 15, May 27, 2020

San Diego County Area, California

TuB—Tujunga sand, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: hbh0
Elevation: 10 to 2,500 feet
Mean annual precipitation: 10 to 25 inches
Mean annual air temperature: 59 to 64 degrees F
Frost-free period: 280 to 350 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Tujunga and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tujunga

Setting

Landform: Flood plains
Landform position (three-dimensional): Riser, flat
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 14 inches: sand
H2 - 14 to 34 inches: loamy sand, fine sand, sand
H2 - 14 to 34 inches: stratified gravelly sand to gravelly loamy sand
H2 - 14 to 34 inches:
H3 - 34 to 60 inches:

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Available water capacity: Moderate (about 6.7 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: R019XD035CA
Hydric soil rating: No

Minor Components

Grangeville
Percent of map unit: 5 percent
Hydric soil rating: No

Ramona
Percent of map unit: 5 percent
Hydric soil rating: No

Visalia
Percent of map unit: 2 percent
Hydric soil rating: No

Riverwash
Percent of map unit: 2 percent
Landform: Drainageways
Hydric soil rating: Yes

Unnamed
Percent of map unit: 1 percent
Landform: Flood plains
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: San Diego County Area, California
Survey Area Data: Version 15, May 27, 2020

San Diego County Area, California

DaC—Diablo clay, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: hbb8
Elevation: 30 to 3,000 feet
Mean annual precipitation: 12 to 35 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 200 to 320 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Diablo and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Diablo

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Calcareous sandstone and shale

Typical profile

H1 - 0 to 15 inches: clay
H2 - 15 to 32 inches: clay, silty clay loam
H2 - 15 to 32 inches: weathered bedrock
H3 - 32 to 36 inches:

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: 24 to 40 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water capacity: Moderate (about 7.7 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Altamont
Percent of map unit: 10 percent
Hydric soil rating: No

Linne
Percent of map unit: 3 percent
Hydric soil rating: No

Olivenhain
Percent of map unit: 2 percent
Hydric soil rating: No

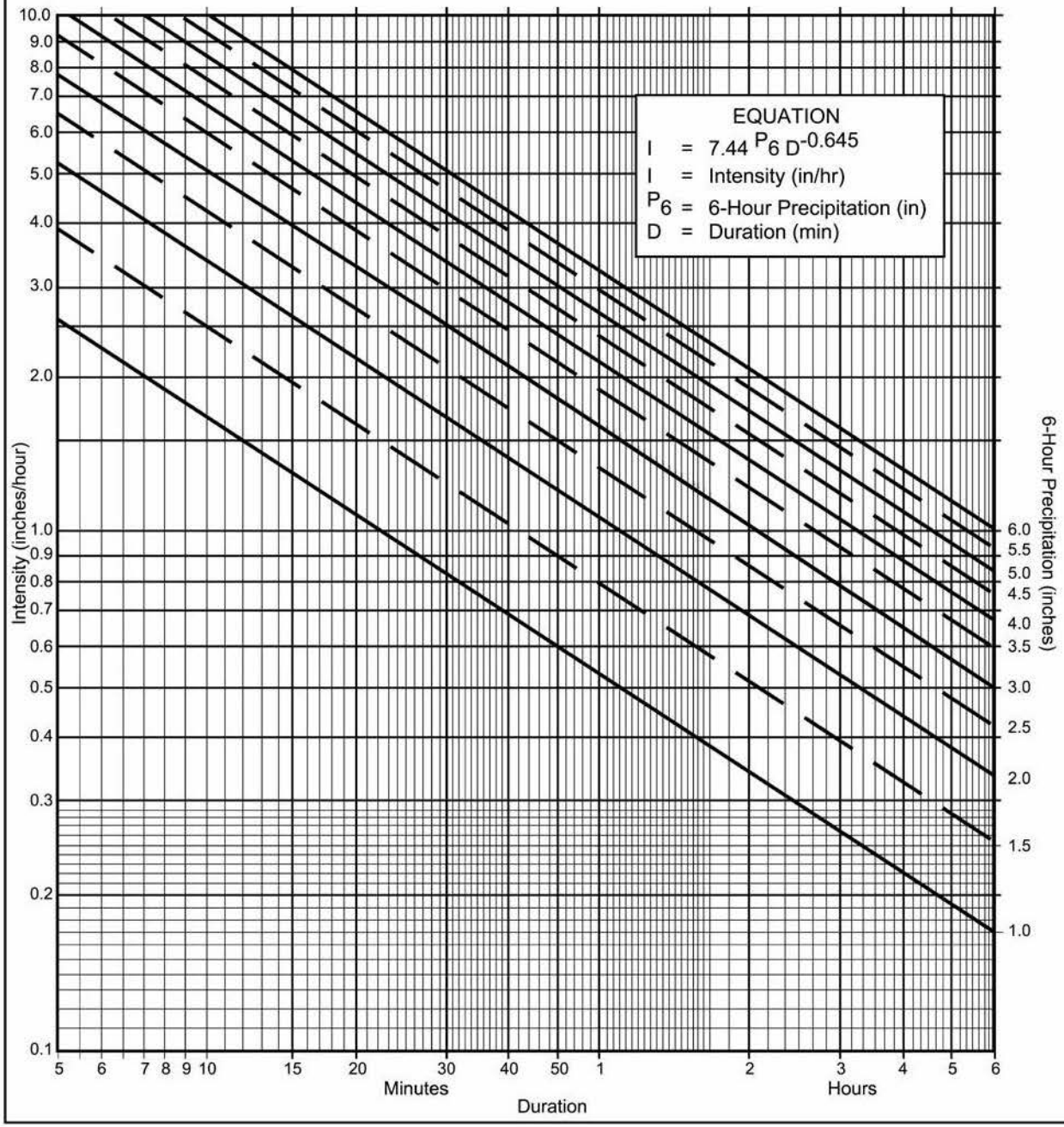
Data Source Information

Soil Survey Area: San Diego County Area, California
Survey Area Data: Version 15, May 27, 2020

APPENDIX C

HYDROLOGY MANUAL EXCERPTS

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Directions for Application:

(1) From precipitation maps determine 6 hr and 24 hr amounts for the selected frequency. These maps are included in the County Hydrology Manual (10, 50, and 100 yr maps included in the Design and Procedure Manual).

(2) Adjust 6 hr precipitation (if necessary) so that it is within the range of 45% to 65% of the 24 hr precipitation (not applicaple to Desert).

(3) Plot 6 hr precipitation on the right side of the chart.

(4) Draw a line through the point parallel to the plotted lines.

(5) This line is the intensity-duration curve for the location being analyzed.

Application Form:

(a) Selected frequency 50 year

(b) P_6 = 2.7 in., P_{24} = 4.9, $\frac{P_6}{P_{24}}$ = 55 %(2)

(c) Adjusted P_6(2) = 2.7 in.

(d) t_x = _____ min.

(e) I = _____ in./hr.

Note: This chart replaces the Intensity-Duration-Frequency curves used since 1965.

P6	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
Duration	I	I	I	I	I	I	I	I	I	I	I
5	2.63	3.95	5.27	6.59	7.90	9.22	10.54	11.86	13.17	14.49	15.81
7	2.12	3.18	4.24	5.30	6.36	7.42	8.48	9.54	10.60	11.66	12.72
10	1.68	2.53	3.37	4.21	5.05	5.90	6.74	7.58	8.42	9.27	10.11
15	1.30	1.95	2.59	3.24	3.89	4.54	5.19	5.84	6.49	7.13	7.78
20	1.08	1.62	2.15	2.69	3.23	3.77	4.31	4.85	5.39	5.93	6.46
25	0.93	1.40	1.87	2.33	2.80	3.27	3.73	4.20	4.67	5.13	5.60
30	0.83	1.24	1.66	2.07	2.49	2.90	3.32	3.73	4.15	4.56	4.98
40	0.69	1.03	1.38	1.72	2.07	2.41	2.76	3.10	3.45	3.79	4.13
50	0.60	0.90	1.19	1.49	1.79	2.09	2.39	2.69	2.98	3.28	3.58
60	0.53	0.80	1.06	1.33	1.59	1.86	2.12	2.39	2.65	2.92	3.18
90	0.41	0.61	0.82	1.02	1.23	1.43	1.63	1.84	2.04	2.25	2.45
120	0.34	0.51	0.68	0.85	1.02	1.19	1.36	1.53	1.70	1.87	2.04
150	0.29	0.44	0.59	0.73	0.88	1.03	1.18	1.32	1.47	1.62	1.76
180	0.26	0.39	0.52	0.65	0.78	0.91	1.04	1.18	1.31	1.44	1.57
240	0.22	0.33	0.43	0.54	0.65	0.76	0.87	0.98	1.08	1.19	1.30
300	0.19	0.28	0.38	0.47	0.56	0.66	0.75	0.85	0.94	1.03	1.13
360	0.17	0.25	0.33	0.42	0.50	0.58	0.67	0.75	0.84	0.92	1.00

Intensity-Duration Design Chart - Template

FIGURE 3-1

County of San Diego Hydrology Manual

Rainfall Isopluvials

50 Year Rainfall Event - 6 Hours

Isopluvial (inches)

Orange County

Riverside County

Imperial County

Mexico

Pacific Ocean

Project Site 2.7

OCEANSIDE
VISTA
CARLSBAD
ESCONDIDO
ENCINITAS
SOLANA BEACH
DEL MAR
POWAY
S.D. COUNTY
SANTEE
SAN DIEGO
EL CAJON
LA MESA
LEMON GROVE
CORONADO
SD
CHULA VISTA
IMPERIAL BEACH

117°30' 117°15' 117°00' 116°45' 116°30' 116°15'
33°30' 33°15' 33°00' 32°45' 32°30'

DPW GIS
Department of Public Works
Geographic Information Services

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N
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3 0 3 Miles

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County of San Diego Hydrology Manual

Rainfall Isopluvials

50 Year Rainfall Event - 24 Hours

Isopluvial (inches)

Project Site 4.9

Orange County

Riverside County

Imperial County

Mexico

Pacific Ocean

OCEANSIDE
VISTA
CARLSBAD
ESCONDIDO
ENCINITAS
SOLANA BEACH
DEL MAR
POWAY
S.D. COUNTY
SANTEE
SAN DIEGO
EL CAJON
LA MESA
LEMON GROVE
CORONADO
SD
CHULA VISTA
IMPERIAL BEACH

117°30' 117°15' 117°00' 116°45' 116°30' 116°15'
33°30' 33°15' 33°00' 32°45' 32°30'

DPW GIS
Department of Public Works
Geographic Information Services

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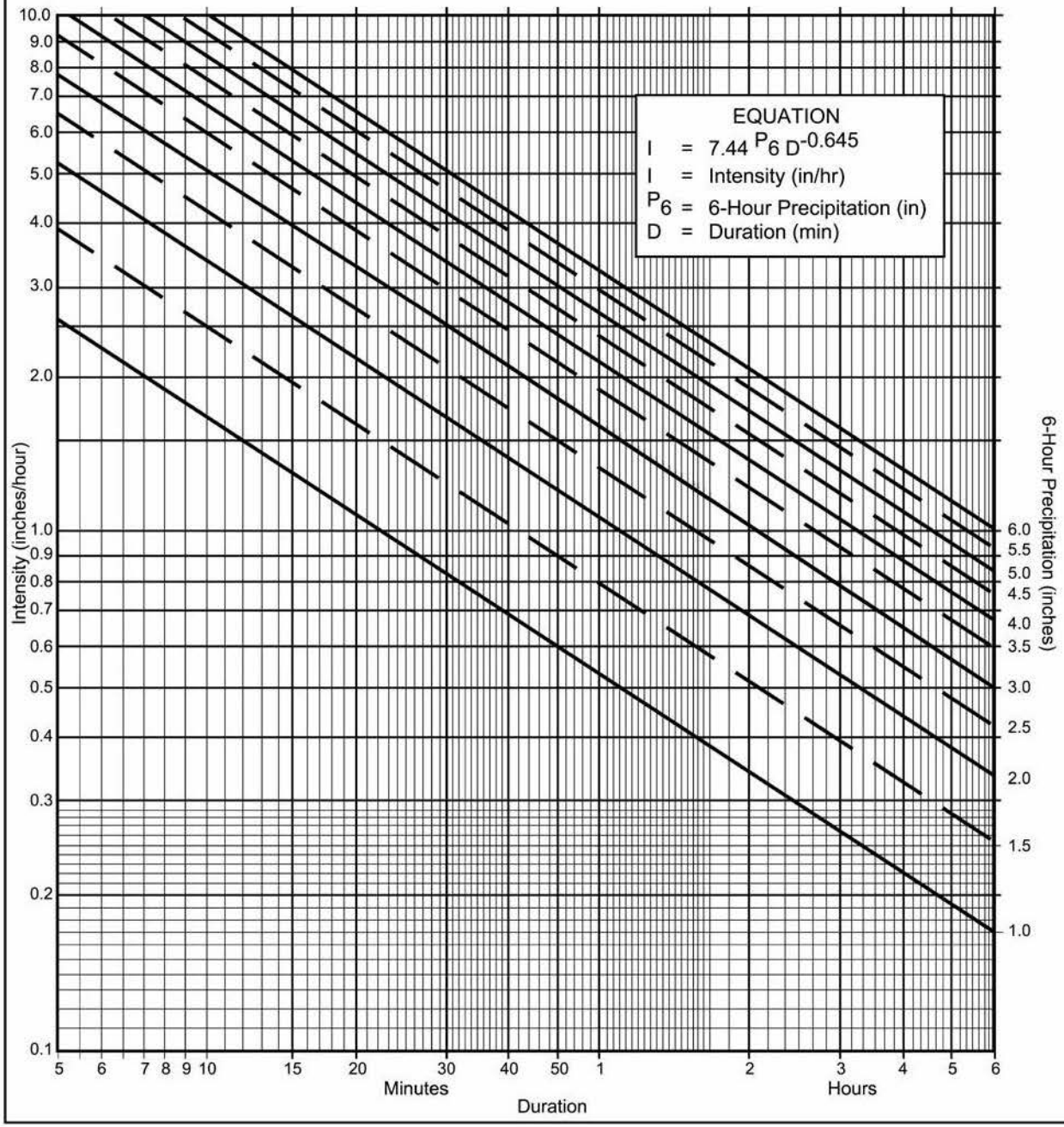
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Directions for Application:

(1) From precipitation maps determine 6 hr and 24 hr amounts for the selected frequency. These maps are included in the County Hydrology Manual (10, 50, and 100 yr maps included in the Design and Procedure Manual).

(2) Adjust 6 hr precipitation (if necessary) so that it is within the range of 45% to 65% of the 24 hr precipitation (not applicaple to Desert).

(3) Plot 6 hr precipitation on the right side of the chart.

(4) Draw a line through the point parallel to the plotted lines.

(5) This line is the intensity-duration curve for the location being analyzed.

Application Form:

(a) Selected frequency 100 year

(b) P_6 = 3.1 in., P_{24} = 5.4, $\frac{P_6}{P_{24}}$ = 57 %(2)

(c) Adjusted P_6(2) = 3.1 in.

(d) t_x = _____ min.

(e) I = _____ in./hr.

Note: This chart replaces the Intensity-Duration-Frequency curves used since 1965.

P6	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
Duration	I	I	I	I	I	I	I	I	I	I	I
5	2.63	3.95	5.27	6.59	7.90	9.22	10.54	11.86	13.17	14.49	15.81
7	2.12	3.18	4.24	5.30	6.36	7.42	8.48	9.54	10.60	11.66	12.72
10	1.68	2.53	3.37	4.21	5.05	5.90	6.74	7.58	8.42	9.27	10.11
15	1.30	1.95	2.59	3.24	3.89	4.54	5.19	5.84	6.49	7.13	7.78
20	1.08	1.62	2.15	2.69	3.23	3.77	4.31	4.85	5.39	5.93	6.46
25	0.93	1.40	1.87	2.33	2.80	3.27	3.73	4.20	4.67	5.13	5.60
30	0.83	1.24	1.66	2.07	2.49	2.90	3.32	3.73	4.15	4.56	4.98
40	0.69	1.03	1.38	1.72	2.07	2.41	2.76	3.10	3.45	3.79	4.13
50	0.60	0.90	1.19	1.49	1.79	2.09	2.39	2.69	2.98	3.28	3.58
60	0.53	0.80	1.06	1.33	1.59	1.86	2.12	2.39	2.65	2.92	3.18
90	0.41	0.61	0.82	1.02	1.23	1.43	1.63	1.84	2.04	2.25	2.45
120	0.34	0.51	0.68	0.85	1.02	1.19	1.36	1.53	1.70	1.87	2.04
150	0.29	0.44	0.59	0.73	0.88	1.03	1.18	1.32	1.47	1.62	1.76
180	0.26	0.39	0.52	0.65	0.78	0.91	1.04	1.18	1.31	1.44	1.57
240	0.22	0.33	0.43	0.54	0.65	0.76	0.87	0.98	1.08	1.19	1.30
300	0.19	0.28	0.38	0.47	0.56	0.66	0.75	0.85	0.94	1.03	1.13
360	0.17	0.25	0.33	0.42	0.50	0.58	0.67	0.75	0.84	0.92	1.00

Intensity-Duration Design Chart - Template

FIGURE 3-1

County of San Diego Hydrology Manual

Rainfall Isopluvials

100 Year Rainfall Event - 6 Hours

Isopluvial (inches)

Orange County

Riverside County

Imperial County

Mexico

Pacific Ocean

Project Site 3.1

OCEANSIDE
VISTA
CARLSBAD
ESCONDIDO
ENCINITAS
SOLANA BEACH
DEL MAR
POWAY
S.D. COUNTY
SANTEE
SAN DIEGO
EL CAJON
LA MESA
LEMON GROVE
CORONADO
SD
CHULA VISTA
IMPERIAL BEACH

117°30' 117°15' 117°00' 116°45' 116°30' 116°15'
33°30' 33°15' 33°00' 32°45' 32°30'

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3 0 3 Miles

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County of San Diego Hydrology Manual

Rainfall Isopluvials

100 Year Rainfall Event - 24 Hours

Isopluvial (inches)

Orange County

Riverside County

Imperial County

Mexico

Pacific Ocean

Project Site 5.4

OCEANSIDE
VISTA
CARLSBAD
ESCONDIDO
ENCINITAS
SOLANA BEACH
DEL MAR
POWAY
S.D. COUNTY
SANTEE
SAN DIEGO
EL CAJON
LA MESA
LEMON GROVE
CORONADO
CHULA VISTA
IMPERIAL BEACH
SD

117°30' 117°15' 117°00' 116°45' 116°30' 116°15'
33°30' 33°15' 33°00' 32°45' 32°30'

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APPENDIX D

EXISTING CONDITION HYDROLOGY CALCULATIONS

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************************************************************************

            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                         2003,1985,1981 HYDROLOGY MANUAL
          (c) Copyright 1982-2011 Advanced Engineering Software (aes)
              Ver. 18.0 Release Date: 07/01/2011  License ID 1499

                            Analysis prepared by:

                        Kimley-Horn and Associates, Inc.
                               765 The City Drive
                                   Suite 200
                                Orange, CA 92868

 ************************** DESCRIPTION OF STUDY **************************
* MODERA MELROSE                                                         *
* EXISTING 100 YR RATIONAL METHOD                                        *
* OCTOBER 2021 ELL                                                       *
 ************************************************************************

  FILE NAME: MOD100EX.DAT
  TIME/DATE OF STUDY: 12:57 10/05/2021
------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
------------------------------------------------------------------------
  2003 SAN DIEGO MANUAL CRITERIA

  USER SPECIFIED STORM EVENT(YEAR) = 100.00
  6-HOUR DURATION PRECIPITATION (INCHES) =   3.100
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  12.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: USE MODIFIED RATIONAL METHOD PROCEDURES FOR CONFLUENCE ANALYSIS
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)   (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.50    1.50 0.0313 0.125 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.50 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint = 10.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
========================================================================
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =  88
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    55.00
  UPSTREAM ELEVATION(FEET) =    467.00
  DOWNSTREAM ELEVATION(FEET) =    462.87
  ELEVATION DIFFERENCE(FEET) =      4.13
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    5.113
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.051
  SUBAREA RUNOFF(CFS) =      0.28
  TOTAL AREA(ACRES) =      0.10   TOTAL RUNOFF(CFS) =      0.28

************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  51
------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
========================================================================
```

```
  ELEVATION DATA: UPSTREAM(FEET) =    462.87  DOWNSTREAM(FEET) =    416.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   908.00   CHANNEL SLOPE =  0.0516
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =  99.000
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   0.50
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.644
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =  88
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       6.34
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.20
  AVERAGE FLOW DEPTH(FEET) =   0.17   TRAVEL TIME(MIN.) =   6.89
  Tc(MIN.) =   12.00
  SUBAREA AREA(ACRES) =     7.10       SUBAREA RUNOFF(CFS) =   11.54
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
  TOTAL AREA(ACRES) =        7.2         PEAK FLOW RATE(CFS) =      11.70

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.22   FLOW VELOCITY(FEET/SEC.) =   2.52
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    102.00 =     963.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.644
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =  88
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.3500
  SUBAREA AREA(ACRES) =    0.64   SUBAREA RUNOFF(CFS) =    1.04
  TOTAL AREA(ACRES) =        7.8   TOTAL RUNOFF(CFS) =      12.74
  TC(MIN.) =   12.00

****************************************************************************
  FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.644
  USER-SPECIFIED RUNOFF COEFFICIENT = .8700
  S.C.S. CURVE NUMBER (AMC II) =  98
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.3909
  SUBAREA AREA(ACRES) =    0.67   SUBAREA RUNOFF(CFS) =    2.71
  TOTAL AREA(ACRES) =        8.5   TOTAL RUNOFF(CFS) =      15.45
  TC(MIN.) =   12.00

****************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    201.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =  88
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    55.00
  UPSTREAM ELEVATION(FEET) =    466.09
  DOWNSTREAM ELEVATION(FEET) =    464.87
  ELEVATION DIFFERENCE(FEET) =      1.22
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    7.677
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.194
  SUBAREA RUNOFF(CFS) =      0.22
  TOTAL AREA(ACRES) =      0.10   TOTAL RUNOFF(CFS) =      0.22

****************************************************************************
  FLOW PROCESS FROM NODE    201.00 TO NODE    202.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    464.87  DOWNSTREAM(FEET) =    458.10
  CHANNEL LENGTH THRU SUBAREA(FEET) =    93.00   CHANNEL SLOPE =  0.0728
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =  99.000
  MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   0.50
```

```
 100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.614
 USER-SPECIFIED RUNOFF COEFFICIENT = .3500
 S.C.S. CURVE NUMBER (AMC II) =  88
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       0.38
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.23
 AVERAGE FLOW DEPTH(FEET) =   0.06   TRAVEL TIME(MIN.) =   1.26
 Tc(MIN.) =    8.94
 SUBAREA AREA(ACRES) =     0.17       SUBAREA RUNOFF(CFS) =    0.33
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
 TOTAL AREA(ACRES) =        0.3         PEAK FLOW RATE(CFS) =       0.53

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  0.06   FLOW VELOCITY(FEET/SEC.) =   1.31
 LONGEST FLOWPATH FROM NODE    200.00 TO NODE    202.00 =     148.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    202.00 TO NODE    203.00 IS CODE =  62
----------------------------------------------------------------------------
 >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>(STREET TABLE SECTION #  1 USED)<<<<<
============================================================================
 UPSTREAM ELEVATION(FEET) =  458.10  DOWNSTREAM ELEVATION(FEET) =  422.00
 STREET LENGTH(FEET) =   923.00   CURB HEIGHT(INCHES) =  6.0
 STREET HALFWIDTH(FEET) = 30.00

 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
 INSIDE STREET CROSSFALL(DECIMAL) =  0.018
 OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
 STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.82
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) =  0.27
   HALFSTREET FLOOD WIDTH(FEET) =    7.71
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.70
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.99
 STREET FLOW TRAVEL TIME(MIN.) =   4.15   Tc(MIN.) =   13.09
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.390
 USER-SPECIFIED RUNOFF COEFFICIENT = .8700
 S.C.S. CURVE NUMBER (AMC II) =  98
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.815
 SUBAREA AREA(ACRES) =    2.30      SUBAREA RUNOFF(CFS) =    8.78
 TOTAL AREA(ACRES) =        2.6        PEAK FLOW RATE(CFS) =       9.20

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.31   HALFSTREET FLOOD WIDTH(FEET) =  10.35
 FLOW VELOCITY(FEET/SEC.) =  4.27   DEPTH*VELOCITY(FT*FT/SEC.) =   1.34
 LONGEST FLOWPATH FROM NODE    200.00 TO NODE    203.00 =    1071.00 FEET.
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =        2.6  TC(MIN.) =     13.09
 PEAK FLOW RATE(CFS)   =       9.20
============================================================================
============================================================================
 END OF RATIONAL METHOD ANALYSIS
```

APPENDIX E

PROPOSED CONDITION HYDROLOGY CALCULATIONS

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            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                          2003,1985,1981 HYDROLOGY MANUAL
          (c) Copyright 1982-2011 Advanced Engineering Software (aes)
              Ver. 18.0 Release Date: 07/01/2011  License ID 1499

                              Analysis prepared by:

                          Kimley-Horn and Associates, Inc.
                                 765 The City Drive
                                     Suite 200
                                  Orange, CA 92868

 ************************** DESCRIPTION OF STUDY **************************
* MODERA MELROSE                                                          *
* PROPOSED 100 YR RATIONAL METHOD                                         *
* DECEMBER 2021 ELL                                                       *
 ****************************************************************************

  FILE NAME: MOD100PR.DAT
  TIME/DATE OF STUDY: 09:52 12/15/2021
----------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
----------------------------------------------------------------------------
  2003 SAN DIEGO MANUAL CRITERIA

  USER SPECIFIED STORM EVENT(YEAR) = 100.00
  6-HOUR DURATION PRECIPITATION (INCHES) =   3.100
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  12.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: USE MODIFIED RATIONAL METHOD PROCEDURES FOR CONFLUENCE ANALYSIS
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.50    1.50 0.0313 0.125 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.50 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint = 10.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

****************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    65.00
  UPSTREAM ELEVATION(FEET) =    456.08
  DOWNSTREAM ELEVATION(FEET) =    454.24
  ELEVATION DIFFERENCE(FEET) =      1.84
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.180
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.168
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.65
  TOTAL AREA(ACRES) =      0.10   TOTAL RUNOFF(CFS) =      0.65

****************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
```

```
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    454.24  DOWNSTREAM(FEET) =    450.54
  CHANNEL LENGTH THRU SUBAREA(FEET) =   586.00   CHANNEL SLOPE =  0.0063
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   0.50

         ==>>WARNING: FLOW IN CHANNEL EXCEEDS CHANNEL
             CAPACITY( NORMAL DEPTH EQUAL TO SPECIFIED MAXIMUM
             ALLOWABLE DEPTH).
             AS AN APPROXIMATION, FLOWDEPTH IS SET AT MAXIMUM
             ALLOWABLE DEPTH AND IS USED FOR TRAVELTIME CALCULATIONS.

   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.419
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.79
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   3.72
  AVERAGE FLOW DEPTH(FEET) =   0.50   TRAVEL TIME(MIN.) =   2.62
  Tc(MIN.) =    5.80
  SUBAREA AREA(ACRES) =     0.72       SUBAREA RUNOFF(CFS) =    4.22
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.790
  TOTAL AREA(ACRES) =        0.8         PEAK FLOW RATE(CFS) =       4.81

         ==>>WARNING: FLOW IN CHANNEL EXCEEDS CHANNEL
             CAPACITY( NORMAL DEPTH EQUAL TO SPECIFIED MAXIMUM
             ALLOWABLE DEPTH).
             AS AN APPROXIMATION, FLOWDEPTH IS SET AT MAXIMUM
             ALLOWABLE DEPTH AND IS USED FOR TRAVELTIME CALCULATIONS.


  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.50   FLOW VELOCITY(FEET/SEC.) =   6.41

  ==>FLOWDEPTH EXCEEDS MAXIMUM ALLOWABLE DEPTH

  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    102.00 =     651.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.419
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    0.73   SUBAREA RUNOFF(CFS) =    4.28
  TOTAL AREA(ACRES) =        1.6   TOTAL RUNOFF(CFS) =       9.08
  TC(MIN.) =    5.80

****************************************************************************
  FLOW PROCESS FROM NODE    102.00 TO NODE    103.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   445.00  DOWNSTREAM(FEET) =   444.26
  FLOW LENGTH(FEET) =    74.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  12.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.00
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       9.08
  PIPE TRAVEL TIME(MIN.) =   0.18    Tc(MIN.) =    5.98
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    103.00 =     725.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    103.00 TO NODE    103.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.278
```

```
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    0.19   SUBAREA RUNOFF(CFS) =    1.09
  TOTAL AREA(ACRES) =        1.7   TOTAL RUNOFF(CFS) =      10.00
  TC(MIN.) =    5.98

****************************************************************************
  FLOW PROCESS FROM NODE    103.00 TO NODE    104.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   444.26  DOWNSTREAM(FEET) =   444.07
  FLOW LENGTH(FEET) =    19.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  13.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.10
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      10.00
  PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =    6.02
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    104.00 =     744.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    104.00 TO NODE    104.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.243
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    0.14   SUBAREA RUNOFF(CFS) =    0.80
  TOTAL AREA(ACRES) =        1.9   TOTAL RUNOFF(CFS) =      10.76
  TC(MIN.) =    6.02

****************************************************************************
  FLOW PROCESS FROM NODE    104.00 TO NODE    105.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   444.07  DOWNSTREAM(FEET) =   443.70
  FLOW LENGTH(FEET) =    37.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  14.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.15
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      10.76
  PIPE TRAVEL TIME(MIN.) =   0.09    Tc(MIN.) =    6.11
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    105.00 =     781.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    105.00 TO NODE    105.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.177
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    0.12   SUBAREA RUNOFF(CFS) =    0.68
  TOTAL AREA(ACRES) =        2.0   TOTAL RUNOFF(CFS) =      11.34
  TC(MIN.) =    6.11

****************************************************************************
  FLOW PROCESS FROM NODE    105.00 TO NODE    106.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   443.70  DOWNSTREAM(FEET) =   443.05
  FLOW LENGTH(FEET) =    65.00   MANNING'S N =  0.012
```

```
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  12.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.48
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      11.34
  PIPE TRAVEL TIME(MIN.) =   0.14    Tc(MIN.) =    6.26
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    106.00 =     846.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    106.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.069
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    0.20   SUBAREA RUNOFF(CFS) =    1.12
  TOTAL AREA(ACRES) =        2.2   TOTAL RUNOFF(CFS) =      12.29
  TC(MIN.) =    6.26

****************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    106.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.069
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    0.18   SUBAREA RUNOFF(CFS) =    1.01
  TOTAL AREA(ACRES) =        2.4   TOTAL RUNOFF(CFS) =      13.29
  TC(MIN.) =    6.26

****************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    107.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   443.05  DOWNSTREAM(FEET) =   442.14
  FLOW LENGTH(FEET) =    91.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  14.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.72
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      13.29
  PIPE TRAVEL TIME(MIN.) =   0.20    Tc(MIN.) =    6.45
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    107.00 =     937.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    107.00 TO NODE    107.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.929
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    0.07   SUBAREA RUNOFF(CFS) =    0.38
  TOTAL AREA(ACRES) =        2.5   TOTAL RUNOFF(CFS) =      13.41
  TC(MIN.) =    6.45

****************************************************************************
  FLOW PROCESS FROM NODE    107.00 TO NODE    108.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   442.14  DOWNSTREAM(FEET) =   441.69
  FLOW LENGTH(FEET) =    45.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  14.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.73
```

```
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      13.41
  PIPE TRAVEL TIME(MIN.) =   0.10    Tc(MIN.) =    6.55
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    108.00 =     982.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    108.00 TO NODE    108.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.863
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    0.14   SUBAREA RUNOFF(CFS) =    0.76
  TOTAL AREA(ACRES) =        2.6   TOTAL RUNOFF(CFS) =      14.04
  TC(MIN.) =    6.55

****************************************************************************
  FLOW PROCESS FROM NODE    108.00 TO NODE    109.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   441.69  DOWNSTREAM(FEET) =   441.15
  FLOW LENGTH(FEET) =    54.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  14.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.79
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      14.04
  PIPE TRAVEL TIME(MIN.) =   0.12    Tc(MIN.) =    6.66
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    109.00 =    1036.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    109.00 TO NODE    109.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.786
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    0.34   SUBAREA RUNOFF(CFS) =    1.82
  TOTAL AREA(ACRES) =        2.9   TOTAL RUNOFF(CFS) =      15.71
  TC(MIN.) =    6.66

****************************************************************************
  FLOW PROCESS FROM NODE    109.00 TO NODE    110.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   441.15  DOWNSTREAM(FEET) =   438.59
  FLOW LENGTH(FEET) =   256.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  16.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.91
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      15.71
  PIPE TRAVEL TIME(MIN.) =   0.54    Tc(MIN.) =    7.20
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    110.00 =    1292.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    110.00 TO NODE    110.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.454
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    0.39   SUBAREA RUNOFF(CFS) =    1.99
```

```
  TOTAL AREA(ACRES) =        3.3   TOTAL RUNOFF(CFS) =      16.93
  TC(MIN.) =    7.20

****************************************************************************
  FLOW PROCESS FROM NODE    110.00 TO NODE    111.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   438.59  DOWNSTREAM(FEET) =   438.04
  FLOW LENGTH(FEET) =    54.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  14.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.31
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      16.93
  PIPE TRAVEL TIME(MIN.) =   0.11    Tc(MIN.) =    7.31
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    111.00 =    1346.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    111.00 TO NODE    111.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.392
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    0.09   SUBAREA RUNOFF(CFS) =    0.45
  TOTAL AREA(ACRES) =        3.4   TOTAL RUNOFF(CFS) =      17.22
  TC(MIN.) =    7.31

****************************************************************************
  FLOW PROCESS FROM NODE    111.00 TO NODE    112.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   438.04  DOWNSTREAM(FEET) =   437.65
  FLOW LENGTH(FEET) =    39.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  15.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.28
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      17.22
  PIPE TRAVEL TIME(MIN.) =   0.08    Tc(MIN.) =    7.39
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    112.00 =    1385.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    112.00 TO NODE    112.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.348
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    0.20   SUBAREA RUNOFF(CFS) =    1.00
  TOTAL AREA(ACRES) =        3.6   TOTAL RUNOFF(CFS) =      18.10
  TC(MIN.) =    7.39

****************************************************************************
  FLOW PROCESS FROM NODE    112.00 TO NODE    113.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   437.65  DOWNSTREAM(FEET) =   436.60
  FLOW LENGTH(FEET) =   106.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  15.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.33
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      18.10
```

```
  PIPE TRAVEL TIME(MIN.) =   0.21    Tc(MIN.) =    7.60
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    113.00 =    1491.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    113.00 TO NODE    113.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.60
  RAINFALL INTENSITY(INCH/HR) =   6.23
  TOTAL STREAM AREA(ACRES) =     3.61
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     18.10

****************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    201.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    65.00
  UPSTREAM ELEVATION(FEET) =    454.99
  DOWNSTREAM ELEVATION(FEET) =    453.11
  ELEVATION DIFFERENCE(FEET) =      1.88
  SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.158
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.168
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.65
  TOTAL AREA(ACRES) =      0.10   TOTAL RUNOFF(CFS) =      0.65

****************************************************************************
  FLOW PROCESS FROM NODE    201.00 TO NODE    202.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    453.11  DOWNSTREAM(FEET) =    440.97
  CHANNEL LENGTH THRU SUBAREA(FEET) =   517.00   CHANNEL SLOPE =  0.0235
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   0.50
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.168
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.19
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.37
  AVERAGE FLOW DEPTH(FEET) =   0.45   TRAVEL TIME(MIN.) =   1.61
  Tc(MIN.) =    4.76
  SUBAREA AREA(ACRES) =     0.79       SUBAREA RUNOFF(CFS) =    5.10
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.790
  TOTAL AREA(ACRES) =        0.9         PEAK FLOW RATE(CFS) =       5.74

         ==>>WARNING: FLOW IN CHANNEL EXCEEDS CHANNEL
             CAPACITY( NORMAL DEPTH EQUAL TO SPECIFIED MAXIMUM
             ALLOWABLE DEPTH).
             AS AN APPROXIMATION, FLOWDEPTH IS SET AT MAXIMUM
             ALLOWABLE DEPTH AND IS USED FOR TRAVELTIME CALCULATIONS.


  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.50   FLOW VELOCITY(FEET/SEC.) =   7.66

  ==>FLOWDEPTH EXCEEDS MAXIMUM ALLOWABLE DEPTH

  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    202.00 =     582.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    202.00 TO NODE    202.00 IS CODE =  81
----------------------------------------------------------------------------
```

```
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.168
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    0.72   SUBAREA RUNOFF(CFS) =    4.65
  TOTAL AREA(ACRES) =        1.6   TOTAL RUNOFF(CFS) =      10.39
  TC(MIN.) =    4.76

****************************************************************************
  FLOW PROCESS FROM NODE    202.00 TO NODE    203.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    440.97  DOWNSTREAM(FEET) =    439.50
  CHANNEL LENGTH THRU SUBAREA(FEET) =   209.00   CHANNEL SLOPE =  0.0070
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   0.50

         ==>>WARNING: FLOW IN CHANNEL EXCEEDS CHANNEL
             CAPACITY( NORMAL DEPTH EQUAL TO SPECIFIED MAXIMUM
             ALLOWABLE DEPTH).
             AS AN APPROXIMATION, FLOWDEPTH IS SET AT MAXIMUM
             ALLOWABLE DEPTH AND IS USED FOR TRAVELTIME CALCULATIONS.

   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  8.168
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      11.10
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =  14.80
  AVERAGE FLOW DEPTH(FEET) =   0.50   TRAVEL TIME(MIN.) =   0.24
  Tc(MIN.) =    5.00
  SUBAREA AREA(ACRES) =     0.22       SUBAREA RUNOFF(CFS) =    1.42
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.790
  TOTAL AREA(ACRES) =        1.8         PEAK FLOW RATE(CFS) =      11.81

         ==>>WARNING: FLOW IN CHANNEL EXCEEDS CHANNEL
             CAPACITY( NORMAL DEPTH EQUAL TO SPECIFIED MAXIMUM
             ALLOWABLE DEPTH).
             AS AN APPROXIMATION, FLOWDEPTH IS SET AT MAXIMUM
             ALLOWABLE DEPTH AND IS USED FOR TRAVELTIME CALCULATIONS.


  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.50   FLOW VELOCITY(FEET/SEC.) =  15.74

  ==>FLOWDEPTH EXCEEDS MAXIMUM ALLOWABLE DEPTH

  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    203.00 =     791.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    203.00 TO NODE    204.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   437.63  DOWNSTREAM(FEET) =   436.81
  FLOW LENGTH(FEET) =   164.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  17.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.61
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      11.81
  PIPE TRAVEL TIME(MIN.) =   0.49    Tc(MIN.) =    5.49
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    204.00 =     955.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    204.00 TO NODE    204.00 IS CODE =  81
```

```
--------------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.694
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    0.29   SUBAREA RUNOFF(CFS) =    1.76
  TOTAL AREA(ACRES) =        2.1   TOTAL RUNOFF(CFS) =      12.89
  TC(MIN.) =    5.49

********************************************************************************
  FLOW PROCESS FROM NODE    204.00 TO NODE    204.00 IS CODE =  81
--------------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  7.694
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    0.18   SUBAREA RUNOFF(CFS) =    1.09
  TOTAL AREA(ACRES) =        2.3   TOTAL RUNOFF(CFS) =      13.98
  TC(MIN.) =    5.49

********************************************************************************
  FLOW PROCESS FROM NODE    204.00 TO NODE    113.00 IS CODE =  31
--------------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   436.81  DOWNSTREAM(FEET) =   436.60
  FLOW LENGTH(FEET) =    43.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  16.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.95
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      13.98
  PIPE TRAVEL TIME(MIN.) =   0.12    Tc(MIN.) =    5.61
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    113.00 =     998.00 FEET.

********************************************************************************
  FLOW PROCESS FROM NODE    113.00 TO NODE    113.00 IS CODE =   1
--------------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
================================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    5.61
  RAINFALL INTENSITY(INCH/HR) =   7.59
  TOTAL STREAM AREA(ACRES) =     2.30
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     13.98

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       18.10     7.60        6.233          3.61
      2       13.98     5.61        7.587          2.30

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       27.33     5.61       7.587
      2       29.59     7.60       6.233

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      29.59   Tc(MIN.) =    7.60
  TOTAL AREA(ACRES) =        5.9
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    113.00 =    1491.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    113.00 TO NODE    114.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   436.60  DOWNSTREAM(FEET) =   436.42
  FLOW LENGTH(FEET) =    18.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  27.0 INCH PIPE IS  20.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.32
  ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      29.59
  PIPE TRAVEL TIME(MIN.) =   0.03    Tc(MIN.) =    7.63
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    114.00 =    1509.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    114.00 TO NODE    114.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.216
  USER-SPECIFIED RUNOFF COEFFICIENT = .7900
  S.C.S. CURVE NUMBER (AMC II) =  94
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7900
  SUBAREA AREA(ACRES) =    0.21   SUBAREA RUNOFF(CFS) =    1.03
  TOTAL AREA(ACRES) =        6.1   TOTAL RUNOFF(CFS) =      30.05
  TC(MIN.) =    7.63

****************************************************************************
  FLOW PROCESS FROM NODE    114.00 TO NODE    115.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   428.10  DOWNSTREAM(FEET) =   418.10
  FLOW LENGTH(FEET) =    92.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  12.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  23.10
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      30.05
  PIPE TRAVEL TIME(MIN.) =   0.07    Tc(MIN.) =    7.70
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    115.00 =    1601.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    115.00 TO NODE    115.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.182
  USER-SPECIFIED RUNOFF COEFFICIENT = .8700
  S.C.S. CURVE NUMBER (AMC II) =  98
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7957
  SUBAREA AREA(ACRES) =    0.47   SUBAREA RUNOFF(CFS) =    2.53
  TOTAL AREA(ACRES) =        6.6   TOTAL RUNOFF(CFS) =      32.41
  TC(MIN.) =    7.70

****************************************************************************
  FLOW PROCESS FROM NODE    115.00 TO NODE    116.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   418.10  DOWNSTREAM(FEET) =   416.00
  FLOW LENGTH(FEET) =    94.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  17.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  12.87
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      32.41
  PIPE TRAVEL TIME(MIN.) =   0.12    Tc(MIN.) =    7.82
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    116.00 =    1695.00 FEET.
```

```
****************************************************************************
 FLOW PROCESS FROM NODE    116.00 TO NODE    116.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.119
 USER-SPECIFIED RUNOFF COEFFICIENT = .3500
 S.C.S. CURVE NUMBER (AMC II) =  88
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.7864
 SUBAREA AREA(ACRES) =    0.14   SUBAREA RUNOFF(CFS) =    0.30
 TOTAL AREA(ACRES) =        6.7   TOTAL RUNOFF(CFS) =      32.41
 TC(MIN.) =    7.82
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE    116.00 TO NODE    116.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.119
 USER-SPECIFIED RUNOFF COEFFICIENT = .3500
 S.C.S. CURVE NUMBER (AMC II) =  88
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.6896
 SUBAREA AREA(ACRES) =    1.92   SUBAREA RUNOFF(CFS) =    4.11
 TOTAL AREA(ACRES) =        8.6   TOTAL RUNOFF(CFS) =      36.50
 TC(MIN.) =    7.82

****************************************************************************
 FLOW PROCESS FROM NODE    400.00 TO NODE    401.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
 USER-SPECIFIED RUNOFF COEFFICIENT = .3500
 S.C.S. CURVE NUMBER (AMC II) =  88
 INITIAL SUBAREA FLOW-LENGTH(FEET) =    55.00
 UPSTREAM ELEVATION(FEET) =    466.09
 DOWNSTREAM ELEVATION(FEET) =    464.87
 ELEVATION DIFFERENCE(FEET) =      1.22
 SUBAREA OVERLAND TIME OF FLOW(MIN.) =    7.677
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  6.194
 SUBAREA RUNOFF(CFS) =      0.22
 TOTAL AREA(ACRES) =      0.10   TOTAL RUNOFF(CFS) =      0.22

****************************************************************************
 FLOW PROCESS FROM NODE    401.00 TO NODE    402.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    464.87  DOWNSTREAM(FEET) =    458.10
 CHANNEL LENGTH THRU SUBAREA(FEET) =    83.00   CHANNEL SLOPE =  0.0816
 CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =  99.000
 MANNING'S FACTOR = 0.030   MAXIMUM DEPTH(FEET) =   0.50
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  5.672
 USER-SPECIFIED RUNOFF COEFFICIENT = .3500
 S.C.S. CURVE NUMBER (AMC II) =  88
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       0.39
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.23
 AVERAGE FLOW DEPTH(FEET) =   0.06   TRAVEL TIME(MIN.) =   1.12
 Tc(MIN.) =    8.80
 SUBAREA AREA(ACRES) =     0.17       SUBAREA RUNOFF(CFS) =    0.34
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.350
 TOTAL AREA(ACRES) =        0.3         PEAK FLOW RATE(CFS) =       0.54

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  0.06   FLOW VELOCITY(FEET/SEC.) =   1.33
 LONGEST FLOWPATH FROM NODE    400.00 TO NODE    402.00 =     138.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    402.00 TO NODE    403.00 IS CODE =  62
```

```
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  1 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  458.10  DOWNSTREAM ELEVATION(FEET) =  422.00
  STREET LENGTH(FEET) =   923.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 30.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.018
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.57
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.26
    HALFSTREET FLOOD WIDTH(FEET) =    7.51
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.66
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.96
  STREET FLOW TRAVEL TIME(MIN.) =   4.21   Tc(MIN.) =   13.01
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.409
  USER-SPECIFIED RUNOFF COEFFICIENT = .8700
  S.C.S. CURVE NUMBER (AMC II) =  98
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.812
  SUBAREA AREA(ACRES) =    2.15      SUBAREA RUNOFF(CFS) =    8.25
  TOTAL AREA(ACRES) =        2.4        PEAK FLOW RATE(CFS) =       8.66

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.31   HALFSTREET FLOOD WIDTH(FEET) =  10.12
  FLOW VELOCITY(FEET/SEC.) =  4.19   DEPTH*VELOCITY(FT*FT/SEC.) =   1.30
  LONGEST FLOWPATH FROM NODE    400.00 TO NODE    403.00 =    1061.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        2.4  TC(MIN.) =     13.01
  PEAK FLOW RATE(CFS)   =       8.66
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

APPENDIX F

DETENTION BASINS CALCULATIONS

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RATIONAL METHOD HYDROGRAPH PROGRAM
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RUN DATE 12/15/2021
HYDROGRAPH FILE NAME Text1
TIME OF CONCENTRATION 5 MIN.
6 HOUR RAINFALL 3.1 INCHES
BASIN AREA 6.1 ACRES
RUNOFF COEFFICIENT 0.79
PEAK DISCHARGE 30.1 CFS

TIME (MIN) = 0	DISCHARGE (CFS) = 0
TIME (MIN) = 5	DISCHARGE (CFS) = 0.9
TIME (MIN) = 10	DISCHARGE (CFS) = 0.9
TIME (MIN) = 15	DISCHARGE (CFS) = 0.9
TIME (MIN) = 20	DISCHARGE (CFS) = 0.9
TIME (MIN) = 25	DISCHARGE (CFS) = 0.9
TIME (MIN) = 30	DISCHARGE (CFS) = 1
TIME (MIN) = 35	DISCHARGE (CFS) = 1
TIME (MIN) = 40	DISCHARGE (CFS) = 1
TIME (MIN) = 45	DISCHARGE (CFS) = 1
TIME (MIN) = 50	DISCHARGE (CFS) = 1
TIME (MIN) = 55	DISCHARGE (CFS) = 1
TIME (MIN) = 60	DISCHARGE (CFS) = 1
TIME (MIN) = 65	DISCHARGE (CFS) = 1.1
TIME (MIN) = 70	DISCHARGE (CFS) = 1.1
TIME (MIN) = 75	DISCHARGE (CFS) = 1.1
TIME (MIN) = 80	DISCHARGE (CFS) = 1.1
TIME (MIN) = 85	DISCHARGE (CFS) = 1.2
TIME (MIN) = 90	DISCHARGE (CFS) = 1.2
TIME (MIN) = 95	DISCHARGE (CFS) = 1.2
TIME (MIN) = 100	DISCHARGE (CFS) = 1.2
TIME (MIN) = 105	DISCHARGE (CFS) = 1.3
TIME (MIN) = 110	DISCHARGE (CFS) = 1.3
TIME (MIN) = 115	DISCHARGE (CFS) = 1.3
TIME (MIN) = 120	DISCHARGE (CFS) = 1.3
TIME (MIN) = 125	DISCHARGE (CFS) = 1.4
TIME (MIN) = 130	DISCHARGE (CFS) = 1.4
TIME (MIN) = 135	DISCHARGE (CFS) = 1.5
TIME (MIN) = 140	DISCHARGE (CFS) = 1.5
TIME (MIN) = 145	DISCHARGE (CFS) = 1.6
TIME (MIN) = 150	DISCHARGE (CFS) = 1.6
TIME (MIN) = 155	DISCHARGE (CFS) = 1.7
TIME (MIN) = 160	DISCHARGE (CFS) = 1.7
TIME (MIN) = 165	DISCHARGE (CFS) = 1.8
TIME (MIN) = 170	DISCHARGE (CFS) = 1.9
TIME (MIN) = 175	DISCHARGE (CFS) = 2
TIME (MIN) = 180	DISCHARGE (CFS) = 2.1
TIME (MIN) = 185	DISCHARGE (CFS) = 2.2
TIME (MIN) = 190	DISCHARGE (CFS) = 2.3
TIME (MIN) = 195	DISCHARGE (CFS) = 2.5
TIME (MIN) = 200	DISCHARGE (CFS) = 2.6
TIME (MIN) = 205	DISCHARGE (CFS) = 2.9
TIME (MIN) = 210	DISCHARGE (CFS) = 3.1
TIME (MIN) = 215	DISCHARGE (CFS) = 3.5
TIME (MIN) = 220	DISCHARGE (CFS) = 3.8
TIME (MIN) = 225	DISCHARGE (CFS) = 4.7
TIME (MIN) = 230	DISCHARGE (CFS) = 5.3
TIME (MIN) = 235	DISCHARGE (CFS) = 7.8
TIME (MIN) = 240	DISCHARGE (CFS) = 20.2
TIME (MIN) = 245	DISCHARGE (CFS) = 30.1
TIME (MIN) = 250	DISCHARGE (CFS) = 6.3
TIME (MIN) = 255	DISCHARGE (CFS) = 4.2
TIME (MIN) = 260	DISCHARGE (CFS) = 3.3
TIME (MIN) = 265	DISCHARGE (CFS) = 2.7
TIME (MIN) = 270	DISCHARGE (CFS) = 2.4
TIME (MIN) = 275	DISCHARGE (CFS) = 2.1
TIME (MIN) = 280	DISCHARGE (CFS) = 1.9
TIME (MIN) = 285	DISCHARGE (CFS) = 1.8
TIME (MIN) = 290	DISCHARGE (CFS) = 1.6
TIME (MIN) = 295	DISCHARGE (CFS) = 1.5
TIME (MIN) = 300	DISCHARGE (CFS) = 1.5
TIME (MIN) = 305	DISCHARGE (CFS) = 1.4
TIME (MIN) = 310	DISCHARGE (CFS) = 1.3
TIME (MIN) = 315	DISCHARGE (CFS) = 1.2
TIME (MIN) = 320	DISCHARGE (CFS) = 1.2
TIME (MIN) = 325	DISCHARGE (CFS) = 1.1
TIME (MIN) = 330	DISCHARGE (CFS) = 1.1
TIME (MIN) = 335	DISCHARGE (CFS) = 1.1
TIME (MIN) = 340	DISCHARGE (CFS) = 1
TIME (MIN) = 345	DISCHARGE (CFS) = 1
TIME (MIN) = 350	DISCHARGE (CFS) = 1
TIME (MIN) = 355	DISCHARGE (CFS) = 0.9
TIME (MIN) = 360	DISCHARGE (CFS) = 0.9

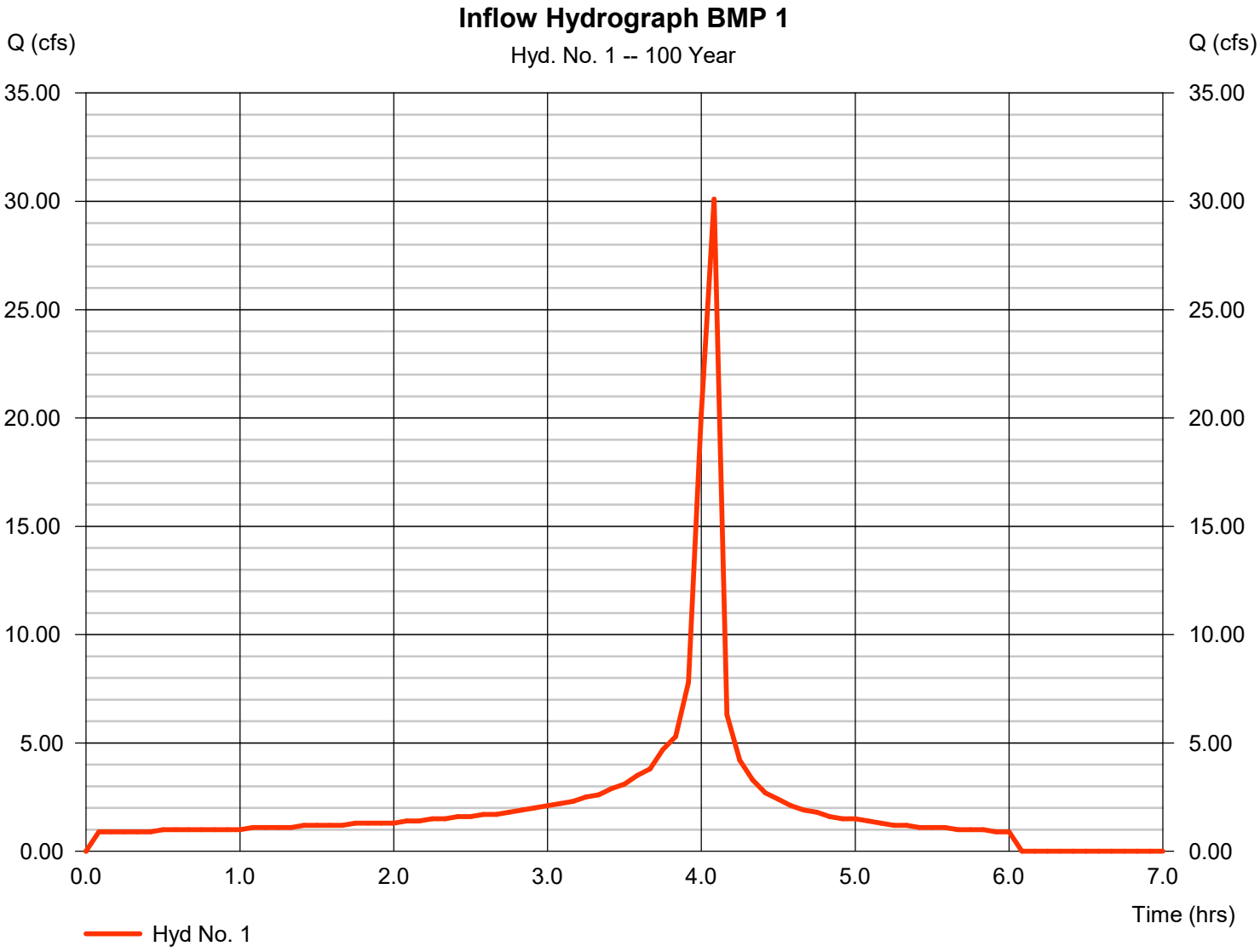
Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020.4 Wednesday, 12 / 15 / 2021

Hyd. No. 1

Inflow Hydrograph BMP 1

Hydrograph type	= Manual	Peak discharge	= 30.10 cfs
Storm frequency	= 100 yrs	Time to peak	= 4.08 hrs
Time interval	= 5 min	Hyd. volume	= 53,880 cuft



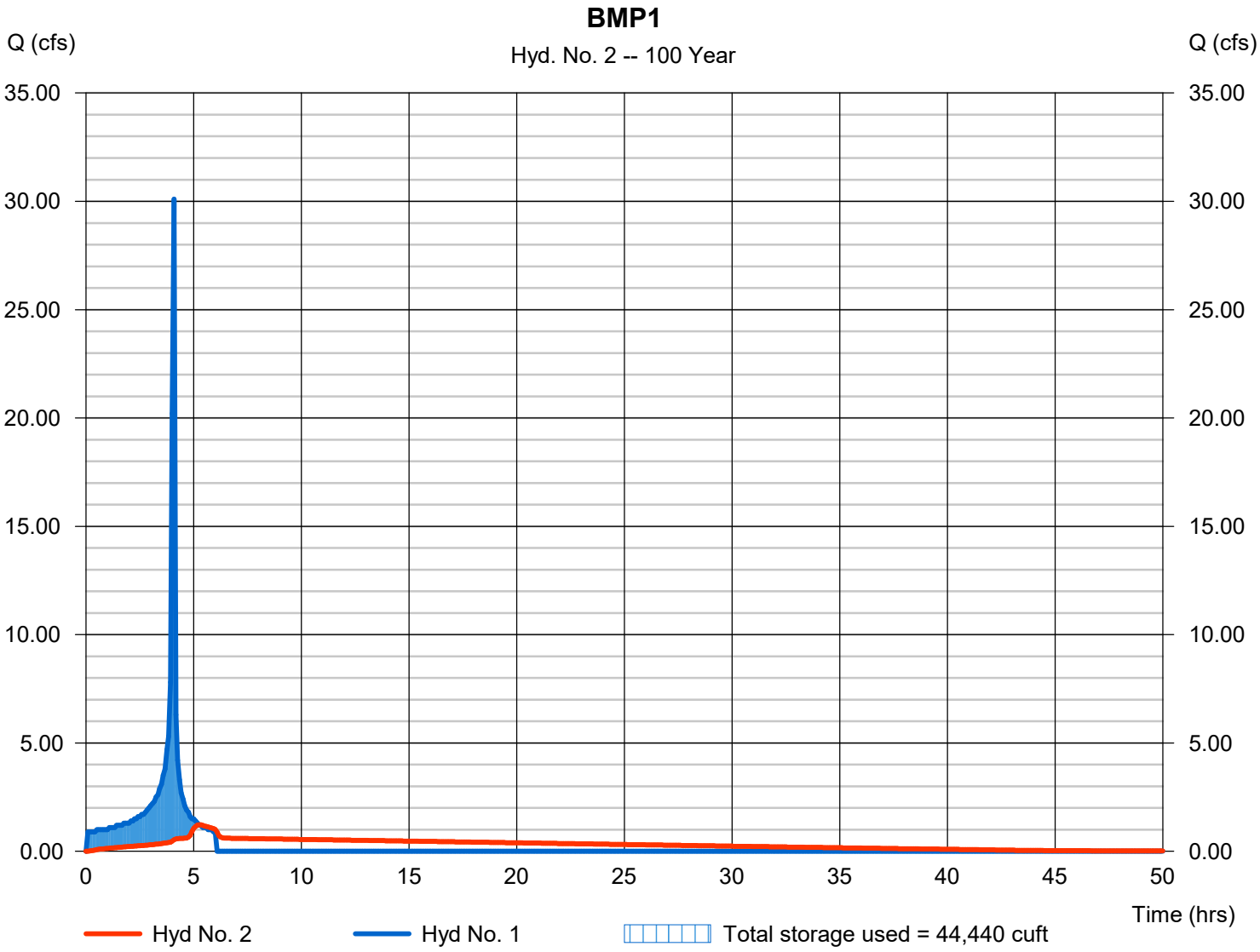
Hydrograph Report

Hyd. No. 2

BMP1

Hydrograph type	=	Reservoir	Peak discharge	=	1.225 cfs
Storm frequency	=	100 yrs	Time to peak	=	5.25 hrs
Time interval	=	5 min	Hyd. volume	=	53,836 cuft
Inflow hyd. No.	=	1 - Inflow Hydrograph BMP 1	Max. Elevation	=	435.23 ft
Reservoir name	=	Underground Detention Vault	Max. Storage	=	44,440 cuft

Storage Indication method used.



Pond Report

Pond No. 1 - Underground Detention Vault

Pond Data

UG Chambers -Invert elev. = 428.10 ft, Rise x Span = 8.00 x 50.00 ft, Barrel Len = 124.66 ft, No. Barrels = 1, Slope = 0.00%, Headers = No

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	428.10	n/a	0	0
0.80	428.90	n/a	4,987	4,987
1.60	429.70	n/a	4,988	9,975
2.40	430.50	n/a	4,987	14,962
3.20	431.30	n/a	4,988	19,950
4.00	432.10	n/a	4,987	24,937
4.80	432.90	n/a	4,987	29,924
5.60	433.70	n/a	4,988	34,912
6.40	434.50	n/a	4,987	39,899
7.20	435.30	n/a	4,988	44,887
8.00	436.10	n/a	4,987	49,874

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 12.00	3.00	0.00	0.00
Span (in)	= 12.00	3.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 428.10	428.10	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 4.00	0.00	0.00	0.00
Crest El. (ft)	= 435.10	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	428.10	0.00	0.00	---	---	0.00	---	---	---	---	---	0.000
0.08	499	428.18	0.01 ic	0.01 ic	---	---	0.00	---	---	---	---	---	0.011
0.16	997	428.26	0.04 ic	0.04 ic	---	---	0.00	---	---	---	---	---	0.041
0.24	1,496	428.34	0.08 ic	0.08 ic	---	---	0.00	---	---	---	---	---	0.077
0.32	1,995	428.42	0.10 ic	0.10 ic	---	---	0.00	---	---	---	---	---	0.098
0.40	2,494	428.50	0.12 ic	0.12 ic	---	---	0.00	---	---	---	---	---	0.115
0.48	2,992	428.58	0.13 ic	0.13 ic	---	---	0.00	---	---	---	---	---	0.131
0.56	3,491	428.66	0.15 ic	0.15 ic	---	---	0.00	---	---	---	---	---	0.145
0.64	3,990	428.74	0.16 ic	0.16 ic	---	---	0.00	---	---	---	---	---	0.158
0.72	4,489	428.82	0.18 ic	0.17 ic	---	---	0.00	---	---	---	---	---	0.170
0.80	4,987	428.90	0.19 ic	0.18 ic	---	---	0.00	---	---	---	---	---	0.182
0.88	5,486	428.98	0.20 ic	0.19 ic	---	---	0.00	---	---	---	---	---	0.193
0.96	5,985	429.06	0.21 ic	0.20 ic	---	---	0.00	---	---	---	---	---	0.203
1.04	6,484	429.14	0.21 ic	0.21 ic	---	---	0.00	---	---	---	---	---	0.214
1.12	6,982	429.22	0.22 ic	0.22 ic	---	---	0.00	---	---	---	---	---	0.223
1.20	7,481	429.30	0.24 ic	0.23 ic	---	---	0.00	---	---	---	---	---	0.232
1.28	7,980	429.38	0.25 ic	0.24 ic	---	---	0.00	---	---	---	---	---	0.241
1.36	8,479	429.46	0.25 ic	0.25 ic	---	---	0.00	---	---	---	---	---	0.250
1.44	8,977	429.54	0.26 ic	0.26 ic	---	---	0.00	---	---	---	---	---	0.258
1.52	9,476	429.62	0.28 ic	0.27 ic	---	---	0.00	---	---	---	---	---	0.266
1.60	9,975	429.70	0.28 ic	0.27 ic	---	---	0.00	---	---	---	---	---	0.274
1.68	10,474	429.78	0.29 ic	0.28 ic	---	---	0.00	---	---	---	---	---	0.282
1.76	10,972	429.86	0.29 ic	0.29 ic	---	---	0.00	---	---	---	---	---	0.290
1.84	11,471	429.94	0.31 ic	0.30 ic	---	---	0.00	---	---	---	---	---	0.296
1.92	11,970	430.02	0.31 ic	0.30 ic	---	---	0.00	---	---	---	---	---	0.304
2.00	12,469	430.10	0.32 ic	0.31 ic	---	---	0.00	---	---	---	---	---	0.311
2.08	12,967	430.18	0.32 ic	0.32 ic	---	---	0.00	---	---	---	---	---	0.318
2.16	13,466	430.26	0.32 ic	0.32 ic	---	---	0.00	---	---	---	---	---	0.324
2.24	13,965	430.34	0.34 ic	0.33 ic	---	---	0.00	---	---	---	---	---	0.331
2.32	14,463	430.42	0.34 ic	0.34 ic	---	---	0.00	---	---	---	---	---	0.337
2.40	14,962	430.50	0.35 ic	0.34 ic	---	---	0.00	---	---	---	---	---	0.344
2.48	15,461	430.58	0.35 ic	0.35 ic	---	---	0.00	---	---	---	---	---	0.350

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Underground Detention Vault

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
2.56	15,960	430.66	0.36 ic	0.36 ic	---	---	0.00	---	---	---	---	---	0.356
2.64	16,458	430.74	0.37 ic	0.36 ic	---	---	0.00	---	---	---	---	---	0.362
2.72	16,957	430.82	0.37 ic	0.37 ic	---	---	0.00	---	---	---	---	---	0.368
2.80	17,456	430.90	0.39 ic	0.37 ic	---	---	0.00	---	---	---	---	---	0.374
2.88	17,955	430.98	0.39 ic	0.38 ic	---	---	0.00	---	---	---	---	---	0.379
2.96	18,453	431.06	0.39 ic	0.39 ic	---	---	0.00	---	---	---	---	---	0.385
3.04	18,952	431.14	0.40 ic	0.39 ic	---	---	0.00	---	---	---	---	---	0.391
3.12	19,451	431.22	0.40 ic	0.40 ic	---	---	0.00	---	---	---	---	---	0.396
3.20	19,950	431.30	0.40 ic	0.40 ic	---	---	0.00	---	---	---	---	---	0.402
3.28	20,448	431.38	0.41 ic	0.41 ic	---	---	0.00	---	---	---	---	---	0.407
3.36	20,947	431.46	0.42 ic	0.41 ic	---	---	0.00	---	---	---	---	---	0.412
3.44	21,446	431.54	0.42 ic	0.42 ic	---	---	0.00	---	---	---	---	---	0.418
3.52	21,945	431.62	0.42 ic	0.42 ic	---	---	0.00	---	---	---	---	---	0.423
3.60	22,443	431.70	0.44 ic	0.43 ic	---	---	0.00	---	---	---	---	---	0.428
3.68	22,942	431.78	0.44 ic	0.43 ic	---	---	0.00	---	---	---	---	---	0.433
3.76	23,441	431.86	0.44 ic	0.44 ic	---	---	0.00	---	---	---	---	---	0.438
3.84	23,940	431.94	0.44 ic	0.44 ic	---	---	0.00	---	---	---	---	---	0.443
3.92	24,438	432.02	0.46 ic	0.45 ic	---	---	0.00	---	---	---	---	---	0.448
4.00	24,937	432.10	0.46 ic	0.45 ic	---	---	0.00	---	---	---	---	---	0.453
4.08	25,436	432.18	0.46 ic	0.46 ic	---	---	0.00	---	---	---	---	---	0.458
4.16	25,934	432.26	0.46 ic	0.46 ic	---	---	0.00	---	---	---	---	---	0.462
4.24	26,433	432.34	0.48 ic	0.47 ic	---	---	0.00	---	---	---	---	---	0.467
4.32	26,932	432.42	0.48 ic	0.47 ic	---	---	0.00	---	---	---	---	---	0.472
4.40	27,431	432.50	0.48 ic	0.48 ic	---	---	0.00	---	---	---	---	---	0.476
4.48	27,929	432.58	0.48 ic	0.48 ic	---	---	0.00	---	---	---	---	---	0.481
4.56	28,428	432.66	0.50 ic	0.49 ic	---	---	0.00	---	---	---	---	---	0.485
4.64	28,927	432.74	0.50 ic	0.49 ic	---	---	0.00	---	---	---	---	---	0.490
4.72	29,426	432.82	0.50 ic	0.49 ic	---	---	0.00	---	---	---	---	---	0.494
4.80	29,924	432.90	0.50 ic	0.50 ic	---	---	0.00	---	---	---	---	---	0.499
4.88	30,423	432.98	0.52 ic	0.50 ic	---	---	0.00	---	---	---	---	---	0.503
4.96	30,922	433.06	0.52 ic	0.51 ic	---	---	0.00	---	---	---	---	---	0.507
5.04	31,421	433.14	0.52 ic	0.51 ic	---	---	0.00	---	---	---	---	---	0.512
5.12	31,919	433.22	0.52 ic	0.52 ic	---	---	0.00	---	---	---	---	---	0.516
5.20	32,418	433.30	0.52 ic	0.52 ic	---	---	0.00	---	---	---	---	---	0.520
5.28	32,917	433.38	0.54 ic	0.52 ic	---	---	0.00	---	---	---	---	---	0.524
5.36	33,416	433.46	0.54 ic	0.53 ic	---	---	0.00	---	---	---	---	---	0.528
5.44	33,914	433.54	0.54 ic	0.53 ic	---	---	0.00	---	---	---	---	---	0.533
5.52	34,413	433.62	0.54 ic	0.54 ic	---	---	0.00	---	---	---	---	---	0.537
5.60	34,912	433.70	0.54 ic	0.54 ic	---	---	0.00	---	---	---	---	---	0.541
5.68	35,411	433.78	0.56 ic	0.54 ic	---	---	0.00	---	---	---	---	---	0.545
5.76	35,909	433.86	0.56 ic	0.55 ic	---	---	0.00	---	---	---	---	---	0.549
5.84	36,408	433.94	0.56 ic	0.55 ic	---	---	0.00	---	---	---	---	---	0.553
5.92	36,907	434.02	0.56 ic	0.56 ic	---	---	0.00	---	---	---	---	---	0.557
6.00	37,405	434.10	0.56 ic	0.56 ic	---	---	0.00	---	---	---	---	---	0.561
6.08	37,904	434.18	0.58 ic	0.56 ic	---	---	0.00	---	---	---	---	---	0.564
6.16	38,403	434.26	0.58 ic	0.57 ic	---	---	0.00	---	---	---	---	---	0.568
6.24	38,902	434.34	0.58 ic	0.57 ic	---	---	0.00	---	---	---	---	---	0.572
6.32	39,400	434.42	0.58 ic	0.58 ic	---	---	0.00	---	---	---	---	---	0.576
6.40	39,899	434.50	0.58 ic	0.58 ic	---	---	0.00	---	---	---	---	---	0.580
6.48	40,398	434.58	0.58 ic	0.58 ic	---	---	0.00	---	---	---	---	---	0.584
6.56	40,897	434.66	0.60 ic	0.59 ic	---	---	0.00	---	---	---	---	---	0.587
6.64	41,395	434.74	0.60 ic	0.59 ic	---	---	0.00	---	---	---	---	---	0.591
6.72	41,894	434.82	0.60 ic	0.59 ic	---	---	0.00	---	---	---	---	---	0.595
6.80	42,393	434.90	0.60 ic	0.60 ic	---	---	0.00	---	---	---	---	---	0.599
6.88	42,892	434.98	0.60 ic	0.60 ic	---	---	0.00	---	---	---	---	---	0.602
6.96	43,390	435.06	0.62 ic	0.61 ic	---	---	0.00	---	---	---	---	---	0.606
7.04	43,889	435.14	0.71 ic	0.61 ic	---	---	0.11	---	---	---	---	---	0.714
7.12	44,388	435.22	1.16 ic	0.61 ic	---	---	0.55	---	---	---	---	---	1.158
7.20	44,887	435.30	1.79 ic	0.60 ic	---	---	1.19	---	---	---	---	---	1.793
7.28	45,385	435.38	2.57 ic	0.59 ic	---	---	1.97	---	---	---	---	---	2.568
7.36	45,884	435.46	3.46 ic	0.58 ic	---	---	2.88	---	---	---	---	---	3.457
7.44	46,383	435.54	4.44 ic	0.56 ic	---	---	3.89	---	---	---	---	---	4.444
7.52	46,882	435.62	4.44 ic	0.56 ic	---	---	3.88 ic	---	---	---	---	---	4.438
7.60	47,380	435.70	4.72 ic	0.56 ic	---	---	4.16 ic	---	---	---	---	---	4.721
7.68	47,879	435.78	4.98 ic	0.55 ic	---	---	4.43 ic	---	---	---	---	---	4.985
7.76	48,378	435.86	5.23 ic	0.55 ic	---	---	4.69 ic	---	---	---	---	---	5.233
7.84	48,877	435.94	5.47 ic	0.54 ic	---	---	4.93 ic	---	---	---	---	---	5.469
7.92	49,375	436.02	5.69 ic	0.54 ic	---	---	5.16 ic	---	---	---	---	---	5.693
8.00	49,874	436.10	5.91 ic	0.53 ic	---	---	5.38 ic	---	---	---	---	---	5.908

...End

Worksheet for Circular Orifice - BMP 1

Project Description	
Solve For	Discharge

Input Data	
Headwater Elevation	96.00 in
Centroid Elevation	6.00 in
Tailwater Elevation	0.00 in
Discharge Coefficient	0.600
Diameter	3.0 in

Results	
Discharge	0.65 cfs
Headwater Height Above Centroid	90.00 in
Tailwater Height Above Centroid	-6.00 in
Flow Area	0.0 ft^2
Velocity	13.18 ft/s

Worksheet for Circular Pipe - Offsite Pipe Sizing

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.028	
Channel Slope	2.230	%
Diameter	18.0	in
Discharge	3.70	cfs

Results

Normal Depth	9.1	in
Flow Area	0.9	ft²
Wetted Perimeter	2.4	ft
Hydraulic Radius	4.5	in
Top Width	1.50	ft
Critical Depth	8.8	in
Percent Full	50.5	%
Critical Slope	2.468	%
Velocity	4.14	ft/s
Velocity Head	0.27	ft
Specific Energy	1.02	ft
Froude Number	0.945	
Maximum Discharge	7.83	cfs
Discharge Full	7.28	cfs
Slope Full	0.576	%
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	33.0	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	9.1	in
Critical Depth	8.8	in
Channel Slope	2.230	%
Critical Slope	2.468	%

Worksheet for Circular Pipe - POC 1 EX

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data		
Roughness Coefficient	0.013	
Channel Slope	12.500	%
Diameter	24.0	in
Discharge	15.40	cfs

Results		
Normal Depth	7.1	in
Flow Area	0.8	ft²
Wetted Perimeter	2.3	ft
Hydraulic Radius	4.1	in
Top Width	1.83	ft
Critical Depth	17.0	in
Percent Full	29.7	%
Critical Slope	0.643	%
Velocity	19.66	ft/s
Velocity Head	6.01	ft
Specific Energy	6.60	ft
Froude Number	5.297	
Maximum Discharge	86.03	cfs
Discharge Full	79.98	cfs
Slope Full	0.463	%
Flow Type	Supercritical	

GVF Input Data		
Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	29.7	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	7.1	in
Critical Depth	17.0	in
Channel Slope	12.500	%
Critical Slope	0.643	%

Worksheet for Circular Pipe - POC 1 PROP

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data		
Roughness Coefficient	0.013	
Channel Slope	12.500	%
Diameter	24.0	in
Discharge	8.10	cfs

Results		
Normal Depth	5.2	in
Flow Area	0.5	ft²
Wetted Perimeter	1.9	ft
Hydraulic Radius	3.1	in
Top Width	1.64	ft
Critical Depth	12.2	in
Percent Full	21.5	%
Critical Slope	0.491	%
Velocity	16.34	ft/s
Velocity Head	4.15	ft
Specific Energy	4.58	ft
Froude Number	5.247	
Maximum Discharge	86.03	cfs
Discharge Full	79.98	cfs
Slope Full	0.128	%
Flow Type	Supercritical	

GVF Input Data		
Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	21.5	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	5.2	in
Critical Depth	12.2	in
Channel Slope	12.500	%
Critical Slope	0.491	%

Worksheet for Circular Pipe - POC 2 EX

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data		
Roughness Coefficient	0.013	
Channel Slope	4.350	%
Diameter	18.0	in
Discharge	9.20	cfs

Results		
Normal Depth	8.1	in
Flow Area	0.8	ft²
Wetted Perimeter	2.2	ft
Hydraulic Radius	4.2	in
Top Width	1.49	ft
Critical Depth	14.1	in
Percent Full	45.2	%
Critical Slope	0.841	%
Velocity	11.85	ft/s
Velocity Head	2.18	ft
Specific Energy	2.86	ft
Froude Number	2.899	
Maximum Discharge	23.57	cfs
Discharge Full	21.91	cfs
Slope Full	0.767	%
Flow Type	Supercritical	

GVF Input Data		
Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	45.2	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	8.1	in
Critical Depth	14.1	in
Channel Slope	4.350	%
Critical Slope	0.841	%

Worksheet for Circular Pipe - POC 2 PROP

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data		
Roughness Coefficient	0.013	
Channel Slope	4.350	%
Diameter	18.0	in
Discharge	8.70	cfs

Results		
Normal Depth	7.9	in
Flow Area	0.7	ft²
Wetted Perimeter	2.2	ft
Hydraulic Radius	4.1	in
Top Width	1.49	ft
Critical Depth	13.7	in
Percent Full	43.8	%
Critical Slope	0.797	%
Velocity	11.68	ft/s
Velocity Head	2.12	ft
Specific Energy	2.78	ft
Froude Number	2.911	
Maximum Discharge	23.57	cfs
Discharge Full	21.91	cfs
Slope Full	0.686	%
Flow Type	Supercritical	

GVF Input Data		
Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	43.8	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	7.9	in
Critical Depth	13.7	in
Channel Slope	4.350	%
Critical Slope	0.797	%

APPENDIX G

FEMA MAP

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NOTES TO USERS



LEGEND

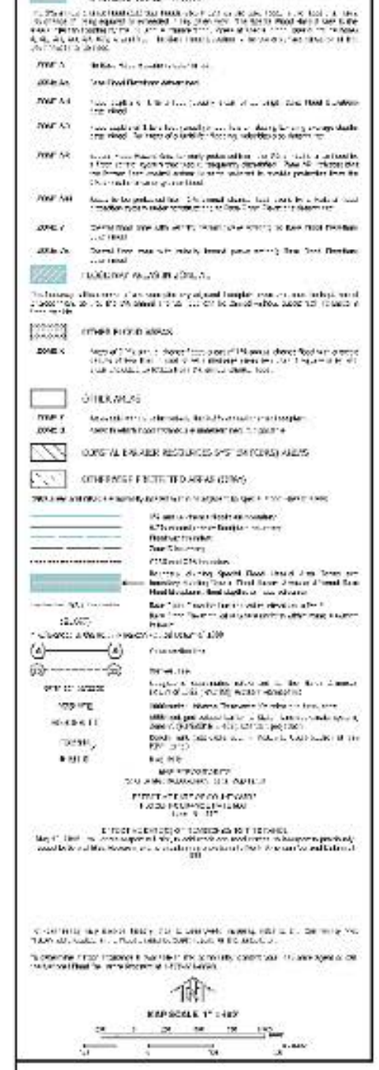
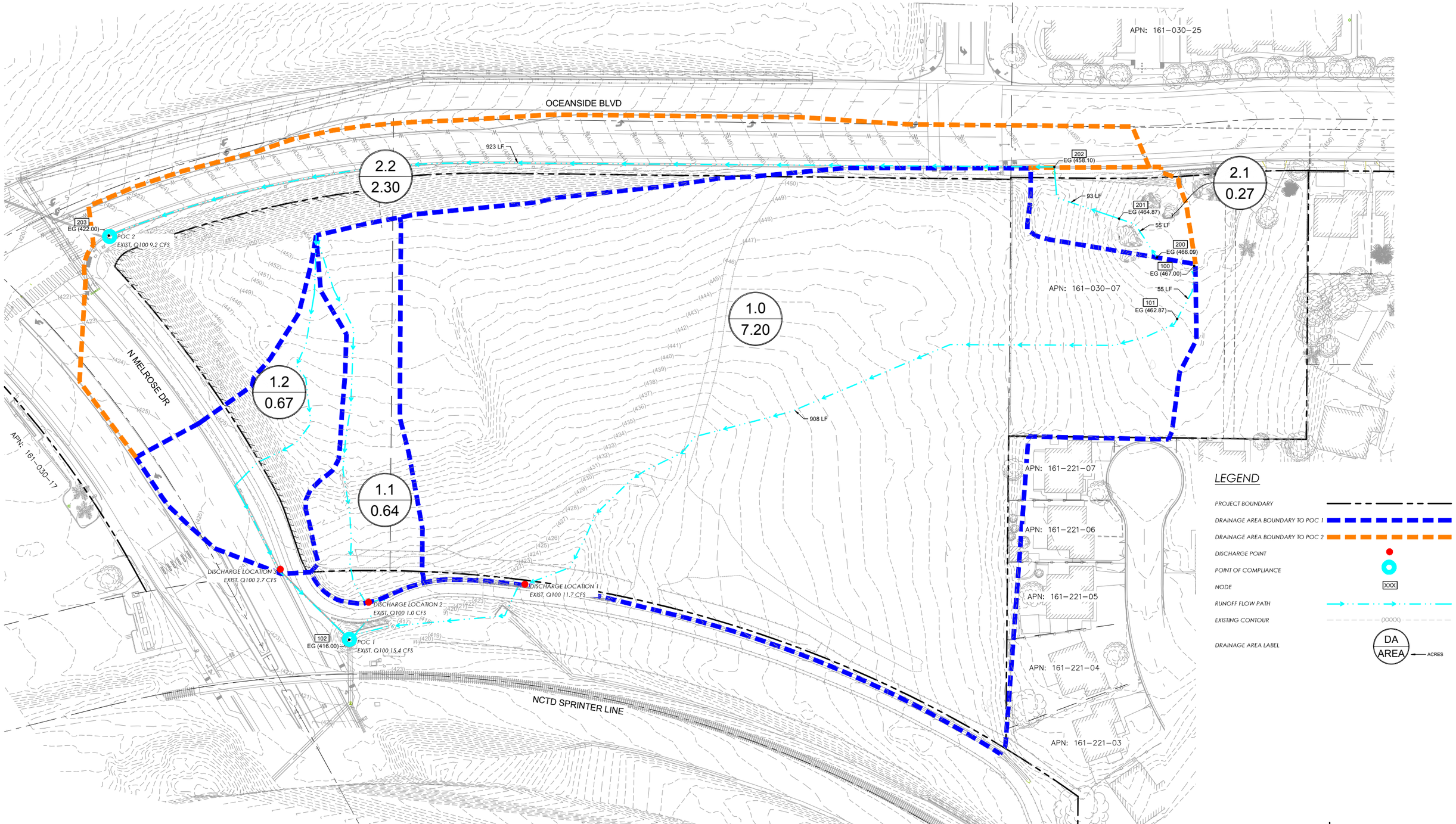




EXHIBIT A

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Kimley»Horn

EXISTING DRAINAGE EXHIBIT

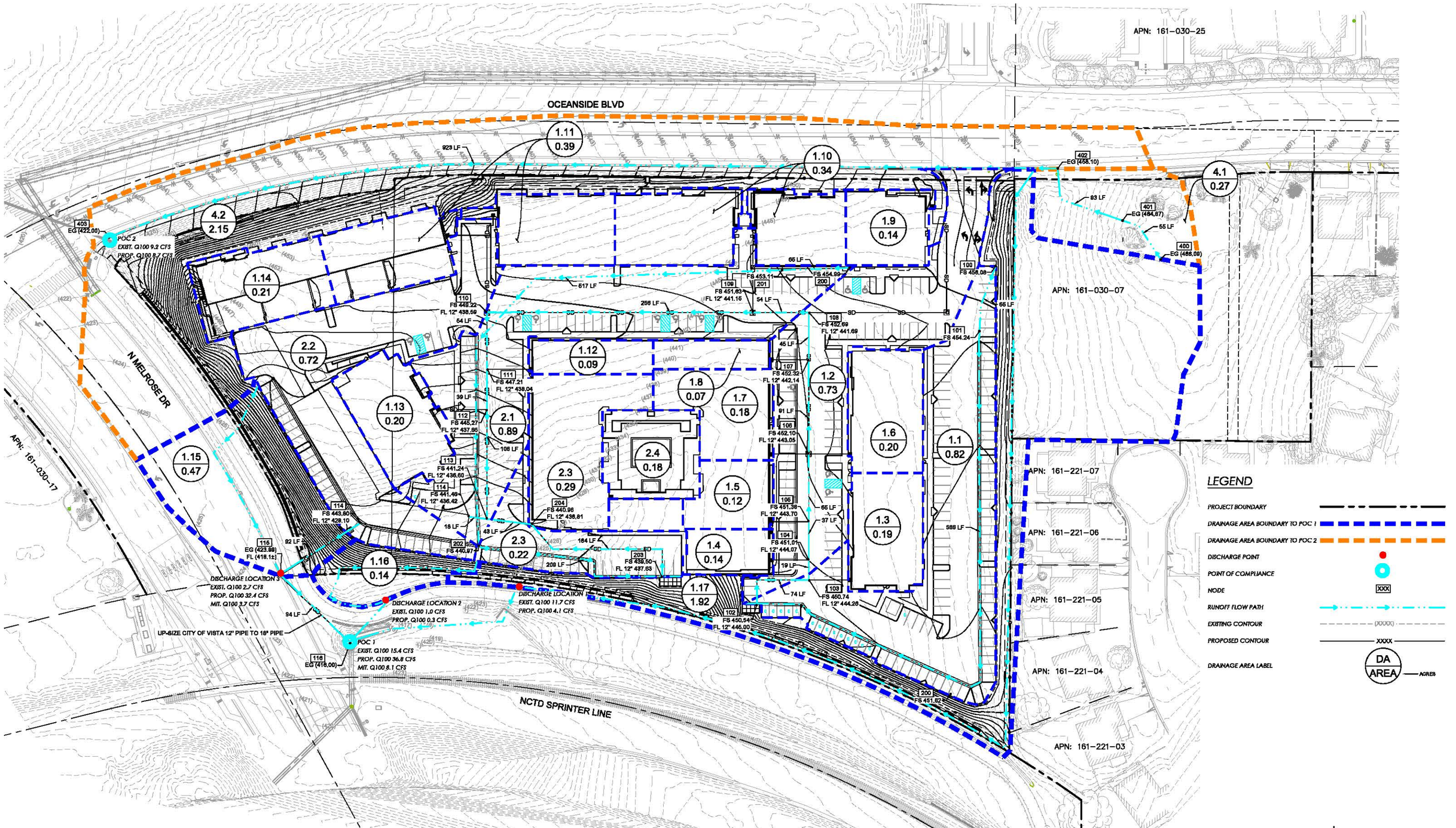
MODERA MELROSE

10/14/2021

EXHIBIT B

PROPOSED DRAINAGE EXHIBIT

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Kimley»Horn

PROPOSED DRAINAGE EXHIBIT
MODERA MELROSE
12/15/2021

ATTACHMENT 6
Geotechnical and Groundwater Investigation Report

This is the cover sheet for Attachment 6.

PRELIMINARY
GEOTECHNICAL INVESTIGATION

MODERA MELROSE
OCEANSIDE, CALIFORNIA

GEOCON
INCORPORATED

GEOTECHNICAL
ENVIRONMENTAL
MATERIALS

PREPARED FOR

MCRT INVESTMENTS, LLC
COSTA MESA, CALIFORNIA

JANUARY 26, 2021
PROJECT NO. 07647-32-04

Project No. 07647-32-04
January 26, 2021

MCRT Investments LLC
949 South Coast Drive, Suite 400
Costa Mesa, California 92626

Attention: Mr. John Colletti

Subject: PRELIMINARY GEOTECHNICAL INVESTIGATION
MODERA MELROSE
OCEANSIDE, CALIFORNIA

Dear Mr. Colletti:

In accordance with your request, and our Proposal No. LG-21015, dated January 12, 2021, we have prepared a preliminary geotechnical investigation on the subject property southeast of the intersection between Oceanside Boulevard (West Bobier Drive) and North Melrose Drive in Oceanside, California. The accompanying report presents our conclusions and preliminary recommendations pertaining to the geotechnical aspects of project development. The results of our study indicate that the site can be developed as planned, provided the recommendations of this report are followed. An update to this report should be performed once the project grading plans are developed.

If there are any questions regarding this update report, or if we may be of further service, please contact the undersigned at your convenience.

Very truly yours,

GEOCON INCORPORATED

Trevor E. Myers
RCE 63773

TEM:DBE:dmc

(email) Addressee

REGISTERED PROFESSIONAL ENGINEER
TREVOR E. MYERS
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David B. Evans
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PROFESSIONAL GEOLOGIST
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PRELIMINARY GEOTECHNICAL INVESTIGATION

1. PURPOSE AND SCOPE

This report presents the results of a preliminary geotechnical study for a proposed residential development in Oceanside, California (see *Vicinity Map*, Figure 1). The purpose of this report was to present a compilation of previous geotechnical information and to provide recommendations for the new land use plan in accordance with the 2019 California Building Code (CBC). Once the project grading plans are developed, this report should be updated, as necessary.

The scope of our study included a review of the following reports:

1. Geotechnical Investigation, Oceanside (Melrose) Neighboorhood Market Store 5905-00, Oceanside, California, prepared by Geocon Incorporated, dated October 5, 2011 (Project No. 07647-42-03).

2. *Supplemental Rippability Study, Melrose Gateway Shopping Center, Oceanside, California,* prepared by Geocon Incorporated, dated October 23, 2006 (Project No. 07647-32-02).

3. *Geotechnical Investigation, Melrose and Bobier Property, Oceanside, California*, prepared by Geocon Incorporated, dated February 9, 2006 (Project No. 07647-32-01).

4. *Updated Geotechnical Considerations, Melrose Station Market Commercial Development, Southeast Corner of Melrose Drive and Oceanside Boulevard, Oceanside, San Diego County, California*, prepared by EEI, dated October 31, 2008 (Project No. GAT-70622).

5. *Geotechnical Update for 2007 California Building Code, Melrose Station Market Commercial Development, Southeast Corner of Melrose Drive and Oceanside Boulevard, Oceanside, San Diego County, California*, prepared by EEI, dated July 29, 2008 (Project No. GAT-70622).

6. *Preliminary Geotechnical Evaluation, Melrose Station Market, Southeast Corner of Melrose Drive and Oceanside Boulevard, Oceanside and Future Residential Parcel, 552 West Bobier Avenue, Vista, San Diego County, California,* prepared by EEI, dated September 18, 2007 (Project No. GAT-70622).

Previous field and laboratory test information obtained by Geocon Incorporated are provided in Appendices A through C. Field and laboratory test results performed by EEI on the property are presented in Appendix D. The descriptions of the soil and geologic conditions presented herein are based on review of the above referenced reports.

2. SITE AND PROJECT DESCRIPTION

The site is located southeast of the intersection of Oceanside Boulevard and North Melrose Drive, in Oceanside, California. The site is bounded by Oceanside Boulevard to the north, North Melrose Drive to the west, residential homes and an open space lot to the east, and a railroad easement to the south.

The site is undeveloped with gentle southward sloping terrain and a small drainage course near the south-central portion of the site. This drainage course has been partially in-filled with undocumented fill and organic debris. Minor amounts of trash were also observed on the property. A north-south trending trail bisects the site and is used primarily by pedestrians to access the bus stop located south of the railroad tracks. Two relatively large boulders (approximately 5 feet in size) were observed at the surface near the southwest corner of the site and an outcrop of very large boulders is present in the eastern portion of the property. Existing elevations vary from approximately 424 Mean Sea Level (MSL) in the south-central portion of the site to approximately 455 MSL in the northern portion of the property.

Based on our discussions with you, and review of the conceptual site plan provided, we understand the approximate 9-acre property will be graded to accommodate 275 apartment homes with 9,500 square feet of retail and 7,500 square feet of amenities situated in two to five, four-story buildings with associated parking lots and underground and surface improvements. Grading plans were not available at the time of this study.

A square-shaped parcel of land situated immediately to the east of the subject parcel is shown with proposed residential development on the conceptual plan. This parcel of land is situated in the City of Vista. Although it is our understanding that this parcel is not currently planned for development, we have included the air-track logs in Appendix C and locations on Figure 2 for reference.

The above locations, site descriptions, and proposed development are based on a site reconnaissance, review of the conceptual site plan, published geologic literature and our previous in-house geotechnical reports. If the final development plans differ from those described herein, Geocon Incorporated should be contacted for review of the plans and possible revisions to this report.

3. SOIL AND GEOLOGIC CONDITIONS

Two surficial soil units and two geologic formations were observed at the site. The surficial materials consist of undocumented fill and colluvium. The geologic formations encountered consist of the Santiago Formation and granitic rock (Bonsall Tonalite). The estimated distribution of the units is shown on the Geologic Map, Figure 2. A contact between the granitic rock and Santiago formation can be observed in the existing slope adjacent to Melrose Drive and in the grade cuts within the railroad easement. The units encountered are discussed below in order of increasing age.

3.1 Undocumented Fill (Qudf)

We encountered undocumented fill in the drainage course near the south-central portion of the site. The fill encountered in Geocon's previous exploratory trench T-2 was approximately 4 feet thick and consisted of loose, porous, clayey sand with abundant organics (straw, tree branches, etc.) and plastic

bags. The upper 1 foot of the undocumented fill observed in the trench excavation was relatively clean of organic debris. The lower 3 feet consisted primarily of organic debris. This material will require complete removal and exportation from the site.

3.2 Colluvium (Col)

Colluvium blankets the majority of the site and underlies the undocumented fill. This material ranges from approximately 2 to 5-feet-thick and generally consists of loose to medium dense, medium stiff to stiff, silty to clayey sand and silty to sandy clay. Based on the laboratory test results, the colluvium possesses a *medium* to *high* expansion potential. The colluvium is compressible and is considered unsuitable in its present condition. Remedial grading of this unit will be required within areas of proposed development.

3.3 Santiago Formation (Tsa)

We encountered the Eocene-age Santiago Formation in the majority of exploratory borings and trenches performed throughout the site. The Santiago Formation consists of massive, dense to hard, damp to moist, silty to clayey, fine- to medium-grained sandstone, sandy to clayey siltstone, and silty claystone. Bedding was not observed to the maximum depth explored. This unit is considered suitable for the support of additional structural fill and settlement sensitive structures.

The Santiago Formation often exhibits highly cemented zones that may result in excavation difficulty during grading and construction of site improvements (e.g., underground utility lines and building foundations). Although blasting is not expected, moderate to heavy ripping may be necessary in portions of this formation to facilitate excavation. Oversize materials, if generated, will need to be placed in deeper fill areas in accordance with the grading specifications contained in Appendix E, or exported from the site. Consideration should be given to undercutting cemented zones if they are found within areas of future improvements. Undercutting during grading will help reduce the potential for excavation difficulty during the construction of site improvements, including foundations and landscaping.

3.4 Bonsall Tonalite (Kb)

Cretaceous-age Bonsall Tonalite (granitic rock) of the Southern California Batholith was encountered in the eastern portion of the site and is exposed along the western margin of the property. The granitic rock generally consists of fresh to highly weathered decomposed granite. Granitic units generally exhibit adequate slope stability characteristics and slopes excavated at an inclination of 2:1 (horizontal:vertical) or flatter should be stable to the proposed heights if free of adversely oriented joints or fractures.

The soils derived from excavations within the decomposed granitic rock are expected to consist of low expansive, silty to clayey, medium- to coarse-grained sands and should provide suitable foundation support in either a natural or properly compacted condition.

It should be expected that excavations within the granitic rock will generate boulders and oversize materials (rocks greater than 12 inches) and will require special handling and placement in deeper fill areas as outlined in the grading specifications contained in Appendix E, or exportation from the site. In addition, the surface boulders and large rock outcroppings may require breaking and special handling during grading. Consideration should be given to using these core stone boulders as landscape features, where practical.

Areas of very hard granitic rock and corestones are expected at depth. Excavations, particularly those for deeper utilities, may generate oversize material that could necessitate burying the rock in deeper fill areas or exporting.

4. GROUNDWATER

We did not observe groundwater during our field investigation. We do not expect groundwater to adversely impact proposed project development; however, it is not uncommon for groundwater or seepage conditions to develop where none previously existed. Groundwater elevations are dependent on seasonal precipitation, irrigation; land use, among other factors, and vary as a result. Proper surface drainage will be important to future performance of the project.

5. GEOLOGIC HAZARDS

5.1 Ground Rupture

United States Geological Survey maps (2016) indicates that there are no mapped Quaternary faults crossing or trending toward the property. In addition, the site is not located within a currently established Alquist-Priolo Earthquake Fault Zone.

The nearest known active-fault zones are the Rose Canyon and Newport Inglewood Faults, located approximately 11 miles west of the subject site. The risk associated with ground rupture hazard is low.

5.2 Seismicity

The San Diego County and Southern California region is seismically active. Considerations important in seismic design include the frequency and duration of motion and the soil conditions underlying the site. Seismic design of structures should be performed in accordance with the California Building Code (CBC) guidelines currently adopted by the local agency. The risk associated with strong ground shaking due to earthquake at the site is no greater than that for the region.

5.3 Soil Liquefaction

Soil liquefaction occurs within relatively loose, cohesionless sands located below the water table that are subjected to ground accelerations from earthquakes. Due to the absence of permanent groundwater, the dense nature of the soil and rock beneath the site, and the proposed removal and compaction of compressible soils, the potential for liquefaction occurring at the site is considered very low.

5.4 Landslides

No landslides were mapped or observed on the property.

6. RIPPABILITY AND ROCK CONSIDERATIONS

Rock rippability studies were performed during previous investigations consisting of drilling hydraulic rotary percussion borings (generically referenced herein as air-track borings) in the areas where significant excavations were previously proposed. The borings were advanced using an Ingersoll Rand ECM-370 drill rig equipped with a 4-inch drill bit. The approximate locations of the air-track borings are shown on the Geologic Map, Figure 2.

A frequently used guideline to equate rock rippability to drill penetration rate is that a penetration rate of approximately 0 to 20 seconds per foot (spf) generally indicates rippable material, 20 to 30 spf indicates marginally to non-rippable material, and greater than 30 spf indicates non-rippable rock. These general guidelines are typically based on drill rates using a rotary percussion drill rig similar to an Ingersoll Rand ECM 360 with a 3½-inch drill bit.

The penetration rate (recorded in seconds per foot) for each air track boring is presented in Appendix C, Figures C-16 through C-57. The estimated depth and thickness of non-rippable material for each boring in the western portion of the site, using 20 seconds per foot as the boundary between rippable and marginal to non-rippable rock is presented on Table 6 below. The estimate is derived from a literal interpretation of the penetration rate from each boring. Perspective contractors should use their own judgment to identify the penetration rate boundary between productive and non-productive ripping, and rippable and non-rippable rock.

Since the Santiago Formation non-conformably overlies granitic rock, and this interface often undulates, the majority of the air-track borings in the western portion of the site were initiated in the sedimentary rocks in an attempt to define the contact where a risk of encountering hard rock was present (AT-1 through AT-21). Borings performed in the eastern portion of the site were in advanced in Granitic Rock (AT-22 through AT-42).

TABLE 6
SUMMARY OF AIR TRACK DRILLING DATA

Boring No.	Approximate Elevation of top of boring (feet)	Total Drill Depth (feet)	Depth to Non-Rippable Material (feet)*	Geologic Formation
AT-1	445	34	n/a	Santiago
AT-2	453	34	n/a	Santiago
AT-3	455	23	n/a	Santiago
AT-4	454	22	n/a	Santiago
AT-5	450	22	n/a	Santiago
AT-6	447	10	n/a	Santiago
AT-7	447	20	17-18	Granitic Rock
AT-8	447	22	21+	Granitic Rock
AT-9	446	10	n/a	Granitic Rock
AT-10	443	10	8-9	Granitic Rock
AT-11	441	10	n/a	Santiago
AT-12	443	16	n/a	Santiago
AT-13	443	20	n/a	Santiago
AT-14	446	22	n/a	Santiago
AT-15	444	25	n/a	Santiago
AT-16	436	15	12+	Santiago/Granitic Rock
AT-17	442	22	n/a	Santiago
AT-18	433	10	n/a	Granitic Rock
AT-19	436	10	n/a	Santiago
AT-20	437	10	n/a	Santiago
AT-21	437	10	n/a	Santiago
AT-22	467	22	14	Granitic Rock
AT-23	464	22	4	Granitic Rock
AT-24	455	20	n/a	Granitic Rock
AT-25	462	20	1	Granitic Rock
AT-26	466	18	10	Granitic Rock
AT-27	465	10	3	Granitic Rock
AT-28	463	16	3	Granitic Rock
AT-29	455	18	3	Granitic Rock
AT-30	451	17	4	Granitic Rock
AT-31	454	17	3	Granitic Rock
AT-32	458	18	3	Granitic Rock
AT-33	459	16	2	Granitic Rock
AT-34	462	15	3	Granitic Rock
AT-35	461	22	12	Granitic Rock
AT-36	457	17	3	Granitic Rock

Boring No.	Approximate Elevation of top of boring (feet)	Total Drill Depth (feet)	Depth to Non-Rippable Material (feet)*	Geologic Formation
AT-37	459	18	1	Granitic Rock
AT-38	462	20	2	Granitic Rock
AT-39	462	20	4	Granitic Rock
AT-40	457	17	6	Granitic Rock
AT-41	454	18	4	Granitic Rock
AT-42	461	18	3	Granitic Rock

* Based on penetration rate of 20 spf or greater.

During air-track drilling through the Santiago Formation, we encountered difficulty measuring accurate penetration rates due to the presence of claystones which constricted the bore holes, preventing the soil cuttings from escaping. Since the data appeared erroneous in some instances, validation drilling was performed on October 10, 2006, using an A-300 truck mounted drill rig equipped with 6-inch diameter augers to verify the "augerability" of the materials encountered.

In general, if a small-diameter boring can be drilled with light to moderate effort, the material is likely rippable with conventional heavy-duty grading equipment. The relative ease with which the 5 verification borings were advanced during this study indicates that favorable rippability characteristics exist within the majority of the western portion of the site. Logs of the verification borings are presented in Appendix C, Figures C-58 through C-62. The approximate locations of the verification borings are shown on the Geologic Map, Figure 2.

Proposed excavations within the eastern portion of the site (granitic rock) will require very heavy ripping and/or blasting. Based on our observations of significant rock outcroppings, and the penetration rates recorded in some of the borings blasting will be required in some locations at the existing ground surface.

An evaluation of the anticipated volume of hard rock materials compared to the available rock fill volume should be performed once the grading plan is developed. Rock crushing may be required to satisfy the rock hold down/particle restriction zones. Roadway/utility corridor and lot undercutting criteria should also be considered when calculating the volume of hard rock. Proposed cuts in hard rock areas can be expected to generate oversized fragments (rocks greater than 12 inches in dimension) which will necessitate typical hard rock handling and placement procedures during grading operations.

7. CONCLUSIONS AND RECOMMENDATIONS

7.1 General

7.1.1 From a geotechnical standpoint, it is our opinion that the site is suitable for the planned development, provided the recommendations presented herein are implemented in design and construction of the project. An update to this report should be performed once the project grading plans are developed.

7.1.2 The site is underlain by surficial units that include undocumented fill and colluvium. These deposits are unsuitable in their present condition and will require remedial grading where improvements are planned. Organic and trash debris in the undocumented fill will need to be exported. The actual extent of unsuitable soil removal will be determined in the field by the geotechnical engineer and/or engineering geologist.

7.1.3 Significant outcrops, and shallow hardrock at or near the surface is present in the eastern portion of the site (AT-22 through AT-42). Based on our boring data, blasting will be necessary for excavations in this area. Roadway/utility corridor and lot undercutting is recommended and should be considered when calculating the volume of hard rock. Proposed cuts in hard rock areas can be expected to generate oversized fragments (rocks greater than 12 inches in dimension) which will necessitate typical hard rock handling and placement procedures during grading operations.

7.1.4 The proposed structures can be supported on conventional shallow footings founded in properly compacted fill or dense formational materials as recommended herein.

7.1.5 Subsurface conditions observed may be extrapolated to reflect general soil/geologic conditions at the site; however, some variations in subsurface conditions between boring and trench locations should be expected.

7.1.6 Project grading plans were not provided for our use in preparation of this report. Once grading plans are available, we should review the plans and provide updated recommendations.

7.2 Excavation and Soil Characteristics

7.2.1 The soil encountered in the field investigations are considered to be “expansive” (expansion index [EI] of greater than 20) as defined by 2019 California Building Code (CBC) Section 1803.5.3. Table 7.2.1 presents soil classifications based on the expansion index. Based on previous laboratory testing by Geocon and EEI, the expansion index for

on-site soil possesses a “medium” to “high” expansion potential (EI of 130 or less). We expect the sandy portion of the granitic rock to have a “low” expansion potential.

TABLE 7.2.1
SOIL CLASSIFICATION BASED ON EXPANSION INDEX

Expansion Index (EI)	Soil Classification
0 – 20	Very Low
21 – 50	Low
51 – 90	Medium
91 – 130	High
Greater Than 130	Very High

7.2.2 On-site soil can be excavated with light to heavy effort using conventional heavy-duty grading equipment. Cemented zones in the Santiago Formation will require a very heavy effort to excavate, and may generate oversize material that will require placement in deeper fills or export from the site. Some excavations, if planned in the granitic rock area of the eastern portion of the site will require blasting.

7.2.3 We performed laboratory tests on samples of the site materials to evaluate the percentage of water-soluble sulfate content (California Test No. 417). Results from the laboratory water-soluble sulfate content tests are presented in Appendix B and indicate that the on-site materials at the locations tested possess a “Not Applicable” and “S0” sulfate exposure to concrete structures as defined by 2019 CBC Section 1904 and ACI 318-14 Chapter 19. The presence of water-soluble sulfates is not a visually discernible characteristic; therefore, other soil samples from the site could yield different concentrations. Additionally, over time landscaping activities (i.e., addition of fertilizers and other soil nutrients) may affect the concentration. Table 7.2.2 presents a summary of concrete requirements set forth by 2019 CBC Section 1904 and ACI 318.

TABLE 7.2.2
REQUIREMENTS FOR CONCRETE EXPOSED TO SULFATE-CONTAINING SOLUTIONS

Sulfate Severity	Exposure Class	Water-Soluble Sulfate (SO_4) Percent by Weight	Cement Type (ASTM C 150)	Maximum Water to Cement Ratio by Weight[1]	Minimum Compressive Strength (psi)
Not Applicable	S0	$SO_4<0.10$	No Type Restriction	n/a	2,500
Moderate	S1	$0.10\leq SO_4<0.20$	II	0.50	4,000
Severe	S2	$0.20\leq SO_4\leq 2.00$	V	0.45	4,500
Very Severe	S3	$SO_4>2.00$	V+Pozzolan or Slag	0.45	4,500

[1] Maximum water to cement ratio limits do not apply to lightweight concrete.

7.2.4 We performed laboratory Chloride tests on selected soil samples to check the corrosion potential to subsurface metal structures. The laboratory test results are presented in Appendix B.

7.2.5 Geocon Incorporated does not practice in the field of corrosion engineering; therefore, further evaluation by a corrosion engineer may be needed to incorporate the necessary precautions to avoid premature corrosion of underground pipes and buried metal in direct contact with soil.

7.3 Grading

7.3.1 All grading should be performed in accordance with the City of Oceanside grading ordinance and the *Recommended Grading Specifications* contained in Appendix E. Where the recommendations of Appendix E conflict with this section of the report, the recommendations of this section shall take precedence.

7.3.2 Prior to commencing grading, a preconstruction conference should be held at the site with the grading contractor, civil engineer, a representative of the City of Oceanside, and geotechnical engineer in attendance. Specific soil handling and/or the grading plans can be discussed at that time.

7.3.3 Site preparation should begin with the removal of deleterious material, including trash and vegetation. Existing building foundations, septic tanks, leach fields, and other associated underground pipes or structures should also be removed from the property, if any. Site demolition of the property should include the proper destruction of any existing water wells

in accordance with the County of San Diego Department of Environmental Health. The depth of removal should be such that material exposed in cut areas or soil to be used as fill is relatively free of organic matter and debris. Material generated from stripping and/or site demolition should be exported from the site.

7.3.4 Surficial soil should be removed to formational material or granitic rock and replaced with properly compacted fill. The exposed formational material or granitic rock should then be scarified, moisture conditioned as necessary, and properly compacted.

7.3.5 The site should be brought to final design elevations with structural fill compacted in layers. In general, existing soil is suitable for re-use as fill if free from vegetation, debris, and other deleterious material. All fill, including backfill and scarified ground surfaces, should be compacted to a dry density of at least 90 percent of the laboratory maximum dry density near to slightly above optimum moisture content, in accordance with ASTM Test Procedure D 1557. Materials placed below optimum moisture content may be considered unacceptable.

7.3.6 Where practical, the upper 3 feet of all building pads should be composed of properly compacted fill or undisturbed formational soils that possess a ***very low*** to ***low*** expansion potential (EI of 50 or less). In pavement areas, the upper 2 feet of soil should have an expansion potential no greater than 90. Soil with a ***high*** expansion potential (EI of greater than 90) should be placed no closer than 3 feet below finish pad grade. Rocks greater than 12 inches in maximum dimension should not be placed within 10 feet of finish grade or 3 feet of the deepest utility. Rocks greater than 6 inches in maximum dimension should not be placed within 3 feet of finish grade in building pad areas.

7.3.7 To reduce the potential for differential settlement, it is recommended that building areas with a cut-fill transition be undercut at least 3 feet and replaced with properly compacted “very low” to “low” expansive fill soils. Where dense formational material and/or fresh granitic rock is present at or near finish grade, consideration should be given to undercutting the building pad to create favorable conditions for footing and utility trench excavations. The lateral limits of the undercut should extend minimum 5 feet outside the building footprint. Deeper undercutting of street areas exposing hard formational materials and/or fresh granitic rock should be considered to facilitate the excavation of underground utilities. If subsurface improvements or landscape zones are planned outside these areas, consideration should be given to undercutting these areas as well.

7.3.8 Imported soil, if required, should be tested and approved by Geocon Incorporated prior to importation. At least 3 working days should be allowed for laboratory testing of the soil

prior to its importation. The import soil should be predominantly granular and have an Expansion Index less than 50.

7.4 Slope Stability

7.4.1 Slope stability analysis utilizing average drained direct shear strength parameters based on laboratory tests and experience with similar soil types indicates that proposed fill slopes, constructed of on-site materials up to approximately 15 feet high, should have calculated factors of safety of at least 1.5 under static conditions for both deep-seated failure and shallow sloughing conditions. Proposed cut slopes in Santiago Formation/granitic rock up to approximately 30 feet were also found to possess a calculated factor of safety in excess of 1.5 for a deep-seated failure condition. Surficial and deep-seated slope stability calculations are presented on Figures 3 through 5.

7.4.2 It is recommended that all cut slope excavations be observed during grading by an engineering geologist to verify that soil and geologic conditions do not differ significantly from those anticipated.

7.4.3 The outer 15 feet (or a distance equal to the height of the slope, whichever is less) of fill slopes should be composed of properly compacted granular "soil" fill to reduce the potential for surficial sloughing. In general, soils with an Expansion Index of less than 90 or at least 35 percent sand size particles should be acceptable as "granular" fill. Soils of questionable strength to satisfy surficial stability should be tested in the laboratory for acceptable drained shear strength.

7.4.4 Fill slopes should be compacted by backrolling with a loaded sheepsfoot roller at vertical intervals not to exceed 4 feet and should be track-walked at the completion of each slope such that the fill soils are uniformly compacted to at least 90 percent relative compaction to the face of the finished sloped. Alternatively, the fill slope may be over-built at least 3 feet and cut back to yield a properly compacted slope face.

7.4.5 Where fill slopes and fill-over-cut slopes are planned, following removal of the surficial soils, a 15-foot-wide, 2-foot-deep, undrained keyway should be constructed prior to placing compacted fill. The keyway should be constructed with a minimum 5 percent inclination away from the toe of slope.

7.4.6 All slopes should be landscaped with drought-tolerant vegetation, having variable root depths and requiring minimal landscape irrigation. In addition, all slopes should be drained and properly maintained to reduce erosion.

7.5 Stability Fills

7.5.1 Cut slopes, if any, which will expose colluvium or Santiago Formation should be evaluated during grading. Cut slopes exposing fine grained soil (silt and clay) may require stability fills. Our experience with nearby projects indicates that a potential to encounter moderately to intensely jointed/fractured rock exists. Cut slopes in this material may also readily transmit seepage. The need for toe drains will be evaluated during grading based on the conditions encountered.

7.6 Toe Drains

7.6.1 Building pad areas adjacent to ascending cut or natural slopes (if proposed) may experience wet soil conditions due to water migration from natural or future irrigation sources. To reduce the potential for this to occur, consideration should be given to placing a toe drain along the base of the slopes to collect potential seepage and convey it to a suitable outlet. The drain should be sufficiently deep to intercept the seepage (on the order of 3 feet below finish grade) and constructed in accordance with Figure 6. The need for these drains can be evaluated during development of the grading plan

7.6.2 Prior to outletting, the toe drain should transition to non-perforated drainpipe with a seepage cut-off wall provided at this interface. The project civil engineer should be consulted for an appropriate outlet location.

7.6.3 The necessity for toe drains will be evaluated during grading. In addition, the project civil engineer should be consulted to evaluate the appropriate drain locations and necessary easements, building restriction zones or disclosure requirements that may be necessary. The drains should be surveyed for location and shown on the project as-built drawings.

7.7 Seismic Design Criteria

7.7.1 The seismic design criteria is presented for general and preliminary purposes. Geocon Incorporated should be contacted to provide specific seismic design criteria once project plans are developed. Table 7.7.1 summarizes site-specific design criteria obtained from the 2019 California Building Code (CBC; Based on the 2018 International Building Code [IBC] and ASCE 7-16), Chapter 16 Structural Design, Section 1613 Earthquake Loads. We used the computer program *U.S. Seismic Design Maps*, provided by the Structural Engineers Association (SEA) to calculate the seismic design parameters. The short spectral response uses a period of 0.2 second. We evaluated the Site Class based on the discussion in Section 1613.2.2 of the 2019 CBC and Table 20.3-1 of ASCE 7-16. The values presented herein are for the risk-targeted maximum considered earthquake (MCE_R). Sites designated

as Site Class D, E and F may require additional analyses if requested by the project structural engineer and client.

TABLE 7.7.1
2019 CBC SEISMIC DESIGN PARAMETERS

Parameter	Value	2019 CBC Reference
Site Class	C	Section 1613.2.2
MCE_R Ground Motion Spectral Response Acceleration – Class B (short), S_S	0.92g	Figure 1613.2.1(1)
MCE_R Ground Motion Spectral Response Acceleration – Class B (1 sec), S_1	0.34g	Figure 1613.2.1(2)
Site Coefficient, F_A	1.2	Table 1613.2.3(1)
Site Coefficient, F_V	1.5*	Table 1613.2.3(2)
Site Class Modified MCE_R Spectral Response Acceleration (short), S_{MS}	1.104g	Section 1613.2.3 (Eqn 16-36)
Site Class Modified MCE_R Spectral Response Acceleration – (1 sec), S_{M1}	0.51g*	Section 1613.2.3 (Eqn 16-37)
5% Damped Design Spectral Response Acceleration (short), S_{DS}	0.736g	Section 1613.2.4 (Eqn 16-38)
5% Damped Design Spectral Response Acceleration (1 sec), S_{D1}	0.34g*	Section 1613.2.4 (Eqn 16-39)

***** Using the code-based values presented in this table, in lieu of a performing a ground motion hazard analysis, requires the exceptions outlined in ASCE 7-16 Section 11.4.8 be followed by the project structural engineer. Per Section 11.4.8 of ASCE/SEI 7-16, a ground motion hazard analysis should be performed for projects for Site Class "E" sites with Ss greater than or equal to 1.0g and for Site Class "D" and "E" sites with S1 greater than 0.2g. Section 11.4.8 also provides exceptions which indicates that the ground motion hazard analysis may be waived provided the exceptions are followed.

7.7.2 Table 7.7.2 presents the mapped maximum considered geometric mean (MCE_G) seismic design parameters for projects located in Seismic Design Categories of D through F in accordance with ASCE 7-16.

TABLE 7.7.2
ASCE 7-16 PEAK GROUND ACCELERATION

Parameter	Value	ASCE 7-16 Reference
Mapped MCE_G Peak Ground Acceleration, PGA	0.397g	Figure 22-7
Site Coefficient, F_{PGA}	1.2	Table 11.8-1
Site Class Modified MCE_G Peak Ground Acceleration, PGA_M	0.477g	Section 11.8.3 (Eqn 11.8-1)

7.7.3 Conformance to the criteria in Tables 7.7.1 and 7.7.2 for seismic design does not constitute any kind of guarantee or assurance that significant structural damage or ground failure will not occur in the event of a large earthquake. The primary goal of seismic design is to protect life, not to avoid all damage, since such design may be economically prohibitive.

7.7.4 The project structural engineer and architect should evaluate the appropriate Risk Category and Seismic Design Category for the planned structures. The values presented herein assume a Risk Category of II and resulting in a Seismic Design Category D. Table 7.7.3 presents a summary of the risk categories in accordance with ASCE 7-16.

TABLE 7.7.3
ASCE 7-16 RISK CATEGORIES

Risk Category	Building Use	Examples
I	Low risk to Human Life at Failure	Barn, Storage Shelter
II	Nominal Risk to Human Life at Failure (Buildings Not Designated as I, III or IV)	Residential, Commercial and Industrial Buildings
III	Substantial Risk to Human Life at Failure	Theaters, Lecture Halls, Dining Halls, Schools, Prisons, Small Healthcare Facilities, Infrastructure Plants, Storage for Explosives/Toxins
IV	Essential Facilities	Hazardous Material Facilities, Hospitals, Fire and Rescue, Emergency Shelters, Police Stations, Power Stations, Aviation Control Facilities, National Defense, Water Storage

7.8 Foundation and Concrete Slab-On-Grade Recommendations

7.8.1 The following foundation recommendations are for proposed one- to four-story residential structures. The foundation recommendations have been separated into three categories based on either the maximum and differential fill thickness or Expansion Index. The foundation category criteria are presented in Table 7.8.1.

TABLE 7.8.1
FOUNDATION CATEGORY CRITERIA

Foundation Category	Maximum Fill Thickness, T (feet)	Differential Fill Thickness, D (feet)	Expansion Index (EI)
I	$T<20$	--	$EI \leq 50$
II	$20 \leq T<50$	$10 \leq D<20$	$50<EI \leq 90$
III	$T \geq 50$	$D \geq 20$	$90<EI \leq 130$

7.8.2 We will provide the final foundation category for the buildings after finish pad grades have been achieved and laboratory testing of the finish grade soil has been completed.

7.8.3 Table 7.8.2 presents minimum foundation and interior concrete slab design criteria for conventional foundation systems.

TABLE 7.8.2
CONVENTIONAL FOUNDATION RECOMMENDATIONS BY CATEGORY

Foundation Category	Minimum Footing Embedment Depth (inches)	Continuous Footing Reinforcement	Interior Slab Reinforcement
I	12	Two No. 4 bars, one top and one bottom	6 x 6 - 10/10 welded wire mesh at slab mid-point
II	18	Four No. 4 bars, two top and two bottom	No. 3 bars at 24 inches on center, both directions
III	24	Four No. 5 bars, two top and two bottom	No. 3 bars at 18 inches on center, both directions

7.8.4 The embedment depths presented in Table 7.8.2 should be measured from the lowest adjacent pad grade for both interior and exterior footings. The conventional foundations should have a minimum width of 12 inches and 24 inches for continuous and isolated footings, respectively. A typical wall/column footing detail is presented on Figure 7.

7.8.5 The concrete slabs-on-grade should be a minimum of 4 inches thick for Foundation Categories I and II and 5 inches thick for Foundation Category III. The concrete slabs-on-grade should be underlain by 4 inches and 3 inches of clean sand for 4-inch- thick and 5-inch-thick slabs, respectively. Slabs expected to receive moisture sensitive floor coverings or used to store moisture sensitive materials should be underlain by a vapor inhibitor covered with at least 2 inches of clean sand or crushed rock. If crushed rock will be used, the thickness of the vapor inhibitor should be at least 10 mil to prevent possible puncturing.

7.8.6 As a substitute, the layer of clean sand (or crushed rock) beneath the vapor inhibitor recommended in the previous section can be omitted if a vapor inhibitor that meets or exceeds the requirements of ASTM E 1745-97 (Class A), and that exhibits permeance not greater than 0.012 perm (measured in accordance with ASTM E 96-95) is used. This vapor inhibitor may be placed directly on properly compacted fill or formational materials. The vapor inhibitor should be installed in general conformance with ASTM E 1643-98 and the manufacturer's recommendations. Two inches of clean sand should then be placed on top of the vapor inhibitor to reduce the potential for differential curing, slab curl, and cracking. Floor coverings should be installed in accordance with the manufacturer's recommendations.

7.8.7 As an alternative to the conventional foundation recommendations, consideration should be given to the use of post-tensioned concrete slab and foundation systems for the support of the proposed structures. The post-tensioned systems should be designed by a structural engineer experienced in post-tensioned slab design and design criteria of the Post-Tensioning Institute (PTI) DC10.5 as required by the 2019 California Building Code (CBC Section 1808.6.2). Although this procedure was developed for expansive soil conditions, we understand it can also be used to reduce the potential for foundation distress due to differential fill settlement. The post-tensioned design should incorporate the geotechnical parameters presented on Table 7.8.3. The parameters presented in Table 7.8.3 are based on the guidelines presented in the PTI, DC10.5 design manual.

TABLE 7.8.3
POST-TENSIONED FOUNDATION SYSTEM DESIGN PARAMETERS

Post-Tensioning Institute (PTI), Third Edition Design Parameters	Foundation Category		
	I	II	III
Thornthwaite Index	-20	-20	-20
Equilibrium Suction	3.9	3.9	3.9
Edge Lift Moisture Variation Distance, e_M (feet)	5.3	5.1	4.9
Edge Lift, y_M (inches)	0.61	1.10	1.58
Center Lift Moisture Variation Distance, e_M (feet)	9.0	9.0	9.0
Center Lift, y_M (inches)	0.30	0.47	0.66

7.8.8 Foundation systems for the lots that possess a foundation Category I and a “very low” expansion potential (expansion index of 20 or less) can be designed using the method described in Section 1808 of the 2019 CBC. If post-tensioned foundations are planned, an alternative, commonly accepted design method (other than PTI DC 10.5) can be used. However, the post-tensioned foundation system should be designed with a total and differential deflection of 1 inch. Geocon Incorporated should be contacted to review the plans and provide additional information, if necessary. This foundation category alternative is commonly referred to as CAT 1A.

7.8.9 If an alternate design method is contemplated, Geocon Incorporated should be contacted to evaluate if additional expansion index testing should be performed to identify the lots that possess a “very low” expansion potential (expansion index of 20 or less).

7.8.10 The foundations for the post-tensioned slabs should be embedded in accordance with the recommendations of the structural engineer. If a post-tensioned mat foundation system is

planned, the slab should possess a thickened edge with a minimum width of 12 inches and extend below the clean sand or crushed rock layer.

7.8.11 If the structural engineer proposes a post-tensioned foundation design method other than PTI DC 10.5:

- The deflection criteria presented in Table 7.8.3 are still applicable.
- Interior stiffener beams should be used for Foundation Categories II and III.
- The width of the perimeter foundations should be at least 12 inches.
- The perimeter footing embedment depths should be at least 12 inches, 18 inches and 24 inches for foundation categories I, II, and III, respectively. The embedment depths should be measured from the lowest adjacent pad grade.

7.8.12 Our experience indicates post-tensioned slabs may be susceptible to excessive edge lift, regardless of the underlying soil conditions. Placing reinforcing steel at the bottom of the perimeter footings and the interior stiffener beams may mitigate this potential. The structural engineer should design the foundation system to reduce the potential of edge lift occurring for the proposed structures.

7.8.13 During the construction of the post-tension foundation system, the concrete should be placed monolithically. Under no circumstances should cold joints be allowed to form between the footings/grade beams and the slab during the construction of the post-tension foundation system unless designed by the structural engineer.

7.8.14 Category I, II, or III foundations may be designed for an allowable soil bearing pressure of 2,000 pounds per square foot (psf) (dead plus live load). This bearing pressure may be increased by one-third for transient

7.8.15 Isolated footings, if present, should have the minimum embedment depth and width recommended for conventional foundations for a particular Foundation Category. The use of isolated footings, which are located beyond the perimeter of the building and support structural elements connected to the building, are not recommended for Category III. Where this condition cannot be avoided, the isolated footings should be connected to the building foundation system with grade beams.

7.8.16 For Foundation Category III, consideration should be given to using interior stiffening beams and connecting isolated footings and/or increasing the slab thickness. In addition, consideration should be given to connecting patio slabs, which exceed 5 feet in width, to the building foundation to reduce the potential for future separation to occur.

7.8.17 Special subgrade presaturation is not deemed necessary prior to placing concrete; however, the exposed foundation and slab subgrade soil should be moisture conditioned, as necessary, to maintain a moist condition as would be expected in any such concrete placement.

7.8.18 Where buildings or other improvements are planned near the top of a slope 3:1 (horizontal:vertical) or steeper, special foundation and/or design considerations are recommended due to the tendency for lateral soil movement to occur.

- For fill slopes less than 20 feet high, building footings should be deepened such that the bottom outside edge of the footing is at least 7 feet horizontally from the face of the slope.

- When located next to a descending 3:1 (horizontal:vertical) fill slope or steeper, the foundations should be extended to a depth where the minimum horizontal distance is equal to H/3 (where H equals the vertical distance from the top of the fill slope to the base of the fill soil) with a minimum of 7 feet but need not exceed 40 feet. The horizontal distance is measured from the outer, deepest edge of the footing to the face of the slope. A post-tensioned slab and foundation system or mat foundation system can be used to reduce the potential for distress in the structures associated with strain softening and lateral fill extension. Specific design parameters or recommendations for either of these alternatives can be provided once the building location and fill slope geometry have been determined.

- If swimming pools are planned, Geocon Incorporated should be contacted for a review of specific site conditions.

- Swimming pools located within 7 feet of the top of cut or fill slopes are not recommended. Where such a condition cannot be avoided, the portion of the swimming pool wall within 7 feet of the slope face be designed assuming that the adjacent soil provides no lateral support. This recommendation applies to fill slopes up to 30 feet in height, and cut slopes regardless of height. For swimming pools located near the top of fill slopes greater than 30 feet in height, additional recommendations may be required and Geocon Incorporated should be contacted for a review of specific site conditions.

- Although other improvements, which are relatively rigid or brittle, such as concrete flatwork or masonry walls, may experience some distress if located near the top of a slope, it is generally not economical to mitigate this potential. It may be possible, however, to incorporate design measures, which would permit some lateral soil movement without causing extensive distress. Geocon Incorporated should be consulted for specific recommendations.

7.8.19 Exterior concrete flatwork not subject to vehicular traffic should be constructed in accordance with the recommendations herein. Slab panels should be a minimum of 4 inches thick and, when in excess of 8 feet square, should be reinforced with 6 x 6 - W2.9/W2.9 (6 x 6 - 6/6) welded wire mesh or No. 3 reinforcing bars at 18 inches on center in both directions to reduce the potential for cracking. In addition, concrete flatwork should be

provided with crack control joints to reduce and/or control shrinkage cracking. Crack control spacing should be determined by the project structural engineer based upon the slab thickness and intended usage. Criteria of the American Concrete Institute (ACI) should be taken into consideration when establishing crack control spacing. A 4-inch-thick slab should have a maximum joint spacing of 10 feet. Subgrade soil for exterior slabs not subjected to vehicle loads should be compacted in accordance with criteria presented in the grading section prior to concrete placement. Subgrade soil should be properly compacted and the moisture content of subgrade soil should be checked prior to placing concrete.

7.8.20 The recommendations of this report are intended to reduce the potential for cracking of slabs and foundations due to expansive soil (if present), differential settlement of fill soil or soil with varying thicknesses. However, even with the incorporation of the recommendations presented herein, foundations, stucco walls, and slabs-on-grade placed on such conditions may still exhibit some cracking due to soil movement and/or shrinkage. The occurrence of concrete shrinkage cracks is independent of the supporting soil characteristics. Their occurrence may be reduced by limiting the slump of the concrete, proper concrete placement and curing, and by the placement of crack control joints at periodic intervals, in particular, where re-entrant slab corners occur.

7.8.21 Concrete slabs should be provided with adequate crack-control joints, construction joints and/or expansion joints to reduce unsightly shrinkage cracking. The design of joints should consider criteria of the American Concrete Institute (ACI) when establishing crack-control spacing. Additional steel reinforcing, concrete admixtures and/or closer crack control joint spacing should be considered where concrete-exposed finished floors are planned.

7.8.22 Geocon Incorporated should be consulted to provide additional design parameters as required by the structural engineer.

7.9 Retaining Walls and Lateral Loads Recommendations

7.9.1 Retaining walls not restrained at the top and having a level backfill surface should be designed for an active soil pressure equivalent to the pressure exerted by a fluid with a density of 35 pounds per cubic foot (pcf). Where the backfill will be inclined at 2:1 (horizontal:vertical), an active soil pressure of 50 pcf is recommended. These soil pressures assume that the backfill materials within an area bounded by the wall and a 1:1 plane extending upward from the base of the wall possess an Expansion Index $\leq$50. Geocon Incorporated should be consulted for additional recommendations if backfill materials have an EI >50.

7.9.2 Retaining walls shall be designed to ensure stability against overturning sliding, excessive foundation pressure and water uplift. Where a keyway is extended below the wall base with the intent to engage passive pressure and enhance sliding stability, it is not necessary to consider active pressure on the keyway.

7.9.3 Where walls are restrained from movement at the top, an additional uniform pressure of 8H psf (where H equals the height of the retaining wall portion of the wall in feet) should be added to the active soil pressure where the wall possesses a height of 8 feet or less and 12H where the wall is greater than 8 feet. For retaining walls subject to vehicular loads within a horizontal distance equal to two-thirds the wall height, a surcharge equivalent to two feet of fill soil should be added (total unit weight of soil should be taken as 130 pcf).

7.9.4 Soil contemplated for use as retaining wall backfill, including import materials, should be identified in the field prior to backfill. At that time Geocon Incorporated should obtain samples for laboratory testing to evaluate its suitability. Modified lateral earth pressures may be necessary if the backfill soil does not meet the required expansion index or shear strength. County or regional standard wall designs, if used, are based on a specific active lateral earth pressure and/or soil friction angle. In this regard, on-site soil to be used as backfill may not meet the values for standard wall designs. Geocon Incorporated should be consulted to assess the suitability of the on-site soil for use as wall backfill if standard wall designs will be used. However, imported soil will be needed to raise pad grades approximately 10 feet, therefore, the imported soil would meet the minimum soil values for regional standard wall design.

7.9.5 Unrestrained walls will move laterally when backfilled and loading is applied. The amount of lateral deflection is dependent on the wall height, the type of soil used for backfill, and loads acting on the wall. The wall designer should provide appropriate lateral deflection quantities for planned retaining walls structures, if applicable. These lateral values should be considered when planning types of improvements above retaining wall structures.

7.9.6 Retaining walls should be provided with a drainage system adequate to prevent the buildup of hydrostatic forces and should be waterproofed as required by the project architect. The use of drainage openings through the base of the wall (weep holes) is not recommended where the seepage could be a nuisance or otherwise adversely affect the property adjacent to the base of the wall. The above recommendations assume a properly compacted granular (EI $\leq$50) free-draining backfill material with no hydrostatic forces or imposed surcharge load. A typical retaining wall drainage detail is presented on Figure 8. If conditions different than those described are expected, or if specific drainage details are desired, Geocon Incorporated should be contacted for additional recommendations.

7.9.7 In general, wall foundations having a minimum depth and width of one foot may be designed for an allowable soil bearing pressure of 2,000 psf, provided the soil within three feet below the base of the wall has an Expansion Index $\leq$ 90. The recommended allowable soil bearing pressure may be increased by 300 psf and 500 psf for each additional foot of foundation width and depth, respectively, up to a maximum allowable soil bearing pressure of 4,000 psf.

7.9.8 The proximity of the foundation to the top of a slope steeper than 3:1 could impact the allowable soil bearing pressure. Therefore, Geocon Incorporated should be consulted where such a condition is anticipated. As a minimum, wall footings should be deepened such that the bottom outside edge of the footing is at least seven feet from the face of slope when located adjacent and/or at the top of descending slopes.

7.9.9 The structural engineer should determine the Seismic Design Category for the project in accordance with Section 1613.3.5 of the 2019 CBC or Section 11.6 of ASCE 7-16. For structures assigned to Seismic Design Category of D, E, or F, retaining walls that support more than 6 feet of backfill should be designed with seismic lateral pressure in accordance with Section 1803.5.12 of the 2019 CBC. The seismic load is dependent on the retained height where H is the height of the wall, in feet, and the calculated loads result in pounds per square foot (psf) exerted at the base of the wall and zero at the top of the wall. A seismic load of 22H should be used for design. We used the peak ground acceleration adjusted for Site Class effects, PGA_M, of 0.477g calculated from ASCE 7-16 Section 11.8.3 and applied a pseudo-static coefficient of 0.33.

7.9.10 For resistance to lateral loads, a passive earth pressure equivalent to a fluid density of 300 pcf is recommended for footings or shear keys poured neat against properly compacted granular fill soils or undisturbed formational materials. The passive pressure assumes a horizontal surface extending away from the base of the wall at least five feet or three times the surface generating the passive pressure, whichever is greater. The upper 12 inches of material not protected by floor slabs or pavement should not be included in the design for lateral resistance.

7.9.11 An ultimate friction coefficient of 0.35 may be used for resistance to sliding between soil and concrete. This friction coefficient may be combined with the passive earth pressure when determining resistance to lateral loads.

7.9.12 The recommendations presented above are generally applicable to the design of rigid concrete or masonry retaining walls having a maximum height of 12 feet. In the event that

walls higher than 12 feet are planned, Geocon Incorporated should be consulted for additional recommendations.

7.10 Mechanically-Stabilized Earth (MSE) Retaining Walls

7.10.1 The geologic conditions for the proposed development are anticipated to consist of compacted fill over formational materials. The formational materials consist of Santiago Formation and granitic rock. The compacted fill soils in the foundation and retained zones should consist of silty sands derived from on-site excavations in the granitic rock or imported to the site if selective grading and stockpiling of granular soil for wall backfill is not performed. Clay soils are not considered suitable as wall backfill due to the high expansion potential. Based our experience with similar soil and geologic conditions, we recommend the following geotechnical parameters be used for design of the MSE retaining walls.

TABLE 7.10
MSE RETAINING WALL PARAMETERS

Parameter	Reinforced Zone	Retained Zone	Foundation Zone
Angle of Internal Friction	30 degrees	30 degrees	30 degrees
Cohesion	0 psf	0 psf	0 psf
Wet Unit Weight	125 pcf	125 pcf	125 pcf

7.10.2 The shear strength values used for the reinforced zone assume that predominately granular materials will be stockpiled for use as backfill. Geocon has no way of knowing whether these materials will actually be used as backfill behind the wall during construction. As such, once backfill materials have been selected and/or stockpiled, sufficient shear tests should be conducted on samples of the proposed backfill materials to verify they conform to actual design values. Results should be provided to the designer to re-evaluate stability of the walls. Dependent upon test results, the designer may require modifications to the original wall design (e.g., longer geogrid embedment lengths).

7.10.3 Backfill materials within the reinforced zone should be compacted to a dry density of at least 90 percent of the laboratory maximum dry density at or slightly above optimum moisture content in accordance with ASTM D 1557. This is applicable to the entire embedment length of the geogrid reinforcement. In addition, the wall designer has maximum particle size (typically 3-inches in size or less) and shape (angular/rounded) requirements for soil-rock fill within the reinforced zone. Typically, wall designers specify that heavy compaction equipment be excluded from within 3 feet of the face of the wall;

however, smaller equipment (e.g., walk-behind, self-driven compactors or hand whackers) should be used to compact the materials without causing deformation of the wall. If the designer specifies no compactive effort for this zone, the materials are essentially not properly compacted and the geogrid within the uncompacted zone should not be relied upon for reinforcement and overall embedment lengths should be increased to account for the difference.

7.10.4 The wall designer should provide a drainage system sufficient to dissipate hydrostatic pressure behind the wall and to mitigate seepage through and beneath the wall. As such, a subdrain system consisting of a minimum 4-inch diameter, Schedule 40, perforated pvc pipe surrounded by at least 1 cubic foot of ¾-inch open-graded gravel and wrapped in filter fabric (Mirafi 140N or equivalent) should be incorporated into the wall design, where feasible. In order to prevent soil piping into the open-graded gravel layer behind the wall, we recommend the filter fabric be extended to cover the entire gravel layer. The final segment of the subdrain should outlet into an approved drainage facility, such as storm drain or headwall structure. The final segment of the drain should consist of solid pvc pipe. At the transition between the solid and perforated pipe, a concrete cut-off wall should be added to direct the subsurface water into the solid pipe.

7.10.5 A peak ground acceleration adjusted for Site Class effects, PGA_M, of 0.477g was calculated from ASCE 7-16 Section 11.8.3. The 2019 CBC seismic design parameters are provided in Section 7.7.1.

7.10.6 Geosynthetic reinforcement must elongate to develop full tensile resistance. This elongation generally results in movement at the top of the wall. The amount of movement is dependent upon the height of the wall (e.g., higher walls rotate more), construction, and the type of geosynthetic used. In addition, over time reinforced-earth retaining walls have been known to exhibit creep and can undergo additional movement. Given this condition, the owner should be aware that structures and pavement placed within the reinforced and retained zones of the wall may undergo movement and should be designed to accommodate this movement.

7.11 Preliminary Pavement Recommendations

7.11.1 We calculated the preliminary flexible pavement sections in general conformance with the *Caltrans Method of Flexible Pavement Design* (Highway Design Manual, Section 608.4) using estimated Traffic Indices (TI) of 4.5, 5.0, 6.0, 7.0 and 8.0 for light-duty parking stalls, light-duty driveways, medium-duty, and heavy-duty traffic areas, respectively. The project civil engineer, architect, and owner should review the pavement designations to determine appropriate locations for pavement thickness. The final pavement sections should be based

on the R-Value of the subgrade soil encountered at final subgrade elevation. For preliminary design purposes, we have utilized an assumed R-value of 5. Table 7.11.1 presents the preliminary flexible pavement sections for private parking lots and roadways.

TABLE 7.11.1
PRELIMINARY FLEXIBLE PAVEMENT SECTIONS

Location	Assumed Traffic Index	Assumed Subgrade R-Value	Asphalt Concrete (inches)	Class 2 Aggregate Base (inches)
Light-duty vehicle parking stalls	4.5	5	3	8
Light-duty vehicle traffic areas	5.0	5	3	10
Medium-duty truck traffic areas	6.0	5	3.5	13
Heavy-duty truck traffic areas	7.0	5	4	16

7.11.2 Prior to placing base materials, the upper 12 inches of the subgrade soil should be scarified, moisture conditioned as necessary, and recompacted to a dry density of at least 95 percent of the laboratory maximum dry density near to slightly above optimum moisture content as determined by ASTM D 1557. Similarly, the base material should be compacted to a dry density of at least 95 percent of the laboratory maximum dry density near to slightly above optimum moisture content. Asphalt concrete should be compacted to a density of at least 95 percent of the laboratory Hveem density in accordance with ASTM D 2726.

7.11.3 Base materials should conform to Section 26-1.028 of the *Standard Specifications for The State of California Department of Transportation (Caltrans)* with a ¾-inch maximum size aggregate. The asphalt concrete should conform to Section 203-6 of the *Standard Specifications for Public Works Construction (Greenbook).*

7.11.4 A rigid Portland Cement concrete (PCC) pavement section should be placed in driveway entrance aprons, trash bin loading/storage areas and loading dock areas. The concrete pad for trash truck areas should be large enough such that the truck wheels will be positioned on the concrete during loading. We calculated the rigid pavement section in general conformance with the procedure recommended by the American Concrete Institute report ACI 330R-08 *Guide for Design and Construction of Concrete Parking Lots* using the parameters presented in Table 7.11.2.

TABLE 7.11.2
RIGID PAVEMENT DESIGN PARAMETERS

Design Parameter	Design Value
Modulus of subgrade reaction, k	50 pci
Modulus of rupture for concrete, M_R	500 psi
Traffic Category, TC	B and C
Average daily truck traffic, ADTT	25 and 100

7.11.5 Based on the criteria presented herein, the PCC pavement sections should have a minimum thickness as presented in Table 7.11.3.

TABLE 7.11.3
RIGID PAVEMENT RECOMMENDATIONS

Location	Portland Cement Concrete (inches)
Light-Duty Vehicles (TC=B, ADTT = 25)	7.0
Medium-Duty Vehicles (TC=C, ADTT =100)	7.5

7.11.6 The PCC pavement should be placed over subgrade soil that is compacted to a dry density of at least 95 percent of the laboratory maximum dry density near to slightly above optimum moisture content. This pavement section is based on a minimum concrete compressive strength of approximately 3,000 psi (pounds per square inch).

7.11.7 A thickened edge or integral curb should be constructed on the outside of concrete slabs subjected to wheel loads. The thickened edge should be 1.2 times the slab thickness or a minimum thickness of 2 inches, whichever results in a thicker edge, and taper back to the recommended slab thickness 4 feet behind the face of the slab (e.g., a 7-inch-thick slab would have a 9-inch-thick edge).

7.11.8 Reinforcing steel should consist of No. 3 rebar placed at 18 inches on center, both directions, or 6x6-6/6 welded wire mesh.

7.11.9 To control the location and spread of concrete shrinkage cracks, crack-control joints (weakened plane joints) should be included in the design of the concrete pavement slab. Criteria of the American Concrete Institute (ACI) should be taken into consideration when establishing crack control spacing. However, we recommend a spacing not to exceed

10 feet. The depth of the crack-control joints should be determined by the referenced ACI report.

7.11.10 The performance of pavement is highly dependent on providing positive surface drainage away from the edge of the pavement. Ponding of water on or adjacent to the pavement will likely result in pavement distress and subgrade failure. Drainage from landscaped areas should be directed to controlled drainage structures. Landscape areas adjacent to the edge of asphalt pavements are not recommended due to the potential for surface or irrigation water to infiltrate the underlying permeable aggregate base and cause distress. Where such a condition cannot be avoided, consideration should be given to incorporating measures that will significantly reduce the potential for subsurface water migration into the aggregate base. If planter islands are planned, the perimeter curb should extend at least 6 inches below the level of the base materials.

7.12 Storm Water Management

7.12.1 If low-impact development (LID) integrated management practices (IMP's) are being considered, Geocon should review the design and provide specific geotechnical recommendations to reduce the potential adverse impacts to both on and off-site properties.

7.12.2 If not property constructed, there is a potential for distress to improvements and properties located hydrologically down gradient or adjacent to these devices. Factors such as the amount of water to be detained, its residence time, and soil permeability have an important effect on seepage transmission and the potential adverse impacts that may occur if the storm water management features are not properly designed and constructed. We have not performed a hydrogeology study at the site. Down-gradient and adjacent properties may be subjected to seeps, springs, slope instability, raised groundwater, movement of foundations and slabs, or other impacts as a result of water infiltration.

7.12.3 Due to the site soil and geologic conditions, full and partial infiltration of storm water is considered geotechnically infeasible. Liners and subdrains should be incorporated into the design and construction of any planned storm water devices. The liners should be impermeable (e.g. High-density polyethylene, HDPE, with a thickness of about 30 mil or equivalent Polyvinyl Chloride, PVC) to prevent water migration. The subdrains should be perforated within the liner area, installed at the base and above the liner, be at least 4 inches in diameter and consist of Schedule 40 PVC pipe. The subdrains outside of the liner should consist of solid pipe. Seams and penetrations of the liners should be properly waterproofed. The subdrains should be connected to a proper outlet. The devices should also be installed in accordance with the manufacturer's recommendations.

7.12.4 Revised recommendations may be needed once site plans are available that show proposed storm water BMP types and locations.

7.13 Site Drainage and Moisture Protection

7.13.1 Adequate site drainage is critical to reduce the potential for differential soil movement, erosion and subsurface seepage. Under no circumstances should water be allowed to pond adjacent to footings. The site should be graded and maintained such that surface drainage is directed away from structures in accordance with 2019 CBC 1803.3 or other applicable standards. In addition, surface drainage should be directed away from the top of slopes into swales or other controlled drainage devices. Roof and pavement drainage should be directed into conduits that carry runoff away from the proposed structure.

7.13.2 In the case of basement walls or building walls retaining landscaping areas, a water-proofing system should be used on the wall and joints, and a Miradrain drainage panel (or similar) should be placed over the waterproofing. The project architect or civil engineer should provide detailed specifications on the plans for all waterproofing and drainage.

7.13.3 Underground utilities should be leak free. Utility and irrigation lines should be checked periodically for leaks, and detected leaks should be repaired promptly. Detrimental soil movement could occur if water is allowed to infiltrate the soil for prolonged periods of time.

7.14 Grading and Foundation Plan Review

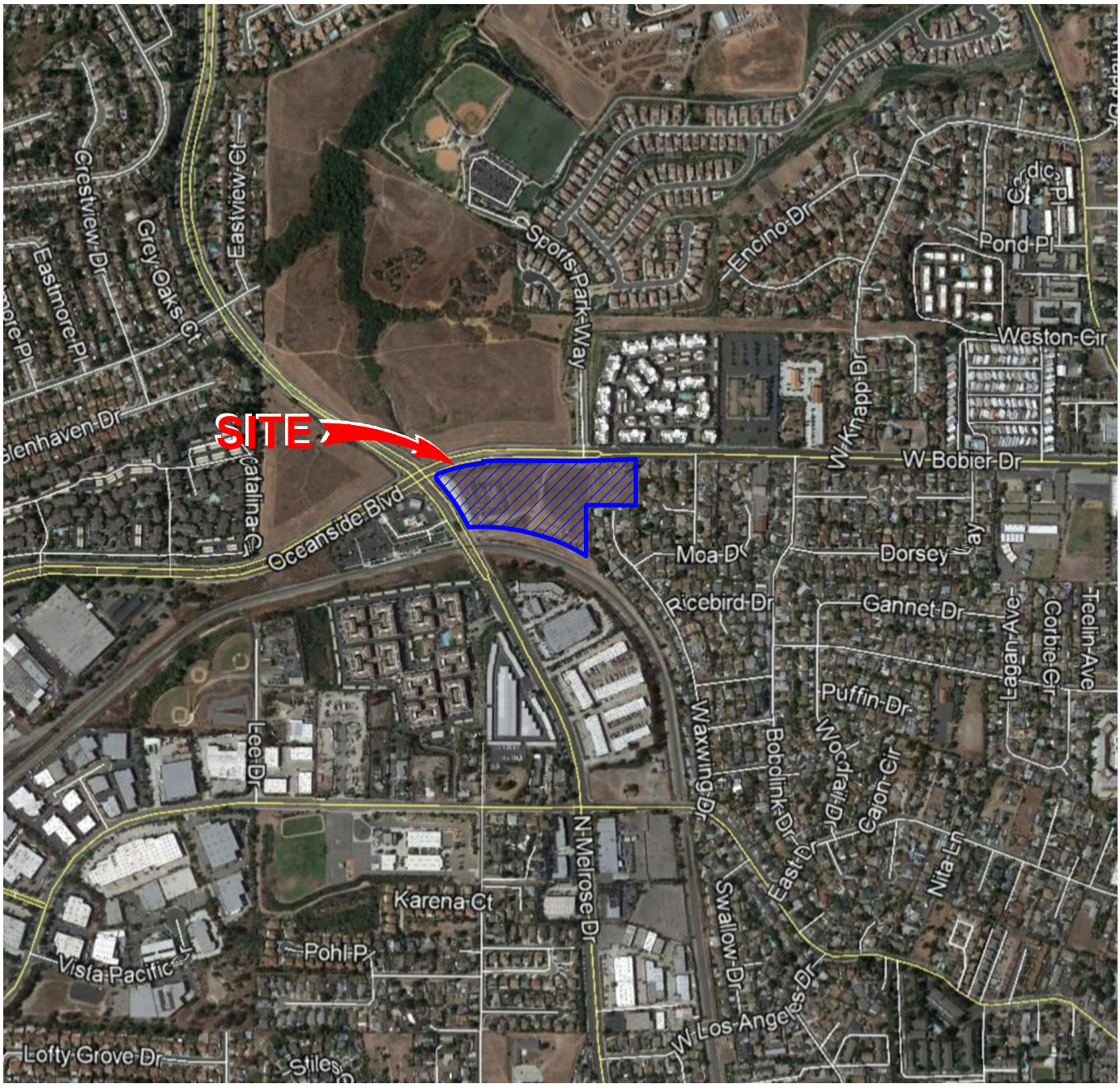
7.14.1 Geocon Incorporated should review the grading and foundation plans for the project prior to final design submittal to determine if additional analysis and/or recommendations are required.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

1. The recommendations of this report pertain only to the site investigated and are based upon the assumption that the soil conditions do not deviate from those disclosed in the investigation. If any variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that anticipated herein, Geocon Incorporated should be notified so that supplemental recommendations can be given. The evaluation or identification of the potential presence of hazardous or corrosive materials was not part of the scope of services provided by Geocon Incorporated.

2. This report is issued with the understanding that it is the responsibility of the owner or his representative to ensure that the information and recommendations contained herein are brought to the attention of the architect and engineer for the project and incorporated into the plans, and the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.

3. The findings of this report are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of three years.



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N

NO SCALE

VICINITY MAP

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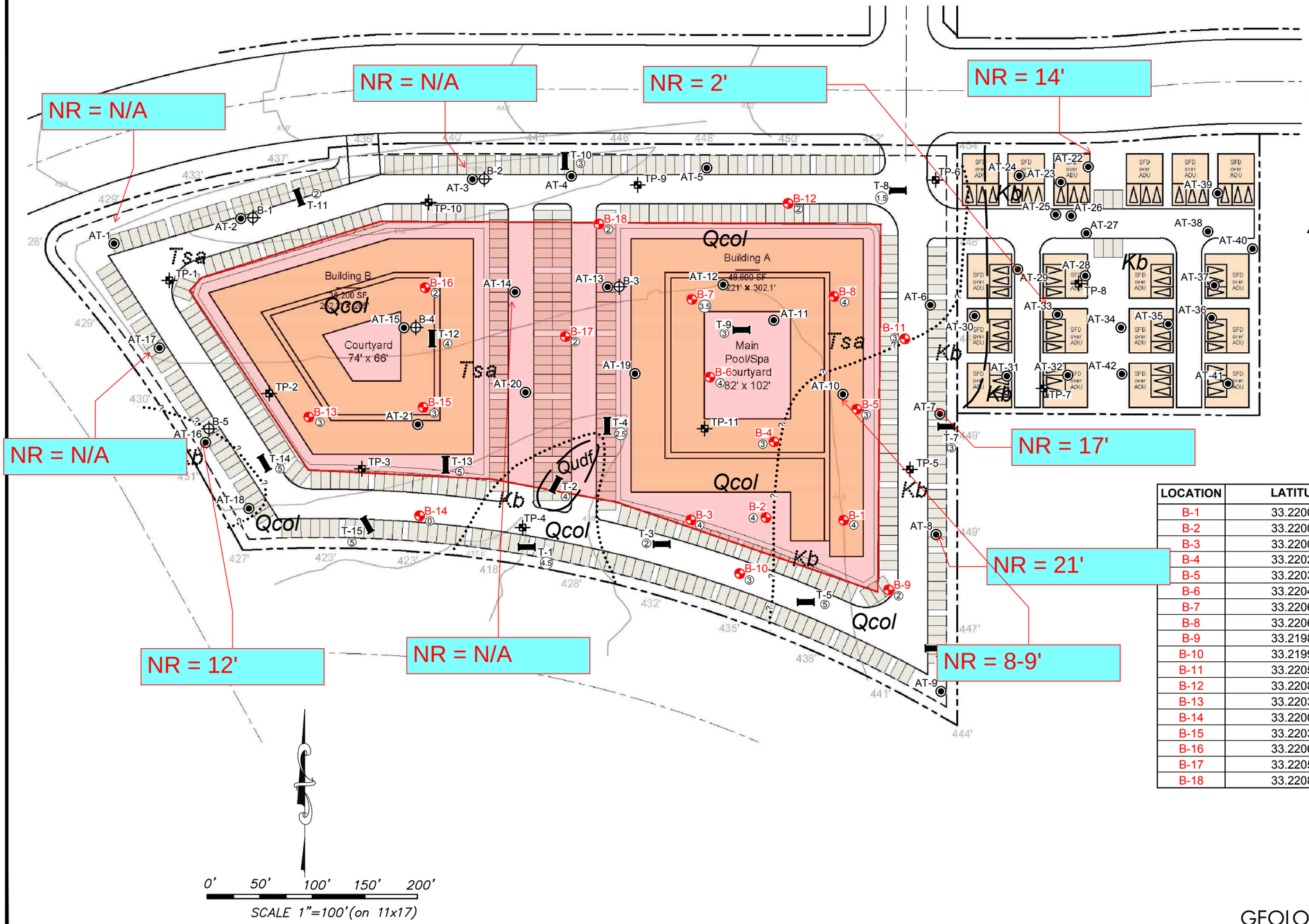
RM / AML		DSK/GTYPD

MODERA MELROSE
OCEANSIDE, CALIFORNIA

DATE 01 - 26 - 2021	PROJECT NO. 07647 - 32 - 04	FIG. 1

Plotted:01/26/2021 9:25AM | By:ALVIN LADRILLONO | File Location:Y:\PROJECTS\07647-32-04 (Modera Melrose)\DETAILS\07647-32-04 Vic Map.dwg

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GEOCON LEGEND

- *Qudf* .....UNDOCUMENTED FILL
- *Qcol* .....COLLUVIUM
- *Tsa* .....SANTIAGO FORMATION (Dotted Where Buried)
- *Kb* .....BONSALL TONALITE (Dotted Where Buried)
- .....APPROX. LOCATION OF GEOLOGIC CONTACT (Dotted Where Buried,Queried Where Uncertain)
- B-18 .....APPROX. LOCATION OF EXPLORATORY BORING (2011)
- AT-21 .....APPROX. LOCATION OF AIR TRACK BORING
- B-5 .....APPROX. LOCATION OF VERIFICATION BORING
- T-15 .....APPROX. LOCATION OF EXPLORATORY TRENCH
- TP-11 .....APPROX. LOCATION OF EXPLORATORY TEST PIT (Performed by EEI)
- ⑤.....ESTIMATED THICKNESS OF SURFICIAL DEPOSIT REQUIRING REMEDIAL GRADING

LOCATION	LATITUDE	LONGTITUDE	ELEVATION (ft. MSL)
B-1	33.220068°	-117.256252°	443'
B-2	33.220073°	-117.256494°	439'
B-3	33.220064°	-117.256728°	436'
B-4	33.220271°	-117.256471°	440'
B-5	33.220359°	-117.256215°	443'
B-6	33.220438°	-117.256673°	437'
B-7	33.220642°	-117.256732°	441'
B-8	33.220653°	-117.256289°	443'
B-9	33.219887°	-117.256110°	444'
B-10	33.219927°	-117.256574°	438'
B-11	33.220544°	-117.256068°	446'
B-12	33.220895°	-117.256435°	447'
B-13	33.220324°	-117.257920°	438'
B-14	33.220069°	-117.257573°	428'
B-15	33.220353°	-117.257565°	438'
B-16	33.220665°	-117.257562°	447'
B-17	33.220541°	-117.257124°	440'
B-18	33.220837°	-117.257023°	449'

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PROJECT NO. 07647 - 32 - 04
FIGURE 2
DATE 01 - 26 - 2021

GEOLOGIC MAP

Y:\PROJECTS\07647-32-04 (Modera Melrose)\SHEETS\07647-32-04 Geo Map.dwg

ASSUMED CONDITIONS :

SLOPE HEIGHT	H	=	15 feet
SLOPE INCLINATION	2 : 1	(Horizontal : Vertical)	
TOTAL UNIT WEIGHT OF SOIL	γ_t	=	125 pounds per cubic foot
ANGLE OF INTERNAL FRICTION	ϕ	=	30 degrees
APPARENT COHESION	C	=	250 pounds per square foot
NO SEEPAGE FORCES			

ANALYSIS :

$\lambda_{c\phi}$	=	$\frac{\gamma_t H \tan\phi}{C}$	EQUATION (3-3), REFERENCE 1
FS	=	$\frac{NcfC}{\gamma_t H}$	EQUATION (3-2), REFERENCE 1
$\lambda_{c\phi}$	=	3.6	CALCULATED USING EQ. (3-3)
Ncf	=	16	DETERMINED USING FIGURE 10, REFERENCE 2
FS	=	2.6	FACTOR OF SAFETY CALCULATED USING EQ. (3-2)

REFERENCES :

1.....Janbu, N., Stability Analysis of Slopes with Dimensionless Parameters, Harvard Soil Mechanics, Series No. 46, 1954

2.....Janbu, N., Discussion of J.M. Bell, Dimensionless Parameters for Homogeneous Earth Slopes, Journal of Soil Mechanics and Foundation Design, No. SM6, November 1967.

SLOPE STABILITY ANALYSIS - FILL SLOPES

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ASSUMED CONDITIONS :

SLOPE HEIGHT	H	=	30 feet
SLOPE INCLINATION	2 : 1	(Horizontal : Vertical)	
TOTAL UNIT WEIGHT OF SOIL	γ_t	=	130 pounds per cubic foot
ANGLE OF INTERNAL FRICTION	ϕ	=	33 degrees
APPARENT COHESION	C	=	350 pounds per square foot
NO SEEPAGE FORCES			

ANALYSIS :

$\lambda_{c\phi}$	=	$\frac{\gamma_t H \tan\phi}{C}$	EQUATION (3-3), REFERENCE 1
FS	=	$\frac{NcfC}{\gamma_t H}$	EQUATION (3-2), REFERENCE 1
$\lambda_{c\phi}$	=	7.2	CALCULATED USING EQ. (3-3)
Ncf	=	25	DETERMINED USING FIGURE 10, REFERENCE 2
FS	=	2.2	FACTOR OF SAFETY CALCULATED USING EQ. (3-2)

REFERENCES :

1.....Janbu, N., Stability Analysis of Slopes with Dimensionless Parameters, Harvard Soil Mechanics, Series No. 46, 1954

2.....Janbu, N., Discussion of J.M. Bell, Dimensionless Parameters for Homogeneous Earth Slopes, Journal of Soil Mechanics and Foundation Design, No. SM6, November 1967.

SLOPE STABILITY ANALYSIS - CUT SLOPES

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RM / AML		DSK/GTYPD	DATE 01 - 26 - 2021	PROJECT NO. 07647 - 32 - 04	FIG. 4

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ASSUMED CONDITIONS :

SLOPE HEIGHT	H	=	Infinite
DEPTH OF SATURATION	Z	=	3 feet
SLOPE INCLINATION	2 : 1		(Horizontal : Vertical)
SLOPE ANGLE	i	=	26.6 degrees
UNIT WEIGHT OF WATER	γ_w	=	62.4 pounds per cubic foot
TOTAL UNIT WEIGHT OF SOIL	γ_t	=	125 pounds per cubic foot
ANGLE OF INTERNAL FRICTION	ϕ	=	30 degrees
APPARENT COHESION	C	=	250 pounds per square foot

SLOPE SATURATED TO VERTICAL DEPTH Z BELOW SLOPE FACE

SEEPAGE FORCES PARALLEL TO SLOPE FACE

ANALYSIS :

$$FS = \frac{C + (\gamma_t - \gamma_w)\ Z\ \cos^2 i\ \tan \phi}{\gamma_t\ Z\ \sin i\ \cos i} = 2.2$$

REFERENCES :

1.....Haefeli, R. *The Stability of Slopes Acted Upon by Parallel Seepage*, Proc. Second International Conference, SMFE, Rotterdam, 1948, 1, 57-62

2.....Skempton, A. W., and F.A. Delory, *Stability of Natural Slopes in London Clay*, Proc. Fourth International Conference, SMFE, London, 1957, 2, 378-81

SURFICIAL SLOPE STABILITY ANALYSIS

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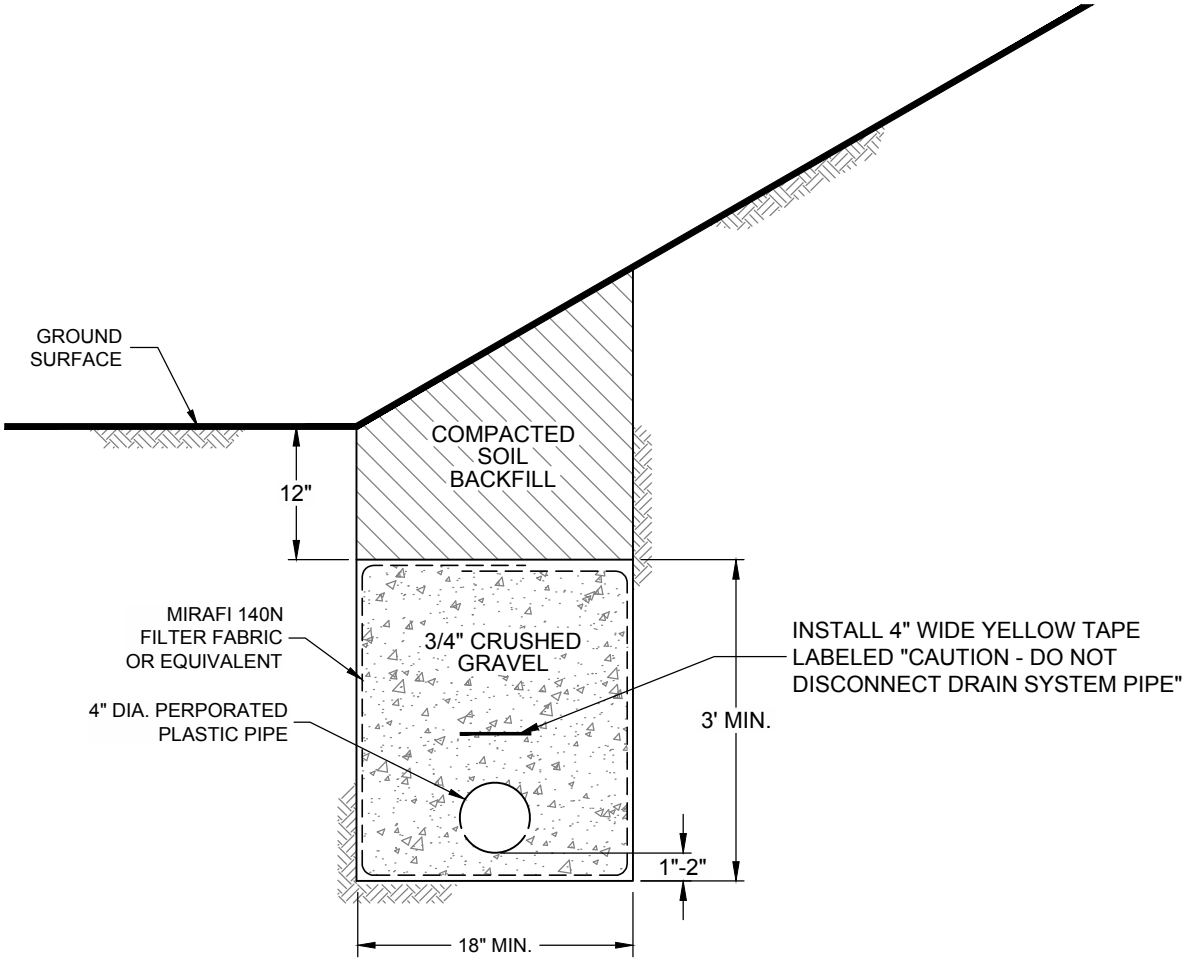
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RM / AML		DSK/GTYPD	DATE 01 - 26 - 2021	PROJECT NO. 07647 - 32 - 04	FIG. 5

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NOTES:

1. SOIL CAP COMPACTED TO 90% RELATIVE COMPACTION
2. PERMEABLE MATERIAL SHALL BE ¾" CRUSHED GRAVEL WRAPPED IN FILTER FABRIC (MIRAFI 140N OR EQUIVALENT)
3. 4" DIAMETER PERFORATED PIPE (SDR-35 OR EQUIVALENT) WITH PERFORATIONS DOWN
4. PIPE TO MAINTAIN A MINIMUM 1 PERCENT FALL
5. CONCRETE CUTOFF WALL TO BE PROVIDED AT TRANSITION TO SOLID OUTLET PIPE
6. SOLID OUTLET PIPE TO DRAIN TO APPROVED AREA
7. CLEANOUTS SHOULD BE PROVIDED

SLOPE TOE DRAIN

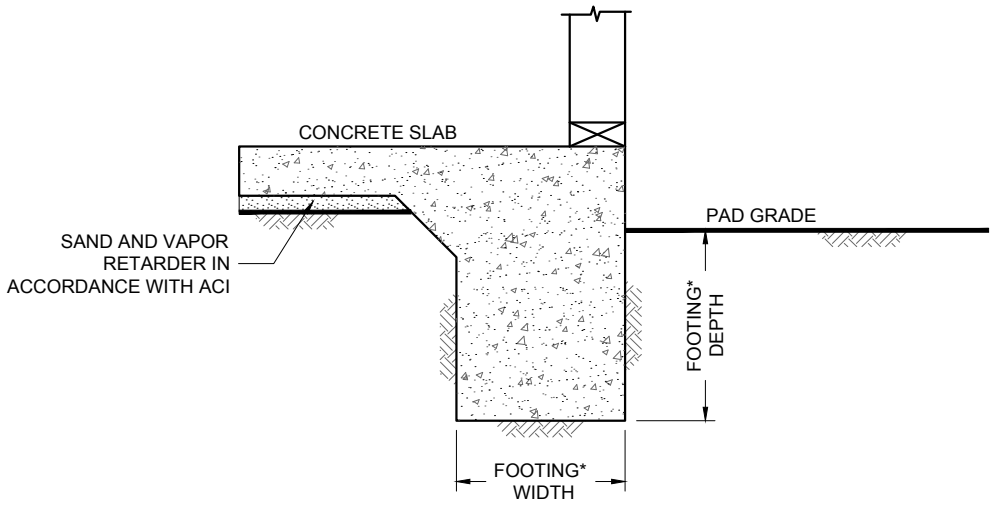
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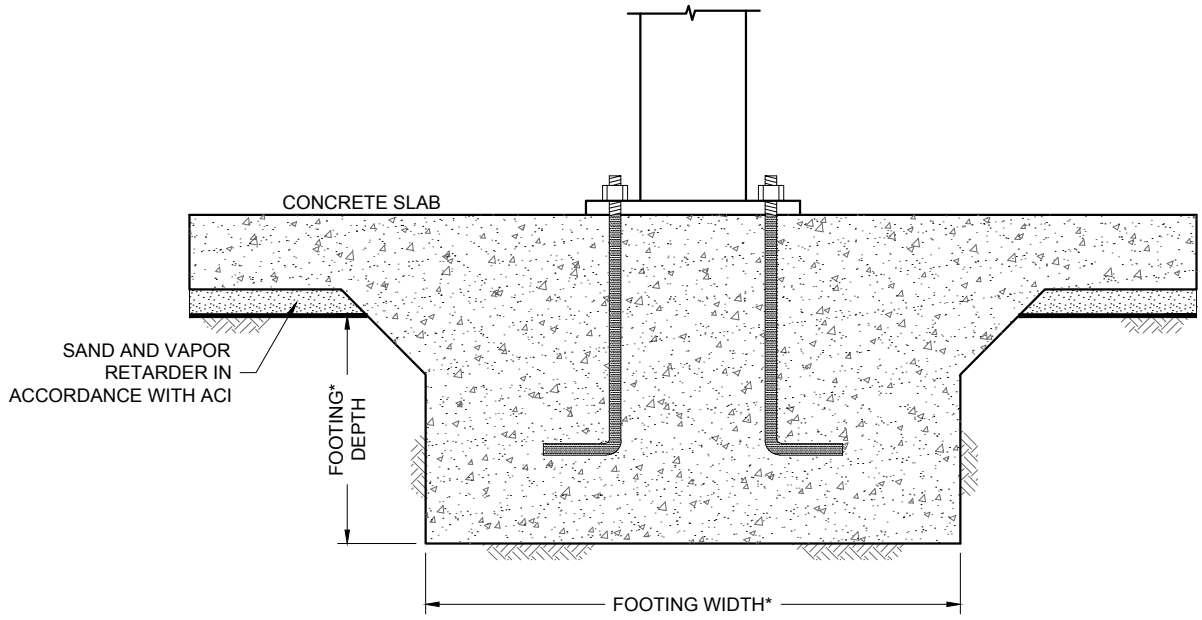
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DATE 01 - 26 - 2021	PROJECT NO. 07647 - 32 - 04	FIG. 6

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*....SEE REPORT FOR FOUNDATION WIDTH AND DEPTH RECOMMENDATION

NO SCALE

WALL / COLUMN FOOTING DIMENSION DETAIL

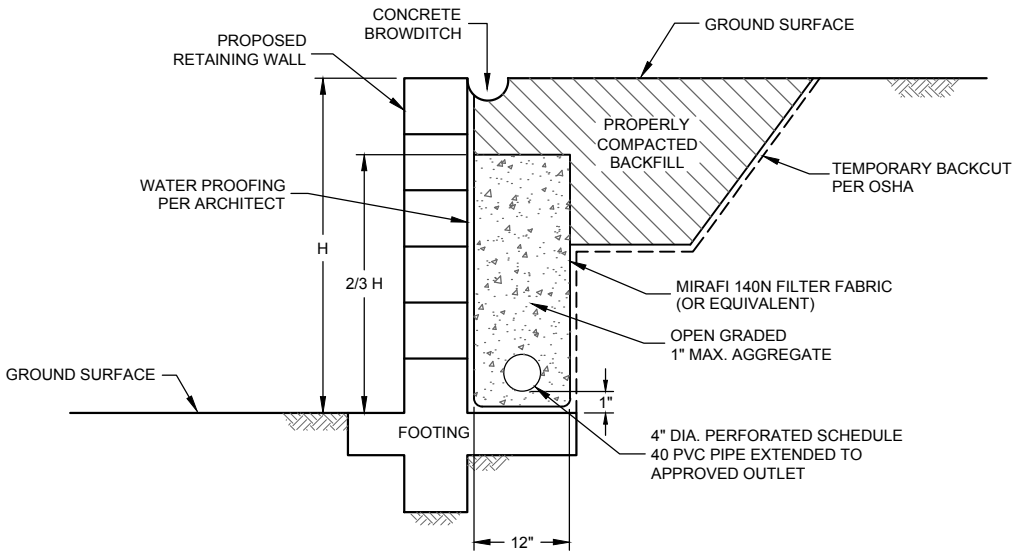
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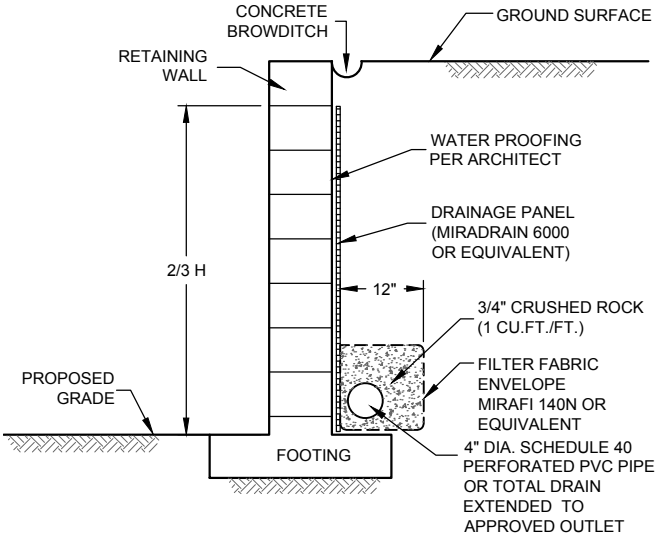
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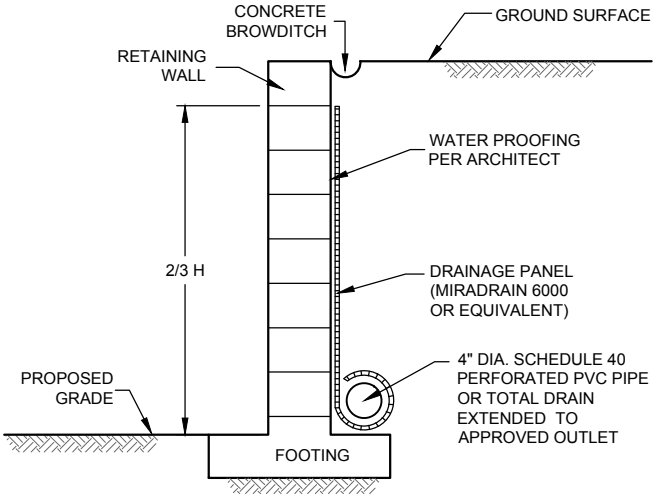
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DATE 01 - 26 - 2021	PROJECT NO. 07647 - 32 - 04	FIG. 7

Plotted:01/26/2021 9:30AM | By:ALVIN LADRILLONO | File Location:Y:\PROJECTS\07647-32-04 (Modera Melrose)\DETAILS\Wall-Column Footing Dimension Detail (COLFOOT2).dwg







NOTE :

DRAIN SHOULD BE UNIFORMLY SLOPED TO GRAVITY OUTLET
OR TO A SUMP WHERE WATER CAN BE REMOVED BY PUMPING

NO SCALE

TYPICAL RETAINING WALL DRAIN DETAIL

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DATE 01 - 26 - 2021	PROJECT NO. 07647 - 32 - 04	FIG. 8

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APPENDIX A

APPENDIX A

FIELD INVESTIGATION

The most recent field investigation was performed on June 28 and 29, 2011, and consisted of a site reconnaissance and the drilling of 18 small-diameter borings. The approximate locations of the exploratory borings are shown on the Geologic Map, Figure 2.

The borings were drilled to depths ranging from approximately 10 feet to 19.5 feet below existing grade using CME 75 drill rig, equipped with 6-inch-diameter, hollow-stem augers. Relatively undisturbed samples were obtained by driving a 3-inch-diameter, split-tube sampler 12 inches into the undisturbed soil mass with blows from a hammer weighing 140 pounds, dropped from a height of 30 inches. The sampler was equipped with 1-inch-by-2.5-inch brass sampler rings to facilitate removal and testing of the soil. Bulk samples were also obtained.

The soil conditions encountered in the borings were visually examined, classified, and logged in general accordance with American Society for Testing and Materials (ASTM) practice for Description and Identification of Soils (Visual-Manual Procedure D 2488). Logs of the exploratory borings are presented on Figures A-1 through A-18. The logs depict the soil and geologic conditions encountered and the depth at which samples were obtained.

Additional field investigations were performed to further evaluate the soil and geologic conditions on the property, including air-track drilling, exploratory trenching and hollow-stem auger drilling. The logs of these borings and trenches, as well as the laboratory test results, are presented in Appendix C.

PROJECT NO. 07647-42-03

BORING B 1

ELEV. (MSL.) **443'** DATE COMPLETED **06-28-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	B1-1			SC	**COLLUVIUM** Medium dense, damp to moist, brown to dark brown, Clayey, fine to medium SAND; trace clay			
2	B1-2				-Becomes brown to grayish brown	25	117.5	16.1
4	B1-3			SM	**BONSALL TONALITE** Highly weathered, mottled gray and brown to yellowish brown, fine- to coarse-grained, weak, ROCK	24	120.2	14.6
6	B1-4							
8	B1-5					81/9"		
10	B1-6				-Becomes slightly weathered, mottled light gray and brown and black, strong	78/11"		
12								
14								
16	B1-7				-Becomes mottled light greenish gray and black, very strong	50/4"		
18	B1-8				-Poor recovery	50/3.5"		
					BORING TERMINATED AT 19 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-1,
Log of Boring B 1, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-42-03

BORING B 2

ELEV. (MSL.) **439'** DATE COMPLETED **06-28-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0								
				SC	**COLLUVIUM** Medium dense, damp to moist, olive brown to grayish brown, Clayey, fine to coarse SAND			
2	B2-1					30		
4				SM	**SANTIAGO FORMATION** Dense, damp, mottled yellowish brown and light grayish brown, Silty, fine to coarse SAND			
	B2-2					63	122.7	7.8
6	B2-3							
	B2-4					50/5.5"	111.3	6.9
8					-Becomes very dense, light yellowish brown			
10	B2-5					100/7"		
12					-Becomes moist, yellowish brown			
14								
	B2-6				-No recovery	50/5"		
16								
18					-Becomes dry to damp, mottled light gray, brown, light green, and pink. fine to medium SAND			
	B2-7					88/8"		
					BORING TERMINATED AT 19.7 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-2,
Log of Boring B 2, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-42-03

BORING B 3

ELEV. (MSL.) **436'** DATE COMPLETED **06-28-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	B3-1			SM	**COLLUVIUM** Medium dense, damp to moist, brown to grayish brown, Silty, fine to medium SAND			
2	B3-2			SC	Dense, moist, brown to reddish brown, Clayey, fine to coarse SAND	54	127.5	8.6
4	B3-3			SM	**SANTIAGO FORMATION** Very dense, damp, light yellowish brown, Silty, fine to coarse SAND	50/4"	107.0	6.2
6								
8	B3-4				-Becomes light yellowish brown to yellowish brown	50/3.5"	105.3	7.3
10	B3-5				-No recovery	50/3.5"		
12					-Becomes moist, light gray			
14								
16	B3-6				-Disturbed sample	50/3"		
18					-Becomes light gray			
	B3-6				-Poor recovery	50/1.5"		
					BORING TERMINATED AT 19.1 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-3,
Log of Boring B 3, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

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GEOCON

PROJECT NO. 07647-42-03

BORING B 4

ELEV. (MSL.) **440'** DATE COMPLETED **06-28-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0								
				SM	**COLLUVIUM** Medium dense, damp, brown to reddish brown, Silty, fine to medium SAND			
2	B4-1					77		
				SM	**SANTIAGO FORMATION** Very dense, damp to moist, light yellowish brown to brown, Silty, fine to coarse SAND			
4	B4-2							
	B4-3					34	115.5	14.4
6				CH	Stiff, damp, mottled light gray and light green, Silty, fine-grained CLAYSTONE; moderately cemented			
	B4-4					81/9"	124.0	12.9
8					-Becomes hard			
10	B4-5				-Becomes mottled light gray and reddish brown	93/8"		
	B4-6							
12					-Becomes mottled light and gray and brown to yellowish brown			
14								
	B4-7					90/8"		
16								
18					-Becomes mottled light gray, brown, and dark reddish brown			
	B4-8					80/9"		
					BORING TERMINATED AT 19.8 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-4,
Log of Boring B 4, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

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GEOCON

PROJECT NO. 07647-42-03

BORING B 5

ELEV. (MSL.) **443'** DATE COMPLETED **06-28-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0								
				SM	**COLLUVIUM** Medium dense, moist, dark brown to grayish brown, Silty, fine to medium SAND; trace clay			
2	B5-1					40		
				SM	**BONSALL TONALITE** Highly weathered, mottled brown to olive brown and gray, fine- to coarse-grained, weak, ROCK			
4								
	B5-2				-Becomes mottled light gray and yellowish brown to reddish brown	21	120.4	12.5
6								
	B5-3					64	126.9	10.1
8								
					-Becomes mottled gray, yellowish brown and pink, moderately weak			
10	B5-4					78		
12								
					-Becomes slightly weathered, mottled light gray, gray, and black, strong			
14								
	B5-5					71/11"		
16								
18	B5-6				-No recovery	50/2"		
					BORING TERMINATED AT 18.3 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-5,
Log of Boring B 5, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

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GEOCON

PROJECT NO. 07647-42-03

BORING B 6

ELEV. (MSL.) **437'** DATE COMPLETED **06-28-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	B6-1			CL	**COLLUVIUM** Very stiff, damp to moist, brown to grayish brown, Sandy CLAY			
2	B6-2					40	120.5	12.4
4				CL	**SANTIAGO FORMATION** Hard, damp, mottled yellowish brown and brown, Sandy CLAY			
	B6-3					72/11"	124.7	11.0
6				SC	Dense, damp, light gray, Clayey, fine- to medium-grained SANDSTONE			
8	B6-4				-Becomes dense to very dense, mottled light gray, brown, and pink	73/8"		
10	B6-5				-Becomes very dense, reddish brown	50/5"		
12								
14					-Becomes mottled brown, light gray, and light purple			
	B6-6					50/5"		
16								
18								
	B6-7					50/5"		
					BORING TERMINATED AT 19.5 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-6,
Log of Boring B 6, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

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GEOCON

PROJECT NO. 07647-42-03

BORING B 7

ELEV. (MSL.) **441'** DATE COMPLETED **06-28-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0								
	B7-1			CH	**COLLUVIUM** Stiff, moist, dark brown to dark grayish brown, Silty fat CLAY			
2	B7-2					22	105.6	21.9
4				CL	**SANTIAGO FORMATION** Very stiff, moist, gray to grayish brown, Sandy CLAY			
	B7-3					50	117.3	16.2
6								
	B7-4			CL	Very dense, damp, gray, Silty, fine- to medium-grained CLAYSTONE; weakly cemented	80/9"		
8								
10	B7-5				-Becomes grayish brown to light olive brown	88/9"		
12								
14					-Becomes gray, fine-grained; moderately cemented			
	B7-6					50/5"		
16								
18								
	B7-7				-No recovery	50/4"		
					BORING TERMINATED AT 19.3 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-7,
Log of Boring B 7, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

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GEOCON

PROJECT NO. 07647-42-03

BORING B 8

ELEV. (MSL.) **443'** DATE COMPLETED **06-28-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SC	**COLLUVIUM** Medium dense, damp to moist, brown, Clayey, fine to medium SAND; trace clay			
2	B8-1				-Becomes mottled reddish brown and gray, fine to coarse	20		
4	B8-2			CL	**SANTIAGO FORMATION** Very stiff, mottle reddish brown, brown and light gray, Silty, fine- to medium-grained CLAYSTONE; weakly cemented			
6	B8-3					42	120.4	12.4
8	B8-4				-Becomes dense to very dense, mottled light gray and light green	78/11"	130.4	9.6
10	B8-5				-Becomes very dense, mottled reddish brown, yellowish brown, and light gray; moderately cemented	83/9"		
12								
14					-Becomes mottle dark reddish brown and yellowish brown, and light gray			
16	B8-6					85/8"		
18								
	B8-7					50/5"		
					BORING TERMINATED AT 19.5 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-8,
Log of Boring B 8, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

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GEOCON

PROJECT NO. 07647-42-03

BORING B 9

ELEV. (MSL.) **444'** DATE COMPLETED **06-29-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	B9-1			SC/CL	**COLLUVIUM** Medium dense, damp to moist, dark brown, Clayey, fine to medium SAND to Sandy CLAY			
2	B9-2			SM	**BONSALL TONALITE** Highly weathered, mottled yellowish brown and brown and light gray, fine- to coarse-grained, weak, ROCK	41	123.5	13.4
4	B9-3				-Becomes strong	87/9"	117.6	5.6
6	B9-4					92/11.5"		
8	B9-5				-No recovery	50/5"		
10					BORING TERMINATED AT 10.5 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-9,
Log of Boring B 9, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

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GEOCON

PROJECT NO. 07647-42-03

BORING B 10

ELEV. (MSL.) **438'** DATE COMPLETED **06-29-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SM	**COLLUVIUM** Medium dense, damp to moist, brown, Silty, fine to medium SAND; trace clay			
2	B10-1					31		
4				SC	**SANTIAGO FORMATION** Medium dense, moist, mottled yellowish brown and light gray, Clayey, fine to medium SAND			
6	B10-2			CL	Stiff, moist, mottled yellowish brown and light gray, Sandy CLAY	18		
8	B10-3			SM	Very dense, damp, light yellowish brown, Silty, fine to coarse SAND	50/4"		
10	B10-4					50/3"		
					BORING TERMINATED AT 10.2 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-10,
Log of Boring B 10, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

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GEOCON

PROJECT NO. 07647-42-03

BORING B 11

ELEV. (MSL.) **446'** DATE COMPLETED **06-29-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	B11-1			SM	**COLLUVIUM** Medium dense, damp, brown to dark brown, Silty, fine to medium SAND; trace clay			
2	B11-2					32		
4				SM	**BONSALL TONALITE** Highly weathered, mottled yellowish brown to brown and light gray, fine- to coarse-grained, weak, ROCK			
	B11-3				-Becomes mottled light gray to light green and black	43		
6								
8	B11-4				-Becomes moderately weak	50/4.5"		
10	B11-5				-No recovery	50/3"		
					BORING TERMINATED AT 10.2 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-11,
Log of Boring B 11, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

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GEOCON

PROJECT NO. 07647-42-03

BORING B 12

ELEV. (MSL.) **447'** DATE COMPLETED **06-29-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SM	**COLLUVIUM** Medium dense, damp, dark grayish brown, Silty, fine to medium SAND; trace clay			
2	B12-1			SC	**SANTIAGO FORMATION** Stiff, moist, mottled yellowish brown and light gray, Sandy CLAY	31		
4	B12-2					75/9"		
6				SM	Very dense, damp, mottled reddish brown and light gray, Silty, fine- to medium-grained SANDSTONE; weakly cemented			
8	B12-3				-Becomes reddish brown	50/3"		
10	B12-4					50/5"		
					BORING TERMINATED AT 10.5 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-12,
Log of Boring B 12, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

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GEOCON

PROJECT NO. 07647-42-03

BORING B 13

ELEV. (MSL.) **438'** DATE COMPLETED **06-29-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	B13-1			SC	**COLLUVIUM** Stiff, moist, dark brown to dark gray, Sandy CLAY			
2	B13-2					15	98.1	24.1
4				CL	**SANTIAGO FORMATION** Stiff, moist, gray, Silty CLAY			
6	B13-3				-Excavates with approx. 1/2 inch thick lense of white caliche	27		
8	B13-4			CH	Stiff, damp to moist, light gray to light greenish gray, Silty, FAT CLAY; trace caliche staining; weakly cemented	34		
10	B13-5			CL	Damp, light gray to gray, Sandy, fine- to medium-grained CLAYSTONE; weakly cemented	70		
12								
14					-Becomes very dense			
16	B13-6					95/9"		
18					-Becomes light gray to light greenish gray			
	B13-7					50/5.5"		
					BORING TERMINATED AT 19.5 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-13,
Log of Boring B 13, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

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GEOCON

PROJECT NO. 07647-42-03

BORING B 14

ELEV. (MSL.) **428'** DATE COMPLETED **06-29-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	B14-1			SM	**SANTIAGO FORMATION** Very dense, damp, light gray, Silty, fine- to medium-grained SANDSTONE; weakly cemented; highly weathered			
2	B14-2					70/9"		
4	B14-3				-Becomes fine- to coarse-grained	85/8"		
6					-Becomes white to light gray, fine- to medium-grained			
8	B14-4					50/5.5"		
10	B14-5					50/5.5"		
					BORING TERMINATED AT 10.5 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-14,
Log of Boring B 14, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

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GEOCON

PROJECT NO. 07647-42-03

BORING B 15

ELEV. (MSL.) **438'** DATE COMPLETED **06-29-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0								
				SC	**COLLUVIUM** Medium dense, damp, dark grayish brown, Clayey, fine to medium SAND			
2	B15-1					18		
				CH	**SANTIAGO FORMATION** Stiff, moist, gray, Silty CLAYSTONE; weakly cemented			
4								
	B15-2			SM	Medium dense, damp, gray, Silty, fine- to medium-grained SANDSTONE; veins of caliche	46		
6								
	B15-3				-Becomes white to light gray, fine- to coarse-grained	90/9"		
8								
10	B15-4					50/5"		
					BORING TERMINATED AT 10.5 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-15,
Log of Boring B 15, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

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GEOCON

PROJECT NO. 07647-42-03

BORING B 16

ELEV. (MSL.) **447'** DATE COMPLETED **06-29-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	B16-1			SM	**COLLUVIUM** Medium dense, damp, dark brown to grayish brown, Silty, fine to medium SAND; trace clay			
2	B16-2			SM	**SANTIAGO FORMATION** Dense, moist, mottled light gray and yellowish brown, Silty, fine to coarse SAND	54		
4	B16-3			SM	Dense, damp, mottled gray and yellowish brown, Silty, fine-grained SANDSTONE; weakly cemented	63		
6	B16-4				-Becomes gray to light yellowish brown	62		
8								
10	B16-5					72/10"		
					BORING TERMINATED AT 10.8 FEET Groundwater not encountered Backfilled with cuttings			

Figure A-16,
Log of Boring B 16, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-42-03

BORING B 17

ELEV. (MSL.) **440'** DATE COMPLETED **06-29-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	B17-1			SC	**COLLUVIUM** Medium dense, damp, dark grayish brown, Clayey, fine to medium SAND			
2	B17-2			SM	**SANTIAGO FORMATION** Medium dense, damp to moist, mottled light gray and light brown, Silty, fine- to medium-grained SANDSTONE; weakly cemented	33		
4	B17-3			ML	Stiff, moist, light gray to gray, Sandy SILTSTONE; weakly cemented	33		
6	B17-4			SM	Dense, damp, light gray to gray, Silty, fine- to medium-grained SANDSTONE; weakly cemented	71		
8								
10	B17-5					72		
					BORING TERMINATED AT 11 FEET Groundwater not encountered Backfill with cuttings			

Figure A-17,
Log of Boring B 17, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-42-03

BORING B 18

ELEV. (MSL.) **449'** DATE COMPLETED **06-29-2011**

EQUIPMENT **CME 75** BY: **N. BORJA**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	B18-1			SM	**COLLUVIUM** Medium dense, damp, dark grayish brown, Silty, fine to medium SAND			
2	B18-2			CL	**SANTIAGO FORMATION** Stiff, moist, mottled light gray and brown, Sandy CLAY; highly cemented	17		
4	B18-3			SM	Medium dense, damp to moist, mottled light gray to light yellowish brown and brown, Silty, fine- to medium-grained SANDSTONE; weakly cemented	29		
6	B18-4				-Becomes damp, light gray, fine- to medium-grained	54		
8				ML	Very stiff, damp, gray to light gay, Sandy SILTSTONE; weakly cemented			
10	B18-5					44		
					BORING TERMINATED AT 11 FEET Groundwater not encountered Backfill with cuttings			

Figure A-18,
Log of Boring B 18, Page 1 of 1

07647-32-04 (FROM 07647-42-03).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

APPENDIX B

APPENDIX B

LABORATORY TESTING

We performed laboratory tests in general accordance with the test methods of the American Society for Testing and Materials (ASTM) or other suggested procedures. We tested selected samples to evaluate in-place dry density and moisture content, maximum dry density and optimum moisture content, expansion index, shear strength, water-soluble sulfate, chloride ion content, pH and resistivity, Atterberg Limits, hydraulic conductivity, resistance value (R-Value), gradation, and consolidation characteristics. The results of our laboratory tests are presented in the following tables and graphs. The in-place dry density and moisture content test results are presented on the exploratory boring logs in Appendices A and C.

TABLE B-I
SUMMARY OF LABORATORY MAXIMUM DRY DENSITY
AND OPTIMUM MOISTURE CONTENT TEST RESULTS
ASTM D 1557

Sample No.	Description	Maximum Dry Density (pcf)	Optimum Moisture Content (% dry wt.)
B7-1	Dark olive brown, Sandy CLAY	120.5	12.6
B16-1	Dark olive brown, Clayey, fine to medium SAND	128.6	9.3

TABLE B-II
SUMMARY OF LABORATORY EXPANSION INDEX TEST RESULTS
ASTM D 4829

Sample No.	Moisture Content (%)		Dry Density (pcf)	Expansion Index	2019 CBC Classification
	Before Test	After Test			
B6-1	10.2	21.2	109.9	64	Medium
B7-1	11.8	25.9	105.5	115	High
B13-1	12.5	25.5	104.6	86	Medium

TABLE B-III
SUMMARY OF LABORATORY DIRECT SHEAR TEST RESULTS
ASTM D 3080

Sample No.	Dry Density (pcf)	Moisture Content (%)		Angle of Shear Resistance (degrees)	Unit Cohesion (psf)
		Initial	Final		
B4-3	115.5	14.4	20.1	33	350
B5-2	120.4	12.5	19.7	38	0

TABLE B-IV
SUMMARY OF LABORATORY WATER-SOLUBLE SULFATE TEST RESULTS
CALIFORNIA TEST NO. 417

Sample No.	Water Soluble Sulfate Content (%)	Sulfate Rating
B6-1	0.036	Not Applicable
B7-1	0.028	Not Applicable
B13-1	0.014	Not Applicable

TABLE B-V
SUMMARY OF LABORATORY CHLORIDE ION TEST RESULTS
AASHTO T 291

Sample No.	Chloride Ion Content (ppm)	Chloride Ion Content (%)
B6-1	89	0.009
B7-1	220	0.022
B13-1	126	0.013

TABLE B-VI
SUMMARY OF LABORATORY POTENTIAL OF
HYDROGEN (PH) AND RESISTIVITY TEST RESULTS
CALIFORNIA TEST NO. 643

Sample No.	pH	Minimum Resistivity (ohm-centimeters)
B6-1	7.3	800
B7-1	7.7	470
B13-1	7.5	530

TABLE B-VII
SUMMARY OF LABORATORY ATTERBERG LIMITS TEST RESULTS
ASTM D 4318

Sample No.	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index
B7-1	51	17	34
B13-2	8	19	29
B13-4	55	21	34

TABLE B-VIII
SUMMARY OF LABORATORY HYDRAULIC CONDUCTIVITY TEST RESULTS
ASTM D 5084

Sample No.	Moisture Content (%)		Dry Density (pcf)	Average Hydraulic Conductivity (cm/sec)	Average Hydraulic Conductivity (inches/hr)
	Before Test	After Test			
*B16-1	9.3	20.1	115.4	3.30E-7	4.68E-4

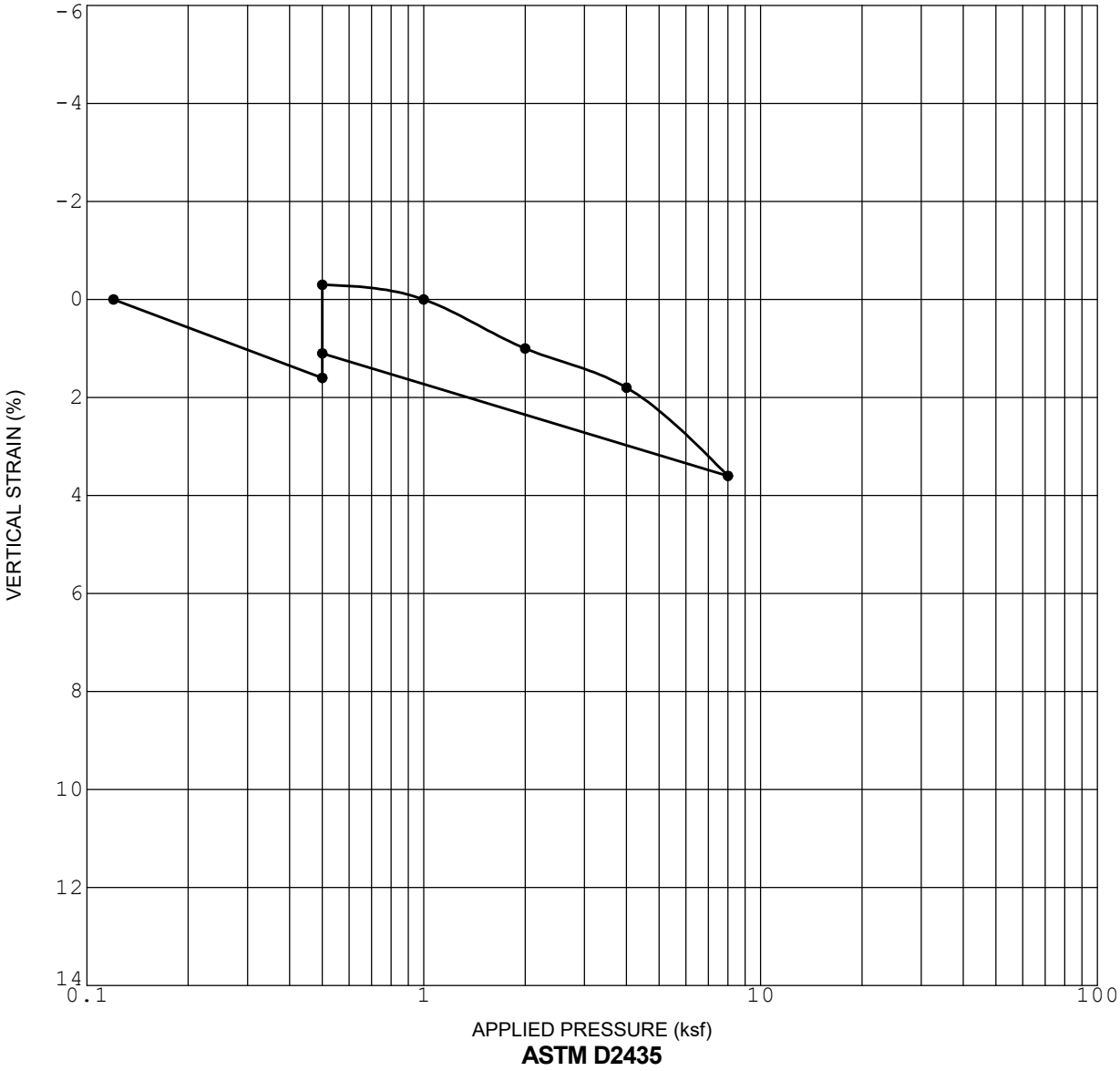
* Sample remolded to 90 percent of the laboratory maximum dry density.

TABLE B-IX
SUMMARY OF LABORATORY RESISTANCE VALUE (R-VALUE) TEST RESULTS
ASTM D 2844

Sample No.	R-Value
B9-1	12
B17-1	5

PROJECT NO. 07647-42-03

SAMPLE NO. B1-2



ASTM D2435

Initial Dry Density (pcf)	117.5	**Initial Saturation (%)**	90
Initial Water Content (%)	16.1	**Sample Saturated at (ksf)**	0.5

CONSOLIDATION CURVE

MODERA MELROSE

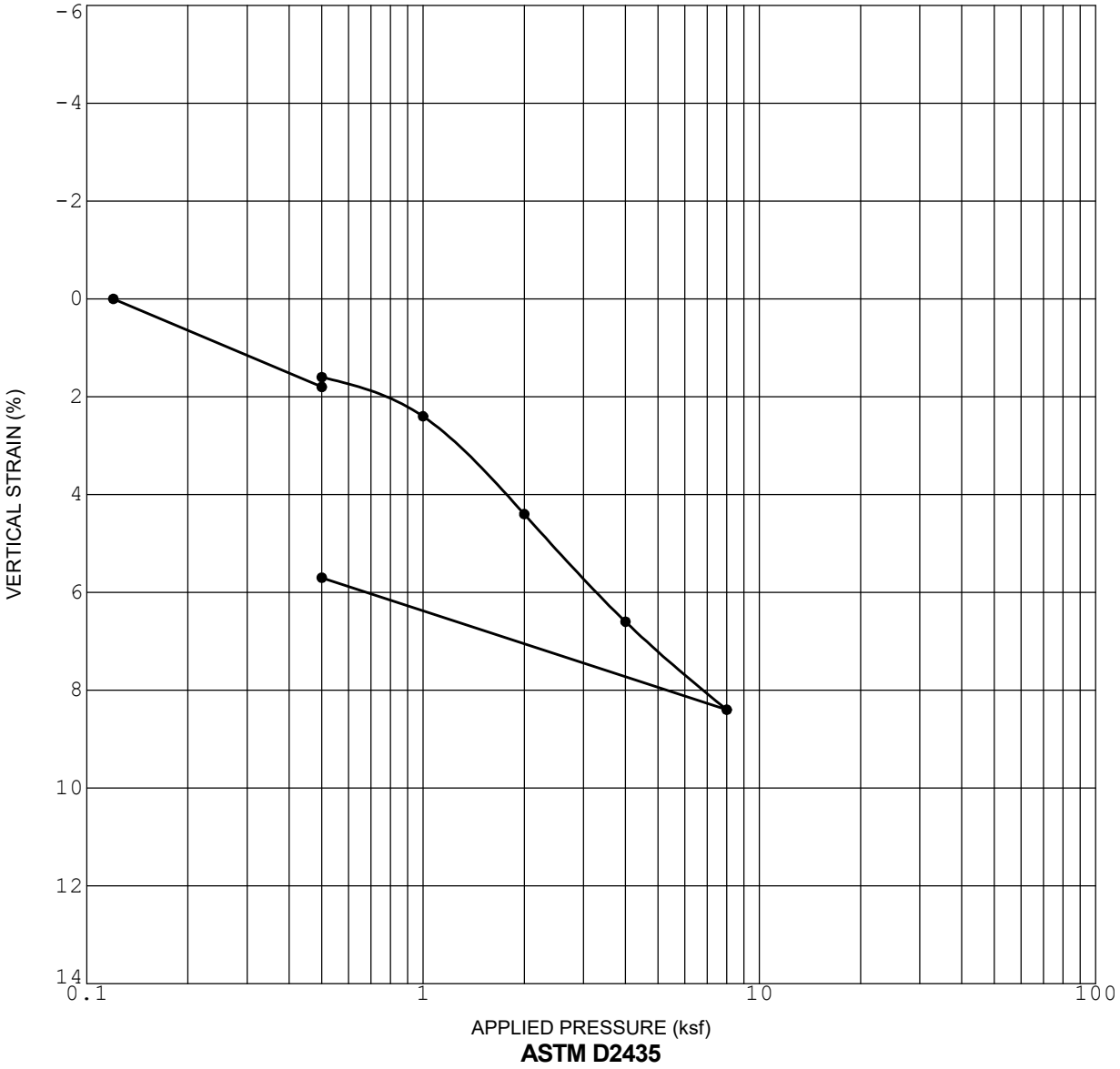
OCEANSIDE, CALIFORNIA

07647-32-04 (FROM 07647-42-03).GPJ

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PROJECT NO. 07647-42-03

SAMPLE NO. B5-2



ASTM D2435

Initial Dry Density (pcf)	113.5	**Initial Saturation (%)**	84
Initial Water Content (%)	14.7	**Sample Saturated at (ksf)**	0.5

CONSOLIDATION CURVE

MODERA MELROSE

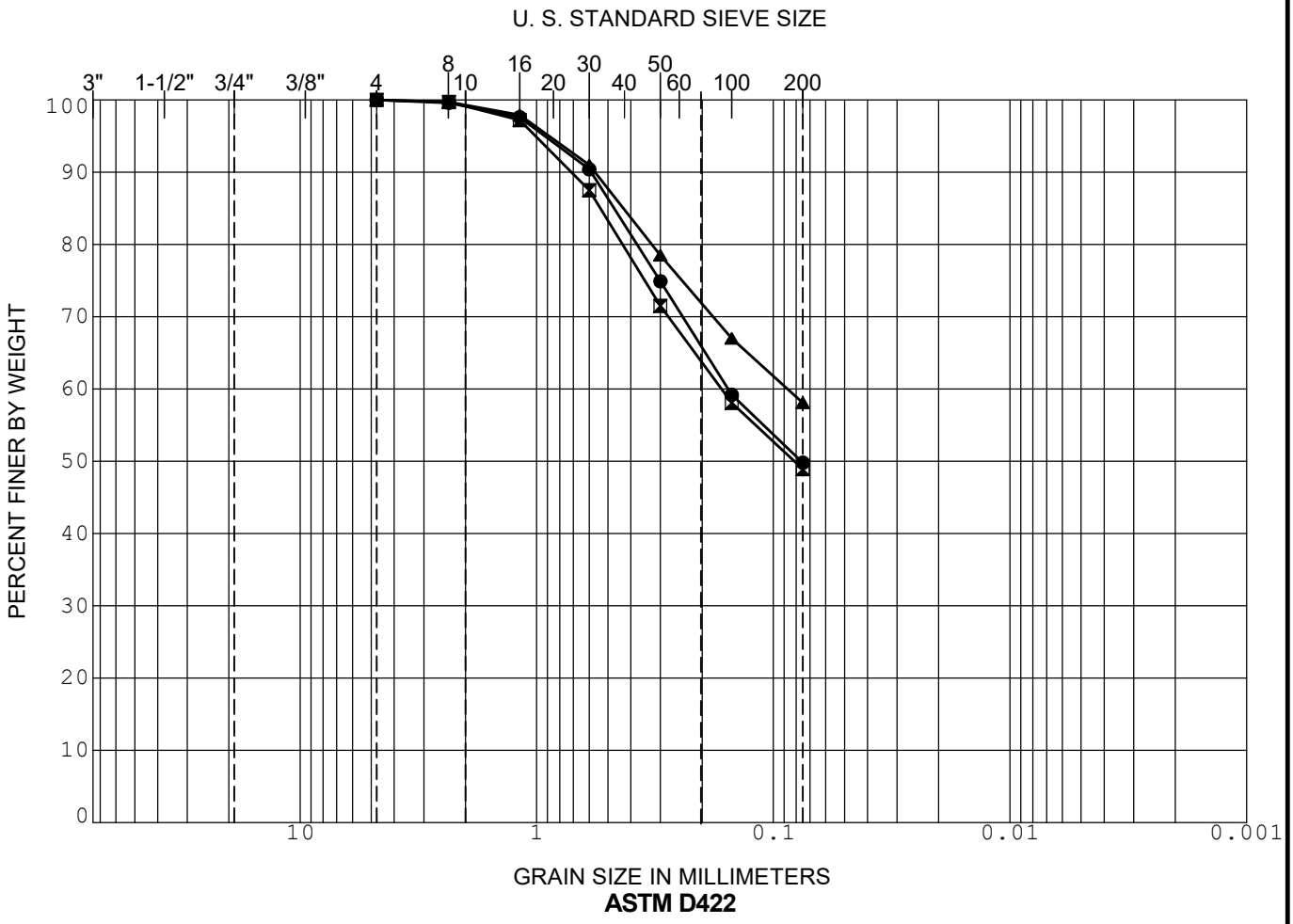
OCEANSIDE, CALIFORNIA

07647-32-04 (FROM 07647-42-03).GPJ

GEOCON

PROJECT NO. 07647-42-03

GRAVEL		SAND			SILT OR CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



ASTM D422

	SAMPLE	DEPTH (ft)	CLASSIFICATION	NAT WC	LL	PL	PI
●	B6-1	0.0	SC - Clayey SAND				
⊠	B7-1	1.0	SC - Clayey SAND		51	17	34
▲	B15-1	2.5	CL - Sandy, lean CLAY				

GRADATION CURVE

MODERA MELROSE

OCEANSIDE, CALIFORNIA

07647-32-04 (FROM 07647-42-03).GPJ

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APPENDIX C

APPENDIX C

PREVIOUS LOGS OF AIR TRACK AND VERIFICATION BORINGS, EXPLORATORY TRENCHES, AND LABORATORY TESTING PERFORMED BY GEOCON INCORPORATED

FOR

MODERA MELROSE
OCEANSIDE, CALIFORNIA

PROJECT NO. 07647-32-04

PROJECT NO. 07647-32-04

TRENCH T 1

ELEV. (MSL.) **422'** DATE COMPLETED **01-11-2006**

EQUIPMENT **JD 510 BACKHOE** BY: **T. MYERS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	T1-1			SM	**COLLUVIUM** Stiff, moist, brown, Silty, fine to medium SAND; porous			
2				SC	Medium dense, moist, dark olive-brown, Clayey, fine to coarse SAND			
4	T1-2				**BONSALL TONALITE** Highly weathered, white, moderately weak GRANITIC ROCK			
					TRENCH TERMINATED AT 5 FEET No groundwater encountered			

Figure C-1,
Log of Trench T 1, Page 1 of 1

07647-32-04 (FROM 07647-32-01).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-04

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 2 ELEV. (MSL.) **424'** DATE COMPLETED **01-11-2006** EQUIPMENT **JD 510 BACKHOE** BY: **T. MYERS**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0				SC	**UNDOCUMENTED FILL / ORGANIC DEBRIS** Loose, moist, grayish brown, Clayey, fine to coarse SAND; abundant organics (straw, tree branches, plastic bags)			
2				SM	Loose, damp, mottled orange and white, Silty, fine to coarse SAND; abundant organics			
4				SM	**COLLUVIUM** Loose, damp, olive-brown, Silty, fine to medium SAND			
6								
		+ + + + + +			**BONSALL TONALITE** Highly weathered, white, moderately weak GRANITIC ROCK			
8					TRENCH TERMINATED AT 8 FEET No groundwater encountered			

Figure C-2,
Log of Trench T 2, Page 1 of 1

07647-32-04 (FROM 07647-32-01).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

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GEOCON

PROJECT NO. 07647-32-04

TRENCH T 3

ELEV. (MSL.) **435'** DATE COMPLETED **01-11-2006**

EQUIPMENT **JD 510 BACKHOE** BY: **T. MYERS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	T3-1			CL	**COLLUVIUM** Stiff, very moist, fine to coarse, Sandy CLAY with some silt; pinhole porosity, rootlets			
2	T3-2			SC	**SANTIAGO FORMATION** Dense, moist, mottled orange, gray and white, Clayey, fine to coarse SANDSTONE; massive			
4	T3-3							
6					-Change to gray-brown			
8								
					TRENCH TERMINATED AT 9 FEET No groundwater encountered			

Figure C-3,
Log of Trench T 3, Page 1 of 1

07647-32-04 (FROM 07647-32-01).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

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GEOCON

PROJECT NO. 07647-32-04

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 4 ELEV. (MSL.) **430'** DATE COMPLETED **01-11-2006** EQUIPMENT **JD 510 BACKHOE** BY: **T. MYERS**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0				SC	**COLLUVIUM** Loose, moist, dark brown, Clayey, fine to medium SAND			
2				SM	**SANTIAGO FORMATION** Very dense, damp, Silty, fine to medium SANDSTONE; massive			
4								
6					TRENCH TERMINATED AT 6½ FEET No groundwater encountered			

Figure C-4,
Log of Trench T 4, Page 1 of 1

07647-32-04 (FROM 07647-32-01).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL
... STANDARD PENETRATION TEST
... DRIVE SAMPLE (UNDISTURBED)
... DISTURBED OR BAG SAMPLE
... CHUNK SAMPLE
... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-04

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 5 ELEV. (MSL.) 440' DATE COMPLETED 01-11-2006 EQUIPMENT JD 510 BACKHOE BY: T. MYERS MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SM	**COLLUVIUM** Loose, damp to slightly moist, brown, Silty, fine to medium SAND			
2				SC	Medium dense, moist, brown, Clayey, fine to medium SAND			
4				SM	Dense, moist, orange-brown, Silty, fine to medium SAND			
6	T5-1				**BONSALL TONALITE** Moderately weathered, mottled, orange, black and gray, moderately strong GRANITIC ROCK			
8					TRENCH TERMINATED AT 8 FEET No groundwater encountered			

Figure C-5,
Log of Trench T 5, Page 1 of 1

07647-32-04 (FROM 07647-32-01).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL
... STANDARD PENETRATION TEST
... DRIVE SAMPLE (UNDISTURBED)
... DISTURBED OR BAG SAMPLE
... CHUNK SAMPLE
... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-04

TRENCH T 6

ELEV. (MSL.) **447'** DATE COMPLETED **01-11-2006**

EQUIPMENT **JD 510 BACKHOE** BY: **T. MYERS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SM	**COLLUVIUM** Loose, damp, brown, Silty, fine to medium SAND; rootlets			
				SC	Dense, moist, dark brown, Clayey, fine to medium SAND			
2								
	T6-1				**BONSALL TONALITE** Moderately weathered, mottled, black and gray, moderately strong GRANITIC ROCK			
4								
6								
					TRENCH TERMINATED AT 7 FEET No groundwater encountered			

Figure C-6,
Log of Trench T 6, Page 1 of 1

07647-32-04 (FROM 07647-32-01).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL | ... STANDARD PENETRATION TEST | ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE | ... CHUNK SAMPLE | ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-04

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 7 ELEV. (MSL.) **447'** DATE COMPLETED **01-11-2006** EQUIPMENT **JD 510 BACKHOE** BY: **T. MYERS**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0				SM	**COLLUVIUM** Loose, moist, dark brown, Silty, fine to medium SAND; rootlets			
				SC	Medium dense to dense, moist, dark brown, Clayey, fine to coarse SAND; rootlets			
2								
					BONSALL TONALITE Completely weathered, grayish brown, weak GRANITIC ROCK			
4								
					Moderately weathered, mottled black, orange and gray, moderately strong GRANITIC ROCK			
6								
					TRENCH TERMINATED AT 6½ FEET No groundwater encountered			

Figure C-7,
Log of Trench T 7, Page 1 of 1

07647-32-04 (FROM 07647-32-01).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL
... STANDARD PENETRATION TEST
... DRIVE SAMPLE (UNDISTURBED)
... DISTURBED OR BAG SAMPLE
... CHUNK SAMPLE
... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-04

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 8 ELEV. (MSL.) 447' DATE COMPLETED 01-11-2006 EQUIPMENT JD 510 BACKHOE BY: T. MYERS MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SM	**COLLUVIUM** Loose, damp, Silty, fine to medium SAND; rootlets, pinhole porosity			
2	T8-1 T8-2			ML	**SANTIAGO FORMATION** Very dense, damp to slightly moist, mottled white, orange, red, Sandy SILTSTONE; cemented; massive			
4								
6								
8					TRENCH TERMINATED AT 8 FEET No groundwater encountered			

Figure C-8,
Log of Trench T 8, Page 1 of 1

07647-32-04 (FROM 07647-32-01).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

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GEOCON

PROJECT NO. 07647-32-04

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 9 ELEV. (MSL.) **440'** DATE COMPLETED **01-11-2006** EQUIPMENT **JD 510 BACKHOE** BY: **T. MYERS**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0				SC	**COLLUVIUM** Loose, damp, olive-brown, Clayey, fine to medium SAND; rootlets -Medium dense, moist			
2								
				ML/CL	**SANTIAGO FORMATION** Very dense, damp, mottled orange, white, Clayey SILTSTONE/Silty CLAYSTONE; cemented; massive			
4								
6								
					TRENCH TERMINATED AT 7 FEET No groundwater encountered			

Figure C-9,
Log of Trench T 9, Page 1 of 1

07647-32-04 (FROM 07647-32-01).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

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GEOCON

PROJECT NO. 07647-32-04

TRENCH T 10

ELEV. (MSL.) **455'** DATE COMPLETED **01-11-2006**

EQUIPMENT **JD 510 BACKHOE** BY: **T. MYERS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SM	**COLLUVIUM** Loose, damp, dark olive-brown, Silty, fine to medium SAND			
2				SC	medium dense, moist, olive-brown, Clayey, fine to medium SAND			
4				ML/CL	**SANTIAGO FORMATION** Dense, moist, greenish brown, Clayey SILTSTONE/Silty CLAYSTONE; massive			
				SP	Dense, damp to slightly moist, orangish brown, fine to coarse SAND			
6	T10-1			ML/CL	Dense, moist, greenish brown, Clayey SILTSTONE/Silty CLAYSTONE; massive			
				SP	Dense damp, gray, fine to coarse SAND			
8				ML/CL	Very dense, moist, greenish brown, Clayey SILTSTONE/Silty CLAYSTONE; massive			
10					TRENCH TERMINATED AT 10 FEET No groundwater encountered			

Figure C-10,
Log of Trench T 10, Page 1 of 1

07647-32-04 (FROM 07647-32-01).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-04

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 11 ELEV. (MSL.) **455'** DATE COMPLETED **01-11-2006** EQUIPMENT **JD 510 BACKHOE** BY: **T. MYERS**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0				SM	**COLLUVIUM** Loose, damp, olive-brown, Silty, fine to medium SAND			
2	T11-1			ML	**SANTIAGO FORMATION** Dense, damp to moist, orange and tan, fine to medium, Sandy SILTSTONE; massive			
4								
6	T11-2			SM	Very dense, damp to moist, light greenish brown, Silty, fine SANDSTONE; massive			
8								
					TRENCH TERMINATED AT 9 FEET No groundwater encountered			

Figure C-11,
Log of Trench T 11, Page 1 of 1

07647-32-04 (FROM 07647-32-01).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL
... STANDARD PENETRATION TEST
... DRIVE SAMPLE (UNDISTURBED)
... DISTURBED OR BAG SAMPLE
... CHUNK SAMPLE
... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-04

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 12 ELEV. (MSL.) **443'** DATE COMPLETED **01-11-2006** EQUIPMENT **JD 510 BACKHOE** BY: **T. MYERS**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0				SM	**COLLUVIUM** Loose, damp, olive-brown, Silty, fine to medium SAND			
				CL	Medium dense, moist, olive-brown, Sandy CLAY			
2								
4				ML	**SANTIAGO FORMATION** Very dense, damp, light greenish brown, Sandy SILTSTONE; massive			
6								
8					TRENCH TERMINATED AT 8 FEET No groundwater encountered			

Figure C-12,
Log of Trench T 12, Page 1 of 1

07647-32-04 (FROM 07647-32-01).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-04

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 13 ELEV. (MSL.) 433' DATE COMPLETED 01-11-2006 EQUIPMENT JD 510 BACKHOE BY: T. MYERS	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0				SM	**COLLUVIUM** Loose, damp, dark olive-brown, Silty, fine to medium SAND			
				CL	Loose to medium dense, moist, dark olive-brown, Sandy CLAY			
2								
4								
				SM	**SANTIAGO FORMATION** Very dense, moist, mottled orange and gray, Silty, fine to medium SANDSTONE; massive			
6				ML/CL	Very dense, damp, light greenish brown, Clayey SILTSTONE/Silty CLAYSTONE; massive			
					TRENCH TERMINATED AT 7½ FEET No groundwater encountered			

Figure C-13,
Log of Trench T 13, Page 1 of 1

07647-32-04 (FROM 07647-32-01).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-04

TRENCH T 14

ELEV. (MSL.) **435'** DATE COMPLETED **01-11-2006**

EQUIPMENT **JD 510 BACKHOE** BY: **T. MYERS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SM	**COLLUVIUM** Loose, damp, dark brown, Silty, fine to medium SAND			
				CL	Medium dense, moist, dark olive-brown, fine to medium, Sandy CLAY with some silt			
2	T14-1							
4								
				SM	**SANTIAGO FORMATION** Very dense, damp, light greenish brown, Silty, fine to medium SANDSTONE; massive			
6	T14-2							
8								
					TRENCH TERMINATED AT 9 FEET No groundwater encountered			

Figure C-14,
Log of Trench T 14, Page 1 of 1

07647-32-04 (FROM 07647-32-01).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-04

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 15 ELEV. (MSL.) **428'** DATE COMPLETED **01-11-2006** EQUIPMENT **JD 510 BACKHOE** BY: **T. MYERS**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0				SC	**COLLUVIUM** Loose, moist to very moist, Clayey, fine to medium SAND			
2					-Medium dense			
4								
6				ML	**SANTIAGO FORMATION** Very dense, damp to moist, light greenish brown, Sandy SILTSTONE; cemented; massive			
					TRENCH TERMINATED AT 6½ FEET No groundwater encountered			

Figure C-15,
Log of Trench T 15, Page 1 of 1

07647-32-04 (FROM 07647-32-01).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

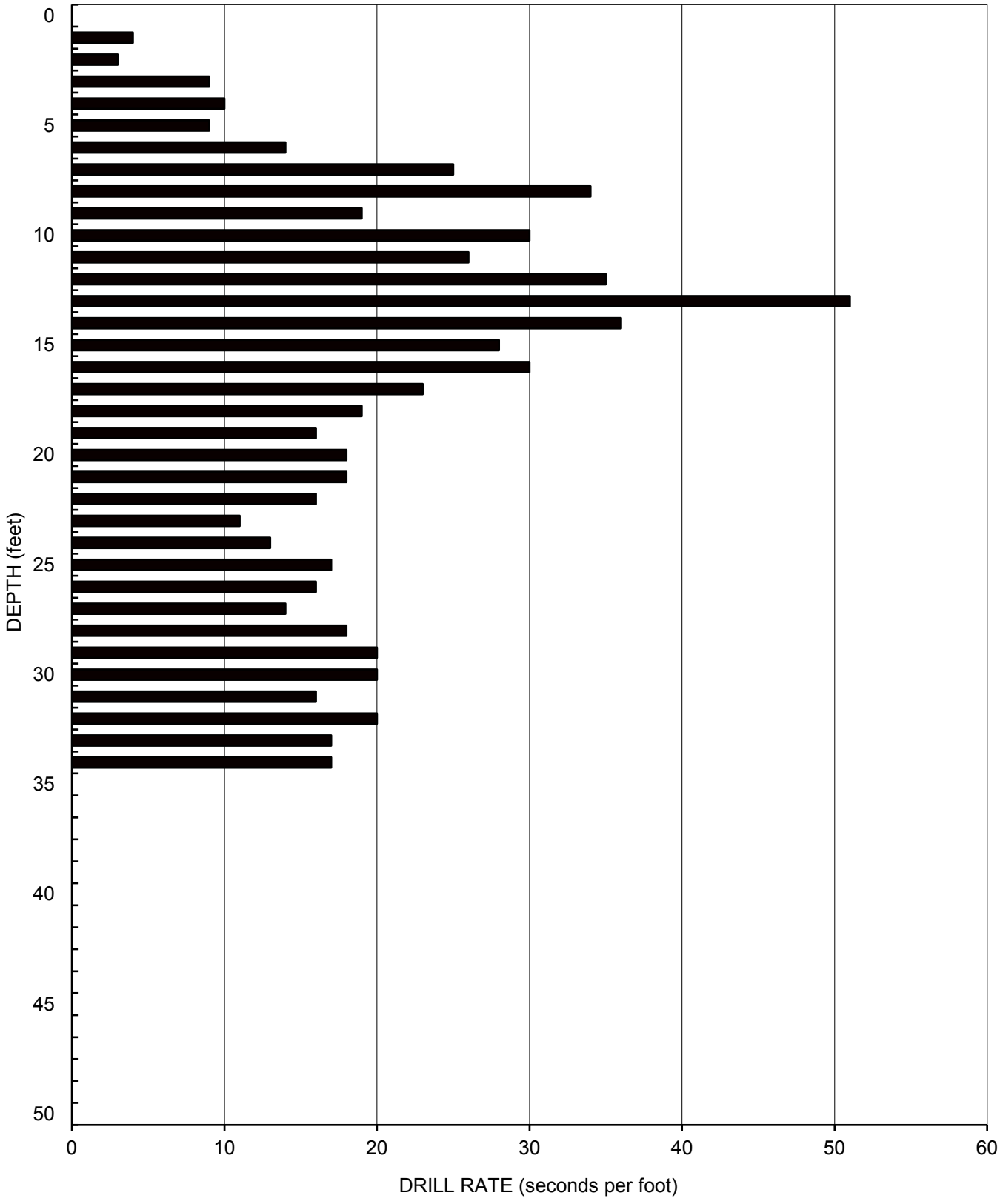
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-1

Elevation - 445 Feet (MSL)

GEOCON
INCORPORATED



AT001.xls

FIGURE C-16

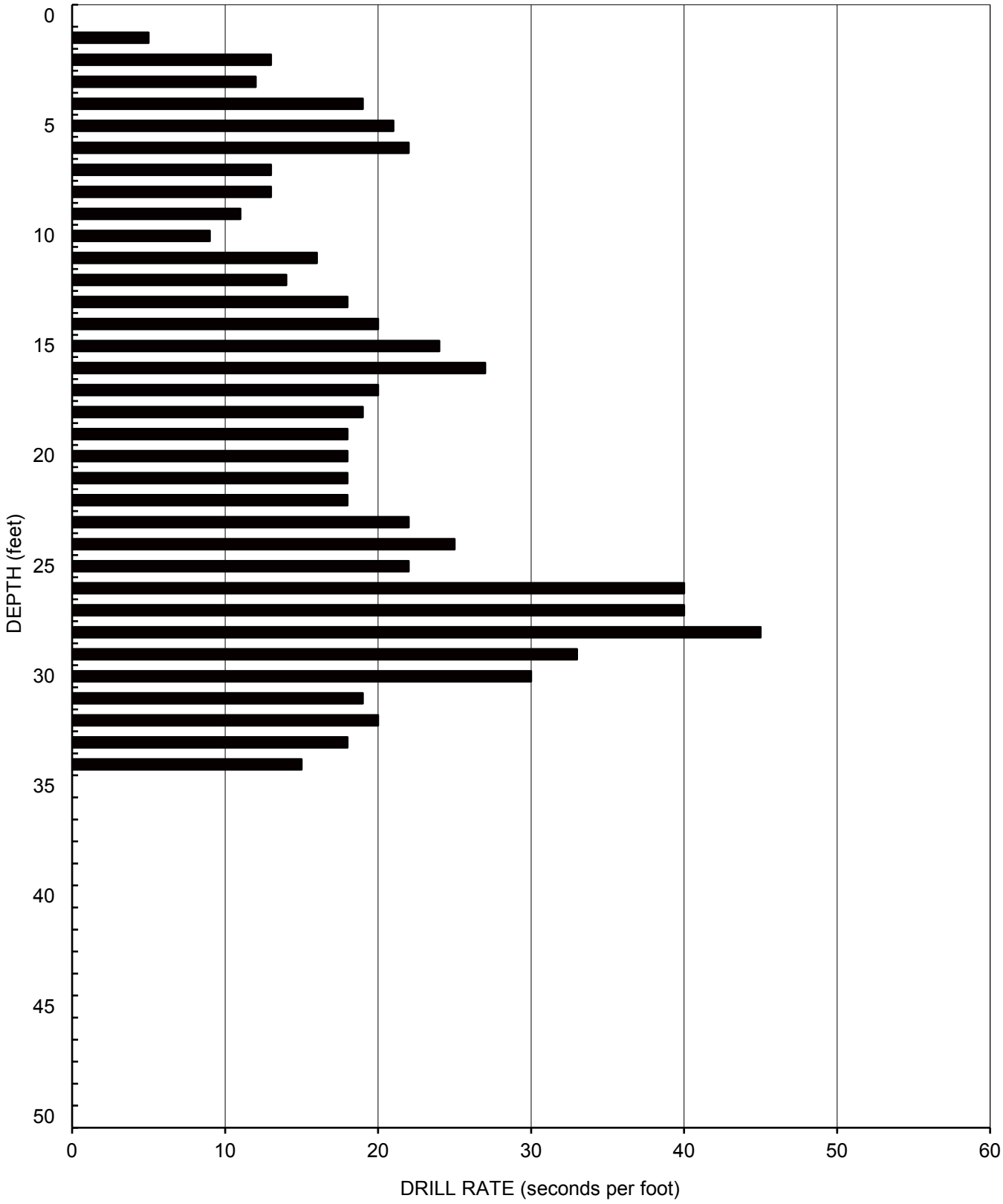
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-2

Elevation - 453 Feet (MSL)

GEOCON
INCORPORATED



AT002.xls

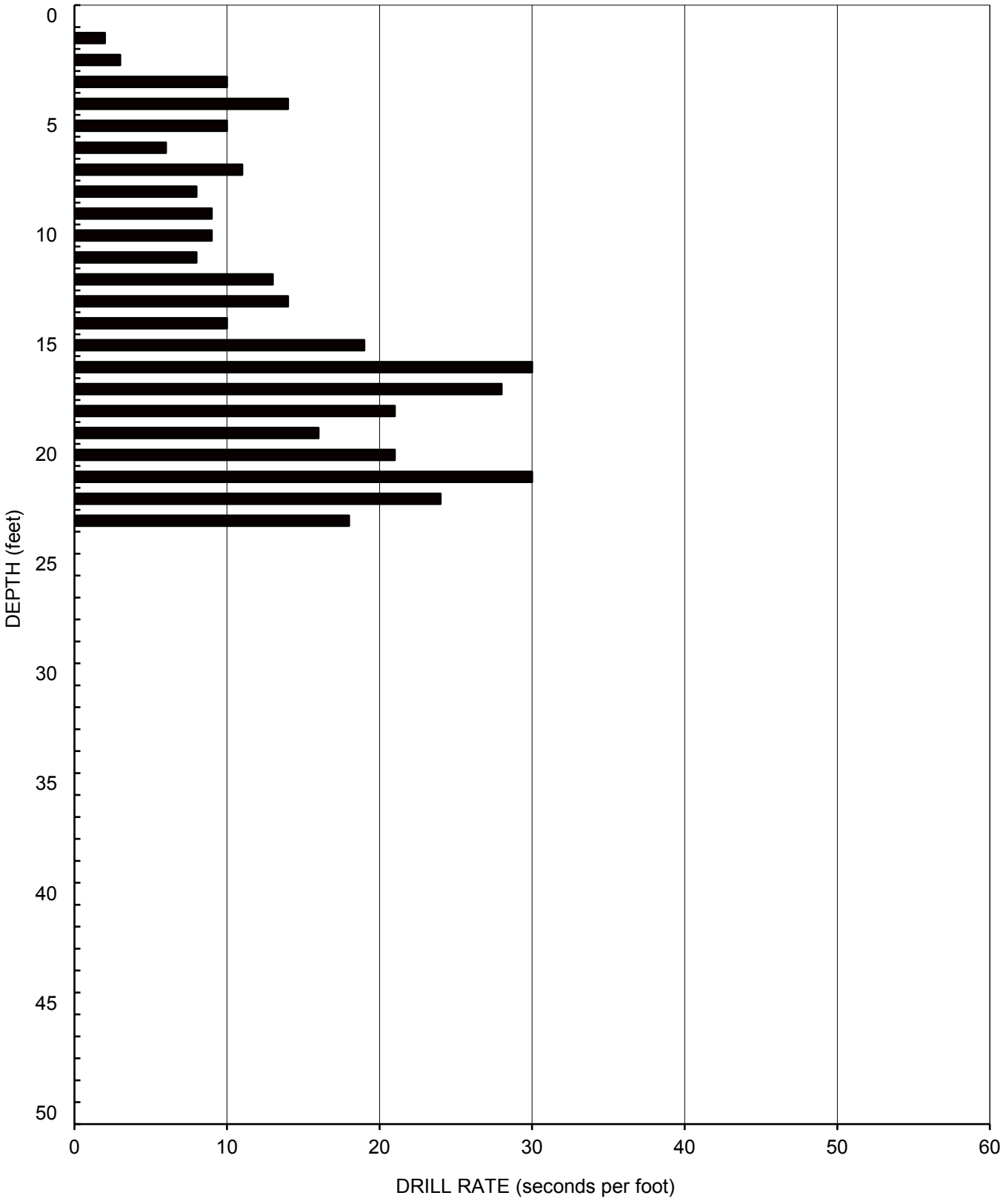
FIGURE C-17

PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-3
Elevation - 455 Feet (MSL)

GEOCON
INCORPORATED



AT003.xls

FIGURE C-18

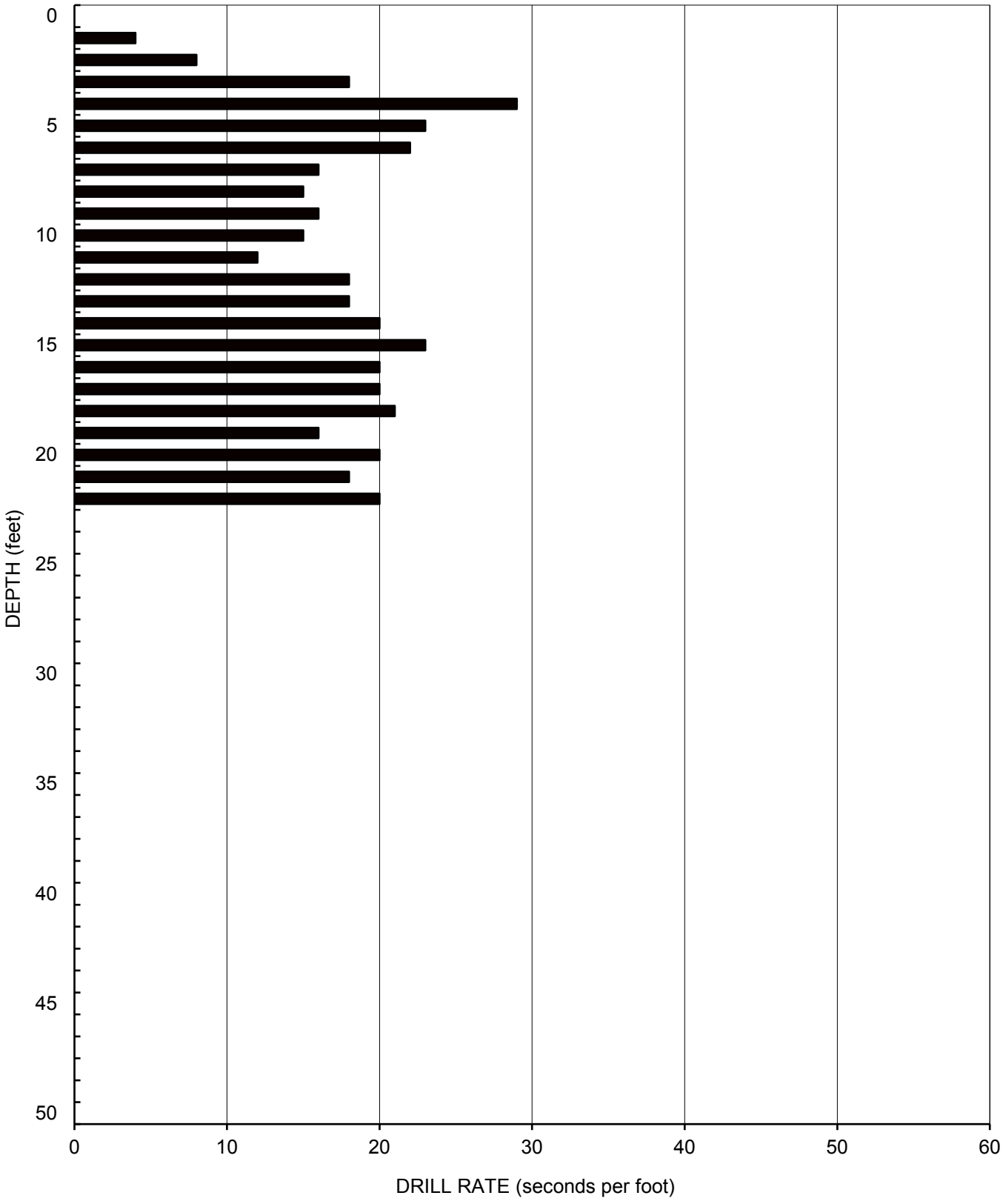
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-4

Elevation - 454 Feet (MSL)

GEOCON
INCORPORATED



AT004.xls

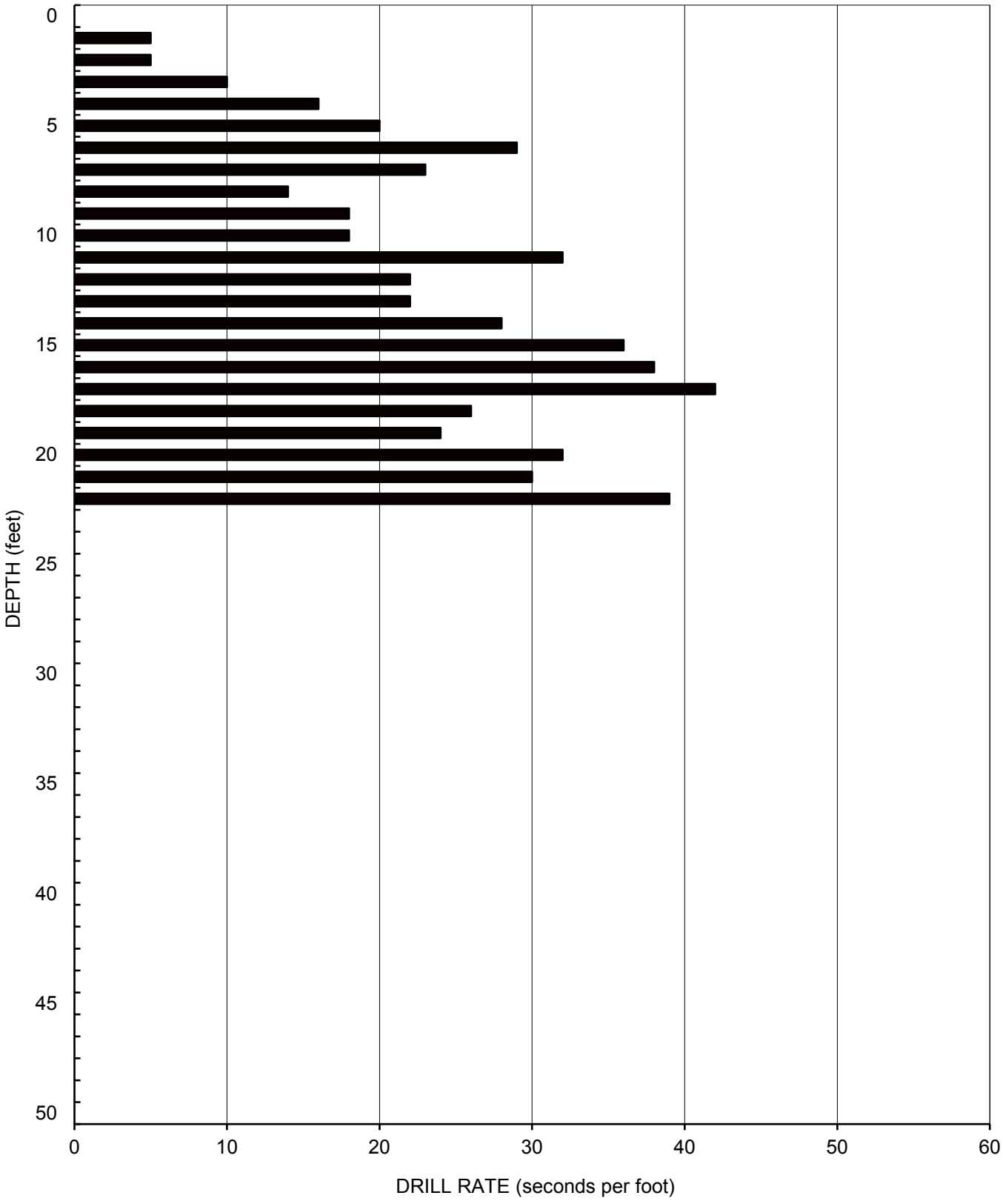
FIGURE C-19

PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-5
Elevation - 450 Feet (MSL)

GEOCON
INCORPORATED



AT005.xls

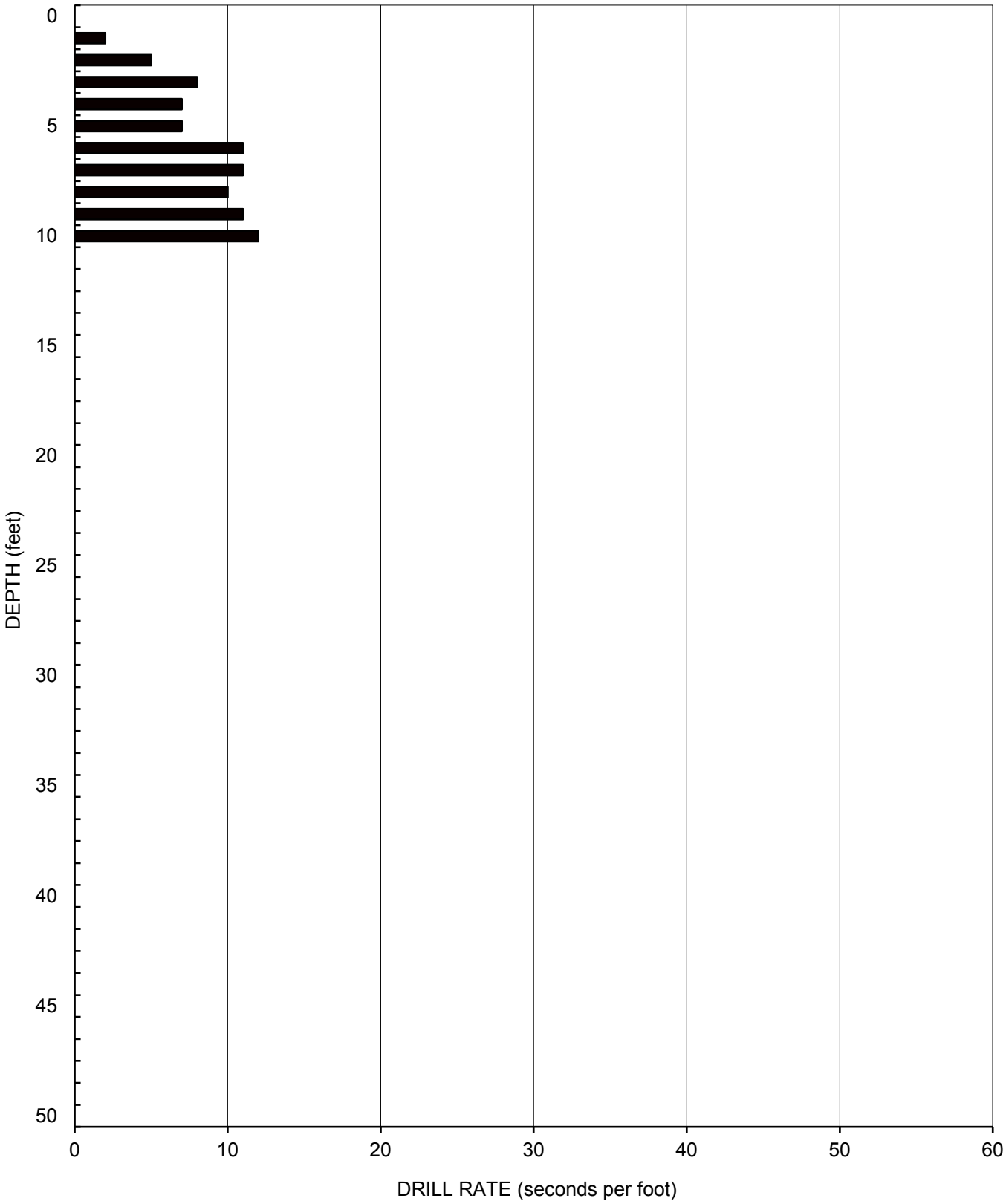
FIGURE C-20

PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-6
Elevation - 447 Feet (MSL)

GEOCON
INCORPORATED



AT006.xls

FIGURE C-21

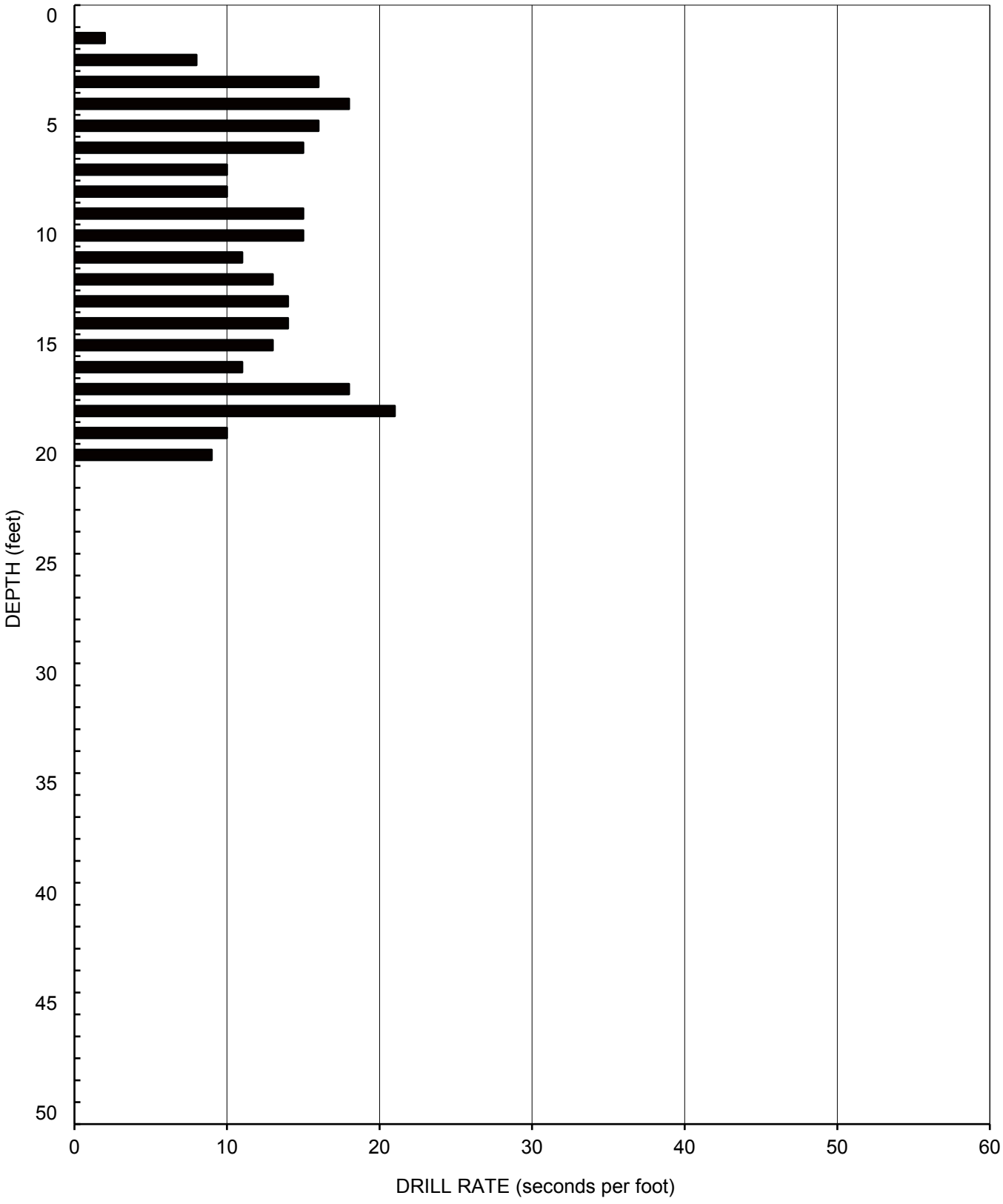
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-7

Elevation - 447 Feet (MSL)

GEOCON
INCORPORATED



AT007.xls

FIGURE C-22

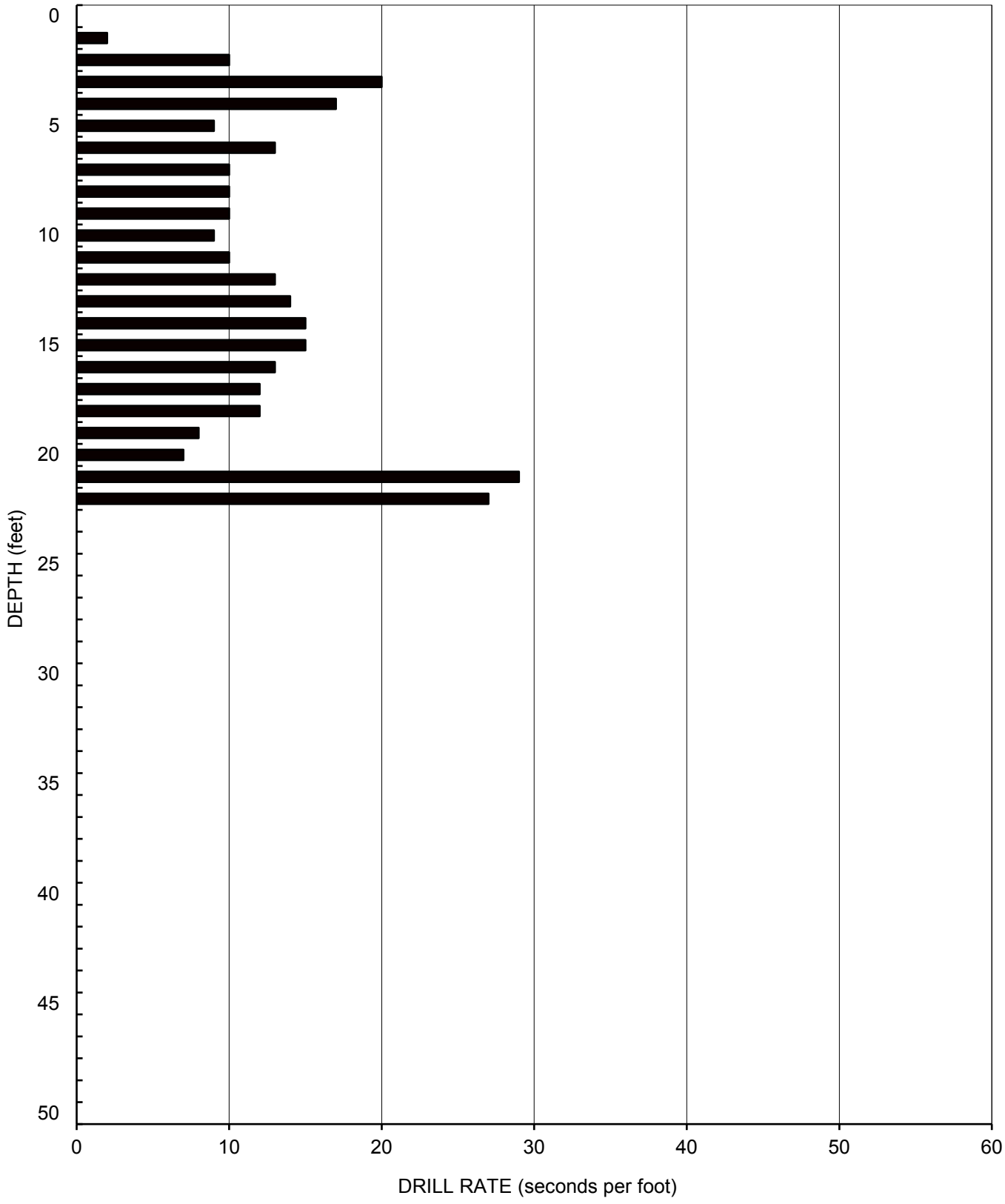
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-8

Elevation - 447 Feet (MSL)

GEOCON
INCORPORATED



AT008.xls

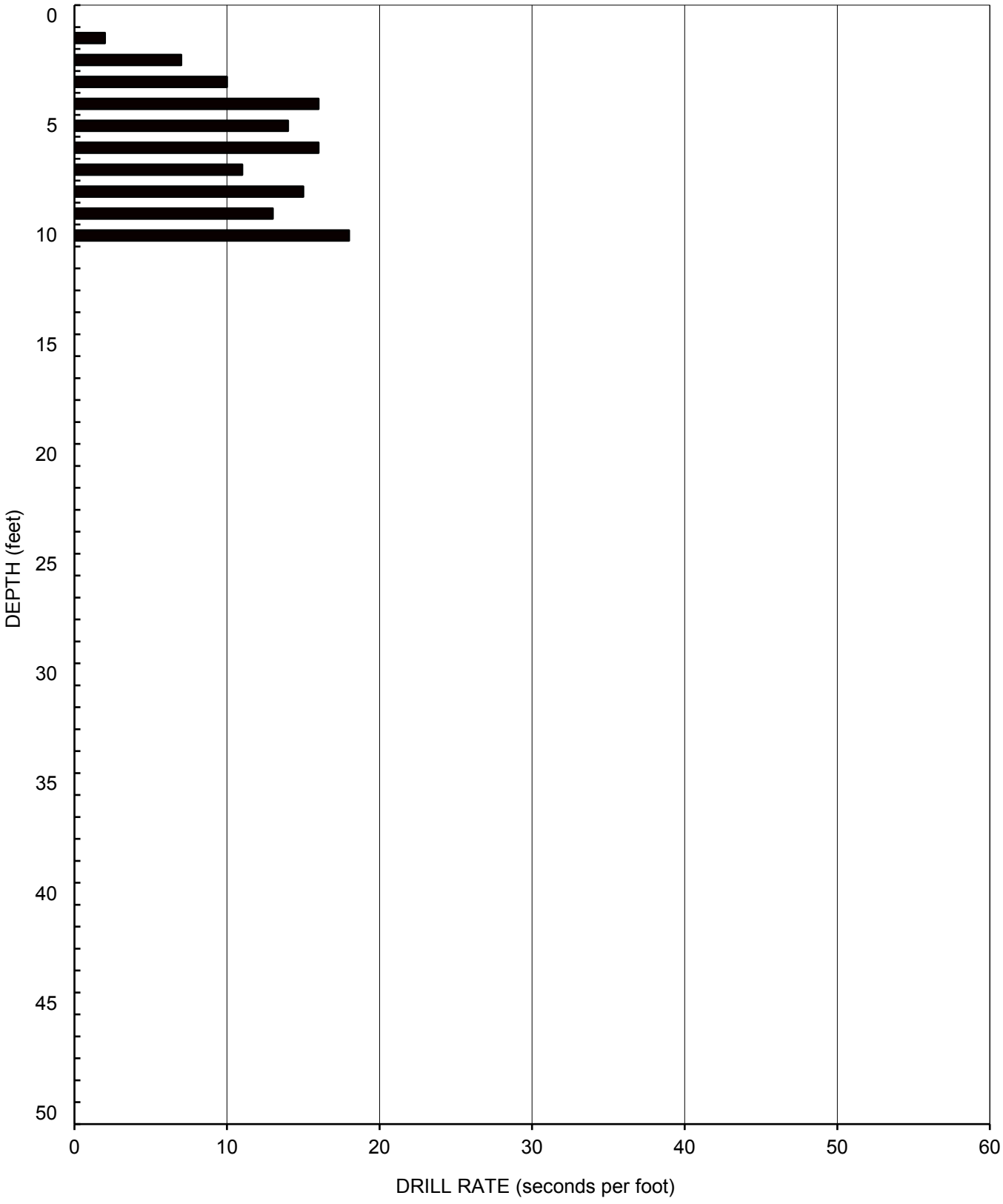
FIGURE C-23

PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-9
Elevation - 446 Feet (MSL)

GEOCON
INCORPORATED



AT009.xls

FIGURE C-24

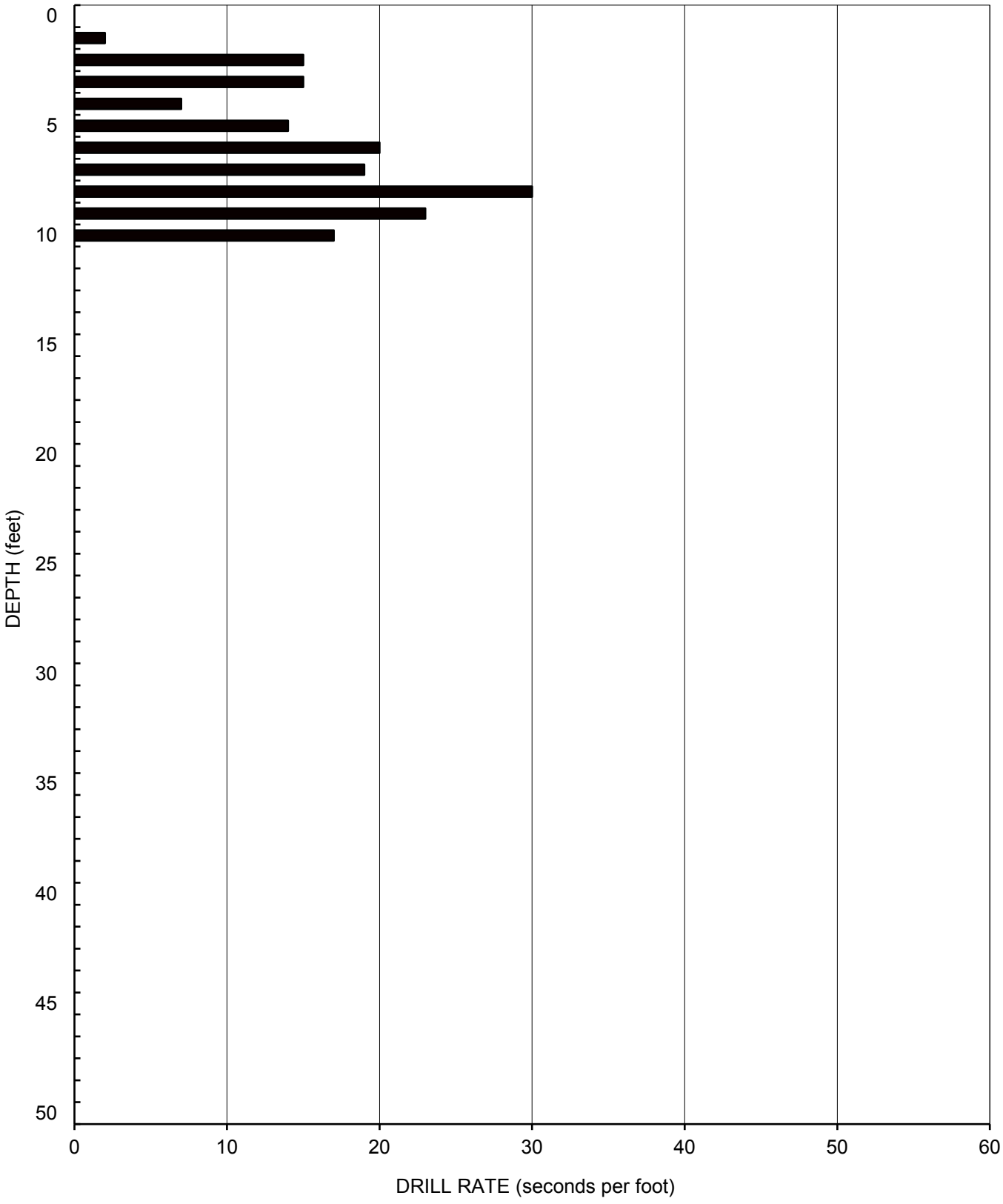
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-10

Elevation - 443 Feet (MSL)

GEOCON
INCORPORATED



AT0010.xls

FIGURE C-25

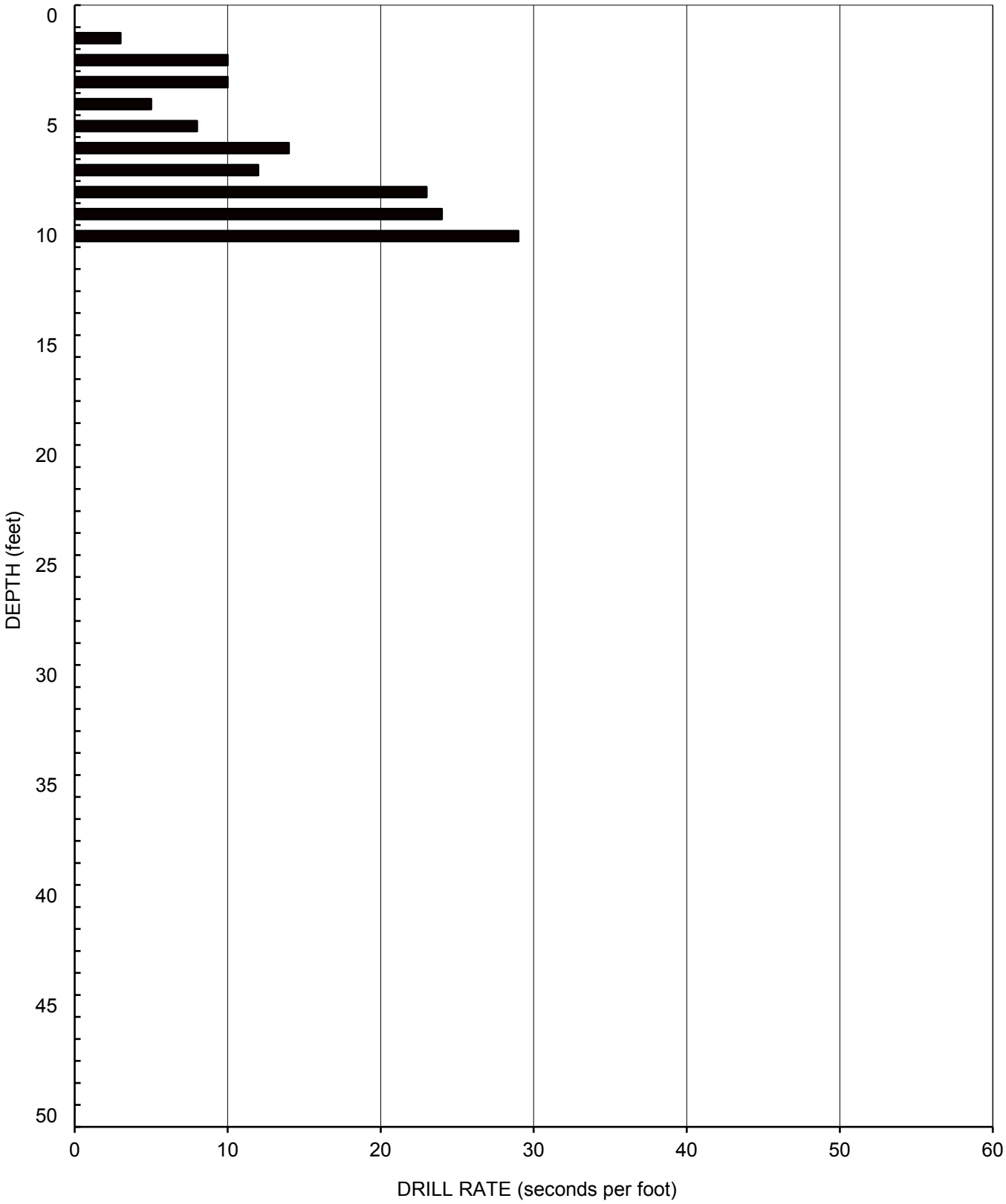
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-11

Elevation - 441 Feet (MSL)

GEOCON
INCORPORATED



AT0011.xls

FIGURE C-26

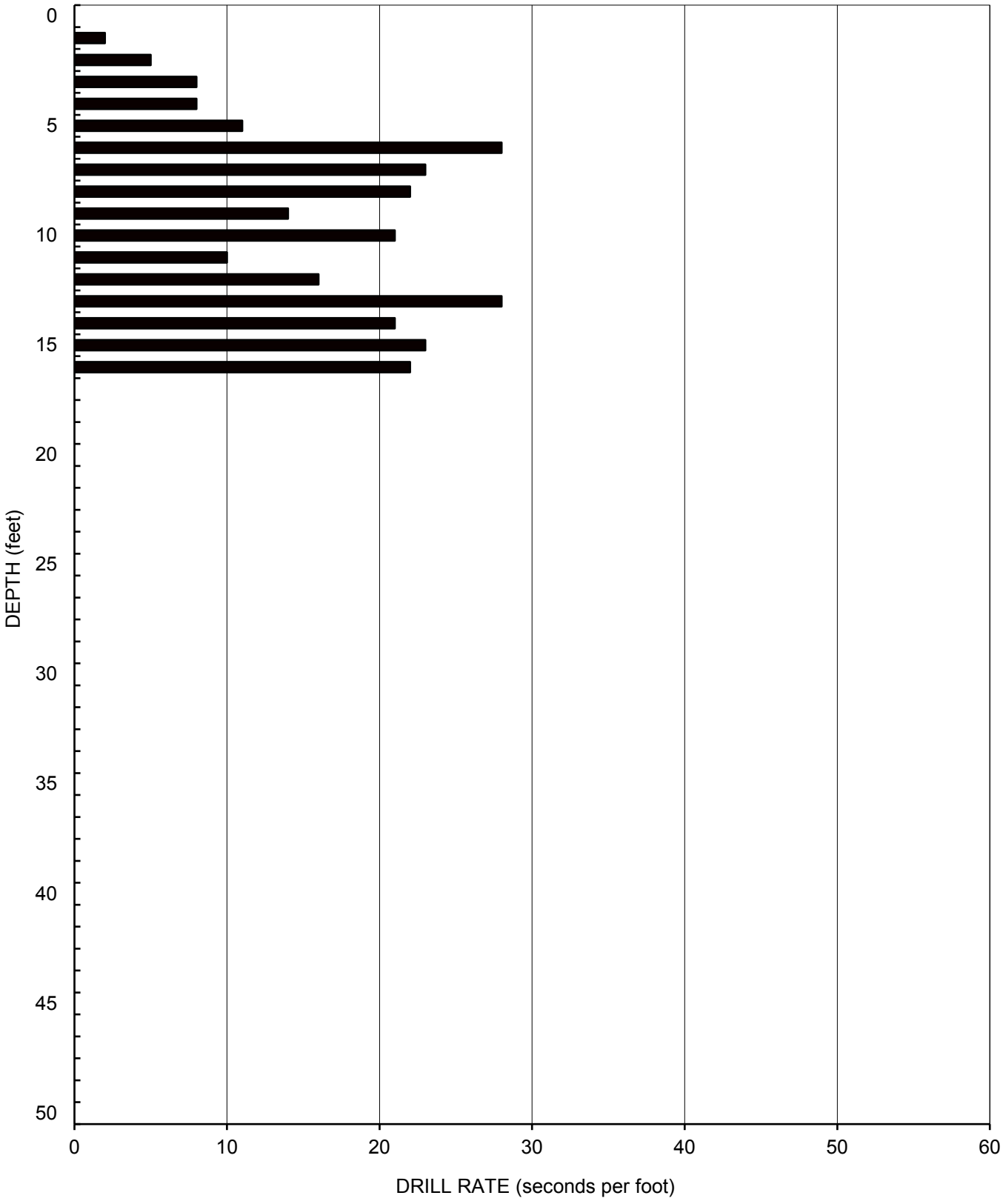
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-12

Elevation - 443 Feet (MSL)

GEOCON
INCORPORATED



AT0012.xls

FIGURE C-27

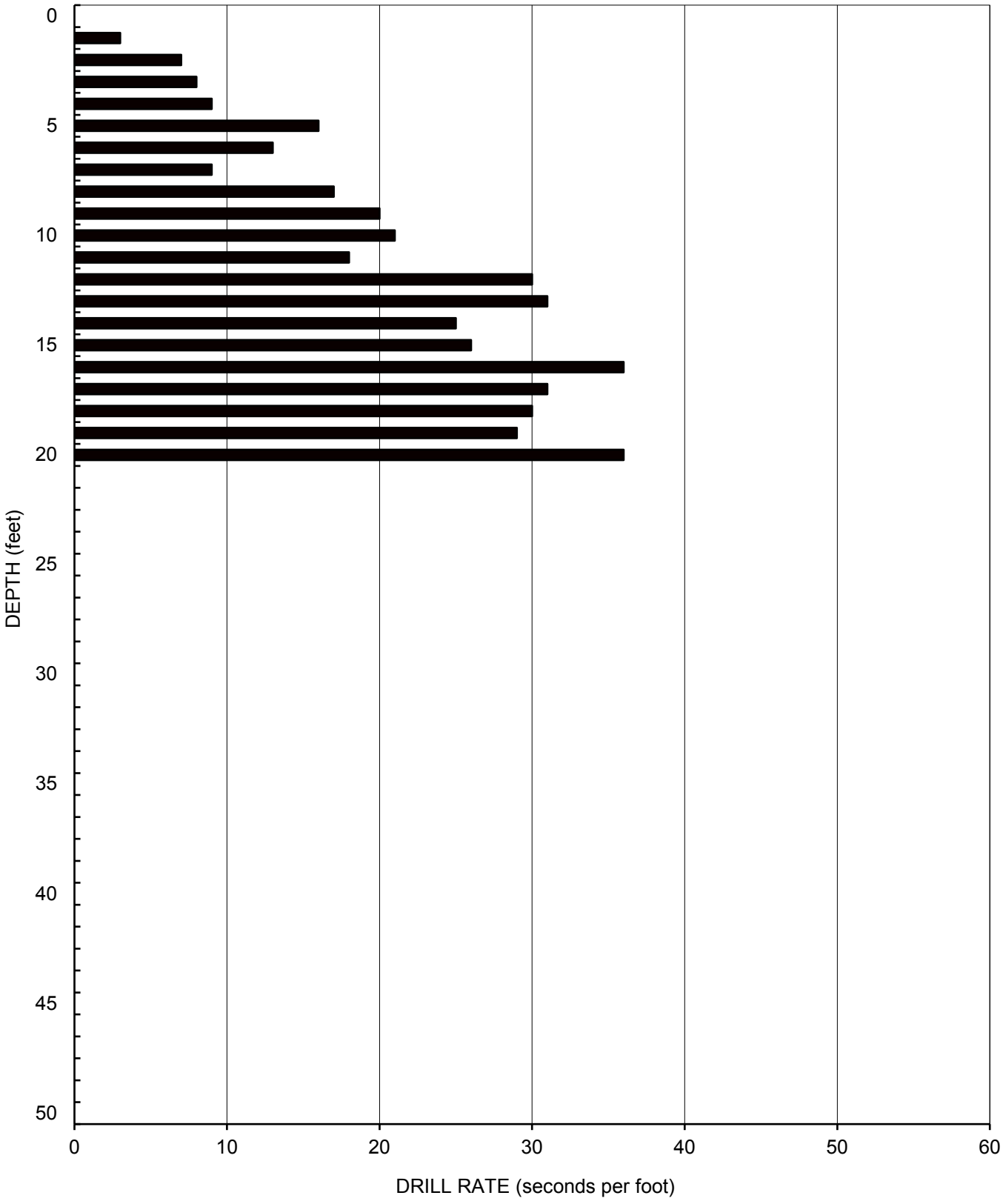
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-13

Elevation - 443 Feet (MSL)

GEOCON
INCORPORATED



AT0013.xls

FIGURE C-28

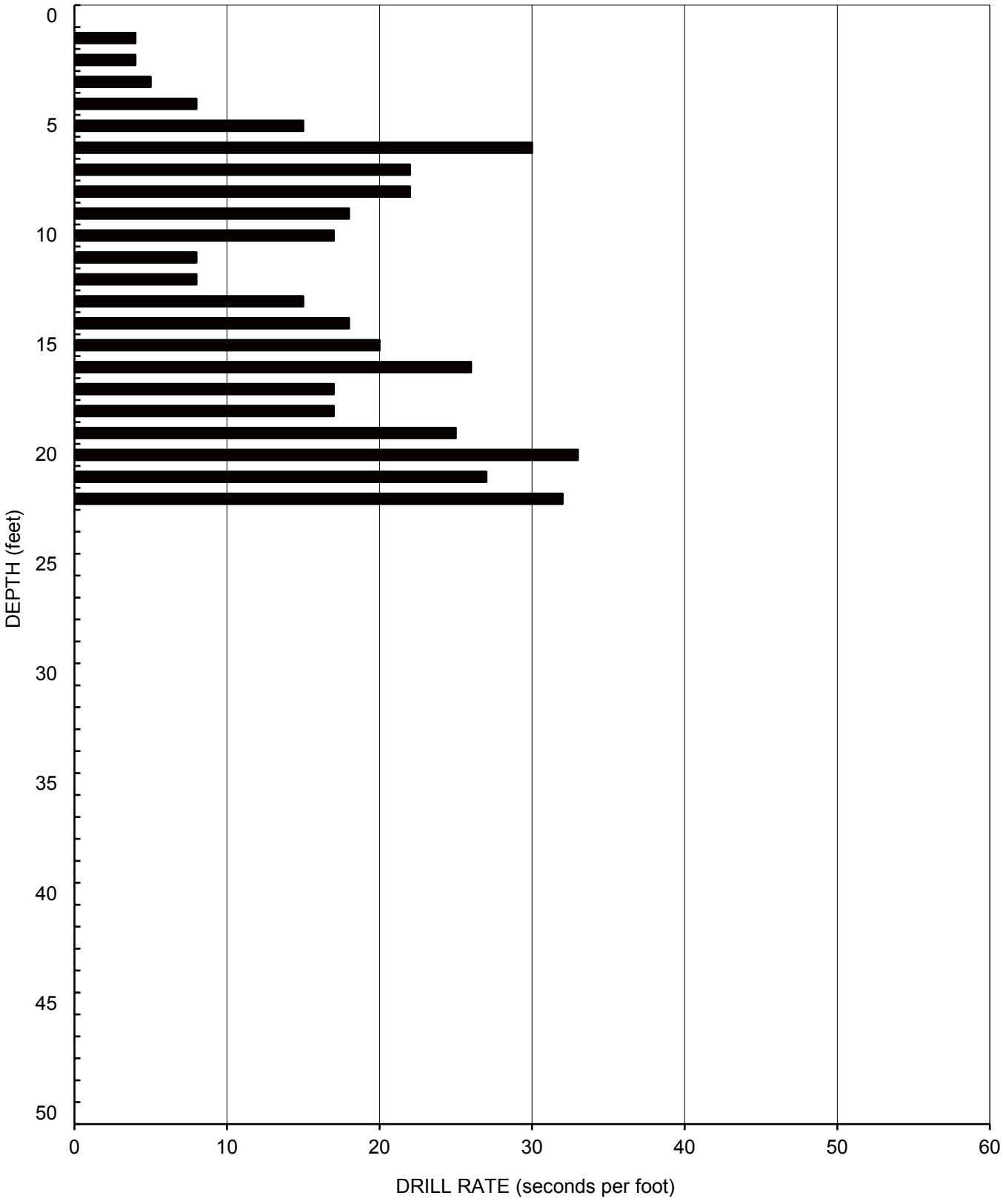
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-14

Elevation - 446 Feet (MSL)

GEOCON
INCORPORATED



AT0014.xls

FIGURE C-29

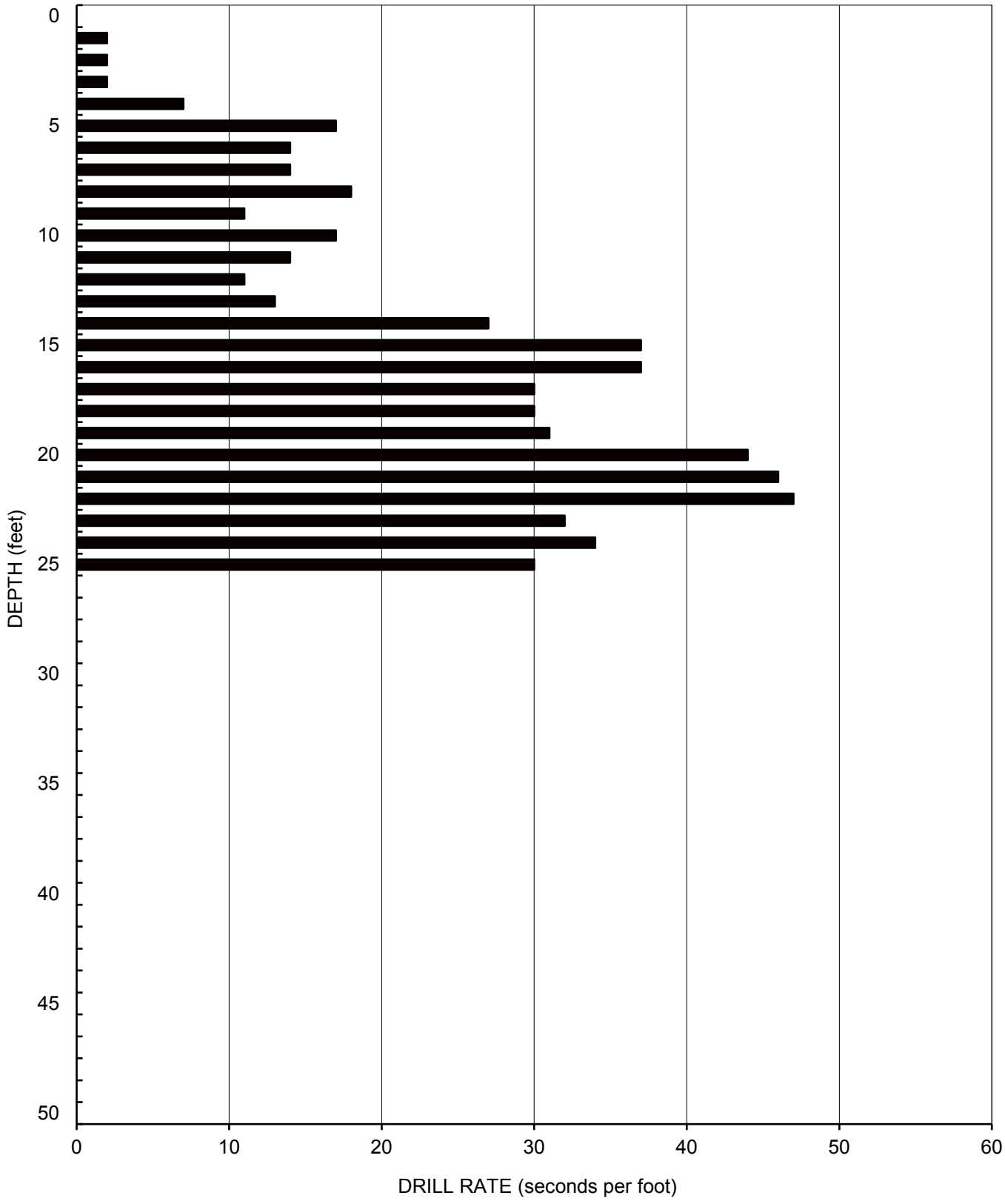
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-15

Elevation - 444 Feet (MSL)

GEOCON
INCORPORATED



AT0015.xls

FIGURE C-30

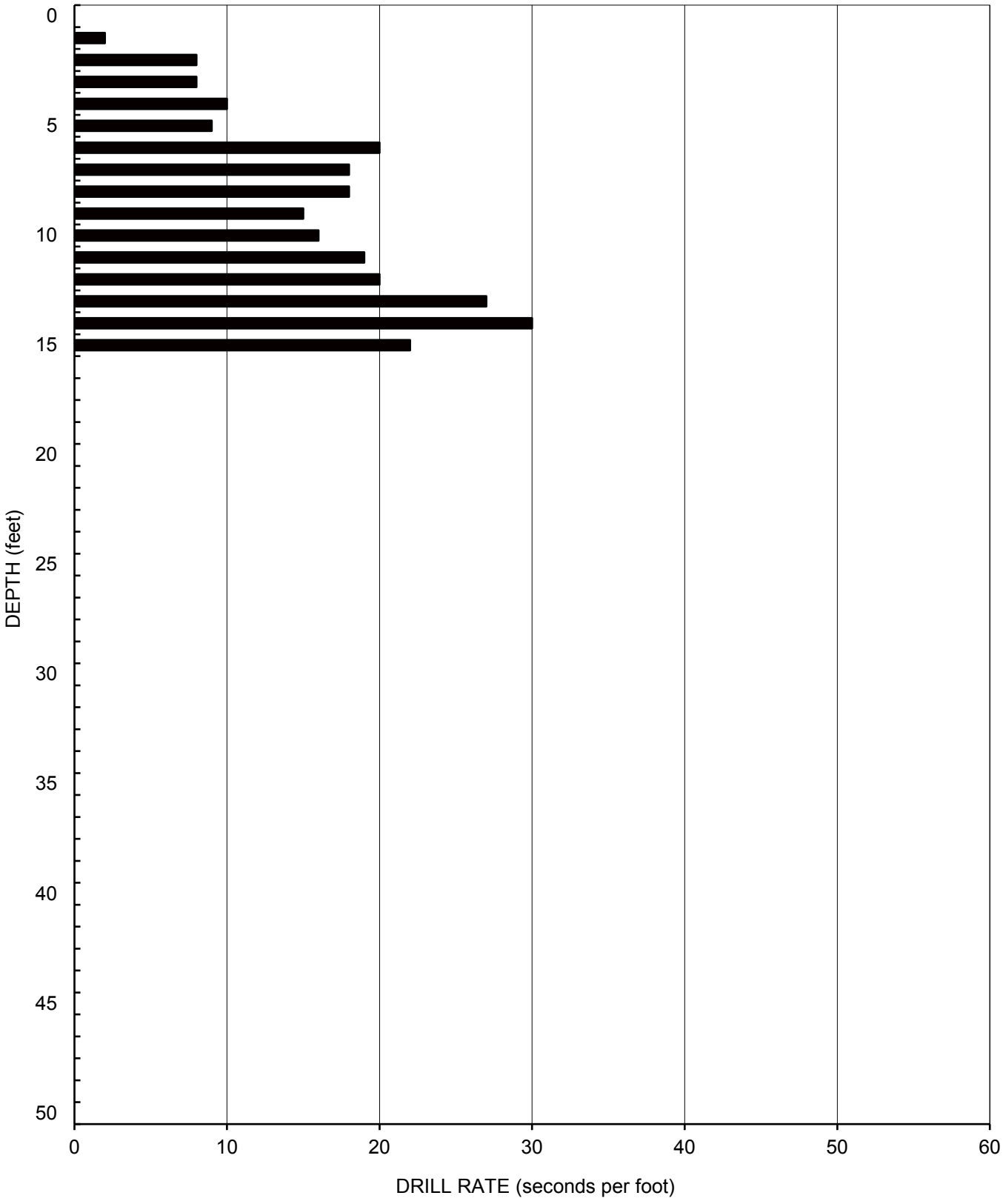
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-16

Elevation - 436 Feet (MSL)

GEOCON
INCORPORATED



AT0016.xls

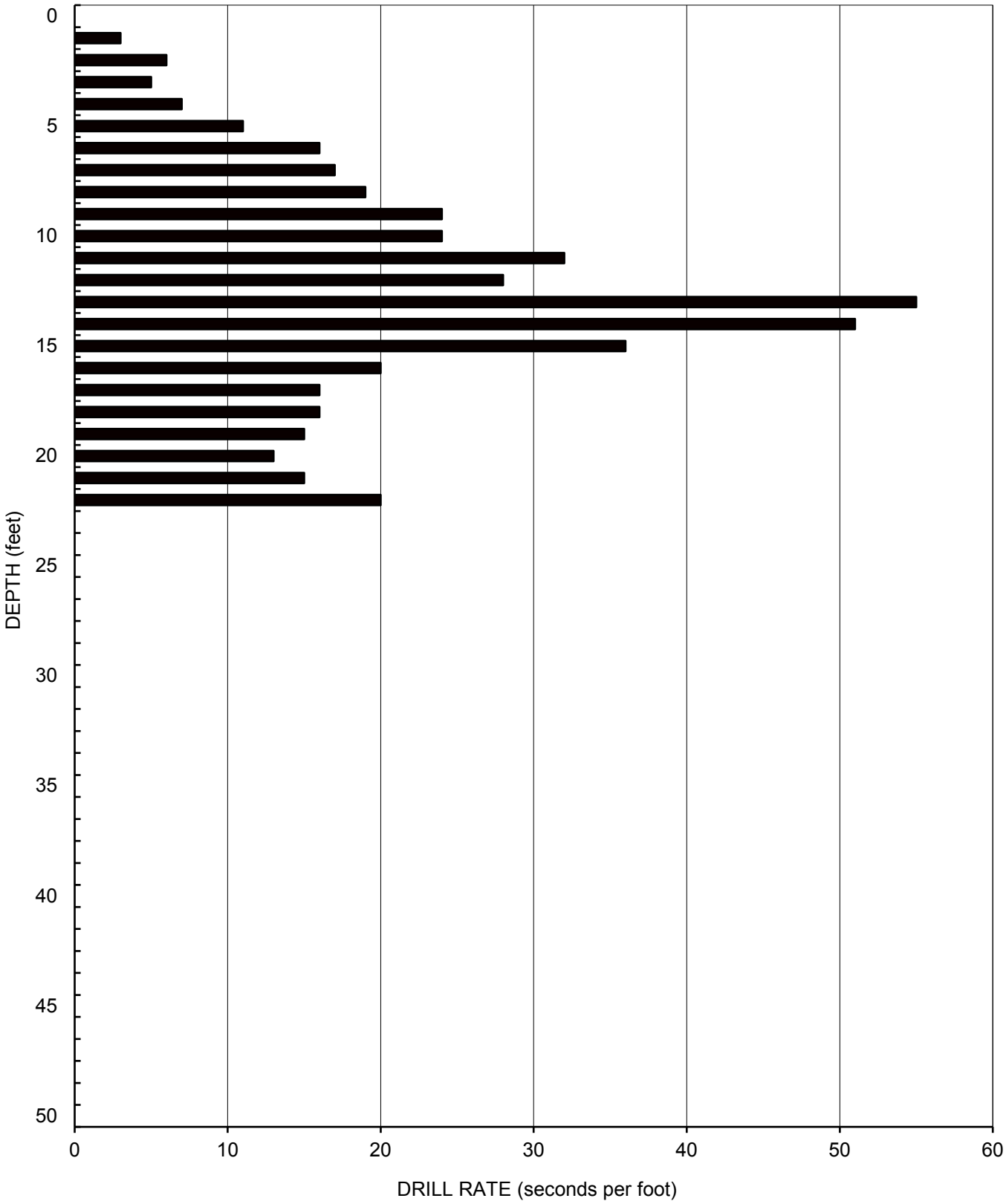
FIGURE C-31

MODERA MELROSE

AIR TRACK BORING AT-17

Elevation - 442 Feet (MSL)

GEOCON
INCORPORATED



AT0017.xls

FIGURE C-32

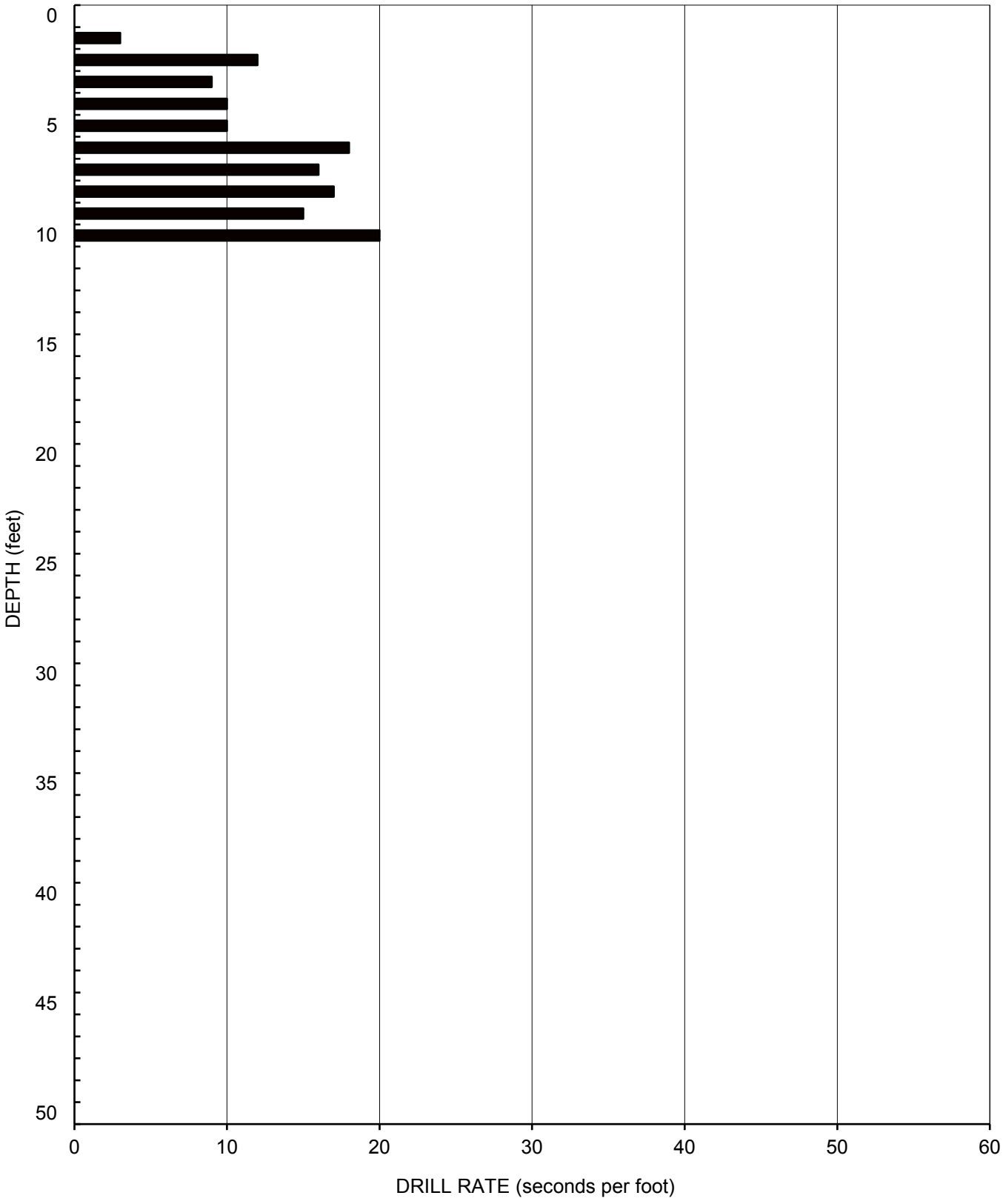
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-18

Elevation - 433 Feet (MSL)

GEOCON
INCORPORATED



AT0018.xls

FIGURE C-33

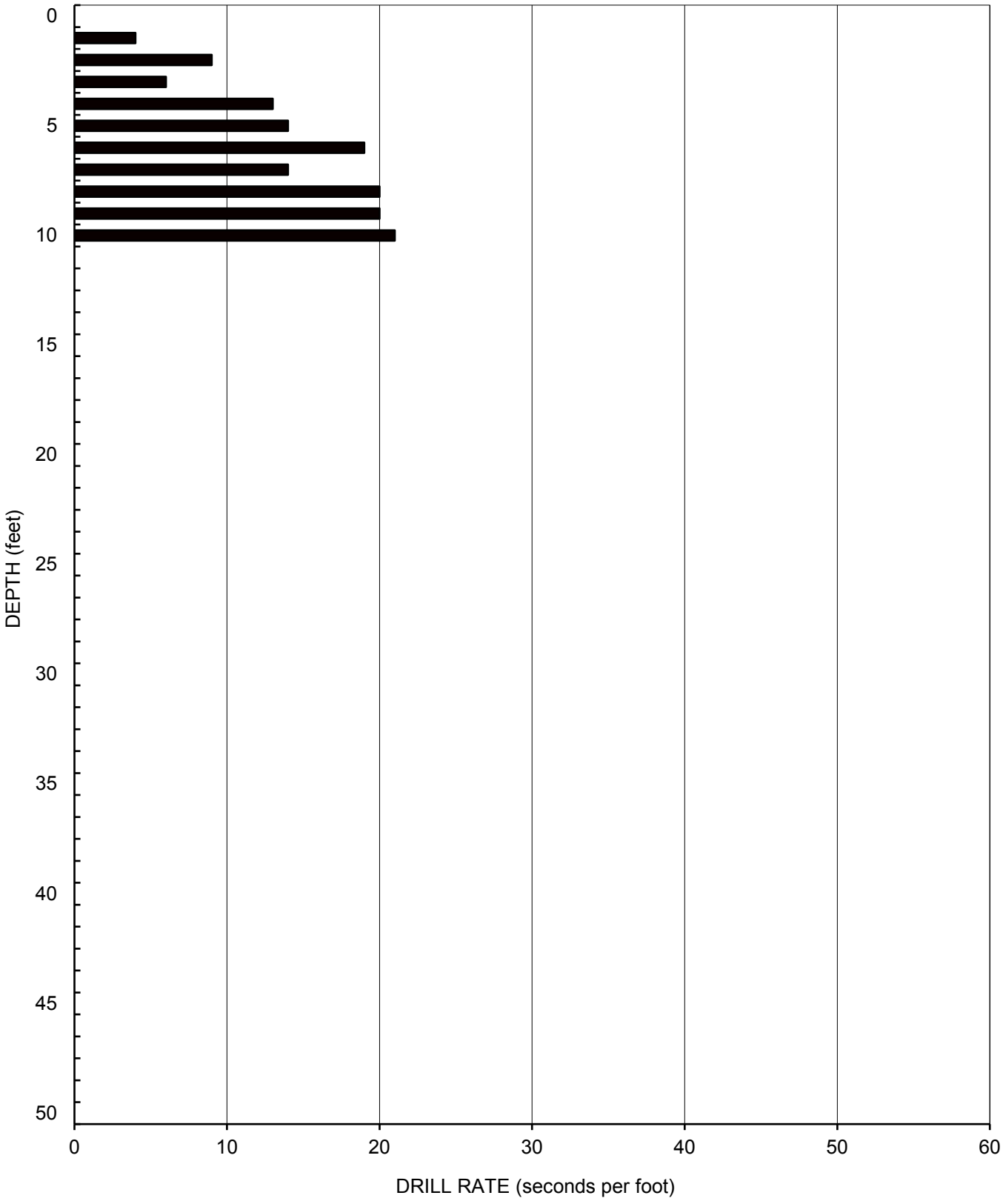
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-19

Elevation - 436 Feet (MSL)

GEOCON
INCORPORATED



AT0019.xls

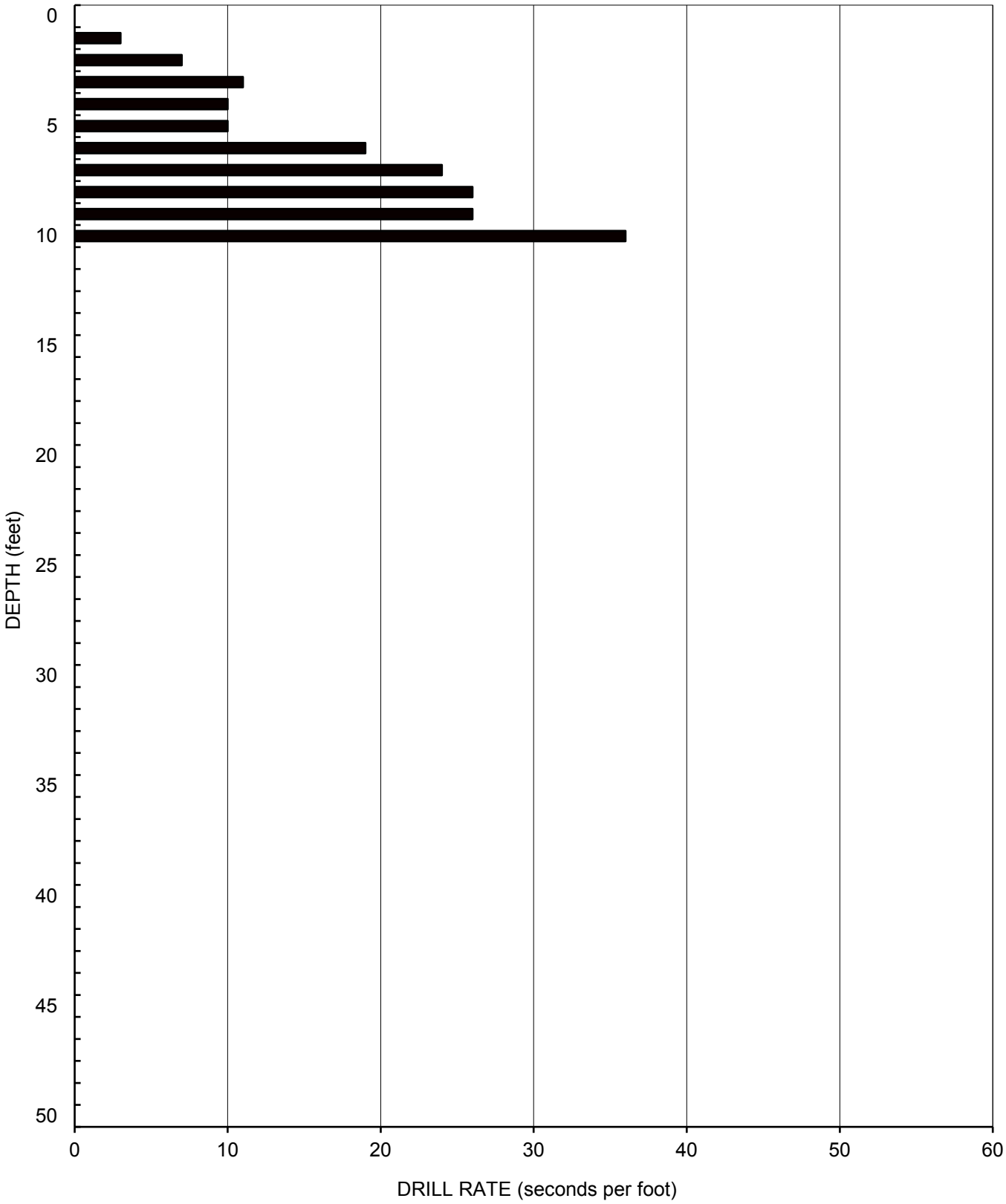
FIGURE C-34

MODERA MELROSE

AIR TRACK BORING AT-20

Elevation - 437 Feet (MSL)

GEOCON INCORPORATED



AT0020.xls

FIGURE C-35

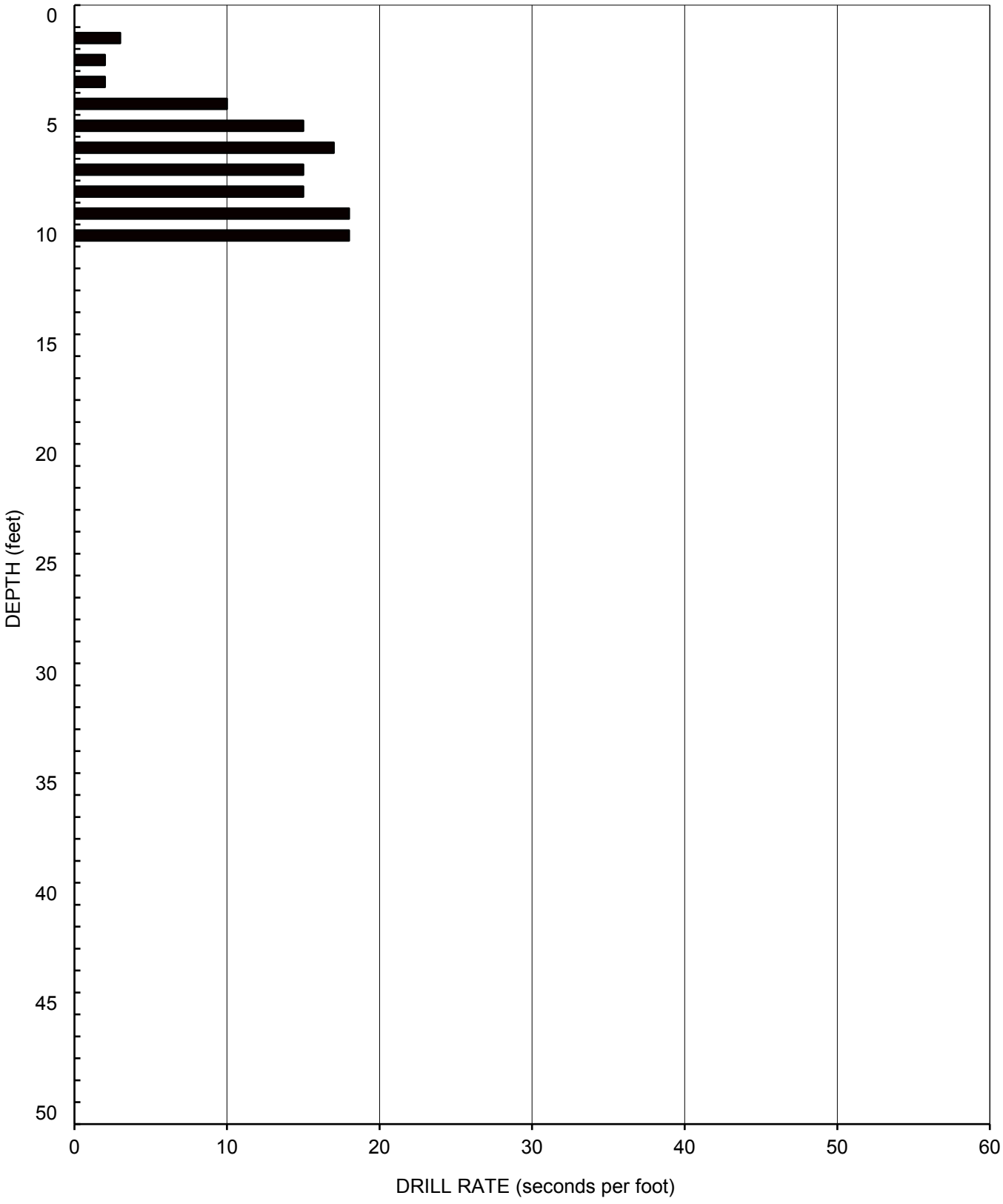
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-21

Elevation - 437 Feet (MSL)

GEOCON
INCORPORATED



AT0021.xls

FIGURE C-36

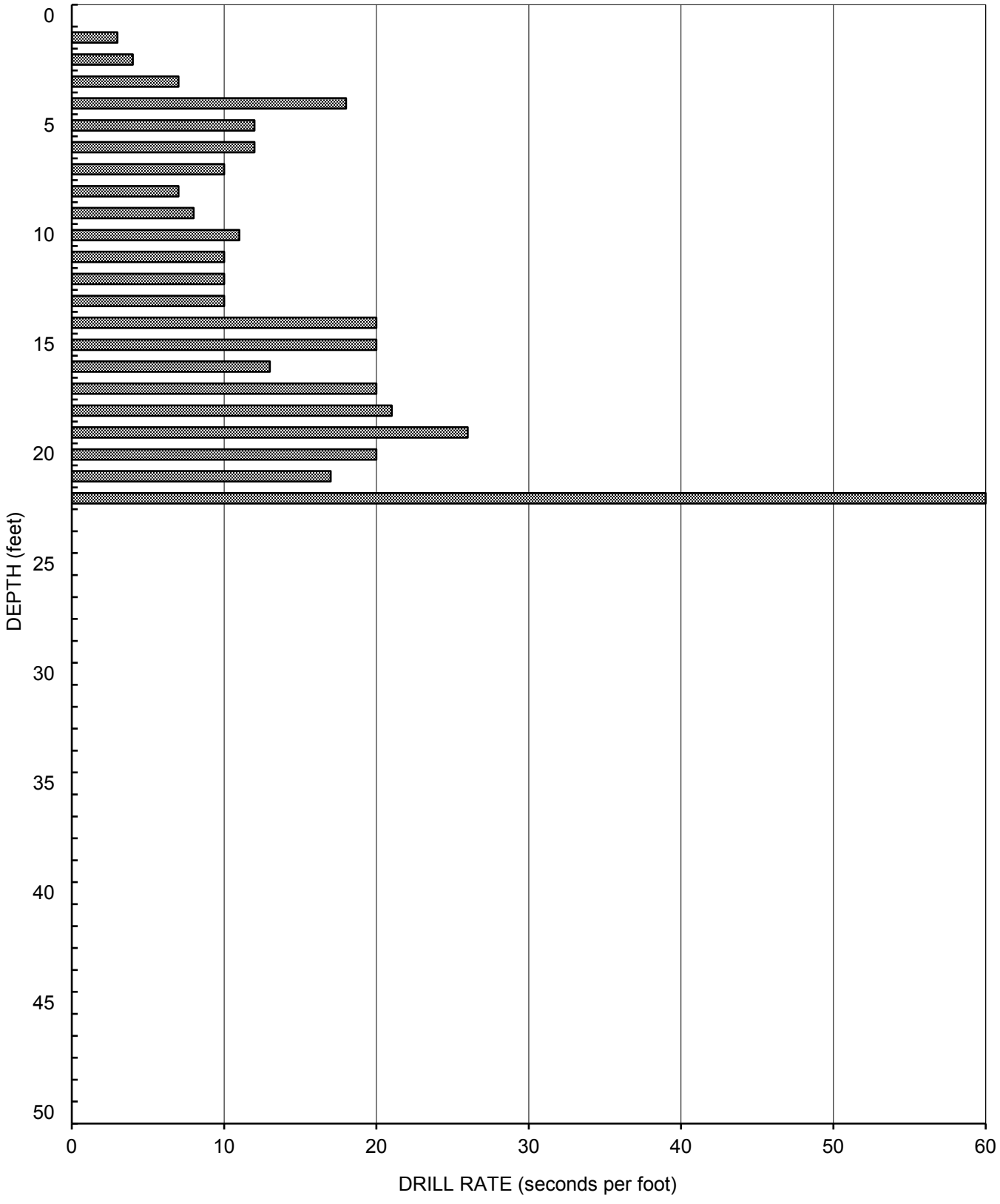
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-22

Elevation - 467 Feet (MSL)

GEOCON
INCORPORATED



AT0022.xls

FIGURE C-37

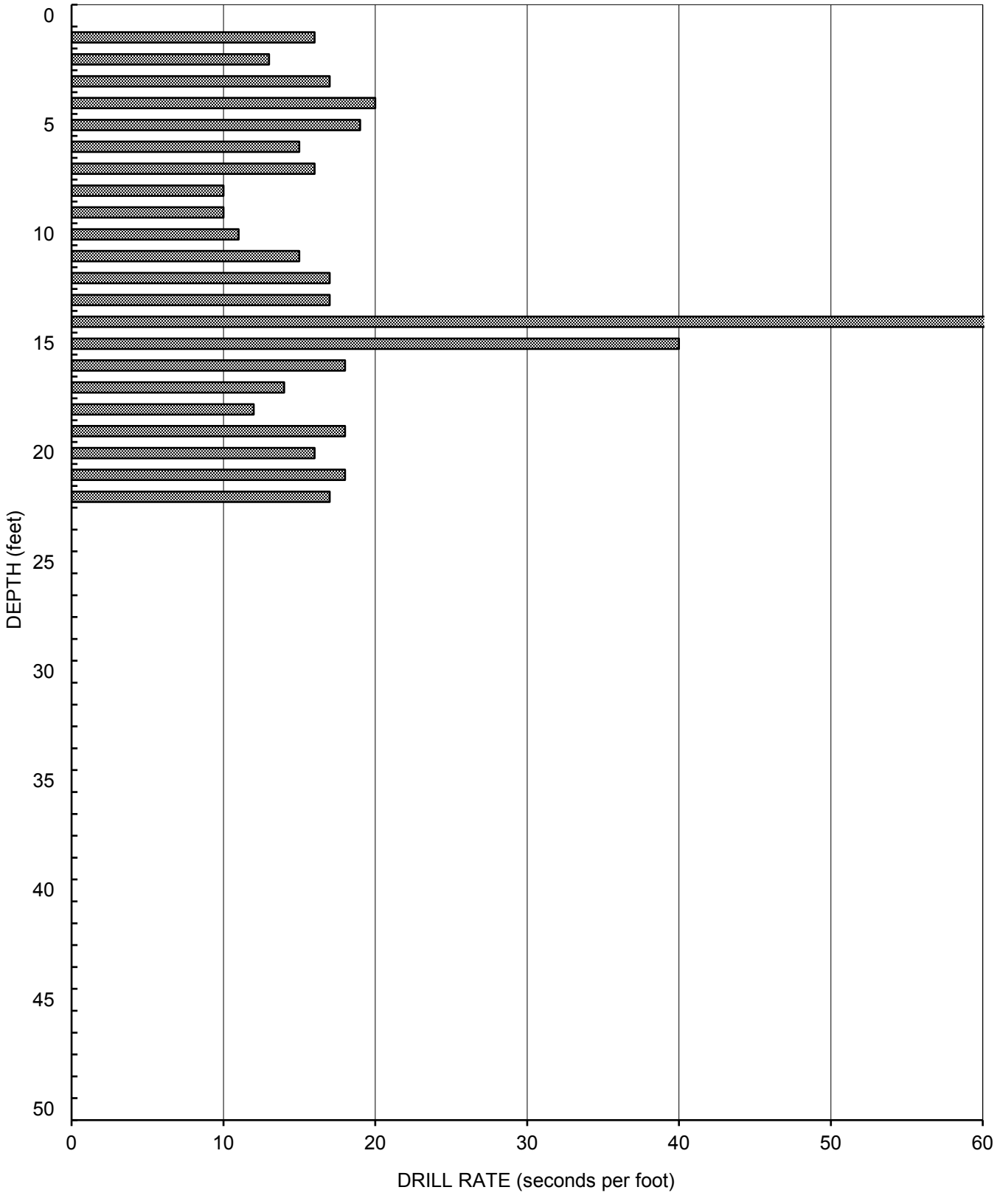
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-23

Elevation - 464 Feet (MSL)

GEOCON
INCORPORATED



AT0023.xls

FIGURE C-38

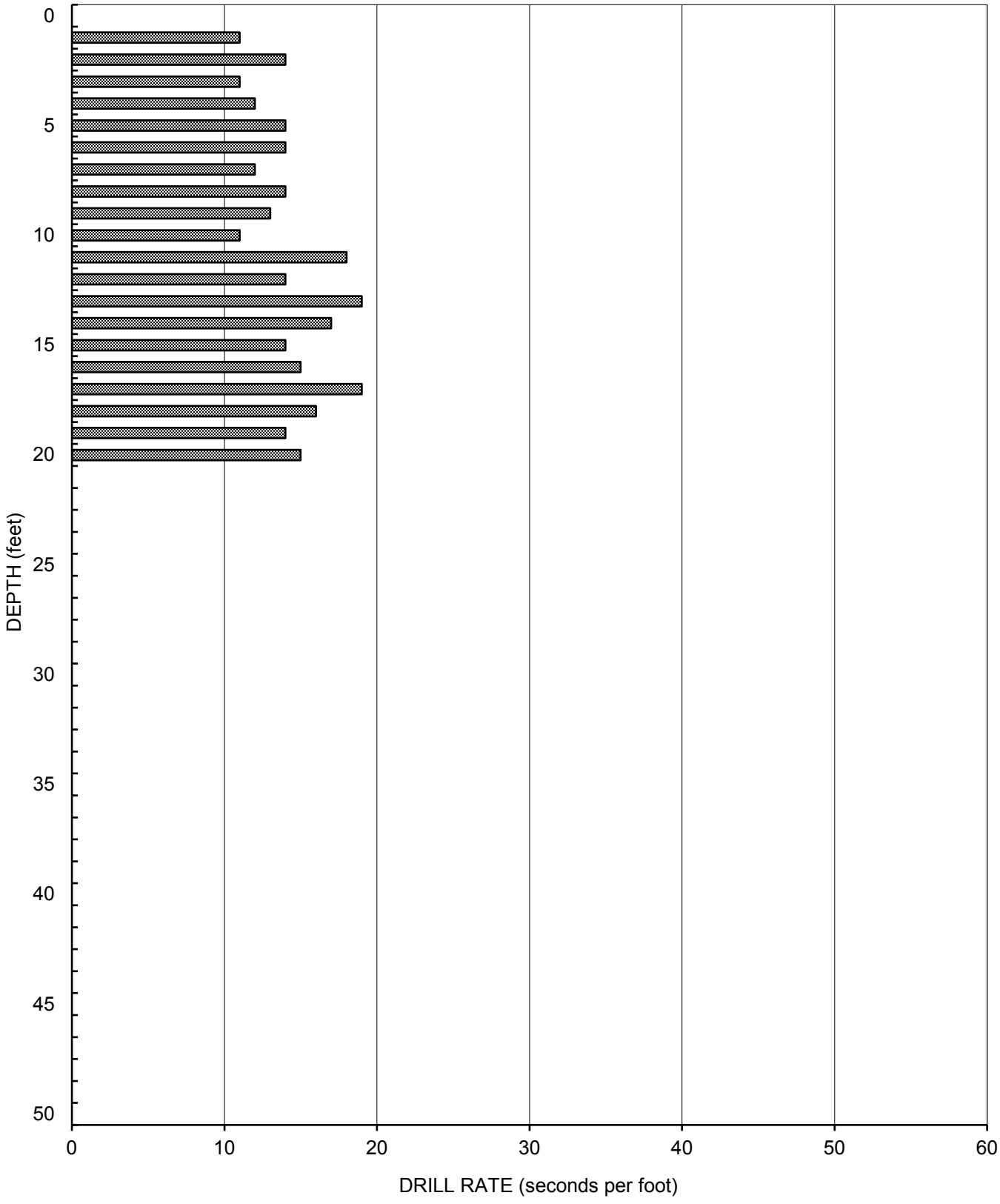
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-24

Elevation - 455 Feet (MSL)

GEOCON
INCORPORATED



AT0024.xls

FIGURE C-39

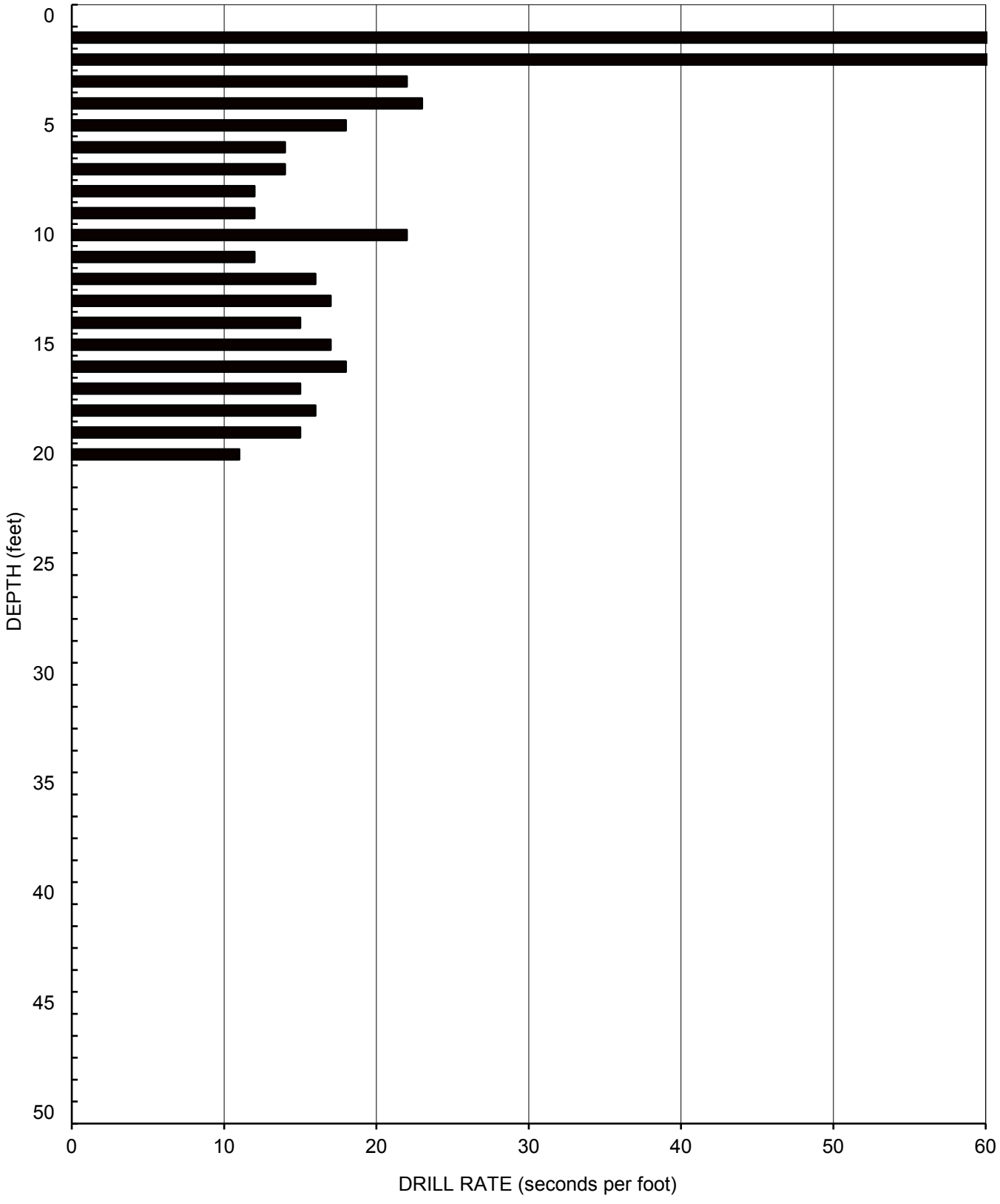
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-25

Elevation - 462 Feet (MSL)

GEOCON
INCORPORATED



AT0025.xls

FIGURE C-40

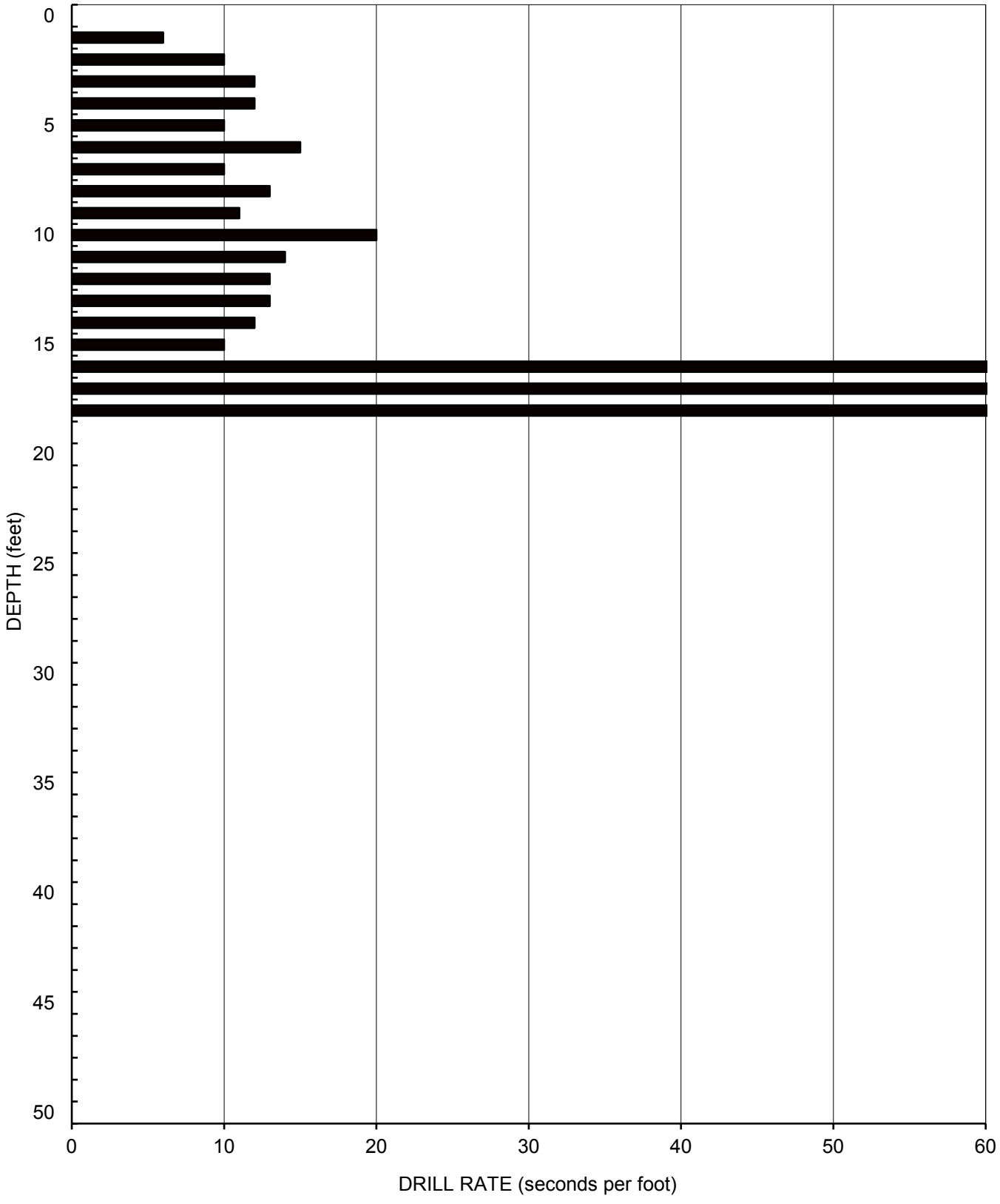
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-26

Elevation - 466 Feet (MSL)

GEOCON
INCORPORATED



AT0026.xls

FIGURE C-41

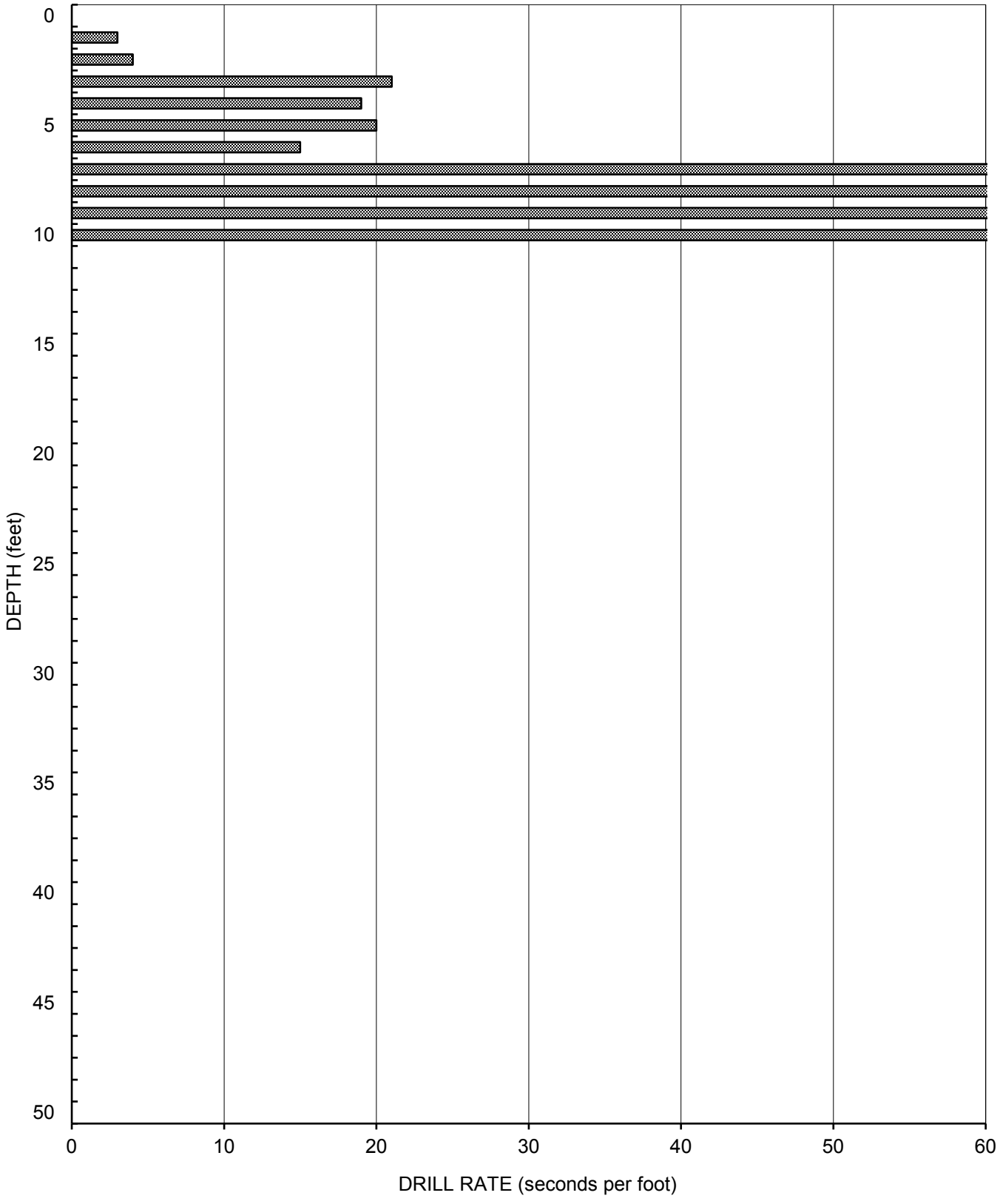
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-27

Elevation - 465 Feet (MSL)

GEOCON
INCORPORATED



AT0027.xls

FIGURE C-42

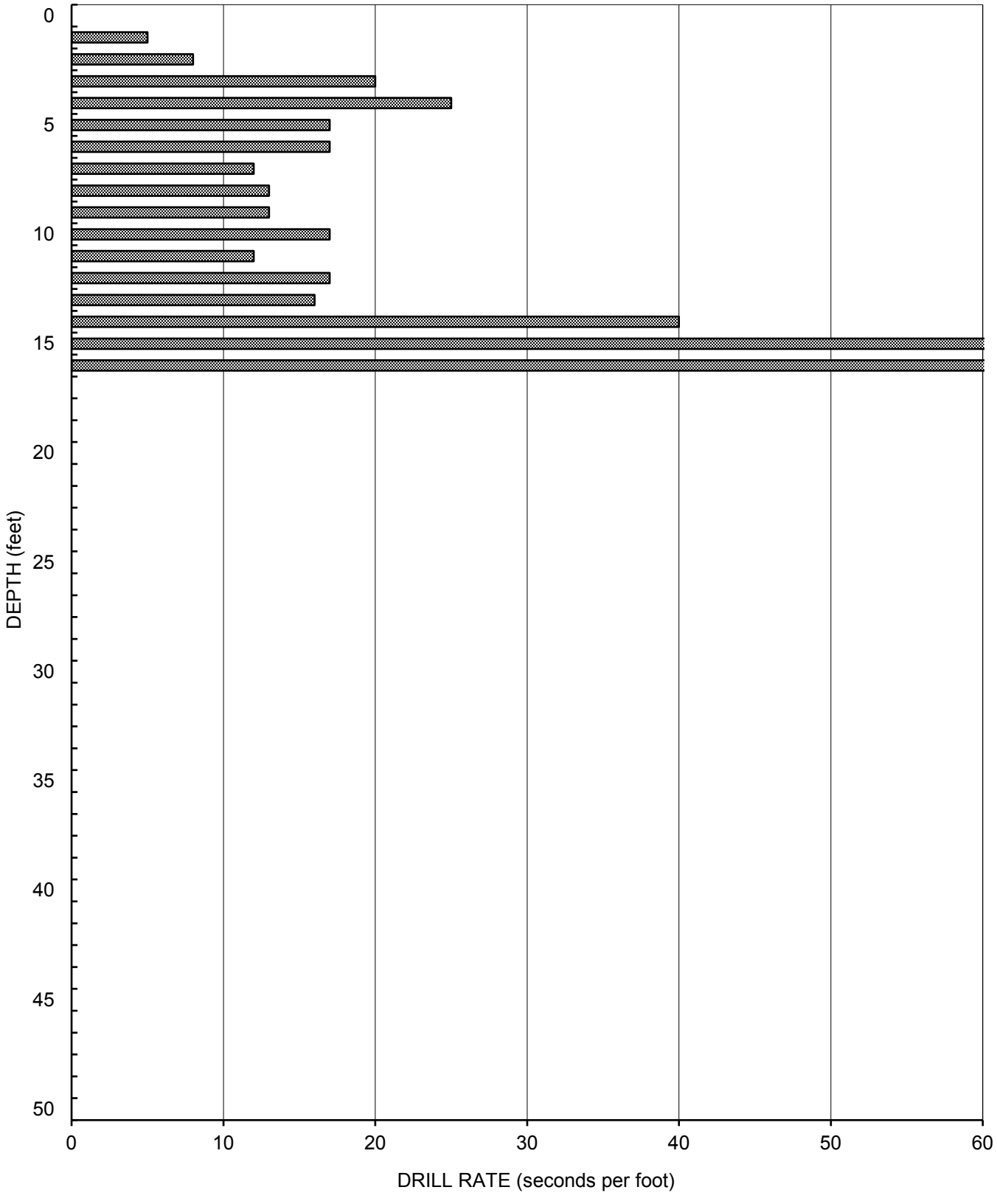
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-28

Elevation - 463 Feet (MSL)

GEOCON
INCORPORATED



AT0028.xls

FIGURE C-43

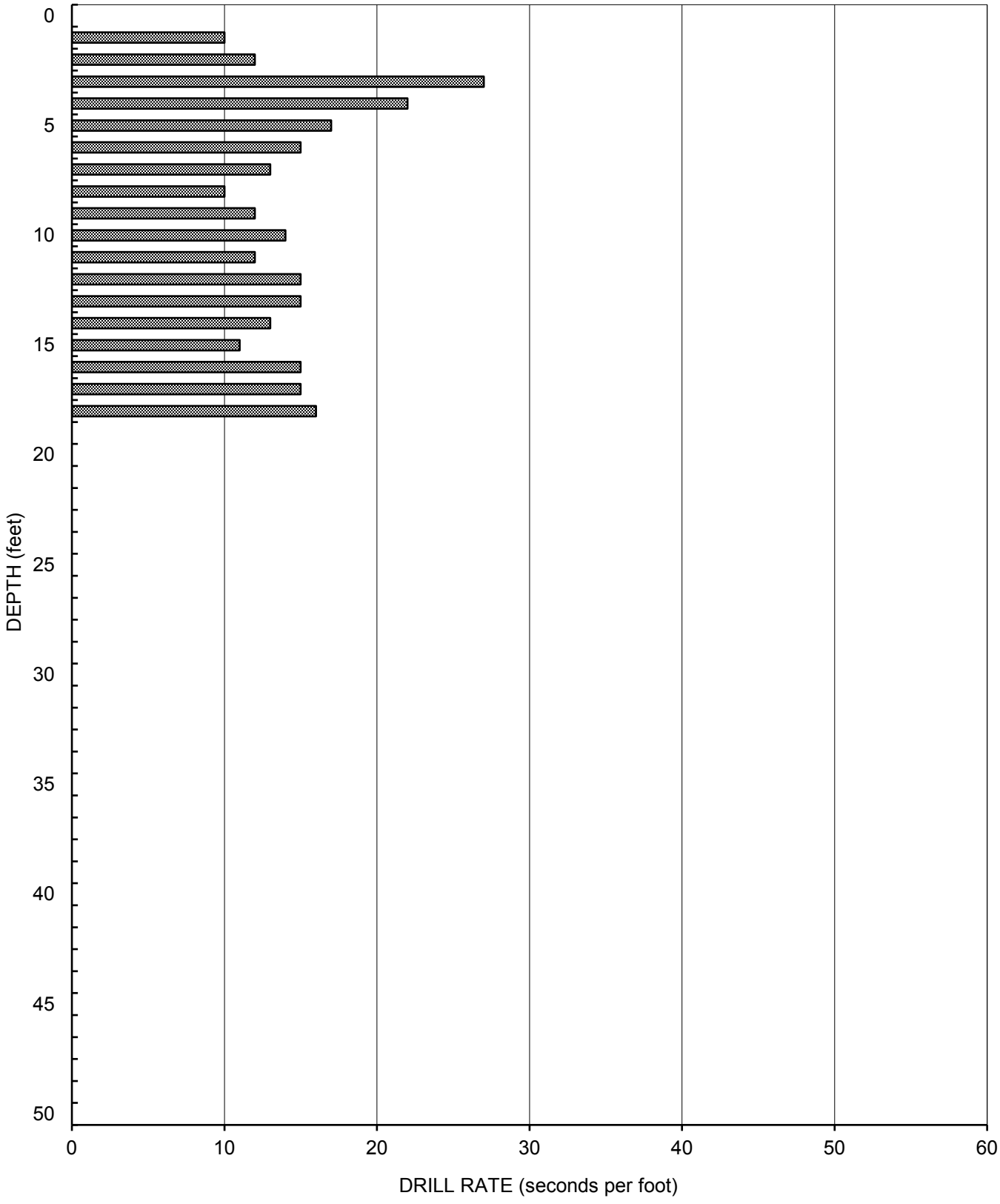
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-29

Elevation - 455 Feet (MSL)

GEOCON
INCORPORATED



AT0029.xls

FIGURE C-45

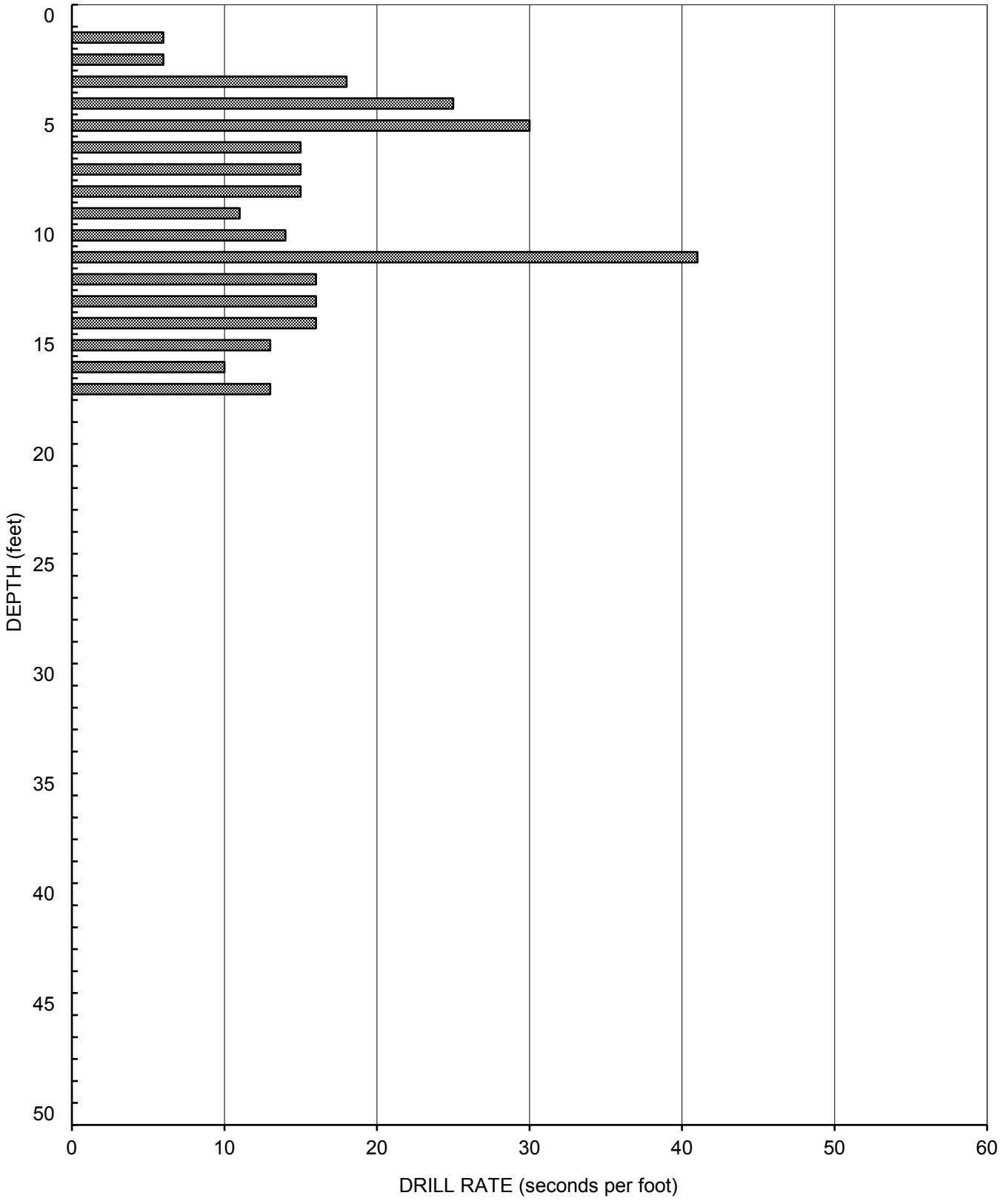
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-30

Elevation - 451 Feet (MSL)

GEOCON
INCORPORATED



AT0030.xls

FIGURE C-45

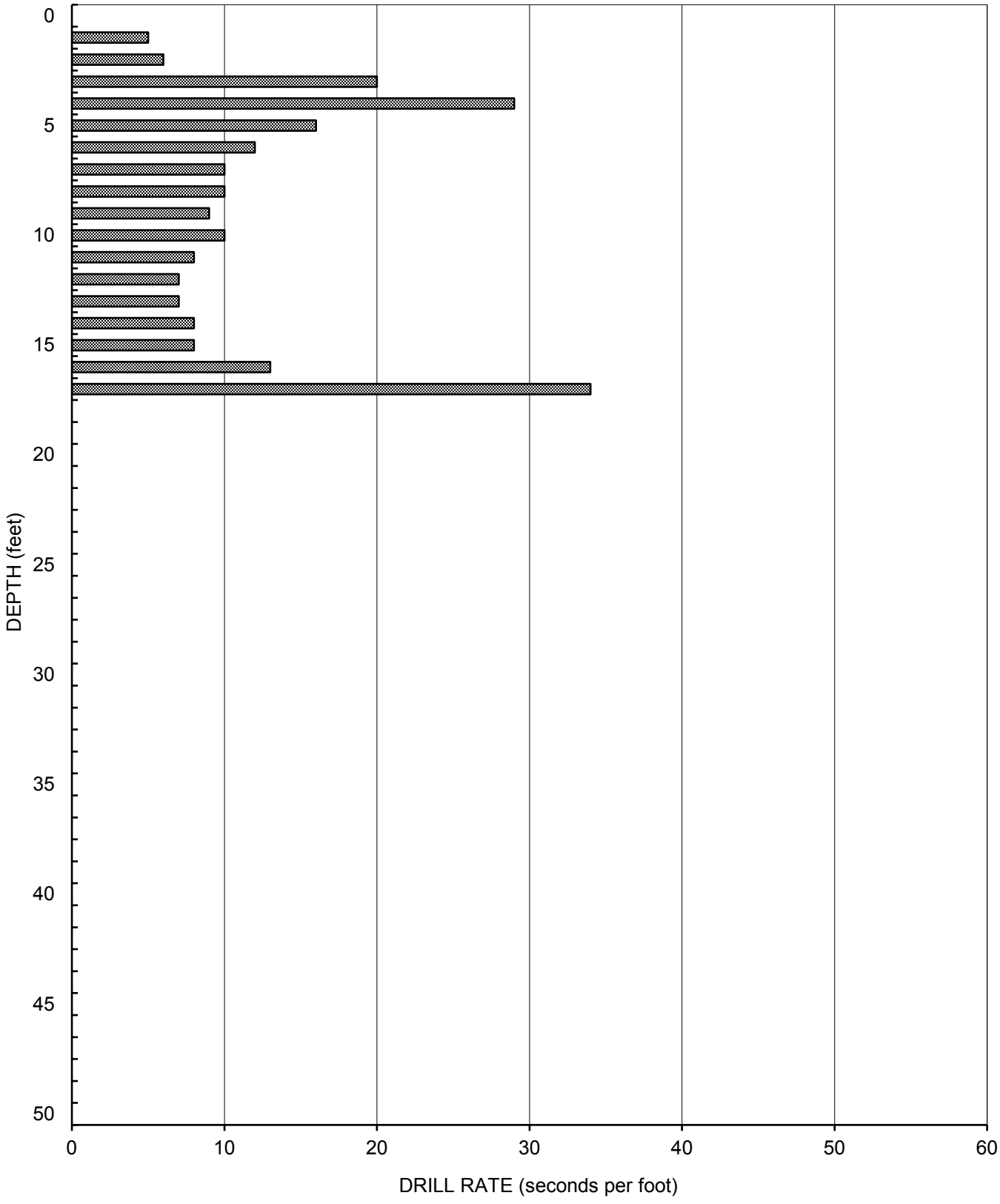
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-31

Elevation - 454 Feet (MSL)

GEOCON
INCORPORATED



AT0031.xls

FIGURE C-46

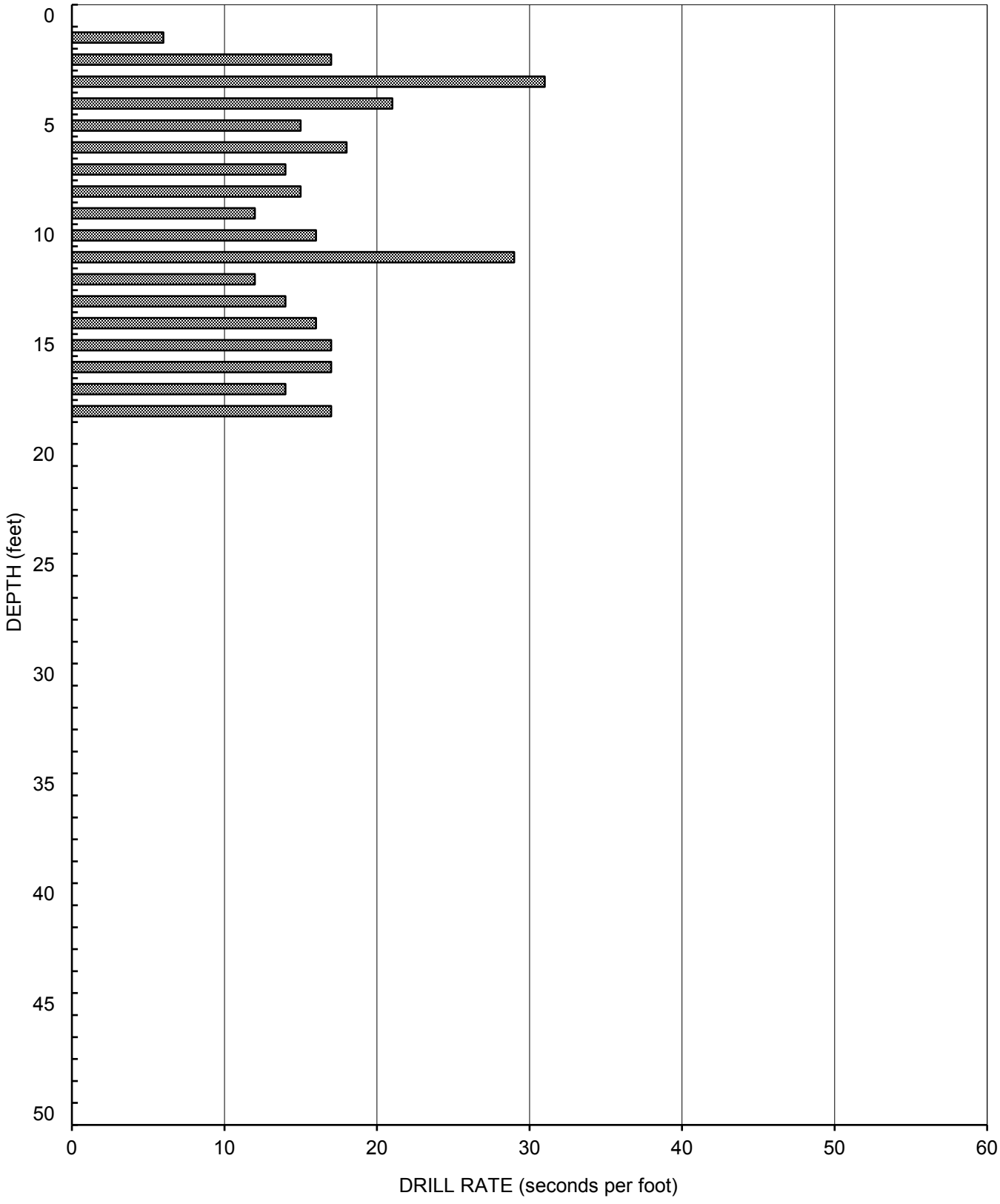
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-32

Elevation - 458 Feet (MSL)

GEOCON
INCORPORATED



AT0032.xls

FIGURE C-47

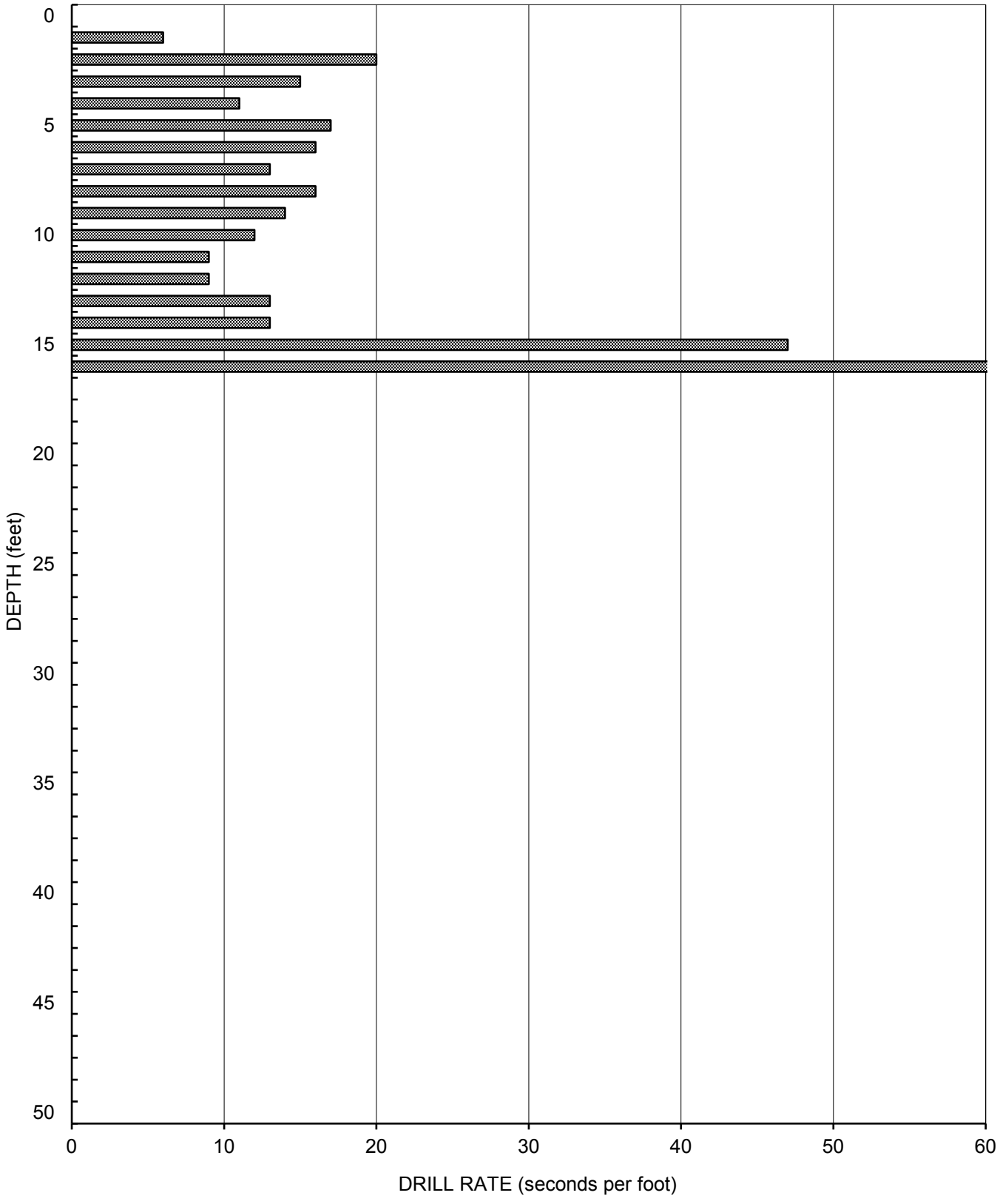
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-33

Elevation - 459 Feet (MSL)

GEOCON
INCORPORATED



AT0033.xls

FIGURE C-48

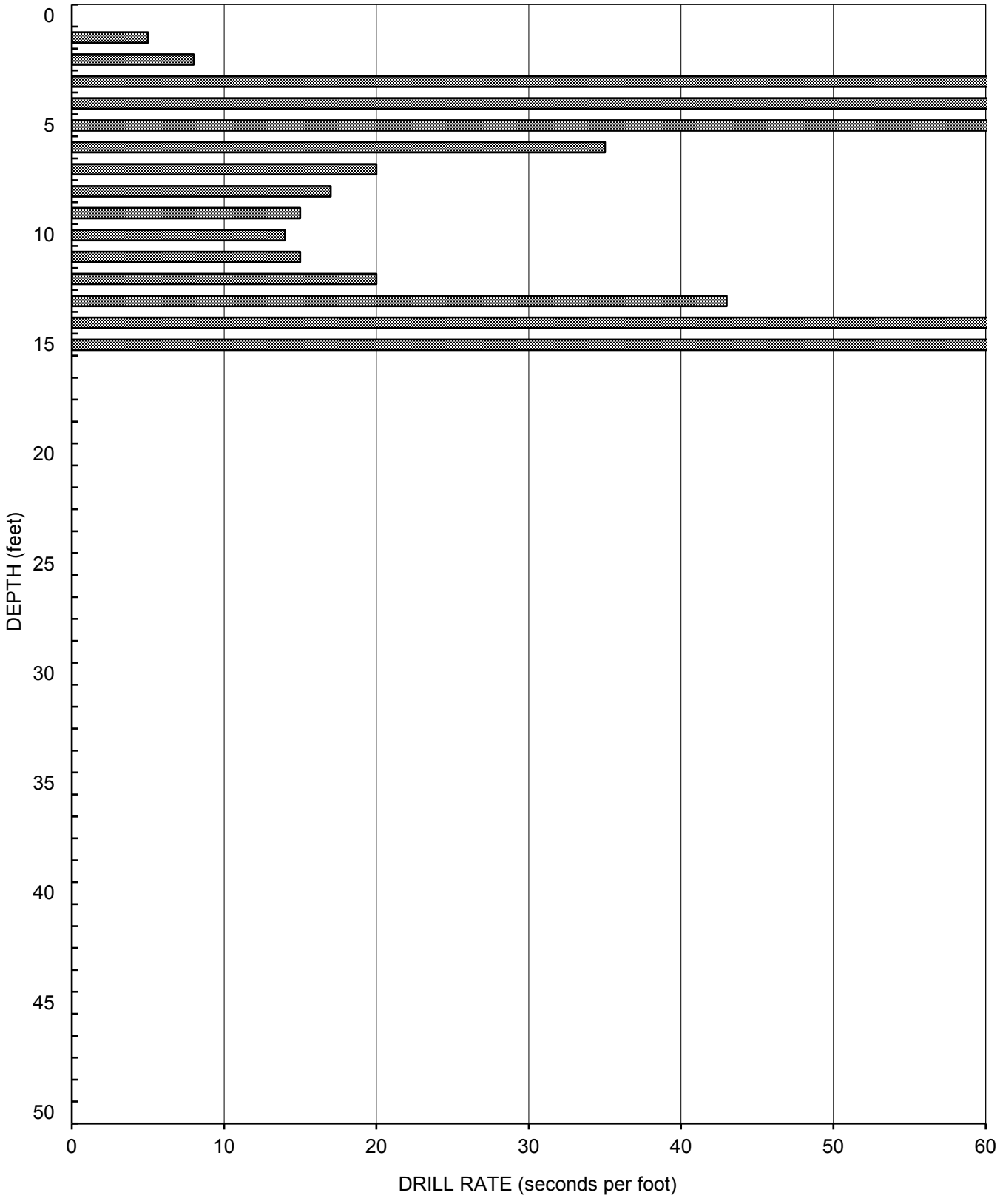
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-34

Elevation - 462 Feet (MSL)

GEOCON
INCORPORATED



AT0034.xls

FIGURE C-49

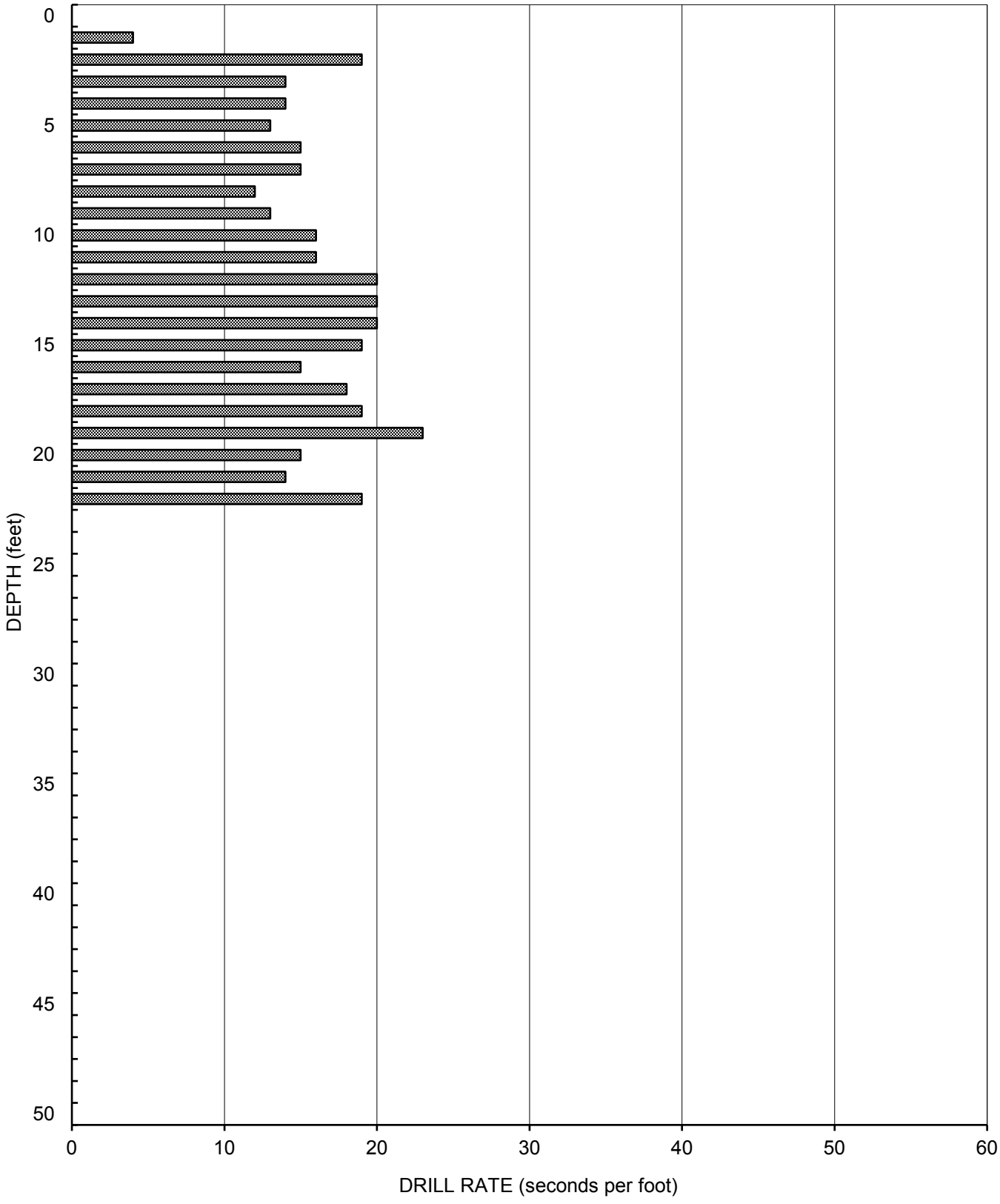
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-35

Elevation - 461 Feet (MSL)

GEOCON
INCORPORATED



AT0035.xls

FIGURE C-50

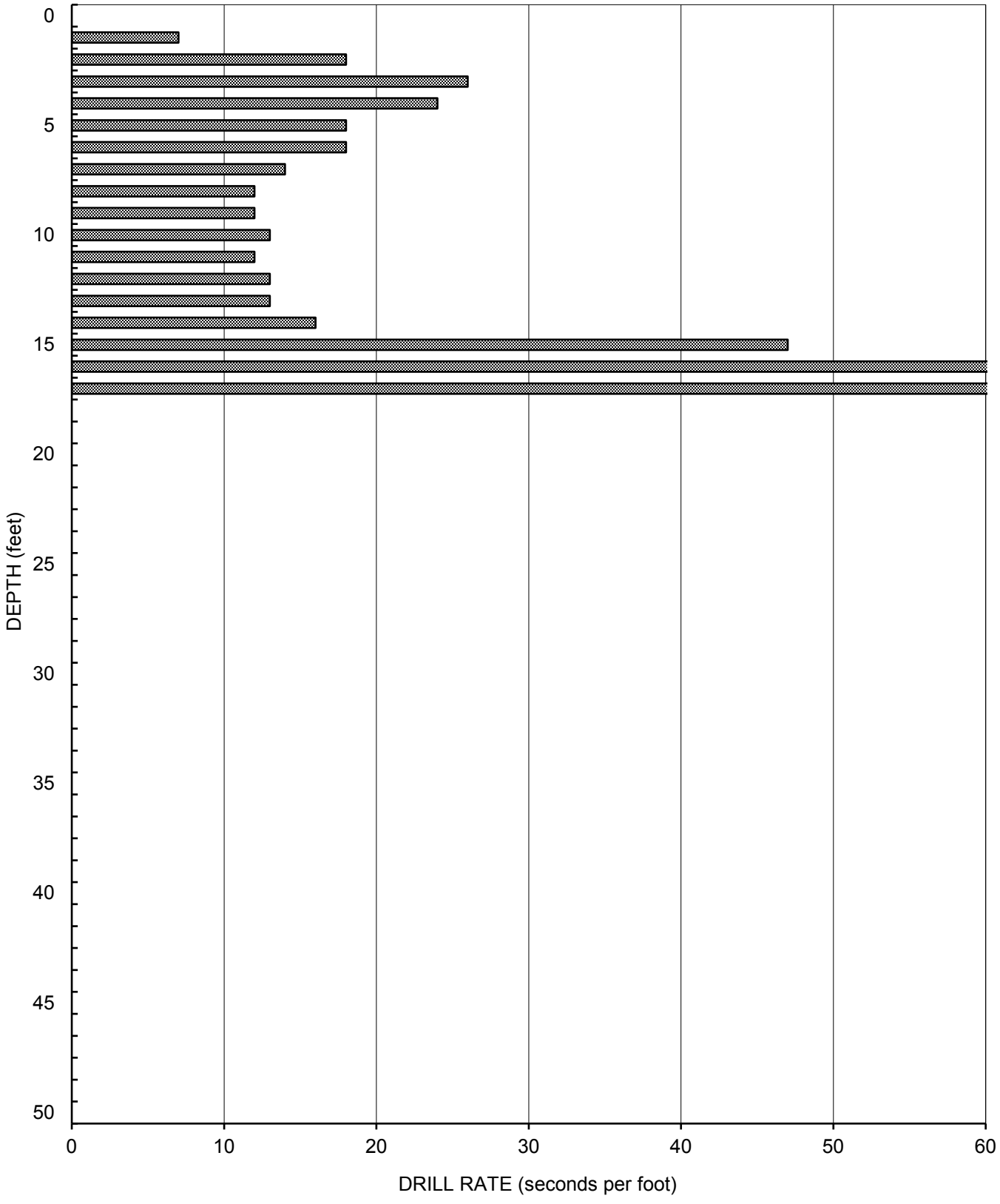
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-36

Elevation - 457 Feet (MSL)

GEOCON
INCORPORATED



AT0036.xls

FIGURE C-51

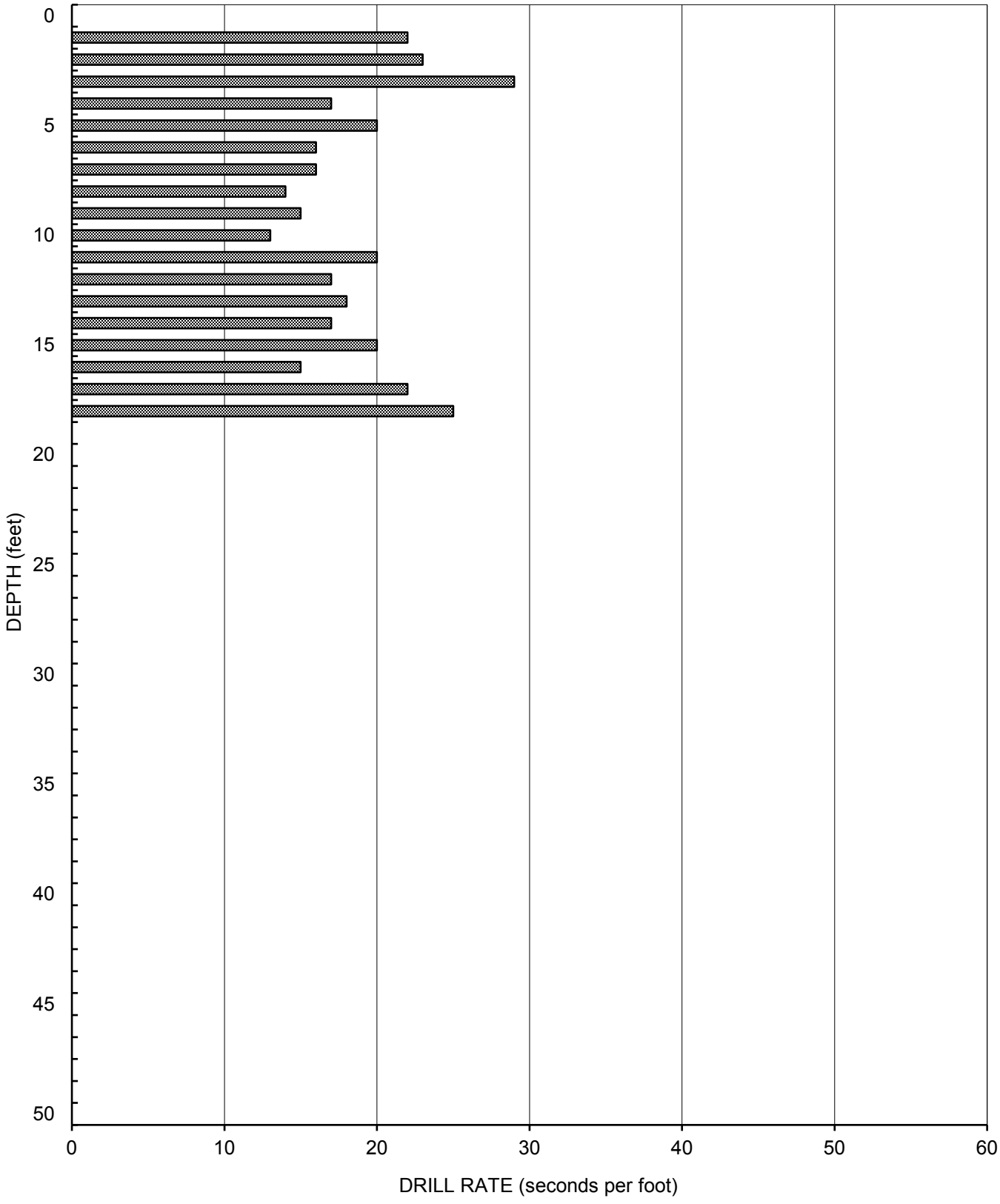
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-37

Elevation - 459 Feet (MSL)

GEOCON
INCORPORATED



AT0037.xls

FIGURE C-52

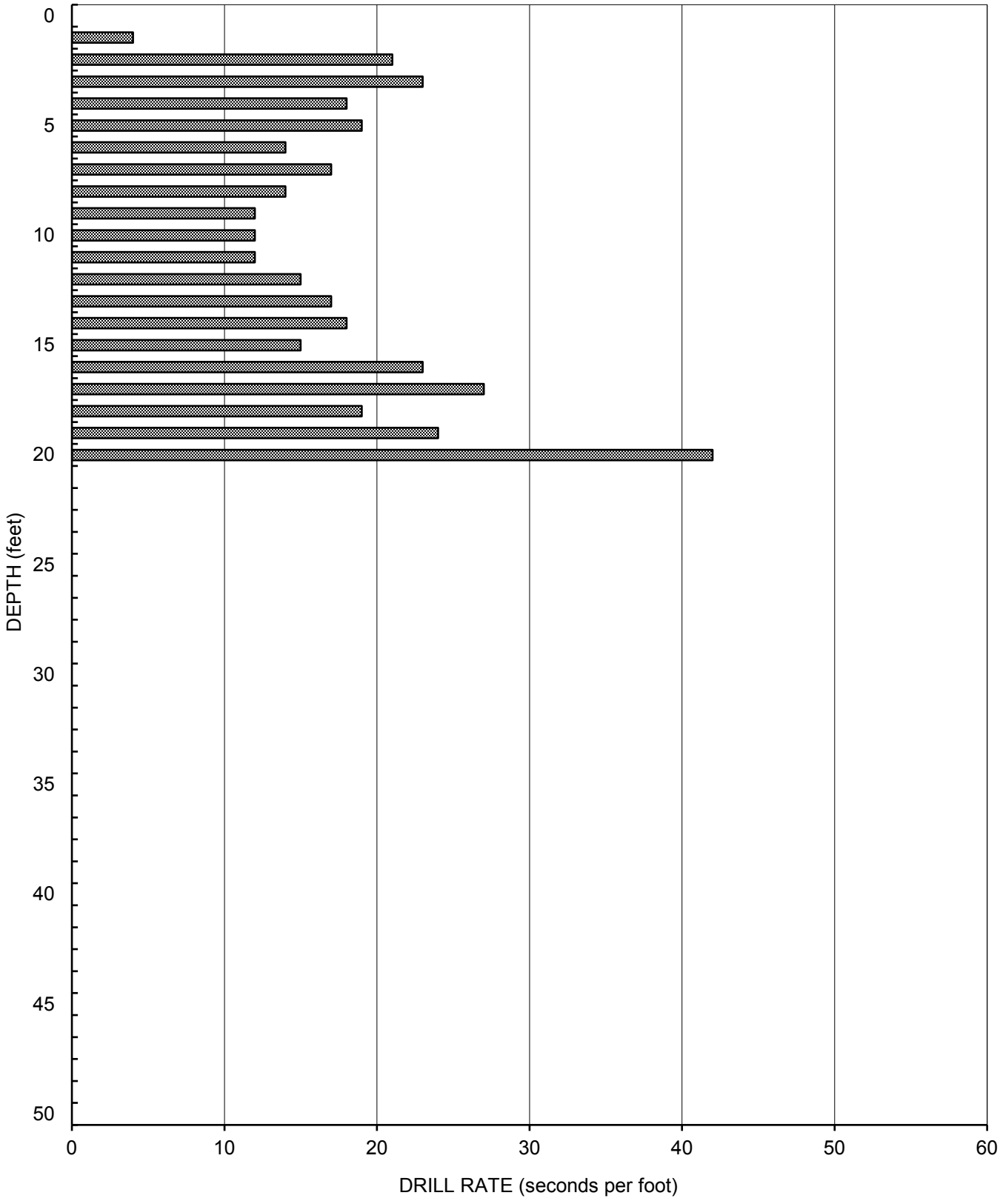
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-38

Elevation - 462 Feet (MSL)

GEOCON
INCORPORATED



AT0038.xls

FIGURE C-53

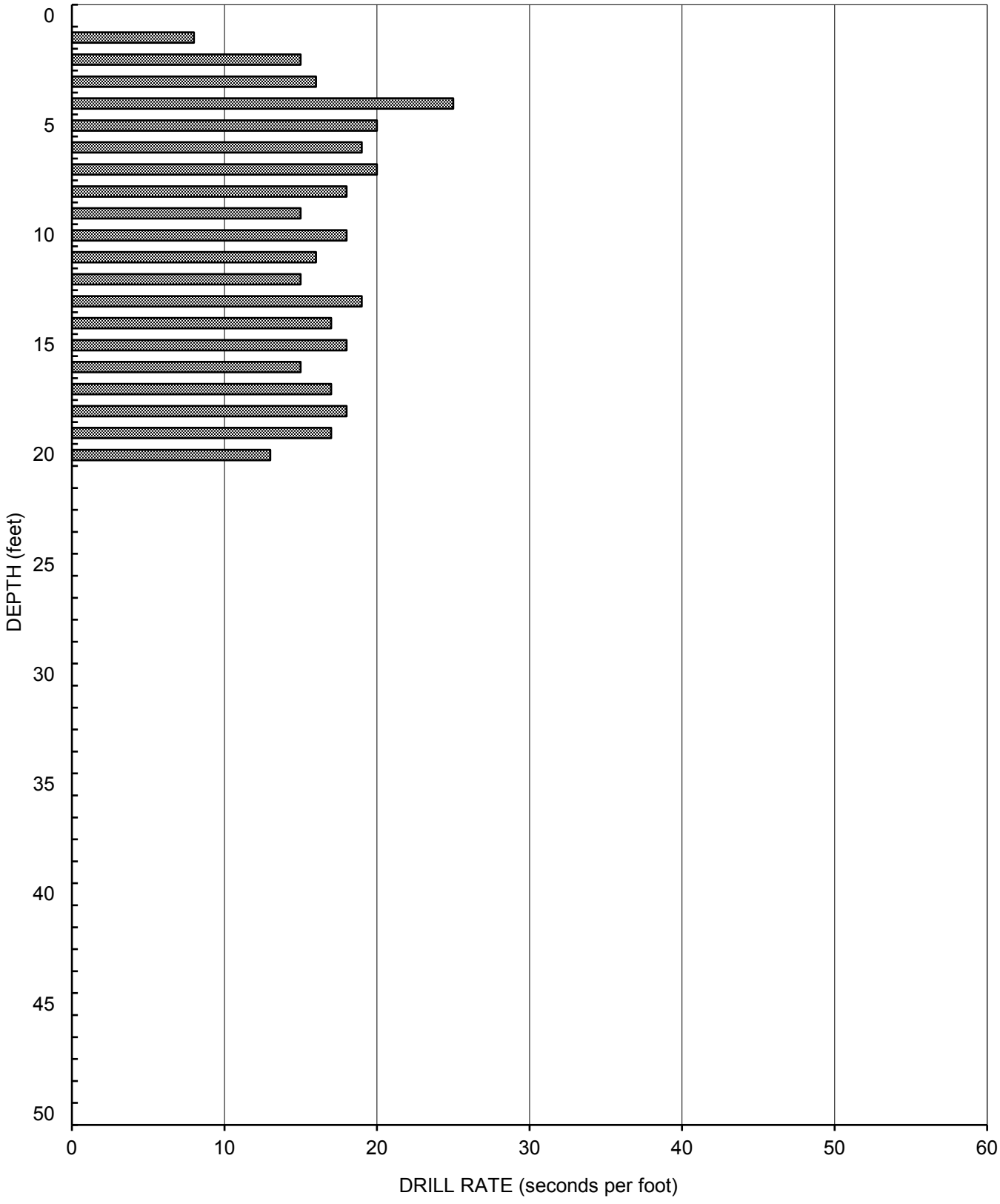
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-39

Elevation - 462 Feet (MSL)

GEOCON
INCORPORATED



AT0039.xls

FIGURE C-54

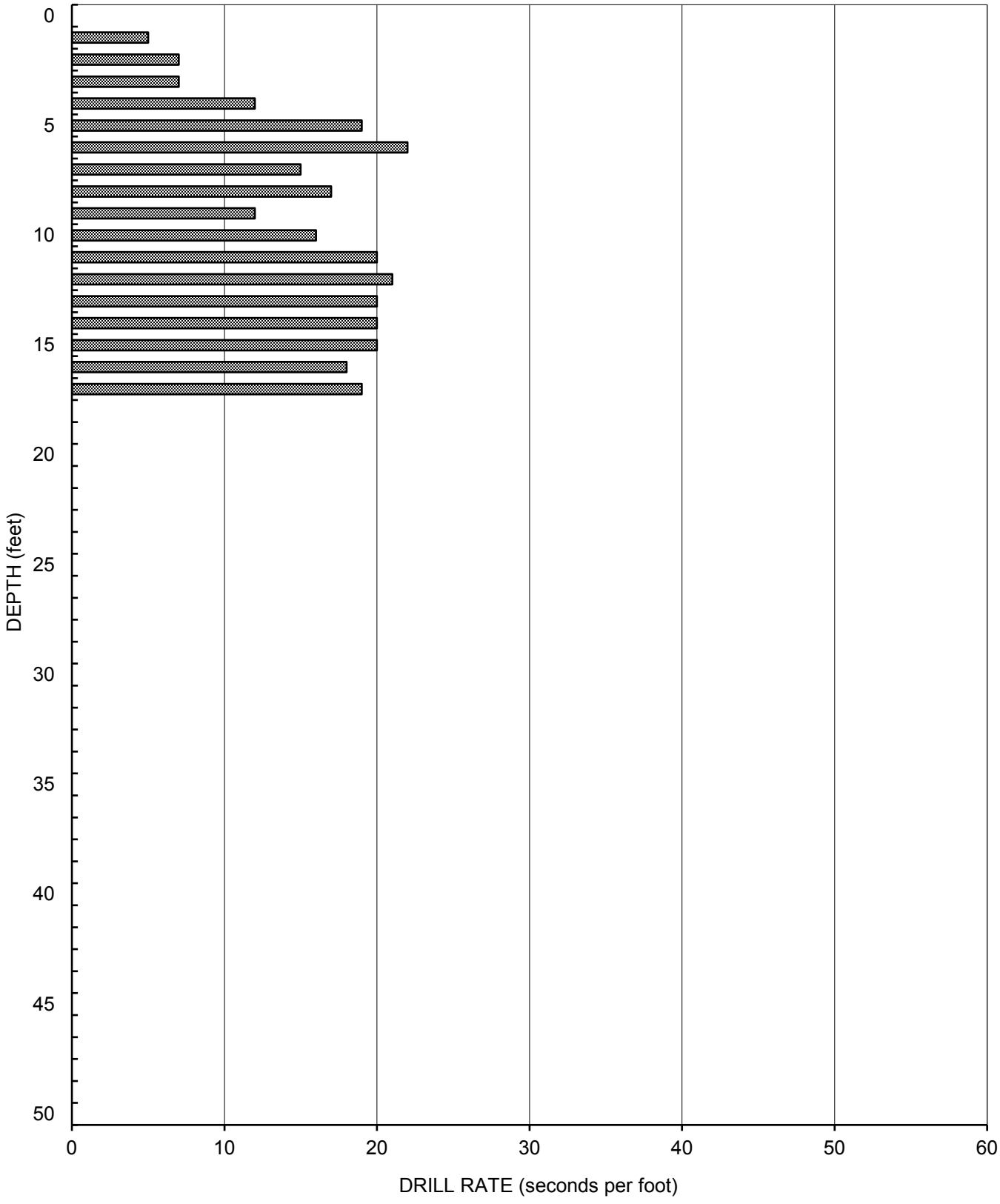
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-40

Elevation - 457 Feet (MSL)

GEOCON
INCORPORATED



AT0040.xls

FIGURE C-55

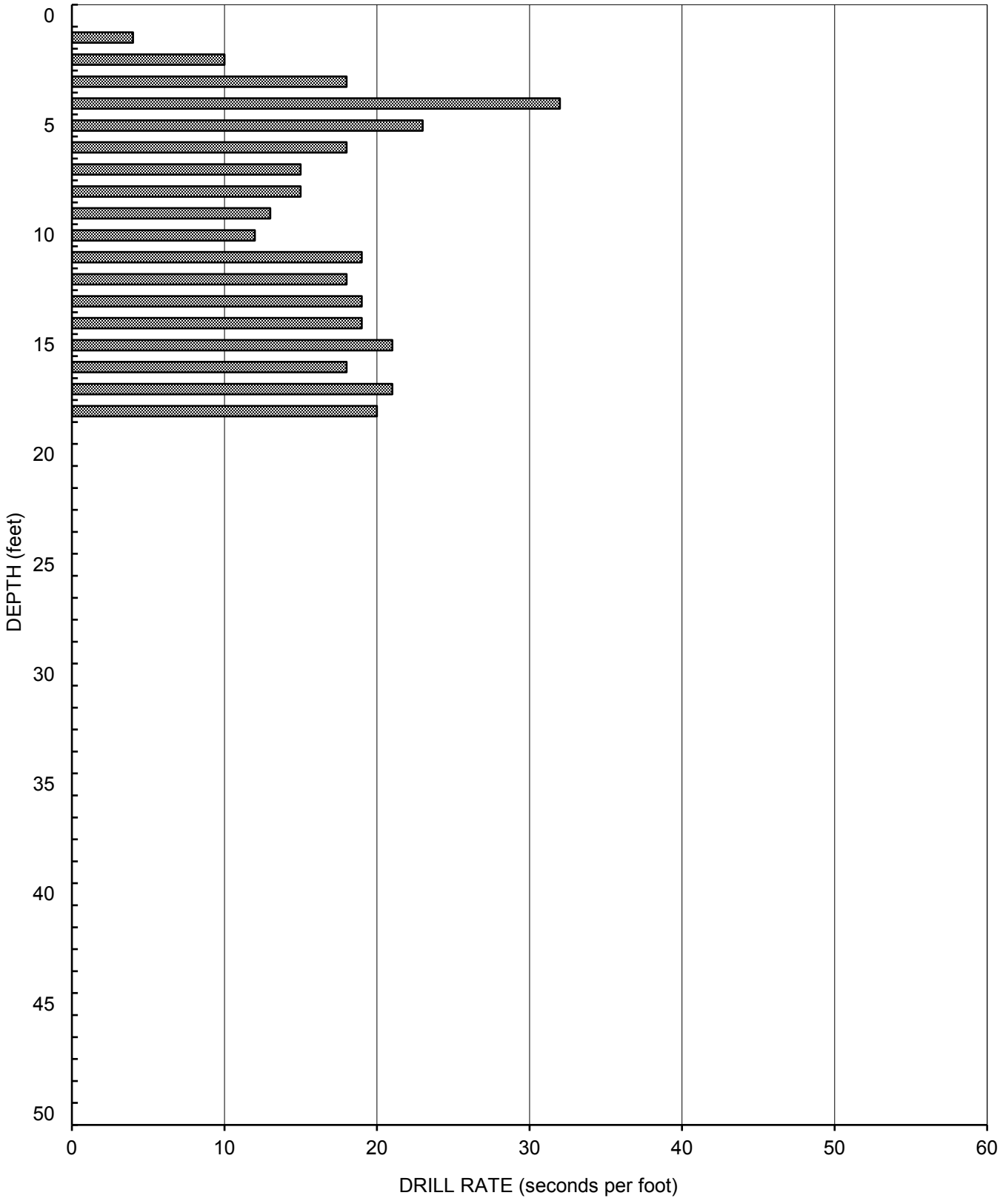
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-41

Elevation - 454 Feet (MSL)

GEOCON
INCORPORATED



AT0041.xls

FIGURE C-56

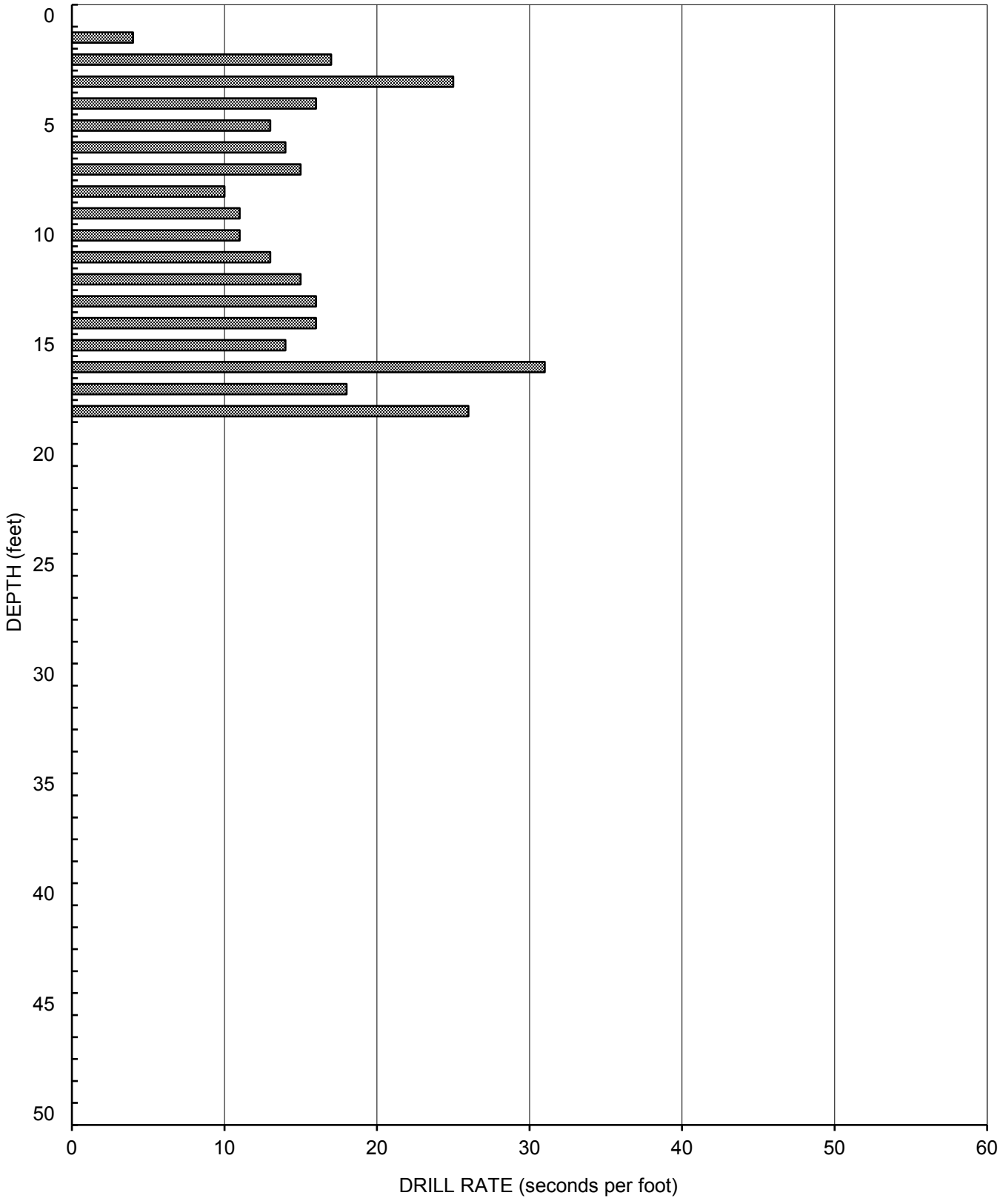
PROJECT NO. 07647 - 32 - 04

MODERA MELROSE

AIR TRACK BORING AT-42

Elevation - 461 Feet (MSL)

GEOCON
INCORPORATED



AT0042.xls

FIGURE C-57

PROJECT NO. 07647-32-02

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING B 1** ELEV. (MSL.) **454'** DATE COMPLETED **10-10-2006** EQUIPMENT **A-300** BY: **T. MYERS**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0				SM	**COLLUVIUM** Loose, humid, dark brown, Silty, fine to medium SAND			
2					**SANTIAGO FORMATION** Dense, moist, greenish-brown, Sandy SILTSTONE / Silty SANDSTONE			
4								
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26	B1-1							
28					TOTAL DEPTH AT 28½ FEET			

Figure C-58,
Log of Boring B 1, Page 1 of 1

07647-32-04 (FROM 07647-32-02).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-02

BORING B 2

ELEV. (MSL.) **455'** DATE COMPLETED **10-10-2006**

EQUIPMENT **A-300** BY: **T. MYERS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SM	**COLLUVIUM** Loose, humid, brown, Silty, fine to medium SAND			
2					**SANTIAGO FORMATION** Dense, moist, greenish-brown, Clayey SANDSTONE			
4								
6								
8					-Dense, moist, yellowish-brown, fine to coarse SANDSTONE			
10	B2-1							
12								
14								
16								
18					-Dense, moist, greenish-brown, Clayey SANDSTONE			
20	B2-2							
22								
24								
26								
28					TOTAL DEPTH AT 28½ FEET			

Figure C-59,
Log of Boring B 2, Page 1 of 1

07647-32-04 (FROM 07647-32-02).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL
... STANDARD PENETRATION TEST
... DRIVE SAMPLE (UNDISTURBED)
... DISTURBED OR BAG SAMPLE
... CHUNK SAMPLE
... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-02

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING B 3** ELEV. (MSL.) **443'** DATE COMPLETED **10-10-2006** EQUIPMENT **A-300** BY: **T. MYERS**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0				SM	**COLLUVIUM** Loose, humid, brown, Silty, fine to medium SAND			
2								
4					**SANTIAGO FORMATION** Dense, moist, greenish-brown, Silty CLAYSTONE			
6								
8	B3-1							
10								
12								
14								
16								
18								
					TOTAL DEPTH AT 19½ FEET			

Figure C-60,
Log of Boring B 3, Page 1 of 1

07647-32-04 (FROM 07647-32-02).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL
... STANDARD PENETRATION TEST
... DRIVE SAMPLE (UNDISTURBED)
... DISTURBED OR BAG SAMPLE
... CHUNK SAMPLE
... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-02

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING B 4** ELEV. (MSL.) **444'** DATE COMPLETED **10-10-2006** EQUIPMENT **A-300** BY: **T. MYERS**	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0				CL	**COLLUVIUM** Loose, humid, dark olive-brown, Silty CLAY			
2								
4					**SANTIAGO FORMATION** Dense, moist, light greenish-brown, Clayey SANDSOTNE			
6								
8								
10					-Dense, moist, light greenish-brown, Silty CLAYSTONE			
12								
14								
16	B4-1							
18								
					TOTAL DEPTH AT 19 FEET			

Figure C-61,
Log of Boring B 4, Page 1 of 1

07647-32-04 (FROM 07647-32-02).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL
... STANDARD PENETRATION TEST
... DRIVE SAMPLE (UNDISTURBED)
... DISTURBED OR BAG SAMPLE
... CHUNK SAMPLE
... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. 07647-32-02

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	BORING B 5 ELEV. (MSL.) 437' DATE COMPLETED 10-10-2006 EQUIPMENT A-300 BY: T. MYERS MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SM	**COLLUVIUM** Loose, humid, dark brown, Silty, fine to medium SAND			
2				CL	Medium dense, moist, dark olive-brown, Sandy CLAY			
4					**SANTIAGO FORMATION** Dense, damp, light reddish-brown, Sandy CLAYSTONE			
6								
8								
10								
12					Dense, damp, light greenish-brown, Sandy SILTSTONE			
14	B5-1				-Silty SANDSTONE			
					TOTAL DEPTH AT 15 FEET			

Figure C-62,
Log of Boring B 5, Page 1 of 1

07647-32-04 (FROM 07647-32-02).GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL
... STANDARD PENETRATION TEST
... DRIVE SAMPLE (UNDISTURBED)
... DISTURBED OR BAG SAMPLE
... CHUNK SAMPLE
... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

APPENDIX D

APPENDIX D

PREVIOUS LOGS OF TRENCHES AND LABORATORY TESTING PERFORMED BY EEI

FOR

MODERA MELROSE
OCEANSIDE, CALIFORNIA

PROJECT NO. 07647-32-04

BACKHOE LOG

(Equipment- John Deer 510SC Backhoe)
August 02, 2007

TP-1

0-1 ½'	**TOPSOIL**– clayey SAND (SC), olive gray, slightly moist to moist, loose, fine to coarse sand, minor organics (dry grass and roots).
1 ½'-12'	**SANTIAGO FORMATION**- silty CLAYSTONE (CL), greenish gray, moist soft to medium stiff, fine sand, some yellowish orange color with minor iron staining.
@ 8'	greenish gray, CLAYSTONE (CL), well indurated, waxy luster, some calcium carbonate stringers, moist.
@ 10'	formational material became very dense

T.D. @ 12'
No groundwater
Hole backfilled with native soils

TP- 2

0-1'	**TOPSOIL**- clayey SAND (SC), loose, dry to slightly moist, olive gray, organics (roots and dry grass, root hairs), fine to coarse grained.
1'-3 ½'	**COLLUVIUM**- sandy CLAY (SC), soft, moist, minor fine to medium sand, minor calcium carbonate nodules.
3 ½'-11 ½'	**SANTIAGO FORMATION**- silty CLAYSTONE (SC), minor fine sand, moist, soft to medium, stiff, greenish gray, minor yellowish brown iron staining.
@ 6 ½'	Calcium carbonate (i.e., caliche) layer with white CLAYSTONE (SC), crumbly.
@ 10 ½'	increasing waxy luster and indurated.
11 ½'-12 ½'	green CLAYSTONE (SC) with slickensides.

T.D. @ 12 ½'
No groundwater
Hole backfilled with native soils

TP-3

0- ½'	**TOPSOIL**- silty SAND (SM), common dry roots and dry root hairs, brown, dry.
½'-3'	**COLLUVIUM**- silty CLAY (CL), minor fine to coarse sand, slightly moist to moist, minor calcium carbonate modules(white) from 1.5' to 3'with ¼-inch in largest diameter, root hairs to 2' bgs, brown.
4 ½ '-6'	**SANTIAGO FORMATION**- SANDSTONE (SC), greenish gray, moist, soft, clayey with minor fine to coarse-grained, highly weathered, increasing sand content at 5'.

T.D. @ 6'
No groundwater
Hole backfilled with native soils

TP-4

0-1'	**TOPSOIL/FILL**- Silty SAND (SM), common surface debris, loose, dry, organics consisting of dry grasses and root hairs.
1'-4'	**ALLUVIUM**- silty SAND (SM), brown with yellowish orange iron stains, slightly moist to moist, fine to medium-grained, soft to medium dense, minor calcium carbonate modules.
4'-5 ½'	**SANTIAGO FORMATION**- silty SANSTONE (SM), white to light gray, some yellowish orange and brown, brown sandy inclusions with traces of green claystone inclusion, very dense, fine to medium-grained with some coarse, slightly moist.

T.D. @ 5 ½'
No groundwater
Hole backfilled with native soils

TP-5

0- ½'	**TOPSOIL/SLOPEWASH**- silty SAND (SM), brown, dry, loose, common organics (dry grasses and roots).
½-2 ½ '	**COLLUVIUM**- sandy CLAY (CL), slightly moist to moist, soft to medium, stiff, fine to medium grained.
2½'-4'	**GRANITIC BEDROCK** -completely weathered, excavates to sandy clay (SC), moist, medium stiff, brown, yellowish orange gray, fine to medium, gravelly slickenside, waxy appearance, micaceous.
4'-5'	highly weathered/decomposed GRANITE (DG), excavates to silty sand (SM), fine to coarse, dense, greenish gray, gray, yellowish orange, slightly moist, micaceous.

T.D. @ 5'
No groundwater
Hole backfilled with native soils

TP-6

0-1'	**TOPSOIL**- Silty SAND (SM), loose, brown, dry, organics (grasses, roots, root hairs) fine to medium-grained with some coarse grain.
1'-4 ½'	**SANTIAGO FORMATION**- sandy CLAY (SC), slightly moist to moist, medium stiff to stiff, reddish brown, gray, red, with yellowish orange iron staining, fine to medium grained.

T.D. @ 4 ½'
No groundwater
Hole backfilled with native soils

TP-7

0-1 ½'	**TOPSOIL**- Silty sand, brown, dry, loose, fine to coarse grained, high in organics, hay and wood chips.
1 ½'-2 ½'	**GRANITIC BEDROCK**-completely weathered silty sand, fine to coarse, dense, brown, slightly moist to moist.
2 ½'-3 ½'	highly weathered/decomposed GRANITE (DG), very dense, excavates to silty sand (SM) with to 6- to 12-inch fragments, fine to coarse grained, yellowish orange, brown, minor root hairs, slightly moist to moist, micaceous.

T.D. @ 3 ½'
No groundwater
Hole backfilled with native soils

TP-8

0-1'	**TOPSOIL**- 4" of mulch, wood chips, roots, organics, dry, loose, silty sand, fine to coarse, brown.
1'-2'	**GRANITIC BEDROCK**- Completely weathered, silty sand, fine to coarse, brown, dense, dry to slightly moist, minor root hairs.
2'-3'	highly weathered/decomposed, excavates to silty sand (SM) with 8- to 12-inch fragments, fine to coarse grained, very dense, minor small gravels, brown, yellowish orange, slightly moist to moist, minor root hairs.

T.D. @ 3'
No groundwater
Hole backfilled with native soils

TP-9

0-1'	**TOPSOIL**- Loose, dry, brown, silty SAND (SM), fine to coarse, organics (dry grasses, root hairs).
1'-3'	**COLLUVIUM**- sandy CLAY (CL) to clayey SAND (SC), light gray, brown, yellowish orange, fine to coarse-grained, soft to medium stiff.
3'-5'	**SANTIAGO FORMATION**- clayey SANDSTONE (SC), light gray, slightly moist, medium dense, fine to coarse-grained, minor fine gravels, iron staining.

T.D. @ 5'
No groundwater
Hole backfilled with native soils

TP-10

0-1'	**TOPSOIL**- Silty SAND (SM), brown, fine to coarse-grained, minor organics/root hairs, loose, dry.
1'-3'	**COLLUVIUM**- sandy CLAY (CL), moist, fine to coarse-grained sand, minor root hairs, soft to medium stiff, brown.
3'-5'	**SANTIAGO FORMATION**- sandy CLAYSTONE (CL), greenish gray, slightly moist to moist, dense, minor fine sand.

T.D. @ 5'
No groundwater
Hole backfilled with native soils

TP-11

0-1'	**TOPSOIL**- dry, loose, silty SAND (SM), fine to coarse-grained, minor organics (i.e., root hairs), brown.
1'-3'	**COLLUVIUM**- 1'-2' dry/2'-3' slightly moist, clayey SAND (SC), brown, medium hard, fine to coarse-grained.
3'-4'	**SANTIAGO FORMATION**- SANDSTONE, excavates to silty sand (SM), light gray, yellowish orange, fine to coarse-grained, dense, minor fine gravels, common 8- to 12-inch fragments, white inclusions.

T.D. @ 4'
No groundwater
Hole backfilled with native soils

APPENDIX B
LABORATORY TEST DATA

Table 1 - Laboratory Tests on Soil Samples

EEI
Gatlin Deveolpment, Oceanside, CA
Your #GAT- 70622, SA #07-1071LAB
6-Aug-07

Sample ID			TP2 @ 6-7' CL	TP6 @ 1-4.5' CL
Resistivity		**Units**		
as-received		ohm-cm	14,400	23,200
saturated		ohm-cm	920	640
pH			8.5	7.9
Electrical Conductivity		mS/cm	0.32	0.53
Chemical Analyses				
Cations				
calcium	Ca^{2+}	mg/kg	43	53
magnesium	Mg^{2+}	mg/kg	8.6	30
sodium	Na^{1+}	mg/kg	386	555
potassium	K^{1+}	mg/kg	1.8	6.4
Anions				
carbonate	CO_3^{2-}	mg/kg	53	ND
bicarbonate	HCO_3^{1-}	mg/kg	366	287
flouride	F^{1-}	mg/kg	13	4.9
chloride	Cl^{1-}	mg/kg	23	338
sulfate	SO_4^{2-}	mg/kg	278	372
phosphate	PO_4^{3-}	mg/kg	ND	ND
Other Tests				
ammonium	NH_4^{1+}	mg/kg	ND	ND
nitrate	NO_3^{1-}	mg/kg	6.2	ND
sulfide	S^{2-}	qual	na	na
Redox		mV	na	na

Electrical conductivity in millisiemens/cm and chemical analysis were made on a 1:5 soil-to-water extract.
mg/kg = milligrams per kilogram (parts per million) of dry soil.
Redox = oxidation-reduction potential in millivolts
ND = not detected
na = not analyzed

• ANALYSIS
• DESIGN

LaBelle • Marvin

PROFESSIONAL PAVEMENT ENGINEERING
A CALIFORNIA CORPORATION

• SOILS, ASPHALT TECHNOLOGY

August 24, 2007

Mr. Andy Webb
EEI
2195 Faraday Avenue, Suite K
Carlsbad, California 92008

Awebb@eeitiger.com

Project No. 34817- R1

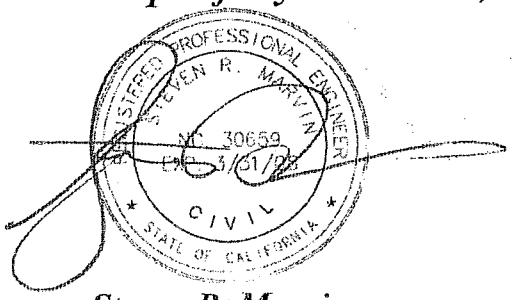
Dear Mr. Webb:

Testing of the bulk soil sample delivered to our laboratory on 8/6/2007 has been completed.

Reference: ***GAT -70622***
Oceanside, CA
Sample: ***TP-1 @ 1 ½'-4'***

R-Value data sheets are attached for your use and file. The opportunity to be of service is sincerely appreciated and should you have any questions, kindly call.

Respectfully Submitted,



Steven R. Marvin
RCE 30659

SRM:lg

2700 S. GRAND AVENUE • SANTA ANA, CA 92705-5404 • (714) 546-3468 • FAX (714) 546-5841
INFO@LABELLEMARVIN.COM

R - VALUE DATA SHEET

P.N. GAT 70622
Nasland, Oceanside

PROJECT NUMBER 34817 BORING NUMBER: TP-1 @ 1.5'-4'

SAMPLE DESCRIPTION: Brown Silty Clay

Item	SPECIMEN		
	a	b	c
Mold Number	7	8	9
Water added, grams	96	146	67
Initial Test Water, %	25.0	29.8	22.2
Compact Gage Pressure,psi	50	30	120
Exudation Pressure, psi	283	155	693
Height Sample, Inches	2.56	2.70	2.56
Gross Weight Mold, grams	3017	3020	2859
Tare Weight Mold, grams	1968	1964	1789
Sample Wet Weight, grams	1049	1056	1070
Expansion, Inches x 10exp-4	31	0	133
Stability 2,000 lbs (160psi)	65 / 143	77 / 160	47 / 121
Turns Displacement	3.59	4.33	2.71
R-Value Uncorrected	8	0	23
R-Value Corrected	8	0	23
Dry Density, pcf	99.3	91.3	103.7
DESIGN CALCULATION DATA			
Traffic Index Assumed:	4.0	4.0	4.0
G.E. by Stability	0.94	1.02	0.79
G. E. by Expansion	1.03	0.00	4.43

Equilibrium R-Value 7 by EXPANSION

Examined & Checked: 8 /7/ 07

REMARKS:
Gf = 1.25
0.0% Retained on the 3/4" Sieve.

Steven R. Marvin, RCE 30659

The data above is based upon processing and testing samples as received from the field. Test procedures in accordance with latest revisions to Department of Transportation, State of California, Materials & Research Test Method No. 301.

LaBelle • Marvin

R-VALUE GRAPHICAL PRESENTATION

PROJECT NO. 34817
P.N. NAS 70622

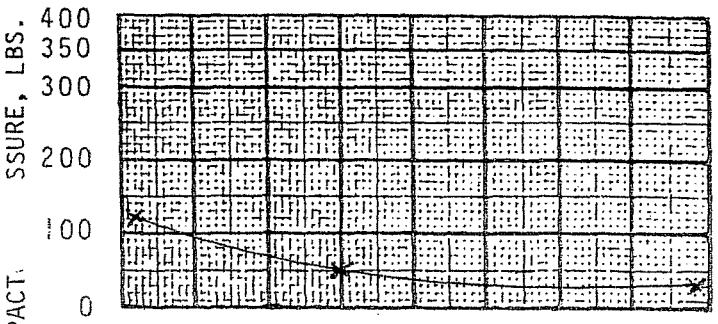
BORING NO. TP-1 @ 1½'-4'
Naslund/Oceanside, CA

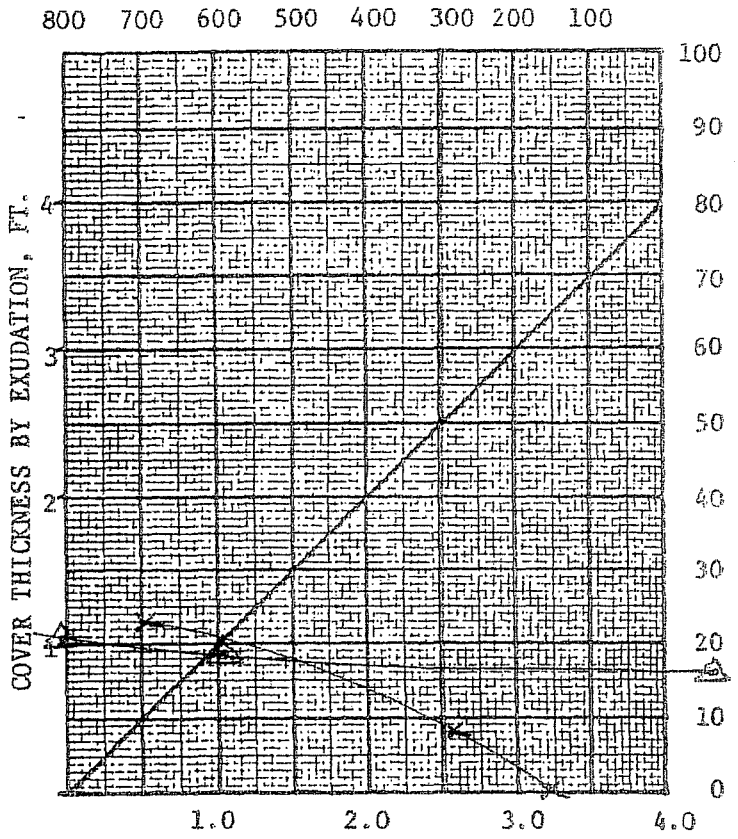
DATE 8-7-07

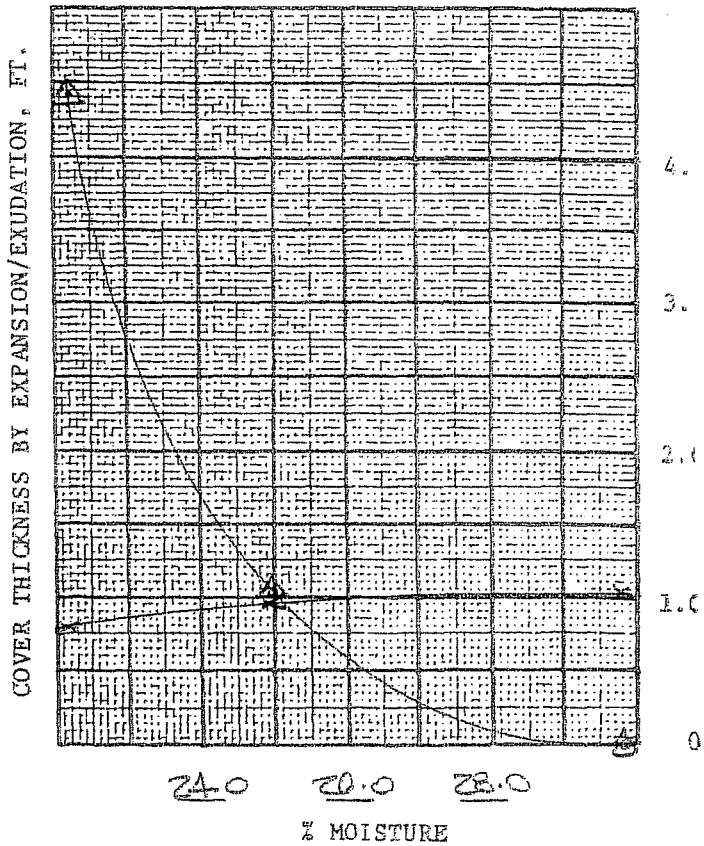
TRAFFIC INDEX Assume 4.0

R-VALUE BY EXUDATION 9

R-VALUE BY EXPANSION 7







R-VALUE vs. EXUD. PRES.

T by EXUDATION

EXUD. T vs. EXPAN. T

T by EXPANSION

REMARKS GF=1.25

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PROFESSIONAL PAVEMENT ENGINEERING

EXPANSION INDEX TEST

ASTM METHOD D 4829

Sample:

Moisture Content of Initial Sample		% Saturation of Re-molded Sample		Moisture Content of Final Sample	
Tare No. -		Wt. of Soil and Ring (g) -	579.2	Wt. of Soil and Ring (g) -	634.9
Wet Weight and Tare (g) -	131.9	Ring Weight (g) -	207.3	Ring Weight (g) -	207.3
Dry Weight and Tare (g) -	119.5	Wet Weight of Soil (g) -	371.9	Wet Weight of Soil (g) -	427.6
Tare Weight (g) -	0.0	Dry Weight of Soil (g) -	336.8	Dry Weight of Soil (g) -	336.8
Water Loss (g) -	12.4	Volume of Ring (ft^3) -	0.0073	Weight of Water (g) -	90.8
Dry Weight (g) -	119.5	Dry Density (pcf) -	101.7	*Final Moisture (%)*	*26.9*
Initial Moisture (%) -	*10.4*	*Initital Saturation (%) -*	*42.8*	*Final Saturation (%) -*	*110.9*

	Expansion Test - UBC (144 PSF)			
	Date	Time	Reading	
Add Weight	8/10/2007	14:58	0.648	
10 Minutes		15:08	0.648	Initial Reading
Add Water		16:40	0.750	
	8/14/2007	9:20	0.757	
		12:01	0.757	Final Reading

EImeasured	=	109
EI_{50}	=	**102**

Expansion Index, EI_{50}	Potential Expansion
0-20	Very Low
21-50	Low
51-90	Medium
91-130	High
>130	Very High

EEI Geotechnical & Environmental Solutions

2195 Faraday Avenue, Suite K, Carlsbad, CA 92008

Client: Nasland Engineering

Project Name: Oceanside, CA

Job Number: GAT-70622

Date: 8-14-07

Boring Number: TP2

Depth: 11.5-12.5 Feet

Soil Description: Clay, CL

Tested by: AW

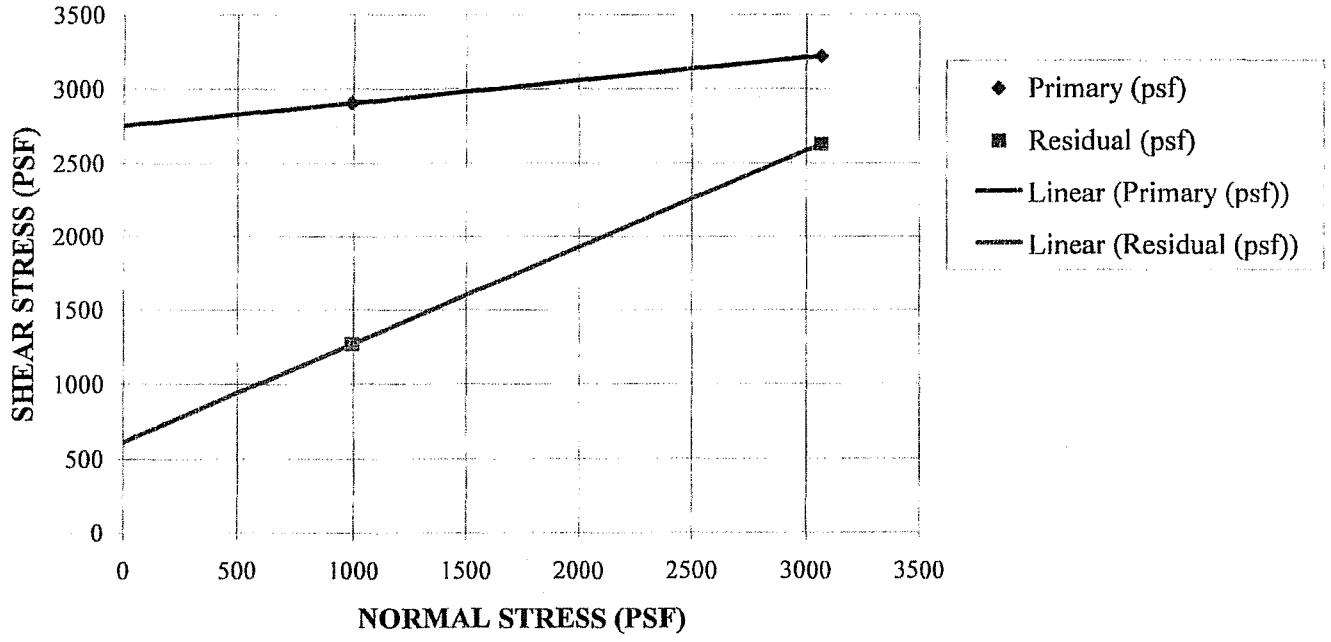
DIRECT SHEAR TEST ASTM D 3080

Job Data	
Job No.:	GAT-70622
Client:	Nasland Engineering
Date:	8/14/07
Sample Data	
Sample:	TP2@11.5-12.5'
Remolded To:	Natural
Remarks:	Sample Innundated Prior to Testing
Soil Description:	Clay, CL

EEI Geotechnical & Environmental Solutions

2195 Faraday Avenue, Suite K, Carlsbad, CA 92008

SHEAR TEST DIAGRAM



Test Results

	Phi		Cohesion	
Primary (psf)	9	degrees	2756	psf
Residual (psf)	33	degrees	613	psf

Average Initial Moisture	11.2%
Average Dry Density	117.4 pcf
Average Final Moisture	15.1%

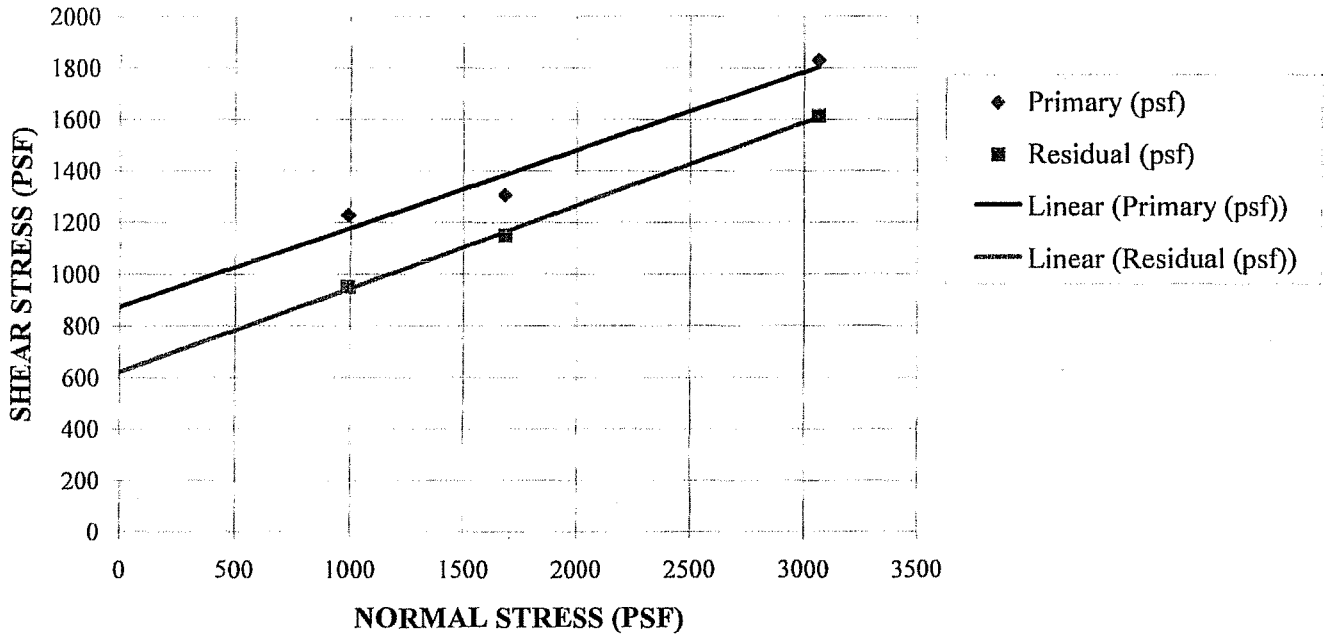
DIRECT SHEAR TEST ASTM D 3080

Job Data	
Job No.:	GAT-70622
Client:	Nasland Engineering
Date:	8/14/07
Sample Data	
Sample:	TP2@11.5-12.5'
Remolded To:	90% of max
Remarks:	Sample Innundated Prior to Testing
Soil Description:	Clay, CL

EEI Geotechnical & Environmental Solutions

2195 Faraday Avenue, Suite K, Carlsbad, CA 92008

SHEAR TEST DIAGRAM



Test Results

	Phi		Cohesion	
Primary (psf)	17	degrees	874	psf
Residual (psf)	18	degrees	621	psf

Average Initial Moisture	16.0%
Average Dry Density	99.4 pcf
Average Final Moisture	28.0%

APPENDIX E

APPENDIX E

RECOMMENDED GRADING SPECIFICATIONS

FOR

MODERA MELROSE
OCEANSIDE, CALIFORNIA

PROJECT NO. 07647-32-04

RECOMMENDED GRADING SPECIFICATIONS

1. GENERAL

1.1 These Recommended Grading Specifications shall be used in conjunction with the Geotechnical Report for the project prepared by Geocon. The recommendations contained in the text of the Geotechnical Report are a part of the earthwork and grading specifications and shall supersede the provisions contained hereinafter in the case of conflict.

1.2 Prior to the commencement of grading, a geotechnical consultant (Consultant) shall be employed for the purpose of observing earthwork procedures and testing the fills for substantial conformance with the recommendations of the Geotechnical Report and these specifications. The Consultant should provide adequate testing and observation services so that they may assess whether, in their opinion, the work was performed in substantial conformance with these specifications. It shall be the responsibility of the Contractor to assist the Consultant and keep them apprised of work schedules and changes so that personnel may be scheduled accordingly.

1.3 It shall be the sole responsibility of the Contractor to provide adequate equipment and methods to accomplish the work in accordance with applicable grading codes or agency ordinances, these specifications and the approved grading plans. If, in the opinion of the Consultant, unsatisfactory conditions such as questionable soil materials, poor moisture condition, inadequate compaction, and/or adverse weather result in a quality of work not in conformance with these specifications, the Consultant will be empowered to reject the work and recommend to the Owner that grading be stopped until the unacceptable conditions are corrected.

2. DEFINITIONS

2.1 **Owner** shall refer to the owner of the property or the entity on whose behalf the grading work is being performed and who has contracted with the Contractor to have grading performed.

2.2 **Contractor** shall refer to the Contractor performing the site grading work.

2.3 **Civil Engineer** or **Engineer of Work** shall refer to the California licensed Civil Engineer or consulting firm responsible for preparation of the grading plans, surveying and verifying as-graded topography.

2.4 **Consultant** shall refer to the soil engineering and engineering geology consulting firm retained to provide geotechnical services for the project.

2.5 **Soil Engineer** shall refer to a California licensed Civil Engineer retained by the Owner, who is experienced in the practice of geotechnical engineering. The Soil Engineer shall be responsible for having qualified representatives on-site to observe and test the Contractor's work for conformance with these specifications.

2.6 **Engineering Geologist** shall refer to a California licensed Engineering Geologist retained by the Owner to provide geologic observations and recommendations during the site grading.

2.7 **Geotechnical Report** shall refer to a soil report (including all addenda) which may include a geologic reconnaissance or geologic investigation that was prepared specifically for the development of the project for which these Recommended Grading Specifications are intended to apply.

3. MATERIALS

3.1 Materials for compacted fill shall consist of any soil excavated from the cut areas or imported to the site that, in the opinion of the Consultant, is suitable for use in construction of fills. In general, fill materials can be classified as *soil* fills, *soil-rock* fills or *rock* fills, as defined below.

3.1.1 **Soil fills** are defined as fills containing no rocks or hard lumps greater than 12 inches in maximum dimension and containing at least 40 percent by weight of material smaller than ¾ inch in size.

3.1.2 **Soil-rock fills** are defined as fills containing no rocks or hard lumps larger than 4 feet in maximum dimension and containing a sufficient matrix of soil fill to allow for proper compaction of soil fill around the rock fragments or hard lumps as specified in Paragraph 6.2. **Oversize rock** is defined as material greater than 12 inches.

3.1.3 **Rock fills** are defined as fills containing no rocks or hard lumps larger than 3 feet in maximum dimension and containing little or no fines. Fines are defined as material smaller than ¾ inch in maximum dimension. The quantity of fines shall be less than approximately 20 percent of the rock fill quantity.

3.2 Material of a perishable, spongy, or otherwise unsuitable nature as determined by the Consultant shall not be used in fills.

3.3 Materials used for fill, either imported or on-site, shall not contain hazardous materials as defined by the California Code of Regulations, Title 22, Division 4, Chapter 30, Articles 9

and 10; 40CFR; and any other applicable local, state or federal laws. The Consultant shall not be responsible for the identification or analysis of the potential presence of hazardous materials. However, if observations, odors or soil discoloration cause Consultant to suspect the presence of hazardous materials, the Consultant may request from the Owner the termination of grading operations within the affected area. Prior to resuming grading operations, the Owner shall provide a written report to the Consultant indicating that the suspected materials are not hazardous as defined by applicable laws and regulations.

3.4 The outer 15 feet of *soil-rock* fill slopes, measured horizontally, should be composed of properly compacted *soil* fill materials approved by the Consultant. *Rock* fill may extend to the slope face, provided that the slope is not steeper than 2:1 (horizontal:vertical) and a soil layer no thicker than 12 inches is track-walked onto the face for landscaping purposes. This procedure may be utilized provided it is acceptable to the governing agency, Owner and Consultant.

3.5 Samples of soil materials to be used for fill should be tested in the laboratory by the Consultant to determine the maximum density, optimum moisture content, and, where appropriate, shear strength, expansion, and gradation characteristics of the soil.

3.6 During grading, soil or groundwater conditions other than those identified in the Geotechnical Report may be encountered by the Contractor. The Consultant shall be notified immediately to evaluate the significance of the unanticipated condition.

4. CLEARING AND PREPARING AREAS TO BE FILLED

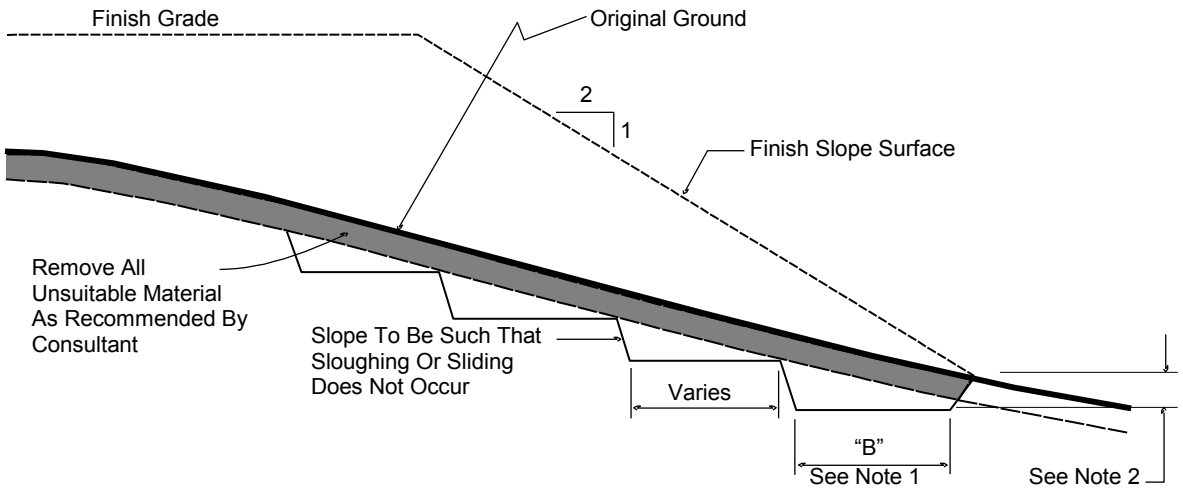
4.1 Areas to be excavated and filled shall be cleared and grubbed. Clearing shall consist of complete removal above the ground surface of trees, stumps, brush, vegetation, man-made structures, and similar debris. Grubbing shall consist of removal of stumps, roots, buried logs and other unsuitable material and shall be performed in areas to be graded. Roots and other projections exceeding 1½ inches in diameter shall be removed to a depth of 3 feet below the surface of the ground. Borrow areas shall be grubbed to the extent necessary to provide suitable fill materials.

4.2 Asphalt pavement material removed during clearing operations should be properly disposed at an approved off-site facility or in an acceptable area of the project evaluated by Geocon and the property owner. Concrete fragments that are free of reinforcing steel may be placed in fills, provided they are placed in accordance with Section 6.2 or 6.3 of this document.

4.3 After clearing and grubbing of organic matter and other unsuitable material, loose or porous soils shall be removed to the depth recommended in the Geotechnical Report. The depth of removal and compaction should be observed and approved by a representative of the Consultant. The exposed surface shall then be plowed or scarified to a minimum depth of 6 inches and until the surface is free from uneven features that would tend to prevent uniform compaction by the equipment to be used.

4.4 Where the slope ratio of the original ground is steeper than 5:1 (horizontal:vertical), or where recommended by the Consultant, the original ground should be benched in accordance with the following illustration.

TYPICAL BENCHING DETAIL



No Scale

DETAIL NOTES: (1) Key width "B" should be a minimum of 10 feet, or sufficiently wide to permit complete coverage with the compaction equipment used. The base of the key should be graded horizontal, or inclined slightly into the natural slope.

(2) The outside of the key should be below the topsoil or unsuitable surficial material and at least 2 feet into dense formational material. Where hard rock is exposed in the bottom of the key, the depth and configuration of the key may be modified as approved by the Consultant.

4.5 After areas to receive fill have been cleared and scarified, the surface should be moisture conditioned to achieve the proper moisture content, and compacted as recommended in Section 6 of these specifications.

5. COMPACTION EQUIPMENT

5.1 Compaction of *soil* or *soil-rock* fill shall be accomplished by sheepsfoot or segmented-steel wheeled rollers, vibratory rollers, multiple-wheel pneumatic-tired rollers, or other types of acceptable compaction equipment. Equipment shall be of such a design that it will be capable of compacting the *soil* or *soil-rock* fill to the specified relative compaction at the specified moisture content.

5.2 Compaction of *rock* fills shall be performed in accordance with Section 6.3.

6. PLACING, SPREADING AND COMPACTION OF FILL MATERIAL

6.1 *Soil* fill, as defined in Paragraph 3.1.1, shall be placed by the Contractor in accordance with the following recommendations:

6.1.1 *Soil* fill shall be placed by the Contractor in layers that, when compacted, should generally not exceed 8 inches. Each layer shall be spread evenly and shall be thoroughly mixed during spreading to obtain uniformity of material and moisture in each layer. The entire fill shall be constructed as a unit in nearly level lifts. Rock materials greater than 12 inches in maximum dimension shall be placed in accordance with Section 6.2 or 6.3 of these specifications.

6.1.2 In general, the *soil* fill shall be compacted at a moisture content at or above the optimum moisture content as determined by ASTM D 1557.

6.1.3 When the moisture content of *soil* fill is below that specified by the Consultant, water shall be added by the Contractor until the moisture content is in the range specified.

6.1.4 When the moisture content of the *soil* fill is above the range specified by the Consultant or too wet to achieve proper compaction, the *soil* fill shall be aerated by the Contractor by blading/mixing, or other satisfactory methods until the moisture content is within the range specified.

6.1.5 After each layer has been placed, mixed, and spread evenly, it shall be thoroughly compacted by the Contractor to a relative compaction of at least 90 percent. Relative compaction is defined as the ratio (expressed in percent) of the in-place dry density of the compacted fill to the maximum laboratory dry density as determined in accordance with ASTM D 1557. Compaction shall be continuous over the entire area, and compaction equipment shall make sufficient passes so that the specified minimum relative compaction has been achieved throughout the entire fill.

6.1.6 Where practical, soils having an Expansion Index greater than 50 should be placed at least 3 feet below finish pad grade and should be compacted at a moisture content generally 2 to 4 percent greater than the optimum moisture content for the material.

6.1.7 Properly compacted *soil* fill shall extend to the design surface of fill slopes. To achieve proper compaction, it is recommended that fill slopes be over-built by at least 3 feet and then cut to the design grade. This procedure is considered preferable to track-walking of slopes, as described in the following paragraph.

6.1.8 As an alternative to over-building of slopes, slope faces may be back-rolled with a heavy-duty loaded sheepsfoot or vibratory roller at maximum 4-foot fill height intervals. Upon completion, slopes should then be track-walked with a D-8 dozer or similar equipment, such that a dozer track covers all slope surfaces at least twice.

6.2 *Soil-rock* fill, as defined in Paragraph 3.1.2, shall be placed by the Contractor in accordance with the following recommendations:

6.2.1 Rocks larger than 12 inches but less than 4 feet in maximum dimension may be incorporated into the compacted *soil* fill, but shall be limited to the area measured 15 feet minimum horizontally from the slope face and 5 feet below finish grade or 3 feet below the deepest utility, whichever is deeper.

6.2.2 Rocks or rock fragments up to 4 feet in maximum dimension may either be individually placed or placed in windrows. Under certain conditions, rocks or rock fragments up to 10 feet in maximum dimension may be placed using similar methods. The acceptability of placing rock materials greater than 4 feet in maximum dimension shall be evaluated during grading as specific cases arise and shall be approved by the Consultant prior to placement.

6.2.3 For individual placement, sufficient space shall be provided between rocks to allow for passage of compaction equipment.

6.2.4 For windrow placement, the rocks should be placed in trenches excavated in properly compacted *soil* fill. Trenches should be approximately 5 feet wide and 4 feet deep in maximum dimension. The voids around and beneath rocks should be filled with approved granular soil having a Sand Equivalent of 30 or greater and should be compacted by flooding. Windrows may also be placed utilizing an "open-face" method in lieu of the trench procedure, however, this method should first be approved by the Consultant.

6.2.5 Windrows should generally be parallel to each other and may be placed either parallel to or perpendicular to the face of the slope depending on the site geometry. The minimum horizontal spacing for windrows shall be 12 feet center-to-center with a 5-foot stagger or offset from lower courses to next overlying course. The minimum vertical spacing between windrow courses shall be 2 feet from the top of a lower windrow to the bottom of the next higher windrow.

6.2.6 Rock placement, fill placement and flooding of approved granular soil in the windrows should be continuously observed by the Consultant.

6.3 *Rock* fills, as defined in Section 3.1.3, shall be placed by the Contractor in accordance with the following recommendations:

6.3.1 The base of the *rock* fill shall be placed on a sloping surface (minimum slope of 2 percent). The surface shall slope toward suitable subdrainage outlet facilities. The *rock* fills shall be provided with subdrains during construction so that a hydrostatic pressure buildup does not develop. The subdrains shall be permanently connected to controlled drainage facilities to control post-construction infiltration of water.

6.3.2 *Rock* fills shall be placed in lifts not exceeding 3 feet. Placement shall be by rock trucks traversing previously placed lifts and dumping at the edge of the currently placed lift. Spreading of the *rock* fill shall be by dozer to facilitate *seating* of the rock. The *rock* fill shall be watered heavily during placement. Watering shall consist of water trucks traversing in front of the current rock lift face and spraying water continuously during rock placement. Compaction equipment with compactive energy comparable to or greater than that of a 20-ton steel vibratory roller or other compaction equipment providing suitable energy to achieve the required compaction or deflection as recommended in Paragraph 6.3.3 shall be utilized. The number of passes to be made should be determined as described in Paragraph 6.3.3. Once a *rock* fill lift has been covered with *soil* fill, no additional *rock* fill lifts will be permitted over the *soil* fill.

6.3.3 Plate bearing tests, in accordance with ASTM D 1196, may be performed in both the compacted *soil* fill and in the *rock* fill to aid in determining the required minimum number of passes of the compaction equipment. If performed, a minimum of three plate bearing tests should be performed in the properly compacted *soil* fill (minimum relative compaction of 90 percent). Plate bearing tests shall then be performed on areas of *rock* fill having two passes, four passes and six passes of the compaction equipment, respectively. The number of passes required for the *rock* fill shall be determined by comparing the results of the plate bearing tests for the *soil* fill and the *rock* fill and by evaluating the deflection

variation with number of passes. The required number of passes of the compaction equipment will be performed as necessary until the plate bearing deflections are equal to or less than that determined for the properly compacted *soil* fill. In no case will the required number of passes be less than two.

6.3.4 A representative of the Consultant should be present during *rock* fill operations to observe that the minimum number of "passes" have been obtained, that water is being properly applied and that specified procedures are being followed. The actual number of plate bearing tests will be determined by the Consultant during grading.

6.3.5 Test pits shall be excavated by the Contractor so that the Consultant can state that, in their opinion, sufficient water is present and that voids between large rocks are properly filled with smaller rock material. In-place density testing will not be required in the *rock* fills.

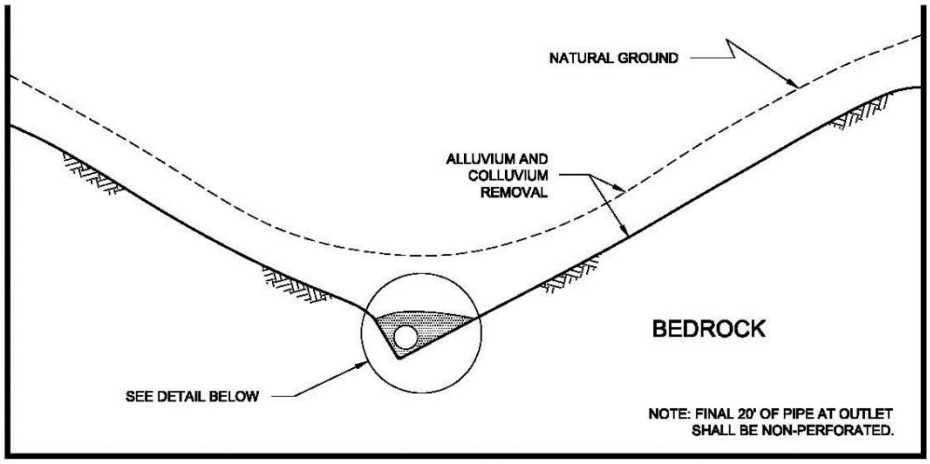
6.3.6 To reduce the potential for "piping" of fines into the *rock* fill from overlying *soil* fill material, a 2-foot layer of graded filter material shall be placed above the uppermost lift of *rock* fill. The need to place graded filter material below the *rock* should be determined by the Consultant prior to commencing grading. The gradation of the graded filter material will be determined at the time the *rock* fill is being excavated. Materials typical of the *rock* fill should be submitted to the Consultant in a timely manner, to allow design of the graded filter prior to the commencement of *rock* fill placement.

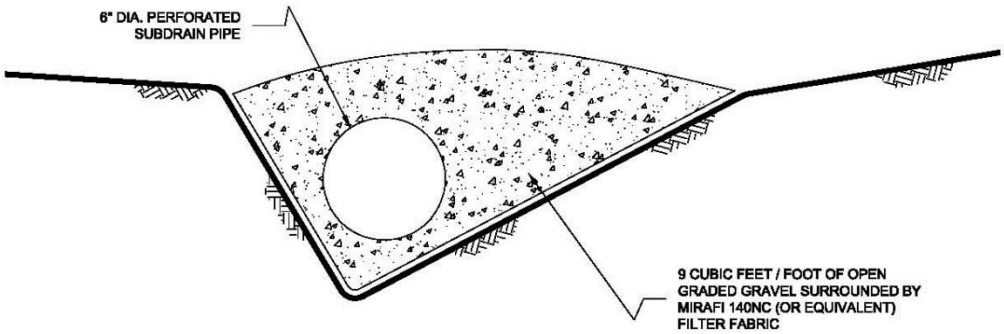
6.3.7 *Rock* fill placement should be continuously observed during placement by the Consultant.

7. SUBDRAINS

7.1 The geologic units on the site may have permeability characteristics and/or fracture systems that could be susceptible under certain conditions to seepage. The use of canyon subdrains may be necessary to mitigate the potential for adverse impacts associated with seepage conditions. Canyon subdrains with lengths in excess of 500 feet or extensions of existing offsite subdrains should use 8-inch-diameter pipes. Canyon subdrains less than 500 feet in length should use 6-inch-diameter pipes.

TYPICAL CANYON DRAIN DETAIL





NOTES:

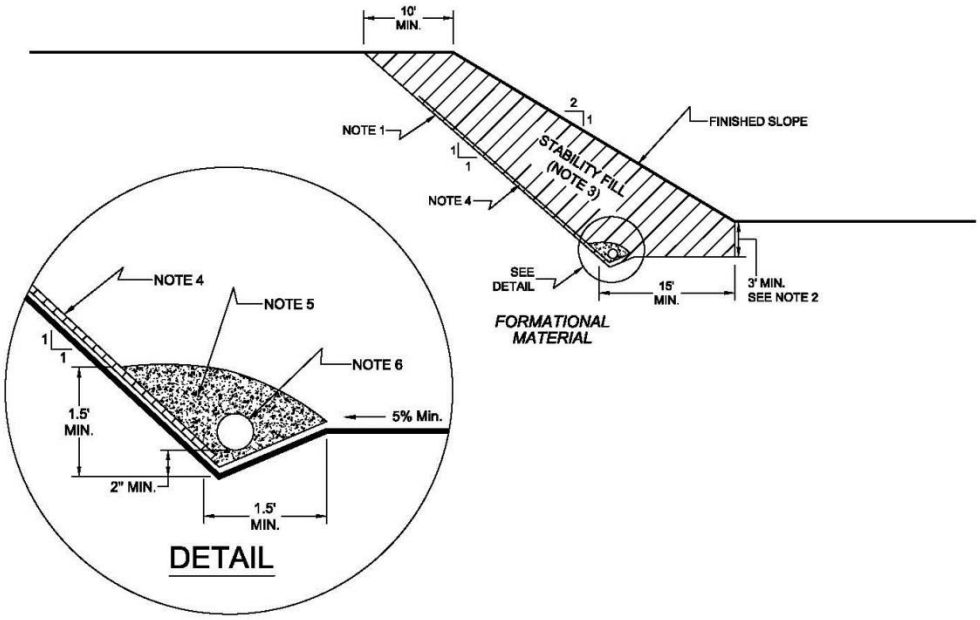
1.....6-INCH DIAMETER, SCHEDULE 80 PVC PERFORATED PIPE FOR FILLS
IN EXCESS OF 100-FEET IN DEPTH OR A PIPE LENGTH OF LONGER THAN 500 FEET.

2.....6-INCH DIAMETER, SCHEDULE 40 PVC PERFORATED PIPE FOR FILLS
LESS THAN 100-FEET IN DEPTH OR A PIPE LENGTH SHORTER THAN 500 FEET.

NO SCALE

7.2 Slope drains within stability fill keyways should use 4-inch-diameter (or lager) pipes.

TYPICAL STABILITY FILL DETAIL



NOTES:

1.....EXCAVATE BACKCUT AT 1:1 INCLINATION (UNLESS OTHERWISE NOTED).

2.....BASE OF STABILITY FILL TO BE 3 FEET INTO FORMATIONAL MATERIAL, SLOPING A MINIMUM 5% INTO SLOPE.

3.....STABILITY FILL TO BE COMPOSED OF PROPERLY COMPACTED GRANULAR SOIL.

4.....CHIMNEY DRAINS TO BE APPROVED PREFABRICATED CHIMNEY DRAIN PANELS (MIRADRAIN G200N OR EQUIVALENT) SPACED APPROXIMATELY 20 FEET CENTER TO CENTER AND 4 FEET WIDE. CLOSER SPACING MAY BE REQUIRED IF SEEPAGE IS ENCOUNTERED.

5.....FILTER MATERIAL TO BE 3/4-INCH, OPEN-GRADED CRUSHED ROCK ENCLOSED IN APPROVED FILTER FABRIC (MIRAFI 140NC).

6.....COLLECTOR PIPE TO BE 4-INCH MINIMUM DIAMETER, PERFORATED, THICK-WALLED PVC SCHEDULE 40 OR EQUIVALENT, AND SLOPED TO DRAIN AT 1 PERCENT MINIMUM TO APPROVED OUTLET.

NO SCALE

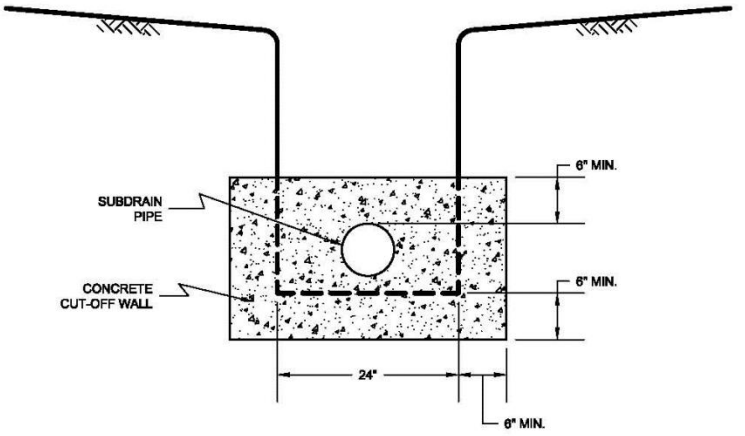
7.3 The actual subdrain locations will be evaluated in the field during the remedial grading operations. Additional drains may be necessary depending on the conditions observed and the requirements of the local regulatory agencies. Appropriate subdrain outlets should be evaluated prior to finalizing 40-scale grading plans.

7.4 *Rock* fill or *soil-rock* fill areas may require subdrains along their down-slope perimeters to mitigate the potential for buildup of water from construction or landscape irrigation. The subdrains should be at least 6-inch-diameter pipes encapsulated in gravel and filter fabric. *Rock* fill drains should be constructed using the same requirements as canyon subdrains.

7.5 Prior to outletting, the final 20-foot segment of a subdrain that will not be extended during future development should consist of non-perforated drainpipe. At the non-perforated/ perforated interface, a seepage cutoff wall should be constructed on the downslope side of the pipe.

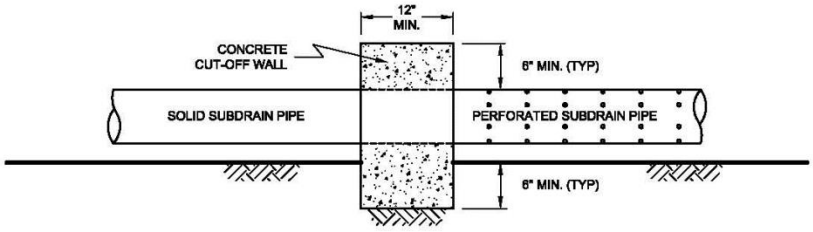
TYPICAL CUT OFF WALL DETAIL

FRONT VIEW



NO SCALE

SIDE VIEW

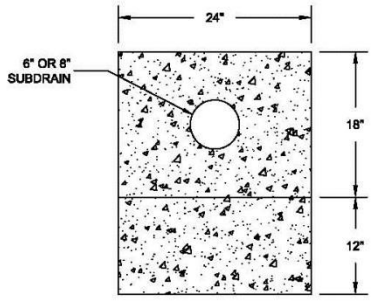


NO SCALE

7.6 Subdrains that discharge into a natural drainage course or open space area should be provided with a permanent headwall structure.

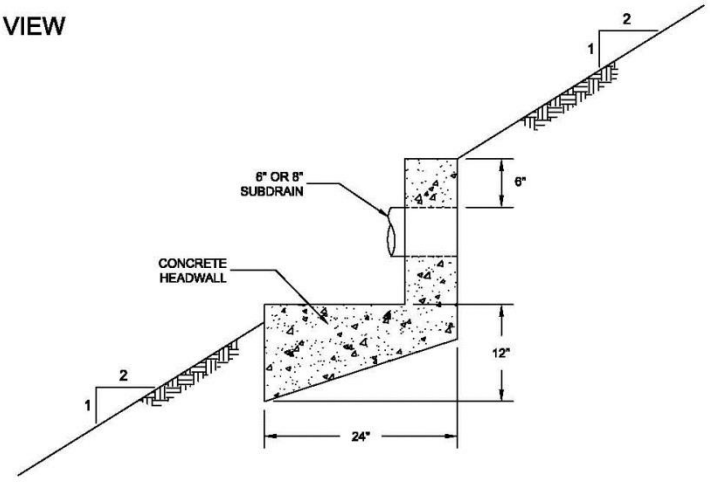
TYPICAL HEADWALL DETAIL

FRONT VIEW



NO SCALE

SIDE VIEW



NOTE: HEADWALL SHOULD OUTLET AT TOE OF FILL SLOPE OR INTO CONTROLLED SURFACE DRAINAGE

NO SCALE

7.7 The final grading plans should show the location of the proposed subdrains. After completion of remedial excavations and subdrain installation, the project civil engineer should survey the drain locations and prepare an "as-built" map showing the drain locations. The final outlet and connection locations should be determined during grading operations. Subdrains that will be extended on adjacent projects after grading can be placed on formational material and a vertical riser should be placed at the end of the subdrain. The grading contractor should consider videoing the subdrains shortly after burial to check proper installation and functionality. The contractor is responsible for the performance of the drains.

8. OBSERVATION AND TESTING

8.1 The Consultant shall be the Owner's representative to observe and perform tests during clearing, grubbing, filling, and compaction operations. In general, no more than 2 feet in vertical elevation of *soil* or *soil-rock* fill should be placed without at least one field density test being performed within that interval. In addition, a minimum of one field density test should be performed for every 2,000 cubic yards of *soil* or *soil-rock* fill placed and compacted.

8.2 The Consultant should perform a sufficient distribution of field density tests of the compacted *soil* or *soil-rock* fill to provide a basis for expressing an opinion whether the fill material is compacted as specified. Density tests shall be performed in the compacted materials below any disturbed surface. When these tests indicate that the density of any layer of fill or portion thereof is below that specified, the particular layer or areas represented by the test shall be reworked until the specified density has been achieved.

8.3 During placement of *rock* fill, the Consultant should observe that the minimum number of passes have been obtained per the criteria discussed in Section 6.3.3. The Consultant should request the excavation of observation pits and may perform plate bearing tests on the placed *rock* fills. The observation pits will be excavated to provide a basis for expressing an opinion as to whether the *rock* fill is properly seated and sufficient moisture has been applied to the material. When observations indicate that a layer of *rock* fill or any portion thereof is below that specified, the affected layer or area shall be reworked until the *rock* fill has been adequately seated and sufficient moisture applied.

8.4 A settlement monitoring program designed by the Consultant may be conducted in areas of *rock* fill placement. The specific design of the monitoring program shall be as recommended in the Conclusions and Recommendations section of the project Geotechnical Report or in the final report of testing and observation services performed during grading.

8.5 We should observe the placement of subdrains, to check that the drainage devices have been placed and constructed in substantial conformance with project specifications.

8.6 Testing procedures shall conform to the following Standards as appropriate:

8.6.1 Soil and Soil-Rock Fills:

8.6.1.1 Field Density Test, ASTM D 1556, *Density of Soil In-Place By the Sand-Cone Method.*

8.6.1.2 Field Density Test, Nuclear Method, ASTM D 6938, *Density of Soil and Soil-Aggregate In-Place by Nuclear Methods (Shallow Depth).*

8.6.1.3 Laboratory Compaction Test, ASTM D 1557, *Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-Pound Hammer and 18-Inch Drop*.

8.6.1.4. Expansion Index Test, ASTM D 4829, *Expansion Index Test*.

9. PROTECTION OF WORK

9.1 During construction, the Contractor shall properly grade all excavated surfaces to provide positive drainage and prevent ponding of water. Drainage of surface water shall be controlled to avoid damage to adjoining properties or to finished work on the site. The Contractor shall take remedial measures to prevent erosion of freshly graded areas until such time as permanent drainage and erosion control features have been installed. Areas subjected to erosion or sedimentation shall be properly prepared in accordance with the Specifications prior to placing additional fill or structures.

9.2 After completion of grading as observed and tested by the Consultant, no further excavation or filling shall be conducted except in conjunction with the services of the Consultant.

10. CERTIFICATIONS AND FINAL REPORTS

10.1 Upon completion of the work, Contractor shall furnish Owner a certification by the Civil Engineer stating that the lots and/or building pads are graded to within 0.1 foot vertically of elevations shown on the grading plan and that all tops and toes of slopes are within 0.5 foot horizontally of the positions shown on the grading plans. After installation of a section of subdrain, the project Civil Engineer should survey its location and prepare an *as-built* plan of the subdrain location. The project Civil Engineer should verify the proper outlet for the subdrains and the Contractor should ensure that the drain system is free of obstructions.

10.2 The Owner is responsible for furnishing a final as-graded soil and geologic report satisfactory to the appropriate governing or accepting agencies. The as-graded report should be prepared and signed by a California licensed Civil Engineer experienced in geotechnical engineering and by a California Certified Engineering Geologist, indicating that the geotechnical aspects of the grading were performed in substantial conformance with the Specifications or approved changes to the Specifications.

LIST OF REFERENCES

1. *California Highway Design Manual, State of Californian Department of Transportation,* Fifth Edition, July 1, 1995.

2. California Geological Survey, *Seismic Shaking Hazards in California,* Based on the USGS/CGS Probabilistic Seismic Hazards Assessment (PSHA) Model, 2002 (revised April 2003). 10% probability of being exceeded in 50 years. http://redirect.conservation.ca.gov/cgs/rghm/pshamap/pshamain.html

3. *Fault Activity Map of California and Adjacent Areas*, California Division of Mines and Geology, Map No. 6 (1994)

4. *Geotechnical Investigation, Melrose & Bobier Property, Oceanside, California,* prepared by Geocon Incorporated dated February 9, 2006 (Project No. 07647-32-01).

5. *Geotechnical Update for 2007 California Building Code, Melrose Station Market Commercial Development, Southeast Corner of Melrose Drive and Oceanside Boulevard, Oceanside, San Diego County, California*, prepared by EEI, dated July 29, 2008 (Project No. GAT-70622).

6. Kennedy, M. P. and S. S. Tan, 2005, *Geologic Map of the Oceanside 30'x60' Quadrangle, California*, USGS Regional Map Series Map No. 2, Scale 1:100,000.

7. *Preliminary Geotechnical Evaluation, Melrose Station Market, Southeast Corner of Melrose Drive and Oceanside Boulevard, Oceanside and Future Residential Parcel, 552 West Bobier Avenue, Vista, San Diego County, California*, prepared by EEI, dated September 18, 2007 (Project No. GAT-70622).

8. Structural Engineers Association (SEAOC) and OSHPD, Seismic Design Maps, http://seismicmaps.org

9. *Supplemental Rippability Study, Melrose Gateway Shopping Center, Oceanside, California,* prepared by Geocon Incorporated, dated October 23, 2006 (Project No. 07647-42-02).

10. *Transmittal of Supplemental Rippability Information, Melrose Gateway Shopping Center (Multi-Family Portion), Vista, California,* prepared by Geocon Incorporated, dated February 6, 2007 (Project No. 07647-42-02)

11. Unpublished reports and maps on file with Geocon Incorporated.

12. *Updated Geotechnical Considerations, Melrose Station Market Commercial Development, Southeast Corner of Melrose Drive and Oceanside Boulevard, Oceanside, San Diego County, California*, prepared by EEI, dated October 31, 2008 (Project No. GAT-70622).

13. USGS computer program, *Seismic Hazard Curves and Uniform Hazard Response Spectra (version 5.1.0,), February 10, 2011.*

ATTACHMENT 7
Storm Water Quality Assessment Form

This is the cover sheet for Attachment 7.

City of Oceanside – Engineering Division – Clean Water Program

STORM WATER QUALITY ASSESSMENT FOR PLANNING, ENGINEERING, AND BUILDING PERMIT APPLICATIONS

All applications for Planning, Engineering, or Building Division permits are required to complete this assessment form and include it as part of the initial permit application submittal. Staff will review the permit application content to determine the applicability of State and City storm water requirements. Please note a storm water assessment cannot be provided without a complete permit application package.

Section 1 – Project Information	
Applicant Name: Bryan Nord	Phone Number: 619.452.2203
Project Name: Modera Melrose	Project Site Address: SEC Melrose Drive and Oceanside Blvd
Permit Applications Number(s): D21-00011	Assessor Parcel Number(s): 161-030-23 & 161-030-24
Project Description: New Development - Mixed-Use	Project Disturbed Area (square feet): 319,919
Existing Impervious Area (square feet): 0	Created or Replaced Impervious Area (square feet): 240,257

Section 2 – Identify Applicable Priority Development Project Categories (Check All Boxes that Apply)	
☑	**New Development Project** – A project that creates 10,000 square feet or more of impervious surfaces (collectively over the entire project site). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.
☐	**Redevelopment Project** – A project that creates and/or replaces 5,000 square feet or more of impervious surface (collectively over the entire project site on an existing site of 10,000 square feet or more of impervious surfaces). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.
☐	**Restaurants** – Category is defined as a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC code 5812); where new or redevelopment projects create and/or replace 5,000 square feet or more impervious surface (collectively over the entire project site).
☑	**Hillside Development** – Category includes development on any natural slope that is twenty-five percent or greater; where new or redevelopment projects create and/or replace 5,000 square feet or more impervious surface (collectively over the entire project site).
☐	**Parking Lots** – Category is defined as a land area or facility for the temporary parking or storage of motor vehicles used personally, for business, or for commerce; where new or redevelopment projects create and/or replace 5,000 square feet or more impervious surface (collectively over the entire project site).
☐	**Streets, Roads, Highways, Freeways, and Driveways** – Category is defined as any paved impervious surface used for the transportation of automobiles, trucks, motorcycles, and other vehicles; where new or redevelopment projects that create and/or replace 5,000 square feet or more impervious surface (collectively over the entire project site).
☐	**Water Quality Environmentally Sensitive Area** – New or redevelopment projects that create and/or replace 2,500 square feet or more of impervious surface (collectively over the entire project site), and discharge directly to a Water Quality Environmentally Sensitive Area (WQESA). "Discharge directly to" includes flow that is conveyed overland a distance of 200 feet or less from the project to the WQESA, or conveyed in a pipe or open channel any distance as an isolated flow from the project to the ESA (i.e. not commingled with flows from adjacent lands).
☐	**Automotive Repair Shop** – Category is defined as a facility that is categorized in any one of the following Standard Industrial Classification (SIC) codes: 5013, 5014, 5541, 7532-7534, or 7536-7539, where new or redevelopment projects create and/or replace 5,000 square feet or more impervious surface (collectively over the entire project site).
☐	**Retail Gasoline Outlet (RGOs)** – Category includes RGOs that meet the following criteria (a) 5,000 square feet or more or (b) a projected Average Daily Traffic (ADT) of 100 or more vehicles per day; where new or redevelopment projects create and/or replace 5,000 square feet or more impervious surface (collectively over the entire project site).
☑	**Development Projects greater than one acre** – New or redevelopment projects that result in the disturbance of one or more acres of land and are expected to generate pollutants post construction.

STORM WATER QUALITY ASSESSMENT FOR PLANNING, ENGINEERING, AND BUILDING PERMIT APPLICATIONS

Section 3 – Identify Projects Not Subject to Permanent Stormwater Requirements (Check All Boxes that Apply)	
☐	The project consists of work entirely within an existing structure.
☐	The project consists of construction of overhead or underground utilities (no new impervious surfaces).
☐	The project consists of routine maintenance.
☐	The project consists of less than 50 yards of grading and presents no opportunities to improve water quality.
Section 4 – Project Category Determination	
☑	**Priority Development Project**: If any item in Section 2 is applicable, the project is a Priority Development Project. **Please prepare a PDP SWQMP for the project.**
☐	**Standard Development Project**: If none of the items in Section 2 or 3 are applicable, the project is a Standard Development Project. **Please prepare an SDP SWQMP.**
☐	**Project Not Subject to Permanent Stormwater Requirements:** If any item in Section 3 is applicable, the project is not subject to Permanent Stormwater Requirements. **Please submit the project plans with this form.** **Note:** Projects in this category are subject to typical pollution prevention measures outlined by the pollution prevention checklist on the following page.

Section 5 – Applicant Certification	
Name of Responsible Party: Bryan Nord	Title: Civil Engineer
Email Address (optional)	Phone Number: 619.452.2203
I understand and acknowledge the City of Oceanside has adopted minimum requirements, as mandated by the San Diego Regional Water Quality Control Board – Order No. R9-2013-0001, as amended by Order Nos. R9-2015-0001 and R9-2015-0100 (NPDES NO. CAS0109266) for mitigating impacts associated with urban runoff, including storm water from construction and land development activities. I certify this assessment has been accurately completed to the best of my knowledge and is consistent with the proposed project. I acknowledge that non-compliance with the City Best Management Practice (BMP) Design Manual, Grading Ordinance, and Erosion Control Ordinance may result in enforcement action by the City, the California State Water Resources Control Board, and/or the San Diego Regional Water Quality Control Board. Enforcement action may include stop work orders, notice of violation, fines, or other actions.	
Applicant Signature: 	Date: 12/20/2021

Stormwater Pollution Prevention Measures for Projects Not Subject to Permanent Stormwater Requirements

Project Activity	Yes	No	Required Pollution Prevention
Trash & Waste Generation *****REQUIRED FOR ALL PROJECTS*****	☐	☐	• Train/inform all employees of pollution prevention requirements • Collect and contain all construction trash, waste, and debris • Promptly contain and clean any spill on site • Routinely inspect site, remove loose trash and prevent spills • Properly dispose of any hazardous materials • Do not wash down surfaces unless water is collected or directed to landscape • Permanent trash collection areas require full structure/enclosure
Digging of Dirt – excavation, trenching, or grading	☐	☐	• Do not allow dirt to migrate into street, sidewalk, or storm drain • Preserve existing vegetation where feasible • Perimeter site controls such as silt fence or straw wattles • Cover exposed dirt using mulch, tarps, or erosion control devices • Install and secure tarps over dirt piles • Routinely sweep site to remove dirt
Landscaping and Irrigation Systems	☐	☐	• Do not store landscape materials in street • Do not allow dirt to migrate into street, sidewalk, or storm drain • Test irrigation system and prevent runoff/overspray • Install and secure tarps over piles of mulch or soil • Routinely sweep site to remove mulch or soil • Do not wash down surfaces unless water is collected or directed to landscape
Concrete, Paint, Mortar, or Stucco Work	☐	☐	• Contain wet mixing areas within confined area • Do not allow material to travel into site soil, street, or storm drain • Properly dispose of waste material
Temporary Storage of Materials Outside	☐	☐	• Elevate material off ground where possible, such as on pallets • Install and secure tarps over materials
Demolition of Structures	☐	☐	• Follow Required Pollution Prevention for “Digging of Dirt”
New Structure – house addition, shed, etc.	☐	☐	• Follow Required Pollution Prevention for “Digging of Dirt” • Direct downspouts to landscape, where feasible • Consider rainwater harvesting • Preserve existing vegetation and drainage patterns, where feasible
Patio, Driveway, or Sidewalk	☐	☐	• Consider use of pervious pavers or pervious concrete (refer to Section 3 of page 4 for routine maintenance information) • Direct runoff to landscape areas, where feasible
Re-Roofing	☐	☐	• Contain removed roof debris in waste containers • Follow Required Pollution Prevention for “Temporary Storage of Materials Outside”
Washing of Material, Equipment, or Surface	☐	☐	• Do not wash down surfaces unless water is collected or directed to landscape
Draining of Water Heater, Pool, or Spa	☐	☐	• Direct drain water to landscape areas where possible • Contact Stormwater Division if considering draining to sanitary system cleanout or storm drain system (760-643-2804)
Storm Drain at Industrial or Commercial Property	☐	☐	• Install “No Dumping” or similar signage at each storm drain inlet

Completion Guidance

Please note – the Applicant is required to complete and submit this form as part of the project application. For definitions and additional information, please refer to the City of Oceanside BMP Design Manual. For assistance, please contact Development Services Staff at (760) 435-4373.

Section 1 – Project Information

1. Applicant Name – provide name of Individual completing form, i.e. Owner or Owner Representative
2. Phone Number – provide phone number of Individual completing form, i.e. Owner or Owner Representative
3. Project Name – provide project name (consistent with project application)
4. Project Site Address – provide a physical address for the proposed project, or nearest cross street
5. Permit Application Number(s) – provide all applicable permit application numbers
6. Assessor Parcel Number(s) – provide Assessor Parcel Number(s); refer to title documents or contact City Staff for assistance
7. Project Description – provide a brief project description (e.g. single-family dwelling, retail business, repair shop, etc)
8. Project Disturbed Area – provide the disturbed area for the entire project, including onsite and offsite work
9. Existing Impervious Area – provide the total existing impervious area within the property and project boundary
10. Created or Replaced Impervious Area – provide the total area of all newly created or replaced impervious surfaces within the project area

Section 2 – Identify Applicable Priority Development Project Categories

1. Review each category and check the appropriate boxes that apply to your project.
2. General identification of Automotive Repair Shop SIC (Standard Industrial Classifications) as follows:
   5013 – Motor vehicle supplies and new parts, 5014 – Tires and tubes, 5541 – Gasoline service stations, 7532 – Top and body repair, and paint shops, 7533 – Auto exhaust system repair shops, 7534 – Tire retreading and repair shops, 7536 – Automotive glass replacement shops, 7537 – Automotive transmission repair shops, 7538 – General automotive repair shops, 7539 – Automotive repair shops-not elsewhere classified
3. Contact Staff for assistance in determining applicability of the Water Quality Environmentally Sensitive Area (WQESA) category

Section 3 – Identify Projects Not Subject to Permanent Stormwater Requirements

1. Please refer to Page 1-6 of the City of Oceanside BMP Design Manual for a complete list of routine maintenance activities.
2. Activities that expose native subgrade in the process of replacing impervious surfaces, are not considered routine maintenance.

Section 4 – Project Category Determination

1. PDP SWQMP – Priority Development Project Stormwater Quality Management Plan
2. SDP SWQMP – Standard Development Project Stormwater Quality Management Plan
3. Contact Staff for assistance in determining the Project Category

Section 5 – Applicant Certification

1. Name of Responsible Party – provide name of Owner
2. Title of Responsible Party – provide responsible party's title, if applicable
3. Phone Number – provide phone number of Owner
4. Email Address (Optional) – provide email address
5. Applicant Signature – provide signature of Individual completing form, i.e. Owner or Owner Representative
6. Date – provide date current date

Appendix J
Noise Field Data

NOISE APPENDIX

Noise Field Data

FORMS DUDEK FIELD DATA REPORT

Field Noise Measurement Data

Record: 1413	
Project Name	*Modera Melrose*
Observer(s)	*Connor Burke*
Date	*2022-04-21*

Instrument and Calibrator Information	
Instrument Name List	*(ENC) Rion NL-52*
Instrument Name	*(ENC) Rion NL-52*
Instrument Name Lookup Key	*(ENC) Rion NL-52*
Manufacturer	*Rion*
Model	*NL-52*
Serial Number	*553896*
Calibrator Name	*(ENC) LD CAL150*
Calibrator Name	*(ENC) LD CAL150*
Calibrator Name Lookup Key	*(ENC) LD CAL150*
Calibrator Manufacturer	*Larson Davis*
Calibrator Model	*LD CAL150*
Calibrator Serial #	*5152*
Pre-Test (dBA SPL)	*94*
Post-Test (dBA SPL)	*94*
Windscreen	*Yes*
Weighting?	*A-WTD*
Slow/Fast?	*Slow*
ANSI?	*Yes*

Monitoring	
Record #	*1*
Site ID	*ST1*
Site Location Lat/Long	*33.221117, -117.255700*
Begin (Time)	*11:30:00*
End (Time)	*11:40:00*
Leq	*68.3*
Lmax	*81.2*
Lmin	*50.2*
Other Lx?	*L90, L50, L10*
L90	*53.2*
L50	*61.3*
L10	*73.10*
Other Lx (Specify Metric)	*L*
Primary Noise Source	*Traffic*
Other Noise Sources (Background)	*Distant Aircraft, Distant Traffic, Rustling Leaves*
Is the same instrument and calibrator being used as previously noted?	*Yes*
Are the meteorological conditions the same as previously noted?	*Yes*

Source Info and Traffic Counts

Number of Lanes	*4*
Lane Width (feet)	*10*
Roadway Width (feet)	*40*
Roadway Width (m)	*12.2*
Distance to Roadway (feet)	*10*
Distance to Roadway (m)	*3*
Distance Measured to Centerline or Edge of Pavement?	*Edge of Pavement*
Estimated Vehicle Speed (MPH)	*40*

Traffic Counts

Vehicle Count Summary	*A 134, MT 4, HT 2, B 0, MC 0*
Select Method for Recording Count Duration	*Enter Manually*
Counting Both Directions?	*Yes*
Count Duration (minutes)	*10*
Vehicle Count Tally	
Select Method for Vehicle Counts	*Enter Manually*
Number of Vehicles - Autos	*134*
Number of Vehicles - Medium Trucks	*4*
Number of Vehicles - Heavy Trucks	*2*
Number of Vehicles - Buses	*0*
Number of Vehicles - Motorcyles	*0*

Description / Photos

Site Photos

Photo



Comments / Description	*Facing north*

FORMS DUDEK FIELD DATA REPORT

Monitoring

Record #	*2*
Site ID	*ST5*
Site Location Lat/Long	*33.220386, -117.255960*
Begin (Time)	*11:45:00*
End (Time)	*11:55:00*
Leq	*52*
Lmax	*58.5*
Lmin	*46.5*
Other Lx?	*L90, L50, L10*
L90	*48.1*
L50	*51.6*
L10	*54.3*
Other Lx (Specify Metric)	*L*
Primary Noise Source	*Distant traffic*
Other Noise Sources (Background)	*Birds, Distant Aircraft, Distant Traffic, Rustling Leaves*
Other Noise Sources Additional Description	
Is the same instrument and calibrator being used as previously noted?	*Yes*
Are the meteorological conditions the same as previously noted?	*Yes*

Description / Photos

Site Photos

Photo	
Comments / Description	*Facing east.*

Monitoring

Record #	*3*
Site ID	*ST4*
Site Location Lat/Long	*33.219656, -117.256087*
Begin (Time)	*12:10:00*
End (Time)	*12:20:00*
Leq	*50.7*
Lmax	*58.6*
Lmin	*44.8*
Other Lx?	*L90, L50, L10*
L90	*46.80*
L50	*49.6*
L10	*52.9*
Other Lx (Specify Metric)	*L*
Primary Noise Source	*Distant Traffic*
Other Noise Sources (Background)	*Birds, Distant Conversations / Yelling, Distant Traffic, Rustling Leaves*
Other Noise Sources Additional Description	*Hammering in the distant. Distant pneumatic tools*
Is the same instrument and calibrator being used as previously noted?	*Yes*
Are the meteorological conditions the same as previously noted?	*Yes*

Description / Photos

Site Photos

Photo



Comments / Description	*Facing southwest.*

Monitoring

Record #	*4*
Site ID	*ST3*
Site Location Lat/Long	*33.220056, -117.258085*
Begin (Time)	*12:20:00*
End (Time)	*12:30:00*
Leq	*65.6*
Lmax	*72.8*
Lmin	*50.5*
Other Lx?	*L90, L50, L10*
L90	*53.5*
L50	*64*
L10	*69.4*
Other Lx (Specify Metric)	*L*
Primary Noise Source	*Traffic*
Other Noise Sources (Background)	*Birds, Distant Traffic, Rustling Leaves*
Other Noise Sources Additional Description	*Car wash horn*
Is the same instrument and calibrator being used as previously noted?	*Yes*
Are the meteorological conditions the same as previously noted?	*Yes*

Source Info and Traffic Counts

Number of Lanes	*4*
Lane Width (feet)	*10*
Roadway Width (feet)	*40*
Roadway Width (m)	*12.2*
Distance to Roadway (feet)	*30*
Distance to Roadway (m)	*9.2*
Distance Measured to Centerline or Edge of Pavement?	*Edge of Pavement*
Estimated Vehicle Speed (MPH)	*0*

Traffic Counts

Vehicle Count Summary	*A 300, MT 8, HT 4, B 0, MC 1*
Select Method for Recording Count Duration	*Enter Manually*
Counting Both Directions?	*Yes*
Count Duration (minutes)	*10*
Vehicle Count Tally	
Select Method for Vehicle Counts	*Enter Manually*
Number of Vehicles - Autos	*300*
Number of Vehicles - Medium Trucks	*8*
Number of Vehicles - Heavy Trucks	*4*
Number of Vehicles - Buses	*0*
Number of Vehicles - Motorcyles	*1*

Description / Photos

Site Photos

Photo	
Comments / Description	*Facing west.*

Monitoring

Record #	*5*
Site ID	*ST2*
Site Location Lat/Long	*33.220897, -117.258825*
Begin (Time)	*12:40:00*
End (Time)	*12:50:00*
Leq	*68.9*
Lmax	*78.5*
Lmin	*56.7*
Other Lx?	*L90, L50, L10*
L90	*59.7*
L50	*66.4*
L10	*72.6*
Other Lx (Specify Metric)	*L*
Primary Noise Source	*Traffic*
Other Noise Sources (Background)	*Rustling Leaves*
Is the same instrument and calibrator being used as previously noted?	*Yes*
Are the meteorological conditions the same as previously noted?	*Yes*

Description / Photos

Site Photos

Photo	
	
Comments / Description	*Facing north*

NOISE APPENDIX

Construction Noise Modeling Data/Results

To User: bordered cells are inputs, unbordered cells have formulae

noise level limit for construction phase, per FTA guidance = 80

allowable hours over which Leq is to be averaged (example: 8 per FTA guidance) = 8

Construction Phase	Equipment	Total Equipment Qty	AUF % (from FHWA RCNM)	Reference Lmax @ 50 ft. from FHWA RCNM	Client Equipment Description, Data Source and/or Notes	Source to NSR Distance (ft.)	Distance-Adjusted Lmax	Allowable Operation Time (hours)	Allowable Operation Time (minutes)	Predicted 8-hour Leq
Demolition	Dozer	2	40	82		20	90.0	1.5	90	82
	Excavator	3	40	81		20	89.0	1.5	90	82
	Concrete Saw	1	20	90		20	98.0	1.5	90	84
							Total for Demolition Phase:			87.5
Site Preparation	Dozer	3	40	82		20	90.0	3	180	86
	Backhoe	2	40	78		20	86.0	3	180	81
	Front End Loader	2	40	79		20	87.0	3	180	82
							Total for Site Preparation Phase:			88.5
Grading	Excavator	2	40	81		20	89.0	1	60	79
	Grader	1	40	85		20	93.0	1	60	80
	Dozer	1	40	82		20	90.0	1	60	77
	Front End Loader	1	40	79		20	87.0	1	60	74
	Backhoe	1	40	78		20	86.0	1	60	73
	Scraper	2	40	84		20	92.0	1	60	82
							Total for Grading Phase:			86.3
Building Construction	Crane	1	16	81		100	75.0	2	120	61
	Man Lift	3	20	75		100	69.0	2	120	61
	Generator	1	50	72		100	66.0	2	120	57
	Backhoe	2	40	78		100	72.0	2	120	65
	Front End Loader	1	40	79		100	73.0	2	120	63
	Welder / Torch	1	40	73		100	67.0	2	120	57
							Total for Building Construction Phase:			**69.3**
Architectural Coating	Compressor (air)	1	40	78		100	72.0	4	240	65
							Total for Architectural Coating Phase:			**65.0**
Paving	Paver	2	50	77		20	85.0	2	120	79
	Roller	1	20	80		20	88.0	2	120	75
	Roller	1	20	80		20	88.0	2	120	75
	All Other Equipment > 5 HP	2	50	85		20	93.0	2	120	87
							Total for Paving Phase:			88.0

To User: bordered cells are inputs, unbordered cells have formulae

noise level limit for construction phase, per FTA guidance = 80

allowable hours over which Leq is to be averaged (example: 8 per FTA guidance) = 8

Construction Phase	Equipment	Total Equipment Qty	AUF % (from FHWA RCNM)	Reference Lmax @ 50 ft. from FHWA RCNM	Client Equipment Description, Data Source and/or Notes	Source to NSR Distance (ft.)	Distance-Adjusted Lmax	Allowable Operation Time (hours)	Allowable Operation Time (minutes)	Predicted 8-hour Leq
Demolition	Dozer	2	40	82		450	62.9	8	480	62
	Excavator	3	40	81		450	61.9	8	480	63
	Concrete Saw	1	20	90		450	70.9	8	480	64
							Total for Demolition Phase:			**67.7**
Site Preparation	Dozer	3	40	82		450	62.9	8	480	64
	Backhoe	2	40	78		450	58.9	8	480	58
	Front End Loader	2	40	79		450	59.9	8	480	59
							Total for Site Preparation Phase:			**65.7**
Grading	Excavator	2	40	81		450	61.9	8	480	61
	Grader	1	40	85		450	65.9	8	480	62
	Dozer	1	40	82		450	62.9	8	480	59
	Front End Loader	1	40	79		450	59.9	8	480	56
	Backhoe	1	40	78		450	58.9	8	480	55
	Scraper	2	40	84		450	64.9	8	480	64
							Total for Grading Phase:			**68.3**
Building Construction	Crane	1	16	81		450	61.9	8	480	54
	Man Lift	3	20	75		450	55.9	8	480	54
	Generator	1	50	72		450	52.9	8	480	50
	Backhoe	2	40	78		450	58.9	8	480	58
	Front End Loader	1	40	79		450	59.9	8	480	56
	Welder / Torch	1	40	73		450	53.9	8	480	50
							Total for Building Construction Phase:			**62.3**
Architectural Coating	Compressor (air)	1	40	78		450	58.9	8	480	55
							Total for Architectural Coating Phase:			**54.9**
Paving	Paver	2	50	77		450	57.9	8	480	58
	Roller	1	20	80		450	60.9	8	480	54
	Roller	1	20	80		450	60.9	8	480	54
	All Other Equipment > 5 HP	2	50	85		450	65.9	8	480	66
							Total for Paving Phase:			**67.0**

NOISE APPENDIX

Operational Noise Modeling Data/Results

Technical Basis of Dudek's "NoisePro" Excel-based Outdoor Sound Propagation Prediction Model

In summary, the Microsoft Excel-based **NoisePro** outdoor sound propagation model developed by Dudek calculates the aggregate sound pressure level (SPL) received by each and every cell within a two-dimensional (2D) array (a product of X columns of cells by Y rows of cells). The quantity of this received SPL, in A-weighted decibels (dBA), is the logarithmic sum of acoustical contribution from each of "n" user-input sound emitting point sources located on the same 2D array, which may be written as follows:

$$SPL_{X,Y} = 10 * \log \sum_{i=1}^{n} 10^{0.1[L_i - A_i]}$$

where each individual source sound level (L_i) is attenuated by an algebraic sum of three attenuation factors ($A_i = A_{div} + A_{atm} + A_{gr}$) that are each dependent on the distance between the sound source position on the X by Y array and the receiving $SPL_{X,Y}$ position on a different position in the same 2D array of worksheet cells, where each cell is defined by the user as representing the center of a square area having equal sides of user-defined length in feet. The above expression is based on Equation 5 from the International Organization for Standardization (ISO) 9613-2 "Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation", and the individual attenuation factors used by **NoisePro** emulate those in Equation 4 and may be summarized as follows:

- $\boldsymbol{A_{div}}$ = attenuation due to *geometrical divergence* (i.e., pure distance), equating to 20*LOG(d/d_{ref}); and where $\boldsymbol{d}$ is the horizontal distance between a source and a receiver position, while $\boldsymbol{d_{ref}}$ is the reference distance at which the sound source L_i is defined.
- $\boldsymbol{A_{atm}}$ = attenuation due to *atmospheric absorption*, which for 1,000 Hz (1 kHz) = 4.16*$\boldsymbol{d}$/3280 and is derived from Equation 5.7 in Noise & Vibration Control Engineering (Beranek and Ver, 1992).
- $\boldsymbol{A_{gr}}$ = attenuation due to *ground effects*, appearing as Equation 10 in ISO 9613-2 and can be expressed with the following Excel formula:

  $$\boldsymbol{A_{gr}} = \text{MAX}(0,4.8-[\boldsymbol{h_s}+\boldsymbol{h_r}]/\boldsymbol{d}*[17+984/\boldsymbol{d}])$$

  where $\boldsymbol{h_s}$ and $\boldsymbol{h_r}$ are the heights (in feet) of the sound source and receiver positions above grade, respectively. This means that for small distances, attenuation from ground effects will be small or essentially zero; and, even at great distances, the attenuation from ground effects is effectively capped at 4.8 dB.

The Excel workbook comprising **NoisePro** calculates $SPL_{X,Y}$ by using a coding loop to evaluate the acoustic contribution from each attenuated sound source ($\boldsymbol{L_i}$ - $\boldsymbol{A_i}$) in sequence, and logarithmically adding the new evaluation to the previous total in a cumulative manner. When all sources have been evaluated, the loop terminates and yields an aggregate or log-summed total $SPL_{X,Y}$ value that is thus unique to a position in the 2D array of cells represented by X and Y, and can thus be "mapped". If the user has defined a particular cell in the X by Y array as a uniquely tagged Receiver, then the corresponding $SPL_{X,Y}$ value can be indexed and displayed accordingly.

The resulting output array of cells, each having an individually calculated $SPL_{X,Y}$ numerical value, is then filled with a color (from a user-defined palette) by application of a Conditional Formatting rules set (an Excel formatting feature) that compares the dB quantity with user-defined "high" and "low" dB ranges for each available color. Each colored cell can thus be likened to a "pixel" within a 2D array that forms a composite image representing—visually—the sound propagation from all modeled sound sources.

GRID CALCULATION WORKSHEET

Example Portion of Concluded Calculations Loop

	grid size (ft)	Source	38
x	3.73	Source Tag	GF04
y	3.73	Source X-coordinate	567.0
	rcvr plane height (ft)	Source Y-coordinate	596.8
z	5	Source Z-coordinate	40
		Source Reference SPL	59
		Source Ref. Distance (ft.)	35
Grid Upper Left (C,R)		Source ht above grade (ft.)	40
1	1		
Grid Lower Right (C,R)			
384	288		

Column	Row	Receiver Location X-coord	Y-coord	Z-coord	Cumulative SPL
1	1	3.73	3.73	5	35.84
1	2	3.73	7.46	5	35.88
1	3	3.73	11.19	5	35.92
1	4	3.73	14.92	5	35.95
1	5	3.73	18.65	5	35.99
1	6	3.73	22.38	5	36.03
1	7	3.73	26.11	5	36.07
1	8	3.73	29.84	5	36.10
1	9	3.73	33.57	5	36.14
1	10	3.73	37.3	5	36.18
1	11	3.73	41.03	5	36.21
1	12	3.73	44.76	5	36.25
1	13	3.73	48.49	5	36.29
1	14	3.73	52.22	5	36.33
1	15	3.73	55.95	5	36.36
1	16	3.73	59.68	5	36.40
1	17	3.73	63.41	5	36.44
1	18	3.73	67.14	5	36.48
1	19	3.73	70.87	5	36.51
1	20	3.73	74.6	5	36.55
1	21	3.73	78.33	5	36.59
1	22	3.73	82.06	5	36.62
1	23	3.73	85.79	5	36.66
1	24	3.73	89.52	5	36.70
1	25	3.73	93.25	5	36.74
1	26	3.73	96.98	5	36.77
1	27	3.73	100.71	5	36.81
1	28	3.73	104.44	5	36.85
1	29	3.73	108.17	5	36.88

SOURCE INVENTORY WITH MODEL GRID COORDINATE LOCATIONS AND SOUND PRESSURE REFERENCE LEVELS

grid axis	feet
x	3.73
y	3.73

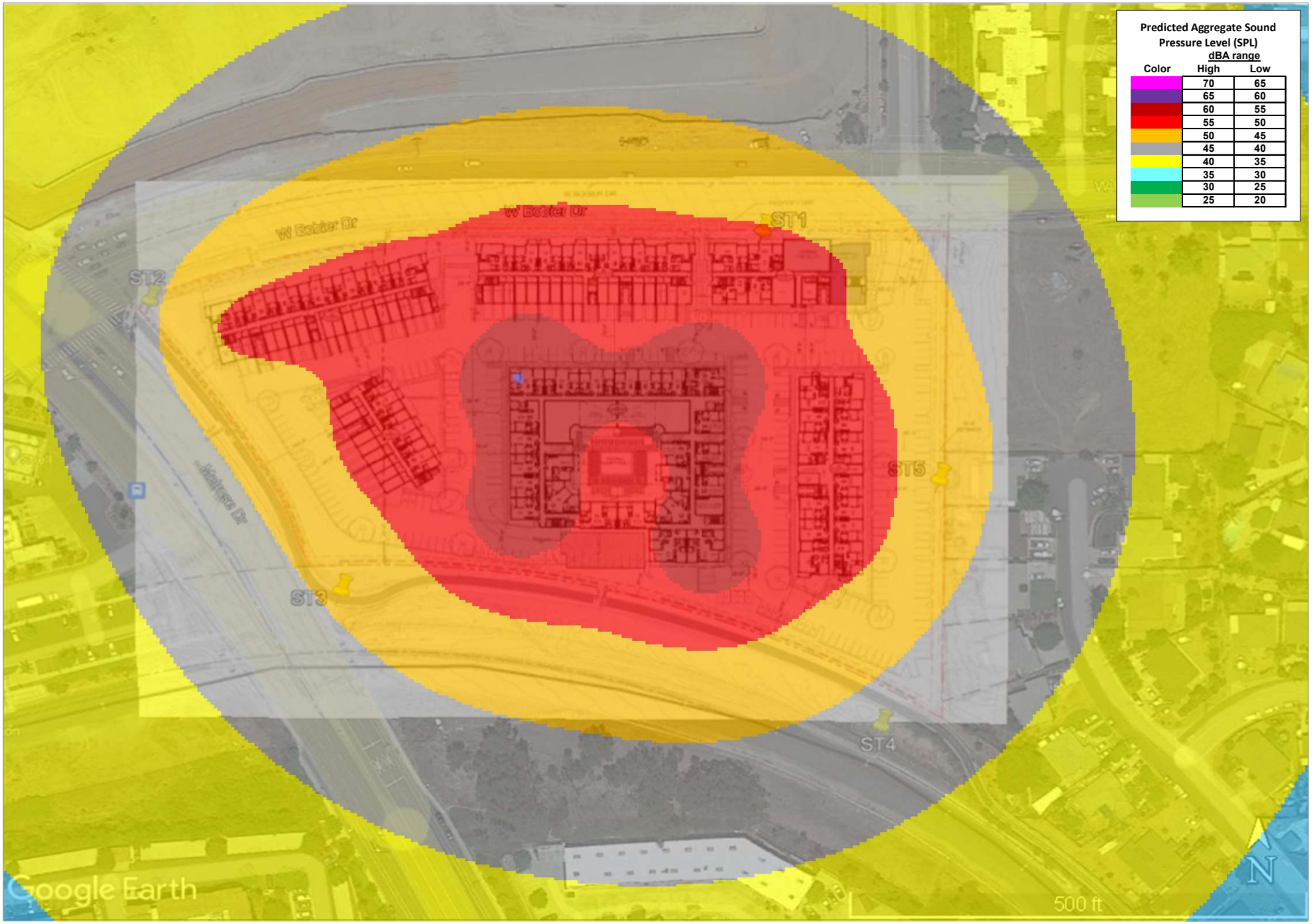
Custom Source Description	Tag	SPL(dBA)	Notes	
this is intended to "clear" the cumulative+source on a "Reset" click	CLEAR	-40	additional notes below for Custom sources:	
axial exhaust fan	GFAN	59	Garage exhaust fan	Pressure level at 35 feet, with nominal 9.5 dB reduction for 5' high parapet wall
residential 4-ton ACC unit	HVAC6	45	Carrier 16NA-48 PWL - 8 Db (6 cluster)	Pressure level at 35 feet, with nominal 9.5 dB reduction for 5' high parapet wall
residential 4-ton ACC unit	HVAC7	46	Carrier 16NA-48 PWL - 8 Db (7 cluster)	Pressure level at 35 feet, with nominal 9.5 dB reduction for 5' high parapet wall
residential 4-ton ACC unit	HVAC10	48	Carrier 16NA-48 PWL - 8 Db (10 cluster)	Pressure level at 35 feet, with nominal 9.5 dB reduction for 5' high parapet wall
residential 4-ton ACC unit	HVAC11	49	Carrier 16NA-48 PWL - 8 Db (11 cluster)	Pressure level at 35 feet, with nominal 9.5 dB reduction for 5' high parapet wall

Source	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**
Source Tag	ULC	B101	B102	B103	B104	B105	B201	B202	B203	B204	B205	B301	B302	B303	B304	B305	B306	B307	B308
Source X-coordinate	3.73	790.76	820.6	835.52	869.09	906.39	910.12	910.12	910.12	910.12	910.12	775.84	775.84	775.84	775.84	704.97	641.56	574.42	574.42
Source Y-coordinate	3.73	317.05	317.05	317.05	317.05	317.05	473.71	511.01	548.31	585.61	622.91	585.61	537.12	503.55	462.52	443.87	443.87	455.06	481.17
Source Z-coordinate	6	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Source Type (enter abbrev.)	CLEAR	HVAC7	HVAC7	HVAC7	HVAC7	HVAC6	HVAC11	HVAC11	HVAC11	HVAC11	HVAC11	HVAC11	HVAC11	HVAC11	HVAC11	HVAC11	HVAC11	HVAC11	HVAC11
Source Reference SPL	-40	46	46	46	46	45	49	49	49	49	49	49	49	49	49	49	49	49	49
Source Reference Distance (ft.)	3.28	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
Source Height Above Grade (ft.)	6	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40

Source	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**
Source Tag	B309	B310	B401	B402	B403	B501	B502	B503	B504	B505	B601	B602	B603	B604	B605	GF01	GF02	GF03	GF04
Source X-coordinate	574.42	574.42	406.57	421.49	436.41	261.1	305.86	354.35	402.84	436.41	548.31	574.42	619.18	663.94	704.97	775.84	775.84	566.96	566.96
Source Y-coordinate	514.74	544.58	484.9	511.01	537.12	380.46	369.27	358.08	346.89	339.43	317.05	317.05	317.05	317.05	317.05	641.56	436.41	436.41	596.8
Source Z-coordinate	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Source Type (enter abbrev.)	HVAC11	HVAC10	HVAC7	HVAC7	HVAC7	HVAC11	HVAC11	HVAC11	HVAC11	HVAC11	HVAC11	HVAC11	HVAC11	HVAC11	HVAC11	GFAN	GFAN	GFAN	GFAN
Source Reference SPL	49	48	46	46	46	49	49	49	49	49	49	49	49	49	49	59	59	59	59
Source Reference Distance (ft.)	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
Source Height Above Grade (ft.)	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40

RECEIVER INVENTORY WITH MODEL GRID COORDINATE LOCATIONS AND PREDICTED OPERATIONAL SOUND LEVEL EXPOSURE

Receiver	ST1	ST2	ST3	ST4	ST5
Receiver Tag	**R1**	**R2**	**R3**	**R4**	**R5**
Receiver X-coordinate	835.52	156.66	369.27	962.34	1033.21
Receiver Y-coordinate	268.56	365.54	704.97	857.9	574.42
Receiver Height Above Ground	5	5	5	5	5
SPL Predicted at Receiver	51	44	46	43	47



SOURCE: Dudek 2022

DUDEK

0 37 74 Feet

NOISE CONTOURS

Aggregate Stationary Sources Operational Noise Level Prediction

Modera Melrose

NOISE APPENDIX

Traffic Noise Modeling Data/Results

Noise Section Appendix - Modera Melrose EIR

Traffic Noise Modeling Calculations - Summary

Project: **13937 Modera Melrose**

Number	Name	Segment Description and Location From	To	Existing	Existing + Project	Δ Existing – Existing + Project	Near Term	Near Term + Project	Δ Near Term – Near Term + Project
Summary of Net Changes									
1	North Melrose	North of Meadow Brook		66.9	67.0	0.1	66.9	67.0	0.1
2	North Melrose	Meadow Brook	Oceanside	67.0	67.1	0.1	67.0	67.1	0.1
3	North Melrose	Oceanside	North Ave	68.5	68.5	0.1	68.5	68.5	0.1
4	North Melrose	South of North Ave		68.9	68.9	0.1	68.9	68.9	0.1
5	Oceanside Blvd.	West of Catalina Circle		64.2	64.3	0.1	64.4	64.5	0.1
6	Oceanside Blvd.	Catalina Circle	Melrose	68.7	68.8	0.1	69.3	69.4	0.1
7	West Bobier Way	Melrose	Sports Park	68.9	69.2	0.3	69.2	69.4	0.3
8	West Bobier Way	Sports Park	Santa Fe	67.8	67.8	0.1	67.8	67.9	0.1
9	West Bobier Way	East of Santa Fe		68.4	68.4	0.0	68.4	68.5	0.0

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Noise Section Appendix - Modera Melrose EIR

Traffic Noise Modeling Calculations - Summary

Project: **13937 Modera Melrose**

Number	Name	Segment Description and Location From	To	Buildout 2030	Buildout 2030 + Project	Δ Buildout 2030 – Buildout 2030 + Project	
Summary of Net Changes							
1	North Melrose	North of Meadow Brook		69.3	69.4	0.1	
2	North Melrose	Meadow Brook	Oceanside	69.3	69.4	0.1	
3	North Melrose	Oceanside	North Ave	69.9	70.0	0.1	
4	North Melrose	South of North Ave		69.6	69.7	0.1	
5	Oceanside Blvd.	West of Catalina Circle		65.8	65.8	0.1	
6	Oceanside Blvd.	Catalina Circle	Melrose	70.2	70.3	0.1	
7	West Bobier Way	Melrose	Sports Park	68.9	69.2	0.3	
8	West Bobier Way	Sports Park	Santa Fe	69.1	69.2	0.1	
9	West Bobier Way	East of Santa Fe		67.9	67.9	0.0	

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Noise Section Appendix - Modera Melrose EIR - 1

Traffic Noise Model Calculations

Project: 13937 Modera Melrose

Noise Level Descriptor: CNEL
Site Conditions: Hard
Traffic Input: ADT
Traffic K-Factor: 10

		Segment Description and Location		Input										Output				
						Distance to Directional Centerline, (feet)[4]		Traffic Distribution Characteristics						CNEL,	Distance to Contour, (feet)[3]			
Number	Name	From	To	ADT	Speed (mph)	Near	Far	% Auto	% Med	% Hvy	% Day	% Eve	% Night	(dBA)[5,6,7]	70 dBA	65 dBA	60 dBA	55 dBA
Existing Conditions																		
1	North Melrose	North of Meadow Brook		20,830	35	60	105	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	66.9	38	122	385	1217
2	North Melrose	Meadow Brook	Oceanside	21,340	35	60	105	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	67.0	39	125	394	1246
3	North Melrose	Oceanside	North Ave	31,190	35	60	115	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	68.5	58	185	584	1846
4	North Melrose	South of North Ave		34,290	35	60	115	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	68.9	64	203	642	2030
5	Oceanside Blvd.	West of Catalina Circle		20,600	35	120	165	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	64.2	37	117	371	1172
6	Oceanside Blvd.	Catalina Circle	Melrose	20,920	35	35	85	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	68.7	41	129	409	1293
7	West Bobier Way	Melrose	Sports Park	22,650	35	40	75	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	68.9	42	134	423	1336
8	West Bobier Way	Sports Park	Santa Fe	20,640	35	50	80	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	67.8	38	119	377	1192
9	West Bobier Way	East of Santa Fe		23,940	35	50	80	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	68.4	44	138	437	1382

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Noise Section Appendix - Modera Melrose EIR - 2

Traffic Noise Model Calculations

Project: 13937 Modera Melrose

Noise Level Descriptor: CNEL
Site Conditions: Hard
Traffic Input: ADT
Traffic K-Factor:

		Segment Description and Location		Input										Output				
						Distance to Directional Centerline, (feet)[4]		Traffic Distribution Characteristics						CNEL,	Distance to Contour, (feet)[3]			
Number	Name	From	To	ADT	Speed (mph)	Near	Far	% Auto	% Med	% Hvy	% Day	% Eve	% Night	(dBA)[5,6,7]	70 dBA	65 dBA	60 dBA	55 dBA
Existing + Project Conditions																		
1	North Melrose	North of Meadow Brook		21,320	35	60	105	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	67.0	39	125	394	1245
2	North Melrose	Meadow Brook	Oceanside	21,870	35	60	105	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	67.1	40	128	404	1277
3	North Melrose	Oceanside	North Ave	31,760	35	60	115	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	68.5	59	188	594	1880
4	North Melrose	South of North Ave		34,780	35	60	115	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	68.9	65	206	651	2059
5	Oceanside Blvd.	West of Catalina Circle		20,970	35	120	165	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	64.3	38	119	377	1193
6	Oceanside Blvd.	Catalina Circle	Melrose	21,410	35	35	85	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	68.8	42	132	418	1323
7	West Bobier Way	Melrose	Sports Park	24,240	35	40	75	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	69.2	45	143	452	1430
8	West Bobier Way	Sports Park	Santa Fe	21,050	35	50	80	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	67.8	38	122	384	1216
9	West Bobier Way	East of Santa Fe		24,140	35	50	80	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	68.4	44	139	441	1394

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Noise Section Appendix - Modera Melrose EIR - 3

Traffic Noise Model Calculations

Project: 13937 Modera Melrose

Noise Level Descriptor: CNEL
Site Conditions: Hard
Traffic Input: ADT
Traffic K-Factor:

		Segment Description and Location		Input										Output				
						Distance to Directional Centerline, (feet)[4]		Traffic Distribution Characteristics						CNEL,	Distance to Contour, (feet)[3]			
Number	Name	From	To	ADT	Speed (mph)	Near	Far	% Auto	% Med	% Hvy	% Day	% Eve	% Night	(dBA)[5,6,7]	70 dBA	65 dBA	60 dBA	55 dBA
Near Term Conditions																		
1	North Melrose	North of Meadow Brook		20,830	35	60	105	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	66.9	38	122	385	1217
2	North Melrose	Meadow Brook	Oceanside	21,340	35	60	105	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	67.0	39	125	394	1246
3	North Melrose	Oceanside	North Ave	31,190	35	60	115	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	68.5	58	185	584	1846
4	North Melrose	South of North Ave		34,290	35	60	115	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	68.9	64	203	642	2030
5	Oceanside Blvd.	West of Catalina Circle		21,740	35	120	165	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	64.4	39	124	391	1237
6	Oceanside Blvd.	Catalina Circle	Melrose	23,640	35	35	85	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	69.3	46	146	462	1461
7	West Bobier Way	Melrose	Sports Park	24,260	35	40	75	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	69.2	45	143	453	1431
8	West Bobier Way	Sports Park	Santa Fe	21,050	35	50	80	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	67.8	38	122	384	1216
9	West Bobier Way	East of Santa Fe		24,040	35	50	80	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	68.4	44	139	439	1388

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Noise Section Appendix - Modera Melrose EIR - 4

Traffic Noise Model Calculations

Project: 13937 Modera Melrose

Noise Level Descriptor: CNEL
Site Conditions: Hard
Traffic Input: ADT
Traffic K-Factor:

	Segment Description and Location			Input										Output				
						Distance to Directional Centerline, (feet)[4]		Traffic Distribution Characteristics						CNEL,	Distance to Contour, (feet)[3]			
Number	Name	From	To	ADT	Speed (mph)	Near	Far	% Auto	% Med	% Hvy	% Day	% Eve	% Night	(dBA)[5,6,7]	70 dBA	65 dBA	60 dBA	55 dBA
Near Term + Project Conditions																		
1	North Melrose	North of Meadow Brook		21,320	35	60	105	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	67.0	39	125	394	1245
2	North Melrose	Meadow Brook	Oceanside	21,870	35	60	105	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	67.1	40	128	404	1277
3	North Melrose	Oceanside	North Ave	31,760	35	60	115	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	68.5	59	188	594	1880
4	North Melrose	South of North Ave		34,780	35	60	115	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	68.9	65	206	651	2059
5	Oceanside Blvd.	West of Catalina Circle		22,110	35	120	165	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	64.5	40	126	398	1258
6	Oceanside Blvd.	Catalina Circle	Melrose	24,130	35	35	85	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	69.4	47	149	472	1491
7	West Bobier Way	Melrose	Sports Park	25,850	35	40	75	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	69.4	48	152	482	1525
8	West Bobier Way	Sports Park	Santa Fe	21,460	35	50	80	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	67.9	39	124	392	1239
9	West Bobier Way	East of Santa Fe		24,240	35	50	80	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	68.5	44	140	443	1400

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Noise Section Appendix - Modera Melrose EIR - 5

Traffic Noise Model Calculations

Project: 13937 Modera Melrose

Noise Level Descriptor: CNEL
Site Conditions: Hard
Traffic Input: ADT
Traffic K-Factor:

		Segment Description and Location		Input										Output				
						Distance to Directional Centerline, (feet)[4]		Traffic Distribution Characteristics						CNEL,	Distance to Contour, (feet)[3]			
Number	Name	From	To	ADT	Speed (mph)	Near	Far	% Auto	% Med	% Hvy	% Day	% Eve	% Night	(dBA)[5,6,7]	70 dBA	65 dBA	60 dBA	55 dBA
Buildout 2030 Conditions																		
1	North Melrose	North of Meadow Brook		36,600	35	60	105	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	69.3	68	214	676	2138
2	North Melrose	Meadow Brook	Oceanside	36,600	35	60	105	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	69.3	68	214	676	2138
3	North Melrose	Oceanside	North Ave	43,800	35	60	115	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	69.9	82	259	820	2592
4	North Melrose	South of North Ave		40,700	35	60	115	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	69.6	76	241	762	2409
5	Oceanside Blvd.	West of Catalina Circle		29,400	35	120	165	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	65.8	53	167	529	1673
6	Oceanside Blvd.	Catalina Circle	Melrose	29,400	35	35	85	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	70.2	57	182	575	1817
7	West Bobier Way	Melrose	Sports Park	22,800	35	40	75	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	68.9	43	134	425	1345
8	West Bobier Way	Sports Park	Santa Fe	28,400	35	50	80	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	69.1	52	164	519	1640
9	West Bobier Way	East of Santa Fe		21,300	35	50	80	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	67.9	39	123	389	1230

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Noise Section Appendix - Modera Melrose EIR - 6

Traffic Noise Model Calculations

Project: 13937 Modera Melrose

Noise Level Descriptor: CNEL
Site Conditions: Hard
Traffic Input: ADT
Traffic K-Factor:

	Segment Description and Location			Input										Output				
						Distance to Directional Centerline, (feet)[4]		Traffic Distribution Characteristics						CNEL,	Distance to Contour, (feet)[3]			
Number	Name	From	To	ADT	Speed (mph)	Near	Far	% Auto	% Med	% Hvy	% Day	% Eve	% Night	(dBA)[5,6,7]	70 dBA	65 dBA	60 dBA	55 dBA
Buildout 2030 + Project Conditions																		
1	North Melrose	North of Meadow Brook		37,090	35	60	105	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	69.4	69	217	685	2166
2	North Melrose	Meadow Brook	Oceanside	37,130	35	60	105	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	69.4	69	217	686	2169
3	North Melrose	Oceanside	North Ave	44,370	35	60	115	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	70.0	83	263	830	2626
4	North Melrose	South of North Ave		41,190	35	60	115	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	69.7	77	244	771	2438
5	Oceanside Blvd.	West of Catalina Circle		29,770	35	120	165	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	65.8	54	169	536	1694
6	Oceanside Blvd.	Catalina Circle	Melrose	29,890	35	35	85	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	70.3	58	185	584	1848
7	West Bobier Way	Melrose	Sports Park	24,390	35	40	75	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	69.2	45	144	455	1439
8	West Bobier Way	Sports Park	Santa Fe	28,810	35	50	80	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	69.2	53	166	526	1664
9	West Bobier Way	East of Santa Fe		21,500	35	50	80	97.0%	2.0%	1.0%	77.0%	13.4%	9.6%	67.9	39	124	393	1242

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Noise Section Appendix - Modera Melrose EIR

Traffic Noise Modeling Calculations - References

Citation	Reference
1	Caltrans Technical Noise Supplement. 2009 (November). Table (5-11), Pg 5-60.
2	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-26), Pg 5-60.
3	Caltrans Technical Noise Supplement. 2009 (November). Equation (2-16), Pg 2-32.
4	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-11), Pg 5-47, 48.
5	Caltrans Technical Noise Supplement. 2009 (November). Equation (2-26), Pg 2-55, 56.
6	Caltrans Technical Noise Supplement. 2009 (November). Equation (2-27), Pg 2-57.
7	Caltrans Technical Noise Supplement. 2009 (November). Pg 2-53.
8	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-7), Pg 5-45.
9	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-8), Pg 5-45.
10	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-9), Pg 5-45.
11	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-13), Pg 5-49.
12	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-14), Pg 5-49.
13	Federal Highway Administration Traffic Noise Model Technical Manual. Report No. FHWA-PD-96-010. 1998 (January). Equation (16), Pg 67
14	Federal Highway Administration Traffic Noise Model Technical Manual. Report No. FHWA-PD-96-010. 1998 (January). Equation (20), Pg 69
15	Federal Highway Administration Traffic Noise Model Technical Manual. Report No. FHWA-PD-96-010. 1998 (January). Equation (18), Pg 69

Appendix K
VMT Analysis

LINSCOTT LAW & GREENSPAN engineers

VEHICLE MILES TRAVELED ANALYSIS

MODERA MELROSE

Oceanside, California
April 8, 2022

LLG Ref. 3-21-3419

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VEHICLE MILES TRAVELED ANALYSIS

MODERA MELROSE

Oceanside, California
April 8, 2022

1.0 INTRODUCTION

Linscott, Law & Greenspan, Engineers (LLG) has prepared this Vehicle Miles Traveled Analysis Report for the proposed Modera Melrose Project to be built on an unoccupied site on the southeast corner of the Oceanside Boulevard (W. Bobier Drive) / N. Melrose Drive intersection in the City of Oceanside. The Project proposes the development of 323 apartments, and 2,336 SF of retail. Since the analysis for this Project was conducted, the number of units and the retail square footage was changed. The analysis was conducted assuming 324 units and 2,338 SF and is therefore, slightly conservative.

2.0 PROJECT DESCRIPTION

The Project site is located at the southeast corner of the Oceanside Boulevard / N. Melrose Drive intersection in the City of Oceanside. The Project is a proposed residential with retail development with surface and subterranean parking. The Project is located within a walking distance of approximately 1,500 feet from Melrose Drive Sprinter Light Rail Station.

The apartment Project proposes 174, 1-bedroom units, 139, 2-bedroom units and 11, 3-bedroom units and 2,338 SF of retail with surface and subterranean parking. Vehicular access to the site is proposed via an access driveway forming the fourth/south leg of the signalized Bobier Drive / Sports Park Way intersection.

Figure 2-1 depicts the Vicinity Map and ***Figure 2-2*** depicts the Conceptual Site Plan.

2.1 Project Trip Generation

Trip generation rates were obtained from the (Not So) *Brief guide of Vehicular Traffic Generation Rates for the San Diego Region* (April 2002) by SANDAG. The "Residential, Apartment" (6 ADT / DU)" were used for the apartments, and the "Strip Commercial" (40 ADT /KSF)" trip rates were used for the local serving retail to estimate the Project trip generation.

Table 2–1 summarizes the trip generation for the Project. As shown in *Table 2–1*, the Project is calculated to generate 2,038 daily trips with 159 trips during the AM peak hour (33 inbound/ 126 outbound trips) and 183 trips during PM peak hour (127 inbound/ 56 outbound trips).

TABLE 2–1
TRIP GENERATION SUMMARY

Use	Quantity	Daily Trip Ends (ADT)[a]		AM Peak Hour					PM Peak Hour				
		Rate [b]	Volume	% of ADT	In:Out Split	Volume			% of ADT	In:Out Split	Volume		
						In	Out				In	Out	
Apartments	324 DU	6/ DU[c]	1,944	8%	2:8	31	125	156	9%	7:3	123	52	175
Retail [c]	2,338 SF	40/ KSF[d]	94	3%	6:4	2	1	3	9%	5:5	4	4	8
Total			**2,038**			**33**	**126**	**159**			**127**	**56**	**183**

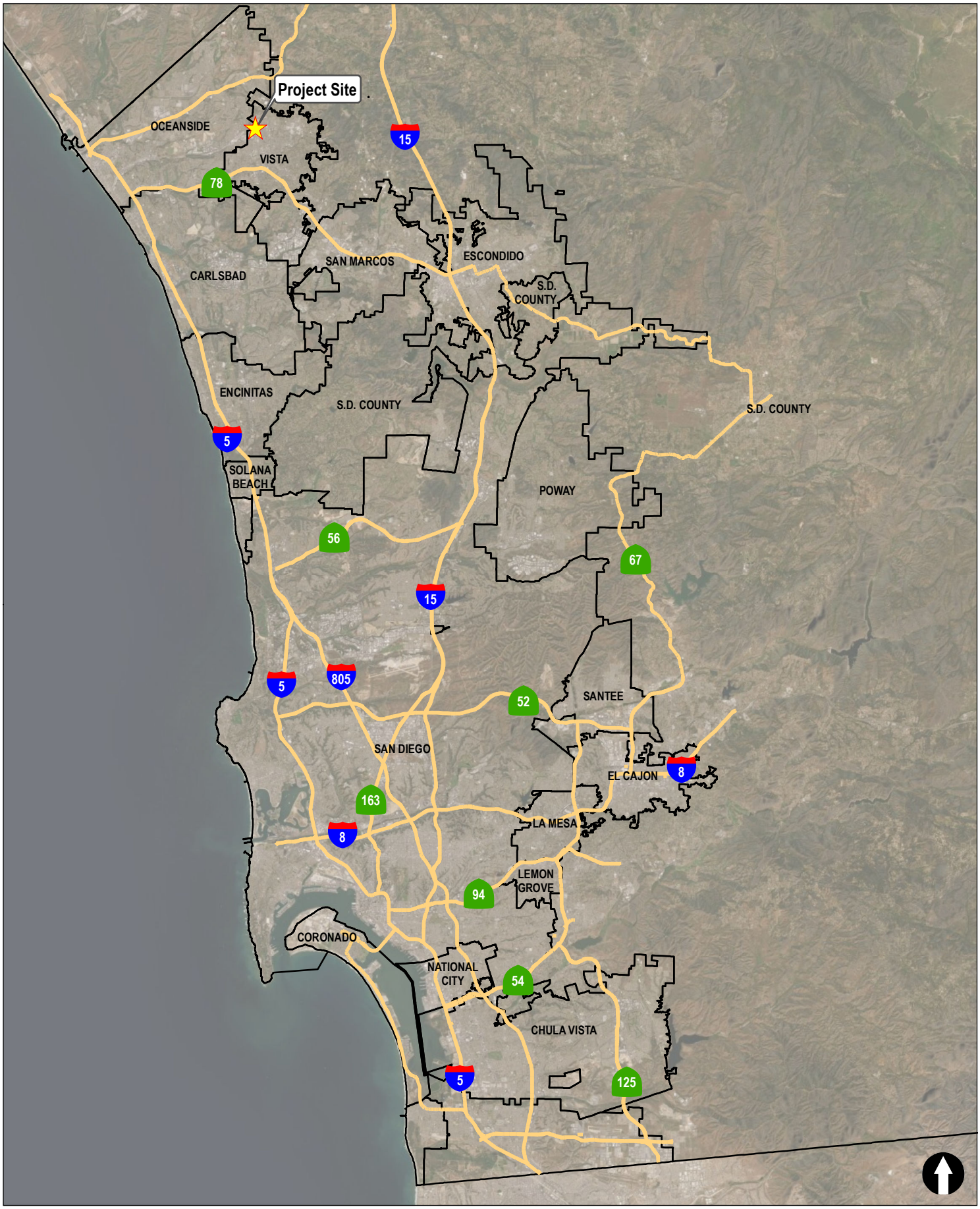
Footnotes:

a. Average Daily Trips

b. Trip Generation Rate from the SANDAG's *Not So Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region,* 2002.

c. Trip rates for Apartments used.

d. Trip rates for Strip Commercial used.



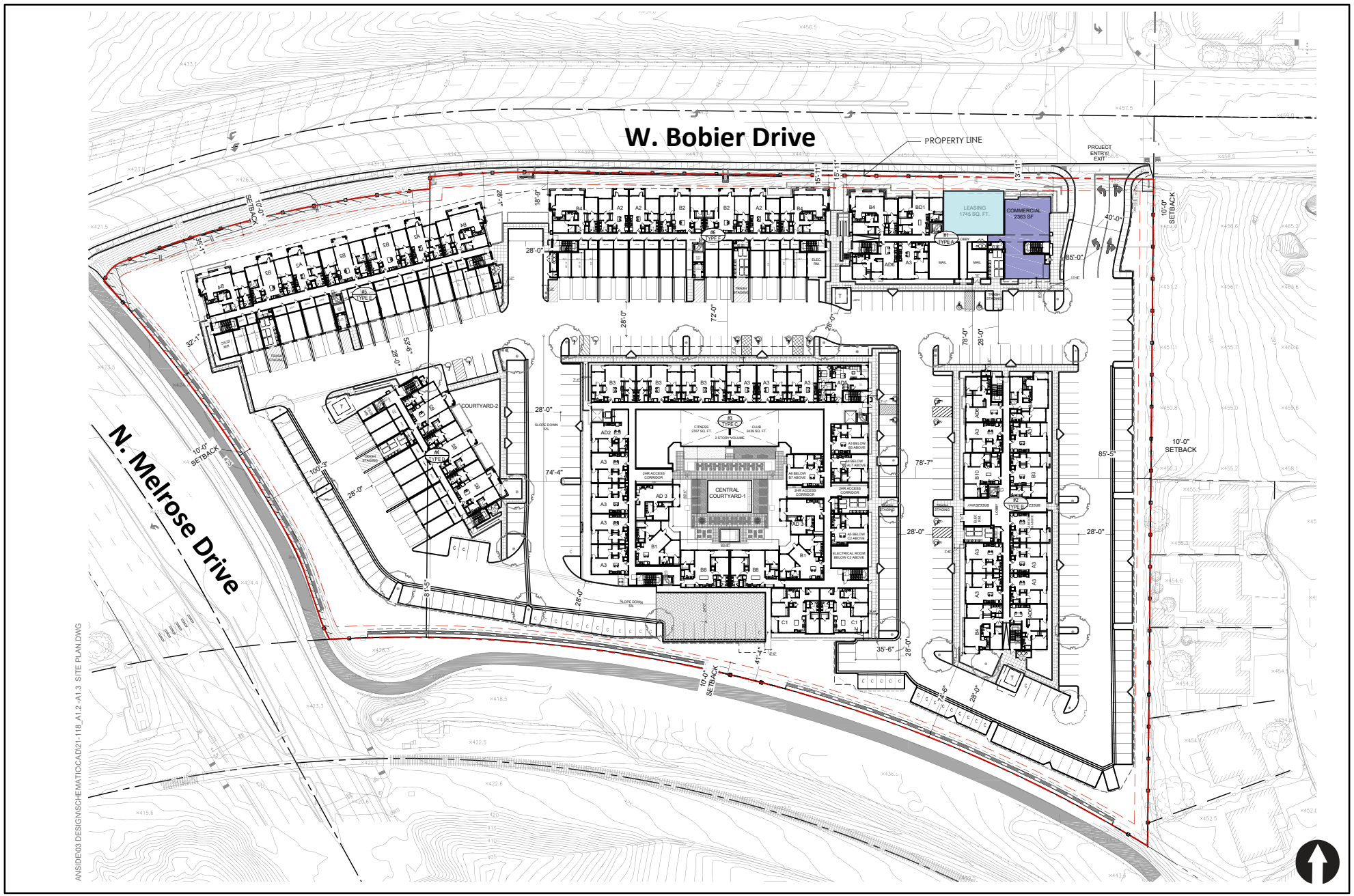
LINSCOTT LAW & GREENSPAN engineers

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Figure 2-1

Vicinity Map

Modera Melrose



Linscott Law & Greenspan engineers

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Figure 2-2

Site Plan

Modera Melrose

3.0 REPORT APPROACH

3.1 VMT Background

Vehicle Miles Traveled (VMT) is defined as the "amount and distance of automobile travel attributable to a project" per CEQA Guidelines Section 15064.3. VMT and VMT/capita or VMT/employee is a measure of the use and efficiency of the transportation network as well land uses in a region. VMT is calculated based on individual vehicle trips generated and their associated trip lengths. VMT is estimated for a typical weekday for the purposes of measuring transportation impacts. For hospital uses, the metric is employee VMT/employee.

3.2 Transportation Analyses

This potential transportation impacts of the proposed Project are based on VMT to satisfy the California Environmental Quality Act (CEQA) guidelines through Senate Bill 743 (SB 743). Public Resources Code section 20199, enacted pursuant to SB 743, identifies VMT as an appropriate metric for measuring transportation impacts along with the elimination of auto delay/Level of service (LOS) for CEQA purposes statewide. The justification for this paradigm shift is that auto delay/LOS impacts may lead to improvements that increase roadway capacity and therefore sometimes induce more traffic and greenhouse gas emissions. In contrast, constructing projects in VMT-efficient locations assists California in meeting greenhouse gas emissions targets. Therefore, consistent with SB 743 and CEQA Guidelines 15064.3, the CEQA significance determination for the Project is based only on VMT and not on LOS.

3.3 Local Mobility Analysis

In addition to the VMT analysis, a Local Mobility Analysis (LMA) was prepared under separate cover that focuses on an analysis of automobile delay/Level of Service within the study area. The LOS analysis was conducted to identify the project traffic's effect in the project study area and recommends project improvements to the multi-modal network.

4.0 VMT SIGNIFICANCE CRITERIA & METHODOLOGY

4.1 Local / Regional Agency Transition to SB743

The *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment* (Guidelines) has been published by the City of Oceanside in August 29, 2020, pursuant to guidance from the Governor's Office of Planning and Research (OPR) in December 2018 (*Technical Advisory on Evaluating Transportation Impacts in CEQA*).

The City of Oceanside has developed significance thresholds and technical methodologies in their Transportation Analysis Guidelines (August 2020) and these Guidelines were utilized to perform a Project-Specific VMT analysis.

4.2 Significance Criteria

According to the City of San Diego's *TSM,* the City's transportation VMT thresholds of significance are shown in ***Table 4–1***.

TABLE 4–1
CITY OF OCEANSIDE PROJECT THRESHOLDS

Project Type	**Metric**	**Significance Threshold(1)**
Residential	Resident VMT / Capita	15 % below regional average
Commercial	Employee VMT / Employee	15 % below regional average
Industrial	Employee VMT / Employee	15 % below regional average
Retail (2)	Net increase in the regional VMT	Net increase in regional VMT
Mixed-Use	Evaluate each land use separately	Based on proposed land use
Redevelopment (3)	Based on the proposed land use	Based on the proposed land use

1) The City may request the applicant to analyze VMT using a more localized threshold if the project requires.
2) Locally serving retail is presumed to decrease VMT however retail projects over 50,000 square feet are considered regionally serving.
3) A redevelopment project that reduces VMT is presumed to have less than a significant impact and is screened out. The removal of affordable housing will require VMT analysis.

4.3 Project-Specific Threshold

The project-specific threshold for the Project is comprised of the following two components, and each are explained in detail below.

- City of Oceanside Screening Criteria
- VMT Analysis Methodology

4.3.1 *City of Oceanside Screening Criteria*

According to City *Guidelines,* a project that meets at least one of the following screening criteria would be presumed to have a less than significant VMT impact due to project characteristics and/or location.

TABLE 4–2
SCREENED OUT PROJECTS

Project Type
Projects located in a Transit Priority Areas (TPA) or Smart Growth Opportunity Area as identified in the most recent
SANDAG San Diego Forward Regional Plan and is consistent with the General Plan at the time of project application. (1)(2)
Locally serving K-12 schools
Day care centers
Local parks
Locally serving retail uses less than 50,000 square feet, including: gas stations, banks, restaurants, grocery stores, and shopping centers
Community institutions (Public libraries, fire stations, local government)
Locally serving hotels (e.g., non-destination hotels, non-regionally serving)
Student housing projects on or adjacent to college campuses
Local serving community colleges that are consistent with the assumptions noted in the most recent SANDAG
Regional Transportation Plan/Sustainable Communities Strategy
Affordable housing projects (3)
Assisted living facilities
Senior housing (as defined by HUD)
Transit projects
Bike projects
Pedestrian projects
Safety improvement projects (e.g. RRFBs and high visibility crosswalks at uncontrolled locations, pedestrian count down timers, additionally projects identified through the Highway Safety Improvement Program)
Safe Routes to School
Projects generating less than 500 daily vehicle trips (if inconsistent with adopted General Plan)
Projects generating less than 1,000 daily vehicle trips (if consistent with adopted General Plan)

(1) Projects located in a TPA must be able to access the transit station within a ½ mile walking distance or 6-minute walk continuously without discontinuity of sidewalk or obstructions to the route. Qualifying transit stops means a site containing an existing rail transit station served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods (OPR, 2017). A high-quality transit corridor may also be considered if a corridor with fixed route bus service has service intervals no longer than 15 minutes during peak commute hours (OPR, 2017).

(2) Smart Growth Opportunity Area Map is provided in Appendix B. The most recent version available shall be used.

(3) If a project is a mix of affordable housing and market rate housing or unscreened use, only the affordable housing component would qualify as screened out. Additionally, any removal of affordable housing automatically requires CEQA VMT analysis.

4.3.2 *VMT Analysis Methodology*

If a project is not screened out, additional criteria is used to determine the methodology for completing the VMT analysis. Per the *Guidelines*, transportation VMT analysis for CEQA shall be conducted using the SANDAG Regional Travel Demand Model, which provides base year VMT data. By utilizing the SANDAG screening maps, the Resident VMT per Capita and Employee VMT per Employee can be estimated at both the regional and census tract level. Definitions of these efficiency metrics are described below per the *Guidelines.*

VMT/Capita:

Includes all vehicle-based person trips grouped and summed to the home location of individuals who are drivers or passengers on each trip. It includes home-based and non-homebased trips. The VMT for each home is then summed for all homes in a particular census tract and divided by the population of that census tract to arrive at Resident VMT/Capita.

VMT/Employee:

Includes all vehicle-based person trips grouped and summed to the work location of individuals on the trip. This includes all trips, not just work-related trips. The VMT for each work location is then summed for all work locations in a particular census tract and divided by the number of employees of that census tract to arrive at Employee VMT/Employee.

5.0 PROJECT VMT ANALYSIS

The City of Oceanside *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment* provides guidance on the preparation of VMT studies including the City's significance thresholds, screening criteria, and analysis methodology for a variety of land uses. Per the City guidelines, a VMT analysis is not required for General Plan conforming projects located in a Transit Priority Area (TPA) or Smart Growth Opportunity Area as identified in the most recent SANDAG San Diego Forward Regional Plan. Projects located in a TPA must be able to access the transit station (within a ½ mile walking distance or 6-minute walk continuously) without discontinuity of sidewalk or obstructions to the route. Qualifying transit stops means a site containing an existing rail transit station served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods. A high-quality transit corridor may also be considered if a corridor with fixed route bus service has service intervals no longer than 15 minutes during peak commute hours.

The Project is located approximately 1,500 feet (1/4 mile) from the Melrose Drive Sprinter station. A direct route without discontinuity of sidewalk or obstructions is provided between the Project site and the station. The Sprinter runs at a 30-minute frequency on weekdays. In addition, Bus Route 318 stops adjacent to the Project site on Oceanside Boulevard west of N. Melrose Drive and on Oceanside Boulevard east of Marabou Lane. Weekend service is at 45-minute frequency.

The following exist or will be provided by the Project:

- The Project will provide sidewalks along its frontage on Melrose Drive and Oceanside Boulevard.
- The existing sidewalk ramp at the southwest corner of the site will be upgraded to ADA compliance.
- An existing bike trail begins at the southeast corner of the Oceanside Blvd / Melrose Drive intersection.

The Project is consistent with the City's adopted General Plan and is located in a TPA. This project is therefore screened out of requiring a Transportation VMT Analysis.

6.0 CONCLUSIONS

Based on the above VMT analysis, the proposed Project is screened out from requiring a VMT analysis. Thus, the Project's VMT transportation impact to presumed to be less than significant.

Appendix L
Local Transportation Study

LINSCOTT LAW & GREENSPAN engineers

LOCAL TRANSPORTATION STUDY

MODERA MELROSE

Oceanside, California
October 10, 2022

LLG Ref. 3-21-3419

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EXECUTIVE SUMMARY

Linscott, Law & Greenspan, Engineers (LLG) has prepared the following Local Transportation Study (LTS) to determine and evaluate the potential impacts to the local roadway system due to the proposed Modera Melrose project, consistent with the City of Oceanside *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment*, August 2020. This City document provides guidance for the preparation of a Local Transportation Study (LTS) to identify any off-site infrastructure improvements in the project vicinity that may be triggered with the development of the project as well as to analyze site access and circulation and evaluate the local multi-model network available to serve to project.

The Project is consistent with the City's adopted General Plan and is located in a Transit Priority Area. Therefore, a CEQA VMT Analysis is screened and was therefore not prepared for this Project and the CEQA VMT impact is presumed to be less than significant.

The Project proposes 323 apartments, and 2,336 SF of local serving retail. Vehicular access to the site is proposed via an access on Oceanside Boulevard, forming the fourth (south) leg of the signalized Sports Park Way / Oceanside Boulevard intersection.

The Project is calculated to generate 2,038 daily trips with 159 trips during the AM peak hour (33 inbound/ 126 outbound trips) and 183 trips during PM peak hour (127 inbound/ 56 outbound trips).

Per the City of Oceanside's thresholds for the determination of the need for roadway improvements, and the analysis methodology presented in this report, roadway improvements are not required the since the increase in Project related delays at intersections and V/C on study area segments do not exceed the allowable thresholds.

The Project requires the provision of 170 parking spaces and will provide 526 parking spaces.

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LOCAL TRANSPORTATION STUDY

MODERA MELROSE

Oceanside, California
October 10, 2022

1.0 INTRODUCTION

Linscott, Law & Greenspan Engineers (LLG) has prepared this Local Transportation Study (LTS) to assess the potential impacts associated with the Modera Melrose Project (Project) in the City of Oceanside. The Project site is located on the southeast corner of the Oceanside Boulevard (W. Bobier Drive) / N. Melrose Drive intersection in the City of Oceanside. The Project proposes the development of 323 apartments, and 2,336 SF of retail. Since the analysis for this Project was conducted, the number of units and the retail square footage was changed. The analysis was conducted assuming 324 units and 2,338 SF and is therefore, slightly conservative. This report addresses the potential transportation impacts and impacts from the proposed Project.

The following sections are included in this report:

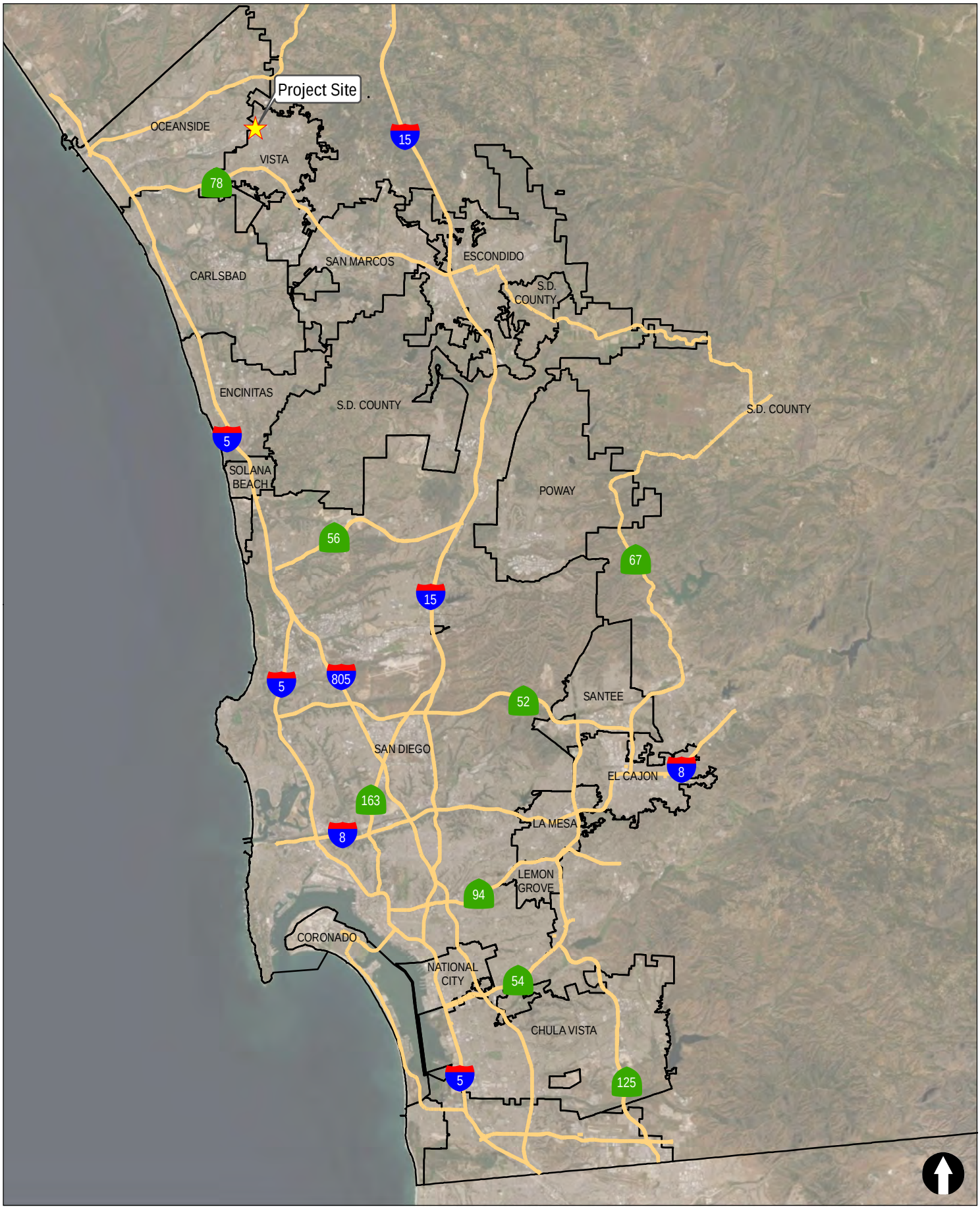
- Project Description
- CEQA VMT Assessment
- Local Transportation Assessment Methodology & Thresholds
- Existing Conditions Description
- Analysis of Existing Conditions
- Cumulative Projects
- Project Trip Generation/Distribution/Assignment
- Analysis of Existing + Project Conditions
- Analysis of Near-Term Conditions
- Analysis of Buildout Conditions
- Pedestrian, Transit and Bicycle Mobility Discussion
- Parking Assessment
- Conclusions

2.0 PROJECT DESCRIPTION

The Project site is located at the southeast corner of the Oceanside Boulevard / N. Melrose Drive intersection in the City of Oceanside. The Project is a proposed residential with retail development with surface and subterranean parking. The Project is located within a walking distance of approximately 1,500 feet from Melrose Drive Sprinter Light Rail Station.

The apartment Project proposes 151, 1-bedroom units, 160, 2-bedroom units and 12, 3-bedroom units, for a total of 323 units and 2.336 SF of retail with surface and subterranean parking. Vehicular access to the site is proposed via an access driveway forming the fourth/south leg of the signalized Bobier Drive / Sports Park Way intersection.

Figure 2–1 depicts the Project's Vicinity Map and ***Figure 2-2*** depicts a more detailed Project Area Map. ***Figure 2–3*** depicts the Project's conceptual site plan.



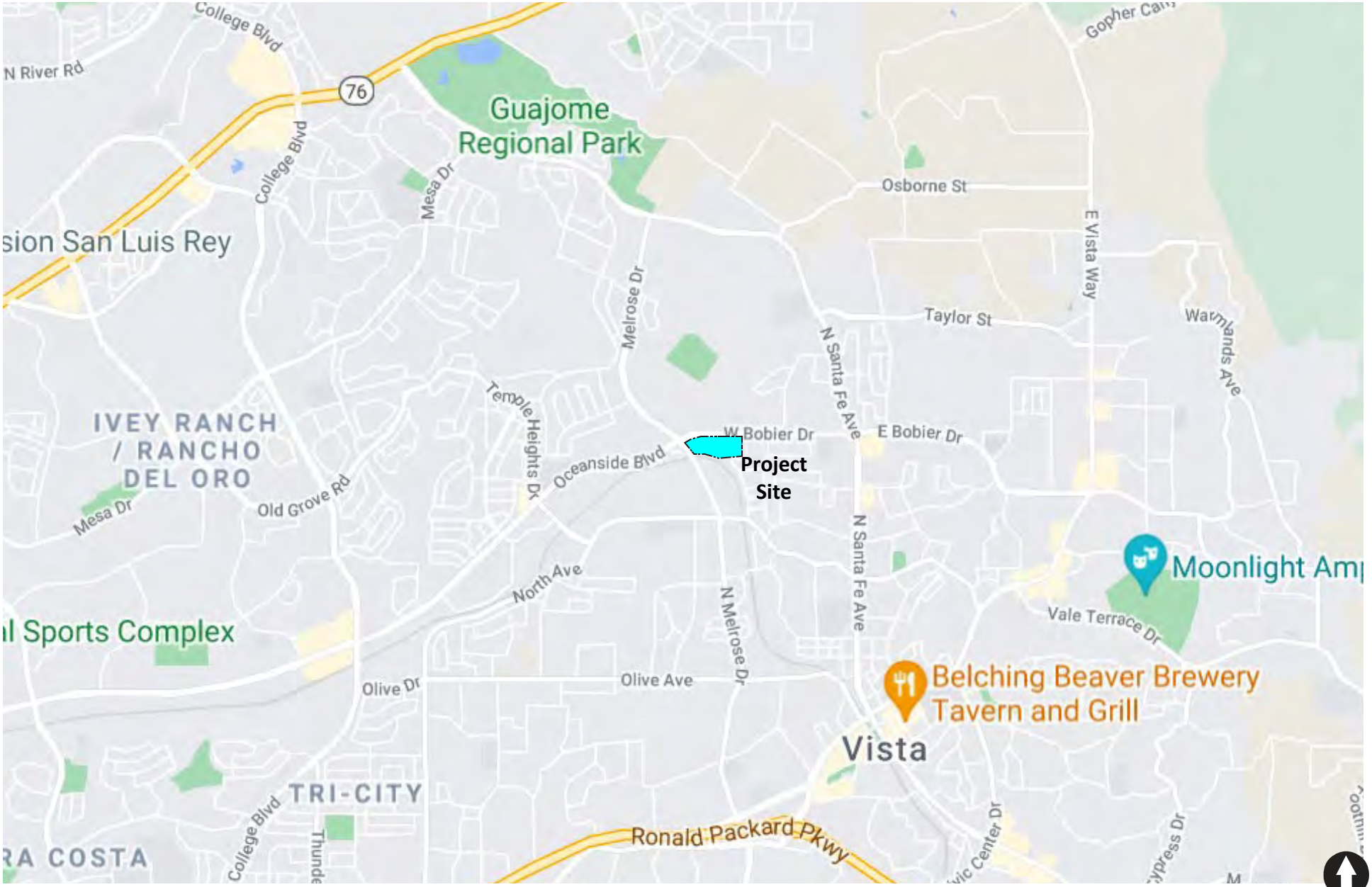
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Figure 2-1

Vicinity Map

Modera Melrose



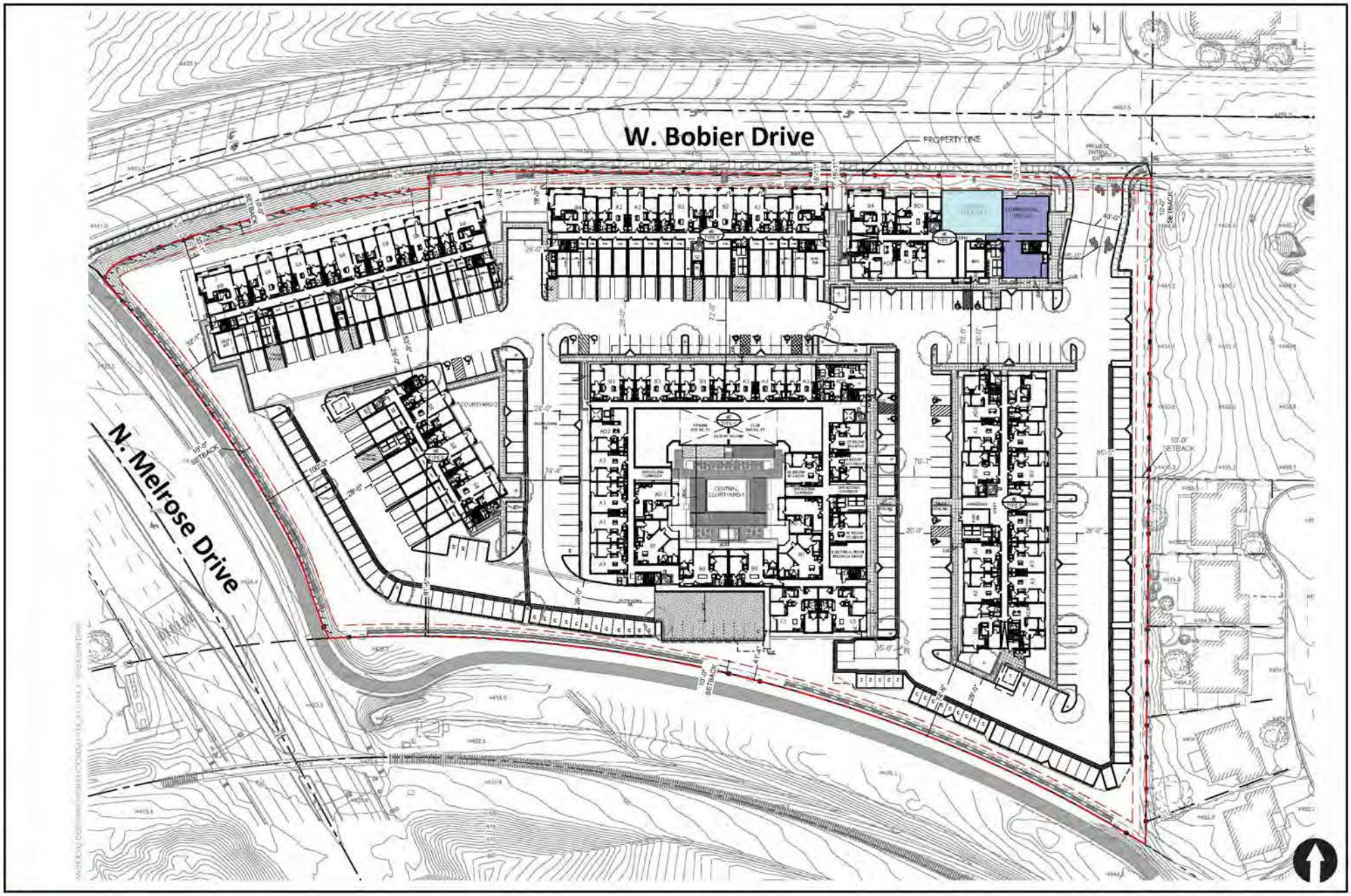
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Figure 2-2

Project Area Map

Modera Melrose



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Figure 2-3

Site Plan

Modera Melrose

3.0 LOCAL TRANSPORTATION ASSESSMENT METHODOLOGY & THRESHOLDS

A Project-Specific Local Transportation Study was prepared to analyze automobile delay and LOS. The LOS analysis was conducted to identify Project impacts on the roadway operations in the Project study area and to recommend Project improvements to address noted deficiencies; however, the CEQA impact significance determination for the proposed Project is based only on VMT and not on LOS.

The proposed Project generates over 1,000 ADT (see *Section 8.1*) and is consistent with the City's adopted General Plan. Therefore, a Local Transportation Study (LTS) was prepared consistent with the City of Oceanside *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment.*

3.1 Study Area

The following study area was developed based on the anticipated assignment of Project traffic and locations which will carry the most Project traffic and is per City of Oceanside staff coordination and scoping meetings. The study area meets and exceeds the trip-based criteria from the City's Guidelines, which state that:

- All signalized intersections and project driveways shall be analyzed if the project will add 50 or more new peak hour trips in either direction.
- All unsignalized intersections and project driveways shall be analyzed if the project will add 50 or more new peak hour trips in either direction.
- All freeway ramp intersections and signalized ramp meters shall be analyzed if the project all 20 or more new peak hour trips in either direction.

INTERSECTIONS

1. N. Melrose Drive / Meadowbrook Drive
2. Catalina Circle / Oceanside Boulevard
3. N. Melrose Drive / Oceanside Boulevard (W. Bobier Drive)
4. Sports Park Way (Future Project Driveway) / W. Bobier Drive
5. N. Santa Fe Avenue / W. Bobier Drive
6. N. Melrose Drive / North Avenue

STREET SEGMENTS

N. Melrose Drive

North of Meadowbrook Drive
Meadowbrook Drive to Oceanside Boulevard
Oceanside Boulevard to North Avenue
South of North Avenue

Oceanside Boulevard

West of Catalina Circle
Catalina Circle to N. Melrose Drive

W. Bobier Drive

N. Melrose Drive to Sports Park Way
Sports Park Way to N. Santa Fe Avenue
East of N. Santa Fe Avenue

3.2 Analysis Scenarios

This study includes analysis of the following scenarios:

- Existing Conditions
- Existing Conditions + Project
- Existing Conditions + Near-Term Cumulative Projects
- Existing Conditions + Near-Term Cumulative Projects + Project
- Buildout Conditions (2030)
- Buildout Conditions + Project

3.3 Analysis Methodology

Level of service (LOS) is the term used to denote the different operating conditions which occur on a given roadway segment under various traffic volume loads. It is a qualitative measure used to describe a quantitative analysis taking into account factors such as roadway geometries, signal phasing, speed, travel delay, freedom to maneuver, and safety. Level of Service provides an index to the operational qualities of a roadway segment or an intersection. Level of Service designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. Level of Service designation is reported differently for signalized and unsignalized intersections, as well as for roadway segments.

3.3.1 *Intersections*

Intersections were analyzed under AM and PM peak hour conditions. Average vehicle delay was determined utilizing the methodology found in Chapter 18 of the *Highway Capacity Manual (HCM)*, with the assistance of the *Synchro* (version 10) computer software. The delay values (represented in seconds) were qualified with a corresponding intersection Level of Service (LOS).

3.3.2 *Street Segments*

Street segment analysis is based upon the comparison of daily traffic volumes (ADTs) to the City of Oceanside's *Circulation Element Roadway Classification LOS & Capacity* table (Table 12 in the City of Oceanside *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment,* August 2020. This table provides segment capacities for different street classifications, based on traffic volumes and roadway characteristics. The roadway classification table is attached in ***Appendix A***.

3.4 Thresholds for the Determination of the Need for Roadway Improvements

Based on information contained in the City of Oceanside *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment*, ***Table 3-1*** indicates when a project's impact on the roadway system is considered to justify the need for roadway improvements. If a project's traffic impact causes the values in *Table 3-1* to be exceeded, roadway improvements should be considered as follows on a case-by-case basis:

- Improvements should be consistent with the General Plan
- Improvements for transit, bike and pedestrian facilities should be given priority in Transit Priority Areas or Smart Growth Opportunity Areas as identified by SANDAG.
- Projects in Transit Priority Areas or Smart Growth Opportunity Areas as identified by SANDAG, that are consistent with the General Plan at the time of project application, should not be denied due to the inability to provide roadway improvements (i.e., existing right of way is constrained, etc.)

TABLE 3–1
CITY OF OCEANSIDE
DETERMINATION OF THE NEED FOR ROADWAY IMPROVEMENTS

Level of Service with Project	**Allowable Change Due to Project Impact**					
	Freeways		**Roadway Segments**		**Intersections**	**Ramp Metering**
	V/C	**Speed (MPH)**	**V/C**	**Speed (MPH)**	**Delay (Sec.)**	**Delay (Min.)**
E & F (or ramp meter delays above 15 min)	0.01	1	0.02	1	2	2

Source: Table 13 Determination of the Need for Roadway Improvements, City of Oceanside *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment*, April 2020.

4.0 EXISTING VEHICULAR CONDITIONS

Effective evaluation of the traffic operations associated with the proposed Project requires an understanding of the existing transportation system within the project area. ***Figure 4–1*** shows an existing conditions diagram, including intersections and lane configurations.

4.1 Existing Street Network

The following is a description of the existing street network in the study area. The roadway classifications are based on field observations and a review of the Oceanside Circulation Element.

OCEANSIDE BOULEVARD

Oceanside Boulevard is classified as a Major Arterial from College Boulevard to Bobier Drive in the City of Oceanside Circulation Element. It is currently constructed as a four-lane divided roadway. The curb-to-curb distance is about 85 feet. Sidewalks are provided on both sides of the roadway measuring about 6 feet wide. Bike lanes are provided on both sides of the roadway. Curbside parking is not permitted. The posted speed limit is 50 mph.

WEST BOBIER DRIVE

West Bobier Drive is classified as a Major Arterial east of Sports Park Way in the City of Vista Circulation Element. It is currently constructed as a four-lane undivided roadway with a two-way left-turn lane. The curb-to-curb distance is about 80 feet. Sidewalks are provided on both sides of the roadway measuring about 5 feet wide. Bike lanes are provided on both sides of the roadway. Curbside parking is permitted on both sides of the roadway between Sports Park Way and North Santa Fe Avenue. The posted speed limit is 40 mph.

NORTH MELROSE DRIVE

North Melrose Drive is classified as a Major Arterial between Meadowbrook Drive and Oceanside Boulevard and as an Urban Major roadway between Oceanside Boulevard and North Avenue in the City of Vista Circulation Element in the project vicinity.

A section of the segment between Meadowbrook Drive and Oceanside Boulevard is currently constructed as a two-lane divided roadway. This section is being widened by the Melrose Heights Project to a four lane roadway, matching the remaining portion of this segment. Between Oceanside Boulevard and North Avenue, North Melrose Drive is built as a six-lane undivided roadway with two-way left-turn lanes.

North of Oceanside Boulevard, the curb-to-curb distance is about 60 feet. South of Oceanside Boulevard, the curb-to-curb distance is about 90 feet. Sidewalks are provided on both sides of the roadway measuring about 5 feet. Bike lanes are provided on both sides of the roadway. Curbside parking is not permitted. The posted speed limit is 45 mph.

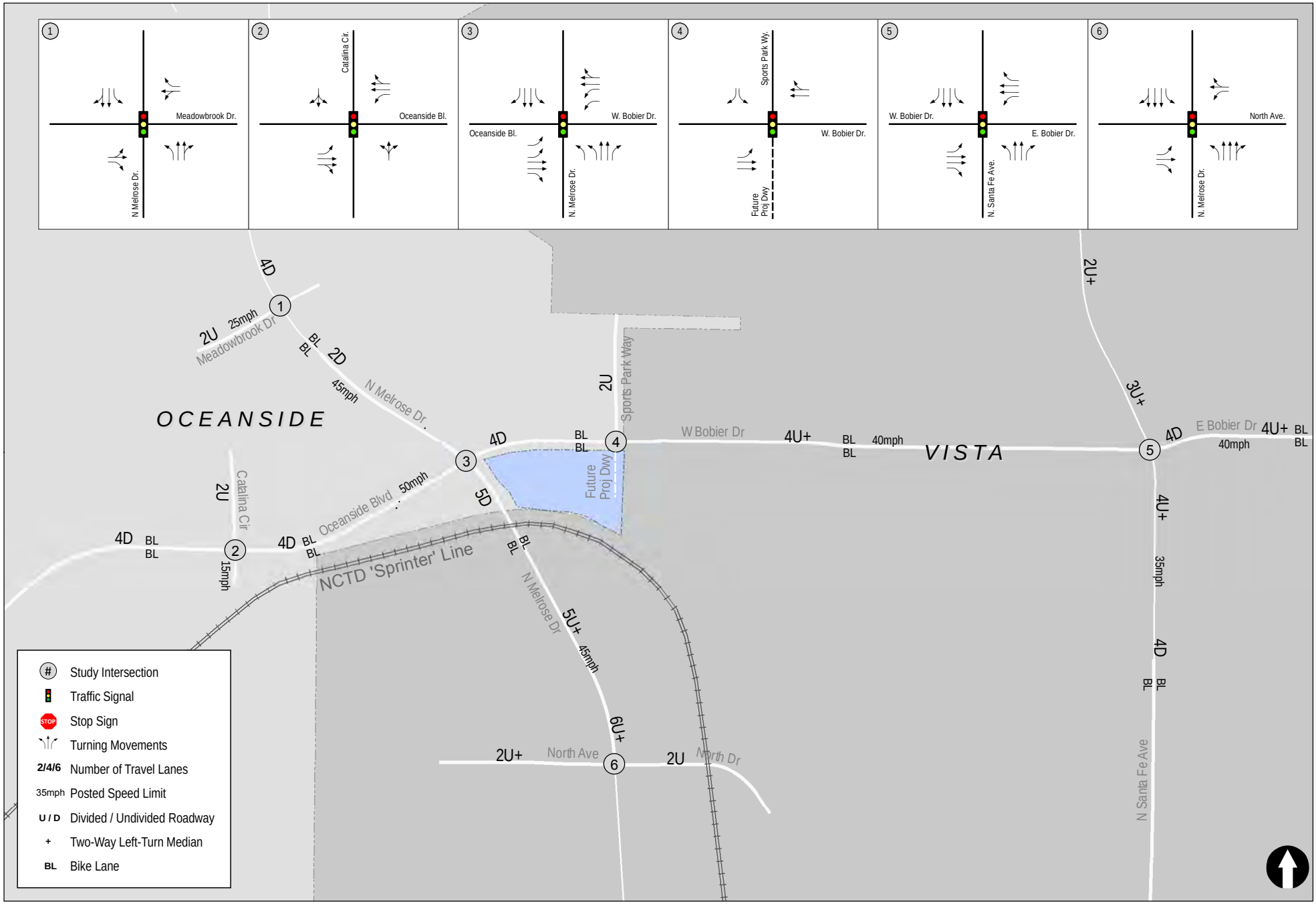
4.2 Existing Traffic Volumes

Daily segment counts and peak hour (7:00-9:00 AM and 4:00-6:00 PM) intersection turning movement counts were conducted on August 31, 2021 within the Project study area, when schools were in session. Due to the ongoing Covid-19 pandemic, which has altered traffic patterns, a growth rate of 5% was applied to the August 2021 traffic counts in order to replicate pre-pandemic traffic volumes. This growth rate is based on historical traffic data on SR 78, since historical data was not available on the study area surface streets. Daily traffic volumes on SR 78 during the pre- and post-Covid time frames were compared and a "Covid" factor was developed. The Covid Factor of 5% was approved by City Staff. Additional information on how this rate was calculated is included in ***Appendix B***.

Table 4–1 shows the existing street segment volumes. ***Figure 4–2*** shows the Existing Traffic Volumes. ***Appendix C*** contains the manual count sheets and ***Appendix D*** contains the signal timing plans.

TABLE 4–1
EXISTING STREET SEGMENT VOLUMES

Street Segment	2021 (During Covid Counts)	Covid Factor	ADT Volumes used in Analysis
N. Melrose Drive			
North of Meadowbrook Dr	19,840	5%	20,830
Meadowbrook Dr to Oceanside Blvd	20,320	5%	21,340
Oceanside Blvd to North Ave	29,700	5%	31,190
South of North Ave	32,660	5%	34,290
Oceanside Boulevard			
West of Catalina Cir	19,620	5%	20,600
Catalina Cir to N. Melrose Dr	19,920	5%	20,920
W. Bobier Way			
N. Melrose Dr to Sports Park Wy	21,570	5%	22,650
Sports Park Wy to N. Santa Fe Ave	19,660	5%	20,640
East of N. Santa Fe Ave	22,800	5%	23,940



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Figure 4-1

Existing Conditions Diagram

Modera Melrose



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Figure 4-2

Existing Traffic Volumes

Modera Melrose

5.0 ANALYSIS OF EXISTING CONDITIONS

5.1 Peak Hour Intersection Analysis

Table 5–1 summarizes the Existing peak hour intersection operations. As shown in *Table 5-1*, the study area intersections are calculated to currently operate acceptably at LOS D or better during the AM and PM peak hours except:

- N. Melrose Drive / Oceanside Boulevard (W. Bobier Drive) – LOS F during the AM peak and PM Peak hours

Appendix E contains the Existing intersection analysis worksheets.

TABLE 5–1
EXISTING INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Delay [a]	LOS [b]
1. N. Melrose Dr / Meadowbrook Dr	Signal	AM	43.7	D
		PM	50.5	D
2. Catalina Cir / Oceanside Blvd	Signal	AM	10.6	B
		PM	11.0	B
3. N. Melrose Dr / Oceanside Blvd (W. Bobier Dr)	Signal	AM	142.0	F
		PM	97.4	F
4. Sports Park Wy (Future Project Dwy) / W. Bobier Dr [c]	Signal	AM	27.8	C
		PM	21.9	C
5. N. Santa Fe Ave / W. Bobier Dr	Signal	AM	52.8	D
		PM	37.6	D
6. N. Melrose Dr / North Ave	Signal	AM	43.8	D
		PM	33.2	C

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Currently a signalized T-Intersection with no south leg. The Project Driveway forms the south leg.

SIGNALIZED

Delay	LOS
0.0 ≤ 10.0	A
10.1 to 20.0	B
20.1 to 35.0	C
35.1 to 55.0	D
55.1 to 80.0	E
≥ 80.1	F

5.2 Daily Street Segment Operations

Table 5–2 summarizes the Existing, street segment operations under along the study area roadways. As shown in *Table 5-2*, the study area street segments are calculated to currently operate acceptably at LOS D or better.

TABLE 5–2
EXISTING STREET SEGMENT OPERATIONS

Street Segment	Jurisdiction	Functional Capacity	Capacity (LOS E) [a]	ADT [b]	LOS [c]	V/C [d]
N. Melrose Drive						
1. North of Meadow Brook Dr	Oceanside	4-Lane Major	40,000	20,830	B	0.521
2. Meadow Brook Dr to Oceanside Blvd	Oceanside	4-Lane Major [e]	30,000	21,340	C	0.711
3. Oceanside Blvd to North Ave	Oceanside / Vista	4-Lane Major [f]	40,000	31,190	D	0.780
4. South of North Ave	Vista	6-Lane Urban Major	50,000	34,290	B	0.686
Oceanside Boulevard						
5. West of Catalina Cir	Oceanside	4-Lane Major	40,000	20,600	B	0.515
6. Catalina Cir to N. Melrose Dr	Oceanside	4-Lane Major	40,000	20,920	B	0.523
W. Bobier Way						
7. N. Melrose Dr to Sports Park Wy	Oceanside	4-Lane Major	40,000	22,650	C	0.566
8. Sports Park Wy to N. Santa Fe Ave	Vista	4-Lane Major	40,000	20,640	A	0.516
9. East of N. Santa Fe Ave	Vista	4-Lane Major	40,000	23,940	A	0.599

Footnotes:

a. Capacity at which the roadway currently functions and based on City of Oceanside and City of Vista Roadway Classification Tables as appropriate.
b. Average Daily Traffic Volumes.
c. Level of Service
d. Volume to Capacity ratio.
e. A short section of this roadway is not built to the width of a 4-Lane Major Street. Therefore, 75% of the capacity of a 4-Lane Major Road is assumed.
f. A section of this roadway at the boundary between the City of Oceanside and City of Vista is not widened to a 6-Lane Major Road. Hence, the capacity of City of Oceanside 4-Lane Major Road is assumed.

6.0 CUMULATIVE PROJECTS

6.1 Summary of Cumulative Projects

Cumulative projects are other projects in the study area that will add traffic to the local circulation system in the near future. Based on information from City of Oceanside staff, the following seven cumulative projects were initially identified to be considered for inclusion in the analysis:

1. Ocean Ranch (D20 00014) – This project was withdrawn before the Council resolution and therefore, was not included.
2. North River Farm (GPA16-00002) – This Project is approved and consists of 395 residential units including commercial and restaurant uses, a local farm, and a hotel. This project was included in the Cumulative analysis.
3. Ocean Kamp T19-00004) – This Project is under review and is not likely to be built before the Opening Day of the subject Project and therefore it was not included.
4. El Corazon Mixed-Use (D19-00018) – This project is approved and not constructed. The Project is located more than 3 miles to the west of the subject project and hence is not expected to add traffic to the Project study area intersections and segments. Therefore, it was not included.
5. Melrose Heights (GPA 13-00003) – This Project is currently under construction and is located adjacent to the Subject Project across from Oceanside Boulevard. This project is currently under construction and is scheduled to be occupied by 2022. This project was included in the Cumulative analysis.
6. Warehouse Project - This project includes 50,000 SF warehouse building (with 1,500 sf of office space) and is located at the southeast corner of North Avenue and Vista Pacific Drive in Oceanside.

Melrose Heights Project

The Melrose Heights Project is located on the northeast and northwest corners of the N. Melrose Drive / Oceanside Boulevard intersection, in the City of Oceanside. The Project includes the development of 78 condominiums, 37 single family units, 198 townhomes, 10,000 SF of office and 10,000 SF of restaurant.

This project is currently under construction and is conditioned to implement the following improvements at the N. Melrose Drive / Oceanside Boulevard intersection by the first occupancy, by the Year 2022.

N. Melrose Drive / Oceanside Boulevard Intersection Improvements:

- A second SB left-turn lane,
- A third SB thru lane,
- A Right-Turn Overlap (RTOL) phase for the NB approach,

- Prohibit WB U-turn movement with a R3-4 (No U-Turn) sign, and
- Upgrade and relocate the affected existing signal hardware, conduit, fiber optic connections and pedestrian count down timer as appropriate.

N. Melrose Drive Segment: Meadowbrook Drive to Oceanside Boulevard Improvements:

- Construct the west side of N. Melrose Drive between Meadowbrook Drive and Oceanside Boulevard to 4-Lane Major Arterial standards with dedication to 6-Lane Prime Arterial standards with the development of PA-1.
- Construct the east side of N. Melrose Drive between Meadowbrook Drive and Oceanside Boulevard to 4-Lane Major Arterial standards with dedication to 6-Lane Prime Arterial standards with the development of PA-2 or PA-3.

North River Farm (GPA16-00002)

North River Farm project is located on a 176.63-acre site centered on North River Road east of the intersection of North River Road and College Boulevard with its eastern boundary marked by the southerly alignment of Wilshire Boulevard. This project proposes to develop the approximately 176.63-acre site with 395 residential units and would also include commercial and restaurant uses, a local farm, and a hotel. The residential portion of the Project proposes a mix of housing types including single-family detached homes, multi-family attached homes, and mixed-use residential units

Warehouse Project

The Warehouse project includes 50,000 SF warehouse building (with 1,500 SF of office space) and is located at the southeast corner of North Avenue and Vista Pacific Drive in Oceanside.

The above improvements will be completed prior to the opening of the subject Project.

Appendix F contains the Project traffic Assignment figure for the Melrose Heights Project and ***Figure 6–1*** depicts the Cumulative Projects only traffic volumes.



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Figure 7-1

Total Cumulative Traffic Volumes

Modera Melrose

7.0 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

7.1 Trip Generation

Trip generation rates were obtained from the (Not So) *Brief guide of Vehicular Traffic Generation Rates for the San Diego Region* (April 2002) by SANDAG. The "Residential, Apartment" (6 ADT / DU)" were used for the apartments, and the "Strip Commercial" (40 ADT /KSF)" trip rates were used for the local serving retail to estimate the Project trip generation.

Table 7–1 summarizes the trip generation for the Project. As shown in *Table 7–1*, the Project is calculated to generate 2,038 daily trips with 159 trips during the AM peak hour (33 inbound/ 126 outbound trips) and 183 trips during PM peak hour (127 inbound/ 56 outbound trips).

7.2 Trip Distribution and Assignment

Project traffic was distributed to the street system based on existing traffic patterns in the area, the Project's proximity to freeways and arterials, locations of retail, places of employment, schools, and other shopping opportunities in the study area.

24% of the Project trips were assigned to the west on Oceanside Boulevard, 26% to the north on N. Melrose Drive, 28% to the south on N. Melrose Drove and 20% to the east on W. Bobier Drive. The remaining 2% of the Project trips were assigned on Sports Park Way, north of the site.

Figure 7–1 shows the Project trip distribution. ***Figure 7–2*** shows the Project traffic volumes. ***Figure 7-3*** shows the Existing + Project traffic volumes.

TABLE 7–1
PROJECT TRIP GENERATION

Use	Quantity	Daily Trip Ends (ADT)[a]		AM Peak Hour					PM Peak Hour				
		Rate [b]	Volume	% of ADT	In:Out Split	Volume			% of ADT	In:Out Split	Volume		
						In	Out	Total			In	Out	Total
Apartments	324 DU	6/ DU[c]	1,944	8%	2:8	31	125	156	9%	7:3	123	52	175
Retail [c]	2,338 SF	40/ KSF[d]	94	3%	6:4	2	1	3	9%	5:5	4	4	8
Total			**2,038**			**33**	**126**	**159**			**127**	**56**	**183**

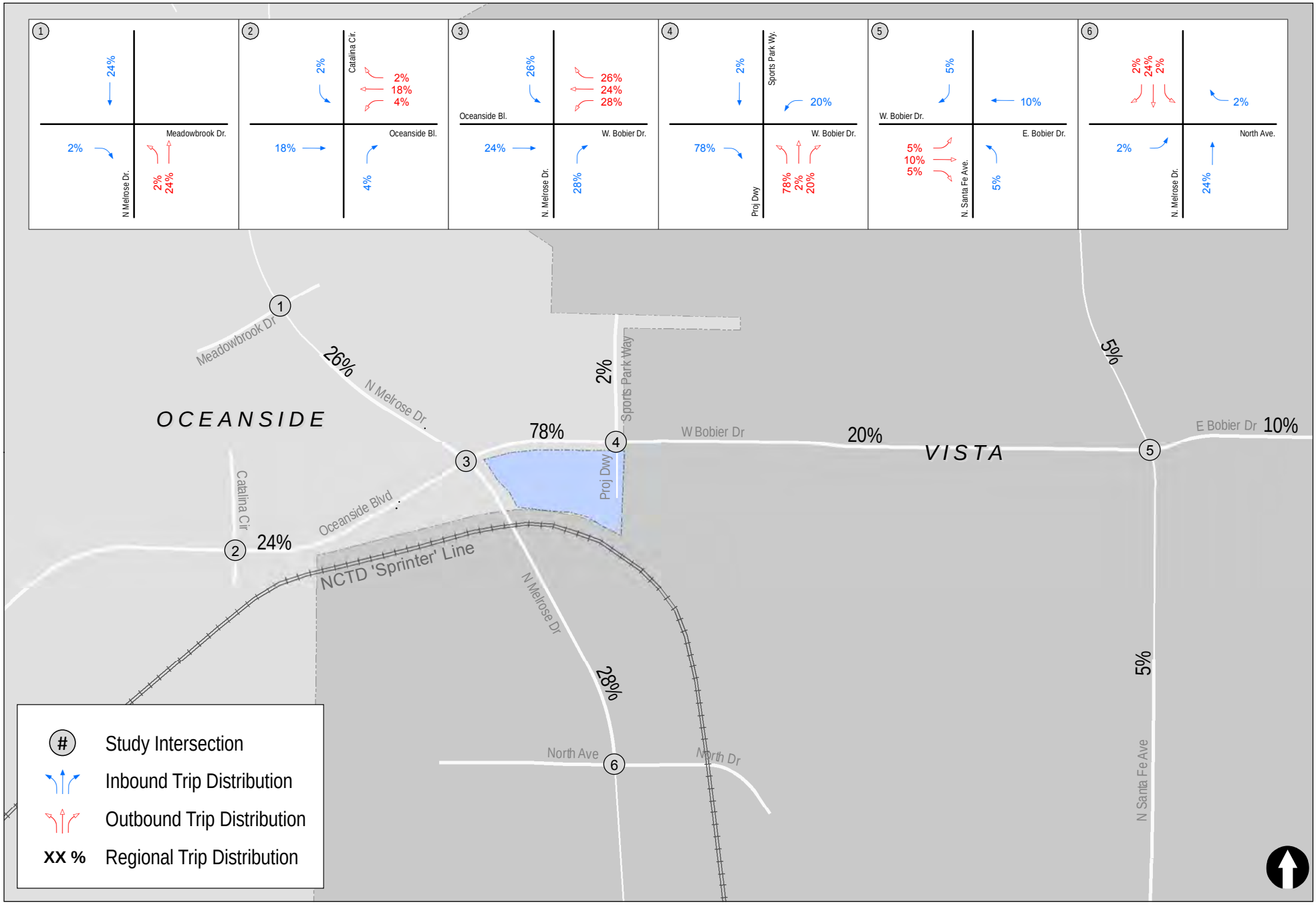
Footnotes:

a Average Daily Trips

b Trip Generation Rate from the SANDAG's *Not So Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region,* 2002.

c Trip rates for Apartments used.

d Trip rates for Strip Commercial used.



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Figure 7-1

Project Traffic Distribution

Modera Melrose

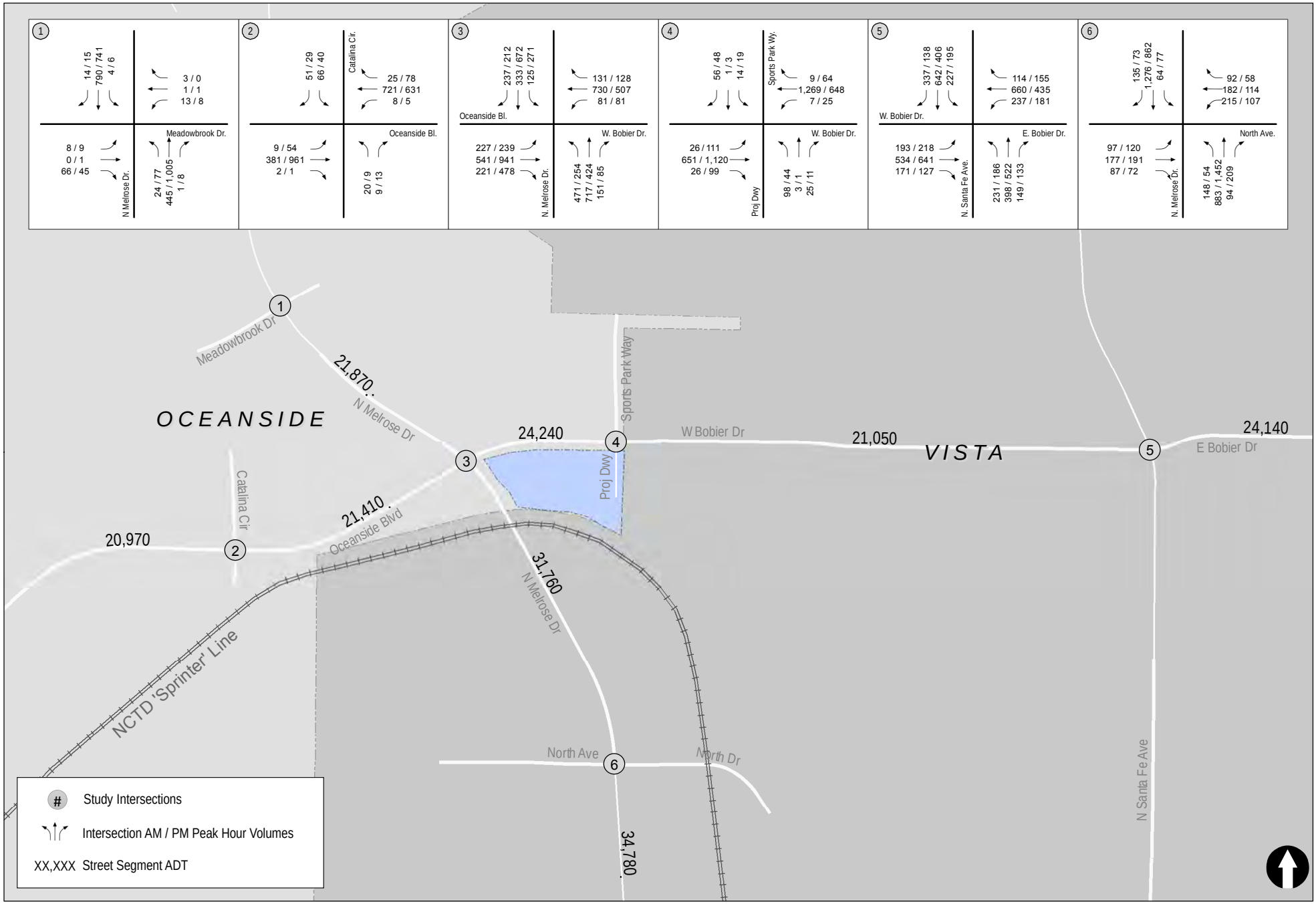


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Figure 7-2

Project Traffic Volumes

Modera Melrose



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Figure 7-3

Existing + Project Traffic Volumes

Modera Melrose

8.0 ANALYSIS OF EXISTING + PROJECT CONDITIONS

The currently under construction Melrose Heights Project located at the northeast and northwest corners of the Oceanside Boulevard / N. Melrose Drive intersection is conditioned to implement the following improvements at the N. Melrose Drive / Oceanside Boulevard intersection by the first occupancy, by 2022.

N. Melrose Drive / Oceanside Boulevard Intersection:

- A second SB left-turn lane,
- A third SB thru lane,
- A Right-Turn Overlap (RTOL) phase for the NB approach,
- Prohibit WB U-turn movement with a R3-4 (No U-Turn) sign, and
- Upgrade and relocate the affected existing signal hardware, conduit, fiber optic connections and pedestrian count down timer as appropriate.

N. Melrose Drive Segment: Meadowbrook Drive to Oceanside Blvd:

- Construct the west side of N. Melrose Drive between Meadowbrook Drive and Oceanside Boulevard to 4-Lane Major Arterial standards with dedication to 6-Lane Prime Arterial standards with the development of PA-1. Construct the east side of N. Melrose Drive between Meadowbrook Drive and Oceanside Boulevard to 4-Lane Major Arterial standards with dedication to 6-Lane Prime Arterial standards with the development of PA-2 or PA-3.

It has been ascertained that these improvements are currently built. and are therefore assumed as the base condition for all scenarios with Project traffic.

8.1 Peak Hour Intersection Analysis

Table 8–1 summarizes the peak hour intersection operations under Existing + Project conditions in the study area. As shown, the study area intersections are calculated to continue to operate acceptably at LOS D or better during the AM and PM peak hours with the addition of Project trips and therefore, based on the City of Oceanside's traffic thresholds and methodology summarized in *Section 4*, roadway improvements are not required. It may be noted that the improvements listed above at the Oceanside Boulevard / N. Melrose Drive intersection are assumed for the Existing + Project condition. Therefore, the delays decrease with the addition of Project traffic at this intersection.

Appendix G contains the Existing + Project intersection analysis worksheets.

TABLE 8–1
EXISTING WITH PROJECT INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project		Δ Delay [c]	Improvement Required?
			Delay [a]	LOS [b]	Delay	LOS		
1. N. Melrose Dr / Meadowbrook Dr	Signal	AM	43.7	D	43.9	D	0.2	No
		PM	50.5	D	50.5	D	0.0	No
2. Catalina Cir / Oceanside Blvd	Signal	AM	10.6	B	11.1	B	0.5	No
		PM	11.0	B	11.4	B	0.4	No
3. N. Melrose Dr / Oceanside Blvd (W. Bobier Dr)	Signal	AM	142.0	F	52.1	D	[d]	No
		PM	97.4	F	47.9	D	[d]	No
4. Sports Park Wy (Future Project Dwy) / W. Bobier Dr	Signal	AM	27.8	C	26.8	C	[e]	No
		PM	21.9	C	14.4	B	[e]	No
5. N. Santa Fe Ave / W. Bobier Dr	Signal	AM	52.8	D	53.3	D	0.5	No
		PM	37.6	D	37.8	D	0.2	No
6. N. Melrose Dr / North Ave	Signal	AM	43.8	D	44.2	D	0.4	No
		PM	33.2	C	33.6	C	0.4	No

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Δ denotes the increase in delay due to Project.
d. Improvements by the Melrose Heights Project are assumed to be implemented by the time the Project is built. Hence, the delay decreases with the addition of the Project traffic.
e. Currently a signalized T-Intersection with no south leg. The Project Driveway forms the south leg. The fourth leg is assumed for the Existing + Project condition only.

SIGNALIZED

Delay	LOS
0.0 ≤ 10.0	A
10.1 to 20.0	B
20.1 to 35.0	C
35.1 to 55.0	D
55.1 to 80.0	E
≥ 80.1	F

8.2 Daily Street Segment Operations

Table 8–2 summarizes the street segment operations along the study area roadways under Existing + Project. As shown, the study area street segments are calculated to continue to operate acceptably at LOS D or better with the addition of Project trips and therefore, based on the City of Oceanside's traffic thresholds and methodology summarized in *Section 4*, roadway improvements are not required.

It may be noted that the improvements listed above on the segment of N. Melrose Drive between Meadowbrook Drive and Oceanside Boulevard are assumed for the Existing + Project condition. Therefore, the delays decrease with the addition of Project traffic at this intersection.

TABLE 8-2
EXISTING WITH PROJECT STREET SEGMENT OPERATIONS

Street Segment	Jurisdiction	Functional Capacity	Capacity (LOS E) [a]	Existing			Existing + Project			Δ V/C [e]	Improvement Required?
				ADT [b]	LOS [c]	V/C [d]	ADT	LOS	V/C		
N. Melrose Drive											
1. North of Meadow Brook Dr	Oceanside	4-Lane Major	40,000	20,830	B	0.521	21,320	C	0.533	0.012	No
2. Meadow Brook Dr to Oceanside Blvd	Oceanside	4-Lane Major [f]	30,000	21,340	C	0.711	21,870	C	0.729	0.018	No
3. Oceanside Blvd to North Ave	Oceanside / Vista	4-Lane Major [g]	40,000	31,190	D	0.780	31,760	D	0.794	0.014	No
4. South of North Ave	Vista	6-Lane Urban Major	50,000	34,290	B	0.686	34,780	B	0.696	0.010	No
Oceanside Boulevard											
5. West of Catalina Cir	Oceanside	4-Lane Major	40,000	20,600	B	0.515	20,970	B	0.524	0.009	No
6. Catalina Cir to N. Melrose Dr	Oceanside	4-Lane Major	40,000	20,920	B	0.523	21,410	C	0.535	0.012	No
W. Bobier Way											
7. N. Melrose Dr to Sports Park Wy	Oceanside	4-Lane Major	40,000	22,650	C	0.566	24,240	C	0.606	0.040	No
8. Sports Park Wy to N. Santa Fe Ave	Vista	4-Lane Major	40,000	20,640	A	0.516	21,050	A	0.526	0.010	No
9. East of N. Santa Fe Ave	Vista	4-Lane Major	40,000	23,940	A	0.599	24,140	B	0.604	0.005	No

Footnotes:

a. Capacity at which the roadway currently functions and based on City of Oceanside and City of Vista Roadway Classification Tables as appropriate.
b. Average Daily Traffic Volumes.
c. Level of Service
d. Volume to Capacity ratio.
e. Δ denotes the increase in V/C due to Project.
f. A short section of this roadway is not built to the width of a 4-Lane Major Street. Therefore, 75% of the capacity of a 4-Lane Major Road is assumed.
g. A section of this roadway at the boundary between the City of Oceanside and City of Vista is not widened to a 6-Lane Major Road. Hence, the capacity of City of Oceanside 4-Lane Major Road is assumed.

9.0 ANALYSIS OF NEAR-TERM CONDITIONS

The following section presents the analysis of study area intersections and street segments under Near-Term conditions without and with the proposed Project.

9.1 Near-Term Traffic Volumes

Near-Term without Project traffic volumes were calculated by adding the cumulative project traffic volumes onto the Existing traffic volumes. Near-Term + Project traffic volumes were calculated by then adding the Project traffic volumes.

Figure 9–1 shows the Near-Term traffic volumes. ***Figure 9–2*** shows the Near-Term + Project traffic volumes.

9.2 Near-Term without Project Conditions

9.2.1 *Peak Hour Intersection Analysis*

Table 9–1 summarizes the peak hour intersection operations under Near-Term conditions. As shown, the study area intersections are calculated to operate acceptably at LOS D or better during the AM and PM peak hours, except:

- N. Melrose Drive / Oceanside Boulevard (W. Bobier Drive) LOS E during the AM peak hour

Appendix H contains the Near-Term intersection analysis worksheets.

9.2.2 *Daily Street Segment Operations*

Table 9–2 summarizes street segment operations along the study area roadways under Near-Term conditions. As shown, the study area street segments are calculated to operate acceptably at LOS D or better.

TABLE 9–1
NEAR-TERM INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Near-Term Without Project		Near-Term + Project		Δ Delay [c]	Improvement Required?
			Delay [a]	LOS [b]	Delay	LOS		
1. N. Melrose Dr / Meadowbrook Dr	Signal	AM	46.0	D	46.3	D	0.3	No
		PM	51.3	D	51.8	D	0.5	No
2. Catalina Cir / Oceanside Blvd	Signal	AM	13.9	B	14.6	B	0.7	No
		PM	13.2	B	13.6	B	0.4	No
3. N. Melrose Dr / Oceanside Blvd (W. Bobier Dr) [d]	Signal	AM	56.9	E	58.4	E	1.5	No
		PM	50.4	D	51.2	D	0.8	No
4. Sports Park Wy (Future Project Dwy) / W. Bobier Dr	Signal [d]	AM	32.7	C	30.6	C	[e]	No
		PM	26.3	C	40.0	D	[e]	No
5. N. Santa Fe Ave / W. Bobier Dr	Signal	AM	53.6	D	54.3	D	0.7	No
		PM	37.9	D	38.1	D	0.2	No
6. N. Melrose Dr / North Ave	Signal	AM	45.4	D	45.9	D	0.5	No
		PM	34.3	C	34.7	C	0.4	No

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Δ denotes the increase in delay due to Project.
d. Improvements by the Melrose Heights Project are assumed to be implemented by the time the Project is built.
e. Currently a signalized T-Intersection with no south leg. The Project Driveway forms the south leg. The fourth leg is assumed for the Near-Term + Project condition only. Therefore, the increase in delay is not shown.

SIGNALIZED

Delay	LOS
0.0 ≤ 10.0	A
10.1 to 20.0	B
20.1 to 35.0	C
35.1 to 55.0	D
55.1 to 80.0	E
≥ 80.1	F

TABLE 9–2
NEAR-TERM STREET SEGMENT OPERATIONS

Street Segment	Functional Capacity	Capacity (LOS E) [a]	Near-Term Without Project			Near-Term With Project			Δ V/C [e]	Improvement Required?
			ADT [b]	LOS [c]	V/C [d]	ADT	LOS	V/C		
N. Melrose Drive										
1. North of Meadow Brook Dr	4-Lane Major	40,000	22,220	C	0.556	22,710	C	0.568	0.013	No
2. Meadow Brook Dr to Oceanside Blvd	4-Lane Major	40,000	23,050	D	0.768	23,580	D	0.786	0.018	No
3. Oceanside Blvd to North Ave	4-Lane Major [f]	40,000	32,690	D	0.817	33,260	D	0.832	0.015	No
4. South of North Ave	6-Lane Urban Major	50,000	35,740	C	0.715	36,230	C	0.725	0.010	No
Oceanside Boulevard										
5. West of Catalina Cir	4-Lane Major	40,000	21,740	C	0.544	22,110	C	0.553	0.010	No
6. Catalina Cir to N. Melrose Dr	4-Lane Major	40,000	23,640	C	0.591	24,130	C	0.603	0.012	No
W. Bobier Way										
7. N. Melrose Dr to Sports Park Wy	4-Lane Major	40,000	24,290	C	0.607	25,880	C	0.647	0.040	No
8. Sports Park Wy to N. Santa Fe Ave	4-Lane Major	40,000	21,080	A	0.527	21,490	A	0.537	0.010	No
9. East of N. Santa Fe Ave	4-Lane Major	40,000	24,070	B	0.602	24,270	B	0.607	0.005	No

Footnotes:

a. Capacity at which the roadway currently functions and based on City of Oceanside and City of Vista Roadway Classification Tables as appropriate.
b. Average Daily Traffic Volumes.
c. Level of Service
d. Volume to Capacity ratio.
e. Δ denotes the increase in V/C due to Project.
f. A section of this roadway at the boundary between the City of Oceanside and City of Vista is not widened to a 6-Lane Major Road. Hence, the capacity of City of Oceanside 4-Lane Major Road is assumed.

9.3 Near-Term + Project Conditions

9.3.1 *Peak Hour Intersection Analysis*

Table 9–1 summarizes the peak hour intersection operations under Near-Term + Project conditions. As shown, the study area intersections are calculated to continue to operate acceptably at LOS D or better during the AM and PM peak hours with the addition of Project trips and therefore, based on the City of Oceanside's traffic thresholds and methodology summarized in *Section 4*, roadway improvements are not required.

- N. Melrose Drive / Oceanside Boulevard (W. Bobier Drive) LOS E during the AM peak hour

The increase in delay due to Project traffic at the above intersection is less than the allowable City of Oceanside delay threshold of 2.0 seconds. Hence, the Project does not have any impact on the subject intersections. It is therefore concluded that no improvement is needed.

Appendix I contains the Near-Term + Project intersection analysis worksheets.

9.3.2 *Daily Street Segment Operations*

Table 9–2 summarizes the street segment operations along the study area roadways under Near-Term + Project conditions. As shown, the study area street segments are calculated to continue to operate acceptably at LOS B or better with the addition of Project trips.

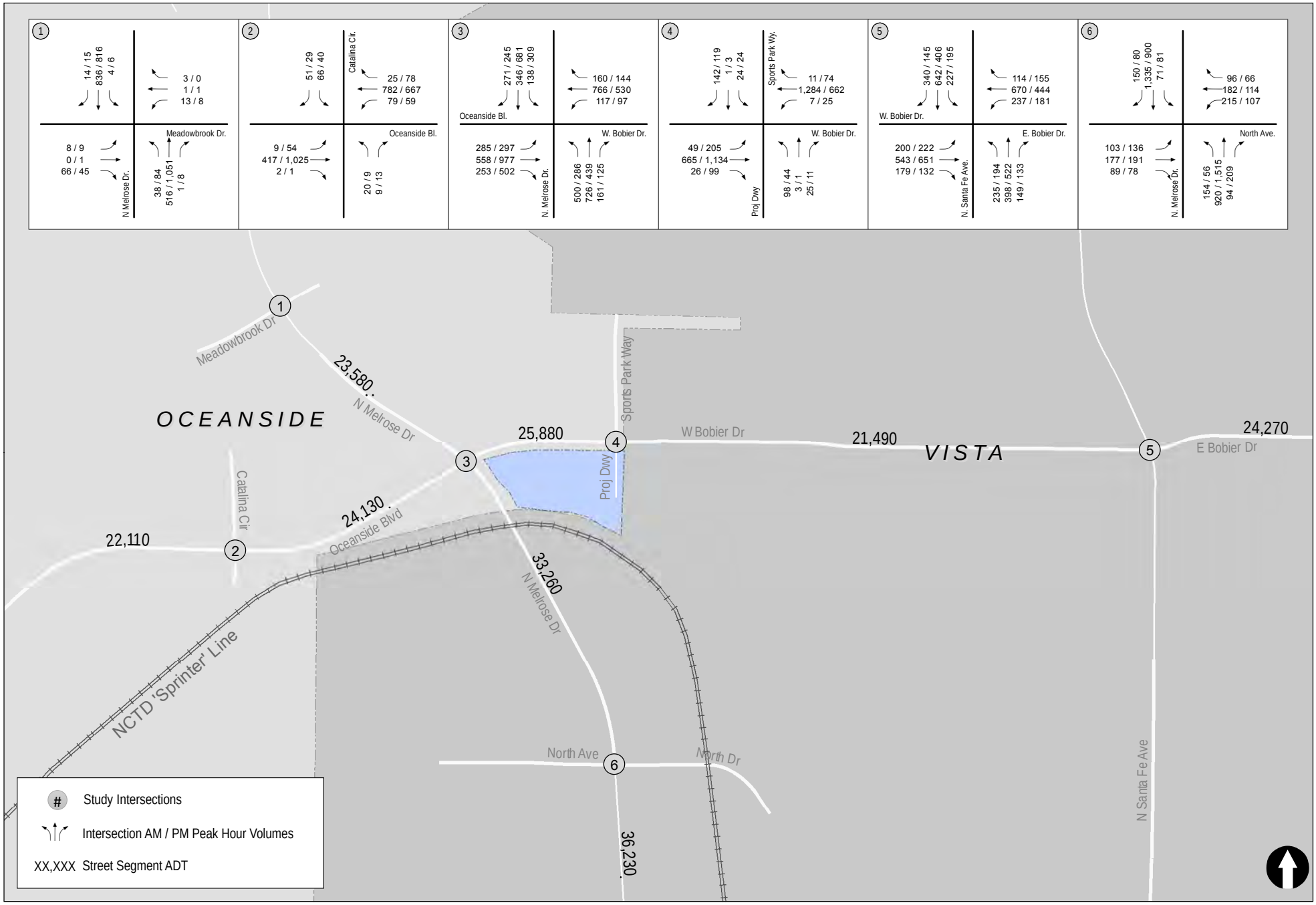


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Date: 10/1/2022
Time: 8:25 AM

Figure 9-1

Near-Term Without Project Traffic Volumes

Modera Melrose



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Time: 8:26 AM

Figure 9-2

Near-Term + Project Traffic Volumes

Modera Melrose

10.0 ANALYSIS OF BUILDOUT CONDITIONS

The following section presents the analysis of study area intersections and street segments under Buildout (Year 2030) conditions without and with the proposed Project.

10.1 Buildout Traffic Volumes

Peak hour intersection and daily segment Buildout Traffic Volumes were obtained from the *City of Oceanside Circulation Element Update (CE Update)*, April 2012. Volumes for only the N. Melrose Drive / Oceanside Boulevard intersection was available in this document. The volumes obtained from the CE Update were used in the buildout analysis for the N. Melrose Drive / Oceanside Boulevard intersection. The volumes for the remaining intersections were obtained as described in the following paragraph.

The SANDAG Series 14 model was used to forecast Year 2030 volumes for the remaining study area intersections. However, the SANDAG model output is not as accurate in determining peak hour intersection turn movements. Therefore, Year 2030 peak hour turning movement volumes were estimated using a template in EXCEL developed by LLG to determine peak hour traffic at an intersection from future ADT volumes using the relationship between existing peak hour turn movements and the existing ADT volumes. This same relationship can be assumed to generally continue in the future. For example, if the segment ADT on the roadway is forecast to double by the Year 2030, it is reasonable to assume that the peak hour intersection turning movement volumes will generally double. A copy of this template used to estimate the forecast volumes is included in ***Appendix J*** for reference.

Figure 10–1 shows the Buildout traffic volumes. ***Figure 10–2*** shows the Buildout + Project traffic volumes.

10.2 Buildout without Project Conditions

Currently under construction improvements at the N. Melrose Drive / Oceanside Boulevard intersection and the widening of N. Melrose Drive between Meadowbrook Drive and Oceanside Boulevard are assumed. For the other study area intersections and segments, existing and ground roadway conditions are assumed for the Year 2030 analysis. The SANDAG model outputs daily segment and peak hour volumes.

10.2.1 *Peak Hour Intersection Analysis*

Table 10–1 summarizes the peak hour intersection operations under Buildout conditions. As shown, the study area intersections are calculated to operate acceptably at LOS D or better during the AM and PM peak hours except for the following:

- N. Melrose Drive / Oceanside Boulevard (W. Bobier Drive) – LOS E during the AM peak and PM peak hours
- N. Santa Fe Avenue / W. Bobier Drive - LOS F during the AM and LOS E during the PM peak hours

- N. Melrose Drive / North Avenue – LOS E during the AM peak hour

Appendix J contains the Buildout intersection analysis worksheets.

10.2.2 *Daily Street Segment Operations*

Table 10–2 summarizes the Year 2030 without Project, street segment operations along the study area roadways. As shown, the following study area street segments are calculated to operate at LOS E or worse.

- **N. Melrose Drive:** North of Meadow Brook Drive (LOS E)
- **N. Melrose Drive:** Meadow Brook Drive to Oceanside Boulevard (LOS F)
- **N. Melrose Drive:** Oceanside Boulevard to North Avenue (LOS F)

10.3 Buildout + Project Conditions

10.3.1 *Peak Hour Intersection Analysis*

Table 10–1 summarizes the peak hour intersection operations under Buildout + Project conditions. As shown, the study area intersections are calculated to continue to operate acceptably at LOS D or better during the AM and PM peak hours except for the following:

- N. Melrose Drive / Oceanside Boulevard (W. Bobier Drive) – LOS E during the AM peak and PM peak hours
- N. Santa Fe Avenue / W. Bobier Drive - LOS F during the AM and LOS E during the PM peak hours
- N. Melrose Drive / North Avenue – LOS E during the AM peak hour

The increase in delay due to Project traffic at the above intersections is less than the allowable City of Oceanside delay threshold of 2.0 seconds. Hence, the Project does not have any impact on the subject intersections. It is therefore concluded that no improvement is needed.

Appendix K contains the Buildout + Project intersection analysis worksheets.

10.3.2 *Daily Street Segment Operations*

Table 10–2 summarizes the Year 2030 with Project, street segment operations along the study area roadways. As shown, the following study area street segments are calculated to operate at LOS E or worse with the addition of Project traffic.

- **N. Melrose Drive:** North of Meadow Brook Drive (LOS E)
- **N. Melrose Drive:** Meadow Brook Drive to Oceanside Boulevard (LOS F)
- **N. Melrose Drive:** Oceanside Boulevard to North Avenue (LOS F)

The increase in the v/c ratio due to Project traffic at the above segments is less than the allowable City of Oceanside v/c threshold of 0.02. Hence, the Project does not have any impact on the subject segments. It is therefore concluded that no improvement is needed.

TABLE 10–1
BUILDOUT (YEAR 2030) INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Buildout No Project		Buildout With Project		Δ Delay [c]	Improvement Required?
			Delay [a]	LOS [b]	Delay	LOS		
1. N. Melrose Dr / Meadowbrook Dr	Signal	AM	29.8	C	29.8	C	0.0	No
		PM	33.0	C	33.3	C	0.3	No
2. Catalina Cir / Oceanside Blvd	Signal	AM	12.8	B	13.0	B	0.2	No
		PM	12.4	B	12.5	B	0.1	No
3. N. Melrose Dr / Oceanside Blvd (W. Bobier Dr)	Signal	AM	63.1	E	64.2	E	1.1	No
		PM	56.4	E	56.5	E	0.1	No
4. Sports Park Wy (Future Project Dwy) / W. Bobier Dr	Signal [d]	AM	16.2	B	45.8	D	29.6	No
		PM	18.7	B	53.7	D	35.0	No
5. N. Santa Fe Ave / W. Bobier Dr	Signal	AM	81.7	F	82.3	F	0.6	No
		PM	64.5	E	65.1	E	0.6	No
6. N. Melrose Dr / North Ave	Signal	AM	71.0	E	72.5	E	1.5	No
		PM	50.3	D	52.4	D	2.1	No

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Δ denotes the increase in delay due to Project.
d. Currently a signalized T-Intersection with no south leg. The Project Driveway forms the south leg.

SIGNALIZED		UNSIGNALIZED	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

TABLE 10-2
BUILDOUT (YEAR 2030) STREET SEGMENT OPERATIONS

Street Segment	Functional (On the Ground) Capacity	Capacity (LOS E) [a]	Buildout (Year 2030)			Buildout + Project			Δ V/C [e]	Improvement Required?
			ADT [b]	LOS [c]	V/C [d]	ADT	LOS	V/C		
N. Melrose Drive										
1. North of Meadow Brook Dr	4-Lane Major	40,000	36,600	E	0.915	37,090	E	0.927	0.012	No
2. Meadow Brook Dr to Oceanside Blvd	4-Lane Major	30,000	36,600	F	1.220	37,130	F	1.238	0.018	No
3. Oceanside Blvd to North Ave	4-Lane Major [f]	40,000	43,800	F	1.095	44,370	F	1.109	0.014	No
4. South of North Ave	6-Lane Urban Major	50,000	40,700	D	0.814	41,190	D	0.824	0.010	No
Oceanside Boulevard										
5. West of Catalina Cir	4-Lane Major	40,000	29,400	C	0.735	29,770	C	0.744	0.009	No
6. Catalina Cir to N. Melrose Dr	4-Lane Major	40,000	29,400	C	0.735	29,890	C	0.747	0.012	No
W. Bobier Way										
7. N. Melrose Dr to Sports Park Wy	4-Lane Major	40,000	22,800	C	0.570	24,390	C	0.610	0.040	No
8. Sports Park Wy to N. Santa Fe Ave	4-Lane Major	40,000	28,400	C	0.710	28,810	C	0.720	0.010	No
9. East of N. Santa Fe Ave	4-Lane Major	40,000	21,300	A	0.533	21,500	A	0.538	0.005	No

Footnotes:

a. Capacity at which the roadway currently functions and based on City of Oceanside and City of Vista Roadway Classification Tables as appropriate.
b. Average Daily Traffic Volumes.
c. Level of Service
d. Volume to Capacity ratio.
e. Δ denotes the increase in V/C due to Project.
f. A section of this roadway at the boundary between the City of Oceanside and City of Vista is not widened to a 6-Lane Major Road. Hence, the capacity of City of Oceanside 4-Lane Major Road is assumed.

10.3.3 *Daily Street Segment Operations – City of Oceanside Circulation Element*

Table 10–3 summarizes the Year 2030 with Project street segment operations along the study area roadways assuming the City of Oceanside Circulation Element Classification and the City of Vista Circulation Element for Melrose Drive. As shown on *Table 10-3*, the segments of N. Melrose Drive between north of Meadowbrook Drive and south of North Avenue are calculated to operate at LOS D or better.

TABLE 10-3
BUILDOUT (YEAR 2030) STREET SEGMENT OPERATIONS WITH CITY OF OCEANSIDE CIRCULATION ELEMENT CLASSIFICATION

Street Segment	**Functional Capacity**	**Capacity (LOS E)** [a]	**Buildout + Project**		
			ADT[b]	**LOS**[c]	**V/C**[d]
N. Melrose Drive					
1. North of Meadow Brook Dr	6-Lane Prime	60,000	37,090	C	0.618
2. Meadow Brook Dr to Oceanside Blvd	6-Lane Prime	60,000	37,130	C	0.619
3. Oceanside Blvd to North Ave	6-Lane Prime	60,000	44,370	C	0.740
4. South of North Ave	6-Lane Urban Major	50,000	41,190	D	0.824

Footnotes:

a. Capacity at which the roadway currently functions and based on City of Oceanside and City of Vista Roadway Classification Tables as appropriate.
b. Average Daily Traffic Volumes.
c. Level of Service
d. Volume to Capacity ratio.



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Figure 10-1

Buildout Traffic Volumes

Modera Melrose



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Time: 9:39 AM

Figure 10-2

Buildout + Project Traffic Volumes

Modera Melrose

11.0 PEDESTRIAN, TRANSIT AND BICYCLE MOBILITY

11.1 Bicycle Access

11.1.1 *Existing Bicycle Conditions*

Class II bike lanes are provided along North Melrose drive, Oceanside Boulevard and West Bobier Drive, in the Project area. An existing bike trail begins at the southeast corner of the Oceanside Blvd / Melrose Drive intersection.

11.1.2 *Future Bicycle Improvements/Plans*

Based on the City of Oceanside Bicycle Master Plan, North Melrose Drive is planned to have a one-way cycle track or buffered bicycle lane.

11.2 Pedestrian Access

Sidewalks are provided on both sides of the roadways throughout the Project study area. The closest pedestrian crossing is at the West Bobier Drive / Sports Park Way intersection, the proposed project driveway. Another pedestrian crossing is at the North Melrose Drive / Oceanside Boulevard intersection, approximately 900 feet west of the proposed project driveway.

The Project will provide sidewalks along its frontage on Melrose Drive and Oceanside Boulevard and the existing sidewalk ramp at the southwest corner of the Project site will be upgraded to ADA compliance.

11.3 Transit Access

Transit service within the City of Oceanside and City of Vista is provided by North County Transit District (NCTD). 318 is the bus route that is within the vicinity of the project. The Sprinter is also located within the project vicinity.

ROUTE 318

Route 318 begins at Vista Transit Center and ends at Oceanside Transit Center. There are 52 stops along this route. It operates on the weekdays from approximately 5 AM to 7 PM. On Saturdays, it operates from approximately 6 AM to 7 PM. Services are at 45-minute frequencies.

Stops at the above route are located along Oceanside Boulevard, West Bobier Drive and North Melrose Drive, south of Oceanside Boulevard. The nearest bus stop at the project site is on West Bobier Drive, east of Marabou Lane, within a walking distance of 950 feet from the Project driveway.

SPRINTER

The sprinter operates east / west between the Escondido Transit Center and the Oceanside Transit Center on all weekdays, except holidays. Monday-Thursday services are at 30-minute frequency from approximately 4 AM to 9:30 PM. Friday service is at 30-minute frequency with extended hours from approximately 4 AM to 12:30 AM. The nearest trolley stop is located at North Melrose Drive, south of Oceanside Boulevard, within a walking distance of 1,500 feet from the Project Driveway.

12.0 PARKING ASSESSMENT

The Project proposes 323 apartments. A total of 526 parking spaces will be provided including 381 in the surface lot and garages and 145 subterranean spaces. ***Table 12-1*** summarizes the required parking and the proposed parking.

In compliance with California Government Code Section 65915(p) and the City of Oceanside Article 30 Site Regulations Section 3032 Affordable Housing Density Bonus Vehicular Parking Ratio, the project is requesting from the City of Oceanside as permitted the following maximum parking ratio inclusive of handicapped and guest parking for the condominium units not to exceed 0.5 spaces per dwelling unit. The project meets the requirements of Government Code Section 65915(p) and Oceanside Section 3032 in that the development:

- Includes the maximum percentage of low-income or very low-income units (i.e. 15% very low income),
- Is located within one-half mile of a major transit stop (i.e. Melrose Sprinter Station 0.3 miles),
- There is unobstructed access to the major transit stop from the development (i.e. public sidewalk) as there is no natural or constructed impediments from the proposed project to the Melrose Sprinter Station.

Also, in compliance with Article 31 Off-street Parking and Loading Regulations Section 3103 Off-Street Parking and Loading Spaces Require, the project is providing for the Commercial Space a parking ratio of 1 space per 300 SF of gross floor area. The following is the parking provided for residential and commercial per the requirements above:

TABLE 12-1
PARKING CALCULATIONS

Type of Use / Parking Space	Number of Units	Parking Required (Per State Density Bonus Rates for Residential Units Within ½ Mile of a Major Transit Stop)	
		Rate by Use	Spaces per Use
Parking Spaces Required			
1 Bedroom Unit	151	0.5/unit	76
2 Bedroom Unit	160	0.5/unit	80
3 Bedroom Unit	12	0.5/unit	6
Guest	-	0	0
Commercial	2,336 sf	1/300 sf	8
Total Spaces Required			**170**
Parking Spaces Provided			
Surface Standard			271
Surface Compact			32
Garage Space			39
Tandem			39
Subterranean			124
Subterranean Compact			21
Total Spaces Required			**526**

13.0 CONCLUSIONS

The Project is consistent with the City's adopted General Plan and is located in a Transit Priority Area. Therefore, a CEQA VMT Analysis is screened and was therefore not prepared for this Project and the CEQA VMT impact is presumed to be less than significant.

Per the City of Oceanside's thresholds for the determination of the need for roadway improvements, and the analysis methodology presented in this report, roadway improvements are not required the since the increase in Project related delays at intersections and V/C on study area segments do not exceed the allowable thresholds.

The Project requires the provision of 170 parking spaces and will provide 526 parking spaces.

LINSCOTT LAW & GREENSPAN engineers

TECHNICAL APPENDICES TO THE LOCAL TRANSPORTATION STUDY

MODERA MELROSE

Oceanside, California
October **5**, 2022

LLG Ref. 3-21-3419

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APPENDICES

APPENDIX

A. City of Oceanside Roadway Classification Table

B. Growth Rate Factor Calculations

C. Intersection and Segment Count Sheets

D. Signal Timing Plans

E. Peak Hour Intersection Analysis Worksheets – Existing Conditions

F. Melrose Heights Project Traffic Assignment

G. Peak Hour Intersection Analysis Worksheets – Existing + Project

H. Peak Hour Intersection Analysis Worksheets – Near-Term

I. Peak Hour Intersection Analysis Worksheets – Near-Term + Project

J. Forecast Peak Hour Volumes Calculation Template and Peak Hour Intersection Analysis Worksheets – Buildout

K. Peak Hour Intersection Analysis Worksheets – Buildout + Project

APPENDIX A

CITY OF OCEANSIDE ROADWAY CLASSIFICATION TABLE

City of Oceanside

Table 12 – Circulation Element Roadway Classification LOS & Capacity

Class	Lanes	Cross Section [1]	Level of Service (LOS)				
			A	B	C	D	E
Expressway	6	102/160 122/200	30,000	42,000	60,000	70,000	80,000
Expressway	4	102/160 122/200	25,000	35,000	50,000	55,000	60,000
Prime Arterial	6	104/124	25,000	35,000	50,000	55,000	60,000
6-Lane Major Arterial	6	104/124	20,000	28,000	40,000	45,000	50,000
5-Lane Major Arterial [2]	5	102/122	17,500	24,500	35,000	40,000	45,000
4-Lane Major Arterial	4	80/100	15,000	21,000	30,000	35,000	40,000
Secondary Collector (4 lanes with 2-way left turn lane)	4	64/84	10,000	14,000	20,000	25,000	30,000
Secondary Collector (4 lanes without 2-way left-turn lane, with left turn pockets)	4	54/74 60/80	9,000	13,000	18,000	22,000	25,000
Collector (commercial fronting, 2-lanes with 2-way left turn lane) [3]	2	50/70	5,000	7,000	10,000	13,000	15,000
Collector (residential streets in the Circulation Element or industrial fronting)	2	40/60, 50/70	4,000	5,500	7,500	9,000	10,000
Local Street (residential streets NOT in the Circulation Element	1	36/56 40/60	– –	– –	2,400 2,400	– –	– –

(1) Cross sections are listed as curd-to-curb width/total right of way width, in feet.

(2) Vandegrift Boulevard is the only Circulation Element roadway designated as a 5-lane Major Arterial. It is not intended that other roadways be built to 5-lane Major Arterial standards.

(3) This capacity will also be assumed for a two-lane one-way collector.

APPENDIX B

GROWTH RATE FACTOR CALCULATIONS

Change in Traffic Volumes on SR 78

Segment	June 2019 (Pre Covid)			June 2021 (During Covid)			Difference	
	EB	WB	Total	EB	WB	Total	Amount	Percent
SR 78								
Plaza Dr to Emerald Dr	56,272	59,420	115,692	53,848	57,744	111,592	4,100	3.54%
Emerald Dr to Vista Village Dr	56,646	64,324	120,970	54,022	62,473	116,495	4,475	3.70%
Vista Village Dr to Civic Center Dr	65,386	70,903	136,289	61,107	68,085	129,192	7,097	5.21%
Civic Center Dr To Mar Vista Dr	52,539	64,719	117,258	49,517	62,133	111,650	5,608	4.78%
Average Difference								**4.31%**
Ues								**5.00%**

APPENDIX C

INTERSECTION AND SEGMENT COUNT SHEETS

Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#01 R	File Name:	ITM-21-042-01R
Intersection:	North Melrose Drive & Meadowbrook Drive	Project:	LLG Ref. 3-21-3419
Date of Count:	Tuesday, August 31, 2021		Modera - Oceanside

AM	N. Melrose Drive Southbound			Meadowbrook Drive Westbound			N. Melrose Drive Northbound			Meadowbrook Drive Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	0	179	3	4	0	0	4	102	0	3	0	9	304
7:15	2	183	6	2	1	0	5	84	0	1	0	13	297
7:30	0	217	1	3	0	0	3	106	1	4	0	22	357
7:45	2	164	3	3	0	3	8	102	0	0	0	18	303
8:00	1	142	1	2	0	0	1	61	0	2	0	14	224
8:15	0	179	2	3	0	1	3	107	2	3	0	15	315
8:30	1	185	3	4	0	0	9	89	2	1	0	12	306
8:45	1	166	2	1	0	0	9	82	1	0	0	13	275
Total	7	1415	21	22	1	4	42	733	6	14	0	116	2381
Approach%	0.5	98.1	1.5	81.5	3.7	14.8	5.4	93.9	0.8	10.8	-	89.2	
Total%	0.3	59.4	0.9	0.9	0.0	0.2	1.8	30.8	0.3	0.6	-	4.9	

AM Intersection Peak Hour: **07:00 to 08:00**

Volume	4	743	13	12	1	3	20	394	1	8	-	62	1,261
Approach%	0.5	97.8	1.7	75.0	6.3	18.8	4.8	94.9	0.2	11.4	-	88.6	
Total%	0.3	58.9	1.0	1.0	0.1	0.2	1.6	31.2	0.1	0.6	-	4.9	
PHF			0.87			0.67			0.94			0.67	0.88

PM	N. Melrose Drive Southbound			Meadowbrook Drive Westbound			N. Melrose Drive Northbound			Meadowbrook Drive Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	3	143	3	1	1	0	21	218	3	4	0	11	408
16:15	4	136	0	3	1	0	20	246	4	3	0	20	437
16:30	2	181	8	2	0	0	7	263	2	1	0	12	478
16:45	3	123	1	0	0	0	24	204	4	4	0	10	373
17:00	0	189	3	2	0	0	15	244	1	1	1	10	466
17:15	1	182	2	4	1	0	26	231	1	3	0	8	459
17:30	1	112	2	1	0	3	8	228	2	3	1	18	379
17:45	3	143	4	1	0	1	12	199	2	2	1	12	380
Total	17	1209	23	14	3	4	133	1833	19	21	3	101	3380
Approach%	1.4	96.8	1.8	66.7	14.3	19.0	6.7	92.3	1.0	16.8	2.4	80.8	
Total%	0.5	35.8	0.7	0.4	0.1	0.1	3.9	54.2	0.6	0.6	0.1	3.0	

PM Intersection Peak Hour: **16:30 to 17:30**

Volume	6	675	14	8	1	-	72	942	8	9	1	40	1,776
Approach%	0.9	97.1	2.0	88.9	11.1	-	7.0	92.2	0.8	18.0	2.0	80.0	
Total%	0.3	38.0	0.8	0.5	0.1	-	4.1	53.0	0.5	0.5	0.1	2.3	
PHF			0.90			0.45			0.94			0.89	0.93

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

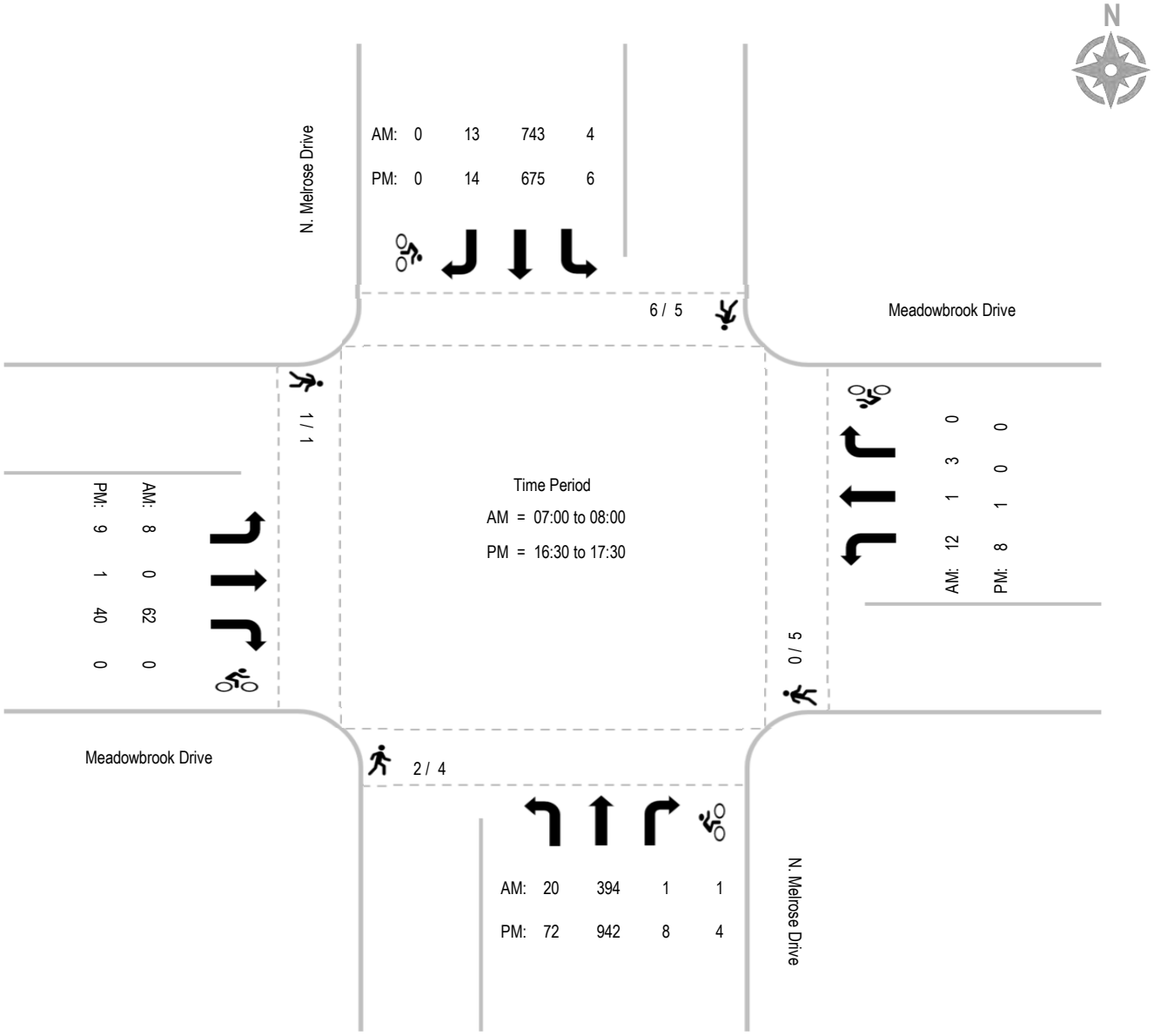
Location:	#01 R	File Name:	ITM-21-042-01R
Intersection:	North Melrose Drive & Meadowbrook Drive	Project:	LLG Ref. 3-21-3419
Date of Count:	Tuesday, August 31, 2021		Modera - Oceanside

AM	N. Melrose Drive Southbound				Meadowbrook Drive Westbound				N. Melrose Drive Northbound				Meadowbrook Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0
7:45	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0
8:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
8:15	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Ped Total	6				0				2				1				9	
Bike Total		0	0	0		0	0	0		0	1	0		0	0	0		1

PM	N. Melrose Drive Southbound				Meadowbrook Drive Westbound				N. Melrose Drive Northbound				Meadowbrook Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
17:30	5	0	0	0	4	0	0	0	2	0	1	0	0	0	0	0	11	1
17:45	0	0	0	0	1	0	0	0	2	0	0	0	1	0	0	0	4	0
Ped Total	5				5				4				1				15	
Bike Total		0	0	0		0	0	0		0	4	0		0	0	0		4

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location:	#01 R	File Name: ITM-21-042-01R
	Intersection:	North Melrose Drive & Meadowbrook Drive	Project: LLG Ref. 3-21-3419
	Date of Count:	Tuesday, August 31, 2021	Modera - Oceanside



Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#02 R	File Name:	ITM-21-042-02R
Intersection:	Catalina Circle & Oceanside Boulevard	Project:	LLG Ref. 3-21-3419
Date of Count:	Tuesday, August 31, 2021		Modera - Oceanside

AM	Catalina Circle Southbound			Oceanside Boulevard Westbound			Business Driveway Northbound			Oceanside Boulevard Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	15	0	8	3	108	7	3	0	0	2	76	0	222
7:15	20	0	10	0	139	5	4	0	1	3	68	1	251
7:30	17	0	17	2	155	3	5	0	2	1	83	1	286
7:45	24	0	4	1	233	8	6	0	1	2	94	1	374
8:00	11	0	11	0	141	4	4	0	2	5	101	0	279
8:15	10	0	16	0	134	6	4	0	3	1	78	0	252
8:30	12	0	6	0	135	4	3	0	2	2	84	1	249
8:45	6	0	4	0	118	9	1	0	1	3	113	1	256
Total	115	0	76	6	1163	46	30	0	12	19	697	5	2169
Approach%	60.2	-	39.8	0.5	95.7	3.8	71.4	-	28.6	2.6	96.7	0.7	
Total%	5.3	-	3.5	0.3	53.6	2.1	1.4	-	0.6	0.9	32.1	0.2	

AM Intersection Peak Hour: **07:30 to 08:30**

Volume	62	-	48	3	663	21	19	-	8	9	356	2	1,191
Approach%	56.4	-	43.6	0.4	96.5	3.1	70.4	-	29.6	2.5	97.0	0.5	
Total%	5.2	-	4.0	0.3	55.7	1.8	1.6	-	0.7	0.8	29.9	0.2	
PHF			0.81			0.71			0.96			0.87	0.80

PM	Catalina Circle Southbound			Oceanside Boulevard Westbound			Business Driveway Northbound			Oceanside Boulevard Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	9	0	7	2	140	12	12	0	13	7	208	0	410
16:15	7	0	8	2	140	22	2	0	1	12	187	0	381
16:30	5	0	4	0	136	15	4	0	2	13	237	0	416
16:45	12	0	11	1	137	22	1	0	1	11	185	1	382
17:00	4	0	8	1	162	20	3	0	4	14	258	0	474
17:15	14	0	5	1	155	16	1	0	1	13	211	0	417
17:30	11	0	8	0	140	15	0	0	0	12	193	0	379
17:45	21	0	6	0	119	11	0	0	1	14	145	0	317
Total	83	0	57	7	1129	133	23	0	23	96	1624	1	3176
Approach%	59.3	-	40.7	0.6	89.0	10.5	50.0	-	50.0	5.6	94.4	0.1	
Total%	2.6	-	1.8	0.2	35.5	4.2	0.7	-	0.7	3.0	51.1	0.0	

PM Intersection Peak Hour: **16:30 to 17:30**

Volume	35	-	28	3	590	73	9	-	8	51	891	1	1,689
Approach%	55.6	-	44.4	0.5	88.6	11.0	52.9	-	47.1	5.4	94.5	0.1	
Total%	2.1	-	1.7	0.2	34.9	4.3	0.5	-	0.5	3.0	52.8	0.1	
PHF			0.68			0.91			0.61			0.87	0.89

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#02 R	File Name:	ITM-21-042-02R
Intersection:	Catalina Circle & Oceanside Boulevard	Project:	LLG Ref. 3-21-3419
Date of Count:	Tuesday, August 31, 2021		Modera - Oceanside

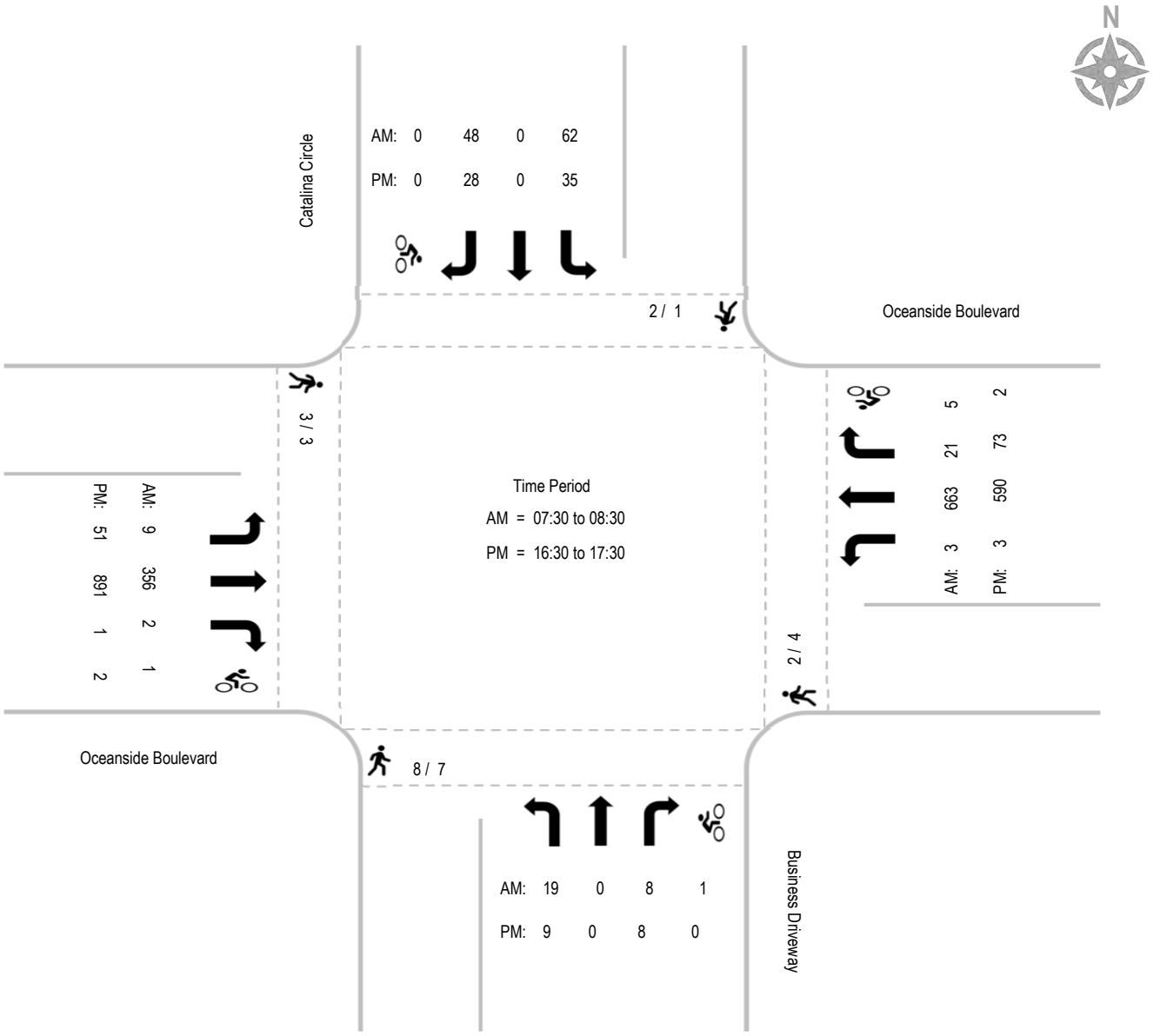
AM	Catalina Circle Southbound				Oceanside Boulevard Westbound				Business Driveway Northbound				Oceanside Boulevard Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	1
7:15	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
7:30	1	0	0	0	2	0	1	0	1	0	0	0	1	0	0	0	5	1
7:45	0	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	0	3
8:00	0	0	0	0	0	0	1	0	4	0	0	0	1	0	0	0	5	1
8:15	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
8:30	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
8:45	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	1
Ped Total	2				2				8				3				15	
Bike Total		0	0	0		0	5	0		1	0	0		1	0	0		7

PM	Catalina Circle Southbound				Oceanside Boulevard Westbound				Business Driveway Northbound				Oceanside Boulevard Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	0	4	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	4	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	1
17:30	0	0	0	0	2	0	1	0	1	0	0	0	0	0	0	0	3	1
17:45	0	0	0	0	1	0	1	0	2	0	0	0	0	0	0	0	3	1
Ped Total	1				4				7				3				15	
Bike Total		0	0	0		0	2	0		0	0	0		0	2	0		4

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers

Location:	#02 R	File Name:	ITM-21-042-02R
Intersection:	Catalina Circle & Oceanside Boulevard	Project:	LLG Ref. 3-21-3419
Date of Count:	Tuesday, August 31, 2021		Modera - Oceanside



Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#03	File Name:	ITM-21-046-03
Intersection:	Melrose Drive & W. Bobier Drive & Oceanside Boulevard	Project:	LLG Ref. 3-21-3419
Date of Count:	Tuesday, August 31, 2021		Modera 2 - Oceanside

AM	Melrose Drive Southbound			W. Bobier Drive Westbound			Melrose Drive Northbound			Oceanside Boulevard Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	38	127	33	13	165	28	100	89	21	30	149	84	877
7:15	32	80	31	7	162	22	108	138	28	47	144	77	876
7:30	40	55	51	9	181	22	115	174	35	62	126	29	899
7:45	18	78	70	14	165	24	101	220	39	57	124	52	962
8:00	20	103	73	14	157	25	123	149	33	50	112	52	911
8:15	29	66	53	21	192	20	65	97	7	56	106	48	760
8:30	29	76	51	7	179	30	81	103	9	26	94	41	726
8:45	33	66	34	6	139	27	63	72	6	29	51	51	577
Total	239	651	396	91	1340	198	756	1042	178	357	906	434	6588
Approach%	18.6	50.6	30.8	5.6	82.3	12.2	38.3	52.7	9.0	21.0	53.4	25.6	
Total%	3.6	9.9	6.0	1.4	20.3	3.0	11.5	15.8	2.7	5.4	13.8	6.6	

AM Intersection Peak Hour: **07:15 to 08:15**

Volume	110	316	225	44	665	93	447	681	135	216	506	210	3,648
Approach%	16.9	48.5	34.6	5.5	82.9	11.6	35.4	53.9	10.7	23.2	54.3	22.5	
Total%	3.0	8.7	6.2	1.2	18.2	2.5	12.3	18.7	3.7	5.9	13.9	5.8	
PHF			0.83			0.95			0.88			0.87	0.95

PM	Melrose Drive Southbound			W. Bobier Drive Westbound			Melrose Drive Northbound			Oceanside Boulevard Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	51	126	39	12	140	23	57	108	6	63	171	110	906
16:15	53	149	39	12	160	26	47	92	13	53	196	105	945
16:30	57	160	58	20	98	28	50	111	12	54	209	116	973
16:45	45	150	28	15	140	20	69	104	10	50	217	103	951
17:00	63	157	68	17	116	29	61	76	13	62	220	114	996
17:15	61	171	47	10	115	30	61	112	12	61	219	121	1020
17:30	46	142	27	14	131	19	48	83	7	65	188	89	859
17:45	38	133	31	15	108	20	55	109	7	55	174	104	849
Total	414	1188	337	115	1008	195	448	795	80	463	1594	862	7499
Approach%	21.4	61.3	17.4	8.7	76.5	14.8	33.9	60.1	6.0	15.9	54.6	29.5	
Total%	5.5	15.8	4.5	1.5	13.4	2.6	6.0	10.6	1.1	6.2	21.3	11.5	

PM Intersection Peak Hour: **16:30 to 17:30**

Volume	226	638	201	62	469	107	241	403	47	227	865	454	3,940
Approach%	21.2	59.9	18.9	9.7	73.5	16.8	34.9	58.3	6.8	14.7	56.0	29.4	
Total%	5.7	16.2	5.1	1.6	11.9	2.7	6.1	10.2	1.2	5.8	22.0	11.5	
PHF			0.92			0.91			0.93			0.96	0.97

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

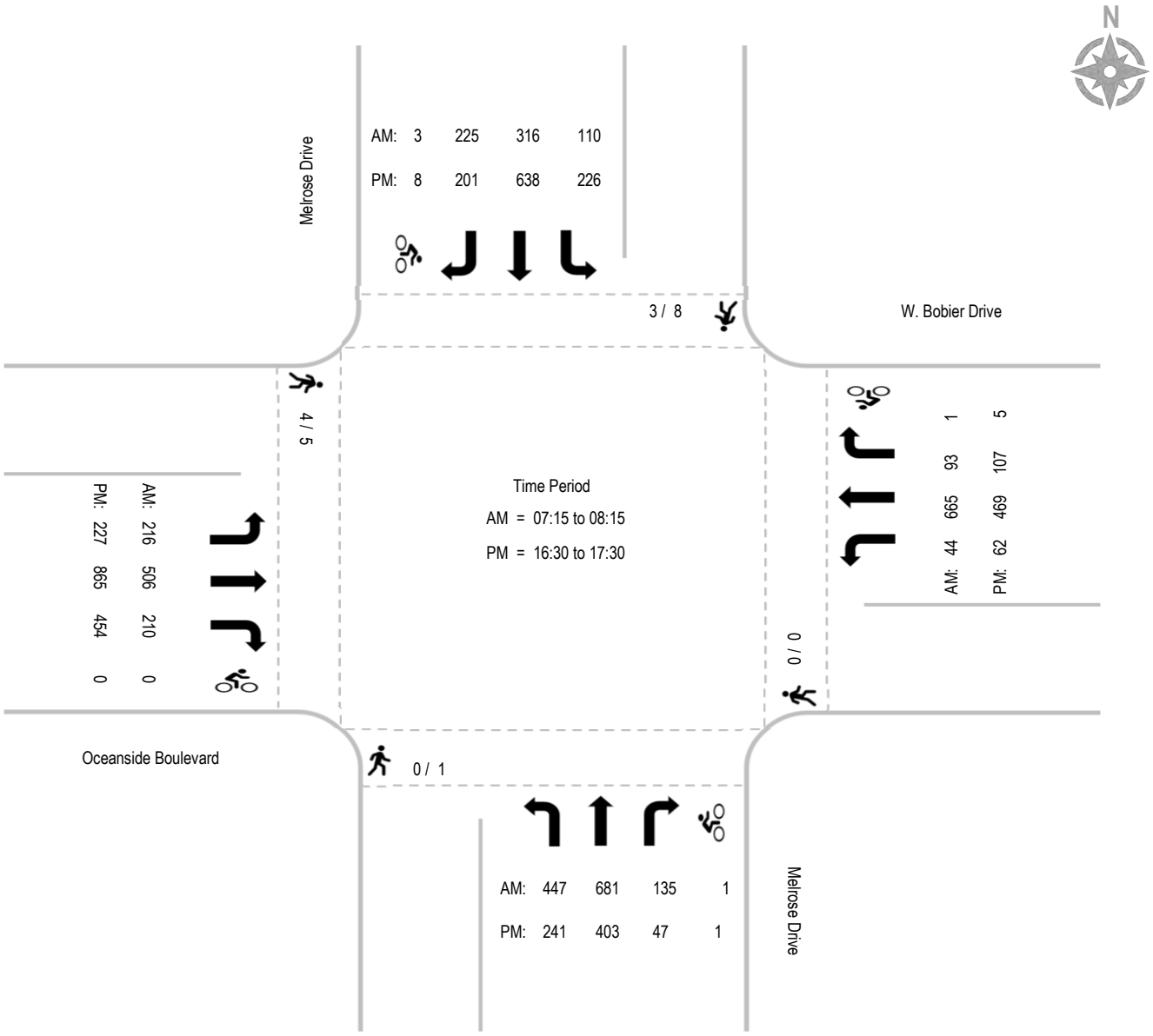
Location:	#03	File Name:	ITM-21-046-03
Intersection:	Melrose Drive & W. Bobier Drive & Oceanside Boulevard	Project:	LLG Ref. 3-21-3419
Date of Count:	Tuesday, August 31, 2021		Modera 2 - Oceanside

AM	Melrose Drive Southbound				W. Bobier Drive Westbound				Melrose Drive Northbound				Oceanside Boulevard Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	2	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	4	1
7:15	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	0	1	0	0	0	1	0	0	0	1	0	1	0	0	0	1	3
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	3				0				0				4				7	
Bike Total		1	2	0		0	1	0		0	1	0		0	0	0		5

PM	Melrose Drive Southbound				W. Bobier Drive Westbound				Melrose Drive Northbound				Oceanside Boulevard Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2
16:15	1	1	0	0	0	0	0	1	0	0	0	0	3	0	0	0	4	2
16:30	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	2	1
16:45	4	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	5	1
17:00	1	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	3
17:15	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
17:30	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
17:45	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	2
Ped Total	8				0				1				5				14	
Bike Total		4	3	1		1	3	1		0	1	0		0	0	0		14

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location:	#03	File Name: ITM-21-046-03
	Intersection:	Melrose Drive & W. Bobier Drive & Oceanside Boulevard	Project: LLG Ref. 3-21-3419
	Date of Count:	Tuesday, August 31, 2021	Modera 2 - Oceanside



Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#04	File Name:	ITM-21-046-04
Intersection:	Sports Park Way (Future Project Drwy) W. Bobier Drive	Project:	LLG Ref. 3-21-3419
Date of Count:	Tuesday, August 31, 2021		Modera 2 - Oceanside

AM	Sports Park Way Southbound			W. Bobier Drive Westbound			Future Project Drwy Northbound			W. Bobier Drive Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	1	0	14	0	206	6	0	0	0	7	220	0	454
7:15	3	0	12	0	277	0	0	0	0	9	164	0	465
7:30	4	0	13	0	355	0	0	0	0	3	99	0	474
7:45	5	0	14	0	368	3	0	0	0	6	135	0	531
8:00	2	0	11	0	219	2	0	0	0	8	157	0	399
8:15	4	0	7	0	182	4	0	0	0	8	134	0	339
8:30	1	0	4	0	178	9	0	0	0	5	120	0	317
8:45	2	0	4	0	125	3	0	0	0	3	121	0	258
Total	22	0	79	0	1910	27	0	0	0	49	1150	0	3237
Approach%	21.8	-	78.2	-	98.6	1.4	-	-	-	4.1	95.9	-	
Total%	0.7	-	2.4	-	59.0	0.8	-	-	-	1.5	35.5	-	

AM Intersection Peak Hour: **07:00 to 08:00**

Volume	13	-	53	-	1,206	9	-	-	-	25	618	-	1,924
Approach%	19.7	-	80.3	-	99.3	0.7	-	-	-	3.9	96.1	-	
Total%	0.7	-	2.8	-	62.7	0.5	-	-	-	1.3	32.1	-	
PHF			0.87			0.82			#DIV/0!			0.71	0.91

PM	Sports Park Way Southbound			W. Bobier Drive Westbound			Future Project Drwy Northbound			W. Bobier Drive Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	2	0	8	0	157	2	0	0	0	13	240	0	422
16:15	2	0	9	0	155	5	0	0	0	14	250	0	435
16:30	5	0	6	0	150	3	0	0	0	25	296	0	485
16:45	4	0	6	0	167	19	0	0	0	25	241	0	462
17:00	2	0	23	0	153	15	0	0	0	21	269	0	483
17:15	7	0	11	0	146	24	0	0	0	34	258	0	480
17:30	6	0	14	0	148	9	0	0	0	27	226	0	430
17:45	7	0	9	0	144	14	0	0	0	31	213	0	418
Total	35	0	86	0	1220	91	0	0	0	190	1993	0	3615
Approach%	28.9	-	71.1	-	93.1	6.9	-	-	-	8.7	91.3	-	
Total%	1.0	-	2.4	-	33.7	2.5	-	-	-	5.3	55.1	-	

PM Intersection Peak Hour: **16:30 to 17:30**

Volume	18	-	46	-	616	61	-	-	-	105	1,064	-	1,910
Approach%	28.1	-	71.9	-	91.0	9.0	-	-	-	9.0	91.0	-	
Total%	0.9	-	2.4	-	32.3	3.2	-	-	-	5.5	55.7	-	
PHF			0.64			0.91			#DIV/0!			0.91	0.98

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

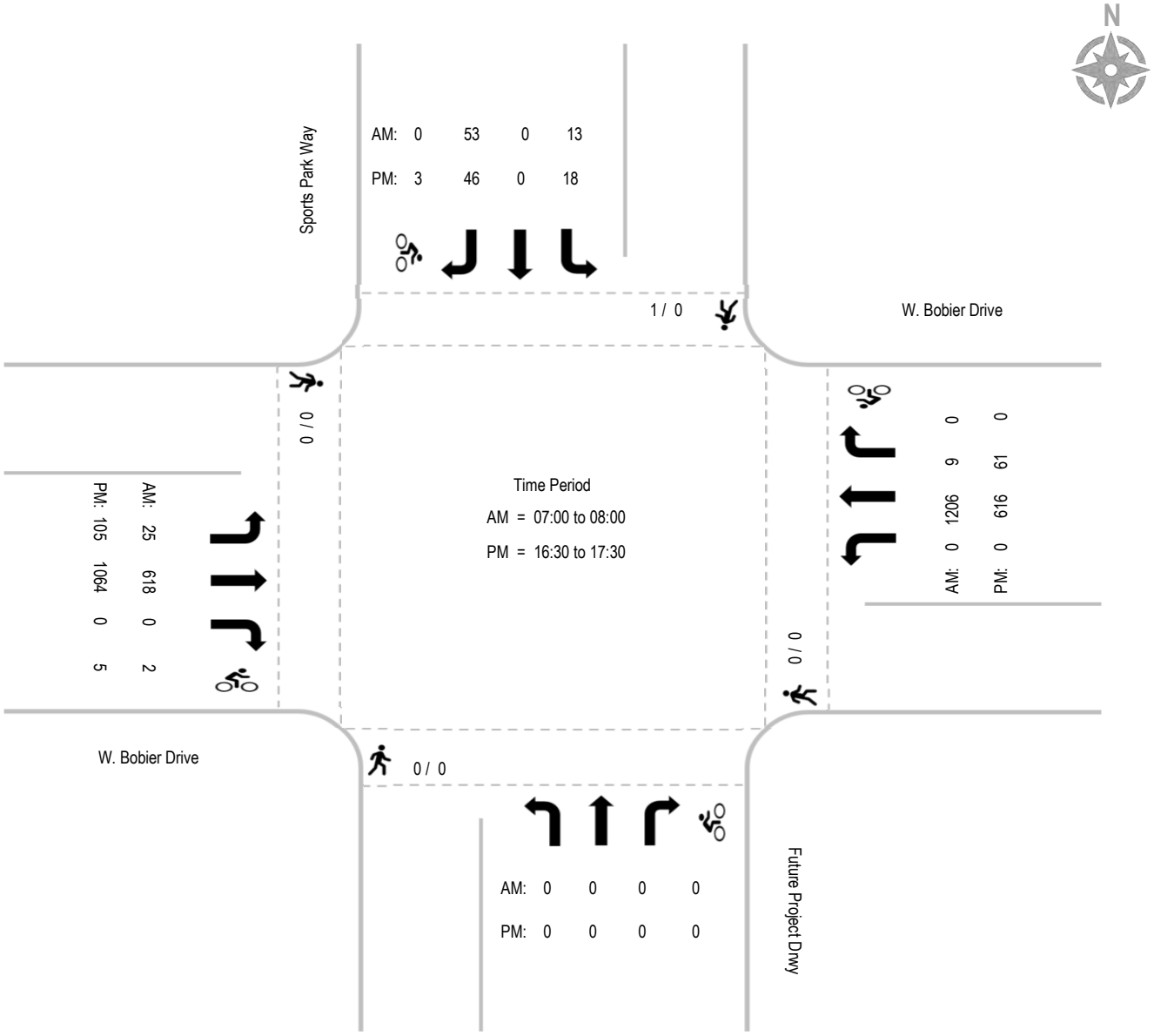
Location:	#04	File Name:	ITM-21-046-04
Intersection:	Sports Park Way (Future Project Drwy) W. Bobier Drive	Project:	LLG Ref. 3-21-3419
Date of Count:	Tuesday, August 31, 2021		Modera 2 - Oceanside

AM	Sports Park Way Southbound				W. Bobier Drive Westbound				Future Project Drwy Northbound				W. Bobier Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	1				0				0				0				1	
Bike Total		0	0	0		0	0	0		0	0	0		0	2	0		2

PM	Sports Park Way Southbound				W. Bobier Drive Westbound				Future Project Drwy Northbound				W. Bobier Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
16:15	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
17:00	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				0				0				0				0	
Bike Total		3	0	0		0	0	0		0	0	0		0	5	0		8

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location:	#04	File Name: ITM-21-046-04
	Intersection:	Sports Park Way (Future Project Drwy) W. Bobier Drive	Project: LLG Ref. 3-21-3419
	Date of Count:	Tuesday, August 31, 2021	Modera 2 - Oceanside



Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#05	File Name:	ITM-21-046-05
Intersection:	North Santa Fe Avenue & Bobier Drive	Project:	LLG Ref. 3-21-3419
Date of Count:	Tuesday, August 31, 2021		Modera 2 - Oceanside

AM	N Santa Fe Avenue Southbound			East Bobier Drive Westbound			N Santa Fe Avenue Northbound			West Bobier Drive Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	57	92	47	38	105	31	31	101	70	35	134	16	757
7:15	49	124	67	71	173	26	39	155	70	54	173	23	1024
7:30	57	156	88	75	163	32	80	117	33	40	99	42	982
7:45	45	189	100	37	157	26	63	61	22	43	93	53	889
8:00	65	141	63	42	131	24	36	45	17	41	130	39	774
8:15	55	112	32	36	91	24	45	73	31	17	108	22	646
8:30	36	98	34	41	84	20	27	51	28	19	96	25	559
8:45	44	78	32	27	68	20	28	52	26	20	96	21	512
Total	408	990	463	367	972	203	349	655	297	269	929	241	6143
Approach%	21.9	53.2	24.9	23.8	63.0	13.2	26.8	50.3	22.8	18.7	64.6	16.7	
Total%	6.6	16.1	7.5	6.0	15.8	3.3	5.7	10.7	4.8	4.4	15.1	3.9	

AM Intersection Peak Hour: **07:15 to 08:15**

Volume	216	610	318	225	624	108	218	378	142	178	495	157	3,669
Approach%	18.9	53.3	27.8	23.5	65.2	11.3	29.5	51.2	19.2	21.4	59.6	18.9	
Total%	5.9	16.6	8.7	6.1	17.0	2.9	5.9	10.3	3.9	4.9	13.5	4.3	
PHF			0.86			0.89			0.70			0.83	0.92

PM	N Santa Fe Avenue Southbound			East Bobier Drive Westbound			N Santa Fe Avenue Northbound			West Bobier Drive Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	35	92	48	40	96	39	48	116	37	48	159	36	794
16:15	62	120	23	51	108	49	53	112	26	44	150	23	821
16:30	45	87	22	44	100	23	31	126	32	61	148	28	747
16:45	43	87	32	37	97	36	39	142	31	51	146	31	772
17:00	52	81	23	46	125	56	27	114	30	57	132	16	759
17:15	45	100	21	36	135	30	36	111	29	31	182	30	786
17:30	47	83	24	51	126	39	47	115	34	50	155	30	801
17:45	47	79	22	37	92	32	40	114	49	48	141	35	736
Total	376	729	215	342	879	304	321	950	268	390	1213	229	6216
Approach%	28.5	55.2	16.3	22.4	57.6	19.9	20.9	61.7	17.4	21.3	66.2	12.5	
Total%	6.0	11.7	3.5	5.5	14.1	4.9	5.2	15.3	4.3	6.3	19.5	3.7	

PM Intersection Peak Hour: **16:00 to 17:00**

Volume	185	386	125	172	401	147	171	496	126	204	603	118	3,134
Approach%	26.6	55.5	18.0	23.9	55.7	20.4	21.6	62.5	15.9	22.1	65.2	12.8	
Total%	5.9	12.3	4.0	5.5	12.8	4.7	5.5	15.8	4.0	6.5	19.2	3.8	
PHF			0.85			0.87			0.94			0.95	0.95

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

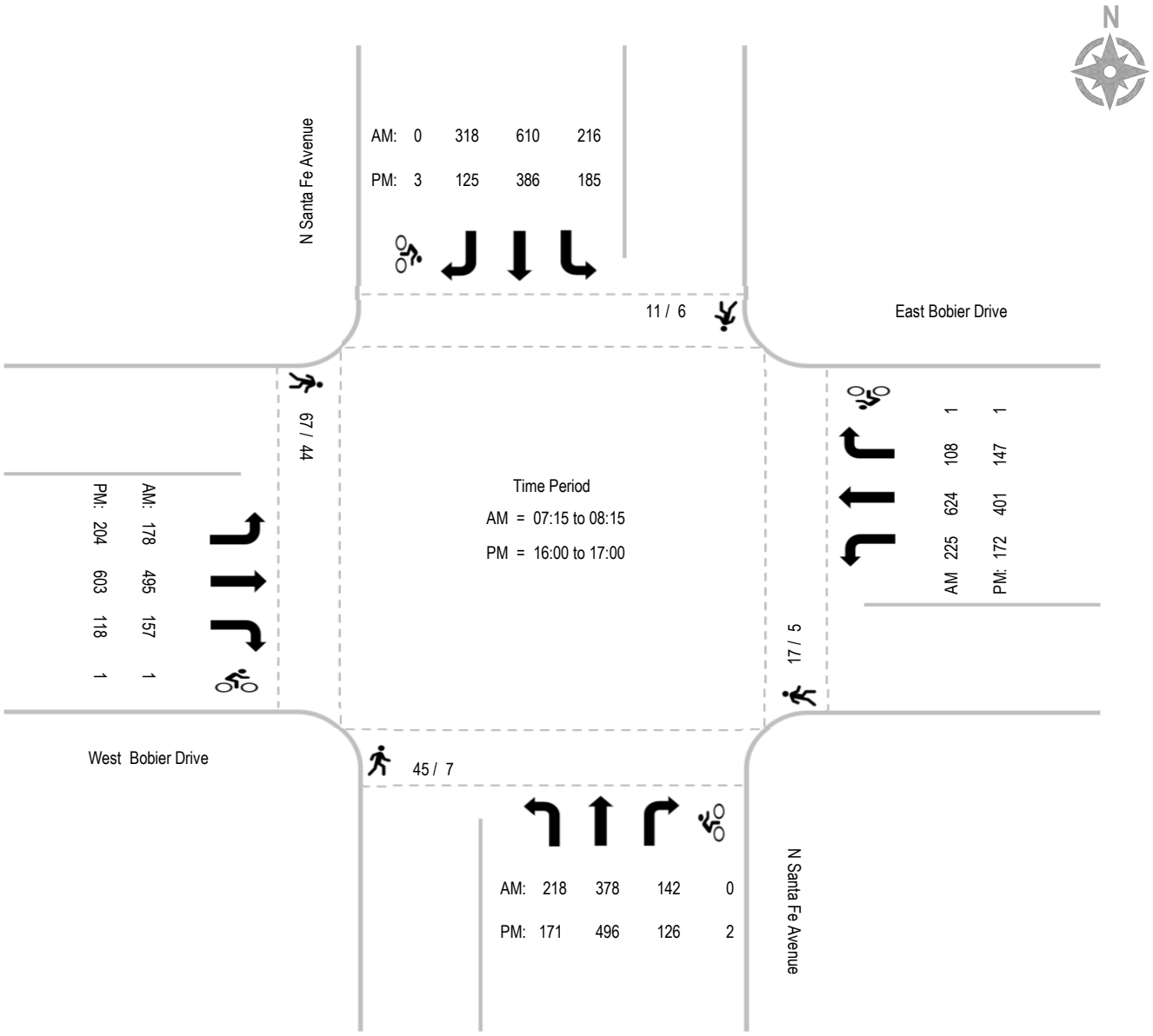
Location:	#05	File Name:	ITM-21-046-05
Intersection:	North Santa Fe Avenue & Bobier Drive	Project:	LLG Ref. 3-21-3419
Date of Count:	Tuesday, August 31, 2021		Modera 2 - Oceanside

AM	N Santa Fe Avenue Southbound				East Bobier Drive Westbound				N Santa Fe Avenue Northbound				West Bobier Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	3	0	0	0	5	0	0	0	9	0	0	0	5	0	1	0	22	1
7:15	4	0	0	0	7	0	1	0	23	0	0	0	5	0	0	0	39	1
7:30	0	0	0	0	0	0	0	0	2	0	0	0	22	0	0	0	24	0
7:45	2	0	0	0	0	0	0	0	2	0	0	0	16	0	0	0	20	0
8:00	1	0	0	0	1	0	0	0	3	0	0	0	9	0	0	0	14	0
8:15	0	0	0	0	3	0	0	0	2	0	0	0	4	0	0	0	9	0
8:30	1	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	5	0
8:45	0	0	0	0	1	0	0	0	2	0	0	0	4	0	0	0	7	0
Ped Total	11				17				45				67				140	
Bike Total		0	0	0		0	1	0		0	0	0		0	1	0		2

PM	N Santa Fe Avenue Southbound				East Bobier Drive Westbound				N Santa Fe Avenue Northbound				West Bobier Drive Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	4	0	0	0	0	0	0	0	1	0	1	0	7	0	0	0	12	1
16:15	0	0	1	0	0	0	0	0	2	0	0	0	7	0	0	0	9	1
16:30	0	0	0	0	0	0	0	0	3	0	0	0	5	0	0	1	8	1
16:45	0	0	0	0	0	0	0	0	1	0	1	0	10	0	0	0	11	1
17:00	1	0	0	1	3	0	0	0	0	0	0	0	4	0	0	0	8	1
17:15	0	0	0	0	1	1	0	0	0	0	0	0	4	0	0	0	5	1
17:30	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	2	1
17:45	1	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	7	0
Ped Total	6				5				7				44				62	
Bike Total		0	2	1		1	0	0		0	2	0		0	0	1		7

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location:	#05	File Name: ITM-21-046-05
	Intersection:	North Santa Fe Avenue & Bobier Drive	Project: LLG Ref. 3-21-3419
	Date of Count:	Tuesday, August 31, 2021	Modera 2 - Oceanside



Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#06	File Name:	ITM-21-046-06
Intersection:	North Melrose Drive & North Avenue	Project:	LLG Ref. 3-21-3419
Date of Count:	Tuesday, August 31, 2021		Modera 2 - Oceanside

AM	North Melrose Drive Southbound			North Avenue Westbound			North Melrose Drive Northbound			North Avenue Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	8	266	28	47	23	16	17	201	13	21	18	11	669
7:15	16	306	24	48	39	24	37	241	19	25	21	16	816
7:30	17	273	37	57	52	21	39	192	16	28	41	16	789
7:45	14	301	39	51	55	17	43	203	27	16	51	25	842
8:00	11	304	25	48	27	24	22	195	27	22	55	26	786
8:15	20	273	20	29	23	14	28	145	24	17	35	26	654
8:30	15	227	11	29	20	8	11	138	19	6	16	11	511
8:45	9	229	17	32	13	12	15	133	14	9	18	17	518
Total	110	2179	201	341	252	136	212	1448	159	144	255	148	5585
Approach%	4.4	87.5	8.1	46.8	34.6	18.7	11.7	79.6	8.7	26.3	46.6	27.1	
Total%	2.0	39.0	3.6	6.1	4.5	2.4	3.8	25.9	2.8	2.6	4.6	2.6	

AM Intersection Peak Hour: **07:15 to 08:15**

Volume	58	1,184	125	204	173	86	141	831	89	91	168	83	3,233
Approach%	4.2	86.6	9.1	44.1	37.4	18.6	13.3	78.3	8.4	26.6	49.1	24.3	
Total%	1.8	36.6	3.9	6.3	5.4	2.7	4.4	25.7	2.8	2.8	5.2	2.6	
PHF			0.97			0.89			0.89			0.83	0.96

PM	North Melrose Drive Southbound			North Avenue Westbound			North Melrose Drive Northbound			North Avenue Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	9	190	29	28	25	13	7	303	47	23	33	22	729
16:15	16	210	16	22	26	15	11	347	39	23	46	9	780
16:30	17	188	15	29	26	14	12	335	41	31	53	20	781
16:45	14	219	18	25	32	11	14	330	52	22	37	14	788
17:00	14	184	22	26	25	12	17	333	61	31	39	15	779
17:15	27	216	13	22	25	15	8	353	45	27	52	19	822
17:30	14	187	21	23	29	13	16	326	63	20	35	14	761
17:45	14	174	13	28	22	16	13	315	57	18	43	12	725
Total	125	1568	147	203	210	109	98	2642	405	195	338	125	6165
Approach%	6.8	85.2	8.0	38.9	40.2	20.9	3.1	84.0	12.9	29.6	51.4	19.0	
Total%	2.0	25.4	2.4	3.3	3.4	1.8	1.6	42.9	6.6	3.2	5.5	2.0	

PM Intersection Peak Hour: **16:30 to 17:30**

Volume	72	807	68	102	108	52	51	1,351	199	111	181	68	3,170
Approach%	7.6	85.2	7.2	38.9	41.2	19.8	3.2	84.4	12.4	30.8	50.3	18.9	
Total%	2.3	25.5	2.1	3.2	3.4	1.6	1.6	42.6	6.3	3.5	5.7	2.1	
PHF			0.92			0.95			0.97			0.87	0.96

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

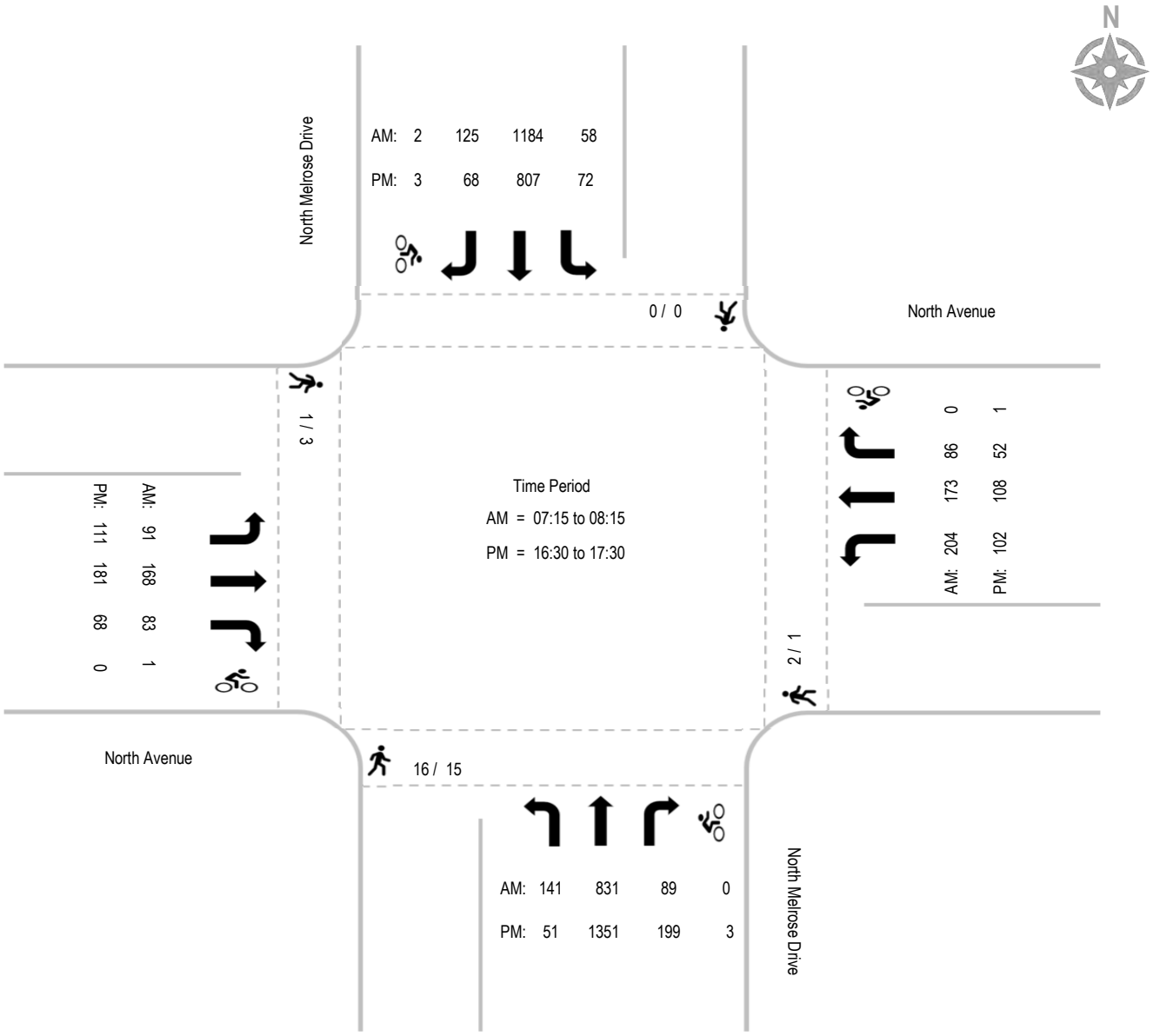
Location:	#06	File Name:	ITM-21-046-06
Intersection:	North Melrose Drive & North Avenue	Project:	LLG Ref. 3-21-3419
Date of Count:	Tuesday, August 31, 2021		Modera 2 - Oceanside

AM	North Melrose Drive Southbound				North Avenue Westbound				North Melrose Drive Northbound				North Avenue Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
7:15	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	4	0
7:30	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	6	0
7:45	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	4	0
8:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
8:15	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0
8:30	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2	0
8:45	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Ped Total	0				2				16				1				19	
Bike Total		1	1	0		0	0	0		0	0	0		0	1	0		3

PM	North Melrose Drive Southbound				North Avenue Westbound				North Melrose Drive Northbound				North Avenue Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0
16:30	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	2	0
16:45	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0	0	2	1
17:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
17:15	0	0	3	0	0	0	0	0	1	0	2	0	1	0	0	0	2	5
17:30	0	0	0	0	0	0	0	0	6	0	0	1	1	0	0	0	7	1
17:45	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0
Ped Total	0				1				15				3				19	
Bike Total		0	3	0		0	0	1		0	2	1		0	0	0		7

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location: #06	File Name:	ITM-21-046-06
	Intersection: North Melrose Drive & North Avenue	Project:	LLG Ref. 3-21-3419
	Date of Count: Tuesday, August 31, 2021		Modera 2 - Oceanside



Linscott, Law & Greenspan, Engineers

4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **BC 21-046 ADT #A N. Melrose Dr, North of Meadowbrook Dr**

Date: **Tuesday, August 31, 2021** Total Daily Volume: **19837** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
93	61	54	88	238	670	1074	1692	1221	894	834	863	866	1088	1409	1749	1664	1626	1322	859	601	453	263	155
22	11	13	10	33	89	205	469	375	235	228	191	207	247	300	422	395	434	331	222	155	182	75	52
26	12	14	19	43	158	249	429	322	225	192	207	205	265	313	490	425	452	359	214	137	102	73	27
27	20	12	30	85	209	292	438	298	226	210	213	214	272	377	440	402	393	316	218	146	93	72	32
18	18	15	29	77	214	328	356	226	208	204	252	240	304	419	397	442	347	316	205	163	76	43	44

Date: **Tuesday, August 31, 2021** Total Daily Volume: **10230** Description: **Northbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
53	40	24	35	54	174	340	818	512	349	368	392	434	602	824	1031	1003	1012	773	490	375	269	151	107
13	9	5	6	7	29	67	229	185	86	99	85	97	126	165	243	232	279	178	131	93	108	41	33
15	9	6	8	13	43	83	205	123	90	89	88	98	137	182	277	250	290	224	119	89	58	45	19
16	14	6	12	22	45	75	209	115	90	86	91	112	157	203	269	256	228	188	136	89	57	41	24
9	8	7	9	12	57	115	175	89	83	94	128	127	182	274	242	265	215	183	104	104	46	24	31

Date: **Tuesday, August 31, 2021** Total Daily Volume: **9607** Description: **Southbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
40	21	30	53	184	496	734	874	709	545	466	471	432	486	585	718	661	614	549	369	226	184	112	48
9	2	8	4	26	60	138	240	190	149	129	106	110	121	135	179	163	155	153	91	62	74	34	19
11	3	8	11	30	115	166	224	199	135	103	119	107	128	131	213	175	162	135	95	48	44	28	8
11	6	6	18	63	164	217	229	183	136	124	122	102	115	174	171	146	165	128	82	57	36	31	8
9	10	8	20	65	157	213	181	137	125	110	124	113	122	145	155	177	132	133	101	59	30	19	13

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4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **BC 21-046 ADT #B N. Melrose Dr, between Meadowbrook Dr and Oceanside Blvd**

Date: **Tuesday, August 31, 2021** Total Daily Volume: **20323** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
95	67	63	88	252	684	1132	1706	1418	865	735	739	766	986	1512	1830	1728	1709	1395	925	674	501	290	163
23	15	12	8	38	88	212	463	417	238	204	162	201	203	309	429	399	470	363	268	177	177	90	54
28	12	15	19	42	164	263	428	381	217	177	183	176	227	348	530	435	472	373	214	160	121	75	28
24	20	15	30	81	214	316	443	357	211	175	183	193	264	404	417	445	402	320	235	153	109	70	34
20	20	21	31	91	218	341	372	263	199	179	211	196	292	451	454	449	365	339	208	184	94	55	47

Date: **Tuesday, August 31, 2021** Total Daily Volume: **9912** Description: **Northbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
54	44	29	35	56	169	359	824	550	267	208	231	267	457	842	1087	1027	1054	817	522	432	297	171	113
13	13	5	3	9	27	72	218	205	74	56	54	57	80	167	257	227	302	194	147	107	104	52	35
17	9	6	8	11	40	83	206	129	71	51	48	61	88	185	305	245	305	221	115	105	70	47	20
13	14	8	13	21	47	83	226	129	58	46	53	68	136	208	243	289	227	190	150	95	62	40	25
11	8	10	11	15	55	121	174	87	64	55	76	81	153	282	282	266	220	212	110	125	61	32	33

Date: **Tuesday, August 31, 2021** Total Daily Volume: **10411** Description: **Southbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
41	23	34	53	196	515	773	882	868	598	527	508	499	529	670	743	701	655	578	403	242	204	119	50
10	2	7	5	29	61	140	245	212	164	148	108	144	123	142	172	172	168	169	121	70	73	38	19
11	3	9	11	31	124	180	222	252	146	126	135	115	139	163	225	190	167	152	99	55	51	28	8
11	6	7	17	60	167	233	217	228	153	129	130	125	128	196	174	156	175	130	85	58	47	30	9
9	12	11	20	76	163	220	198	176	135	124	135	115	139	169	172	183	145	127	98	59	33	23	14

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4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **BC 21-046 ADT #C N. Melrose Dr, between Oceanside Blvd and North Ave**

Date: **Tuesday, August 31, 2021** Total Daily Volume: **29693** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
129	88	77	130	330	862	1466	2350	1997	1381	1284	1341	1475	1662	2125	2508	2433	2431	1886	1314	1012	692	448	272
34	21	13	18	49	120	268	589	602	368	356	341	368	371	472	571	560	665	522	364	279	204	147	85
36	20	19	36	53	202	322	607	525	351	293	327	360	429	519	701	635	628	543	318	254	183	131	60
39	22	20	37	94	267	410	604	472	338	321	315	377	416	559	635	598	584	392	343	220	166	106	64
20	25	25	39	134	273	466	550	398	324	314	358	370	446	575	601	640	554	429	289	259	139	64	63

Date: **Tuesday, August 31, 2021** Total Daily Volume: **15098** Description: **Northbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
87	46	40	45	77	209	454	1012	738	548	563	634	728	885	1182	1452	1508	1545	1083	769	644	406	267	176
24	14	7	9	14	32	76	265	242	139	159	155	196	205	268	332	329	412	306	222	176	119	86	52
23	11	10	11	11	50	102	280	195	145	120	155	167	214	293	404	403	401	318	175	169	104	80	41
27	12	12	11	23	50	117	248	160	134	139	148	180	217	284	365	382	371	213	206	132	90	64	45
13	9	11	14	29	77	159	219	141	130	145	176	185	249	337	351	394	361	246	166	167	93	37	38

Date: **Tuesday, August 31, 2021** Total Daily Volume: **14595** Description: **Southbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
42	42	37	85	253	653	1012	1338	1259	833	721	707	747	777	943	1056	925	886	803	545	368	286	181	96
10	7	6	9	35	88	192	324	360	229	197	186	172	166	204	239	231	253	216	142	103	85	61	33
13	9	9	25	42	152	220	327	330	206	173	172	193	215	226	297	232	227	225	143	85	79	51	19
12	10	8	26	71	217	293	356	312	204	182	167	197	199	275	270	216	213	179	137	88	76	42	19
7	16	14	25	105	196	307	331	257	194	169	182	185	197	238	250	246	193	183	123	92	46	27	25

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4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **BC 21-046 ADT #D N. Melrose Dr, South of North Ave**

Date: **Tuesday, August 31, 2021** Total Daily Volume: **31661** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
137	95	81	141	356	960	1560	2417	2114	1500	1365	1451	1583	1811	2269	2740	2566	2581	1977	1399	1051	748	476	283
45	26	12	18	56	140	275	597	614	387	362	351	396	403	483	675	615	688	557	386	281	217	149	79
35	19	12	37	54	222	349	616	544	387	313	346	381	448	559	716	669	656	581	354	281	193	136	59
37	24	25	43	115	285	424	575	498	356	354	356	393	451	621	697	634	625	429	348	233	185	118	79
20	26	32	43	131	313	512	629	458	370	336	398	413	509	606	652	648	612	410	311	256	153	73	66

Date: **Tuesday, August 31, 2021** Total Daily Volume: **16043** Description: **Northbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
94	54	45	50	91	238	469	1021	778	568	590	677	757	968	1239	1587	1571	1627	1155	839	681	450	300	194
32	17	8	9	16	38	79	270	231	145	170	160	194	223	260	393	362	428	340	238	169	129	87	54
24	11	5	13	6	53	107	260	208	147	131	158	180	223	310	421	415	413	344	207	192	119	90	42
26	15	14	13	35	48	116	237	185	129	137	170	186	232	304	396	400	401	238	211	148	107	78	58
12	11	18	15	34	99	167	254	154	147	152	189	197	290	365	377	394	385	233	183	172	95	45	40

Date: **Tuesday, August 31, 2021** Total Daily Volume: **15618** Description: **Southbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
43	41	36	91	265	722	1091	1396	1336	932	775	774	826	843	1030	1153	995	954	822	560	370	298	176	89
13	9	4	9	40	102	196	327	383	242	192	191	202	180	223	282	253	260	217	148	112	88	62	25
11	8	7	24	48	169	242	356	336	240	182	188	201	225	249	295	254	243	237	147	89	74	46	17
11	9	11	30	80	237	308	338	313	227	217	186	207	219	317	301	234	224	191	137	85	78	40	21
8	15	14	28	97	214	345	375	304	223	184	209	216	219	241	275	254	227	177	128	84	58	28	26

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4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **BC 21-046 ADT #E Oceanside Blvd, West of Catalina Cir**

Date: **Tuesday, August 31, 2021** Total Daily Volume: **19617** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
77	63	49	68	153	465	739	1561	1303	923	903	935	949	1078	1479	1656	1676	1674	1302	967	706	475	274	142
26	20	5	9	10	64	119	330	395	225	217	234	234	266	316	379	386	454	322	285	194	152	98	54
14	13	17	17	25	99	159	325	321	226	232	213	247	250	350	430	415	461	353	237	178	132	68	30
13	18	9	22	45	114	215	418	331	242	205	241	219	253	415	429	487	402	315	240	174	104	66	36
24	12	18	20	73	188	246	488	256	230	249	247	249	309	398	418	388	357	312	205	160	87	42	22

Date: **Tuesday, August 31, 2021** Total Daily Volume: **9965** Description: **Eastbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
37	42	20	26	44	135	288	597	613	412	461	471	487	522	821	880	971	973	762	515	389	261	161	77
13	8	3	6	3	18	59	180	173	92	113	133	109	139	157	204	195	300	184	146	105	85	54	34
10	11	4	7	12	34	50	130	150	93	115	102	128	116	220	214	249	270	199	125	89	67	41	16
5	15	4	7	14	33	80	133	169	127	102	107	117	122	221	223	300	216	186	139	101	62	40	19
9	8	9	6	15	50	99	154	121	100	131	129	133	145	223	239	227	187	193	105	94	47	26	8

Date: **Tuesday, August 31, 2021** Total Daily Volume: **9652** Description: **Westbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
40	21	29	42	109	330	451	964	690	511	442	464	462	556	658	776	705	701	540	452	317	214	113	65
13	12	2	3	7	46	60	150	222	133	104	101	125	127	159	175	191	154	138	139	89	67	44	20
4	2	13	10	13	65	109	195	171	133	117	111	119	134	130	216	166	191	154	112	89	65	27	14
8	3	5	15	31	81	135	285	162	115	103	134	102	131	194	206	187	186	129	101	73	42	26	17
15	4	9	14	58	138	147	334	135	130	118	118	116	164	175	179	161	170	119	100	66	40	16	14

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4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **BC 21-046 ADT #F Oceanside Blvd, between Catalina Cir and N. Melrose Dr**

Date: **Tuesday, August 31, 2021** Total Daily Volume: **19922** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
80	67	52	75	160	498	779	1605	1295	932	895	919	943	1074	1487	1688	1692	1736	1325	963	731	489	291	146
28	20	8	14	12	69	130	334	385	215	210	228	227	261	314	387	398	461	330	291	197	158	104	48
15	14	14	19	25	108	166	355	331	229	229	208	239	253	346	438	423	474	353	241	177	137	71	30
12	18	11	23	47	127	212	431	326	244	217	246	231	257	431	449	471	421	324	230	187	108	71	38
25	15	19	19	76	194	271	485	253	244	239	237	246	303	396	414	400	380	318	201	170	86	45	30

Date: **Tuesday, August 31, 2021** Total Daily Volume: **10278** Description: **Eastbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
35	44	24	33	53	171	327	671	637	437	478	472	500	542	829	910	968	986	770	508	378	262	164	79
14	8	4	6	4	26	65	201	182	99	116	125	111	141	159	203	206	300	184	147	96	89	57	30
8	12	2	11	11	41	51	151	155	97	115	105	127	126	223	228	245	265	196	123	83	64	40	17
3	14	7	10	19	45	93	146	167	132	116	114	132	129	232	234	287	224	194	131	101	65	42	19
10	10	11	6	19	59	118	173	133	109	131	128	130	146	215	245	230	197	196	107	98	44	25	13

Date: **Tuesday, August 31, 2021** Total Daily Volume: **9644** Description: **Westbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
45	23	28	42	107	327	452	934	658	495	417	447	443	532	658	778	724	750	555	455	353	227	127	67
14	12	4	8	8	43	65	133	203	116	94	103	116	120	155	184	192	161	146	144	101	69	47	18
7	2	12	8	14	67	115	204	176	132	114	103	112	127	123	210	178	209	157	118	94	73	31	13
9	4	4	13	28	82	119	285	159	112	101	132	99	128	199	215	184	197	130	99	86	43	29	19
15	5	8	13	57	135	153	312	120	135	108	109	116	157	181	169	170	183	122	94	72	42	20	17

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Average Daily Traffic

Location: **BC 21-046 ADT #G W. Bobier Dr, between N. Melrose Dr and Sports Park Way**

Date: **Tuesday, August 31, 2021** Total Daily Volume: **21571** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
86	58	36	83	159	438	819	2007	1359	912	911	961	999	1130	1618	1853	1788	1793	1505	1159	827	563	361	146
31	18	9	17	18	59	159	443	434	227	227	235	277	280	333	428	442	456	387	357	240	181	121	55
17	15	10	20	22	98	175	502	347	225	229	221	235	271	386	490	419	491	415	271	213	146	93	35
21	15	8	19	50	121	198	497	328	233	225	243	251	271	504	487	482	430	343	298	179	125	89	31
17	10	9	27	69	160	287	565	250	227	230	262	236	308	395	448	445	416	360	233	195	111	58	25

Date: **Tuesday, August 31, 2021** Total Daily Volume: **11189** Description: **Eastbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
53	33	19	34	32	98	257	719	583	401	477	503	530	581	911	1020	1131	1137	929	658	473	310	213	87
20	6	6	9	5	12	59	237	159	94	121	116	155	151	187	239	274	298	243	202	133	100	74	35
13	12	4	6	4	22	50	207	159	105	100	123	124	141	239	244	276	308	256	159	128	78	53	24
13	9	5	6	13	23	58	125	143	105	119	118	132	134	271	271	312	284	205	163	94	69	54	19
7	6	4	13	10	41	90	150	122	97	137	146	119	155	214	266	269	247	225	134	118	63	32	9

Date: **Tuesday, August 31, 2021** Total Daily Volume: **10382** Description: **Westbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
33	25	17	49	127	340	562	1288	776	511	434	458	469	549	707	833	657	656	576	501	354	253	148	59
11	12	3	8	13	47	100	206	275	133	106	119	122	129	146	189	168	158	144	155	107	81	47	20
4	3	6	14	18	76	125	295	188	120	129	98	111	130	147	246	143	183	159	112	85	68	40	11
8	6	3	13	37	98	140	372	185	128	106	125	119	137	233	216	170	146	138	135	85	56	35	12
10	4	5	14	59	119	197	415	128	130	93	116	117	153	181	182	176	169	135	99	77	48	26	16

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4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **BC 21-046 ADT #H W. Bobier Dr, between Sports Park Way and N. Santa Fe Ave**

Date: **Tuesday, August 31, 2021** Total Daily Volume: **19658** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
86	55	31	66	139	405	722	1781	1239	838	817	907	934	1036	1553	1735	1633	1605	1290	1030	731	516	348	161
30	16	6	11	16	50	141	392	367	196	197	221	262	249	315	414	404	410	324	310	205	156	117	60
20	16	9	20	23	87	148	442	316	215	207	219	211	253	380	475	373	435	381	244	199	137	88	35
20	13	8	15	41	116	186	448	307	212	206	234	237	247	471	431	428	387	280	270	164	120	88	43
16	10	8	20	59	152	247	499	249	215	207	233	224	287	387	415	428	373	305	206	163	103	55	23

Date: **Tuesday, August 31, 2021** Total Daily Volume: **10026** Description: **Eastbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
49	32	16	26	32	98	220	686	541	379	429	477	487	514	874	937	976	948	743	563	413	301	198	87
19	5	4	5	5	10	41	226	147	88	103	115	148	129	189	227	236	240	185	175	116	96	66	34
14	12	4	7	4	20	42	192	143	95	96	114	110	127	235	236	234	265	221	135	111	78	52	24
10	8	4	5	13	28	50	131	125	98	109	114	118	124	238	234	262	243	166	132	87	71	52	21
6	7	4	9	10	40	87	137	126	98	121	134	111	134	212	240	244	200	171	121	99	56	28	8

Date: **Tuesday, August 31, 2021** Total Daily Volume: **9632** Description: **Westbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
37	23	15	40	107	307	502	1095	698	459	388	430	447	522	679	798	657	657	547	467	318	215	150	74
11	11	2	6	11	40	100	166	220	108	94	106	114	120	126	187	168	170	139	135	89	60	51	26
6	4	5	13	19	67	106	250	173	120	111	105	101	126	145	239	139	170	160	109	88	59	36	11
10	5	4	10	28	88	136	317	182	114	97	120	119	123	233	197	166	144	114	138	77	49	36	22
10	3	4	11	49	112	160	362	123	117	86	99	113	153	175	175	184	173	134	85	64	47	27	15

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Linscott, Law & Greenspan, Engineers

4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **BC 21-046 ADT #I W. Bobier Drive, East of N. Santa Fe Ave**

Date: **Tuesday, August 31, 2021** Total Daily Volume: **22795** Description: **Total Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
99	52	40	71	133	470	840	2354	1441	891	945	1027	1063	1158	1895	1858	1842	1862	1512	1176	820	643	411	192
38	15	11	8	18	70	171	530	419	235	233	257	297	273	337	453	478	474	394	330	243	182	119	63
21	11	9	31	19	122	162	712	377	219	247	253	236	274	485	464	453	502	444	282	221	160	120	58
24	17	8	14	44	124	218	564	346	205	227	253	257	288	582	499	453	436	333	309	175	144	95	42
16	9	12	18	52	154	289	548	299	232	238	264	273	323	491	442	458	450	341	255	181	157	77	29

Date: **Tuesday, August 31, 2021** Total Daily Volume: **11737** Description: **Eastbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
57	29	21	28	44	196	368	1097	758	435	472	538	545	584	1031	1006	1005	946	799	639	447	373	224	95
20	5	6	4	9	24	70	294	204	111	117	126	163	130	192	221	260	233	204	177	133	118	64	31
14	6	3	11	5	55	70	382	220	99	118	116	116	130	282	263	252	239	228	151	132	104	71	29
14	13	5	4	17	50	88	258	176	105	114	143	133	161	312	266	249	242	179	172	77	77	51	24
9	5	7	9	13	67	140	163	158	120	123	153	133	163	245	256	244	232	188	139	105	74	38	11

Date: **Tuesday, August 31, 2021** Total Daily Volume: **11058** Description: **Westbound Volume**

0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
42	23	19	43	89	274	472	1257	683	456	473	489	518	574	864	852	837	916	713	537	373	270	187	97
18	10	5	4	9	46	101	236	215	124	116	131	134	143	145	232	218	241	190	153	110	64	55	32
7	5	6	20	14	67	92	330	157	120	129	137	120	144	203	201	201	263	216	131	89	56	49	29
10	4	3	10	27	74	130	306	170	100	113	110	124	127	270	233	204	194	154	137	98	67	44	18
7	4	5	9	39	87	149	385	141	112	115	111	140	160	246	186	214	218	153	116	76	83	39	18

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APPENDIX D

SIGNAL TIMING PLANS

INTERSECTION: Melrose & Meadowbrook

Group Assignment: **NONE**
Field Master Assignment: **NONE**
System Reference Number: **170**

N/S Street Name: **Not Assigned**
E/W Street Name: **Not Assigned**

Last Database Change: **3/22/2018 9:16**

Change Record					
Change	By	Date	Change	By	Date

Notes:

Drop Number	**4**	<C+0+0>
Zone Number		<C+0+1>
Area Number	**1**	<C+0+2>
Area Address	**170**	<C+0+3>
QuicNet Channel	**Serial:COM22:**	(QuicNet)

Communication Addresses

Manual Plan		<C+A+1>
Manual Offset		<C+B+1>

Manual Selection

Max Initial	**20**	<F+0+E>
Red Revert	**2.0**	<F+0+F>
All Red Start	**5.0**	<F+C+0>

Start / Revert Times

		Phase							
	Column Numbers ---->	1	2	3	4	5	6	7	8
Row	*Phase Names ---->*								
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	14	0	24	0	14	0	24
2	Min Green	6	10	3	8	6	10	3	8
3	Type 3 Limit	0	99	0	0	0	99	0	0
4	Added Initial	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
5	Veh Extension	3.0	5.0	0.5	3.0	3.0	5.0	0.5	3.0
6	Max Gap	3.0	6.0	0.5	3.0	3.0	6.0	0.5	3.0
7	Min Gap	3.0	3.0	0.5	3.0	3.0	3.0	0.5	3.0
8	Max Limit	20	40	17	25	20	40	17	25
9	Max Limit 2	20	40	30	25	20	40	30	25
A	- - - - - -	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0
D	Reduce Every	0.0	1.2	1.0	0.0	0.0	1.2	1.0	0.0
E	Yellow Change	4.4	5.0	3.0	3.7	4.4	5.0	3.0	3.7
F	Red Clear	1.0	2.0	0.0	1.0	1.0	2.0	0.0	1.0

Phase Timing - Bank 1 <F Page>

Row	E	
0	RR-1 Delay	0
1	RR-1 Clear	10
2	EV-A Delay	0
3	EV-A Clear	5
4	EV-B Delay	0
5	EV-B Clear	0
6	EV-C Delay	0
7	EV-C Clear	5
8	EV-D Delay	0
9	EV-D Clear	0
A	RR-2 Delay	0
B	RR-2 Clear	10
C	*View EV Delay*	- - -
D	*View EV Clear*	- - -
E	*View RR Delay*	- - -
F	*View RR Clear*	- - -

Preempt Timing

Row	F	
0	Permit	**12_456_8**
1	Red Lock	_____
2	Yellow Lock	_____
3	Min Recall	**_2___6__**
4	Ped Recall	_____
5	*View Set Peds*	- - - - -
6	Rest In Walk	_____
7	Red Rest	_____
8	Dual Entry	**_2_4_6_8**
9	Max Recall	_____
A	Soft Recall	_____
B	Max 2	_____
C	Cond. Service	_____
D	Man Cntrl Calls	_____
E	Yellow Start	**1___5___**
F	First Phases	**_2___6__**

Phase Functions <F Page>

Manual Plan
0 = Automatic
1-9 = Plan 1-9
14 = Free
15 = Flash

Manual Offset
0 = Automatic
1 = Offset A
2 = Offset B
3 = Offset C

Row	Column Numbers ---->	Plan 1	2	3	4	5	6	7	8	9	Row
	Plan Name ----->										
0	Cycle Length	100	100	100	100	100	100	100	100	100	0
1	Phase 1 - ForceOff	55	60	60	63	60	61	65	65	65	1
2	Phase 2 - ForceOff	0	0	0	0	0	0	0	0	0	2
3	Phase 3 - ForceOff	20	15	20	25	20	25	25	25	25	3
4	Phase 4 - ForceOff	40	40	40	40	40	40	40	40	40	4
5	Phase 5 - ForceOff	55	60	60	61	60	63	65	65	65	5
6	Phase 6 - ForceOff	0	0	0	0	0	0	0	0	0	6
7	Phase 7 - ForceOff	20	15	20	25	20	25	25	25	25	7
8	Phase 8 - ForceOff	40	40	40	40	40	40	40	40	40	8
9	Ring Offset	0	0	0	0	0	0	0	0	0	9
A	Offset 1	0	0	0	0	0	0	0	0	0	A
B	Offset 2	0	0	0	0	0	0	0	0	0	B
C	Offset 3	0	0	0	0	0	0	0	0	0	C
D	Permissive	12	12	12	12	12	12	12	12	0	D
E	Hold Release	255	255	255	255	255	255	255	255	0	E
F	Zone Offset	0	0	0	0	0	0	0	0	0	F

(* = Coordination Recall)

Row		E	Row
0			0
1	Plan 1 - Sync	_2___6__	1
2	Plan 2 - Sync	_2___6__	2
3	Plan 3 - Sync	_2___6__	3
4	Plan 4 - Sync	_2___6__	4
5	Plan 5 - Sync	_2___6__	5
6	Plan 6 - Sync	_2___6__	6
7	Plan 7 - Sync	_2___6__	7
8	Plan 8 - Sync	_2___6__	8
9	Plan 9 - Sync	_2___6__	9
A	Coord Ped *	_____	A
B	NEMA Hold	_____	B
C			C
D			D
E			E
F			F

Sync Phases <C Page>

Row	Column Numbers ---->	E	Row
0	Exclusive Phases	_____	0
1	RR-1 Clear Phases	_____	1
2	RR-2 Clear Phases	_____	2
3	RR-2 Limited Service	_____	3
4	Prot / Perm Phases	_____	4
5	Overlap A - Green Omit	_____	5
6	Overlap B - Green Omit	_____	6
7	Overlap C - Green Omit	_____	7
8	Overlap D - Green Omit	_____	8
9	Overlap Yellow Flash	_____	9
A	EV-A Phases	_2__5___	A
B	EV-B Phases	___4____	B
C	EV-C Phases	1____6__	C
D	EV-D Phases	_____8	D
E	Extra 1 Config. Bits	1__4____	E
F	IC Select (Interconnect)	_2_____	F

Configuration <E Page>

	F
RR Overlap A - Phases	_____
RR Overlap B - Phases	_____
RR Overlap C - Phases	_____
RR Overlap D - Phases	_____
Ped 2P	_2_____
Ped 6P	_____6__
Ped 4P	___4____
Ped 8P	_____8
Yellow Flash Phases	_____
Overlap A - Phases	_____
Overlap B - Phases	_____
Overlap C - Phases	_____
Overlap D - Phases	_____
Restricted Phases	_____
Assign 5 Outputs	_____

Configuration <E Page>

Extra 1 Flags
1 = TBC Type 1
2 = NEMA Ext. Coord
3 = Auto Daylight Savings
4 = EV Advance
5 =
6 = Special Event
7 = Pretimed Operation
8 = Split Ring Operation

Assign 5 Outputs
(Ped Loadswitch Yellows)
1 = Right Turn Overlap
2 = TOD Outputs
3 = EV Beacon - Steady
4 = EV Beacon - Flashing
5 = Special Event Outputs
6 = Phase 3 & 7 Ped
7 = Advanced Warning Sign
8 =

Force-Off Adjust	0

Coord Force-Off Adjust for Ped Service <C+D+F>

Transition Type	0

TBC Transition <C+D+D>

Transition Type
0 = Shortway
Non-zero = Lengthen

IC Select Flags
1 =
2 = Modem
3 = 7-Wire Slave
4 = Flash / Free
5 =
6 = Simplex Master
7 = 7-Wire Master
8 = Offset Interrupter

Row		F	Row
0	Free Lag	_2_4_6_8	0
1	Plan 1 - Lag	_2_4_6_8	1
2	Plan 2 - Lag	_2_4_6_8	2
3	Plan 3 - Lag	_2_4_6_8	3
4	Plan 4 - Lag	_2_4_6_8	4
5	Plan 5 - Lag	_2_4_6_8	5
6	Plan 6 - Lag	_2_4_6_8	6
7	Plan 7 - Lag	_2_4_6_8	7
8	Plan 8 - Lag	_2_4_6_8	8
9	Plan 9 - Lag	_2_4_6_8	9
A	Coord Max *	_____	A
B	Coord Lag *	_____	B
C			C
D			D
E			E
F			F

Lag Phases <C Page>

Row	Time	Plan	Offset	Day of Week
0	00 : 00	0	0	
1	00 : 00	0	0	
2	00 : 00	0	0	
3	00 : 00	0	0	
4	00 : 00	0	0	
5	00 : 00	0	0	
6	00 : 00	0	0	
7	00 : 00	0	0	
8	00 : 00	0	0	
9	00 : 00	0	0	
A	00 : 00	0	0	
B	00 : 00	0	0	
C	00 : 00	0	0	
D	00 : 00	0	0	
E	00 : 00	0	0	
F	00 : 00	0	0	

TOD Coordination
<9 Key with C+D+9=0>

Time	Funct.	Day of Week
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	

TOD Function
<7 Key>

Column F
Phases/Bits

<D Page>

Time	Plan	Offset	Day of Week
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	

Holiday # 1
TOD Coordination
<9 Key with C+D+9=1>

Time	Plan	Offset	Day of Week
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	

Holiday # 2
TOD Coordination
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	

Holiday # 3
TOD Coordination
<9 Key with C+D+9=3>

Time	Plan	Offset	Day of Week	Row
00 : 00	0	0		0
00 : 00	0	0		1
00 : 00	0	0		2
00 : 00	0	0		3
00 : 00	0	0		4
00 : 00	0	0		5
00 : 00	0	0		6
00 : 00	0	0		7
00 : 00	0	0		8
00 : 00	0	0		9
00 : 00	0	0		A
00 : 00	0	0		B
00 : 00	0	0		C
00 : 00	0	0		D
00 : 00	0	0		E
00 : 00	0	0		F

Plan Select
1 thru 9 = Coordination Plan 1 thru 9
14 or E = Free
15 or F = Flash

Offset Select
A = Offset A
B = Offset B
C = Offset C

T.O.D. Functions
0 = Permitted Phases
1 = Red Lock
2 = Yellow Lock
3 = Veh Min Recall
4 = Ped Recall
5 =
6 = Rest In Walk
7 = Red Rest
8 = Double Entry
9 = Veh Max Recall
A = Veh Soft Recall
B = Maximum 2
C = Conditional Service
D = Free Lag Phases
E = Bit 1 - Local Override
Bit 2 - Phase Bank 2
Bit 3 - Phase Bank 3
Bit 4 - Disable Detector OFF Monitor
Bit 7 - Detector Count Monitor
Bit 8 - Real Time Split Monitor
F = Output Bits 1 thru 4

Month Select
1 = January
2 = February
3 = March
4 = April
5 = May
6 = June
7 = July
8 = August
9 = September
A = October
B = November
C = December

Row		Day	Year	Month	Day of Week
A	Holiday # 1 Date	0	0	0	
B	Holiday # 2 Date	0	0	0	
C	Holiday # 3 Date	0	0	0	

Holiday Dates
<8 Key>

Row	1 Delay	3 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		I-1	14
1	5.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	20.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	0.0		I-6U	3
8	0.0	0.0		I-6L	7
9	15.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	- - -	- - -	- - -	- - -	- - -
F	- - -	- - -	- - -	- - -	- - -

Row	2 Delay	4 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	2.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	2.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	2.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	- - -	- - -	- - -	- - -	- - -
F	- - -	- - -	- - -	- - -	- - -

Detector Delay & Carryover <D Page>

Row		9 Green Clear	C Yellow Change	D Red Clear	0 Load-Switch #
A	Overlap A	0.0	0.0	0.0	0
B	Overlap B	0.0	0.0	0.0	0
C	Overlap C	0.0	0.0	0.0	0
D	Overlap D	0.0	0.0	0.0	0

Overlap Timing <F Page> <D Page>

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- -- --	1234____
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- -- 21 22 23 24	____5678
E	-- -- -- -- -- -- -- --	1234____
F	-- 25 26 27 28 -- -- --	_2345___

Active Detectors <D Page>

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Row		0 Detector Number
0		
1	System Det. # 1	0
2	System Det. # 2	0
3	System Det. # 3	0
4	System Det. # 4	0
5	System Det. # 5	0
6	System Det. # 6	0
7	System Det. # 7	0
8	System Det. # 8	0

System Detectors <D Page>

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+B+0>

Dial-Up Telephone Communications
(If set to a non-zero value, parity will be disabled)

INTERSECTION: Melrose & Meadowbrook

Phase Timing - Bank 2 <F Page>

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8
	Phase Names ---->								
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	- - - - - -	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 3 <F Page>

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8	Row
	Phase Names ---->									
0	Ped Walk	0	7	0	7	0	7	0	7	0
1	Ped FDW	0	10	0	10	0	10	0	10	1
2	Min Green	3	7	3	7	3	7	3	7	2
3	Type 3 Limit	0	0	0	0	0	0	0	0	3
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2	4
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5	5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0	6
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0	7
8	Max Limit	17	40	17	40	17	40	17	40	8
9	Max Limit 2	30	70	30	70	30	70	30	70	9
A	- - - - - -	0	0	0	0	0	0	0	0	A
B	Call To Phase	0	0	0	0	0	0	0	0	B
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	C
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	D
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0	E
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0	F

Row	Delay Only --->	7 Time	8 Dwell	9 Hold	A Advance	B Force Off	C Vehicle Call	D Permit Phases	E Ped Omit	F Output	Row	
0		0	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	0	
1		0	0								1	
2		0	0								2	
3		0	0								3	
4		0	0								4	
5		0	0								5	
6		0	0								6	
7		0	0								7	
8		0	0								8	
9	Limited Service Int. --->	0	0								9	
A		- - -	0								A	<--- Limited Service Interval
B		0	0								B	
C		0	0								C	
D		0	0								D	(Set Dwell = 255)
E		0	0								E	
F		0	0								F	

Special Event Schedule <C Page with F+9+F=22>

INTERSECTION: Oceanside & Catalina Circle

Group Assignment: **NONE**
Field Master Assignment: **NONE**
System Reference Number: **59**

N/S Street Name: **Not Assigned**
E/W Street Name: **Not Assigned**

Last Database Change: **8/1/2018 11:39**

Change Record					
Change	By	Date	Change	By	Date

Notes:

Drop Number	**1**	<C+0+0>
Zone Number		<C+0+1>
Area Number	**1**	<C+0+2>
Area Address	**59**	<C+0+3>
QuicNet Channel	**Serial:COM22:**	(QuicNet)

Communication Addresses

Manual Plan		<C+A+1>
Manual Offset		<C+B+1>

Manual Selection

Max Initial	**20**	<F+0+E>
Red Revert	**2.0**	<F+0+F>
All Red Start	**5.0**	<F+C+0>

Start / Revert Times

Row	Column Numbers ----> / Phase Names ---->	Phase 1	2	3	4	5	6	7	8
0	Ped Walk	0	4	0	4	0	4	0	4
1	Ped FDW	0	12	0	25	0	12	0	25
2	Min Green	5	10	3	6	5	10	4	6
3	Type 3 Limit	0	99	0	0	0	99	0	0
4	Added Initial	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
5	Veh Extension	2.0	4.0	0.5	3.0	2.0	4.0	3.0	3.0
6	Max Gap	2.0	6.0	0.5	3.0	2.0	6.0	3.0	3.0
7	Min Gap	2.0	3.0	0.5	3.0	2.0	3.0	3.0	3.0
8	Max Limit	25	50	17	20	25	50	17	20
9	Max Limit 2	15	51	30	20	15	50	30	25
A	- - - - - -	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0
D	Reduce Every	0.0	1.3	1.0	0.0	0.0	1.3	1.0	0.0
E	Yellow Change	4.4	5.2	3.0	3.6	4.4	5.2	3.0	3.6
F	Red Clear	1.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0

Phase Timing - Bank 1 <F Page>

	E
RR-1 Delay	0
RR-1 Clear	10
EV-A Delay	0
EV-A Clear	5
EV-B Delay	0
EV-B Clear	0
EV-C Delay	0
EV-C Clear	5
EV-D Delay	0
EV-D Clear	0
RR-2 Delay	0
RR-2 Clear	10
View EV Delay	- - -
View EV Clear	- - -
View RR Delay	- - -
View RR Clear	- - -

Preempt Timing

Row		F
0	Permit	12_456_8
1	Red Lock	_____
2	Yellow Lock	_____
3	Min Recall	_2___6__
4	Ped Recall	_____
5	*View Set Peds*	- - - - -
6	Rest In Walk	_____
7	Red Rest	_____
8	Dual Entry	_2_4_6_8
9	Max Recall	_____
A	Soft Recall	_____
B	Max 2	_____
C	Cond. Service	_____
D	Man Cntrl Calls	_____
E	Yellow Start	_2___6__
F	First Phases	___4___8

Phase Functions <F Page>

Manual Plan
0 = Automatic
1-9 = Plan 1-9
14 = Free
15 = Flash

Manual Offset
0 = Automatic
1 = Offset A
2 = Offset B
3 = Offset C

Row	Column Numbers ---->	Plan 1	2	3	4	5	6	7	8	9
	Plan Name ---->									
0	Cycle Length	95	90	100	80	80	90	100	100	100
1	Phase 1 - ForceOff	55	50	50	45	45	50	65	65	65
2	Phase 2 - ForceOff	0	0	0	0	0	0	0	0	0
3	Phase 3 - ForceOff	0	0	0	0	0	0	25	25	25
4	Phase 4 - ForceOff	30	30	30	25	25	30	40	40	40
5	Phase 5 - ForceOff	46	46	46	45	45	50	65	65	65
6	Phase 6 - ForceOff	0	0	0	0	0	0	0	0	0
7	Phase 7 - ForceOff	0	0	0	0	0	0	25	25	25
8	Phase 8 - ForceOff	30	30	30	25	25	25	40	40	40
9	Ring Offset	0	0	0	0	0	0	0	0	0
A	Offset 1	34	30	32	68	40	69	0	0	0
B	Offset 2	0	0	0	0	0	0	0	0	0
C	Offset 3	0	0	0	0	0	0	0	0	0
D	Permissive	12	12	12	12	12	12	12	12	12
E	Hold Release	85	70	90	255	255	255	255	255	255
F	Zone Offset	0	0	0	0	0	0	0	0	0

(* = Coordination Recall)

Row		E
0		
1	Plan 1 - Sync	_2___6__
2	Plan 2 - Sync	_2___6__
3	Plan 3 - Sync	_2___6__
4	Plan 4 - Sync	_2___6__
5	Plan 5 - Sync	_2___6__
6	Plan 6 - Sync	_2___6__
7	Plan 7 - Sync	_2___6__
8	Plan 8 - Sync	_2___6__
9	Plan 9 - Sync	_2___6__
A	Coord Ped *	_____
B	NEMA Hold	_____
C		
D		
E		
F		

Sync Phases <C Page>

Row	Column Numbers ---->	E
0	Exclusive Phases	_____
1	RR-1 Clear Phases	_____
2	RR-2 Clear Phases	_____
3	RR-2 Limited Service	_____
4	Prot / Perm Phases	_____
5	Overlap A - Green Omit	_____
6	Overlap B - Green Omit	_____
7	Overlap C - Green Omit	_____
8	Overlap D - Green Omit	_____
9	Overlap Yellow Flash	_____
A	EV-A Phases	_2__5___
B	EV-B Phases	_____
C	EV-C Phases	1____6__
D	EV-D Phases	__3____8
E	Extra 1 Config. Bits	1__4___
F	IC Select (Interconnect)	_2_____

Configuration <E Page>

Coordination <C Page>

	F
RR Overlap A - Phases	_____
RR Overlap B - Phases	_____
RR Overlap C - Phases	_____
RR Overlap D - Phases	_____
Ped 2P	_2_____
Ped 6P	_____6__
Ped 4P	___4____
Ped 8P	_____8
Yellow Flash Phases	_____
Overlap A - Phases	_____
Overlap B - Phases	_____
Overlap C - Phases	_____
Overlap D - Phases	_____
Restricted Phases	_____
Assign 5 Outputs	_____

Configuration <E Page>

Extra 1 Flags
1 = TBC Type 1
2 = NEMA Ext. Coord
3 = Auto Daylight Savings
4 = EV Advance
5 =
6 = Special Event
7 = Pretimed Operation
8 = Split Ring Operation

Assign 5 Outputs
(Ped Loadswitch Yellows)
1 = Right Turn Overlap
2 = TOD Outputs
3 = EV Beacon - Steady
4 = EV Beacon - Flashing
5 = Special Event Outputs
6 = Phase 3 & 7 Ped
7 = Advanced Warning Sign
8 =

Force-Off Adjust	5

Coord Force-Off Adjust for Ped Service <C+D+F>

Transition Type	0

TBC Transition <C+D+D>

Transition Type
0 = Shortway
Non-zero = Lengthen

IC Select Flags
1 =
2 = Modem
3 = 7-Wire Slave
4 = Flash / Free
5 =
6 = Simplex Master
7 = 7-Wire Master
8 = Offset Interrupter

Row		F
0	Free Lag	_2_4_6_8
1	Plan 1 - Lag	_2_4_6_8
2	Plan 2 - Lag	_2_4_6_8
3	Plan 3 - Lag	_2_4_6_8
4	Plan 4 - Lag	_2_4_6_8
5	Plan 5 - Lag	_2_4_6_8
6	Plan 6 - Lag	_2_4_6_8
7	Plan 7 - Lag	_2_4_6_8
8	Plan 8 - Lag	_2_4_6_8
9	Plan 9 - Lag	_2_4_6_8
A	Coord Max *	_____
B	Coord Lag *	_____
C		
D		
E		
F		

Lag Phases <C Page>

TOD Coordination
<9 Key with C+D+9=0>

Row	Time	Plan	Offset	Day of Week
0	00 : 00	0	0	_____
1	06 : 00	1	A	_____
2	09 : 00	2	A	_____
3	15 : 00	3	A	_____
4	19 : 00	E	A	_____
5	15 : 55	E	A	_____
6	16 : 10	3	A	_____
7	00 : 00	0	0	_____
8	00 : 00	0	0	_____
9	00 : 00	0	0	_____
A	00 : 00	0	0	_____
B	00 : 00	0	0	_____
C	00 : 00	0	0	_____
D	00 : 00	0	0	_____
E	00 : 00	0	0	_____
F	00 : 00	0	0	_____

Plan Select
1 thru 9 = Coordination Plan 1 thru 9
14 or E = Free
15 or F = Flash

Offset Select
A = Offset A
B = Offset B
C = Offset C

TOD Function
<7 Key>

Time	Funct.	Day of Week
06 : 00	E	1234567
22 : 00	E	1234567
00 : 00	0	_____
00 : 00	0	_____
00 : 00	0	_____
00 : 00	0	_____
00 : 00	0	_____
00 : 00	0	_____
00 : 00	0	_____
00 : 00	0	_____
00 : 00	0	_____
00 : 00	0	_____
00 : 00	0	_____
00 : 00	0	_____
00 : 00	0	_____
00 : 00	0	_____

T.O.D. Functions
0 = Permitted Phases
1 = Red Lock
2 = Yellow Lock
3 = Veh Min Recall
4 = Ped Recall
5 =
6 = Rest In Walk
7 = Red Rest
8 = Double Entry
9 = Veh Max Recall
A = Veh Soft Recall
B = Maximum 2
C = Conditional Service
D = Free Lag Phases
E = Bit 1 - Local Override
Bit 2 - Phase Bank 2
Bit 3 - Phase Bank 3
Bit 4 - Disable Detector OFF Monitor
Bit 7 - Detector Count Monitor
Bit 8 - Real Time Split Monitor
F = Output Bits 1 thru 4

Column F
Phases/Bits
_____7_
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

<D Page>

TOD Coordination
<9 Key with C+D+9=1>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Month Select
1 = January
2 = February
3 = March
4 = April
5 = May
6 = June
7 = July
8 = August
9 = September
A = October
B = November
C = December

TOD Coordination
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

TOD Coordination
<9 Key with C+D+9=3>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday Dates
<8 Key>

Row		Day	Year	Month	Day of Week
A	Holiday # 1 Date	0	0	0	_____
B	Holiday # 2 Date	0	0	0	_____
C	Holiday # 3 Date	0	0	0	_____

Row	1 Delay	3 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		I-1	14
1	0.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	12.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	0.0		I-6U	3
8	0.0	0.0		I-6L	7
9	12.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	- - -	- - -	- - -	- - -	- - -
F	- - -	- - -	- - -	- - -	- - -

Row	2 Delay	4 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	5.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	3.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	- - -	- - -	- - -	- - -	- - -
F	- - -	- - -	- - -	- - -	- - -

Detector Delay & Carryover <D Page>

Row		9 Green Clear	C Yellow Change	D Red Clear	0 Load-Switch #
A	Overlap A	0.0	0.0	0.0	0
B	Overlap B	0.0	0.0	0.0	0
C	Overlap C	0.0	0.0	0.0	0
D	Overlap D	0.0	0.0	0.0	0

Overlap Timing <F Page> <D Page>

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- -- --	1234____
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- -- 21 22 23 24	____5678
E	-- -- -- -- -- -- -- --	1234____
F	-- 25 26 27 28 -- -- --	_2345___

Active Detectors <D Page>

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Row		0 Detector Number
0		
1	System Det. # 1	21
2	System Det. # 2	22
3	System Det. # 3	0
4	System Det. # 4	0
5	System Det. # 5	0
6	System Det. # 6	0
7	System Det. # 7	0
8	System Det. # 8	0

System Detectors <D Page>

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+B+0>

Dial-Up Telephone Communications
(If set to a non-zero value, parity will be disabled)

INTERSECTION: Oceanside & Catalina Circle

Phase Timing - Bank 2 <F Page>

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8
	Phase Names ---->								
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	- - - - - -	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 3 <F Page>

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8	Row
	Phase Names ---->									
0	Ped Walk	0	7	0	7	0	7	0	7	0
1	Ped FDW	0	10	0	10	0	10	0	10	1
2	Min Green	3	7	3	7	3	7	3	7	2
3	Type 3 Limit	0	0	0	0	0	0	0	0	3
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2	4
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5	5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0	6
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0	7
8	Max Limit	17	40	17	40	17	40	17	40	8
9	Max Limit 2	30	70	30	70	30	70	30	70	9
A	- - - - - -	0	0	0	0	0	0	0	0	A
B	Call To Phase	0	0	0	0	0	0	0	0	B
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	C
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	D
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0	E
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0	F

Row	Delay Only --->	7 Time	8 Dwell	9 Hold	A Advance	B Force Off	C Vehicle Call	D Permit Phases	E Ped Omit	F Output	Row	
0		0	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	0	
1		0	0								1	
2		0	0								2	
3		0	0								3	
4		0	0								4	
5		0	0								5	
6		0	0								6	
7		0	0								7	
8		0	0								8	
9	Limited Service Int. --->	0	0								9	
A		- - -	0								A	<--- Limited Service Interval
B		0	0								B	
C		0	0								C	
D		0	0								D	(Set Dwell = 255)
E		0	0								E	
F		0	0								F	

Special Event Schedule <C Page with F+9+F=22>

INTERSECTION: Oceanside & Melrose

Group Assignment: **NONE**
Field Master Assignment: **NONE**
System Reference Number: **60**

N/S Street Name: **Not Assigned**
E/W Street Name: **Not Assigned**

Last Database Change: **1/21/2020 8:30**

Change Record					
Change	By	Date	Change	By	Date

Notes:

Drop Number	**2**	<C+0+0>
Zone Number		<C+0+1>
Area Number	**1**	<C+0+2>
Area Address	**60**	<C+0+3>
QuicNet Channel	**Serial:COM22:**	(QuicNet)

Communication Addresses

Manual Plan		<C+A+1>
Manual Offset		<C+B+1>

Manual Selection

Max Initial	**20**	<F+0+E>
Red Revert	**2.0**	<F+0+F>
All Red Start	**5.0**	<F+C+0>

Start / Revert Times

Row	Column Numbers ----> / Phase Names ---->	Phase 1	2	3	4	5	6	7	8
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	24	0	26	0	26	0	26
2	Min Green	6	10	8	10	6	10	8	10
3	Type 3 Limit	0	0	0	99	0	99	0	99
4	Added Initial	0.0	0.0	0.0	2.0	0.0	2.0	0.0	2.0
5	Veh Extension	3.0	4.0	3.0	5.0	3.0	4.0	3.0	5.0
6	Max Gap	3.0	7.0	3.0	7.0	3.0	7.0	3.0	7.0
7	Min Gap	3.0	5.0	3.0	3.0	3.0	5.0	3.0	3.0
8	Max Limit	25	35	20	30	25	35	20	30
9	Max Limit 2	25	45	20	40	25	45	20	40
A	- - - - - -	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1
D	Reduce Every	0.0	0.7	0.0	0.8	0.0	0.7	0.0	0.8
E	Yellow Change	4.4	5.0	4.4	5.2	4.4	5.0	4.4	5.2
F	Red Clear	1.0	2.0	1.0	2.0	1.0	2.0	1.0	2.0

Phase Timing - Bank 1 <F Page>

Row	E	
0	RR-1 Delay	0
1	RR-1 Clear	10
2	EV-A Delay	0
3	EV-A Clear	5
4	EV-B Delay	0
5	EV-B Clear	5
6	EV-C Delay	0
7	EV-C Clear	5
8	EV-D Delay	0
9	EV-D Clear	5
A	RR-2 Delay	0
B	RR-2 Clear	10
C	*View EV Delay*	- - -
D	*View EV Clear*	- - -
E	*View RR Delay*	- - -
F	*View RR Clear*	- - -

Preempt Timing

Row	F	
0	Permit	**12345678**
1	Red Lock	_____
2	Yellow Lock	_____
3	Min Recall	_2___6__
4	Ped Recall	_____
5	*View Set Peds*	- - - - -
6	Rest In Walk	_____
7	Red Rest	_____
8	Dual Entry	_2_4_6_8
9	Max Recall	_____
A	Soft Recall	_____
B	Max 2	_____
C	Cond. Service	_____
D	Man Cntrl Calls	_____
E	Yellow Start	__3___7_
F	First Phases	___4___8

Phase Functions <F Page>

Manual Plan
0 = Automatic
1-9 = Plan 1-9
14 = Free
15 = Flash

Manual Offset
0 = Automatic
1 = Offset A
2 = Offset B
3 = Offset C

		Plan									
	Column Numbers ---->	1	2	3	4	5	6	7	8	9	
Row	*Plan Name ---->*										Row
0	Cycle Length	95	90	100	80	80	90	100	100	100	0
1	Phase 1 - ForceOff	36	36	36	15	15	40	65	65	65	1
2	Phase 2 - ForceOff	60	60	60	40	40	65	0	0	0	2
3	Phase 3 - ForceOff	78	78	76	60	60	20	25	25	25	3
4	Phase 4 - ForceOff	0	0	0	0	0	0	40	40	40	4
5	Phase 5 - ForceOff	36	36	40	15	15	40	65	65	65	5
6	Phase 6 - ForceOff	60	60	60	40	40	65	0	0	0	6
7	Phase 7 - ForceOff	16	18	18	60	60	85	25	25	25	7
8	Phase 8 - ForceOff	0	0	0	0	0	0	40	40	40	8
9	Ring Offset	0	0	0	0	0	0	0	0	0	9
A	Offset 1	2	5	13	0	20	2	0	0	0	A
B	Offset 2	0	0	0	0	0	0	0	0	0	B
C	Offset 3	0	0	0	0	0	0	0	0	0	C
D	Permissive	10	10	10	12	12	12	12	12	0	D
E	Hold Release	90	85	100	255	255	255	255	255	0	E
F	Zone Offset	0	0	0	0	0	0	0	0	0	F

(* = Coordination Recall)

	E	
		0
Plan 1 - Sync	___4___8	1
Plan 2 - Sync	___4___8	2
Plan 3 - Sync	___4___8	3
Plan 4 - Sync	___4___8	4
Plan 5 - Sync	___4___8	5
Plan 6 - Sync	___4___8	6
Plan 7 - Sync	___4___8	7
Plan 8 - Sync	___4___8	8
Plan 9 - Sync	___4___8	9
Coord Ped *	_____	A
NEMA Hold	_____	B
		C
		D
		E
		F

Sync Phases <C Page>

Row	*Column Numbers ---->*	E
0	Exclusive Phases	_____
1	RR-1 Clear Phases	_____
2	RR-2 Clear Phases	_____
3	RR-2 Limited Service	_____
4	Prot / Perm Phases	_____
5	Overlap A - Green Omit	_____
6	Overlap B - Green Omit	_____
7	Overlap C - Green Omit	_____
8	Overlap D - Green Omit	_____
9	Overlap Yellow Flash	_____
A	EV-A Phases	_2__5___
B	EV-B Phases	___4__7_
C	EV-C Phases	1____6__
D	EV-D Phases	__3____8
E	Extra 1 Config. Bits	1__4____
F	IC Select (Interconnect)	_2_____

Configuration <E Page>

Coordination <C Page>

	F
RR Overlap A - Phases	_____
RR Overlap B - Phases	_____
RR Overlap C - Phases	_____
RR Overlap D - Phases	_____
Ped 2P	_2_____
Ped 6P	_____6__
Ped 4P	___4____
Ped 8P	_____8
Yellow Flash Phases	_____
Overlap A - Phases	_____
Overlap B - Phases	_____
Overlap C - Phases	_____
Overlap D - Phases	_____
Restricted Phases	_____
Assign 5 Outputs	_____

Configuration <E Page>

Extra 1 Flags
1 = TBC Type 1
2 = NEMA Ext. Coord
3 = Auto Daylight Savings
4 = EV Advance
5 =
6 = Special Event
7 = Pretimed Operation
8 = Split Ring Operation

Assign 5 Outputs
(Ped Loadswitch Yellows)
1 = Right Turn Overlap
2 = TOD Outputs
3 = EV Beacon - Steady
4 = EV Beacon - Flashing
5 = Special Event Outputs
6 = Phase 3 & 7 Ped
7 = Advanced Warning Sign
8 =

Force-Off Adjust	5

Coord Force-Off Adjust for Ped Service <C+D+F>

Transition Type	0

TBC Transition <C+D+D>

Transition Type
0 = Shortway
Non-zero = Lengthen

IC Select Flags
1 =
2 = Modem
3 = 7-Wire Slave
4 = Flash / Free
5 =
6 = Simplex Master
7 = 7-Wire Master
8 = Offset Interrupter

	F	
		0
Free Lag	_2_4_6_8	1
Plan 1 - Lag	_2_4_67_	2
Plan 2 - Lag	_2_4_67_	3
Plan 3 - Lag	_2_4_67_	4
Plan 4 - Lag	_2_4_6_8	5
Plan 5 - Lag	_2_4_6_8	6
Plan 6 - Lag	_23__6_8	7
Plan 7 - Lag	_2_4_6_8	8
Plan 8 - Lag	_2_4_6_8	9
Plan 9 - Lag	_2_4_6_8	A
Coord Max *	_____	B
Coord Lag *	_____7_	C
		D
		E
		F

Lag Phases <C Page>

Row	Time	Plan	Offset	Day of Week
0	00 : 00	0	0	_____
1	06 : 00	0	0	_____
2	09 : 00	5	A	_____
3	15 : 00	E	A	_____
4	19 : 00	E	A	_____
5	00 : 00	0	0	_____
6	00 : 00	0	0	_____
7	00 : 00	0	0	_____
8	00 : 00	0	0	_____
9	00 : 00	0	0	_____
A	00 : 00	0	0	_____
B	00 : 00	0	0	_____
C	00 : 00	0	0	_____
D	00 : 00	0	0	_____
E	00 : 00	0	0	_____
F	00 : 00	0	0	_____

TOD Coordination
<9 Key with C+D+9=0>

Time	Funct.	Day of Week	Column F Phases/Bits
00 : 00	0	_____	_____
06 : 30	B	_23456_	_2___6__
08 : 30	B	_23456_	_____
15 : 30	B	_23456_	_2___6__
18 : 00	B	_23456_	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____
00 : 00	0	_____	_____

TOD Function
<7 Key>
<D Page>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday # 1
TOD Coordination
<9 Key with C+D+9=1>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday # 2
TOD Coordination
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____
00 : 00	0	0	_____

Holiday # 3
TOD Coordination
<9 Key with C+D+9=3>

Time	Plan	Offset	Day of Week	Row
00 : 00	0	0	_____	0
00 : 00	0	0	_____	1
00 : 00	0	0	_____	2
00 : 00	0	0	_____	3
00 : 00	0	0	_____	4
00 : 00	0	0	_____	5
00 : 00	0	0	_____	6
00 : 00	0	0	_____	7
00 : 00	0	0	_____	8
00 : 00	0	0	_____	9
00 : 00	0	0	_____	A
00 : 00	0	0	_____	B
00 : 00	0	0	_____	C
00 : 00	0	0	_____	D
00 : 00	0	0	_____	E
00 : 00	0	0	_____	F

Plan Select
1 thru 9 = Coordination Plan 1 thru 9
14 or E = Free
15 or F = Flash

Offset Select
A = Offset A
B = Offset B
C = Offset C

T.O.D. Functions
0 = Permitted Phases
1 = Red Lock
2 = Yellow Lock
3 = Veh Min Recall
4 = Ped Recall
5 =
6 = Rest In Walk
7 = Red Rest
8 = Double Entry
9 = Veh Max Recall
A = Veh Soft Recall
B = Maximum 2
C = Conditional Service
D = Free Lag Phases
E = Bit 1 - Local Override
Bit 2 - Phase Bank 2
Bit 3 - Phase Bank 3
Bit 4 - Disable Detector OFF Monitor
Bit 7 - Detector Count Monitor
Bit 8 - Real Time Split Monitor
F = Output Bits 1 thru 4

Month Select
1 = January
2 = February
3 = March
4 = April
5 = May
6 = June
7 = July
8 = August
9 = September
A = October
B = November
C = December

Row		Day	Year	Month	Day of Week
A	Holiday # 1 Date	0	0	0	_____
B	Holiday # 2 Date	0	0	0	_____
C	Holiday # 3 Date	0	0	0	_____

Holiday Dates
<8 Key>

Row	1 Delay	3 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		I-1	14
1	0.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	0.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	0.0		I-6U	3
8	0.0	0.0		I-6L	7
9	0.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	- - -	- - -	- - -	- - -	- - -
F	- - -	- - -	- - -	- - -	- - -

Row	2 Delay	4 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	0.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	0.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	- - -	- - -	- - -	- - -	- - -
F	- - -	- - -	- - -	- - -	- - -

Detector Delay & Carryover <D Page>

Row		9 Green Clear	C Yellow Change	D Red Clear	0 Load-Switch #
A	Overlap A	0.0	0.0	0.0	0
B	Overlap B	0.0	0.0	0.0	0
C	Overlap C	0.0	0.0	0.0	0
D	Overlap D	0.0	0.0	0.0	0

Overlap Timing <F Page> <D Page>

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- -- --	1234____
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- -- 21 22 23 24	____5678
E	-- -- -- -- -- -- -- --	1234____
F	-- 25 26 27 28 -- -- --	_2345___

Active Detectors <D Page>

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Row		0 Detector Number
0		
1	System Det. # 1	0
2	System Det. # 2	0
3	System Det. # 3	0
4	System Det. # 4	0
5	System Det. # 5	0
6	System Det. # 6	0
7	System Det. # 7	0
8	System Det. # 8	0

System Detectors <D Page>

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+B+0>

Dial-Up Telephone Communications
(If set to a non-zero value, parity will be disabled)

INTERSECTION: Oceanside & Melrose

Phase Timing - Bank 2 <F Page>

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8
	Phase Names ---->								
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	- - - - - -	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 3 <F Page>

Column Numbers ---->	Phase 1	2	3	4	5	6	7	8
Phase Names ---->								
Ped Walk	0	7	0	7	0	7	0	7
Ped FDW	0	10	0	10	0	10	0	10
Min Green	3	7	3	7	3	7	3	7
Type 3 Limit	0	0	0	0	0	0	0	0
Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
Max Limit	17	40	17	40	17	40	17	40
Max Limit 2	30	70	30	70	30	70	30	70
- - - - - -	0	0	0	0	0	0	0	0
Call To Phase	0	0	0	0	0	0	0	0
Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Special Event Schedule <C Page with F+9+F=22>

Row	Delay Only ----> / Limited Service Int. ---->	7 Time	8 Dwell	9 Hold	A Advance	B Force Off	C Vehicle Call	D Permit Phases	E Ped Omit	F Output
0	Delay Only ---->	0	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
1		0	0							
2		0	0							
3		0	0							
4		0	0							
5		0	0							
6		0	0							
7		0	0							
8		0	0							
9	Limited Service Int. ---->	0	0							
A		- - -	0							
B		0	0							
C		0	0							
D		0	0							
E		0	0							
F		0	0							

Row

<--- Limited Service Interval

(Set Dwell = 255)

INTERSECTION: Oceanside Blvd. & Sports Park

Group Assignment: **NONE**
Field Master Assignment: **NONE**
System Reference Number: **163**

N/S Street Name: **Not Assigned**
E/W Street Name: **Not Assigned**

Last Database Change: **1/22/2018 10:44**

Change Record					
Change	By	Date	Change	By	Date

Notes:

Drop Number	**3**	<C+0+0>
Zone Number		<C+0+1>
Area Number	**1**	<C+0+2>
Area Address	**163**	<C+0+3>
QuicNet Channel	**Serial:COM22:**	(QuicNet)

Communication Addresses

Manual Plan		<C+A+1>
Manual Offset		<C+B+1>

Manual Selection

Max Initial	**20**	<F+0+E>
Red Revert	**5.0**	<F+0+F>
All Red Start	**5.0**	<F+C+0>

Start / Revert Times

		Phase							
	Column Numbers ---->	1	2	3	4	5	6	7	8
Row	*Phase Names ---->*								
0	Ped Walk	0	0	0	7	0	7	0	7
1	Ped FDW	0	0	0	20	0	14	0	10
2	Min Green	3	10	3	8	5	10	3	7
3	Type 3 Limit	0	99	0	0	0	99	0	0
4	Added Initial	0.0	2.0	0.0	0.0	0.0	2.0	0.0	1.2
5	Veh Extension	0.5	5.0	0.5	3.0	2.5	5.0	0.5	3.5
6	Max Gap	0.5	6.0	0.5	3.0	2.5	6.0	0.5	5.0
7	Min Gap	0.5	2.5	0.5	3.0	2.5	2.5	0.5	2.0
8	Max Limit	17	40	17	30	30	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	- - - - - -	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	0.0	0.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.8	3.0	3.6	4.1	4.8	3.0	4.0
F	Red Clear	0.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0

Phase Timing - Bank 1 <F Page>

Row		E
0	RR-1 Delay	0
1	RR-1 Clear	10
2	EV-A Delay	0
3	EV-A Clear	5
4	EV-B Delay	0
5	EV-B Clear	5
6	EV-C Delay	0
7	EV-C Clear	5
8	EV-D Delay	0
9	EV-D Clear	5
A	RR-2 Delay	0
B	RR-2 Clear	10
C	*View EV Delay*	- - -
D	*View EV Clear*	- - -
E	*View RR Delay*	- - -
F	*View RR Clear*	- - -

Preempt Timing

Row		F
0	Permit	_2_456__
1	Red Lock	_____
2	Yellow Lock	_____
3	Min Recall	_2___6__
4	Ped Recall	_____
5	*View Set Peds*	- - - - -
6	Rest In Walk	_____
7	Red Rest	_____
8	Dual Entry	_2___6__
9	Max Recall	_____
A	Soft Recall	_____
B	Max 2	_____
C	Cond. Service	_____
D	Man Cntrl Calls	_____
E	Yellow Start	_2___6__
F	First Phases	___4____

Phase Functions <F Page>

Manual Plan
0 = Automatic
1-9 = Plan 1-9
14 = Free
15 = Flash

Manual Offset
0 = Automatic
1 = Offset A
2 = Offset B
3 = Offset C

Row	Column Numbers ---->	Plan 1	2	3	4	5	6	7	8	9	Row
	Plan Name ---->										
0	Cycle Length	100	100	100	100	100	100	100	100	100	0
1	Phase 1 - ForceOff	65	65	65	65	65	65	65	65	65	1
2	Phase 2 - ForceOff	0	0	0	0	0	0	0	0	0	2
3	Phase 3 - ForceOff	25	25	25	25	25	25	25	25	25	3
4	Phase 4 - ForceOff	40	40	40	40	40	40	40	40	40	4
5	Phase 5 - ForceOff	65	65	65	65	65	65	65	65	65	5
6	Phase 6 - ForceOff	0	0	0	0	0	0	0	0	0	6
7	Phase 7 - ForceOff	25	25	25	25	25	25	25	25	25	7
8	Phase 8 - ForceOff	40	40	40	40	40	40	40	40	40	8
9	Ring Offset	0	0	0	0	0	0	0	0	0	9
A	Offset 1	0	0	0	0	0	0	0	0	0	A
B	Offset 2	0	0	0	0	0	0	0	0	0	B
C	Offset 3	0	0	0	0	0	0	0	0	0	C
D	Permissive	12	12	12	12	12	12	12	12	0	D
E	Hold Release	255	255	255	255	255	255	255	255	0	E
F	Zone Offset	0	0	0	0	0	0	0	0	0	F

(* = Coordination Recall)

Row		E	Row
0			0
1	Plan 1 - Sync	_2___6__	1
2	Plan 2 - Sync	_2___6__	2
3	Plan 3 - Sync	_2___6__	3
4	Plan 4 - Sync	_2___6__	4
5	Plan 5 - Sync	_2___6__	5
6	Plan 6 - Sync	_2___6__	6
7	Plan 7 - Sync	_2___6__	7
8	Plan 8 - Sync	_2___6__	8
9	Plan 9 - Sync	_2___6__	9
A	Coord Ped *	_____	A
B	NEMA Hold	_____	B
C			C
D			D
E			E
F			F

Sync Phases <C Page>

Row	Column Numbers ---->	E
0	Exclusive Phases	_____
1	RR-1 Clear Phases	_____
2	RR-2 Clear Phases	_____
3	RR-2 Limited Service	_____
4	Prot / Perm Phases	_____
5	Overlap A - Green Omit	_____
6	Overlap B - Green Omit	_____
7	Overlap C - Green Omit	_____
8	Overlap D - Green Omit	_____
9	Overlap Yellow Flash	_____
A	EV-A Phases	_2__5___
B	EV-B Phases	___4____
C	EV-C Phases	1____6__
D	EV-D Phases	_____
E	Extra 1 Config. Bits	1_34____
F	IC Select (Interconnect)	_2_____

Configuration <E Page>

	F
RR Overlap A - Phases	_____
RR Overlap B - Phases	_____
RR Overlap C - Phases	_____
RR Overlap D - Phases	_____
Ped 2P	_____
Ped 6P	_____6__
Ped 4P	___4____
Ped 8P	_____
Yellow Flash Phases	_____
Overlap A - Phases	_____
Overlap B - Phases	_____
Overlap C - Phases	_____
Overlap D - Phases	_____
Restricted Phases	_____
Assign 5 Outputs	_____

Coordination <C Page>

Configuration <E Page>

Extra 1 Flags
1 = TBC Type 1
2 = NEMA Ext. Coord
3 = Auto Daylight Savings
4 = EV Advance
5 =
6 = Special Event
7 = Pretimed Operation
8 = Split Ring Operation

Assign 5 Outputs
(Ped Loadswitch Yellows)
1 = Right Turn Overlap
2 = TOD Outputs
3 = EV Beacon - Steady
4 = EV Beacon - Flashing
5 = Special Event Outputs
6 = Phase 3 & 7 Ped
7 = Advanced Warning Sign
8 =

Force-Off Adjust	0

Coord Force-Off Adjust for Ped Service <C+D+F>

Transition Type	0

TBC Transition <C+D+D>

Transition Type
0 = Shortway
Non-zero = Lengthen

IC Select Flags
1 =
2 = Modem
3 = 7-Wire Slave
4 = Flash / Free
5 =
6 = Simplex Master
7 = 7-Wire Master
8 = Offset Interrupter

Row		F	Row
0	Free Lag	_2_4_6_8	0
1	Plan 1 - Lag	_2_4_6_8	1
2	Plan 2 - Lag	_2_4_6_8	2
3	Plan 3 - Lag	_2_4_6_8	3
4	Plan 4 - Lag	_2_4_6_8	4
5	Plan 5 - Lag	_2_4_6_8	5
6	Plan 6 - Lag	_2_4_6_8	6
7	Plan 7 - Lag	_2_4_6_8	7
8	Plan 8 - Lag	_2_4_6_8	8
9	Plan 9 - Lag	_2_4_6_8	9
A	Coord Max *	_____	A
B	Coord Lag *	_____	B
C			C
D			D
E			E
F			F

Lag Phases <C Page>

Row	Time	Plan	Offset	Day of Week
0	00 : 00	0	0	
1	00 : 00	0	0	
2	00 : 00	0	0	
3	00 : 00	0	0	
4	00 : 00	0	0	
5	00 : 00	0	0	
6	00 : 00	0	0	
7	00 : 00	0	0	
8	00 : 00	0	0	
9	00 : 00	0	0	
A	00 : 00	0	0	
B	00 : 00	0	0	
C	00 : 00	0	0	
D	00 : 00	0	0	
E	00 : 00	0	0	
F	00 : 00	0	0	

TOD Coordination
<9 Key with C+D+9=0>

Time	Funct.	Day of Week
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	
00 : 00	0	

TOD Function
<7 Key>

Column F
Phases/Bits

<D Page>

Time	Plan	Offset	Day of Week
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	

Holiday # 1
TOD Coordination
<9 Key with C+D+9=1>

Time	Plan	Offset	Day of Week
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	

Holiday # 2
TOD Coordination
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	
00 : 00	0	0	

Holiday # 3
TOD Coordination
<9 Key with C+D+9=3>

Time	Plan	Offset	Day of Week	Row
00 : 00	0	0		0
00 : 00	0	0		1
00 : 00	0	0		2
00 : 00	0	0		3
00 : 00	0	0		4
00 : 00	0	0		5
00 : 00	0	0		6
00 : 00	0	0		7
00 : 00	0	0		8
00 : 00	0	0		9
00 : 00	0	0		A
00 : 00	0	0		B
00 : 00	0	0		C
00 : 00	0	0		D
00 : 00	0	0		E
00 : 00	0	0		F

Plan Select
1 thru 9 = Coordination Plan 1 thru 9
14 or E = Free
15 or F = Flash

Offset Select
A = Offset A
B = Offset B
C = Offset C

T.O.D. Functions
0 = Permitted Phases
1 = Red Lock
2 = Yellow Lock
3 = Veh Min Recall
4 = Ped Recall
5 =
6 = Rest In Walk
7 = Red Rest
8 = Double Entry
9 = Veh Max Recall
A = Veh Soft Recall
B = Maximum 2
C = Conditional Service
D = Free Lag Phases
E = Bit 1 - Local Override
Bit 2 - Phase Bank 2
Bit 3 - Phase Bank 3
Bit 4 - Disable Detector OFF Monitor
Bit 7 - Detector Count Monitor
Bit 8 - Real Time Split Monitor
F = Output Bits 1 thru 4

Month Select
1 = January
2 = February
3 = March
4 = April
5 = May
6 = June
7 = July
8 = August
9 = September
A = October
B = November
C = December

Row		Day	Year	Month	Day of Week
A	Holiday # 1 Date	0	0	0	
B	Holiday # 2 Date	0	0	0	
C	Holiday # 3 Date	0	0	0	

Holiday Dates
<8 Key>

Row	1 Delay	3 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		I-1	14
1	0.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	10.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	0.0		I-6U	3
8	0.0	0.0		I-6L	7
9	0.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	- - -	- - -	- - -	- - -	- - -
F	- - -	- - -	- - -	- - -	- - -

Row	2 Delay	4 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	0.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	2.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	- - -	- - -	- - -	- - -	- - -
F	- - -	- - -	- - -	- - -	- - -

Detector Delay & Carryover <D Page>

Row		9 Green Clear	C Yellow Change	D Red Clear	0 Load-Switch #
A	Overlap A	0.0	0.0	0.0	0
B	Overlap B	0.0	0.0	0.0	0
C	Overlap C	0.0	0.0	0.0	0
D	Overlap D	0.0	0.0	0.0	0

Overlap Timing <F Page> <D Page>

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- -- --	1234____
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- -- 21 22 23 24	____5678
E	-- -- -- -- -- -- -- --	1234____
F	-- 25 26 27 28 -- -- --	_2345___

Active Detectors <D Page>

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Row		0 Detector Number
0		
1	System Det. # 1	0
2	System Det. # 2	0
3	System Det. # 3	0
4	System Det. # 4	0
5	System Det. # 5	0
6	System Det. # 6	0
7	System Det. # 7	0
8	System Det. # 8	0

System Detectors <D Page>

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+B+0>

Dial-Up Telephone Communications
(If set to a non-zero value, parity will be disabled)

INTERSECTION: Oceanside Blvd. & Sports Park

Phase Timing - Bank 2 <F Page>

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8
	Phase Names ---->								
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	- - - - - -	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 3 <F Page>

Row	Column Numbers ---->	Phase 1	2	3	4	5	6	7	8	Row
	Phase Names ---->									
0	Ped Walk	0	7	0	7	0	7	0	7	0
1	Ped FDW	0	10	0	10	0	10	0	10	1
2	Min Green	3	7	3	7	3	7	3	7	2
3	Type 3 Limit	0	0	0	0	0	0	0	0	3
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2	4
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5	5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0	6
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0	7
8	Max Limit	17	40	17	40	17	40	17	40	8
9	Max Limit 2	30	70	30	70	30	70	30	70	9
A	- - - - - -	0	0	0	0	0	0	0	0	A
B	Call To Phase	0	0	0	0	0	0	0	0	B
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	C
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	D
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0	E
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0	F

Row	Delay Only --->	7 Time	8 Dwell	9 Hold	A Advance	B Force Off	C Vehicle Call	D Permit Phases	E Ped Omit	F Output	Row
0		0	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	0
1		0	0								1
2		0	0								2
3		0	0								3
4		0	0								4
5		0	0								5
6		0	0								6
7		0	0								7
8		0	0								8
9	Limited Service Int. --->	0	0								9
A		- - -	0								A
B		0	0								B
C		0	0								C
D		0	0								D
E		0	0								E
F		0	0								F

<--- Limited Service Interval

(Set Dwell = 255)

Special Event Schedule <C Page with F+9+F=22>

Q FREE

CITY OF VISTA
CALIFORNIA

332 CABINET

N Santa Fe Ave @ Bobier Dr

Phase Timing and Options

Unit Information

Controller Number	20
Software	Intelight MAXTIME 2.X
Main Street	N Santa Fe Ave
Side Street	Bobier Ave
IP Address	10.9.12.130

Unit Parameters

Extended Mode	Disable
Startup Flash	0
Auto Ped Clear	Disable
Red Revert	5
Backup Time	600
Startup All Red	0
Man. Control Seq.	1
MCE Enable	Enable
Start Yel. Override	0
Start Red Override	0
Free Sequence	1
All Red Flash Exit	5
Local CVM Fash	Disable
All Red Flash Sns	Disable
All Dark Flash Sns	Disable

Phase Timing

Phase	1	2	3	4	5	6	7	8
Description	nb left	sb	eb left	wb	sb left	nb	wb left	eb
Walk		7		7		7		7
Ped Clear		30		27		30		27
Steady Don't Walk								
Min Green	5	10	5	7	5	10	5	7
Min Green 2								
Passage	2.0	2.5	2.0	2.5	2.0	2.5	2.0	2.5
Passage 2								
Max Green 1	20	30	20	25	30	30	20	25
Max Green 2			30	30			30	30
Yellow Change	3.0	4.1	3.0	4.4	3.0	4.1	3.0	4.4
Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Added Initial								
Maximum Initial								
Time B4 Reduction								
Cars B4 Reduction								
Time To Reduce								
Reduce By								
Minimum Gap								
Advance Walk								
Delayed Ped								

Phase Options

Phase	1	2	3	4	5	6	7	8
Enable	X	X	X	X	X	X	X	X
Auto Flash Entry	.	.	.	X	.	.	.	X
Auto Flash Exit	.	X	.	.	.	X	.	.
Non Lock Detector	X	X	X	X	X	X	X	X
Min Vehicle Recall	.	X	.	.	.	X	.	.
Max Vehicle Recall	.	.	.	X	.	.	.	X
Ped Recall	.	.	.	.	.	.	.	.
Soft Vehicle Recall	.	.	.	.	.	.	.	.
Dual Entry	.	.	.	.	.	.	.	.
Sim. Gap Disable	.	.	.	.	.	.	.	.
Actuated Rest in Walk	.	X	.	X	.	X	.	X
Conditional Svc Enable	.	.	.	.	.	.	.	.
Add Initial Calculation	.	.	.	.	.	.	.	.
Ped Clear During Yellow	.	.	.	.	.	.	.	.
Ped Clear During Red Clr	.	.	.	.	.	.	.	.
Yellow Min Override	.	.	.	.	.	.	.	.
No Startup Call	.	.	.	.	.	.	.	.
No Ped Startup Call	.	.	.	.	.	.	.	.
Min Green 2	.	.	.	.	.	.	.	.
Max Green 2	.	.	.	.	.	.	.	.
Red Rest	.	.	.	.	.	.	.	.
Ped Recycle	.	.	.	.	.	.	.	.

Phase Configuration

Phase	Startup	Description
1	Phase Not On	nb left
2	Secondary Start	sb
3	Phase Not On	eb left
4	YellowChange	wb
5	Phase Not On	sb left
6	Secondary Start	nb
7	Phase Not On	wb left
8	YellowChange	eb

Global Phase Recalls

Phase	1	2	3	4	5	6	7	8
Min	.	.	.	.	.	.	.	.
Max	.	.	.	.	.	.	.	.
Ped	.	.	.	.	.	.	.	.

Notes

Printed on: 10/20/2021

Sequences

Sequence 1

Ring	Sequence
1	1,2,a,3,4,b
2	5,6,a,7,8,b
3	
4	

Sequence 2

Ring	Sequence
1	2,1,a,3,4,b
2	5,6,a,7,8,b
3	
4	

Sequence 3

Ring	Sequence
1	1,2,a,4,3,b
2	5,6,a,7,8,b
3	
4	

Sequence 4

Ring	Sequence
1	2,1,a,4,3,b
2	5,6,a,7,8,b
3	
4	

Sequence 5

Ring	Sequence
1	1,2,a,3,4,b
2	5,6,a,7,8,b
3	
4	

Sequence 6

Ring	Sequence
1	1,2,a,3,4,b
2	5,6,a,7,8,b
3	
4	

Sequence 7

Ring	Sequence
1	1,2,a,4,3,b
2	6,5,a,7,8,b
3	
4	

Sequence 8

Ring	Sequence
1	2,1,a,4,3,b
2	6,5,a,7,8,b
3	
4	

Sequence 9

Ring	Sequence
1	1,2,a,3,4,b
2	5,6,a,8,7,b
3	
4	

Sequence 10

Ring	Sequence
1	2,1,a,3,4,b
2	5,6,a,8,7,b
3	
4	

Sequence 11

Ring	Sequence
1	1,2,a,4,3,b
2	5,6,a,8,7,b
3	
4	

Sequence 12

Ring	Sequence
1	2,1,a,4,3,b
2	5,6,a,8,7,b
3	
4	

Sequence 13

Ring	Sequence
1	1,2,a,3,4,b
2	6,5,a,8,7,b
3	
4	

Sequence 14

Ring	Sequence
1	2,1,a,3,4,b
2	6,5,a,8,7,b
3	
4	

Sequence 15

Ring	Sequence
1	1,2,a,4,3,b
2	6,5,a,8,7,b
3	
4	

Sequence 16

Ring	Sequence
1	2,1,a,4,3,b
2	6,5,a,8,7,b
3	
4	

Overlaps

Standard Overlaps

Overlap	1	2	3	4	5	6
Enabled	Enabled	Enabled	Enabled	Enabled	Disabled	Disabled
Description	eb right	sb right	wb right	nb right		
Type	Minus Green Yellow	Minus Green Yellow	Minus Green Yellow	Minus Green Yellow	Off	Off
Included Phs	1,8	2,3	4,5	6,7		
Modifier Phs	8	2	4	6		
Negative Phs						
Negative Ovlp						
Negative Ped						
Green Suppr						
Trail Green						
Trail Yellow						
Trail Red						
Walk						
Ped Clear						
Delay						
Startup Call	.	.	.	.	.	.
Recall	.	.	.	.	.	.
Call for Svc	.	.	.	.	.	.

Backup Prevention / No Serve Phases

Sequence 1

Backup Protection Plan

Serve Phase	Backup phase 1	2	3	4	5	6	7	8
1	-	-	-	-	-	-	-	-
2								
3								
4	-	-	-	-	-	-	-	-
5								
6	-	-	-	-	-	-	-	-
7								
8	-	-	-	-	-	-	-	-
Thru Red				No				

Call Phs

Ph	Call Ph
1	
2	
3	
4	
5	
6	
7	
8	

No Serve

Ph	No Srv
1	
2	
3	
4	
5	
6	
7	
8	

Sequence 2

Backup Protection Plan

Serve Phase	Backup phase 1	2	3	4	5	6	7	8
1	-	-	-	-	-	-	-	-
2								
3								
4	-	-	-	-	-	-	-	-
5								
6	-	-	-	-	-	-	-	-
7								
8	-	-	-	-	-	-	-	-
Thru Red				No				

Call Phs

Ph	Call Ph
1	
2	
3	
4	
5	
6	
7	
8	

No Serve

Ph	No Srv
1	
2	
3	
4	
5	
6	
7	
8	

Sequence 3

Backup Protection Plan

Serve Phase	Backup phase 1	2	3	4	5	6	7	8
1	-	-	-	-	-	-	-	-
2								
3								
4	-	-	-	-	-	-	-	-
5								
6	-	-	-	-	-	-	-	-
7								
8	-	-	-	-	-	-	-	-
Thru Red				No				

Call Phs

Ph	Call Ph
1	
2	
3	
4	
5	
6	
7	
8	

No Serve

Ph	No Srv
1	
2	
3	
4	
5	
6	
7	
8	

Sequence 4

Backup Protection Plan

Serve Phase	Backup phase 1	2	3	4	5	6	7	8
1	-	-	-	-	-	-	-	-
2								
3								
4	-	-	-	-	-	-	-	-
5								
6	-	-	-	-	-	-	-	-
7								
8	-	-	-	-	-	-	-	-
Thru Red				No				

Call Phs

Ph	Call Ph
1	
2	
3	
4	
5	
6	
7	
8	

No Serve

Ph	No Srv
1	
2	
3	
4	
5	
6	
7	
8	

Sequence 5

Backup Protection Plan

Serve Phase	Backup phase 1	2	3	4	5	6	7	8
1	-	-	-	-	-	-	-	-
2								
3								
4	-	-	-	-	-	-	-	-
5								
6	-	-	-	-	-	-	-	-
7								
8	-	-	-	-	-	-	-	-
Thru Red				No				

Call Phs

Ph	Call Ph
1	
2	
3	
4	
5	
6	
7	
8	

No Serve

Ph	No Srv
1	
2	
3	
4	
5	
6	
7	
8	

Sequence 6

Backup Protection Plan

Serve Phase	Backup phase 1	2	3	4	5	6	7	8
1	-	-	-	-	-	-	-	-
2								
3								
4	-	-	-	-	-	-	-	-
5								
6	-	-	-	-	-	-	-	-
7								
8	-	-	-	-	-	-	-	-
Thru Red				No				

Call Phs

Ph	Call Ph
1	
2	
3	
4	
5	
6	
7	
8	

No Serve

Ph	No Srv
1	
2	
3	
4	
5	
6	
7	
8	

Sequence 7

Backup Protection Plan

Serve Phase	Backup phase 1	2	3	4	5	6	7	8
1	-	-	-	-	-	-	-	-
2								
3								
4	-	-	-	-	-	-	-	-
5								
6	-	-	-	-	-	-	-	-
7								
8	-	-	-	-	-	-	-	-
Thru Red				No				

Call Phs

Ph	Call Ph
1	
2	
3	
4	
5	
6	
7	
8	

No Serve

Ph	No Srv
1	
2	
3	
4	
5	
6	
7	
8	

Sequence 8

Backup Protection Plan

Serve Phase	Backup phase 1	2	3	4	5	6	7	8
1	-	-	-	-	-	-	-	-
2								
3								
4	-	-	-	-	-	-	-	-
5								
6	-	-	-	-	-	-	-	-
7								
8	-	-	-	-	-	-	-	-
Thru Red				No				

Call Phs

Ph	Call Ph
1	
2	
3	
4	
5	
6	
7	
8	

No Serve

Ph	No Srv
1	
2	
3	
4	
5	
6	
7	
8	

Sequence 9

Backup Protection Plan

Serve Phase	Backup phase 1	2	3	4	5	6	7	8
1	-	-	-	-	-	-	-	-
2								
3								
4	-	-	-	-	-	-	-	-
5								
6	-	-	-	-	-	-	-	-
7								
8	-	-	-	-	-	-	-	-
Thru Red				No				

Call Phs

Ph	Call Ph
1	
2	
3	
4	
5	
6	
7	
8	

No Serve

Ph	No Srv
1	
2	
3	
4	
5	
6	
7	
8	

Detector Configuration

Vehicle Detectors

Detector	Slot	C1 Pin Number	Call Phase	Call O/L	Addtnl Call PH	Switch Phase	Delay	Extend	Queue Limit	No Activity	Max Pres.	Erratic Count	Fail Time	Failed Recall	Description
1	I-1	C1-56	1											None	
2	I-2U	C1-39	2											None	
3	I-2L	C1-43	2											None	
4	I-3U	C1-63	2											None	
5	I-3L	C1-76	2											None	
6	I-4	C1-47	2											None	
7	I-5	C1-58	3											None	
8	I-6U	C1-41	4											None	
9	I-6L	C1-45	4											None	
10	I-7U	C1-65	4											None	
11	I-7L	C1-78	4											None	
12	I-8	C1-49	4											None	
13	I-9U	C1-60	1											None	
14	I-9L	C1-62	3											None	
15	J-1	C1-55	5											None	
16	J-2U	C1-40	6											None	
17	J-2L	C1-44	6											None	
18	J-3U	C1-64	6											None	
19	J-3L	C1-77	6											None	
20	J-4	C1-48	6											None	
21	J-5	C1-57	7											None	
22	J-6U	C1-42	8											None	
23	J-6L	C1-46	8											None	
24	J-7U	C1-66	8											None	
25	J-7L	C1-79	8											None	
26	J-8	C1-50	8											None	
27	J-9U	C1-59	5											None	
28	J-9L	C1-61	7											None	

Pedestrian Detectors

Detector	Slot	C1 Pin Number	Call PH	Call O/L	Addtnl Call PH	No Act	Max Pres	Erratic Count
1	-------	-------						
2	I-12U	C1-67	2					
3	-------	-------						
4	I-12L	C1-69	4					
5	-------	-------						
6	I-13U	C1-68	6					
7	-------	-------						
8	I-13L	C1-70	8					

Global Vehicle Detector Parameters

Global No Activity	
Global Max Presence	20
Global Erratic Count	
Global Failed Recall	Max Recall
Detector Reset Enable	Disabled

Global Ped Detector Parameters

Global No Activity	
Global Max Pres.	5
Global Erratic Ct	

Vehicle Detection Options

Detector	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Volume	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Occupancy	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Yellow Lock Call	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Red Lock Call	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Extend	X	X	X	X	X	.	X	X	X	X	X	.	X	X	X	X	X	X	X	.	X	X	X	X	X	.	X	X
Added Initial	X	X	X	X	X	.	X	X	X	X	X	.	X	X	X	X	X	X	X	.	X	X	X	X	X	.	X	X
Queue	.	.	.	.	.	X	.	.	.	.	.	X	.	.	.	.	.	.	.	X	.	.	.	.	.	X	.	.
Call	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Min Green 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Passage 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Coordination Configuration

Coordination Parameters

Operational Mode	Manual Free
Coord Mode	Full Permissive
Maximum Mode	Per Pattern
Force Mode	Per Pattern
Correction Mode	Shortway (Auto)
Max Cyc Limit %	25
Min Cyc Limit %	25
Max Dwell	0
Trans. Cover Ped	Pattern

Patterns

Patt	Cycle	Offset 1	Split	Seq	Reference	Coord Mode	FO Mode	Max Mode	Phs Pln	Det Pln	Ped Pln	OL Pln	Description
1					Yellow	Full Permissive	Fixed	Max Inhibit	1	1	1	1	
2					Yellow	Full Permissive	Fixed	Max Inhibit	1	1	1	1	
3					Yellow	Full Permissive	Fixed	Max Inhibit	1	1	1	1	
4					Yellow	Full Permissive	Fixed	Max Inhibit	1	1	1	1	
5					Yellow	Full Permissive	Fixed	Max Inhibit	1	1	1	1	
6					Yellow	Full Permissive	Fixed	Max Inhibit	1	1	1	1	
7					Yellow	Full Permissive	Fixed	Max Inhibit	1	1	1	1	
8					Yellow	Full Permissive	Fixed	Max Inhibit	1	1	1	1	
9					Yellow	Full Permissive	Fixed	Max Inhibit	1	1	1	1	

Split Parameters

Split 1

PH.	Time	Min	Max	Coord Phase	Ref Phase	FO Mode	Mode
1				.	.	Fixed	None
2				.	.	Fixed	None
3				.	.	Fixed	None
4				.	.	Fixed	None
5				.	.	Fixed	None
6				.	.	Fixed	None
7				.	.	Fixed	None
8				.	.	Fixed	None

Split 2

PH.	Time	Min	Max	Coord Phase	Ref Phase	FO Mode	Mode
1				.	.	Fixed	None
2				.	.	Fixed	None
3				.	.	Fixed	None
4				.	.	Fixed	None
5				.	.	Fixed	None
6				.	.	Fixed	None
7				.	.	Fixed	None
8				.	.	Fixed	None

Split 3

PH.	Time	Min	Max	Coord Phase	Ref Phase	FO Mode	Mode
1				.	.	Fixed	None
2				.	.	Fixed	None
3				.	.	Fixed	None
4				.	.	Fixed	None
5				.	.	Fixed	None
6				.	.	Fixed	None
7				.	.	Fixed	None
8				.	.	Fixed	None

Split 4

PH.	Time	Min	Max	Coord Phase	Ref Phas	FO Mode	Mode
1				.	.	Fixed	None
2				.	.	Fixed	None
3				.	.	Fixed	None
4				.	.	Fixed	None
5				.	.	Fixed	None
6				.	.	Fixed	None
7				.	.	Fixed	None
8				.	.	Fixed	None

Split 5

PH.	Time	Min	Max	Coord Phase	Ref Phase	FO Mode	Mode
1				.	.	Fixed	None
2				.	.	Fixed	None
3				.	.	Fixed	None
4				.	.	Fixed	None
5				.	.	Fixed	None
6				.	.	Fixed	None
7				.	.	Fixed	None
8				.	.	Fixed	None

Split 6

PH.	Time	Min	Max	Coord Phase	Ref Phase	FO Mode	Mode
1				.	.	Fixed	None
2				.	.	Fixed	None
3				.	.	Fixed	None
4				.	.	Fixed	None
5				.	.	Fixed	None
6				.	.	Fixed	None
7				.	.	Fixed	None
8				.	.	Fixed	None

Split 7

PH.	Time	Min	Max	Coord Phase	Ref Phase	FO Mode	Mode
1				.	.	Fixed	None
2				.	.	Fixed	None
3				.	.	Fixed	None
4				.	.	Fixed	None
5				.	.	Fixed	None
6				.	.	Fixed	None
7				.	.	Fixed	None
8				.	.	Fixed	None

Split 8

PH.	Time	Min	Max	Coord Phase	Ref Phase	FO Mode	Mode
1				.	.	Fixed	None
2				.	.	Fixed	None
3				.	.	Fixed	None
4				.	.	Fixed	None
5				.	.	Fixed	None
6				.	.	Fixed	None
7				.	.	Fixed	None
8				.	.	Fixed	None

Split 9

PH.	Time	Min	Max	Coord Phase	Ref Phase	FO Mode	Mode
1				.	.	Fixed	None
2				.	.	Fixed	None
3				.	.	Fixed	None
4				.	.	Fixed	None
5				.	.	Fixed	None
6				.	.	Fixed	None
7				.	.	Fixed	None
8				.	.	Fixed	None

Advanced Coord Options

Pattern	1	2	3	4	5	6	7	8	9
Ring Plan									
Allow Split Underrun	.	.	.	.	.	.	.	.	.
Allow Split Overrun	.	.	.	.	.	.	.	.	.
Allow No Coord Phase	.	.	.	.	.	.	.	.	.
Coord Now	.	.	.	.	.	.	.	.	.

Ring Plans

Ring Plan 1

Ring	Offset	Early Gap
1		
2		
3		
4		

Ring Plan 2

Ring	Offset	Early Gap
1		
2		
3		
4		

Ring Plan 3

Ring	Offset	Early Gap
1		
2		
3		
4		

Ring Plan 4

Ring	Offset	Early Gap
1		
2		
3		
4		

Ring Plan 5

Ring	Offset	Early Gap
1		
2		
3		
4		

Ring Plan 6

Ring	Offset	Early Gap
1		
2		
3		
4		

Ring Plan 7

Ring	Offset	Early Gap
1		
2		
3		
4		

Ring Plan 8

Ring	Offset	Early Gap
1		
2		
3		
4		

Ring Plan 9

Ring	Offset	Early Gap
1		
2		
3		
4		

Scheduler Configuration

Schedule 1

Status	Enabled

Month of Year											
J	F	M	A	M	J	J	A	S	O	N	D
X	X	X	X	X	X	X	X	X	X	X	X

Description	Weekday

Days of Week							
S	M	T	W	T	F	S
.	X	X	X	X	X	.

Day Plan	1

Days of Month																															
									1																					2													3	
1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Schedule 2

Status	Enabled

Month of Year											
J	F	M	A	M	J	J	A	S	O	N	D
X	X	X	X	X	X	X	X	X	X	X	X

Description	Weekend

Days of Week							
S	M	T	W	T	F	S
X	.	.	.	.	.	X

Day Plan	2

Days of Month																															
									1																					2													3	
1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Schedule 3

Status	Disabled

Month of Year											
J	F	M	A	M	J	J	A	S	O	N	D
.	.	.	.	.	.	.	.	.	.	.	.

Description	

Days of Week							
S	M	T	W	T	F	S
.	.	.	.	.	.	.

Day Plan	0

Days of Month																															
									1																					2													3	
1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Day Plans

Day Plan 1

Event	HR	MIN	ACT	Description
1	7	15	10	Free/MAX2 3,4,7,8
2	8	35	64	Free
3	14	25	12	Free/MAX2 ph7
4	14	45	11	Free/MAX2 ph3
5	15		64	Free
6				
7				
8				
9				
10				

Day Plan 2

Event	HR	MIN	ACT	Description
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Day Plan 3

Event	HR	MIN	ACT	Description
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Action Commands

Action	Command	Index
1	None	
2	None	
3	None	
4	None	
5	None	

Action	Command	Index
6	None	
7	None	
8	None	
9	None	
10	Phase Max 2	3,4,7,8

Action	Command	Index
11	Phase Max 2	3
12	Phase Max 2	7
13	None	
14	None	
15	None	

Action	Command	Index
16	None	
17	None	
18	None	
19	None	
20	None	

Actions

		Aux			Special Functions						
Action	Pattern	1	2	3	1	2	3	4	5	6	7	8
1	Pattern 1	.	.	.	.	.	.	.	.	.	.	.
2	Pattern 2	.	.	.	.	.	.	.	.	.	.	.
3	Pattern 3	.	.	.	.	.	.	.	.	.	.	.
4	Pattern 4	.	.	.	.	.	.	.	.	.	.	.
5	Pattern 5	.	.	.	.	.	.	.	.	.	.	.
6	Pattern 6	.	.	.	.	.	.	.	.	.	.	.
7	Pattern 7	.	.	.	.	.	.	.	.	.	.	.
8	Pattern 8	.	.	.	.	.	.	.	.	.	.	.
9	Pattern 9	.	.	.	.	.	.	.	.	.	.	.
10	Free	.	.	.	.	.	.	.	.	.	.	.
11	Free	.	.	.	.	.	.	.	.	.	.	.
12	Free	.	.	.	.	.	.	.	.	.	.	.
13	None	.	.	.	.	.	.	.	.	.	.	.
14	None	.	.	.	.	.	.	.	.	.	.	.
15	None	.	.	.	.	.	.	.	.	.	.	.
16	None	.	.	.	.	.	.	.	.	.	.	.
17	None	.	.	.	.	.	.	.	.	.	.	.
18	None	.	.	.	.	.	.	.	.	.	.	.
19	None	.	.	.	.	.	.	.	.	.	.	.
20	None	.	.	.	.	.	.	.	.	.	.	.
64	Free	.	.	.	.	.	.	.	.	.	.	.

Preempt Configuration

Preemption Configuration

Preempt	1	2	3	4	5	6
Enabled	Enabled	Disabled	Enabled	Enabled	Enabled	Enabled
Type	Rail Road	Rail Road	Emergency Veh	Emergency Veh	Emergency Veh	Emergency Veh
Description	BBS Low Battery					
Track Phase						
Track 2 Phases						
Track Overlap						
Track 2 Overlap						
Dwell Phase			2,5	4,7	1,6	3,8
Dwell Ped						
Dwell Overlap						
Cycling Phase						
Cycling Ped						
Cycling Overlap						
Exit Phase						
Exit Overlaps						
Recovery Exit Omit						

Preemption Options

Preempt	1	2	3	4	5	6
Non Lock Mem	.	.	X	X	X	X
Not Overide Flash	.	.	X	X	X	X
Not Overide Next Preempt	.	.	X	X	X	X
Flash Dwell	.	.	.	.	.	.
Ped Recycle in Dwell Cycle	.	.	.	.	.	.
Immediate Ped Clear	.	.	.	.	.	.
Dwell Only Status Output	.	.	.	.	.	.
All Red Flash Dwell	X	.	.	.	.	.
Allow All Overlaps	.	.	.	.	.	.
Require All Red Entry	.	.	.	.	.	.
Require Gate Down Track Exit	.	.	.	.	.	.
Require Gate Up Dwell Exit	.	.	.	.	.	.
Use Normal On/Normal Off Input	.	.	.	.	.	.

Preemption Parameters

Preempt	1	2	3	4	5	6
Link						
Delay						
Min Duration						
Min Presence						
Max Presence			255	255	255	255
Max Presence Action	Terminate	Terminate	All Red Flash	All Red Flash	All Red Flash	All Red Flash
Enter Min Green						
Enter Yellow Change	25.5	25.5	25.5	25.5	25.5	25.5
Enter Red Clear	25.5	25.5	25.5	25.5	25.5	25.5
Enter Min Walk						
Enter Ped Clear			255	255	255	255
Track Green						
Track Yellow Change	25.5	25.5	25.5	25.5	25.5	25.5
Track Red Clear	25.5	25.5	25.5	25.5	25.5	25.5
Track 2 Green						
Track 2 Yellow	25.5	25.5	25.5	25.5	25.5	25.5
Track 2 Red	25.5	25.5	25.5	25.5	25.5	25.5
Track Ext. Gate Down						

Preempt Parameters

Preempt	1	2	3	4	5	6
Dwell Green			5	5	5	5
Exit Ped Clear	255	255	255	255	255	255
Exit Yellow Change	25.5	25.5	25.5	25.5	25.5	25.5
Exit Red Clear	25.5	25.5	25.5	25.5	25.5	25.5
Dwell Ext Time						
Max Exit Green						
Exit Type	Exit Phases	Exit Phases	t Phase Skip	t Phase Skip	t Phase Skip	t Phase Skip
Exit Max Mode	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled
Exit Max Apply Time						
Veh Exit Calls						
Ped Exit Calls						

Advanced I/O Configuration

Channel Configuration

Ch	Control Type	Source
1	Phase Vehicle	1
2	Phase Vehicle	2
3	Phase Vehicle	3
4	Phase Vehicle	4
5	Phase Vehicle	5
6	Phase Vehicle	6
7	Phase Vehicle	7
8	Phase Vehicle	8

Ch	Control Type	Source
9	None	
10	None	
11	Overlap	3
12	Overlap	4
13	Phase Ped	2
14	Phase Ped	4
15	Phase Ped	6
16	Phase Ped	8

Concurrency Mode

Concurrency Mode
Auto

Auto Concurrency

Ch	Concurrency
1	5,6,11,12,15
2	5,6,11,12,13,15
3	7,8,12,16
4	7,8,11,12,14,16
5	11,13
6	12,13,15
7	11,12,14
8	11,14,16
9	
10	
11	13,16
12	13,14
13	15
14	16
15	
16	

Channel Options

Channel	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Flash Yellow	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Flash Red	X	X	X	X	X	X	X	X	.	.	.	.	.	.	.	.
Flash Alternate Half Hertz	X	.	.	X	X	.	.	X	.	.	.	.	.	.	.	.

Cabinet Configuration

IO Modules

IO Module	Type
1	Caltrans 332

Input Points

Input	C1 Pin	Input Type	Idx
1	C1-39	Vehicle Det Call	2
2	C1-40	Vehicle Det Call	16
3	C1-41	Vehicle Det Call	8
4	C1-42	Vehicle Det Call	22
5	C1-43	Vehicle Det Call	3
6	C1-44	Vehicle Det Call	17
7	C1-45	Vehicle Det Call	9
8	C1-46	Vehicle Det Call	23
9	C1-47	Vehicle Det Call	6
10	C1-48	Vehicle Det Call	20
11	C1-49	Vehicle Det Call	12
12	C1-50	Vehicle Det Call	26
13	C1-51	Preempt Input	1
14	C1-52	Preempt Input	2
15	C1-53	Unit Manual Control Enabl	1
16	C1-54	Not Active	

Input	C1 Pin	Input Type	Idx
17	C1-55	Vehicle Det Call	15
18	C1-56	Vehicle Det Call	1
19	C1-57	Vehicle Det Call	21
20	C1-58	Vehicle Det Call	7
21	C1-59	Vehicle Det Call	27
22	C1-60	Vehicle Det Call	13
23	C1-61	Vehicle Det Call	28
24	C1-62	Vehicle Det Call	14
25	C11-10	Not Active	
26	C11-11	Not Active	
27	C11-12	Not Active	
28	C11-13	Not Active	
29	C1-63	Vehicle Det Call	4
30	C1-64	Vehicle Det Call	18
31	C1-65	Vehicle Det Call	10
32	C1-66	Vehicle Det Call	24

Input	C1 Pin	Input Type	Idx
33	C1-67	Ped Det Call	2
34	C1-68	Ped Det Call	6
35	C1-69	Ped Det Call	4
36	C1-70	Ped Det Call	8
37	C1-71	**reempt High Prioritor Lo**	3
38	C1-72	**reempt High Prioritor Lo**	4
39	C1-73	**reempt High Prioritor Lo**	5
40	C1-74	**reempt High Prioritor Lo**	6
41	C1-75	Not Active	
42	C1-76	Vehicle Det Call	5
43	C1-77	Vehicle Det Call	19
44	C1-78	Vehicle Det Call	11
45	C1-79	Vehicle Det Call	25
46	C1-80	Unit Interval Advance	1
47	C1-81	Unit Local Flash Sense	1
48	C1-82	Unit Stop Time	1

Input	C1 Pin	Input Type	Idx
49	C11-15	Not Active	
50	C11-16	Not Active	
51	C11-17	Not Active	
52	C11-18	Not Active	
53	C11-19	Not Active	
54	C11-20	Not Active	
55	C11-21	Not Active	
56	C11-22	Not Active	
57	C11-23	Not Active	
58	C11-24	Not Active	
59	C11-25	Not Active	
60	C11-26	Not Active	
61	C11-27	Not Active	
62	C11-28	Not Active	
63	C11-29	Not Active	
64	C11-30	Not Active	

Cabinet Configuration

Output Points

Output	C1 Pin	Output Type	Idx
1	C1-2	Channel Red Do Not Walk Driver	14
2	C1-3	Channel Green Walk Driver	14
3	C1-4	Channel Red Do Not Walk Driver	4
4	C1-5	Channel Yellow Ped Clear Driver	4
5	C1-6	Channel Green Walk Driver	4
6	C1-7	Channel Red Do Not Walk Driver	3
7	C1-8	Channel Yellow Ped Clear Driver	3
8	C1-9	Channel Green Walk Driver	3
9	C1-10	Channel Red Do Not Walk Driver	13
10	C1-11	Channel Green Walk Driver	13
11	C1-12	Channel Red Do Not Walk Driver	2
12	C1-13	Channel Yellow Ped Clear Driver	2
13	C1-15	Channel Green Walk Driver	2
14	C1-16	Channel Red Do Not Walk Driver	1
15	C1-17	Channel Yellow Ped Clear Driver	1
16	C1-18	Channel Green Walk Driver	1
17	C1-19	Channel Red Do Not Walk Driver	16
18	C1-20	Channel Green Walk Driver	16
19	C1-21	Channel Red Do Not Walk Driver	8
20	C1-22	Channel Yellow Ped Clear Driver	8
21	C1-23	Channel Green Walk Driver	8
22	C1-24	Channel Red Do Not Walk Driver	7
23	C1-25	Channel Yellow Ped Clear Driver	7
24	C1-26	Channel Green Walk Driver	7
25	C1-27	Channel Red Do Not Walk Driver	15
26	C1-28	Channel Green Walk Driver	15
27	C1-29	Channel Red Do Not Walk Driver	6
28	C1-30	Channel Yellow Ped Clear Driver	6
29	C1-31	Channel Green Walk Driver	6
30	C1-32	Channel Red Do Not Walk Driver	5
31	C1-33	Channel Yellow Ped Clear Driver	5
32	C1-34	Channel Green Walk Driver	5

Output	C1 Pin	Output Type	Idx
33	C1-35	**Overlap Green**	1
34	C1-36	**Overlap Green**	2
35	C1-37	**Overlap Yellow**	1
36	C1-38	**Overlap Yellow**	2
37	C1-100	Channel Yellow Ped Clear Driver	18
38	C1-101	Channel Yellow Ped Clear Driver	17
39	C1-102	Detector Reset	1
40	C1-103	Watchdog	
41	C1-83	Channel Red Do Not Walk Driver	18
42	C1-84	Channel Green Walk Driver	18
43	C1-85	Channel Red Do Not Walk Driver	12
44	C1-86	Channel Yellow Ped Clear Driver	12
45	C1-87	Channel Green Walk Driver	12
46	C1-88	Channel Red Do Not Walk Driver	11
47	C1-89	Channel Yellow Ped Clear Driver	11
48	C1-90	Channel Green Walk Driver	11
49	C1-91	Channel Red Do Not Walk Driver	17
50	C1-93	Channel Green Walk Driver	17
51	C1-94	Channel Red Do Not Walk Driver	10
52	C1-95	Channel Yellow Ped Clear Driver	10
53	C1-96	Channel Green Walk Driver	10
54	C1-97	Channel Red Do Not Walk Driver	9
55	C1-98	Channel Yellow Ped Clear Driver	9
56	C1-99	Channel Green Walk Driver	9
57	C11-1	Not Active	
58	C11-2	Not Active	
59	C11-3	Not Active	
60	C11-4	Not Active	
61	C11-5	Not Active	
62	C11-6	Not Active	
63	C11-7	Not Active	
64	C11-8	Not Active	

User Programs

Program 1

Enabled

Line	Result	Idx	Operation	Parameter A	Idx	Parameter B	Idx	Dly	Ext	Description
1	Unit Stop Time	1	Result=A	Aux Switch State						AUX switch stop time
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										
36										
37										
38										
39										
40										

Q FREE

CITY OF VISTA
CALIFORNIA

332 CABINET

N Melrose Dr @ North Ave

Phase Timing and Options

Unit Information

Controller Number	64
Software	Intelight MAXTIME 2.X
Main Street	N Melrose Dr
Side Street	North Ave
IP Address	10.9.8.60

Unit Parameters

Extended Mode	Disable
Startup Flash	0
Auto Ped Clear	Disable
Red Revert	5
Backup Time	600
Startup All Red	0
Man. Control Seq.	1
MCE Enable	Enable
Start Yel. Override	0
Start Red Override	0
Free Sequence	1
All Red Flash Exit	5
Local CVM Fash	Disable
All Red Flash Sns	Disable
All Dark Flash Sns	Disable

Phase Timing

Phase	1	2	3	4	5	6	7	8
Description								
Walk		6		6		6		
Ped Clear		15		20		18		
Steady Don't Walk								
Min Green	5	10	7	7	5	10		
Min Green 2								
Passage	2.0	3.0	2.5	2.5	2.0	3.0		
Passage 2								
Max Green 1	20	30	33	23	20	30		
Max Green 2								
Yellow Change	4.8	4.8	4.1	4.1	4.8	4.8		
Red Clear	1.0	1.0	1.0	1.0	1.0	1.0		
Added Initial								
Maximum Initial								
Time B4 Reduction								
Cars B4 Reduction								
Time To Reduce				5				
Reduce By								
Minimum Gap				2.0				
Advance Walk								
Delayed Ped								

Phase Options

Phase	1	2	3	4	5	6	7	8
Enable	X	X	X	X	X	X	.	.
Auto Flash Entry	.	.	.	X	.	.	.	.
Auto Flash Exit	.	X	.	.	.	X	.	.
Non Lock Detector	X	X	X	X	X	X	.	.
Min Vehicle Recall	.	X	.	.	.	X	.	.
Max Vehicle Recall	.	.	.	.	.	.	.	.
Ped Recall	.	.	.	.	.	.	.	.
Soft Vehicle Recall	.	.	.	.	.	.	.	.
Dual Entry	.	.	.	.	.	.	.	.
Sim. Gap Disable	.	.	.	.	.	.	.	.
Actuated Rest in Walk	.	.	.	.	.	.	.	.
Conditional Svc Enable	.	.	.	.	.	.	.	.
Add Initial Calculation	.	.	.	.	.	.	.	.
Ped Clear During Yellow	.	.	.	.	.	.	.	.
Ped Clear During Red Clr	.	.	.	.	.	.	.	.
Yellow Min Override	.	.	.	.	.	.	.	.
No Startup Call	.	.	.	.	.	.	.	.
No Ped Startup Call	.	.	.	.	.	.	.	.
Min Green 2	.	.	.	.	.	.	.	.
Max Green 2	.	.	.	.	.	.	.	.
Red Rest	.	.	.	.	.	.	.	.
Ped Recycle	.	.	.	.	.	.	.	.

Phase Configuration

Phase	Startup	Description
1	Phase Not On	
2	Secondary Start	
3	Phase Not On	
4	YellowChange	
5	Phase Not On	
6	Secondary Start	
7	None	
8	None	

Global Phase Recalls

Phase	1	2	3	4	5	6	7	8
Min	.	.	.	.	.	.	.	.
Max	.	.	.	.	.	.	.	.
Ped	.	.	.	.	.	.	.	.

Notes

Printed on: 10/20/2021

Sequences

Sequence 1

Ring	Sequence
1	1,2,a,3,4,b
2	5,6,a,b
3	
4	

Sequence 2

Ring	Sequence
1	2,1,a,3,4,b
2	5,6,a,b
3	
4	

Sequence 3

Ring	Sequence
1	1,2,a,4,3,b
2	5,6,a,b
3	
4	

Sequence 4

Ring	Sequence
1	2,1,a,4,3,b
2	5,6,a,b
3	
4	

Sequence 5

Ring	Sequence
1	1,2,a,3,4,b
2	5,6,a,b
3	
4	

Sequence 6

Ring	Sequence
1	1,2,a,3,4,b
2	5,6,a,b
3	
4	

Sequence 7

Ring	Sequence
1	1,2,a,4,3,b
2	6,5,a,b
3	
4	

Sequence 8

Ring	Sequence
1	2,1,a,4,3,b
2	6,5,a,b
3	
4	

Sequence 9

Ring	Sequence
1	1,2,a,3,4,b
2	5,6,a,b
3	
4	

Sequence 10

Ring	Sequence
1	2,1,a,3,4,b
2	5,6,a,b
3	
4	

Sequence 11

Ring	Sequence
1	1,2,a,4,3,b
2	5,6,a,8,7,b
3	
4	

Sequence 12

Ring	Sequence
1	2,1,a,4,3,b
2	5,6,a,8,7,b
3	
4	

Sequence 13

Ring	Sequence
1	1,2,a,3,4,b
2	6,5,a,8,7,b
3	
4	

Sequence 14

Ring	Sequence
1	2,1,a,3,4,b
2	6,5,a,8,7,b
3	
4	

Sequence 15

Ring	Sequence
1	1,2,a,4,3,b
2	6,5,a,8,7,b
3	
4	

Sequence 16

Ring	Sequence
1	2,1,a,4,3,b
2	6,5,a,8,7,b
3	
4	

Overlaps

Standard Overlaps

Overlap	1	2	3	4	5	6
Enabled	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled
Description						
Type	Off	Off	Off	Off	Off	Off
Included Phs						
Modifier Phs						
Negative Phs						
Negative Ovlp						
Negative Ped						
Green Suppr						
Trail Green						
Trail Yellow						
Trail Red						
Walk						
Ped Clear						
Delay						
Startup Call	.	.	.	.	.	.
Recall	.	.	.	.	.	.
Call for Svc	.	.	.	.	.	.

Backup Prevention / No Serve Phases

Sequence 1

Backup Protection Plan

Serve Phase	Backup phase 1	2	3	4	5	6	7	8
1	-	-	-	-	-	-	-	-
2								
3								
4	-	-	-	-	-	-	-	-
5								
6	-	-	-	-	-	-	-	-
7								
8	-	-	-	-	-	-	-	-
Thru Red	No							

Call Phs

Ph	Call Ph
1	
2	
3	
4	
5	
6	
7	
8	

No Serve

Ph	No Srv
1	
2	
3	
4	
5	
6	
7	
8	

Sequence 2

Backup Protection Plan

Serve Phase	Backup phase 1	2	3	4	5	6	7	8
1	-	-	-	-	-	-	-	-
2								
3								
4	-	-	-	-	-	-	-	-
5								
6	-	-	-	-	-	-	-	-
7								
8	-	-	-	-	-	-	-	-
Thru Red	No							

Call Phs

Ph	Call Ph
1	
2	
3	
4	
5	
6	
7	
8	

No Serve

Ph	No Srv
1	
2	
3	
4	
5	
6	
7	
8	

Sequence 3

Backup Protection Plan

Serve Phase	Backup phase 1	2	3	4	5	6	7	8
1	-	-	-	-	-	-	-	-
2								
3								
4	-	-	-	-	-	-	-	-
5								
6	-	-	-	-	-	-	-	-
7								
8	-	-	-	-	-	-	-	-
Thru Red	No							

Call Phs

Ph	Call Ph
1	
2	
3	
4	
5	
6	
7	
8	

No Serve

Ph	No Srv
1	
2	
3	
4	
5	
6	
7	
8	

Sequence 4

Backup Protection Plan

Serve Phase	Backup phase 1	2	3	4	5	6	7	8
1	-	-	-	-	-	-	-	-
2								
3								
4	-	-	-	-	-	-	-	-
5								
6	-	-	-	-	-	-	-	-
7								
8	-	-	-	-	-	-	-	-
Thru Red	No							

Call Phs

Ph	Call Ph
1	
2	
3	
4	
5	
6	
7	
8	

No Serve

Ph	No Srv
1	
2	
3	
4	
5	
6	
7	
8	

Sequence 5

Backup Protection Plan

Serve Phase	Backup phase 1	2	3	4	5	6	7	8
1	-	-	-	-	-	-	-	-
2								
3								
4	-	-	-	-	-	-	-	-
5								
6	-	-	-	-	-	-	-	-
7								
8	-	-	-	-	-	-	-	-
Thru Red	No							

Call Phs

Ph	Call Ph
1	
2	
3	
4	
5	
6	
7	
8	

No Serve

Ph	No Srv
1	
2	
3	
4	
5	
6	
7	
8	

Sequence 6

Backup Protection Plan

Serve Phase	Backup phase 1	2	3	4	5	6	7	8
1	-	-	-	-	-	-	-	-
2								
3								
4	-	-	-	-	-	-	-	-
5								
6	-	-	-	-	-	-	-	-
7								
8	-	-	-	-	-	-	-	-
Thru Red	No							

Call Phs

Ph	Call Ph
1	
2	
3	
4	
5	
6	
7	
8	

No Serve

Ph	No Srv
1	
2	
3	
4	
5	
6	
7	
8	

Sequence 7

Backup Protection Plan

Serve Phase	Backup phase 1	2	3	4	5	6	7	8
1	-	-	-	-	-	-	-	-
2								
3								
4	-	-	-	-	-	-	-	-
5								
6	-	-	-	-	-	-	-	-
7								
8	-	-	-	-	-	-	-	-
Thru Red	No							

Call Phs

Ph	Call Ph
1	
2	
3	
4	
5	
6	
7	
8	

No Serve

Ph	No Srv
1	
2	
3	
4	
5	
6	
7	
8	

Sequence 8

Backup Protection Plan

Serve Phase	Backup phase 1	2	3	4	5	6	7	8
1	-	-	-	-	-	-	-	-
2								
3								
4	-	-	-	-	-	-	-	-
5								
6	-	-	-	-	-	-	-	-
7								
8	-	-	-	-	-	-	-	-
Thru Red	No							

Call Phs

Ph	Call Ph
1	
2	
3	
4	
5	
6	
7	
8	

No Serve

Ph	No Srv
1	
2	
3	
4	
5	
6	
7	
8	

Sequence 9

Backup Protection Plan

Serve Phase	Backup phase 1	2	3	4	5	6	7	8
1	-	-	-	-	-	-	-	-
2								
3								
4	-	-	-	-	-	-	-	-
5								
6	-	-	-	-	-	-	-	-
7								
8	-	-	-	-	-	-	-	-
Thru Red	No							

Call Phs

Ph	Call Ph
1	
2	
3	
4	
5	
6	
7	
8	

No Serve

Ph	No Srv
1	
2	
3	
4	
5	
6	
7	
8	

Detector Configuration

Vehicle Detectors

Detector	Slot	C1 Pin Number	Call Phase	Call O/L	Addtnl Call PH	Switch Phase	Delay	Extend	Queue Limit	No Activity	Max Pres.	Erratic Count	Fail Time	Failed Recall	Description
1	I-1	C1-56	1											None	
2	I-2U	C1-39	2											None	
3	I-2L	C1-43	2					1.0						None	
4	I-3U	C1-63	2											None	
5	I-3L	C1-76	2											None	
6	I-4	C1-47	2											None	
7	I-5	C1-58	3											None	
8	I-6U	C1-41	4											None	
9	I-6L	C1-45	4											None	
10	I-7U	C1-65	4											None	
11	I-7L	C1-78	4											None	
12	I-8	C1-49	4											None	
13	I-9U	C1-60	1											None	
14	I-9L	C1-62	3											None	
15	J-1	C1-55	5											None	
16	J-2U	C1-40	6											None	
17	J-2L	C1-44	6					1.0						None	
18	J-3U	C1-64	6											None	
19	J-3L	C1-77	6											None	
20	J-4	C1-48	6											None	
21	J-5	C1-57	7											None	
22	J-6U	C1-42	8											None	
23	J-6L	C1-46	8											None	
24	J-7U	C1-66	8											None	
25	J-7L	C1-79	8											None	
26	J-8	C1-50	8											None	
27	J-9U	C1-59	5											None	
28	J-9L	C1-61	7											None	

Pedestrian Detectors

Detector	Slot	C1 Pin Number	Call PH	Call O/L	Addtnl Call PH	No Act	Max Pres	Erratic Count
1	-------	-------						
2	I-12U	C1-67	2					
3	-------	-------						
4	I-12L	C1-69	4					
5	-------	-------						
6	I-13U	C1-68	6					
7	-------	-------						
8	I-13L	C1-70	8					

Global Vehicle Detector Parameters

Global No Activity	
Global Max Presence	20
Global Erratic Count	
Global Failed Recall	Max Recall
Detector Reset Enable	Disabled

Global Ped Detector Parameters

Global No Activity	
Global Max Pres.	5
Global Erratic Ct	

Vehicle Detection Options

Detector	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Volume	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Occupancy	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Yellow Lock Call	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Red Lock Call	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Extend	X	X	X	X	X	.	X	X	X	X	X	.	X	X	X	X	X	X	X	.	X	X	X	X	X	.	X	X
Added Initial	X	X	X	X	X	.	X	X	X	X	X	.	X	X	X	X	X	X	X	.	X	X	X	X	X	.	X	X
Queue	.	.	.	.	.	X	.	.	.	.	.	X	.	.	.	.	.	.	.	X	.	.	.	.	.	X	.	.
Call	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Min Green 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Passage 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Coordination Configuration

Coordination Parameters

Operational Mode	Automatic
Coord Mode	Full Permissive
Maximum Mode	Per Pattern
Force Mode	Per Pattern
Correction Mode	Shortway (Auto)
Max Cyc Limit %	25
Min Cyc Limit %	25
Max Dwell	0
Trans. Cover Ped	Pattern

Patterns

Patt	Cycle	Offset 1	Split	Seq	Reference	Coord Mode	FO Mode	Max Mode	Phs Pln	Det Pln	Ped Pln	OL Pln	Description
1					Yellow	Full Permissive	Fixed	Max Inhibit	1	1	1	1	
2					Yellow	Full Permissive	Fixed	Max Inhibit	1	1	1	1	
3					Yellow	Full Permissive	Fixed	Max Inhibit	1	1	1	1	
4					Yellow	Full Permissive	Fixed	Max Inhibit	1	1	1	1	
5	100	91	5	5	Yellow	Full Permissive	Fixed	Max Inhibit	1	1	1	1	
6	130	124	6	5	Yellow	Full Permissive	Fixed	Max Inhibit	1	1	1	1	
7	120	3	7	5	Yellow	Full Permissive	Fixed	Max Inhibit	1	1	1	1	
8					Yellow	Full Permissive	Fixed	Max Inhibit	1	1	1	1	
9					Yellow	Full Permissive	Fixed	Max Inhibit	1	1	1	1	

Split Parameters

Split 1

PH.	Time	Min	Max	Coord Phase	Ref Phase	FO Mode	Mode
1				.	.	Fixed	None
2				.	.	Fixed	None
3				.	.	Fixed	None
4				.	.	Fixed	None
5				.	.	Fixed	None
6				.	.	Fixed	None
7				.	.	Fixed	None
8				.	.	Fixed	None

Split 2

PH.	Time	Min	Max	Coord Phase	Ref Phase	FO Mode	Mode
1				.	.	Fixed	None
2				.	.	Fixed	None
3				.	.	Fixed	None
4				.	.	Fixed	None
5				.	.	Fixed	None
6				.	.	Fixed	None
7				.	.	Fixed	None
8				.	.	Fixed	None

Split 3

PH.	Time	Min	Max	Coord Phase	Ref Phase	FO Mode	Mode
1				.	.	Fixed	None
2				.	.	Fixed	None
3				.	.	Fixed	None
4				.	.	Fixed	None
5				.	.	Fixed	None
6				.	.	Fixed	None
7				.	.	Fixed	None
8				.	.	Fixed	None

Split 4

PH.	Time	Min	Max	Coord Phase	Ref Phas	FO Mode	Mode
1				.	.	Fixed	None
2				.	.	Fixed	None
3				.	.	Fixed	None
4				.	.	Fixed	None
5				.	.	Fixed	None
6				.	.	Fixed	None
7				.	.	Fixed	None
8				.	.	Fixed	None

Split 5

PH.	Time	Min	Max	Coord Phase	Ref Phase	FO Mode	Mode
1	11			.	.	Fixed	None
2	39			X	.	Fixed	None
3	25			.	.	Fixed	None
4	25			.	.	Fixed	None
5	20			.	.	Fixed	None
6	30			X	X	Fixed	None
7				.	.	Fixed	None
8				.	.	Fixed	None

Split 6

PH.	Time	Min	Max	Coord Phase	Ref Phase	FO Mode	Mode
1	15			.	.	Fixed	None
2	60			X	.	Fixed	None
3	25			.	.	Fixed	None
4	30			.	.	Fixed	None
5	25			.	.	Fixed	None
6	50			X	X	Fixed	None
7				.	.	Fixed	None
8				.	.	Fixed	None

Split 7

PH.	Time	Min	Max	Coord Phase	Ref Phase	FO Mode	Mode
1	17			.	.	Fixed	None
2	49			X	.	Fixed	None
3	23			.	.	Fixed	None
4	31			.	.	Fixed	None
5	17			.	.	Fixed	None
6	49			X	X	Fixed	None
7				.	.	Fixed	None
8				.	.	Fixed	None

Split 8

PH.	Time	Min	Max	Coord Phase	Ref Phase	FO Mode	Mode
1				.	.	Fixed	None
2				.	.	Fixed	None
3				.	.	Fixed	None
4				.	.	Fixed	None
5				.	.	Fixed	None
6				.	.	Fixed	None
7				.	.	Fixed	None
8				.	.	Fixed	None

Split 9

PH.	Time	Min	Max	Coord Phase	Ref Phase	FO Mode	Mode
1				.	.	Fixed	None
2				.	.	Fixed	None
3				.	.	Fixed	None
4				.	.	Fixed	None
5				.	.	Fixed	None
6				.	.	Fixed	None
7				.	.	Fixed	None
8				.	.	Fixed	None

Advanced Coord Options

Pattern	1	2	3	4	5	6	7	8	9
Ring Plan									
Allow Split Underrun	.	.	.	.	.	.	.	.	.
Allow Split Overrun	.	.	.	.	.	.	.	.	.
Allow No Coord Phase	.	.	.	.	.	.	.	.	.
Coord Now	.	.	.	.	.	.	.	.	.

Ring Plans

Ring Plan 1

Ring	Offset	Early Gap
1		
2		
3		
4		

Ring Plan 2

Ring	Offset	Early Gap
1		
2		
3		
4		

Ring Plan 3

Ring	Offset	Early Gap
1		
2		
3		
4		

Ring Plan 4

Ring	Offset	Early Gap
1		
2		
3		
4		

Ring Plan 5

Ring	Offset	Early Gap
1		
2		
3		
4		

Ring Plan 6

Ring	Offset	Early Gap
1		
2		
3		
4		

Ring Plan 7

Ring	Offset	Early Gap
1		
2		
3		
4		

Ring Plan 8

Ring	Offset	Early Gap
1		
2		
3		
4		

Ring Plan 9

Ring	Offset	Early Gap
1		
2		
3		
4		

Scheduler Configuration

Schedule 1

Status	Enabled

Month of Year											
J	F	M	A	M	J	J	A	S	O	N	D
X	X	X	X	X	X	X	X	X	X	X	X

Description	Weekday

Days of Week							
S	M	T	W	T	F	S
.	X	X	X	X	X	.

Day Plan	1

Days of Month																															
									1																						2																		

Preempt Configuration

Preemption Configuration

Preempt	1	2	3	4	5	6
Enabled	Enabled	Disabled	Enabled	Enabled	Enabled	Enabled
Type	Rail Road	Rail Road	Emergency Veh	Emergency Veh	Emergency Veh	Emergency Veh
Description	bbs low battery					
Track Phase						
Track 2 Phases						
Track Overlap						
Track 2 Overlap						
Dwell Phase			2,5	4	1,6	3
Dwell Ped						
Dwell Overlap						
Cycling Phase						
Cycling Ped						
Cycling Overlap						
Exit Phase						
Exit Overlaps						
Recovery Exit Omit						

Preemption Options

Preempt	1	2	3	4	5	6
Non Lock Mem	.	.	X	X	X	X
Not Overide Flash	.	.	X	X	X	X
Not Overide Next Preempt	.	.	X	X	X	X
Flash Dwell	.	.	.	.	.	.
Ped Recycle in Dwell Cycle	.	.	.	.	.	.
Immediate Ped Clear	.	.	.	.	.	.
Dwell Only Status Output	.	.	.	.	.	.
All Red Flash Dwell	X	.	.	.	.	.
Allow All Overlaps	.	.	.	.	.	.
Require All Red Entry	.	.	.	.	.	.
Require Gate Down Track Exit	.	.	.	.	.	.
Require Gate Up Dwell Exit	.	.	.	.	.	.
Use Normal On/Normal Off Input	.	.	.	.	.	.

Preemption Parameters

Preempt	1	2	3	4	5	6
Link						
Delay						
Min Duration						
Min Presence						
Max Presence			255	255	255	255
Max Presence Action	Terminate	Terminate	All Red Flash	All Red Flash	All Red Flash	All Red Flash
Enter Min Green						
Enter Yellow Change	25.5	25.5	25.5	25.5	25.5	25.5
Enter Red Clear	25.5	25.5	25.5	25.5	25.5	25.5
Enter Min Walk						
Enter Ped Clear			255	255	255	255
Track Green						
Track Yellow Change	25.5	25.5	25.5	25.5	25.5	25.5
Track Red Clear	25.5	25.5	25.5	25.5	25.5	25.5
Track 2 Green						
Track 2 Yellow	25.5	25.5	25.5	25.5	25.5	25.5
Track 2 Red	25.5	25.5	25.5	25.5	25.5	25.5
Track Ext. Gate Down						

Preempt Parameters

Preempt	1	2	3	4	5	6
Dwell Green			1	1	1	1
Exit Ped Clear	255	255	255	255	255	255
Exit Yellow Change	25.5	25.5	25.5	25.5	25.5	25.5
Exit Red Clear	25.5	25.5	25.5	25.5	25.5	25.5
Dwell Ext Time						
Max Exit Green						
Exit Type	Exit Phases	Exit Phases	t Phase Skip	t Phase Skip	t Phase Skip	t Phase Skip
Exit Max Mode	Disabled	Disabled	Disabled	Disabled	Disabled	Disabled
Exit Max Apply Time						
Veh Exit Calls						
Ped Exit Calls						

Advanced I/O Configuration

Channel Configuration

Ch	Control Type	Source
1	Phase Vehicle	1
2	Phase Vehicle	2
3	Phase Vehicle	3
4	Phase Vehicle	4
5	Phase Vehicle	5
6	Phase Vehicle	6
7	Phase Vehicle	7
8	Phase Vehicle	8

Ch	Control Type	Source
9	None	
10	None	
11	None	
12	None	
13	Phase Ped	2
14	Phase Ped	4
15	Phase Ped	6
16	Phase Ped	8

Concurrency Mode

Concurrency Mode
Auto

Auto Concurrency

Ch	Concurrency
1	5,6,15
2	5,6,13,15
3	
4	14
5	13
6	13,15
7	
8	16
9	
10	
11	
12	
13	15
14	
15	
16	

Channel Options

Channel	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Flash Yellow	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Flash Red	X	X	X	X	X	X	X	X	.	.	.	.	.	.	.	.
Flash Alternate Half Hertz	X	.	.	X	X	.	.	X	.	.	.	.	.	.	.	.

Cabinet Configuration

IO Modules

IO Module	Type
1	Caltrans 332

Input Points

Input	C1 Pin	Input Type	Idx
1	C1-39	Vehicle Det Call	2
2	C1-40	Vehicle Det Call	16
3	C1-41	Vehicle Det Call	8
4	C1-42	Vehicle Det Call	22
5	C1-43	Vehicle Det Call	3
6	C1-44	Vehicle Det Call	17
7	C1-45	Vehicle Det Call	9
8	C1-46	Vehicle Det Call	23
9	C1-47	Vehicle Det Call	6
10	C1-48	Vehicle Det Call	20
11	C1-49	Vehicle Det Call	12
12	C1-50	Vehicle Det Call	26
13	C1-51	Preempt Input	1
14	C1-52	Preempt Input	2
15	C1-53	Unit Manual Control Enabl	1
16	C1-54	Not Active	

Input	C1 Pin	Input Type	Idx
17	C1-55	Vehicle Det Call	15
18	C1-56	Vehicle Det Call	1
19	C1-57	Vehicle Det Call	21
20	C1-58	Vehicle Det Call	7
21	C1-59	Vehicle Det Call	27
22	C1-60	Vehicle Det Call	13
23	C1-61	Vehicle Det Call	28
24	C1-62	Vehicle Det Call	14
25	C11-10	Not Active	
26	C11-11	Not Active	
27	C11-12	Not Active	
28	C11-13	Not Active	
29	C1-63	Vehicle Det Call	4
30	C1-64	Vehicle Det Call	18
31	C1-65	Vehicle Det Call	10
32	C1-66	Vehicle Det Call	24

Input	C1 Pin	Input Type	Idx
33	C1-67	Ped Det Call	2
34	C1-68	Ped Det Call	6
35	C1-69	Ped Det Call	4
36	C1-70	Ped Det Call	8
37	C1-71	reempt High Prioritor Lo	3
38	C1-72	reempt High Prioritor Lo	4
39	C1-73	reempt High Prioritor Lo	5
40	C1-74	reempt High Prioritor Lo	6
41	C1-75	Not Active	
42	C1-76	Vehicle Det Call	5
43	C1-77	Vehicle Det Call	19
44	C1-78	Vehicle Det Call	11
45	C1-79	Vehicle Det Call	25
46	C1-80	Unit Interval Advance	1
47	C1-81	Unit Local Flash Sense	1
48	C1-82	Unit Stop Time	1

Input	C1 Pin	Input Type	Idx
49	C11-15	Not Active	
50	C11-16	Not Active	
51	C11-17	Not Active	
52	C11-18	Not Active	
53	C11-19	Not Active	
54	C11-20	Not Active	
55	C11-21	Not Active	
56	C11-22	Not Active	
57	C11-23	Not Active	
58	C11-24	Not Active	
59	C11-25	Not Active	
60	C11-26	Not Active	
61	C11-27	Not Active	
62	C11-28	Not Active	
63	C11-29	Not Active	
64	C11-30	Not Active	

Cabinet Configuration

Output Points

Output	C1 Pin	Output Type	Idx
1	C1-2	Channel Red Do Not Walk Driver	14
2	C1-3	Channel Green Walk Driver	14
3	C1-4	Channel Red Do Not Walk Driver	4
4	C1-5	Channel Yellow Ped Clear Driver	4
5	C1-6	Channel Green Walk Driver	4
6	C1-7	Channel Red Do Not Walk Driver	3
7	C1-8	Channel Yellow Ped Clear Driver	3
8	C1-9	Channel Green Walk Driver	3
9	C1-10	Channel Red Do Not Walk Driver	13
10	C1-11	Channel Green Walk Driver	13
11	C1-12	Channel Red Do Not Walk Driver	2
12	C1-13	Channel Yellow Ped Clear Driver	2
13	C1-15	Channel Green Walk Driver	2
14	C1-16	Channel Red Do Not Walk Driver	1
15	C1-17	Channel Yellow Ped Clear Driver	1
16	C1-18	Channel Green Walk Driver	1
17	C1-19	Channel Red Do Not Walk Driver	16
18	C1-20	Channel Green Walk Driver	16
19	C1-21	Channel Red Do Not Walk Driver	8
20	C1-22	Channel Yellow Ped Clear Driver	8
21	C1-23	Channel Green Walk Driver	8
22	C1-24	Channel Red Do Not Walk Driver	7
23	C1-25	Channel Yellow Ped Clear Driver	7
24	C1-26	Channel Green Walk Driver	7
25	C1-27	Channel Red Do Not Walk Driver	15
26	C1-28	Channel Green Walk Driver	15
27	C1-29	Channel Red Do Not Walk Driver	6
28	C1-30	Channel Yellow Ped Clear Driver	6
29	C1-31	Channel Green Walk Driver	6
30	C1-32	Channel Red Do Not Walk Driver	5
31	C1-33	Channel Yellow Ped Clear Driver	5
32	C1-34	Channel Green Walk Driver	5

Output	C1 Pin	Output Type	Idx
33	C1-35	Not Active	
34	C1-36	Not Active	
35	C1-37	Not Active	
36	C1-38	Not Active	
37	C1-100	Channel Yellow Ped Clear Driver	18
38	C1-101	Channel Yellow Ped Clear Driver	17
39	C1-102	Detector Reset	1
40	C1-103	Watchdog	
41	C1-83	Channel Red Do Not Walk Driver	18
42	C1-84	Channel Green Walk Driver	18
43	C1-85	Channel Red Do Not Walk Driver	12
44	C1-86	Channel Yellow Ped Clear Driver	12
45	C1-87	Channel Green Walk Driver	12
46	C1-88	Channel Red Do Not Walk Driver	11
47	C1-89	Channel Yellow Ped Clear Driver	11
48	C1-90	Channel Green Walk Driver	11
49	C1-91	Channel Red Do Not Walk Driver	17
50	C1-93	Channel Green Walk Driver	17
51	C1-94	Channel Red Do Not Walk Driver	10
52	C1-95	Channel Yellow Ped Clear Driver	10
53	C1-96	Channel Green Walk Driver	10
54	C1-97	Channel Red Do Not Walk Driver	9
55	C1-98	Channel Yellow Ped Clear Driver	9
56	C1-99	Channel Green Walk Driver	9
57	C11-1	Not Active	
58	C11-2	Not Active	
59	C11-3	Not Active	
60	C11-4	Not Active	
61	C11-5	Not Active	
62	C11-6	Not Active	
63	C11-7	Not Active	
64	C11-8	Not Active	

User Programs

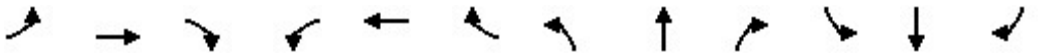
Program 1

Enabled

Line	Result	Idx	Operation	Parameter A	Idx	Parameter B	Idx	Dly	Ext	Description
1	Unit Stop Time	1	Result=A	Aux Switch State						AUX switch stop time
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
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35										
36										
37										
38										
39										
40										

APPENDIX E

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – EXISTING CONDITIONS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	0	65	13	1	3	21	415	1	4	782	14
Future Volume (veh/h)	8	0	65	13	1	3	21	415	1	4	782	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	0.99		0.97	1.00		0.95	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	12	0	97	19	1	4	22	441	1	5	899	16
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.94	0.94	0.94	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	123	0	347	119	5	347	572	1096	2	537	1005	18
Arrive On Green	0.23	0.00	0.23	0.23	0.23	0.23	0.32	0.30	0.30	0.30	0.28	0.28
Sat Flow, veh/h	227	0	1530	215	20	1530	1781	3637	8	1781	3568	64
Grp Volume(v), veh/h	12	0	97	20	0	4	22	215	227	5	448	467
Grp Sat Flow(s),veh/h/ln	227	0	1530	235	0	1530	1781	1777	1868	1781	1777	1855
Q Serve(g_s), s	0.8	0.0	5.2	1.3	0.0	0.2	0.8	9.6	9.6	0.2	24.2	24.2
Cycle Q Clear(g_c), s	19.8	0.0	5.2	20.1	0.0	0.2	0.8	9.6	9.6	0.2	24.2	24.2
Prop In Lane	1.00		1.00	0.95		1.00	1.00		0.00	1.00		0.03
Lane Grp Cap(c), veh/h	123	0	347	123	0	347	572	535	563	537	500	522
V/C Ratio(X)	0.10	0.00	0.28	0.16	0.00	0.01	0.04	0.40	0.40	0.01	0.89	0.89
Avail Cap(c_a), veh/h	352	0	597	338	0	597	572	535	563	537	515	538
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.52	0.52	0.52	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.8	0.0	31.9	44.9	0.0	30.0	23.3	27.8	27.8	24.5	34.5	34.5
Incr Delay (d2), s/veh	0.3	0.0	0.4	0.6	0.0	0.0	0.0	0.5	0.5	0.0	18.8	18.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	2.0	0.5	0.0	0.1	0.3	4.0	4.2	0.1	12.4	12.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.1	0.0	32.4	45.5	0.0	30.0	23.4	28.3	28.3	24.5	53.3	52.7
LnGrp LOS	D	A	C	D	A	C	C	C	C	C	D	D
Approach Vol, veh/h		109			24			464			920	
Approach Delay, s/veh		34.0			42.9			28.1			52.8	
Approach LOS		C			D			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	34.9	37.1		28.0	36.9	35.2		28.0				
Change Period (Y+Rc), s	5.4	7.0		* 4.7	5.4	7.0		* 4.7				
Max Green Setting (Gmax), s	14.9	29.0		* 39	14.9	29.0		* 39				
Max Q Clear Time (g_c+I1), s	2.2	11.6		21.8	2.8	26.2		22.1				
Green Ext Time (p_c), s	0.0	4.0		0.3	0.0	2.0		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		43.7
HCM 6th LOS		D

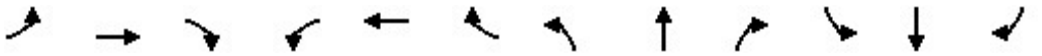
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	375	2	3	698	22	20	0	8	65	0	51
Future Volume (veh/h)	9	375	2	3	698	22	20	0	8	65	0	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.99		0.96	0.98		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	431	2	4	983	31	21	0	8	80	0	63
Peak Hour Factor	0.87	0.87	0.87	0.71	0.71	0.71	0.96	0.96	0.96	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	22	2254	10	9	2158	68	243	12	68	192	19	110
Arrive On Green	0.01	0.62	0.62	0.01	0.61	0.61	0.17	0.00	0.17	0.17	0.00	0.17
Sat Flow, veh/h	1781	3627	17	1781	3512	111	971	71	397	713	109	648
Grp Volume(v), veh/h	10	211	222	4	497	517	29	0	0	143	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1867	1781	1777	1846	1440	0	0	1470	0	0
Q Serve(g_s), s	0.4	4.1	4.1	0.2	12.0	12.0	0.0	0.0	0.0	5.4	0.0	0.0
Cycle Q Clear(g_c), s	0.4	4.1	4.1	0.2	12.0	12.0	1.2	0.0	0.0	7.0	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.06	0.72		0.28	0.56		0.44
Lane Grp Cap(c), veh/h	22	1105	1160	9	1092	1134	323	0	0	321	0	0
V/C Ratio(X)	0.45	0.19	0.19	0.42	0.46	0.46	0.09	0.00	0.00	0.45	0.00	0.00
Avail Cap(c_a), veh/h	114	1105	1160	114	1092	1134	588	0	0	599	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.09	0.09	0.09	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	39.2	6.5	6.5	39.7	8.3	8.3	28.0	0.0	0.0	30.3	0.0	0.0
Incr Delay (d2), s/veh	5.2	0.4	0.4	1.0	0.1	0.1	0.1	0.0	0.0	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.2	1.3	0.1	3.3	3.5	0.5	0.0	0.0	2.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.5	6.9	6.9	40.7	8.4	8.4	28.1	0.0	0.0	31.3	0.0	0.0
LnGrp LOS	D	A	A	D	A	A	C	A	A	C	A	A
Approach Vol, veh/h		443			1018			29			143	
Approach Delay, s/veh		7.7			8.5			28.1			31.3	
Approach LOS		A			A			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.8	55.9		18.2	6.4	55.4		18.2				
Change Period (Y+Rc), s	5.4	6.2		4.6	5.4	6.2		4.6				
Max Green Setting (Gmax), s	5.1	29.6		29.1	5.1	29.6		29.1				
Max Q Clear Time (g_c+I1), s	2.2	6.1		9.0	2.4	14.0		3.2				
Green Ext Time (p_c), s	0.0	3.2		0.7	0.0	7.1		0.1				

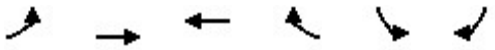
Intersection Summary			
HCM 6th Ctrl Delay		10.6	
HCM 6th LOS		B	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	227	533	221	46	700	98	471	717	142	116	333	237
Future Volume (veh/h)	227	533	221	46	700	98	471	717	142	116	333	237
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	261	613	254	48	737	103	535	815	161	140	401	286
Peak Hour Factor	0.87	0.87	0.87	0.95	0.95	0.95	0.88	0.88	0.88	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	468	1099	476	403	905	126	197	991	429	102	991	429
Arrive On Green	0.14	0.31	0.31	0.12	0.29	0.29	0.06	0.28	0.28	0.06	0.28	0.28
Sat Flow, veh/h	3456	3554	1540	3456	3118	435	3456	3554	1537	1781	3554	1537
Grp Volume(v), veh/h	261	613	254	48	420	420	535	815	161	140	401	286
Grp Sat Flow(s),veh/h/ln	1728	1777	1540	1728	1777	1776	1728	1777	1537	1781	1777	1537
Q Serve(g_s), s	7.4	15.1	14.3	1.3	23.1	23.1	6.0	22.5	8.9	6.0	9.6	17.3
Cycle Q Clear(g_c), s	7.4	15.1	14.3	1.3	23.1	23.1	6.0	22.5	8.9	6.0	9.6	17.3
Prop In Lane	1.00		1.00	1.00		0.25	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	468	1099	476	403	516	516	197	991	429	102	991	429
V/C Ratio(X)	0.56	0.56	0.53	0.12	0.81	0.81	2.71	0.82	0.38	1.38	0.40	0.67
Avail Cap(c_a), veh/h	468	1117	484	403	558	558	197	1083	468	102	1117	483
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00	0.41	0.41	0.41
Uniform Delay (d), s/veh	42.4	30.3	30.0	41.5	34.6	34.6	49.5	35.4	30.5	49.5	30.8	33.5
Incr Delay (d2), s/veh	1.5	1.0	2.1	0.1	10.0	10.0	783.4	5.2	0.8	192.3	0.2	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	6.2	5.3	0.5	10.7	10.7	24.0	10.0	3.2	8.0	4.0	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.9	31.3	32.1	41.7	44.6	44.7	832.9	40.6	31.3	241.8	30.9	35.0
LnGrp LOS	D	C	C	D	D	D	F	D	C	F	C	D
Approach Vol, veh/h		1128			888			1511			827	
Approach Delay, s/veh		34.4			44.5			320.1			68.0	
Approach LOS		C			D			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.4	36.3	17.6	39.7	11.4	36.3	19.6	37.7
Change Period (Y+Rc), s	5.4	7.0	5.4	7.2	5.4	7.0	5.4	7.2
Max Green Setting (Gmax), s	6.0	32.0	8.0	33.0	6.0	33.0	8.0	33.0
Max Q Clear Time (g_c+I1), s	8.0	24.5	3.3	17.1	8.0	19.3	9.4	25.1
Green Ext Time (p_c), s	0.0	4.2	0.0	7.3	0.0	4.1	0.0	4.5

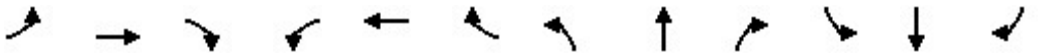
Intersection Summary	
HCM 6th Ctrl Delay	142.0
HCM 6th LOS	F



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	26	651	1269	9	14	56
Future Volume (veh/h)	26	651	1269	9	14	56
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.96	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	37	917	1548	11	16	64
Peak Hour Factor	0.71	0.71	0.82	0.82	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	57	1947	1681	12	631	561
Arrive On Green	0.03	0.55	0.46	0.46	0.35	0.35
Sat Flow, veh/h	1781	3647	3709	26	1781	1585
Grp Volume(v), veh/h	37	917	760	799	16	64
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1865	1781	1585
Q Serve(g_s), s	2.1	15.7	40.0	40.1	0.6	2.7
Cycle Q Clear(g_c), s	2.1	15.7	40.0	40.1	0.6	2.7
Prop In Lane	1.00			0.01	1.00	1.00
Lane Grp Cap(c), veh/h	57	1947	826	867	631	561
V/C Ratio(X)	0.65	0.47	0.92	0.92	0.03	0.11
Avail Cap(c_a), veh/h	326	1947	826	867	631	561
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.53	0.53	1.00	1.00
Uniform Delay (d), s/veh	47.8	13.8	25.0	25.0	21.1	21.7
Incr Delay (d2), s/veh	8.8	0.8	10.4	10.1	0.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	5.9	17.7	18.5	0.3	3.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	56.6	14.6	35.4	35.1	21.1	22.2
LnGrp LOS	E	B	D	D	C	C
Approach Vol, veh/h		954	1559		80	
Approach Delay, s/veh		16.2	35.2		22.0	
Approach LOS		B	D		C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		60.6		39.4	8.3	52.3
Change Period (Y+Rc), s		5.8		4.0	5.1	5.8
Max Green Setting (Gmax), s		54.8		35.4	18.3	31.4
Max Q Clear Time (g_c+I1), s		17.7		4.7	4.1	42.1
Green Ext Time (p_c), s		14.1		0.0	0.0	0.0

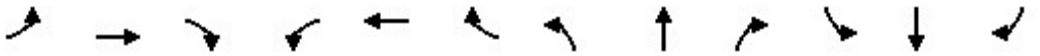
Intersection Summary	
HCM 6th Ctrl Delay	27.8
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	187	521	165	237	657	114	229	398	149	227	642	335
Future Volume (veh/h)	187	521	165	237	657	114	229	398	149	227	642	335
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.92	1.00		0.93	1.00		0.92	1.00		0.91
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	225	628	199	266	738	128	327	569	213	264	747	390
Peak Hour Factor	0.83	0.83	0.83	0.89	0.89	0.89	0.70	0.70	0.70	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	250	846	663	291	928	643	354	1073	698	290	946	605
Arrive On Green	0.14	0.24	0.24	0.16	0.26	0.26	0.20	0.30	0.30	0.16	0.27	0.27
Sat Flow, veh/h	1781	3554	1465	1781	3554	1473	1781	3554	1452	1781	3554	1437
Grp Volume(v), veh/h	225	628	199	266	738	128	327	569	213	264	747	390
Grp Sat Flow(s),veh/h/ln	1781	1777	1465	1781	1777	1473	1781	1777	1452	1781	1777	1437
Q Serve(g_s), s	17.2	22.6	12.3	20.3	26.8	7.6	25.0	18.4	12.7	20.2	27.0	30.6
Cycle Q Clear(g_c), s	17.2	22.6	12.3	20.3	26.8	7.6	25.0	18.4	12.7	20.2	27.0	30.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	250	846	663	291	928	643	354	1073	698	290	946	605
V/C Ratio(X)	0.90	0.74	0.30	0.91	0.79	0.20	0.92	0.53	0.31	0.91	0.79	0.64
Avail Cap(c_a), veh/h	305	885	679	347	970	660	424	1093	706	352	950	607
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.5	48.8	25.4	56.9	47.7	25.2	54.5	40.2	23.2	57.0	47.2	33.5
Incr Delay (d2), s/veh	24.5	3.2	0.3	25.0	4.5	0.2	23.6	0.5	0.2	24.1	4.5	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.4	10.3	4.3	11.0	12.3	2.7	13.4	8.1	4.3	11.0	12.5	10.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	83.1	52.1	25.7	81.9	52.2	25.3	78.1	40.6	23.4	81.1	51.7	35.8
LnGrp LOS	F	D	C	F	D	C	E	D	C	F	D	D
Approach Vol, veh/h		1052			1132			1109			1401	
Approach Delay, s/veh		53.7			56.1			48.4			52.8	
Approach LOS		D			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	31.5	42.0	23.5	41.6	26.5	46.9	26.7	38.4
Change Period (Y+Rc), s	4.0	5.1	4.0	5.4	4.0	5.1	4.0	5.4
Max Green Setting (Gmax), s	33.0	37.0	23.7	37.8	27.4	42.6	27.0	34.5
Max Q Clear Time (g_c+I1), s	27.0	32.6	19.2	28.8	22.2	20.4	22.3	24.6
Green Ext Time (p_c), s	0.5	2.5	0.2	3.5	0.4	4.6	0.3	3.4

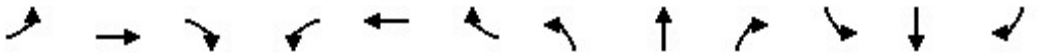
Intersection Summary	
HCM 6th Ctrl Delay	52.8
HCM 6th LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	96	177	87	215	182	91	148	875	94	61	1246	132
Future Volume (veh/h)	96	177	87	215	182	91	148	875	94	61	1246	132
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.95	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	116	213	105	242	204	102	166	983	106	63	1285	136
Peak Hour Factor	0.83	0.83	0.83	0.89	0.89	0.89	0.89	0.89	0.89	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	272	286	229	352	229	114	192	2031	218	81	1744	185
Arrive On Green	0.15	0.15	0.15	0.20	0.20	0.20	0.11	0.44	0.44	0.05	0.37	0.37
Sat Flow, veh/h	1781	1870	1495	1781	1155	578	1781	4659	501	1781	4666	494
Grp Volume(v), veh/h	116	213	105	242	0	306	166	717	372	63	938	483
Grp Sat Flow(s),veh/h/ln	1781	1870	1495	1781	0	1733	1781	1702	1756	1781	1702	1755
Q Serve(g_s), s	7.7	14.2	8.3	16.4	0.0	22.4	11.9	19.6	19.7	4.5	30.9	30.9
Cycle Q Clear(g_c), s	7.7	14.2	8.3	16.4	0.0	22.4	11.9	19.6	19.7	4.5	30.9	30.9
Prop In Lane	1.00		1.00	1.00		0.33	1.00		0.29	1.00		0.28
Lane Grp Cap(c), veh/h	272	286	229	352	0	343	192	1484	765	81	1273	656
V/C Ratio(X)	0.43	0.74	0.46	0.69	0.00	0.89	0.87	0.48	0.49	0.77	0.74	0.74
Avail Cap(c_a), veh/h	411	432	345	411	0	400	233	1484	765	233	1273	656
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.9	52.6	50.2	48.4	0.0	50.8	57.1	26.2	26.2	61.4	35.2	35.2
Incr Delay (d2), s/veh	1.1	3.8	1.4	3.9	0.0	19.6	23.8	1.1	2.2	14.4	3.8	7.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	7.0	3.2	7.7	0.0	11.6	6.5	7.9	8.4	2.3	13.0	14.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.9	56.5	51.6	52.3	0.0	70.4	80.9	27.3	28.4	75.7	39.0	42.4
LnGrp LOS	D	E	D	D	A	E	F	C	C	E	D	D
Approach Vol, veh/h		434			548			1255			1484	
Approach Delay, s/veh		53.8			62.4			34.7			41.7	
Approach LOS		D			E			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.7	62.5		25.0	19.8	54.4		30.8				
Change Period (Y+Rc), s	5.8	5.8		5.1	5.8	5.8		5.1				
Max Green Setting (Gmax), s	17.0	31.2		30.0	17.0	31.2		30.0				
Max Q Clear Time (g_c+I1), s	6.5	21.7		16.2	13.9	32.9		24.4				
Green Ext Time (p_c), s	0.1	4.5		1.6	0.1	0.0		1.4				

Intersection Summary												
HCM 6th Ctrl Delay			43.8									
HCM 6th LOS			D									



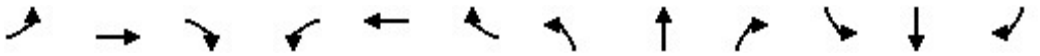
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	1	42	8	1	0	76	992	8	6	711	15
Future Volume (veh/h)	9	1	42	8	1	0	76	992	8	6	711	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.95	0.98		1.00	1.00		0.95	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	1	47	18	2	0	81	1055	9	7	790	17
Peak Hour Factor	0.89	0.89	0.89	0.45	0.45	0.45	0.94	0.94	0.94	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	238	21	195	222	21	206	773	1113	9	696	942	20
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.00	0.43	0.31	0.31	0.39	0.27	0.27
Sat Flow, veh/h	1300	159	1504	1181	163	1585	1781	3609	31	1781	3552	76
Grp Volume(v), veh/h	11	0	47	20	0	0	81	519	545	7	395	412
Grp Sat Flow(s),veh/h/ln	1459	0	1504	1344	0	1585	1781	1777	1863	1781	1777	1852
Q Serve(g_s), s	0.0	0.0	2.8	1.0	0.0	0.0	2.7	28.6	28.6	0.2	21.0	21.0
Cycle Q Clear(g_c), s	0.5	0.0	2.8	1.5	0.0	0.0	2.7	28.6	28.6	0.2	21.0	21.0
Prop In Lane	0.91		1.00	0.90		1.00	1.00		0.02	1.00		0.04
Lane Grp Cap(c), veh/h	258	0	195	243	0	206	773	548	574	696	471	491
V/C Ratio(X)	0.04	0.00	0.24	0.08	0.00	0.00	0.10	0.95	0.95	0.01	0.84	0.84
Avail Cap(c_a), veh/h	627	0	587	599	0	618	773	548	574	696	515	537
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.82	0.82	0.82	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.1	0.0	39.1	38.6	0.0	0.0	16.8	33.8	33.8	18.6	34.7	34.7
Incr Delay (d2), s/veh	0.1	0.0	0.6	0.1	0.0	0.0	0.0	23.3	22.5	0.0	12.6	12.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	1.1	0.4	0.0	0.0	1.0	15.0	15.6	0.1	10.2	10.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.2	0.0	39.7	38.7	0.0	0.0	16.8	57.1	56.3	18.6	47.3	46.9
LnGrp LOS	D	A	D	D	A	A	B	E	E	B	D	D
Approach Vol, veh/h		58			20			1145			814	
Approach Delay, s/veh		39.4			38.7			53.9			46.9	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	44.5	37.8		17.7	48.8	33.5		17.7				
Change Period (Y+Rc), s	5.4	7.0		* 4.7	5.4	7.0		* 4.7				
Max Green Setting (Gmax), s	14.9	29.0		* 39	14.9	29.0		* 39				
Max Q Clear Time (g_c+I1), s	2.2	30.6		4.8	4.7	23.0		3.5				
Green Ext Time (p_c), s	0.0	0.0		0.2	0.1	3.5		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		50.5
HCM 6th LOS		D

Notes

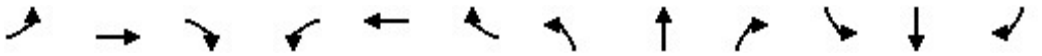
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	938	1	3	621	77	9	0	8	37	0	29
Future Volume (veh/h)	54	938	1	3	621	77	9	0	8	37	0	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.98		0.95	0.98		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	62	1078	1	3	682	85	15	0	13	54	0	43
Peak Hour Factor	0.87	0.87	0.87	0.91	0.91	0.91	0.61	0.61	0.61	0.68	0.68	0.68
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	83	2364	2	7	1919	239	170	19	104	170	19	94
Arrive On Green	0.05	0.65	0.65	0.00	0.61	0.61	0.14	0.00	0.14	0.14	0.00	0.14
Sat Flow, veh/h	1781	3643	3	1781	3166	394	699	134	722	688	128	650
Grp Volume(v), veh/h	62	526	553	3	382	385	28	0	0	97	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1870	1781	1777	1783	1555	0	0	1467	0	0
Q Serve(g_s), s	2.8	11.8	11.8	0.1	8.6	8.7	0.0	0.0	0.0	3.1	0.0	0.0
Cycle Q Clear(g_c), s	2.8	11.8	11.8	0.1	8.6	8.7	1.2	0.0	0.0	4.7	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.22	0.54		0.46	0.56		0.44
Lane Grp Cap(c), veh/h	83	1153	1213	7	1077	1081	294	0	0	282	0	0
V/C Ratio(X)	0.74	0.46	0.46	0.42	0.36	0.36	0.10	0.00	0.00	0.34	0.00	0.00
Avail Cap(c_a), veh/h	114	1153	1213	114	1077	1081	604	0	0	596	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.60	0.60	0.60	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	37.7	7.0	7.0	39.7	7.9	7.9	29.8	0.0	0.0	31.2	0.0	0.0
Incr Delay (d2), s/veh	9.6	1.3	1.2	8.4	0.6	0.6	0.1	0.0	0.0	0.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	3.4	3.6	0.1	2.6	2.6	0.5	0.0	0.0	1.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.2	8.3	8.2	48.1	8.5	8.5	29.9	0.0	0.0	31.9	0.0	0.0
LnGrp LOS	D	A	A	D	A	A	C	A	A	C	A	A
Approach Vol, veh/h		1141			770			28			97	
Approach Delay, s/veh		10.4			8.6			29.9			31.9	
Approach LOS		B			A			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.7	58.1		16.2	9.1	54.7		16.2				
Change Period (Y+Rc), s	5.4	6.2		4.6	5.4	6.2		4.6				
Max Green Setting (Gmax), s	5.1	29.6		29.1	5.1	29.6		29.1				
Max Q Clear Time (g_c+I1), s	2.1	13.8		6.7	4.8	10.7		3.2				
Green Ext Time (p_c), s	0.0	7.7		0.5	0.0	5.8		0.1				

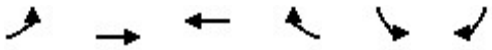
Intersection Summary			
HCM 6th Ctrl Delay		11.0	
HCM 6th LOS		B	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	239	911	478	65	494	113	254	424	49	238	672	212
Future Volume (veh/h)	239	911	478	65	494	113	254	424	49	238	672	212
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	249	949	498	71	543	124	273	456	53	259	730	230
Peak Hour Factor	0.96	0.96	0.96	0.91	0.91	0.91	0.93	0.93	0.93	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	440	1117	484	407	871	198	197	970	419	102	970	419
Arrive On Green	0.13	0.31	0.31	0.12	0.30	0.30	0.06	0.27	0.27	0.06	0.27	0.27
Sat Flow, veh/h	3456	3554	1540	3456	2858	650	3456	3554	1536	1781	3554	1536
Grp Volume(v), veh/h	249	949	498	71	337	330	273	456	53	259	730	230
Grp Sat Flow(s),veh/h/ln	1728	1777	1540	1728	1777	1731	1728	1777	1536	1781	1777	1536
Q Serve(g_s), s	7.1	26.2	33.0	1.9	17.1	17.2	6.0	11.2	2.7	6.0	19.7	13.4
Cycle Q Clear(g_c), s	7.1	26.2	33.0	1.9	17.1	17.2	6.0	11.2	2.7	6.0	19.7	13.4
Prop In Lane	1.00		1.00	1.00		0.38	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	440	1117	484	407	541	527	197	970	419	102	970	419
V/C Ratio(X)	0.57	0.85	1.03	0.17	0.62	0.63	1.38	0.47	0.13	2.54	0.75	0.55
Avail Cap(c_a), veh/h	440	1117	484	407	558	544	197	1083	468	102	1117	483
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00	0.57	0.57	0.57
Uniform Delay (d), s/veh	43.1	33.7	36.0	41.7	31.3	31.4	49.5	31.8	28.8	49.5	34.9	32.6
Incr Delay (d2), s/veh	1.5	6.3	46.4	0.2	3.1	3.2	200.4	0.5	0.2	711.2	1.7	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	11.5	17.7	0.8	7.3	7.2	8.0	4.7	1.0	22.7	8.3	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.6	40.0	82.4	41.9	34.4	34.6	249.9	32.4	28.9	760.7	36.6	33.6
LnGrp LOS	D	D	F	D	C	C	F	C	C	F	D	C
Approach Vol, veh/h		1696			738			782			1219	
Approach Delay, s/veh		53.1			35.2			108.1			189.9	
Approach LOS		D			D			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.4	35.6	17.8	40.2	11.4	35.6	18.8	39.2
Change Period (Y+Rc), s	5.4	7.0	5.4	7.2	5.4	7.0	5.4	7.2
Max Green Setting (Gmax), s	6.0	32.0	8.0	33.0	6.0	33.0	8.0	33.0
Max Q Clear Time (g_c+I1), s	8.0	13.2	3.9	35.0	8.0	21.7	9.1	19.2
Green Ext Time (p_c), s	0.0	3.8	0.0	0.0	0.0	5.4	0.0	5.4

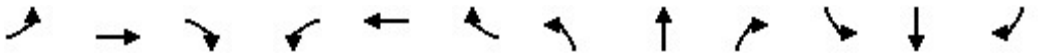
Intersection Summary	
HCM 6th Ctrl Delay	97.4
HCM 6th LOS	F



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	111	1120	648	64	19	48
Future Volume (veh/h)	111	1120	648	64	19	48
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.96	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	122	1231	712	70	30	75
Peak Hour Factor	0.91	0.91	0.91	0.91	0.64	0.64
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	152	1947	1339	132	631	561
Arrive On Green	0.09	0.55	0.41	0.41	0.35	0.35
Sat Flow, veh/h	1781	3647	3347	320	1781	1585
Grp Volume(v), veh/h	122	1231	389	393	30	75
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1797	1781	1585
Q Serve(g_s), s	6.7	24.0	16.5	16.5	1.1	3.2
Cycle Q Clear(g_c), s	6.7	24.0	16.5	16.5	1.1	3.2
Prop In Lane	1.00			0.18	1.00	1.00
Lane Grp Cap(c), veh/h	152	1947	731	739	631	561
V/C Ratio(X)	0.80	0.63	0.53	0.53	0.05	0.13
Avail Cap(c_a), veh/h	326	1947	731	739	631	561
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.84	0.84	1.00	1.00
Uniform Delay (d), s/veh	44.9	15.6	22.2	22.2	21.2	21.9
Incr Delay (d2), s/veh	7.0	1.6	2.3	2.3	0.1	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	9.1	6.9	7.0	0.5	3.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	51.9	17.2	24.5	24.5	21.4	22.4
LnGrp LOS	D	B	C	C	C	C
Approach Vol, veh/h		1353	782		105	
Approach Delay, s/veh		20.3	24.5		22.1	
Approach LOS		C	C		C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		60.6		39.4	13.7	46.9
Change Period (Y+Rc), s		5.8		4.0	5.1	5.8
Max Green Setting (Gmax), s		54.8		35.4	18.3	31.4
Max Q Clear Time (g_c+I1), s		26.0		5.2	8.7	18.5
Green Ext Time (p_c), s		17.5		0.0	0.1	6.3

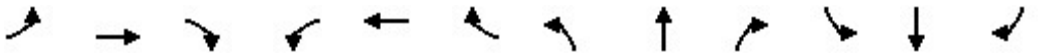
Intersection Summary	
HCM 6th Ctrl Delay	21.9
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	215	635	124	181	422	155	180	522	133	195	406	132
Future Volume (veh/h)	215	635	124	181	422	155	180	522	133	195	406	132
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.94	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	226	668	131	208	485	178	191	555	141	229	478	155
Peak Hour Factor	0.95	0.95	0.95	0.87	0.87	0.87	0.94	0.94	0.94	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	261	895	586	242	858	605	225	1055	657	264	1133	707
Arrive On Green	0.15	0.25	0.25	0.14	0.24	0.24	0.13	0.30	0.30	0.15	0.32	0.32
Sat Flow, veh/h	1781	3554	1534	1781	3554	1532	1781	3554	1486	1781	3554	1491
Grp Volume(v), veh/h	226	668	131	208	485	178	191	555	141	229	478	155
Grp Sat Flow(s),veh/h/ln	1781	1777	1534	1781	1777	1532	1781	1777	1486	1781	1777	1491
Q Serve(g_s), s	13.7	19.2	6.4	12.6	13.3	8.9	11.6	14.4	6.6	13.9	11.7	6.9
Cycle Q Clear(g_c), s	13.7	19.2	6.4	12.6	13.3	8.9	11.6	14.4	6.6	13.9	11.7	6.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	261	895	586	242	858	605	225	1055	657	264	1133	707
V/C Ratio(X)	0.87	0.75	0.22	0.86	0.57	0.29	0.85	0.53	0.21	0.87	0.42	0.22
Avail Cap(c_a), veh/h	451	1236	734	435	1204	754	423	1188	712	467	1275	767
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.2	38.1	23.4	46.8	36.9	23.3	47.3	32.4	19.7	46.1	29.7	17.7
Incr Delay (d2), s/veh	8.6	1.6	0.2	8.6	0.6	0.3	8.6	0.4	0.2	8.4	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	8.3	2.3	6.0	5.7	3.1	5.6	6.1	2.2	6.7	5.0	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.8	39.8	23.6	55.4	37.5	23.6	55.9	32.8	19.8	54.5	29.9	17.8
LnGrp LOS	D	D	C	E	D	C	E	C	B	D	C	B
Approach Vol, veh/h		1025			871			887			862	
Approach Delay, s/veh		41.0			38.9			35.7			34.3	
Approach LOS		D			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.0	40.4	20.2	32.1	20.4	37.9	19.0	33.3
Change Period (Y+Rc), s	4.0	5.1	4.0	5.4	4.0	5.1	4.0	5.4
Max Green Setting (Gmax), s	26.3	39.7	28.0	37.5	29.0	37.0	27.0	38.5
Max Q Clear Time (g_c+I1), s	13.6	13.7	15.7	15.3	15.9	16.4	14.6	21.2
Green Ext Time (p_c), s	0.4	3.8	0.5	3.6	0.5	4.1	0.4	4.4

Intersection Summary	
HCM 6th Ctrl Delay	37.6
HCM 6th LOS	D



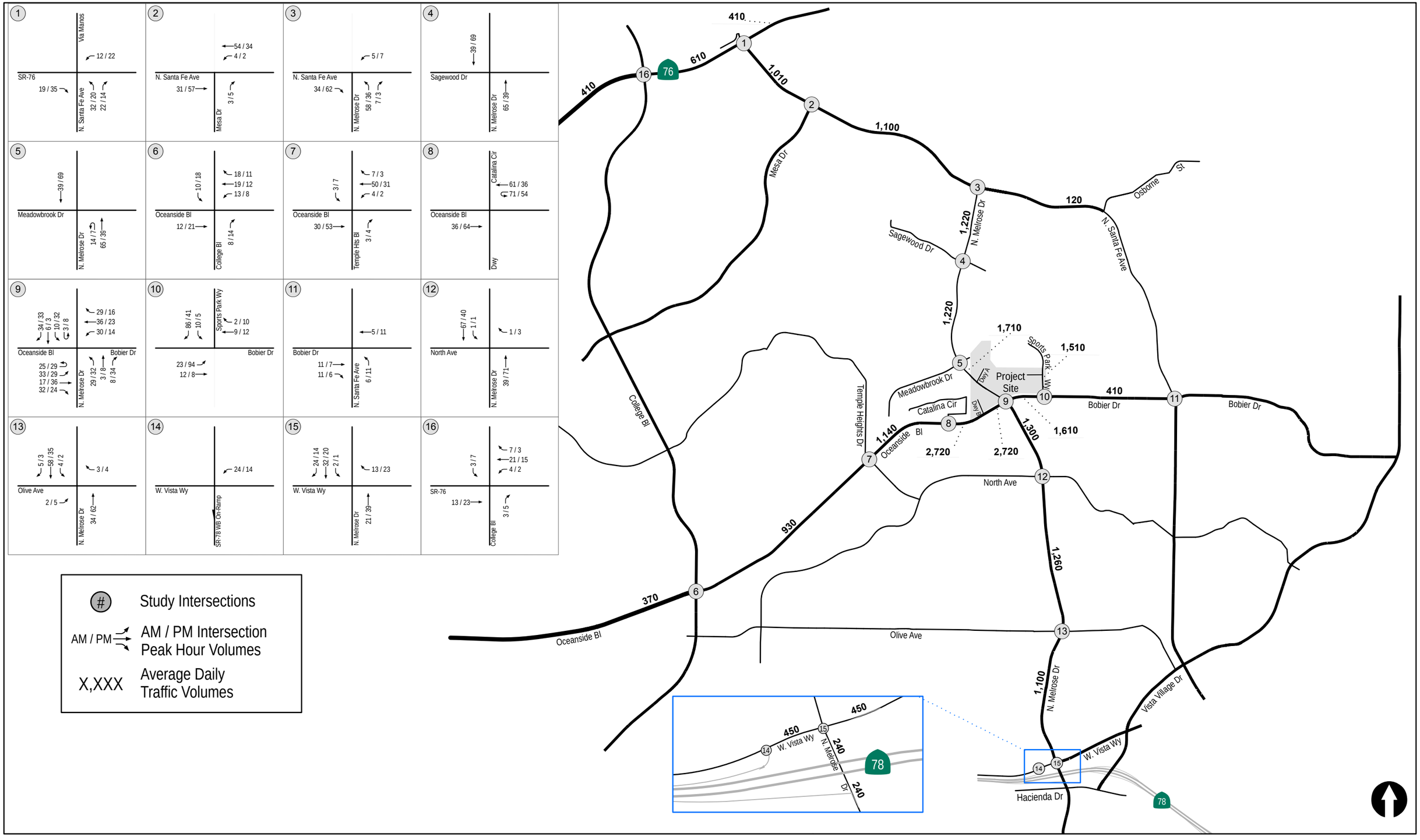
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	117	191	72	107	114	55	54	1422	209	76	849	72
Future Volume (veh/h)	117	191	72	107	114	55	54	1422	209	76	849	72
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.94	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	134	220	83	113	120	58	56	1466	215	83	923	78
Peak Hour Factor	0.87	0.87	0.87	0.95	0.95	0.95	0.97	0.97	0.97	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	276	290	232	223	145	70	73	2206	323	105	2446	206
Arrive On Green	0.15	0.15	0.15	0.13	0.13	0.13	0.04	0.49	0.49	0.06	0.51	0.51
Sat Flow, veh/h	1781	1870	1499	1781	1162	562	1781	4472	655	1781	4781	403
Grp Volume(v), veh/h	134	220	83	113	0	178	56	1116	565	83	656	345
Grp Sat Flow(s),veh/h/ln	1781	1870	1499	1781	0	1724	1781	1702	1722	1781	1702	1780
Q Serve(g_s), s	8.9	14.6	6.4	7.7	0.0	13.1	4.0	32.1	32.2	6.0	15.2	15.3
Cycle Q Clear(g_c), s	8.9	14.6	6.4	7.7	0.0	13.1	4.0	32.1	32.2	6.0	15.2	15.3
Prop In Lane	1.00		1.00	1.00		0.33	1.00		0.38	1.00		0.23
Lane Grp Cap(c), veh/h	276	290	232	223	0	216	73	1679	850	105	1742	911
V/C Ratio(X)	0.49	0.76	0.36	0.51	0.00	0.83	0.77	0.66	0.67	0.79	0.38	0.38
Avail Cap(c_a), veh/h	411	432	346	411	0	398	233	1679	850	233	1742	911
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.2	52.6	49.1	53.1	0.0	55.5	61.7	24.8	24.8	60.4	19.2	19.2
Incr Delay (d2), s/veh	1.3	4.4	0.9	1.8	0.0	7.8	15.7	2.1	4.1	12.3	0.6	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	7.2	2.5	3.6	0.0	6.2	2.1	12.7	13.4	3.0	5.9	6.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.5	57.0	50.1	54.9	0.0	63.3	77.4	26.9	28.9	72.7	19.8	20.4
LnGrp LOS	D	E	D	D	A	E	E	C	C	E	B	C
Approach Vol, veh/h		437			291			1737			1084	
Approach Delay, s/veh		54.0			60.0			29.2			24.1	
Approach LOS		D			E			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.5	69.9		25.2	11.1	72.3		21.4				
Change Period (Y+Rc), s	5.8	5.8		5.1	5.8	5.8		5.1				
Max Green Setting (Gmax), s	17.0	31.2		30.0	17.0	31.2		30.0				
Max Q Clear Time (g_c+I1), s	8.0	34.2		16.6	6.0	17.3		15.1				
Green Ext Time (p_c), s	0.1	0.0		1.6	0.1	5.1		1.2				

Intersection Summary												
HCM 6th Ctrl Delay			33.2									
HCM 6th LOS			C									

APPENDIX F

MELROSE HEIGHTS PROJECT TRAFFIC ASSIGNMENT



LINSCOTT LAW & GREENSPAN engineers

N:\2406\Figures\Sept 2016
Date: 09/16/16

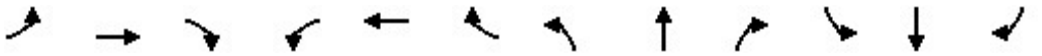
Figure 7-2

Project Traffic Volumes

MELROSE + OCEANSIDE

APPENDIX G

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – EXISTING + PROJECT



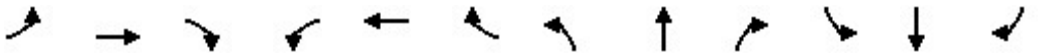
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	0	66	13	1	3	24	445	1	4	790	14
Future Volume (veh/h)	8	0	66	13	1	3	24	445	1	4	790	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	0.99		0.97	1.00		0.95	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	12	0	99	19	1	4	26	473	1	5	908	16
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.94	0.94	0.94	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	124	0	347	119	5	347	570	1112	2	528	1009	18
Arrive On Green	0.23	0.00	0.23	0.23	0.23	0.23	0.32	0.31	0.31	0.30	0.28	0.28
Sat Flow, veh/h	228	0	1530	216	20	1530	1781	3638	8	1781	3569	63
Grp Volume(v), veh/h	12	0	99	20	0	4	26	231	243	5	452	472
Grp Sat Flow(s),veh/h/ln	228	0	1530	236	0	1530	1781	1777	1869	1781	1777	1855
Q Serve(g_s), s	0.8	0.0	5.3	1.3	0.0	0.2	1.0	10.4	10.4	0.2	24.5	24.5
Cycle Q Clear(g_c), s	19.8	0.0	5.3	20.1	0.0	0.2	1.0	10.4	10.4	0.2	24.5	24.5
Prop In Lane	1.00		1.00	0.95		1.00	1.00		0.00	1.00		0.03
Lane Grp Cap(c), veh/h	124	0	347	124	0	347	570	543	571	528	502	524
V/C Ratio(X)	0.10	0.00	0.29	0.16	0.00	0.01	0.05	0.43	0.43	0.01	0.90	0.90
Avail Cap(c_a), veh/h	352	0	597	337	0	597	570	543	571	528	515	538
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.65	0.65	0.65	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.8	0.0	32.0	44.9	0.0	30.0	23.5	27.7	27.7	24.8	34.5	34.5
Incr Delay (d2), s/veh	0.3	0.0	0.4	0.6	0.0	0.0	0.0	0.7	0.7	0.0	19.5	18.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	2.0	0.5	0.0	0.1	0.4	4.3	4.5	0.1	12.7	13.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.1	0.0	32.4	45.5	0.0	30.0	23.5	28.4	28.4	24.8	54.0	53.4
LnGrp LOS	D	A	C	D	A	C	C	C	C	C	D	D
Approach Vol, veh/h		111			24			500			929	
Approach Delay, s/veh		34.0			42.9			28.2			53.6	
Approach LOS		C			D			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	34.4	37.6		28.0	36.7	35.3		28.0				
Change Period (Y+Rc), s	5.4	7.0		* 4.7	5.4	7.0		* 4.7				
Max Green Setting (Gmax), s	14.9	29.0		* 39	14.9	29.0		* 39				
Max Q Clear Time (g_c+I1), s	2.2	12.4		21.8	3.0	26.5		22.1				
Green Ext Time (p_c), s	0.0	4.2		0.3	0.0	1.8		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		43.9	
HCM 6th LOS		D	

Notes

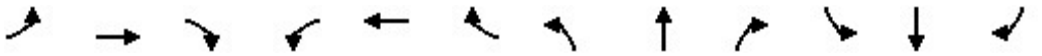
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	381	2	8	721	25	20	0	9	66	0	51
Future Volume (veh/h)	9	381	2	8	721	25	20	0	9	66	0	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.99		0.96	0.98		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	438	2	11	1015	35	21	0	9	81	0	63
Peak Hour Factor	0.87	0.87	0.87	0.71	0.71	0.71	0.96	0.96	0.96	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	22	2222	10	24	2148	74	237	13	74	193	19	110
Arrive On Green	0.01	0.61	0.61	0.01	0.61	0.61	0.17	0.00	0.17	0.17	0.00	0.17
Sat Flow, veh/h	1781	3627	17	1781	3500	121	939	77	435	718	108	642
Grp Volume(v), veh/h	10	215	225	11	515	535	30	0	0	144	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1867	1781	1777	1844	1450	0	0	1469	0	0
Q Serve(g_s), s	0.4	4.3	4.3	0.5	12.6	12.6	0.0	0.0	0.0	5.5	0.0	0.0
Cycle Q Clear(g_c), s	0.4	4.3	4.3	0.5	12.6	12.6	1.2	0.0	0.0	7.1	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.07	0.70		0.30	0.56		0.44
Lane Grp Cap(c), veh/h	22	1089	1144	24	1091	1132	325	0	0	322	0	0
V/C Ratio(X)	0.45	0.20	0.20	0.46	0.47	0.47	0.09	0.00	0.00	0.45	0.00	0.00
Avail Cap(c_a), veh/h	114	1089	1144	114	1091	1132	590	0	0	599	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.32	0.32	0.32	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	39.2	6.8	6.8	39.2	8.4	8.4	28.0	0.0	0.0	30.3	0.0	0.0
Incr Delay (d2), s/veh	5.2	0.4	0.4	1.6	0.5	0.5	0.1	0.0	0.0	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.3	1.4	0.2	3.6	3.7	0.5	0.0	0.0	2.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.5	7.2	7.2	40.8	8.9	8.9	28.1	0.0	0.0	31.3	0.0	0.0
LnGrp LOS	D	A	A	D	A	A	C	A	A	C	A	A
Approach Vol, veh/h		450			1061			30			144	
Approach Delay, s/veh		8.0			9.2			28.1			31.3	
Approach LOS		A			A			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.5	55.2		18.3	6.4	55.3		18.3				
Change Period (Y+Rc), s	5.4	6.2		4.6	5.4	6.2		4.6				
Max Green Setting (Gmax), s	5.1	29.6		29.1	5.1	29.6		29.1				
Max Q Clear Time (g_c+I1), s	2.5	6.3		9.1	2.4	14.6		3.2				
Green Ext Time (p_c), s	0.0	3.2		0.7	0.0	7.2		0.1				

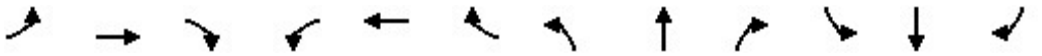
Intersection Summary			
HCM 6th Ctrl Delay		11.1	
HCM 6th LOS		B	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	227	541	221	81	730	131	471	717	151	125	333	237
Future Volume (veh/h)	227	541	221	81	730	131	471	717	151	125	333	237
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	261	622	254	85	768	138	535	815	172	151	401	286
Peak Hour Factor	0.87	0.87	0.87	0.95	0.95	0.95	0.88	0.88	0.88	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	462	1056	457	368	807	145	570	1197	688	206	1183	355
Arrive On Green	0.13	0.30	0.30	0.11	0.27	0.27	0.16	0.34	0.34	0.06	0.23	0.23
Sat Flow, veh/h	3456	3554	1539	3456	2993	538	3456	3554	1542	3456	5106	1531
Grp Volume(v), veh/h	261	622	254	85	456	450	535	815	172	151	401	286
Grp Sat Flow(s),veh/h/ln	1728	1777	1539	1728	1777	1753	1728	1777	1542	1728	1702	1531
Q Serve(g_s), s	8.8	18.6	17.4	2.8	31.5	31.5	19.1	24.7	8.7	5.4	8.2	22.1
Cycle Q Clear(g_c), s	8.8	18.6	17.4	2.8	31.5	31.5	19.1	24.7	8.7	5.4	8.2	22.1
Prop In Lane	1.00		1.00	1.00		0.31	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	462	1056	457	368	479	473	570	1197	688	206	1183	355
V/C Ratio(X)	0.56	0.59	0.56	0.23	0.95	0.95	0.94	0.68	0.25	0.73	0.34	0.81
Avail Cap(c_a), veh/h	462	1056	457	368	480	474	570	1234	704	282	1348	404
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00	0.40	0.40	0.40
Uniform Delay (d), s/veh	50.7	37.4	37.0	51.2	44.8	44.8	51.6	35.7	21.8	57.8	40.0	45.4
Incr Delay (d2), s/veh	1.6	1.3	2.5	0.3	29.5	29.8	23.7	1.7	0.3	2.6	0.1	4.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	8.0	6.6	1.2	17.2	17.0	9.9	10.6	3.1	2.4	3.4	8.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.3	38.8	39.5	51.5	74.3	74.6	75.3	37.3	22.1	60.4	40.1	50.1
LnGrp LOS	D	D	D	D	E	E	E	D	C	E	D	D
Approach Vol, veh/h		1137			991			1522			838	
Approach Delay, s/veh		42.0			72.5			49.0			47.2	
Approach LOS		D			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.8	49.1	18.7	44.3	26.0	36.0	22.1	40.9
Change Period (Y+Rc), s	5.4	7.0	5.4	7.2	5.4	7.0	5.4	7.2
Max Green Setting (Gmax), s	10.2	43.4	10.0	36.4	20.6	33.0	12.6	33.8
Max Q Clear Time (g_c+I1), s	7.4	26.7	4.8	20.6	21.1	24.1	10.8	33.5
Green Ext Time (p_c), s	0.1	7.3	0.1	7.4	0.0	3.2	0.2	0.2

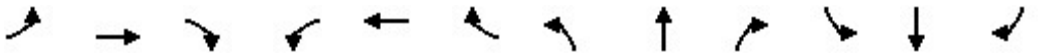
Intersection Summary	
HCM 6th Ctrl Delay	52.1
HCM 6th LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	651	26	7	1269	9	98	3	25	14	1	56
Future Volume (veh/h)	26	651	26	7	1269	9	98	3	25	14	1	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.96	1.00		1.00	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	37	917	37	9	1548	11	108	3	27	16	1	64
Peak Hour Factor	0.71	0.71	0.71	0.82	0.82	0.82	0.91	0.91	0.91	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	57	1806	73	20	1778	13	136	11	97	383	5	302
Arrive On Green	0.03	0.52	0.52	0.01	0.49	0.49	0.08	0.07	0.07	0.22	0.20	0.20
Sat Flow, veh/h	1781	3480	140	1781	3616	26	1781	161	1449	1781	24	1506
Grp Volume(v), veh/h	37	468	486	9	760	799	108	0	30	16	0	65
Grp Sat Flow(s),veh/h/ln	1781	1777	1843	1781	1777	1865	1781	0	1610	1781	0	1530
Q Serve(g_s), s	2.1	17.2	17.2	0.5	38.0	38.1	6.0	0.0	1.8	0.7	0.0	3.5
Cycle Q Clear(g_c), s	2.1	17.2	17.2	0.5	38.0	38.1	6.0	0.0	1.8	0.7	0.0	3.5
Prop In Lane	1.00		0.08	1.00		0.01	1.00		0.90	1.00		0.98
Lane Grp Cap(c), veh/h	57	922	957	20	874	917	136	0	108	383	0	307
V/C Ratio(X)	0.65	0.51	0.51	0.46	0.87	0.87	0.79	0.00	0.28	0.04	0.00	0.21
Avail Cap(c_a), veh/h	89	922	957	89	874	917	226	0	290	383	0	402
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.51	0.51	0.51	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	47.8	15.7	15.7	49.1	22.6	22.6	45.4	0.0	44.3	31.1	0.0	33.4
Incr Delay (d2), s/veh	8.8	2.0	1.9	8.2	6.3	6.1	9.9	0.0	1.4	0.2	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	6.9	7.1	0.3	15.9	16.6	3.0	0.0	0.7	0.3	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.6	17.7	17.6	57.3	28.9	28.7	55.3	0.0	45.7	31.3	0.0	33.7
LnGrp LOS	E	B	B	E	C	C	E	A	D	C	A	C
Approach Vol, veh/h		991			1568			138			81	
Approach Delay, s/veh		19.1			29.0			53.2			33.2	
Approach LOS		B			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.6	57.7	12.2	24.6	8.3	55.0	25.5	11.2
Change Period (Y+Rc), s	4.5	5.8	4.5	4.5	5.1	5.8	4.0	4.5
Max Green Setting (Gmax), s	5.0	36.7	12.7	26.3	5.0	36.1	21.5	18.0
Max Q Clear Time (g_c+I1), s	2.5	19.2	8.0	5.5	4.1	40.1	2.7	3.8
Green Ext Time (p_c), s	0.0	9.4	0.1	0.3	0.0	0.0	0.0	0.1

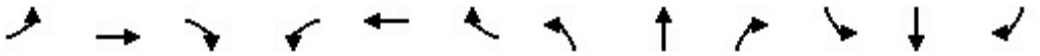
Intersection Summary	
HCM 6th Ctrl Delay	26.8
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	193	534	171	237	660	114	231	398	149	227	642	337
Future Volume (veh/h)	193	534	171	237	660	114	231	398	149	227	642	337
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.92	1.00		0.93	1.00		0.92	1.00		0.91
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	233	643	206	266	742	128	330	569	213	264	747	392
Peak Hour Factor	0.83	0.83	0.83	0.89	0.89	0.89	0.70	0.70	0.70	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	258	846	666	291	912	635	356	1076	699	290	943	611
Arrive On Green	0.14	0.24	0.24	0.16	0.26	0.26	0.20	0.30	0.30	0.16	0.27	0.27
Sat Flow, veh/h	1781	3554	1465	1781	3554	1472	1781	3554	1453	1781	3554	1437
Grp Volume(v), veh/h	233	643	206	266	742	128	330	569	213	264	747	392
Grp Sat Flow(s),veh/h/ln	1781	1777	1465	1781	1777	1472	1781	1777	1453	1781	1777	1437
Q Serve(g_s), s	17.9	23.4	12.8	20.4	27.3	7.7	25.3	18.5	12.8	20.3	27.2	30.8
Cycle Q Clear(g_c), s	17.9	23.4	12.8	20.4	27.3	7.7	25.3	18.5	12.8	20.3	27.2	30.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	258	846	666	291	912	635	356	1076	699	290	943	611
V/C Ratio(X)	0.90	0.76	0.31	0.91	0.81	0.20	0.93	0.53	0.30	0.91	0.79	0.64
Avail Cap(c_a), veh/h	315	882	681	346	943	648	423	1089	704	351	946	612
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.5	49.3	25.5	57.2	48.5	25.7	54.6	40.2	23.2	57.2	47.5	33.2
Incr Delay (d2), s/veh	24.4	3.7	0.3	25.2	5.4	0.2	24.1	0.5	0.2	24.3	4.7	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.7	10.7	4.4	11.1	12.6	2.7	13.6	8.1	4.4	11.0	12.6	10.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	82.9	53.0	25.8	82.4	53.9	25.8	78.7	40.7	23.5	81.5	52.2	35.5
LnGrp LOS	F	D	C	F	D	C	E	D	C	F	D	D
Approach Vol, veh/h		1082			1136			1112			1403	
Approach Delay, s/veh		54.3			57.4			48.7			53.0	
Approach LOS		D			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	31.8	42.0	24.2	41.1	26.6	47.2	26.7	38.5
Change Period (Y+Rc), s	4.0	5.1	4.0	5.4	4.0	5.1	4.0	5.4
Max Green Setting (Gmax), s	33.0	37.0	24.6	36.9	27.4	42.6	27.0	34.5
Max Q Clear Time (g_c+I1), s	27.3	32.8	19.9	29.3	22.3	20.5	22.4	25.4
Green Ext Time (p_c), s	0.5	2.4	0.3	3.1	0.4	4.6	0.3	3.3

Intersection Summary	
HCM 6th Ctrl Delay	53.3
HCM 6th LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	97	177	87	215	182	92	148	883	94	64	1276	135
Future Volume (veh/h)	97	177	87	215	182	92	148	883	94	64	1276	135
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.95	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	117	213	105	242	204	103	166	992	106	66	1315	139
Peak Hour Factor	0.83	0.83	0.83	0.89	0.89	0.89	0.89	0.89	0.89	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	273	286	229	353	228	115	192	2020	215	85	1742	184
Arrive On Green	0.15	0.15	0.15	0.20	0.20	0.20	0.11	0.43	0.43	0.05	0.37	0.37
Sat Flow, veh/h	1781	1870	1495	1781	1151	581	1781	4664	497	1781	4666	493
Grp Volume(v), veh/h	117	213	105	242	0	307	166	723	375	66	959	495
Grp Sat Flow(s),veh/h/ln	1781	1870	1495	1781	0	1732	1781	1702	1757	1781	1702	1755
Q Serve(g_s), s	7.7	14.2	8.3	16.4	0.0	22.4	11.9	19.9	20.0	4.8	32.0	32.0
Cycle Q Clear(g_c), s	7.7	14.2	8.3	16.4	0.0	22.4	11.9	19.9	20.0	4.8	32.0	32.0
Prop In Lane	1.00		1.00	1.00		0.34	1.00		0.28	1.00		0.28
Lane Grp Cap(c), veh/h	273	286	229	353	0	344	192	1475	761	85	1271	655
V/C Ratio(X)	0.43	0.74	0.46	0.68	0.00	0.89	0.87	0.49	0.49	0.78	0.75	0.75
Avail Cap(c_a), veh/h	411	432	345	411	0	400	233	1475	761	233	1271	655
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.9	52.6	50.2	48.3	0.0	50.8	57.1	26.5	26.5	61.2	35.6	35.6
Incr Delay (d2), s/veh	1.1	3.8	1.4	3.8	0.0	19.8	23.8	1.2	2.3	13.9	4.2	7.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	7.0	3.2	7.7	0.0	11.6	6.5	8.0	8.5	2.4	13.5	14.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.0	56.5	51.6	52.2	0.0	70.5	80.9	27.7	28.8	75.1	39.8	43.4
LnGrp LOS	D	E	D	D	A	E	F	C	C	E	D	D
Approach Vol, veh/h		435			549			1264			1520	
Approach Delay, s/veh		53.8			62.4			35.0			42.5	
Approach LOS		D			E			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.0	62.1		25.0	19.8	54.3		30.9				
Change Period (Y+Rc), s	5.8	5.8		5.1	5.8	5.8		5.1				
Max Green Setting (Gmax), s	17.0	31.2		30.0	17.0	31.2		30.0				
Max Q Clear Time (g_c+I1), s	6.8	22.0		16.2	13.9	34.0		24.4				
Green Ext Time (p_c), s	0.1	4.4		1.6	0.1	0.0		1.3				

Intersection Summary			
HCM 6th Ctrl Delay		44.2	
HCM 6th LOS		D	

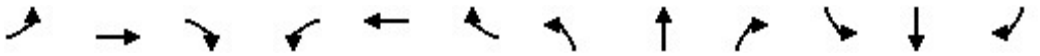
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	1	45	8	1	0	77	1005	8	6	741	15
Future Volume (veh/h)	9	1	45	8	1	0	77	1005	8	6	741	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.95	0.98		1.00	1.00		0.95	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	1	51	18	2	0	82	1069	9	7	823	17
Peak Hour Factor	0.89	0.89	0.89	0.45	0.45	0.45	0.94	0.94	0.94	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	239	21	196	222	21	207	762	1134	10	685	963	20
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.00	0.43	0.31	0.31	0.38	0.27	0.27
Sat Flow, veh/h	1300	159	1504	1177	163	1585	1781	3610	30	1781	3556	73
Grp Volume(v), veh/h	11	0	51	20	0	0	82	526	552	7	411	429
Grp Sat Flow(s),veh/h/ln	1459	0	1504	1340	0	1585	1781	1777	1863	1781	1777	1852
Q Serve(g_s), s	0.0	0.0	3.1	1.0	0.0	0.0	2.8	28.9	28.9	0.2	22.0	22.0
Cycle Q Clear(g_c), s	0.5	0.0	3.1	1.5	0.0	0.0	2.8	28.9	28.9	0.2	22.0	22.0
Prop In Lane	0.91		1.00	0.90		1.00	1.00		0.02	1.00		0.04
Lane Grp Cap(c), veh/h	259	0	196	243	0	207	762	558	585	685	481	502
V/C Ratio(X)	0.04	0.00	0.26	0.08	0.00	0.00	0.11	0.94	0.94	0.01	0.85	0.85
Avail Cap(c_a), veh/h	627	0	587	597	0	618	762	558	585	685	515	537
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.85	0.85	0.85	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.0	0.0	39.1	38.5	0.0	0.0	17.2	33.4	33.4	19.0	34.6	34.6
Incr Delay (d2), s/veh	0.1	0.0	0.7	0.1	0.0	0.0	0.1	22.6	21.9	0.0	14.1	13.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	1.2	0.4	0.0	0.0	1.1	15.1	15.7	0.1	10.8	11.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.1	0.0	39.8	38.6	0.0	0.0	17.2	56.0	55.3	19.0	48.7	48.2
LnGrp LOS	D	A	D	D	A	A	B	E	E	B	D	D
Approach Vol, veh/h		62			20			1160			847	
Approach Delay, s/veh		39.5			38.6			52.9			48.2	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	43.8	38.4		17.8	48.2	34.1		17.8				
Change Period (Y+Rc), s	5.4	7.0		* 4.7	5.4	7.0		* 4.7				
Max Green Setting (Gmax), s	14.9	29.0		* 39	14.9	29.0		* 39				
Max Q Clear Time (g_c+I1), s	2.2	30.9		5.1	4.8	24.0		3.5				
Green Ext Time (p_c), s	0.0	0.0		0.2	0.1	3.1		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		50.5
HCM 6th LOS		D

Notes

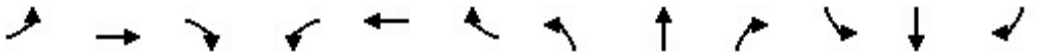
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	961	1	5	631	78	9	0	13	40	0	29
Future Volume (veh/h)	54	961	1	5	631	78	9	0	13	40	0	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.98		0.95	0.98		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	62	1105	1	5	693	86	15	0	21	59	0	43
Peak Hour Factor	0.87	0.87	0.87	0.91	0.91	0.91	0.61	0.61	0.61	0.68	0.68	0.68
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	83	2344	2	12	1910	237	137	23	134	178	18	91
Arrive On Green	0.05	0.64	0.64	0.01	0.60	0.60	0.15	0.00	0.15	0.15	0.00	0.15
Sat Flow, veh/h	1781	3643	3	1781	3167	393	493	156	908	724	121	615
Grp Volume(v), veh/h	62	539	567	5	388	391	36	0	0	102	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1870	1781	1777	1783	1556	0	0	1460	0	0
Q Serve(g_s), s	2.8	12.4	12.4	0.2	8.9	8.9	0.0	0.0	0.0	3.4	0.0	0.0
Cycle Q Clear(g_c), s	2.8	12.4	12.4	0.2	8.9	8.9	1.5	0.0	0.0	4.9	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.22	0.42		0.58	0.58		0.42
Lane Grp Cap(c), veh/h	83	1143	1203	12	1072	1075	294	0	0	287	0	0
V/C Ratio(X)	0.74	0.47	0.47	0.43	0.36	0.36	0.12	0.00	0.00	0.36	0.00	0.00
Avail Cap(c_a), veh/h	114	1143	1203	114	1072	1075	604	0	0	594	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.68	0.68	0.68	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	37.7	7.3	7.3	39.6	8.1	8.1	29.7	0.0	0.0	31.1	0.0	0.0
Incr Delay (d2), s/veh	9.6	1.4	1.3	6.1	0.6	0.6	0.2	0.0	0.0	0.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	3.6	3.8	0.1	2.7	2.7	0.6	0.0	0.0	1.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.2	8.7	8.6	45.7	8.7	8.7	29.9	0.0	0.0	31.8	0.0	0.0
LnGrp LOS	D	A	A	D	A	A	C	A	A	C	A	A
Approach Vol, veh/h		1168			784			36			102	
Approach Delay, s/veh		10.7			9.0			29.9			31.8	
Approach LOS		B			A			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.9	57.7		16.4	9.1	54.4		16.4				
Change Period (Y+Rc), s	5.4	6.2		4.6	5.4	6.2		4.6				
Max Green Setting (Gmax), s	5.1	29.6		29.1	5.1	29.6		29.1				
Max Q Clear Time (g_c+I1), s	2.2	14.4		6.9	4.8	10.9		3.5				
Green Ext Time (p_c), s	0.0	7.7		0.5	0.0	5.9		0.1				

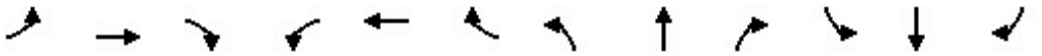
Intersection Summary			
HCM 6th Ctrl Delay		11.4	
HCM 6th LOS		B	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	239	941	478	81	507	128	254	424	85	271	672	212
Future Volume (veh/h)	239	941	478	81	507	128	254	424	85	271	672	212
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	249	980	498	89	557	141	273	456	91	295	730	230
Peak Hour Factor	0.96	0.96	0.96	0.91	0.91	0.91	0.93	0.93	0.93	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	571	1212	526	492	888	224	330	762	553	353	1129	338
Arrive On Green	0.17	0.34	0.34	0.14	0.32	0.32	0.10	0.21	0.21	0.10	0.22	0.22
Sat Flow, veh/h	3456	3554	1542	3456	2792	704	3456	3554	1528	3456	5106	1529
Grp Volume(v), veh/h	249	980	498	89	354	344	273	456	91	295	730	230
Grp Sat Flow(s),veh/h/ln	1728	1777	1542	1728	1777	1720	1728	1777	1528	1728	1702	1529
Q Serve(g_s), s	8.1	31.4	39.3	2.8	21.2	21.4	9.7	14.5	5.1	10.5	16.2	17.2
Cycle Q Clear(g_c), s	8.1	31.4	39.3	2.8	21.2	21.4	9.7	14.5	5.1	10.5	16.2	17.2
Prop In Lane	1.00		1.00	1.00		0.41	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	571	1212	526	492	565	547	330	762	553	353	1129	338
V/C Ratio(X)	0.44	0.81	0.95	0.18	0.63	0.63	0.83	0.60	0.16	0.84	0.65	0.68
Avail Cap(c_a), veh/h	571	1217	528	492	565	547	404	910	617	431	1348	404
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00	0.53	0.53	0.53
Uniform Delay (d), s/veh	46.9	37.5	40.1	47.2	36.3	36.4	55.5	44.2	27.5	55.1	44.2	44.6
Incr Delay (d2), s/veh	0.5	4.3	25.1	0.2	3.1	3.3	11.2	1.1	0.2	6.4	0.6	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	13.6	17.7	1.2	9.3	9.1	4.6	6.3	1.8	4.8	6.7	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.4	41.7	65.2	47.4	39.4	39.7	66.7	45.3	27.7	61.4	44.8	47.0
LnGrp LOS	D	D	E	D	D	D	E	D	C	E	D	D
Approach Vol, veh/h		1727			787			820			1255	
Approach Delay, s/veh		49.3			40.4			50.5			49.1	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.2	33.8	23.2	49.8	17.4	34.6	26.1	46.9
Change Period (Y+Rc), s	5.4	7.0	5.4	7.2	5.4	7.0	5.4	7.2
Max Green Setting (Gmax), s	15.6	32.0	9.6	42.8	14.6	33.0	16.6	35.8
Max Q Clear Time (g_c+I1), s	12.5	16.5	4.8	41.3	11.7	19.2	10.1	23.4
Green Ext Time (p_c), s	0.3	3.7	0.1	1.3	0.3	6.1	0.4	5.3

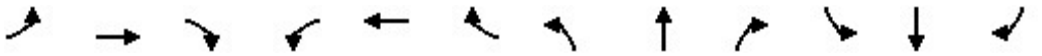
Intersection Summary	
HCM 6th Ctrl Delay	47.9
HCM 6th LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	1120	0	0	648	64	0	0	0	19	0	48
Future Volume (veh/h)	111	1120	0	0	648	64	0	0	0	19	0	48
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.96	1.00		1.00	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	122	1231	0	0	712	70	0	0	0	30	0	75
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.98	0.98	0.98	0.64	0.64	0.64
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	151	2441	0	2	1795	176	2	2	0	383	0	321
Arrive On Green	0.08	0.69	0.00	0.00	0.55	0.55	0.00	0.00	0.00	0.22	0.00	0.21
Sat Flow, veh/h	1781	3647	0	1781	3256	320	1781	1870	0	1781	0	1527
Grp Volume(v), veh/h	122	1231	0	0	388	394	0	0	0	30	0	75
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1799	1781	1870	0	1781	0	1527
Q Serve(g_s), s	6.7	16.6	0.0	0.0	12.5	12.6	0.0	0.0	0.0	1.3	0.0	4.1
Cycle Q Clear(g_c), s	6.7	16.6	0.0	0.0	12.5	12.6	0.0	0.0	0.0	1.3	0.0	4.1
Prop In Lane	1.00		0.00	1.00		0.18	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	151	2441	0	2	980	992	2	2	0	383	0	321
V/C Ratio(X)	0.81	0.50	0.00	0.00	0.40	0.40	0.00	0.00	0.00	0.08	0.00	0.23
Avail Cap(c_a), veh/h	183	2441	0	89	980	992	89	337	0	383	0	519
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.83	0.83	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.0	7.5	0.0	0.0	12.9	12.9	0.0	0.0	0.0	31.3	0.0	32.8
Incr Delay (d2), s/veh	18.3	0.7	0.0	0.0	1.0	1.0	0.0	0.0	0.0	0.4	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	5.3	0.0	0.0	4.8	4.9	0.0	0.0	0.0	0.6	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.2	8.2	0.0	0.0	13.9	13.9	0.0	0.0	0.0	31.7	0.0	33.2
LnGrp LOS	E	A	A	A	B	B	A	A	A	C	A	C
Approach Vol, veh/h		1353			782			0			105	
Approach Delay, s/veh		13.2			13.9			0.0			32.8	
Approach LOS		B			B						C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	0.0	74.5	0.0	25.5	13.6	60.9	25.5	0.0
Change Period (Y+Rc), s	4.5	5.8	4.5	4.5	5.1	5.8	4.0	4.5
Max Green Setting (Gmax), s	5.0	36.7	5.0	34.0	10.3	30.8	21.5	18.0
Max Q Clear Time (g_c+I1), s	0.0	18.6	0.0	6.1	8.7	14.6	3.3	0.0
Green Ext Time (p_c), s	0.0	12.6	0.0	0.4	0.0	7.3	0.0	0.0

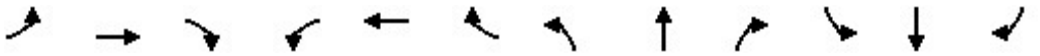
Intersection Summary	
HCM 6th Ctrl Delay	14.4
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	218	641	127	181	435	155	186	522	133	195	406	138
Future Volume (veh/h)	218	641	127	181	435	155	186	522	133	195	406	138
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.94	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	229	675	134	208	500	178	198	555	141	229	478	162
Peak Hour Factor	0.95	0.95	0.95	0.87	0.87	0.87	0.94	0.94	0.94	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	264	899	595	242	856	604	232	1053	656	264	1116	703
Arrive On Green	0.15	0.25	0.25	0.14	0.24	0.24	0.13	0.30	0.30	0.15	0.31	0.31
Sat Flow, veh/h	1781	3554	1534	1781	3554	1532	1781	3554	1486	1781	3554	1490
Grp Volume(v), veh/h	229	675	134	208	500	178	198	555	141	229	478	162
Grp Sat Flow(s),veh/h/ln	1781	1777	1534	1781	1777	1532	1781	1777	1486	1781	1777	1490
Q Serve(g_s), s	13.9	19.4	6.6	12.7	13.8	8.9	12.1	14.5	6.6	13.9	11.8	7.3
Cycle Q Clear(g_c), s	13.9	19.4	6.6	12.7	13.8	8.9	12.1	14.5	6.6	13.9	11.8	7.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	264	899	595	242	856	604	232	1053	656	264	1116	703
V/C Ratio(X)	0.87	0.75	0.23	0.86	0.58	0.29	0.85	0.53	0.22	0.87	0.43	0.23
Avail Cap(c_a), veh/h	465	1233	739	433	1169	739	432	1185	711	465	1252	760
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.2	38.2	23.1	46.9	37.2	23.4	47.2	32.6	19.8	46.2	30.2	18.0
Incr Delay (d2), s/veh	8.5	1.7	0.2	8.6	0.6	0.3	8.6	0.4	0.2	8.5	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	8.4	2.3	6.1	5.9	3.2	5.8	6.2	2.2	6.7	5.0	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.7	40.0	23.3	55.5	37.9	23.7	55.8	33.0	19.9	54.7	30.4	18.2
LnGrp LOS	D	D	C	E	D	C	E	C	B	D	C	B
Approach Vol, veh/h		1038			886			894			869	
Approach Delay, s/veh		41.1			39.2			36.0			34.5	
Approach LOS		D			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.5	40.0	20.4	32.1	20.4	38.0	19.1	33.5
Change Period (Y+Rc), s	4.0	5.1	4.0	5.4	4.0	5.1	4.0	5.4
Max Green Setting (Gmax), s	26.9	39.1	29.0	36.5	29.0	37.0	27.0	38.5
Max Q Clear Time (g_c+I1), s	14.1	13.8	15.9	15.8	15.9	16.5	14.7	21.4
Green Ext Time (p_c), s	0.4	3.8	0.5	3.7	0.5	4.1	0.4	4.5

Intersection Summary	
HCM 6th Ctrl Delay	37.8
HCM 6th LOS	D



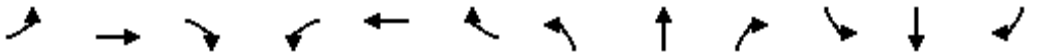
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	191	72	107	114	58	54	1452	209	77	862	73
Future Volume (veh/h)	120	191	72	107	114	58	54	1452	209	77	862	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.94	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	138	220	83	113	120	61	56	1497	215	84	937	79
Peak Hour Factor	0.87	0.87	0.87	0.95	0.95	0.95	0.97	0.97	0.97	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	276	290	232	226	145	74	73	2201	316	106	2437	205
Arrive On Green	0.15	0.15	0.15	0.13	0.13	0.13	0.04	0.49	0.49	0.06	0.51	0.51
Sat Flow, veh/h	1781	1870	1499	1781	1140	580	1781	4486	643	1781	4782	402
Grp Volume(v), veh/h	138	220	83	113	0	181	56	1135	577	84	666	350
Grp Sat Flow(s),veh/h/ln	1781	1870	1499	1781	0	1720	1781	1702	1725	1781	1702	1780
Q Serve(g_s), s	9.2	14.6	6.4	7.7	0.0	13.3	4.0	33.1	33.3	6.0	15.5	15.6
Cycle Q Clear(g_c), s	9.2	14.6	6.4	7.7	0.0	13.3	4.0	33.1	33.3	6.0	15.5	15.6
Prop In Lane	1.00		1.00	1.00		0.34	1.00		0.37	1.00		0.23
Lane Grp Cap(c), veh/h	276	290	232	226	0	218	73	1670	846	106	1734	907
V/C Ratio(X)	0.50	0.76	0.36	0.50	0.00	0.83	0.77	0.68	0.68	0.79	0.38	0.39
Avail Cap(c_a), veh/h	411	432	346	411	0	397	233	1670	846	233	1734	907
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.3	52.6	49.1	52.9	0.0	55.4	61.7	25.3	25.3	60.3	19.4	19.5
Incr Delay (d2), s/veh	1.4	4.3	0.9	1.7	0.0	7.8	15.7	2.3	4.4	12.2	0.6	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	7.2	2.5	3.6	0.0	6.3	2.1	13.2	13.9	3.0	6.0	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.7	56.9	50.1	54.6	0.0	63.2	77.4	27.6	29.7	72.5	20.1	20.7
LnGrp LOS	D	E	D	D	A	E	E	C	C	E	C	C
Approach Vol, veh/h		441			294			1768			1100	
Approach Delay, s/veh		54.0			59.9			29.8			24.3	
Approach LOS		D			E			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.6	69.6		25.2	11.1	72.0		21.6				
Change Period (Y+Rc), s	5.8	5.8		5.1	5.8	5.8		5.1				
Max Green Setting (Gmax), s	17.0	31.2		30.0	17.0	31.2		30.0				
Max Q Clear Time (g_c+I1), s	8.0	35.3		16.6	6.0	17.6		15.3				
Green Ext Time (p_c), s	0.1	0.0		1.6	0.1	5.2		1.2				

Intersection Summary			
HCM 6th Ctrl Delay		33.6	
HCM 6th LOS		C	

APPENDIX H

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – NEAR-TERM



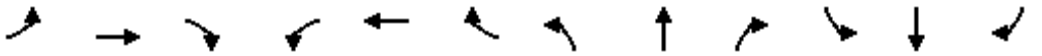
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	0	65	13	1	3	35	486	1	4	828	14
Future Volume (veh/h)	8	0	65	13	1	3	35	486	1	4	828	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	0.99		0.97	1.00		0.95	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	12	0	97	19	1	4	37	517	1	5	952	16
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.94	0.94	0.94	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	123	0	347	119	5	347	561	1157	2	507	1026	17
Arrive On Green	0.23	0.00	0.23	0.23	0.23	0.23	0.32	0.32	0.32	0.28	0.29	0.29
Sat Flow, veh/h	227	0	1530	215	20	1530	1781	3638	7	1781	3573	60
Grp Volume(v), veh/h	12	0	97	20	0	4	37	252	266	5	473	495
Grp Sat Flow(s),veh/h/ln	227	0	1530	235	0	1530	1781	1777	1869	1781	1777	1856
Q Serve(g_s), s	0.8	0.0	5.2	1.3	0.0	0.2	1.5	11.3	11.3	0.2	25.9	25.9
Cycle Q Clear(g_c), s	19.8	0.0	5.2	20.1	0.0	0.2	1.5	11.3	11.3	0.2	25.9	25.9
Prop In Lane	1.00		1.00	0.95		1.00	1.00		0.00	1.00		0.03
Lane Grp Cap(c), veh/h	123	0	347	123	0	347	561	565	594	507	510	533
V/C Ratio(X)	0.10	0.00	0.28	0.16	0.00	0.01	0.07	0.45	0.45	0.01	0.93	0.93
Avail Cap(c_a), veh/h	352	0	597	338	0	597	561	565	594	507	515	538
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.62	0.62	0.62	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.8	0.0	31.9	44.9	0.0	30.0	23.9	27.1	27.1	25.7	34.6	34.6
Incr Delay (d2), s/veh	0.3	0.0	0.4	0.6	0.0	0.0	0.0	0.7	0.7	0.0	23.8	23.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	2.0	0.5	0.0	0.1	0.6	4.6	4.9	0.1	13.9	14.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.1	0.0	32.4	45.5	0.0	30.0	24.0	27.8	27.8	25.7	58.4	57.7
LnGrp LOS	D	A	C	D	A	C	C	C	C	C	E	E
Approach Vol, veh/h		109			24			555			973	
Approach Delay, s/veh		34.0			42.9			27.6			57.9	
Approach LOS		C			D			C			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	33.2	38.8		28.0	36.3	35.7		28.0				
Change Period (Y+Rc), s	5.4	7.0		* 4.7	5.4	7.0		* 4.7				
Max Green Setting (Gmax), s	14.9	29.0		* 39	14.9	29.0		* 39				
Max Q Clear Time (g_c+I1), s	2.2	13.3		21.8	3.5	27.9		22.1				
Green Ext Time (p_c), s	0.0	4.5		0.3	0.0	0.8		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	46.0
HCM 6th LOS	D

Notes

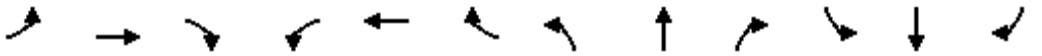
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	411	2	74	759	22	20	0	8	65	0	51
Future Volume (veh/h)	9	411	2	74	759	22	20	0	8	65	0	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	0.99		0.96	0.98		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	472	2	104	1069	31	21	0	8	80	0	63
Peak Hour Factor	0.87	0.87	0.87	0.71	0.71	0.71	0.96	0.96	0.96	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	22	2043	9	114	2164	63	243	12	68	192	19	110
Arrive On Green	0.01	0.56	0.56	0.06	0.61	0.61	0.17	0.00	0.17	0.17	0.00	0.17
Sat Flow, veh/h	1781	3628	15	1781	3522	102	971	71	397	713	109	648
Grp Volume(v), veh/h	10	231	243	104	539	561	29	0	0	143	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1867	1781	1777	1848	1440	0	0	1470	0	0
Q Serve(g_s), s	0.4	5.2	5.2	4.6	13.4	13.4	0.0	0.0	0.0	5.4	0.0	0.0
Cycle Q Clear(g_c), s	0.4	5.2	5.2	4.6	13.4	13.4	1.2	0.0	0.0	7.0	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.06	0.72		0.28	0.56		0.44
Lane Grp Cap(c), veh/h	22	1001	1051	114	1092	1135	323	0	0	321	0	0
V/C Ratio(X)	0.45	0.23	0.23	0.92	0.49	0.49	0.09	0.00	0.00	0.45	0.00	0.00
Avail Cap(c_a), veh/h	114	1001	1051	114	1092	1135	588	0	0	599	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.21	0.21	0.21	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	39.2	8.8	8.8	37.2	8.5	8.5	28.0	0.0	0.0	30.3	0.0	0.0
Incr Delay (d2), s/veh	5.2	0.5	0.5	20.0	0.3	0.3	0.1	0.0	0.0	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.7	1.8	2.5	3.8	4.0	0.5	0.0	0.0	2.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.5	9.3	9.3	57.3	8.9	8.9	28.1	0.0	0.0	31.3	0.0	0.0
LnGrp LOS	D	A	A	E	A	A	C	A	A	C	A	A
Approach Vol, veh/h		484			1204			29			143	
Approach Delay, s/veh		10.0			13.0			28.1			31.3	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.5	51.3		18.2	6.4	55.4		18.2				
Change Period (Y+Rc), s	5.4	6.2		4.6	5.4	6.2		4.6				
Max Green Setting (Gmax), s	5.1	29.6		29.1	5.1	29.6		29.1				
Max Q Clear Time (g_c+I1), s	6.6	7.2		9.0	2.4	15.4		3.2				
Green Ext Time (p_c), s	0.0	3.5		0.7	0.0	7.3		0.1				

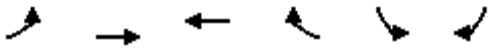
Intersection Summary												
HCM 6th Ctrl Delay			13.9									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	285	550	253	82	736	127	500	726	152	129	346	271
Future Volume (veh/h)	285	550	253	82	736	127	500	726	152	129	346	271
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	328	632	291	86	775	134	568	825	173	155	417	327
Peak Hour Factor	0.87	0.87	0.87	0.95	0.95	0.95	0.88	0.88	0.88	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	452	1103	478	292	795	137	542	1224	665	210	1268	381
Arrive On Green	0.13	0.31	0.31	0.08	0.26	0.26	0.16	0.34	0.34	0.06	0.25	0.25
Sat Flow, veh/h	3456	3554	1540	3456	3013	521	3456	3554	1542	3456	5106	1533
Grp Volume(v), veh/h	328	632	291	86	457	452	568	825	173	155	417	327
Grp Sat Flow(s),veh/h/ln	1728	1777	1540	1728	1777	1757	1728	1777	1542	1728	1702	1533
Q Serve(g_s), s	11.4	18.6	20.1	2.9	31.9	31.9	19.6	24.8	9.0	5.5	8.4	25.5
Cycle Q Clear(g_c), s	11.4	18.6	20.1	2.9	31.9	31.9	19.6	24.8	9.0	5.5	8.4	25.5
Prop In Lane	1.00		1.00	1.00		0.30	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	452	1103	478	292	469	464	542	1224	665	210	1268	381
V/C Ratio(X)	0.73	0.57	0.61	0.29	0.97	0.97	1.05	0.67	0.26	0.74	0.33	0.86
Avail Cap(c_a), veh/h	452	1103	478	292	469	464	542	1231	668	285	1389	417
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Uniform Delay (d), s/veh	52.2	36.2	36.6	53.7	45.6	45.6	52.7	35.0	23.0	57.7	38.5	44.9
Incr Delay (d2), s/veh	5.6	1.2	3.3	0.6	35.1	35.4	51.9	1.6	0.3	2.2	0.1	6.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	7.9	7.7	1.3	18.0	17.8	12.2	10.6	3.2	2.4	3.4	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.8	37.3	39.9	54.3	80.7	80.9	104.6	36.6	23.3	60.0	38.5	51.0
LnGrp LOS	E	D	D	D	F	F	F	D	C	E	D	D
Approach Vol, veh/h		1251			995			1566			899	
Approach Delay, s/veh		43.3			78.5			59.8			46.7	
Approach LOS		D			E			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	50.0	16.0	46.0	25.0	38.0	21.8	40.2
Change Period (Y+Rc), s	5.4	7.0	5.4	7.2	5.4	7.0	5.4	7.2
Max Green Setting (Gmax), s	10.3	43.3	9.3	37.1	19.6	34.0	13.4	33.0
Max Q Clear Time (g_c+I1), s	7.5	26.8	4.9	22.1	21.6	27.5	13.4	33.9
Green Ext Time (p_c), s	0.1	7.3	0.1	7.5	0.0	2.7	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	56.9
HCM 6th LOS	E



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	49	665	1284	11	24	142
Future Volume (veh/h)	49	665	1284	11	24	142
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.96	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	69	937	1566	13	28	163
Peak Hour Factor	0.71	0.71	0.82	0.82	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	90	1947	1613	13	631	561
Arrive On Green	0.05	0.55	0.45	0.45	0.35	0.35
Sat Flow, veh/h	1781	3647	3704	30	1781	1585
Grp Volume(v), veh/h	69	937	770	809	28	163
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1864	1781	1585
Q Serve(g_s), s	3.8	16.2	42.3	42.4	1.0	7.4
Cycle Q Clear(g_c), s	3.8	16.2	42.3	42.4	1.0	7.4
Prop In Lane	1.00			0.02	1.00	1.00
Lane Grp Cap(c), veh/h	90	1947	794	832	631	561
V/C Ratio(X)	0.77	0.48	0.97	0.97	0.04	0.29
Avail Cap(c_a), veh/h	326	1947	794	832	631	561
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.50	0.50	1.00	1.00
Uniform Delay (d), s/veh	46.9	13.9	27.0	27.0	21.2	23.3
Incr Delay (d2), s/veh	9.9	0.9	16.5	16.3	0.1	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	6.1	20.0	21.0	0.5	7.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	56.8	14.7	43.6	43.3	21.3	24.6
LnGrp LOS	E	B	D	D	C	C
Approach Vol, veh/h		1006	1579		191	
Approach Delay, s/veh		17.6	43.4		24.1	
Approach LOS		B	D		C	

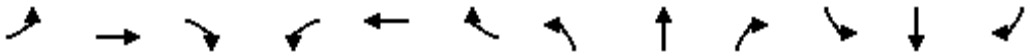
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		60.6		39.4	10.1	50.5
Change Period (Y+Rc), s		5.8		4.0	5.1	5.8
Max Green Setting (Gmax), s		54.8		35.4	18.3	31.4
Max Q Clear Time (g_c+I1), s		18.2		9.4	5.8	44.4
Green Ext Time (p_c), s		14.5		0.0	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	32.7
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	194	530	173	237	667	114	233	398	149	227	642	338
Future Volume (veh/h)	194	530	173	237	667	114	233	398	149	227	642	338
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.92	1.00		0.93	1.00		0.92	1.00		0.91
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	234	639	208	266	749	128	333	569	213	264	747	393
Peak Hour Factor	0.83	0.83	0.83	0.89	0.89	0.89	0.70	0.70	0.70	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	259	844	667	291	908	634	359	1079	700	290	941	611
Arrive On Green	0.15	0.24	0.24	0.16	0.26	0.26	0.20	0.30	0.30	0.16	0.26	0.26
Sat Flow, veh/h	1781	3554	1464	1781	3554	1471	1781	3554	1453	1781	3554	1436
Grp Volume(v), veh/h	234	639	208	266	749	128	333	569	213	264	747	393
Grp Sat Flow(s),veh/h/ln	1781	1777	1464	1781	1777	1471	1781	1777	1453	1781	1777	1436
Q Serve(g_s), s	18.0	23.3	12.9	20.5	27.7	7.7	25.6	18.5	12.8	20.3	27.3	30.9
Cycle Q Clear(g_c), s	18.0	23.3	12.9	20.5	27.7	7.7	25.6	18.5	12.8	20.3	27.3	30.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	259	844	667	291	908	634	359	1079	700	290	941	611
V/C Ratio(X)	0.90	0.76	0.31	0.91	0.83	0.20	0.93	0.53	0.30	0.91	0.79	0.64
Avail Cap(c_a), veh/h	316	880	682	345	939	646	422	1087	703	350	944	612
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.6	49.4	25.6	57.3	48.9	25.8	54.6	40.2	23.2	57.4	47.7	33.4
Incr Delay (d2), s/veh	24.5	3.7	0.3	25.3	5.9	0.2	24.5	0.5	0.2	24.4	4.7	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.8	10.6	4.5	11.1	12.8	2.7	13.8	8.1	4.4	11.0	12.6	10.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	83.1	53.1	25.8	82.6	54.9	26.0	79.1	40.7	23.4	81.7	52.4	35.7
LnGrp LOS	F	D	C	F	D	C	E	D	C	F	D	D
Approach Vol, veh/h		1081			1143			1115			1404	
Approach Delay, s/veh		54.3			58.1			48.9			53.2	
Approach LOS		D			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	32.1	42.0	24.3	41.0	26.6	47.4	26.8	38.5
Change Period (Y+Rc), s	4.0	5.1	4.0	5.4	4.0	5.1	4.0	5.4
Max Green Setting (Gmax), s	33.0	37.0	24.7	36.8	27.4	42.6	27.0	34.5
Max Q Clear Time (g_c+I1), s	27.6	32.9	20.0	29.7	22.3	20.5	22.5	25.3
Green Ext Time (p_c), s	0.5	2.3	0.3	3.0	0.3	4.6	0.3	3.3

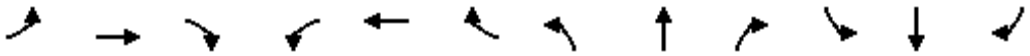
Intersection Summary	
HCM 6th Ctrl Delay	53.6
HCM 6th LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	177	89	215	182	95	154	912	94	68	1305	147
Future Volume (veh/h)	102	177	89	215	182	95	154	912	94	68	1305	147
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.95	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	123	213	107	242	204	107	173	1025	106	70	1345	152
Peak Hour Factor	0.83	0.83	0.83	0.89	0.89	0.89	0.89	0.89	0.89	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	273	286	229	357	228	119	199	2004	207	90	1699	192
Arrive On Green	0.15	0.15	0.15	0.20	0.20	0.20	0.11	0.43	0.43	0.05	0.37	0.37
Sat Flow, veh/h	1781	1870	1496	1781	1134	595	1781	4681	483	1781	4629	523
Grp Volume(v), veh/h	123	213	107	242	0	311	173	745	386	70	989	508
Grp Sat Flow(s),veh/h/ln	1781	1870	1496	1781	0	1729	1781	1702	1760	1781	1702	1748
Q Serve(g_s), s	8.2	14.1	8.5	16.3	0.0	22.8	12.4	20.8	20.9	5.0	33.7	33.7
Cycle Q Clear(g_c), s	8.2	14.1	8.5	16.3	0.0	22.8	12.4	20.8	20.9	5.0	33.7	33.7
Prop In Lane	1.00		1.00	1.00		0.34	1.00		0.27	1.00		0.30
Lane Grp Cap(c), veh/h	273	286	229	357	0	347	199	1457	753	90	1249	642
V/C Ratio(X)	0.45	0.74	0.47	0.68	0.00	0.90	0.87	0.51	0.51	0.78	0.79	0.79
Avail Cap(c_a), veh/h	411	432	345	411	0	399	233	1457	753	233	1249	642
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.1	52.6	50.2	48.1	0.0	50.6	56.8	27.2	27.2	61.0	36.7	36.7
Incr Delay (d2), s/veh	1.2	3.8	1.5	3.7	0.0	20.4	25.4	1.3	2.5	13.4	5.2	9.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	7.0	3.3	7.6	0.0	11.8	6.9	8.4	9.0	2.6	14.3	15.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.2	56.4	51.7	51.7	0.0	71.1	82.2	28.5	29.7	74.4	41.9	46.4
LnGrp LOS	D	E	D	D	A	E	F	C	C	E	D	D
Approach Vol, veh/h		443			553			1304			1567	
Approach Delay, s/veh		53.8			62.6			36.0			44.8	
Approach LOS		D			E			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.4	61.5		25.0	20.3	53.5		31.2				
Change Period (Y+Rc), s	5.8	5.8		5.1	5.8	5.8		5.1				
Max Green Setting (Gmax), s	17.0	31.2		30.0	17.0	31.2		30.0				
Max Q Clear Time (g_c+I1), s	7.0	22.9		16.1	14.4	35.7		24.8				
Green Ext Time (p_c), s	0.1	4.2		1.7	0.1	0.0		1.3				

Intersection Summary												
HCM 6th Ctrl Delay			45.4									
HCM 6th LOS			D									



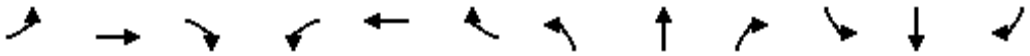
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	1	42	8	1	0	83	1038	8	6	786	15
Future Volume (veh/h)	9	1	42	8	1	0	83	1038	8	6	786	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.95	0.98		1.00	1.00		0.95	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	1	47	18	2	0	88	1104	9	7	873	17
Peak Hour Factor	0.89	0.89	0.89	0.45	0.45	0.45	0.94	0.94	0.94	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	238	21	195	222	21	206	750	1165	9	671	991	19
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.00	0.42	0.32	0.32	0.38	0.28	0.28
Sat Flow, veh/h	1300	159	1504	1181	163	1585	1781	3611	29	1781	3561	69
Grp Volume(v), veh/h	11	0	47	20	0	0	88	543	570	7	436	454
Grp Sat Flow(s),veh/h/ln	1459	0	1504	1344	0	1585	1781	1777	1863	1781	1777	1854
Q Serve(g_s), s	0.0	0.0	2.8	1.0	0.0	0.0	3.0	29.8	29.8	0.2	23.4	23.4
Cycle Q Clear(g_c), s	0.5	0.0	2.8	1.5	0.0	0.0	3.0	29.8	29.8	0.2	23.4	23.4
Prop In Lane	0.91		1.00	0.90		1.00	1.00		0.02	1.00		0.04
Lane Grp Cap(c), veh/h	258	0	195	243	0	206	750	573	601	671	495	516
V/C Ratio(X)	0.04	0.00	0.24	0.08	0.00	0.00	0.12	0.95	0.95	0.01	0.88	0.88
Avail Cap(c_a), veh/h	627	0	587	599	0	618	750	573	601	671	515	538
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.81	0.81	0.81	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.1	0.0	39.1	38.6	0.0	0.0	17.6	33.1	33.1	19.5	34.5	34.5
Incr Delay (d2), s/veh	0.1	0.0	0.6	0.1	0.0	0.0	0.1	22.4	21.7	0.0	17.0	16.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	1.1	0.4	0.0	0.0	1.2	15.5	16.1	0.1	11.8	12.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.2	0.0	39.7	38.7	0.0	0.0	17.7	55.4	54.7	19.5	51.5	50.9
LnGrp LOS	D	A	D	D	A	A	B	E	D	B	D	D
Approach Vol, veh/h		58			20			1201			897	
Approach Delay, s/veh		39.4			38.7			52.3			51.0	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	43.1	39.3		17.7	47.5	34.8		17.7				
Change Period (Y+Rc), s	5.4	7.0		* 4.7	5.4	7.0		* 4.7				
Max Green Setting (Gmax), s	14.9	29.0		* 39	14.9	29.0		* 39				
Max Q Clear Time (g_c+I1), s	2.2	31.8		4.8	5.0	25.4		3.5				
Green Ext Time (p_c), s	0.0	0.0		0.2	0.1	2.4		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		51.3	
HCM 6th LOS		D	

Notes

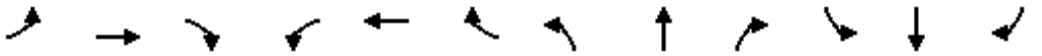
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	1002	1	57	657	77	9	0	8	37	0	29
Future Volume (veh/h)	54	1002	1	57	657	77	9	0	8	37	0	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.98		0.95	0.98		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	62	1152	1	63	722	85	15	0	13	54	0	43
Peak Hour Factor	0.87	0.87	0.87	0.91	0.91	0.91	0.61	0.61	0.61	0.68	0.68	0.68
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	83	2207	2	84	1933	227	170	19	104	170	19	94
Arrive On Green	0.05	0.61	0.61	0.05	0.61	0.61	0.14	0.00	0.14	0.14	0.00	0.14
Sat Flow, veh/h	1781	3643	3	1781	3189	375	699	134	722	688	128	650
Grp Volume(v), veh/h	62	562	591	63	402	405	28	0	0	97	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1870	1781	1777	1787	1555	0	0	1467	0	0
Q Serve(g_s), s	2.8	14.6	14.6	2.8	9.2	9.2	0.0	0.0	0.0	3.1	0.0	0.0
Cycle Q Clear(g_c), s	2.8	14.6	14.6	2.8	9.2	9.2	1.2	0.0	0.0	4.7	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.21	0.54		0.46	0.56		0.44
Lane Grp Cap(c), veh/h	83	1076	1133	84	1077	1083	294	0	0	282	0	0
V/C Ratio(X)	0.74	0.52	0.52	0.75	0.37	0.37	0.10	0.00	0.00	0.34	0.00	0.00
Avail Cap(c_a), veh/h	114	1076	1133	114	1077	1083	604	0	0	596	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.64	0.64	0.64	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	37.7	9.1	9.1	37.7	8.0	8.0	29.8	0.0	0.0	31.2	0.0	0.0
Incr Delay (d2), s/veh	9.6	1.8	1.7	7.1	0.6	0.6	0.1	0.0	0.0	0.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	4.6	4.8	1.3	2.8	2.8	0.5	0.0	0.0	1.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.2	10.9	10.8	44.7	8.7	8.7	29.9	0.0	0.0	31.9	0.0	0.0
LnGrp LOS	D	B	B	D	A	A	C	A	A	C	A	A
Approach Vol, veh/h		1215			870			28			97	
Approach Delay, s/veh		12.7			11.3			29.9			31.9	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.2	54.7		16.2	9.1	54.7		16.2				
Change Period (Y+Rc), s	5.4	6.2		4.6	5.4	6.2		4.6				
Max Green Setting (Gmax), s	5.1	29.6		29.1	5.1	29.6		29.1				
Max Q Clear Time (g_c+I1), s	4.8	16.6		6.7	4.8	11.2		3.2				
Green Ext Time (p_c), s	0.0	7.2		0.5	0.0	6.0		0.1				

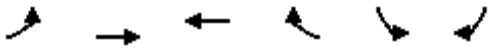
Intersection Summary												
HCM 6th Ctrl Delay			13.2									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	297	947	502	81	517	129	286	439	89	276	681	245
Future Volume (veh/h)	297	947	502	81	517	129	286	439	89	276	681	245
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	309	986	523	89	568	142	308	472	96	300	740	266
Peak Hour Factor	0.96	0.96	0.96	0.91	0.91	0.91	0.93	0.93	0.93	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	575	1188	516	436	824	205	365	834	560	361	1193	358
Arrive On Green	0.17	0.33	0.33	0.13	0.29	0.29	0.11	0.23	0.23	0.10	0.23	0.23
Sat Flow, veh/h	3456	3554	1542	3456	2800	697	3456	3554	1532	3456	5106	1531
Grp Volume(v), veh/h	309	986	523	89	360	350	308	472	96	300	740	266
Grp Sat Flow(s),veh/h/ln	1728	1777	1542	1728	1777	1720	1728	1777	1532	1728	1702	1531
Q Serve(g_s), s	10.2	31.9	41.8	2.9	22.4	22.6	10.9	14.7	5.3	10.6	16.2	20.1
Cycle Q Clear(g_c), s	10.2	31.9	41.8	2.9	22.4	22.6	10.9	14.7	5.3	10.6	16.2	20.1
Prop In Lane	1.00		1.00	1.00		0.41	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	575	1188	516	436	523	506	365	834	560	361	1193	358
V/C Ratio(X)	0.54	0.83	1.01	0.20	0.69	0.69	0.84	0.57	0.17	0.83	0.62	0.74
Avail Cap(c_a), veh/h	575	1188	516	436	523	506	431	890	584	478	1348	404
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	0.84	1.00	1.00	1.00	1.00	1.00	1.00	0.44	0.44	0.44
Uniform Delay (d), s/veh	47.7	38.3	41.6	49.0	39.0	39.1	54.9	42.2	27.2	54.9	42.9	44.4
Incr Delay (d2), s/veh	0.8	4.8	40.0	0.2	4.9	5.1	12.4	1.0	0.2	4.2	0.4	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	14.0	20.7	1.2	10.1	9.8	5.3	6.4	1.9	4.7	6.7	7.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.6	43.1	81.6	49.2	43.9	44.2	67.3	43.2	27.4	59.1	43.3	47.7
LnGrp LOS	D	D	F	D	D	D	E	D	C	E	D	D
Approach Vol, veh/h		1818			799			876			1306	
Approach Delay, s/veh		55.1			44.6			49.9			47.9	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.5	36.3	21.2	49.0	18.6	36.2	26.2	44.0
Change Period (Y+Rc), s	5.4	7.0	5.4	7.2	5.4	7.0	5.4	7.2
Max Green Setting (Gmax), s	17.3	31.3	9.6	41.8	15.6	33.0	16.4	35.0
Max Q Clear Time (g_c+I1), s	12.6	16.7	4.9	43.8	12.9	22.1	12.2	24.6
Green Ext Time (p_c), s	0.4	3.8	0.1	0.0	0.3	5.4	0.4	4.8

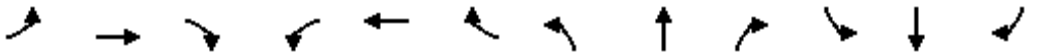
Intersection Summary	
HCM 6th Ctrl Delay	50.4
HCM 6th LOS	D



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	205	1134	662	74	24	119
Future Volume (veh/h)	205	1134	662	74	24	119
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.96	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	225	1246	727	81	38	186
Peak Hour Factor	0.91	0.91	0.91	0.91	0.64	0.64
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	258	1947	1129	126	631	561
Arrive On Green	0.15	0.55	0.35	0.35	0.35	0.35
Sat Flow, veh/h	1781	3647	3300	357	1781	1585
Grp Volume(v), veh/h	225	1246	403	405	38	186
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1787	1781	1585
Q Serve(g_s), s	12.4	24.4	19.0	19.0	1.4	8.6
Cycle Q Clear(g_c), s	12.4	24.4	19.0	19.0	1.4	8.6
Prop In Lane	1.00			0.20	1.00	1.00
Lane Grp Cap(c), veh/h	258	1947	625	629	631	561
V/C Ratio(X)	0.87	0.64	0.64	0.64	0.06	0.33
Avail Cap(c_a), veh/h	326	1947	625	629	631	561
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.83	0.83	1.00	1.00
Uniform Delay (d), s/veh	41.8	15.7	27.1	27.2	21.3	23.6
Incr Delay (d2), s/veh	17.4	1.6	4.2	4.2	0.2	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	9.3	8.4	8.4	0.6	8.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	59.2	17.4	31.4	31.4	21.5	25.2
LnGrp LOS	E	B	C	C	C	C
Approach Vol, veh/h		1471	808		224	
Approach Delay, s/veh		23.8	31.4		24.6	
Approach LOS		C	C		C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		60.6		39.4	19.6	41.0
Change Period (Y+Rc), s		5.8		4.0	5.1	5.8
Max Green Setting (Gmax), s		54.8		35.4	18.3	31.4
Max Q Clear Time (g_c+I1), s		26.4		10.6	14.4	21.0
Green Ext Time (p_c), s		17.6		0.1	0.2	5.6

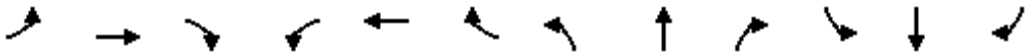
Intersection Summary	
HCM 6th Ctrl Delay	26.3
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	219	645	129	181	431	155	188	522	133	195	406	139
Future Volume (veh/h)	219	645	129	181	431	155	188	522	133	195	406	139
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.94	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	231	679	136	208	495	178	200	555	141	229	478	164
Peak Hour Factor	0.95	0.95	0.95	0.87	0.87	0.87	0.94	0.94	0.94	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	266	902	598	242	855	603	234	1051	655	264	1111	702
Arrive On Green	0.15	0.25	0.25	0.14	0.24	0.24	0.13	0.30	0.30	0.15	0.31	0.31
Sat Flow, veh/h	1781	3554	1534	1781	3554	1532	1781	3554	1486	1781	3554	1490
Grp Volume(v), veh/h	231	679	136	208	495	178	200	555	141	229	478	164
Grp Sat Flow(s),veh/h/ln	1781	1777	1534	1781	1777	1532	1781	1777	1486	1781	1777	1490
Q Serve(g_s), s	14.1	19.6	6.7	12.7	13.7	8.9	12.2	14.5	6.6	14.0	11.9	7.4
Cycle Q Clear(g_c), s	14.1	19.6	6.7	12.7	13.7	8.9	12.2	14.5	6.6	14.0	11.9	7.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	266	902	598	242	855	603	234	1051	655	264	1111	702
V/C Ratio(X)	0.87	0.75	0.23	0.86	0.58	0.30	0.85	0.53	0.22	0.87	0.43	0.23
Avail Cap(c_a), veh/h	465	1230	739	433	1167	738	434	1183	710	465	1243	758
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.2	38.3	23.1	47.0	37.3	23.5	47.2	32.7	19.8	46.3	30.4	18.1
Incr Delay (d2), s/veh	8.5	1.8	0.2	8.6	0.6	0.3	8.6	0.4	0.2	8.5	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	8.5	2.4	6.1	5.9	3.2	5.9	6.2	2.2	6.7	5.0	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.7	40.1	23.3	55.6	37.9	23.8	55.9	33.1	20.0	54.8	30.6	18.3
LnGrp LOS	D	D	C	E	D	C	E	C	B	D	C	B
Approach Vol, veh/h		1046			881			896			871	
Approach Delay, s/veh		41.1			39.2			36.1			34.6	
Approach LOS		D			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.6	39.9	20.6	32.1	20.5	38.0	19.1	33.6
Change Period (Y+Rc), s	4.0	5.1	4.0	5.4	4.0	5.1	4.0	5.4
Max Green Setting (Gmax), s	27.1	38.9	29.0	36.5	29.0	37.0	27.0	38.5
Max Q Clear Time (g_c+I1), s	14.2	13.9	16.1	15.7	16.0	16.5	14.7	21.6
Green Ext Time (p_c), s	0.4	3.8	0.5	3.6	0.5	4.1	0.4	4.5

Intersection Summary			
HCM 6th Ctrl Delay		37.9	
HCM 6th LOS		D	



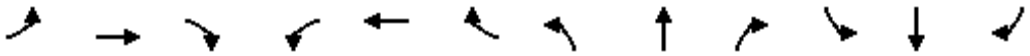
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	133	191	78	107	114	63	56	1485	209	80	887	79
Future Volume (veh/h)	133	191	78	107	114	63	56	1485	209	80	887	79
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.94	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	153	220	90	113	120	66	58	1531	215	87	964	86
Peak Hour Factor	0.87	0.87	0.87	0.95	0.95	0.95	0.97	0.97	0.97	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	277	291	233	232	144	79	75	2183	306	110	2399	213
Arrive On Green	0.16	0.16	0.16	0.13	0.13	0.13	0.04	0.49	0.49	0.06	0.50	0.50
Sat Flow, veh/h	1781	1870	1499	1781	1106	608	1781	4501	631	1781	4756	423
Grp Volume(v), veh/h	153	220	90	113	0	186	58	1157	589	87	689	361
Grp Sat Flow(s),veh/h/ln	1781	1870	1499	1781	0	1714	1781	1702	1728	1781	1702	1775
Q Serve(g_s), s	10.3	14.6	7.0	7.7	0.0	13.8	4.2	34.5	34.6	6.3	16.4	16.4
Cycle Q Clear(g_c), s	10.3	14.6	7.0	7.7	0.0	13.8	4.2	34.5	34.6	6.3	16.4	16.4
Prop In Lane	1.00		1.00	1.00		0.35	1.00		0.37	1.00		0.24
Lane Grp Cap(c), veh/h	277	291	233	232	0	223	75	1651	838	110	1717	895
V/C Ratio(X)	0.55	0.76	0.39	0.49	0.00	0.83	0.77	0.70	0.70	0.79	0.40	0.40
Avail Cap(c_a), veh/h	411	432	346	411	0	395	233	1651	838	233	1717	895
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.7	52.6	49.3	52.5	0.0	55.1	61.6	26.1	26.2	60.2	20.0	20.0
Incr Delay (d2), s/veh	1.7	4.3	1.0	1.6	0.0	7.8	15.2	2.5	4.9	12.0	0.7	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	7.2	2.7	3.5	0.0	6.4	2.2	13.8	14.6	3.1	6.4	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.5	56.9	50.4	54.1	0.0	63.0	76.9	28.6	31.1	72.2	20.7	21.4
LnGrp LOS	D	E	D	D	A	E	E	C	C	E	C	C
Approach Vol, veh/h		463			299			1804			1137	
Approach Delay, s/veh		54.1			59.6			31.0			24.9	
Approach LOS		D			E			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.8	68.9		25.3	11.3	71.4		22.0				
Change Period (Y+Rc), s	5.8	5.8		5.1	5.8	5.8		5.1				
Max Green Setting (Gmax), s	17.0	31.2		30.0	17.0	31.2		30.0				
Max Q Clear Time (g_c+I1), s	8.3	36.6		16.6	6.2	18.4		15.8				
Green Ext Time (p_c), s	0.1	0.0		1.7	0.1	5.2		1.2				

Intersection Summary			
HCM 6th Ctrl Delay		34.3	
HCM 6th LOS		C	

APPENDIX I

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – NEAR-TERM + PROJECT



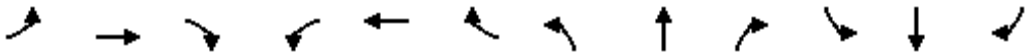
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	0	66	13	1	3	38	516	1	4	836	14
Future Volume (veh/h)	8	0	66	13	1	3	38	516	1	4	836	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	0.99		0.97	1.00		0.95	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	12	0	99	19	1	4	40	549	1	5	961	16
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.94	0.94	0.94	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	124	0	347	119	5	347	560	1167	2	502	1029	17
Arrive On Green	0.23	0.00	0.23	0.23	0.23	0.23	0.31	0.32	0.32	0.28	0.29	0.29
Sat Flow, veh/h	228	0	1530	216	20	1530	1781	3639	7	1781	3573	59
Grp Volume(v), veh/h	12	0	99	20	0	4	40	268	282	5	478	499
Grp Sat Flow(s),veh/h/ln	228	0	1530	236	0	1530	1781	1777	1869	1781	1777	1856
Q Serve(g_s), s	0.8	0.0	5.3	1.3	0.0	0.2	1.6	12.1	12.1	0.2	26.2	26.2
Cycle Q Clear(g_c), s	19.8	0.0	5.3	20.1	0.0	0.2	1.6	12.1	12.1	0.2	26.2	26.2
Prop In Lane	1.00		1.00	0.95		1.00	1.00		0.00	1.00		0.03
Lane Grp Cap(c), veh/h	124	0	347	124	0	347	560	570	599	502	512	535
V/C Ratio(X)	0.10	0.00	0.29	0.16	0.00	0.01	0.07	0.47	0.47	0.01	0.93	0.93
Avail Cap(c_a), veh/h	352	0	597	337	0	597	560	570	599	502	515	538
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.60	0.60	0.60	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.8	0.0	32.0	44.9	0.0	30.0	24.1	27.2	27.2	25.9	34.7	34.7
Incr Delay (d2), s/veh	0.3	0.0	0.4	0.6	0.0	0.0	0.0	0.8	0.7	0.0	24.9	24.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	2.0	0.5	0.0	0.1	0.6	5.0	5.2	0.1	14.1	14.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.1	0.0	32.4	45.5	0.0	30.0	24.1	28.0	27.9	25.9	59.5	58.8
LnGrp LOS	D	A	C	D	A	C	C	C	C	C	E	E
Approach Vol, veh/h		111			24			590			982	
Approach Delay, s/veh		34.0			42.9			27.7			59.0	
Approach LOS		C			D			C			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	33.0	39.1		28.0	36.2	35.8		28.0				
Change Period (Y+Rc), s	5.4	7.0		* 4.7	5.4	7.0		* 4.7				
Max Green Setting (Gmax), s	14.9	29.0		* 39	14.9	29.0		* 39				
Max Q Clear Time (g_c+I1), s	2.2	14.1		21.8	3.6	28.2		22.1				
Green Ext Time (p_c), s	0.0	4.7		0.3	0.0	0.6		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		46.3	
HCM 6th LOS		D	

Notes

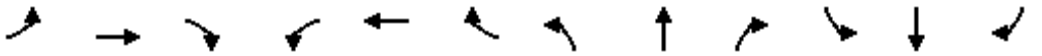
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	417	2	79	782	25	20	0	9	66	0	51
Future Volume (veh/h)	9	417	2	79	782	25	20	0	9	66	0	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	0.99		0.96	0.98		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	479	2	111	1101	35	21	0	9	81	0	63
Peak Hour Factor	0.87	0.87	0.87	0.71	0.71	0.71	0.96	0.96	0.96	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	22	2041	9	114	2155	68	237	13	74	193	19	110
Arrive On Green	0.01	0.56	0.56	0.06	0.61	0.61	0.17	0.00	0.17	0.17	0.00	0.17
Sat Flow, veh/h	1781	3629	15	1781	3511	112	939	77	435	718	108	642
Grp Volume(v), veh/h	10	234	247	111	557	579	30	0	0	144	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1867	1781	1777	1846	1450	0	0	1469	0	0
Q Serve(g_s), s	0.4	5.3	5.3	5.0	14.1	14.1	0.0	0.0	0.0	5.5	0.0	0.0
Cycle Q Clear(g_c), s	0.4	5.3	5.3	5.0	14.1	14.1	1.2	0.0	0.0	7.1	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.06	0.70		0.30	0.56		0.44
Lane Grp Cap(c), veh/h	22	1000	1050	114	1091	1133	325	0	0	322	0	0
V/C Ratio(X)	0.45	0.23	0.23	0.98	0.51	0.51	0.09	0.00	0.00	0.45	0.00	0.00
Avail Cap(c_a), veh/h	114	1000	1050	114	1091	1133	590	0	0	599	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.18	0.18	0.18	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	39.2	8.8	8.8	37.4	8.7	8.7	28.0	0.0	0.0	30.3	0.0	0.0
Incr Delay (d2), s/veh	5.2	0.6	0.5	30.0	0.3	0.3	0.1	0.0	0.0	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.7	1.8	3.0	4.0	4.1	0.5	0.0	0.0	2.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.5	9.4	9.3	67.4	9.0	9.0	28.1	0.0	0.0	31.3	0.0	0.0
LnGrp LOS	D	A	A	E	A	A	C	A	A	C	A	A
Approach Vol, veh/h		491			1247			30			144	
Approach Delay, s/veh		10.1			14.2			28.1			31.3	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.5	51.2		18.3	6.4	55.3		18.3				
Change Period (Y+Rc), s	5.4	6.2		4.6	5.4	6.2		4.6				
Max Green Setting (Gmax), s	5.1	29.6		29.1	5.1	29.6		29.1				
Max Q Clear Time (g_c+I1), s	7.0	7.3		9.1	2.4	16.1		3.2				
Green Ext Time (p_c), s	0.0	3.5		0.7	0.0	7.3		0.1				

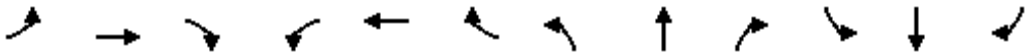
Intersection Summary			
HCM 6th Ctrl Delay		14.6	
HCM 6th LOS		B	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	285	558	253	117	766	160	500	726	161	138	346	271
Future Volume (veh/h)	285	558	253	117	766	160	500	726	161	138	346	271
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	328	641	291	123	806	168	568	825	183	166	417	327
Peak Hour Factor	0.87	0.87	0.87	0.95	0.95	0.95	0.88	0.88	0.88	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	408	1095	474	278	787	164	570	1235	664	221	1260	378
Arrive On Green	0.12	0.31	0.31	0.08	0.27	0.27	0.16	0.35	0.35	0.06	0.25	0.25
Sat Flow, veh/h	3456	3554	1540	3456	2909	606	3456	3554	1543	3456	5106	1533
Grp Volume(v), veh/h	328	641	291	123	492	482	568	825	183	166	417	327
Grp Sat Flow(s),veh/h/ln	1728	1777	1540	1728	1777	1738	1728	1777	1543	1728	1702	1533
Q Serve(g_s), s	11.6	19.0	20.2	4.2	33.8	33.8	20.5	24.7	9.6	5.9	8.4	25.5
Cycle Q Clear(g_c), s	11.6	19.0	20.2	4.2	33.8	33.8	20.5	24.7	9.6	5.9	8.4	25.5
Prop In Lane	1.00		1.00	1.00		0.35	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	408	1095	474	278	480	470	570	1235	664	221	1260	378
V/C Ratio(X)	0.80	0.59	0.61	0.44	1.02	1.02	1.00	0.67	0.28	0.75	0.33	0.86
Avail Cap(c_a), veh/h	408	1095	474	278	480	470	570	1235	664	282	1348	405
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00	0.32	0.32	0.32
Uniform Delay (d), s/veh	53.7	36.5	36.9	54.8	45.6	45.6	52.2	34.6	23.2	57.5	38.6	45.1
Incr Delay (d2), s/veh	10.9	1.3	3.4	1.1	47.5	47.9	37.0	1.6	0.3	2.7	0.1	6.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	8.1	7.7	1.8	20.5	20.1	11.6	10.5	3.4	2.6	3.4	10.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.6	37.8	40.3	55.9	93.1	93.5	89.2	36.2	23.5	60.3	38.7	51.5
LnGrp LOS	E	D	D	E	F	F	F	D	C	E	D	D
Approach Vol, veh/h		1260			1097			1576			910	
Approach Delay, s/veh		45.3			89.1			53.8			47.2	
Approach LOS		D			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.4	50.5	15.5	45.7	26.0	37.8	20.2	41.0
Change Period (Y+Rc), s	5.4	7.0	5.4	7.2	5.4	7.0	5.4	7.2
Max Green Setting (Gmax), s	10.2	43.4	10.0	36.4	20.6	33.0	12.6	33.8
Max Q Clear Time (g_c+I1), s	7.9	26.7	6.2	22.2	22.5	27.5	13.6	35.8
Green Ext Time (p_c), s	0.1	7.4	0.1	7.3	0.0	2.4	0.0	0.0

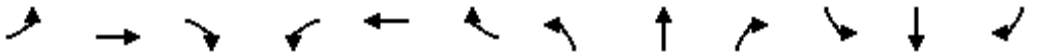
Intersection Summary	
HCM 6th Ctrl Delay	58.4
HCM 6th LOS	E



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	665	26	7	1284	11	98	3	25	24	1	142
Future Volume (veh/h)	49	665	26	7	1284	11	98	3	25	24	1	142
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.96	1.00		1.00	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	69	937	37	9	1566	13	108	3	27	28	1	163
Peak Hour Factor	0.71	0.71	0.71	0.82	0.82	0.82	0.91	0.91	0.91	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	89	1807	71	20	1712	14	136	11	97	383	2	305
Arrive On Green	0.05	0.52	0.52	0.01	0.47	0.47	0.08	0.07	0.07	0.22	0.20	0.20
Sat Flow, veh/h	1781	3483	138	1781	3610	30	1781	161	1449	1781	9	1518
Grp Volume(v), veh/h	69	478	496	9	770	809	108	0	30	28	0	164
Grp Sat Flow(s),veh/h/ln	1781	1777	1844	1781	1777	1864	1781	0	1610	1781	0	1527
Q Serve(g_s), s	3.8	17.7	17.7	0.5	40.2	40.3	6.0	0.0	1.8	1.3	0.0	9.6
Cycle Q Clear(g_c), s	3.8	17.7	17.7	0.5	40.2	40.3	6.0	0.0	1.8	1.3	0.0	9.6
Prop In Lane	1.00		0.07	1.00		0.02	1.00		0.90	1.00		0.99
Lane Grp Cap(c), veh/h	89	922	957	20	842	884	136	0	108	383	0	306
V/C Ratio(X)	0.78	0.52	0.52	0.46	0.91	0.92	0.79	0.00	0.28	0.07	0.00	0.54
Avail Cap(c_a), veh/h	89	922	957	89	842	884	226	0	290	383	0	402
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.50	0.50	0.50	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	47.0	15.8	15.8	49.1	24.4	24.4	45.4	0.0	44.3	31.3	0.0	35.8
Incr Delay (d2), s/veh	33.4	2.1	2.0	8.0	9.2	8.9	9.9	0.0	1.4	0.4	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	7.1	7.3	0.3	17.5	18.3	3.0	0.0	0.7	0.6	0.0	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.3	17.9	17.8	57.2	33.6	33.4	55.3	0.0	45.7	31.7	0.0	37.2
LnGrp LOS	F	B	B	E	C	C	E	A	D	C	A	D
Approach Vol, veh/h		1043			1588			138			192	
Approach Delay, s/veh		22.0			33.6			53.2			36.4	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.6	57.7	12.2	24.6	10.1	53.2	25.5	11.2
Change Period (Y+Rc), s	4.5	5.8	4.5	4.5	5.1	5.8	4.0	4.5
Max Green Setting (Gmax), s	5.0	36.7	12.7	26.3	5.0	36.1	21.5	18.0
Max Q Clear Time (g_c+I1), s	2.5	19.7	8.0	11.6	5.8	42.3	3.3	3.8
Green Ext Time (p_c), s	0.0	9.4	0.1	0.8	0.0	0.0	0.0	0.1

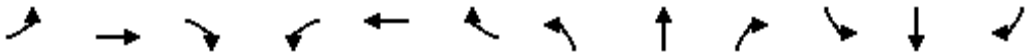
Intersection Summary	
HCM 6th Ctrl Delay	30.6
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	543	179	237	670	114	235	398	149	227	642	340
Future Volume (veh/h)	200	543	179	237	670	114	235	398	149	227	642	340
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.92	1.00		0.93	1.00		0.92	1.00		0.91
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	241	654	216	266	753	128	336	569	213	264	747	395
Peak Hour Factor	0.83	0.83	0.83	0.89	0.89	0.89	0.70	0.70	0.70	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	266	844	670	291	894	627	362	1082	701	289	937	615
Arrive On Green	0.15	0.24	0.24	0.16	0.25	0.25	0.20	0.30	0.30	0.16	0.26	0.26
Sat Flow, veh/h	1781	3554	1464	1781	3554	1470	1781	3554	1453	1781	3554	1436
Grp Volume(v), veh/h	241	654	216	266	753	128	336	569	213	264	747	395
Grp Sat Flow(s),veh/h/ln	1781	1777	1464	1781	1777	1470	1781	1777	1453	1781	1777	1436
Q Serve(g_s), s	18.6	24.0	13.5	20.5	28.1	7.8	25.9	18.5	12.8	20.4	27.4	31.1
Cycle Q Clear(g_c), s	18.6	24.0	13.5	20.5	28.1	7.8	25.9	18.5	12.8	20.4	27.4	31.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	266	844	670	291	894	627	362	1082	701	289	937	615
V/C Ratio(X)	0.91	0.78	0.32	0.91	0.84	0.20	0.93	0.53	0.30	0.91	0.80	0.64
Avail Cap(c_a), veh/h	313	877	683	344	938	645	420	1083	702	349	940	616
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.5	49.8	25.7	57.5	49.7	26.3	54.7	40.3	23.2	57.6	48.0	33.2
Incr Delay (d2), s/veh	26.0	4.2	0.3	25.5	6.8	0.2	25.0	0.5	0.2	24.6	4.8	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.2	11.0	4.7	11.2	13.1	2.7	14.0	8.2	4.4	11.1	12.7	11.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	84.5	54.1	25.9	83.0	56.4	26.4	79.7	40.8	23.4	82.2	52.8	35.5
LnGrp LOS	F	D	C	F	E	C	E	D	C	F	D	D
Approach Vol, veh/h		1111			1147			1118			1406	
Approach Delay, s/veh		55.2			59.3			49.2			53.5	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	32.4	42.0	24.9	40.6	26.7	47.7	26.8	38.6
Change Period (Y+Rc), s	4.0	5.1	4.0	5.4	4.0	5.1	4.0	5.4
Max Green Setting (Gmax), s	33.0	37.0	24.6	36.9	27.4	42.6	27.0	34.5
Max Q Clear Time (g_c+I1), s	27.9	33.1	20.6	30.1	22.4	20.5	22.5	26.0
Green Ext Time (p_c), s	0.5	2.3	0.2	2.9	0.3	4.6	0.3	3.2

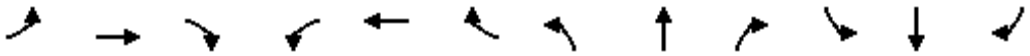
Intersection Summary	
HCM 6th Ctrl Delay	54.3
HCM 6th LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	103	177	89	215	182	96	154	920	94	71	1335	150
Future Volume (veh/h)	103	177	89	215	182	96	154	920	94	71	1335	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.95	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	124	213	107	242	204	108	173	1034	106	73	1376	155
Peak Hour Factor	0.83	0.83	0.83	0.89	0.89	0.89	0.89	0.89	0.89	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	273	286	229	358	227	120	199	1994	204	93	1697	191
Arrive On Green	0.15	0.15	0.15	0.20	0.20	0.20	0.11	0.43	0.43	0.05	0.37	0.37
Sat Flow, veh/h	1781	1870	1496	1781	1130	598	1781	4685	479	1781	4631	522
Grp Volume(v), veh/h	124	213	107	242	0	312	173	751	389	73	1011	520
Grp Sat Flow(s),veh/h/ln	1781	1870	1496	1781	0	1729	1781	1702	1760	1781	1702	1749
Q Serve(g_s), s	8.2	14.1	8.5	16.3	0.0	22.9	12.4	21.1	21.2	5.3	34.8	34.8
Cycle Q Clear(g_c), s	8.2	14.1	8.5	16.3	0.0	22.9	12.4	21.1	21.2	5.3	34.8	34.8
Prop In Lane	1.00		1.00	1.00		0.35	1.00		0.27	1.00		0.30
Lane Grp Cap(c), veh/h	273	286	229	358	0	348	199	1448	749	93	1247	641
V/C Ratio(X)	0.45	0.74	0.47	0.68	0.00	0.90	0.87	0.52	0.52	0.78	0.81	0.81
Avail Cap(c_a), veh/h	411	432	345	411	0	399	233	1448	749	233	1247	641
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.1	52.6	50.2	48.0	0.0	50.6	56.8	27.5	27.5	60.9	37.1	37.1
Incr Delay (d2), s/veh	1.2	3.8	1.5	3.6	0.0	20.6	25.4	1.3	2.6	13.1	5.8	10.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	7.0	3.3	7.6	0.0	11.9	6.9	8.5	9.1	2.7	14.9	16.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.3	56.4	51.7	51.6	0.0	71.2	82.2	28.8	30.1	73.9	42.9	47.8
LnGrp LOS	D	E	D	D	A	E	F	C	C	E	D	D
Approach Vol, veh/h		444			554			1313			1604	
Approach Delay, s/veh		53.8			62.6			36.3			45.9	
Approach LOS		D			E			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.6	61.1		25.0	20.3	53.4		31.3				
Change Period (Y+Rc), s	5.8	5.8		5.1	5.8	5.8		5.1				
Max Green Setting (Gmax), s	17.0	31.2		30.0	17.0	31.2		30.0				
Max Q Clear Time (g_c+I1), s	7.3	23.2		16.1	14.4	36.8		24.9				
Green Ext Time (p_c), s	0.1	4.1		1.7	0.1	0.0		1.3				

Intersection Summary												
HCM 6th Ctrl Delay			45.9									
HCM 6th LOS			D									



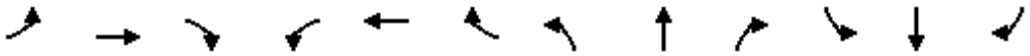
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	1	45	8	1	0	84	1051	8	6	816	15
Future Volume (veh/h)	9	1	45	8	1	0	84	1051	8	6	816	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.95	0.98		1.00	1.00		0.95	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	1	51	18	2	0	89	1118	9	7	907	17
Peak Hour Factor	0.89	0.89	0.89	0.45	0.45	0.45	0.94	0.94	0.94	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	239	21	196	222	21	207	741	1181	10	662	1008	19
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.00	0.42	0.33	0.33	0.37	0.28	0.28
Sat Flow, veh/h	1300	159	1504	1177	163	1585	1781	3611	29	1781	3564	67
Grp Volume(v), veh/h	11	0	51	20	0	0	89	550	577	7	452	472
Grp Sat Flow(s),veh/h/ln	1459	0	1504	1340	0	1585	1781	1777	1863	1781	1777	1854
Q Serve(g_s), s	0.0	0.0	3.1	1.0	0.0	0.0	3.1	30.2	30.2	0.2	24.5	24.5
Cycle Q Clear(g_c), s	0.5	0.0	3.1	1.5	0.0	0.0	3.1	30.2	30.2	0.2	24.5	24.5
Prop In Lane	0.91		1.00	0.90		1.00	1.00		0.02	1.00		0.04
Lane Grp Cap(c), veh/h	259	0	196	243	0	207	741	581	609	662	502	524
V/C Ratio(X)	0.04	0.00	0.26	0.08	0.00	0.00	0.12	0.95	0.95	0.01	0.90	0.90
Avail Cap(c_a), veh/h	627	0	587	597	0	618	741	581	609	662	515	538
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.79	0.79	0.79	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.0	0.0	39.1	38.5	0.0	0.0	18.0	32.8	32.8	19.8	34.5	34.5
Incr Delay (d2), s/veh	0.1	0.0	0.7	0.1	0.0	0.0	0.1	21.6	20.9	0.0	19.6	18.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	1.2	0.4	0.0	0.0	1.2	15.5	16.2	0.1	12.7	13.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.1	0.0	39.8	38.6	0.0	0.0	18.0	54.4	53.7	19.8	54.1	53.4
LnGrp LOS	D	A	D	D	A	A	B	D	D	B	D	D
Approach Vol, veh/h		62			20			1216			931	
Approach Delay, s/veh		39.5			38.6			51.4			53.5	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	42.5	39.7		17.8	47.0	35.3		17.8				
Change Period (Y+Rc), s	5.4	7.0		* 4.7	5.4	7.0		* 4.7				
Max Green Setting (Gmax), s	14.9	29.0		* 39	14.9	29.0		* 39				
Max Q Clear Time (g_c+I1), s	2.2	32.2		5.1	5.1	26.5		3.5				
Green Ext Time (p_c), s	0.0	0.0		0.2	0.1	1.8		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		51.8	
HCM 6th LOS		D	

Notes

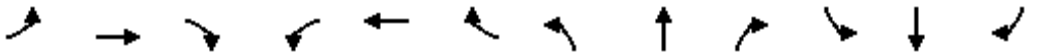
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	1025	1	59	667	78	9	0	13	40	0	29
Future Volume (veh/h)	54	1025	1	59	667	78	9	0	13	40	0	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.98		0.95	0.98		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	62	1178	1	65	733	86	15	0	21	59	0	43
Peak Hour Factor	0.87	0.87	0.87	0.91	0.91	0.91	0.61	0.61	0.61	0.68	0.68	0.68
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	83	2194	2	85	1924	226	137	23	134	178	18	91
Arrive On Green	0.05	0.60	0.60	0.05	0.60	0.60	0.15	0.00	0.15	0.15	0.00	0.15
Sat Flow, veh/h	1781	3643	3	1781	3190	374	493	156	908	724	121	615
Grp Volume(v), veh/h	62	574	605	65	408	411	36	0	0	102	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1870	1781	1777	1787	1556	0	0	1460	0	0
Q Serve(g_s), s	2.8	15.2	15.2	2.9	9.5	9.5	0.0	0.0	0.0	3.4	0.0	0.0
Cycle Q Clear(g_c), s	2.8	15.2	15.2	2.9	9.5	9.5	1.5	0.0	0.0	4.9	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.21	0.42		0.58	0.58		0.42
Lane Grp Cap(c), veh/h	83	1070	1126	85	1072	1078	294	0	0	287	0	0
V/C Ratio(X)	0.74	0.54	0.54	0.76	0.38	0.38	0.12	0.00	0.00	0.36	0.00	0.00
Avail Cap(c_a), veh/h	114	1070	1126	114	1072	1078	604	0	0	594	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.60	0.60	0.60	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	37.7	9.4	9.4	37.6	8.2	8.2	29.7	0.0	0.0	31.1	0.0	0.0
Incr Delay (d2), s/veh	9.6	1.9	1.8	8.1	0.6	0.6	0.2	0.0	0.0	0.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	4.9	5.1	1.4	2.9	2.9	0.6	0.0	0.0	1.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.2	11.3	11.2	45.8	8.8	8.8	29.9	0.0	0.0	31.8	0.0	0.0
LnGrp LOS	D	B	B	D	A	A	C	A	A	C	A	A
Approach Vol, veh/h		1241			884			36			102	
Approach Delay, s/veh		13.0			11.5			29.9			31.8	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.2	54.4		16.4	9.1	54.4		16.4				
Change Period (Y+Rc), s	5.4	6.2		4.6	5.4	6.2		4.6				
Max Green Setting (Gmax), s	5.1	29.6		29.1	5.1	29.6		29.1				
Max Q Clear Time (g_c+I1), s	4.9	17.2		6.9	4.8	11.5		3.5				
Green Ext Time (p_c), s	0.0	7.2		0.5	0.0	6.1		0.1				

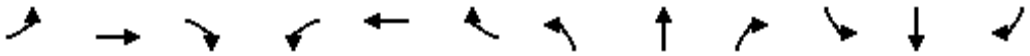
Intersection Summary												
HCM 6th Ctrl Delay			13.6									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	297	977	502	97	530	144	286	439	125	309	681	245
Future Volume (veh/h)	297	977	502	97	530	144	286	439	125	309	681	245
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.96	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	309	1018	523	107	582	158	308	472	134	336	740	266
Peak Hour Factor	0.96	0.96	0.96	0.91	0.91	0.91	0.93	0.93	0.93	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	563	1217	528	432	836	226	321	776	532	394	1224	367
Arrive On Green	0.16	0.34	0.34	0.13	0.30	0.30	0.09	0.22	0.22	0.11	0.24	0.24
Sat Flow, veh/h	3456	3554	1542	3456	2745	743	3456	3554	1529	3456	5106	1532
Grp Volume(v), veh/h	309	1018	523	107	376	364	308	472	134	336	740	266
Grp Sat Flow(s),veh/h/ln	1728	1777	1542	1728	1777	1711	1728	1777	1529	1728	1702	1532
Q Serve(g_s), s	10.3	33.0	42.2	3.5	23.3	23.5	11.1	15.0	7.9	11.9	16.1	20.0
Cycle Q Clear(g_c), s	10.3	33.0	42.2	3.5	23.3	23.5	11.1	15.0	7.9	11.9	16.1	20.0
Prop In Lane	1.00		1.00	1.00		0.43	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	563	1217	528	432	541	521	321	776	532	394	1224	367
V/C Ratio(X)	0.55	0.84	0.99	0.25	0.69	0.70	0.96	0.61	0.25	0.85	0.60	0.72
Avail Cap(c_a), veh/h	563	1217	528	432	541	521	321	910	590	459	1511	454
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.83	0.83	0.83	1.00	1.00	1.00	1.00	1.00	1.00	0.38	0.38	0.38
Uniform Delay (d), s/veh	48.1	37.9	40.9	49.4	38.3	38.4	56.5	44.0	29.5	54.3	42.3	43.7
Incr Delay (d2), s/veh	0.9	4.9	33.2	0.3	4.9	5.2	39.6	1.2	0.3	5.4	0.3	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	14.4	19.9	1.5	10.5	10.2	6.5	6.5	2.8	5.4	6.6	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.0	42.7	74.1	49.7	43.2	43.6	96.1	45.2	29.9	59.8	42.5	45.8
LnGrp LOS	D	D	E	D	D	D	F	D	C	E	D	D
Approach Vol, veh/h		1850			847			914			1342	
Approach Delay, s/veh		52.7			44.2			60.1			47.5	
Approach LOS		D			D			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.6	34.3	21.0	50.0	17.0	37.0	25.8	45.3
Change Period (Y+Rc), s	5.4	7.0	5.4	7.2	5.4	7.0	5.4	7.2
Max Green Setting (Gmax), s	16.6	32.0	8.6	42.8	11.6	37.0	14.6	36.8
Max Q Clear Time (g_c+I1), s	13.9	17.0	5.5	44.2	13.1	22.0	12.3	25.5
Green Ext Time (p_c), s	0.3	4.0	0.1	0.0	0.0	6.7	0.2	5.3

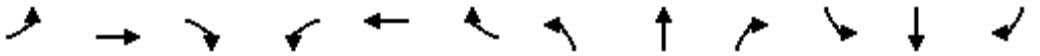
Intersection Summary	
HCM 6th Ctrl Delay	51.2
HCM 6th LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	1134	99	25	662	74	44	1	11	24	3	119
Future Volume (veh/h)	205	1134	99	25	662	74	44	1	11	24	3	119
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.96	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	225	1246	109	27	727	81	45	1	11	38	5	186
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.98	0.98	0.98	0.64	0.64	0.64
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	183	1663	145	47	1350	150	64	9	99	383	10	362
Arrive On Green	0.10	0.50	0.50	0.03	0.42	0.42	0.04	0.07	0.07	0.22	0.24	0.24
Sat Flow, veh/h	1781	3304	288	1781	3208	357	1781	134	1472	1781	40	1499
Grp Volume(v), veh/h	225	669	686	27	402	406	45	0	12	38	0	191
Grp Sat Flow(s),veh/h/ln	1781	1777	1815	1781	1777	1788	1781	0	1605	1781	0	1540
Q Serve(g_s), s	10.3	30.0	30.2	1.5	17.0	17.0	2.5	0.0	0.7	1.7	0.0	10.7
Cycle Q Clear(g_c), s	10.3	30.0	30.2	1.5	17.0	17.0	2.5	0.0	0.7	1.7	0.0	10.7
Prop In Lane	1.00		0.16	1.00		0.20	1.00		0.92	1.00		0.97
Lane Grp Cap(c), veh/h	183	895	914	47	748	753	64	0	108	383	0	372
V/C Ratio(X)	1.23	0.75	0.75	0.57	0.54	0.54	0.71	0.00	0.11	0.10	0.00	0.51
Avail Cap(c_a), veh/h	183	895	914	89	748	753	89	0	289	383	0	524
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.82	0.82	0.82	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	44.8	19.8	19.8	48.1	21.7	21.7	47.7	0.0	43.8	31.5	0.0	32.8
Incr Delay (d2), s/veh	140.4	5.7	5.7	8.8	2.3	2.3	13.9	0.0	0.5	0.5	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.6	12.6	13.0	0.8	7.1	7.2	1.3	0.0	0.3	0.8	0.0	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	185.3	25.4	25.5	56.9	24.0	24.0	61.6	0.0	44.3	32.0	0.0	33.9
LnGrp LOS	F	C	C	E	C	C	E	A	D	C	A	C
Approach Vol, veh/h		1580			835			57			229	
Approach Delay, s/veh		48.2			25.0			58.0			33.6	
Approach LOS		D			C			E			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.1	56.1	8.1	28.6	15.4	47.9	25.5	11.2
Change Period (Y+Rc), s	4.5	5.8	4.5	4.5	5.1	5.8	4.0	4.5
Max Green Setting (Gmax), s	5.0	36.7	5.0	34.0	10.3	30.8	21.5	18.0
Max Q Clear Time (g_c+I1), s	3.5	32.2	4.5	12.7	12.3	19.0	3.7	2.7
Green Ext Time (p_c), s	0.0	3.9	0.0	1.2	0.0	6.1	0.0	0.0

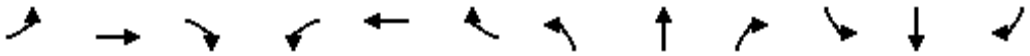
Intersection Summary	
HCM 6th Ctrl Delay	40.0
HCM 6th LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	222	651	132	181	444	155	194	522	133	195	406	145
Future Volume (veh/h)	222	651	132	181	444	155	194	522	133	195	406	145
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.94	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	234	685	139	208	510	178	206	555	141	229	478	171
Peak Hour Factor	0.95	0.95	0.95	0.87	0.87	0.87	0.94	0.94	0.94	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	269	906	605	242	852	602	240	1049	654	264	1097	699
Arrive On Green	0.15	0.25	0.25	0.14	0.24	0.24	0.13	0.30	0.30	0.15	0.31	0.31
Sat Flow, veh/h	1781	3554	1534	1781	3554	1532	1781	3554	1486	1781	3554	1489
Grp Volume(v), veh/h	234	685	139	208	510	178	206	555	141	229	478	171
Grp Sat Flow(s),veh/h/ln	1781	1777	1534	1781	1777	1532	1781	1777	1486	1781	1777	1489
Q Serve(g_s), s	14.3	19.8	6.8	12.7	14.2	9.0	12.6	14.5	6.7	14.0	12.0	7.8
Cycle Q Clear(g_c), s	14.3	19.8	6.8	12.7	14.2	9.0	12.6	14.5	6.7	14.0	12.0	7.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	269	906	605	242	852	602	240	1049	654	264	1097	699
V/C Ratio(X)	0.87	0.76	0.23	0.86	0.60	0.30	0.86	0.53	0.22	0.87	0.44	0.24
Avail Cap(c_a), veh/h	463	1227	743	431	1163	736	430	1179	708	463	1246	761
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.3	38.3	22.8	47.1	37.6	23.6	47.2	32.8	19.9	46.4	30.8	18.4
Incr Delay (d2), s/veh	8.8	1.9	0.2	8.7	0.7	0.3	8.6	0.4	0.2	8.5	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	8.6	2.4	6.1	6.1	3.2	6.1	6.2	2.3	6.7	5.1	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.1	40.2	23.0	55.8	38.3	23.9	55.8	33.2	20.1	54.9	31.1	18.6
LnGrp LOS	E	D	C	E	D	C	E	C	C	D	C	B
Approach Vol, veh/h		1058			896			902			878	
Approach Delay, s/veh		41.2			39.5			36.3			34.9	
Approach LOS		D			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.0	39.5	20.8	32.1	20.5	38.0	19.1	33.8
Change Period (Y+Rc), s	4.0	5.1	4.0	5.4	4.0	5.1	4.0	5.4
Max Green Setting (Gmax), s	26.9	39.1	29.0	36.5	29.0	37.0	27.0	38.5
Max Q Clear Time (g_c+I1), s	14.6	14.0	16.3	16.2	16.0	16.5	14.7	21.8
Green Ext Time (p_c), s	0.4	3.8	0.5	3.7	0.5	4.1	0.4	4.5

Intersection Summary	
HCM 6th Ctrl Delay	38.1
HCM 6th LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	136	191	78	107	114	66	56	1515	209	81	900	80
Future Volume (veh/h)	136	191	78	107	114	66	56	1515	209	81	900	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.94	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	156	220	90	113	120	69	58	1562	215	88	978	87
Peak Hour Factor	0.87	0.87	0.87	0.95	0.95	0.95	0.97	0.97	0.97	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	277	291	233	236	144	83	75	2178	299	111	2390	212
Arrive On Green	0.16	0.16	0.16	0.13	0.13	0.13	0.04	0.48	0.48	0.06	0.50	0.50
Sat Flow, veh/h	1781	1870	1499	1781	1086	624	1781	4514	620	1781	4757	422
Grp Volume(v), veh/h	156	220	90	113	0	189	58	1177	600	88	699	366
Grp Sat Flow(s),veh/h/ln	1781	1870	1499	1781	0	1710	1781	1702	1730	1781	1702	1775
Q Serve(g_s), s	10.5	14.6	7.0	7.6	0.0	14.0	4.2	35.6	35.7	6.3	16.7	16.8
Cycle Q Clear(g_c), s	10.5	14.6	7.0	7.6	0.0	14.0	4.2	35.6	35.7	6.3	16.7	16.8
Prop In Lane	1.00		1.00	1.00		0.37	1.00		0.36	1.00		0.24
Lane Grp Cap(c), veh/h	277	291	233	236	0	226	75	1642	835	111	1710	892
V/C Ratio(X)	0.56	0.76	0.39	0.48	0.00	0.84	0.77	0.72	0.72	0.79	0.41	0.41
Avail Cap(c_a), veh/h	411	432	346	411	0	395	233	1642	835	233	1710	892
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.8	52.5	49.3	52.2	0.0	55.0	61.6	26.6	26.7	60.1	20.3	20.3
Incr Delay (d2), s/veh	1.8	4.3	1.0	1.5	0.0	7.9	15.2	2.7	5.3	12.0	0.7	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	7.2	2.7	3.5	0.0	6.5	2.2	14.2	15.1	3.2	6.5	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.6	56.8	50.4	53.8	0.0	62.9	76.9	29.3	32.0	72.1	21.0	21.7
LnGrp LOS	D	E	D	D	A	E	E	C	C	E	C	C
Approach Vol, veh/h		466			302			1835			1153	
Approach Delay, s/veh		54.2			59.5			31.7			25.1	
Approach LOS		D			E			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.9	68.5		25.3	11.3	71.1		22.3				
Change Period (Y+Rc), s	5.8	5.8		5.1	5.8	5.8		5.1				
Max Green Setting (Gmax), s	17.0	31.2		30.0	17.0	31.2		30.0				
Max Q Clear Time (g_c+I1), s	8.3	37.7		16.6	6.2	18.8		16.0				
Green Ext Time (p_c), s	0.1	0.0		1.7	0.1	5.2		1.2				

Intersection Summary												
HCM 6th Ctrl Delay			34.7									
HCM 6th LOS			C									

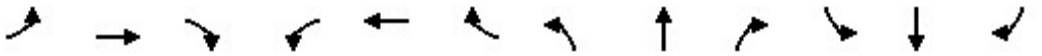
APPENDIX J

FORECAST PEAK HOUR VOLUMES CALCULATION TEMPLATE AND PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – BUILDOUT

INTERSECTION	DIRECTION	LEG	EXISTING TRAFFIC VOLUMES						CALCULATED			EXISTING ADT		APPROACH %ADT					
									AM	PM	AVERAGE								
			Ram	Rpm	Tam	Tpm	Lam	Lpm	8%	8%		COUNTED	SELECTED	Ram	Rpm	Tam	Tpm	Lam	Lpm
1. N. Melrose Dr / Meadowbrook Dr	Sb	North	14	15	782	711	4	6	15325	21662.5	18493.75	19470	19470	0.07%	0.08%	4.02%	3.65%	0.02%	0.03%
	Wb	East	3	0	1	1	13	8	275	300	287.5	290	290	1.03%	0.00%	0.34%	0.34%	4.48%	2.76%
	Nb	South	1	8	415	992	21	76	16212.5	22962.5	19587.5	20150	20150	0.00%	0.04%	2.06%	4.92%	0.10%	0.38%
	Eb	West	65	42	0	1	8	9	1362.5	1800	1581.25	1580	1580	4.11%	2.66%	0.00%	0.06%	0.51%	0.57%
2. Catalina Circle / Oceanside Blvd	Sb	North	51	29	0	0	65	37	1837.5	2462.5	2150	2150	2150	2.37%	1.35%	0.00%	0.00%	3.02%	1.72%
	Wb	East	22	77	698	621	3	3	14637.5	21050	17843.75	19370	19370	0.11%	0.40%	3.60%	3.21%	0.02%	0.02%
	Nb	South	8	8	0	0	20	9	412.5	262.5	337.5	340	340	2.35%	2.35%	0.00%	0.00%	5.88%	2.65%
	Eb	West	2	1	375	938	9	54	14437.5	20650	17543.75	19130	19130	0.01%	0.01%	1.96%	4.90%	0.05%	0.28%
3. N. Melrose Dr / Oceanside Blvd (W. Bobier Dr)	Sb	North	237	212	333	672	116	238	21600	23725	22662.5	22660	22660	1.05%	0.94%	1.47%	2.97%	0.51%	1.05%
	Wb	East	98	113	700	494	46	65	20437.5	23375	21906.25	19670	19670	0.50%	0.57%	3.56%	2.51%	0.23%	0.33%
	Nb	South	142	49	717	424	471	254	24125	24275	24200	24200	24200	0.59%	0.20%	2.96%	1.75%	1.95%	1.05%
	Eb	West	221	478	533	911	227	239	29862.5	32350	31106.25	19370	19370	1.14%	2.47%	2.75%	4.70%	1.17%	1.23%
4. Sports Park Wy (Future Project Dwy) / W. Bobier Dr	Sb	North	56	48	0	0	14	19	1312.5	3025	2168.75	2170	2170	2.58%	2.21%	0.00%	0.00%	0.65%	0.88%
	Wb	East	9	64	1269	648	0	0	24287.5	23137.5	23712.5	18290	18290	0.05%	0.35%	6.94%	3.54%	0.00%	0.00%
	Nb	South	0	0	0	0	0	0	0	0	0	0	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	Eb	West	0	0	651	1120	26	111	25025	24087.5	24556.25	19670	19670	0.00%	0.00%	3.31%	5.69%	0.13%	0.56%
5. N. Santa Fe Ave / W. Bobier Dr	Sb	North	335	132	642	406	227	195	23787.5	20312.5	22050	22050	22050	1.52%	0.60%	2.91%	1.84%	1.03%	0.88%
	Wb	East	114	155	657	422	237	181	23812.5	21512.5	22662.5	20820	20820	0.55%	0.74%	3.16%	2.03%	1.14%	0.87%
	Nb	South	149	133	398	522	229	180	22750	19325	21037.5	21040	21040	0.71%	0.63%	1.89%	2.48%	1.09%	0.86%
	Eb	West	165	124	521	635	187	215	26175	21350	23762.5	18290	18290	0.90%	0.68%	2.85%	3.47%	1.02%	1.18%
6. N. Melrose Dr / North Ave	Sb	North	132	72	1246	849	61	76	31262.5	32387.5	31825	28690	28690	0.46%	0.25%	4.34%	2.96%	0.21%	0.26%
	Wb	East	91	55	182	114	215	107	10250	9400	9825	9830	9830	0.93%	0.56%	1.85%	1.16%	2.19%	1.09%
	Nb	South	94	209	875	1422	148	54	33312.5	33912.5	33612.5	30530	30530	0.31%	0.68%	2.87%	4.66%	0.48%	0.18%
	Eb	West	87	72	177	191	96	117	10275	7750	9012.5	9010	9010	0.97%	0.80%	1.96%	2.12%	1.07%	1.30%

INTERSECTION	DIRECTION	LEG	DEPARTURE %ADT						2035 ADT	GROWTH FACTOR	2030 APROACH TRAFFIC VOLUMES						2030 DEPARTURE TRAFFIC VOLUMES					
			Ram	Rpm	Tam	Tpm	Lam	Lpm	FORECAST		Ram	Rpm	Tam	Tpm	Lam	Lpm	Ram	Rpm	Tam	Tpm	Lam	Lpm
1. N. Melrose Dr / Meadowbrook Dr	Sb	North	0.89%	0.95%	3.88%	3.53%	1.38%	2.07%	36600	1.88	26	28	1,470	1,337	8	11	18	19	1420	1291	6	8
	Wb	East	0.02%	0.00%	0.06%	0.06%	0.06%	0.04%	400	1.38	4	0	1	1	18	11	6	0	1	1	24	15
	Nb	South	0.34%	2.76%	2.13%	5.10%	1.33%	4.81%	36600	1.82	2	15	754	1,802	38	138	1	11	780	1865	27	96
	Eb	West	0.32%	0.21%	0.00%	0.34%	0.04%	0.05%	2000	1.27	82	53	0	1	10	11	118	76	0	1	15	17
2. Catalina Circle / Oceanside Blvd	Sb	North	0.27%	0.15%	0.00%	0.00%	0.34%	0.19%	2400	1.12	57	32	0	0	73	41	79	45	0	0	99	56
	Wb	East	1.02%	3.58%	3.65%	3.25%	0.88%	0.88%	29500	1.52	34	117	1,063	946	5	5	25	86	1076	958	9	9
	Nb	South	0.04%	0.04%	0.00%	0.00%	0.10%	0.05%	1000	2.94	24	24	0	0	59	26	12	12	0	0	31	14
	Eb	West	0.59%	0.29%	1.94%	4.84%	0.42%	2.51%	29500	1.54	3	2	578	1,446	14	83	6	3	571	1429	10	60
3. N. Melrose Dr / Oceanside Blvd (W. Bobier Dr)	Sb	North	1.22%	1.09%	1.38%	2.78%	0.59%	1.21%	36600	1.62	383	342	538	1,085	187	384	343	306	603	1216	174	357
	Wb	East	0.43%	0.50%	3.61%	2.55%	0.19%	0.27%	29500	1.50	147	169	1,050	741	69	97	158	183	1012	714	83	118
	Nb	South	0.72%	0.25%	3.16%	1.87%	2.43%	1.31%	43800	1.81	257	89	1,298	767	852	460	213	73	1158	685	681	367
	Eb	West	0.91%	1.98%	2.71%	4.63%	1.00%	1.05%	28000	1.45	319	691	770	1,317	328	345	400	865	799	1366	367	386
4. Sports Park Wy (Future Project Dwy) / W. Bobier Dr	Sb	North	0.28%	0.24%	0.00%	0.00%	0.08%	0.10%	2600	1.20	67	58	0	0	17	23	80	68	0	0	21	28
	Wb	East	0.41%	2.95%	6.45%	3.29%	0.00%	0.00%	27000	1.48	13	94	1,873	957	0	0	11	77	1806	922	0	0
	Nb	South	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0	#DIV/0!	0	0	0	0	0	0	0	0	0	0	0	0
	Eb	West	0.00%	0.00%	3.56%	6.12%	1.20%	5.12%	28000	1.42	0	0	927	1,594	37	158	0	0	961	1653	31	133
5. N. Santa Fe Ave / W. Bobier Dr	Sb	North	1.83%	0.72%	3.05%	1.93%	1.09%	0.94%	30000	1.36	456	180	873	552	309	265	495	195	915	579	322	276
	Wb	East	0.52%	0.70%	3.59%	2.31%	1.13%	0.86%	29500	1.42	162	220	931	598	336	256	155	211	970	623	338	258
	Nb	South	0.72%	0.64%	1.80%	2.37%	1.25%	0.98%	30000	1.43	212	190	567	744	327	257	211	188	541	710	338	266
	Eb	West	0.78%	0.59%	2.50%	3.05%	0.85%	0.98%	27000	1.48	244	183	769	937	276	317	235	177	738	900	254	293
6. N. Melrose Dr / North Ave	Sb	North	1.47%	0.80%	4.08%	2.78%	0.62%	0.77%	43800	1.53	202	110	1,902	1,296	93	116	164	90	1788	1218	68	85
	Wb	East	0.32%	0.19%	2.02%	1.27%	0.70%	0.35%	11000	1.12	102	62	204	128	241	120	139	84	226	142	308	154
	Nb	South	0.96%	2.13%	3.05%	4.96%	1.64%	0.60%	43800	1.43	135	300	1,255	2,040	212	77	105	234	1336	2171	184	67
	Eb	West	0.28%	0.24%	1.80%	1.94%	0.33%	0.41%	11200	1.24	108	90	220	237	119	145	125	103	198	214	147	179

INTERSECTION	DIRECTION	LEG	2030 WEIGHTED AVERAGE TRAFFIC VOLUMES						2030 ROUNDED TRAFFIC VOLUMES						CHECK					
			Ram	Rpm	Tam	Tpm	Lam	Lpm	Ram	Rpm	Tam	Tpm	Lam	Lpm	Ram	Rpm	Tam	Tpm	Lam	Lpm
1. N. Melrose Dr / Meadowbrook Dr	Sb	North	18	20	1446	1314	6	8	20	20	1100	1000	10	10						
	Wb	East	4	0	1	1	18	11	10	0	10	10	20	10						
	Nb	South	1	11	767	1834	27	99	10	10	580	1250	25	80						
	Eb	West	85	55	0	1	10	12	75	50	0	10	10	10						
2. Catalina Circle / Oceanside Blvd	Sb	North	59	34	0	0	75	43	60	30	0	0	80	40						
	Wb	East	25	89	1070	952	9	9	30	90	880	820	10	10						
	Nb	South	23	23	0	0	58	26	15	15	0	0	40	20						
	Eb	West	6	3	575	1438	10	63	10	10	450	1150	10	60						
3. N. Melrose Dr / Oceanside Blvd (W. Bobier Dr)	Sb	North	361	323	569	1149	180	370	250	230	400	700	150	250						
	Wb	East	152	176	1031	727	75	107	100	200	800	550	400	150						
	Nb	South	233	80	1226	725	757	408	320	250	800	600	500	350						
	Eb	West	355	768	785	1341	346	364	340	500	700	1000	270	260						
4. Sports Park Wy (Future Project Dwy) / W. Bobier Dr	Sb	North	68	59	0	0	17	23	70	60	0	0	20	20						
	Wb	East	11	79	1841	940	0	0	10	80	1500	800	0	0						
	Nb	South	0	0	0	0	0	0	0	0	0	0	0	0						
	Eb	West	0	0	944	1625	32	135	0	0	800	1400	30	140						
5. N. Santa Fe Ave / W. Bobier Dr	Sb	North	477	188	895	566	315	271	380	155	770	480	260	225						
	Wb	East	158	215	952	611	337	257	150	185	800	515	280	220						
	Nb	South	212	189	555	728	333	262	180	160	470	625	290	240						
	Eb	West	240	180	755	920	266	306	230	180	750	920	250	300						
6. N. Melrose Dr / North Ave	Sb	North	173	94	1847	1258	75	93	160	90	1850	1260	70	90						
	Wb	East	111	67	215	135	257	128	110	70	220	130	260	130						
	Nb	South	112	250	1297	2108	190	69	110	250	1300	2110	190	70						
	Eb	West	112	93	210	226	126	153	110	90	210	230	130	150						



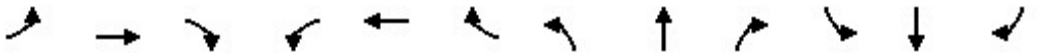
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	75	20	10	10	25	580	10	10	1100	20
Future Volume (veh/h)	10	0	75	20	10	10	25	580	10	10	1100	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	1.00		0.97	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	15	0	112	30	15	15	27	617	11	11	1264	23
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.94	0.94	0.94	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	92	0	455	78	28	455	197	1565	28	169	1508	27
Arrive On Green	0.30	0.00	0.30	0.30	0.30	0.30	0.11	0.44	0.44	0.09	0.42	0.42
Sat Flow, veh/h	69	0	1539	60	93	1539	1781	3569	64	1781	3567	65
Grp Volume(v), veh/h	15	0	112	45	0	15	27	307	321	11	629	658
Grp Sat Flow(s),veh/h/ln	69	0	1539	153	0	1539	1781	1777	1856	1781	1777	1855
Q Serve(g_s), s	1.1	0.0	5.5	1.8	0.0	0.7	1.4	11.7	11.7	0.6	31.7	31.7
Cycle Q Clear(g_c), s	29.2	0.0	5.5	29.5	0.0	0.7	1.4	11.7	11.7	0.6	31.7	31.7
Prop In Lane	1.00		1.00	0.67		1.00	1.00		0.03	1.00		0.03
Lane Grp Cap(c), veh/h	92	0	455	105	0	455	197	779	814	169	751	784
V/C Ratio(X)	0.16	0.00	0.25	0.43	0.00	0.03	0.14	0.39	0.39	0.07	0.84	0.84
Avail Cap(c_a), veh/h	114	0	478	127	0	478	197	800	835	169	800	835
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.57	0.57	0.57	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.1	0.0	26.8	37.4	0.0	25.1	40.2	19.0	19.1	41.2	25.8	25.8
Incr Delay (d2), s/veh	0.8	0.0	0.3	2.7	0.0	0.0	0.2	0.4	0.4	0.2	8.5	8.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	2.1	1.2	0.0	0.3	0.6	4.5	4.7	0.2	13.9	14.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.9	0.0	27.0	40.1	0.0	25.1	40.3	19.4	19.4	41.4	34.3	34.1
LnGrp LOS	D	A	C	D	A	C	D	B	B	D	C	C
Approach Vol, veh/h		127			60			655			1298	
Approach Delay, s/veh		29.7			36.3			20.3			34.3	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.1	50.9		35.0	15.7	49.3		35.0				
Change Period (Y+Rc), s	5.4	7.0		* 4.7	5.4	7.0		* 4.7				
Max Green Setting (Gmax), s	6.8	45.0		* 31	6.8	45.0		* 31				
Max Q Clear Time (g_c+I1), s	2.6	13.7		31.2	3.4	33.7		31.5				
Green Ext Time (p_c), s	0.0	7.5		0.0	0.0	8.6		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			29.8									
HCM 6th LOS			C									

Notes

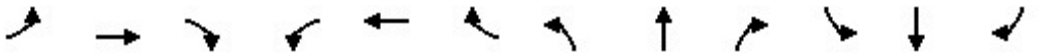
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	450	10	10	880	30	40	0	15	80	0	60
Future Volume (veh/h)	10	450	10	10	880	30	40	0	15	80	0	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.99		0.96	0.99		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	517	11	14	1239	42	42	0	16	99	0	74
Peak Hour Factor	0.87	0.87	0.87	0.71	0.71	0.71	0.96	0.96	0.96	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	24	2224	47	29	2202	75	235	11	67	199	16	114
Arrive On Green	0.01	0.63	0.63	0.02	0.63	0.63	0.18	0.00	0.18	0.18	0.00	0.18
Sat Flow, veh/h	1781	3555	76	1781	3502	119	935	61	379	765	91	640
Grp Volume(v), veh/h	11	258	270	14	628	653	58	0	0	173	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1854	1781	1777	1844	1374	0	0	1496	0	0
Q Serve(g_s), s	0.6	5.7	5.7	0.7	18.3	18.3	0.0	0.0	0.0	6.3	0.0	0.0
Cycle Q Clear(g_c), s	0.6	5.7	5.7	0.7	18.3	18.3	3.1	0.0	0.0	9.4	0.0	0.0
Prop In Lane	1.00		0.04	1.00		0.06	0.72		0.28	0.57		0.43
Lane Grp Cap(c), veh/h	24	1112	1160	29	1117	1159	314	0	0	329	0	0
V/C Ratio(X)	0.46	0.23	0.23	0.48	0.56	0.56	0.18	0.00	0.00	0.53	0.00	0.00
Avail Cap(c_a), veh/h	103	1112	1160	103	1117	1159	513	0	0	539	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.34	0.34	0.34	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	44.1	7.4	7.4	43.9	9.6	9.6	31.6	0.0	0.0	34.1	0.0	0.0
Incr Delay (d2), s/veh	5.1	0.5	0.5	1.5	0.7	0.7	0.3	0.0	0.0	1.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.8	1.9	0.3	5.6	5.8	1.1	0.0	0.0	3.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.2	7.9	7.9	45.4	10.3	10.3	31.9	0.0	0.0	35.4	0.0	0.0
LnGrp LOS	D	A	A	D	B	B	C	A	A	D	A	A
Approach Vol, veh/h		539			1295			58			173	
Approach Delay, s/veh		8.7			10.7			31.9			35.4	
Approach LOS		A			B			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	62.5		20.6	6.6	62.8		20.6				
Change Period (Y+Rc), s	5.4	6.2		4.6	5.4	6.2		4.6				
Max Green Setting (Gmax), s	5.2	39.4		29.2	5.2	39.4		29.2				
Max Q Clear Time (g_c+I1), s	2.7	7.7		11.4	2.6	20.3		5.1				
Green Ext Time (p_c), s	0.0	4.3		0.9	0.0	10.5		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		12.8	
HCM 6th LOS		B	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	700	340	400	800	100	500	800	320	150	400	250
Future Volume (veh/h)	270	700	340	400	800	100	500	800	320	150	400	250
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.97	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	310	805	391	421	842	105	568	909	364	181	482	301
Peak Hour Factor	0.87	0.87	0.87	0.95	0.95	0.95	0.88	0.88	0.88	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	498	902	389	609	905	113	614	1180	791	227	1124	337
Arrive On Green	0.14	0.25	0.25	0.18	0.29	0.29	0.18	0.33	0.33	0.07	0.22	0.22
Sat Flow, veh/h	3456	3554	1534	3456	3167	395	3456	3554	1542	3456	5106	1529
Grp Volume(v), veh/h	310	805	391	421	472	475	568	909	364	181	482	301
Grp Sat Flow(s),veh/h/ln	1728	1777	1534	1728	1777	1785	1728	1777	1542	1728	1702	1529
Q Serve(g_s), s	12.2	31.7	36.8	16.6	37.5	37.5	23.5	33.3	22.0	7.5	11.8	27.7
Cycle Q Clear(g_c), s	12.2	31.7	36.8	16.6	37.5	37.5	23.5	33.3	22.0	7.5	11.8	27.7
Prop In Lane	1.00		1.00	1.00		0.22	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	498	902	389	609	508	510	614	1180	791	227	1124	337
V/C Ratio(X)	0.62	0.89	1.00	0.69	0.93	0.93	0.93	0.77	0.46	0.80	0.43	0.89
Avail Cap(c_a), veh/h	498	902	389	609	512	515	634	1206	802	248	1162	348
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00	0.48	0.48	0.48
Uniform Delay (d), s/veh	58.3	52.2	54.1	56.0	50.4	50.4	58.7	43.5	23.0	66.8	48.7	54.9
Incr Delay (d2), s/veh	2.4	11.7	46.5	3.4	24.5	24.4	19.3	3.3	0.6	7.9	0.2	13.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	15.1	18.7	7.3	19.5	19.6	11.7	14.8	7.8	3.5	5.0	11.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.7	63.9	100.6	59.4	74.9	74.8	78.0	46.7	23.6	74.7	48.9	68.6
LnGrp LOS	E	E	F	E	E	E	E	D	C	E	D	E
Approach Vol, veh/h		1506			1368			1841			964	
Approach Delay, s/veh		72.7			70.1			51.8			59.9	
Approach LOS		E			E			D			E	

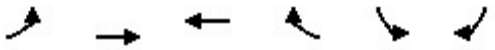
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.9	55.1	30.9	44.0	31.1	38.9	26.3	48.6
Change Period (Y+Rc), s	5.4	7.0	5.4	7.2	5.4	7.0	5.4	7.2
Max Green Setting (Gmax), s	10.4	49.2	23.6	36.8	26.6	33.0	18.6	41.8
Max Q Clear Time (g_c+I1), s	9.5	35.3	18.6	38.8	25.5	29.7	14.2	39.5
Green Ext Time (p_c), s	0.0	8.0	0.7	0.0	0.3	1.7	0.4	1.6

Intersection Summary	
HCM 6th Ctrl Delay	63.1
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

User approved changes to right turn type.



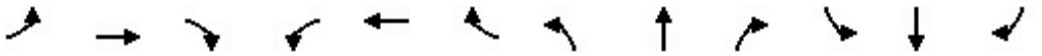
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	800	1500	10	20	70
Future Volume (veh/h)	30	800	1500	10	20	70
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.97	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	1127	1829	12	23	80
Peak Hour Factor	0.71	0.71	0.82	0.82	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	54	2526	2320	15	381	339
Arrive On Green	0.03	0.71	0.64	0.64	0.21	0.21
Sat Flow, veh/h	1781	3647	3712	24	1781	1585
Grp Volume(v), veh/h	42	1127	897	944	23	80
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1865	1781	1585
Q Serve(g_s), s	3.0	17.5	47.6	47.8	1.3	5.4
Cycle Q Clear(g_c), s	3.0	17.5	47.6	47.8	1.3	5.4
Prop In Lane	1.00			0.01	1.00	1.00
Lane Grp Cap(c), veh/h	54	2526	1139	1196	381	339
V/C Ratio(X)	0.78	0.45	0.79	0.79	0.06	0.24
Avail Cap(c_a), veh/h	95	2526	1139	1196	381	339
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.18	0.18	1.00	1.00
Uniform Delay (d), s/veh	62.6	8.0	16.9	16.9	40.7	42.3
Incr Delay (d2), s/veh	16.1	0.6	1.0	1.0	0.3	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	6.1	17.8	18.7	0.6	5.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	78.7	8.5	17.9	17.9	41.0	43.9
LnGrp LOS	E	A	B	B	D	D
Approach Vol, veh/h		1169	1841		103	
Approach Delay, s/veh		11.1	17.9		43.3	
Approach LOS		B	B		D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		98.2		31.8	9.0	89.2
Change Period (Y+Rc), s		5.8		4.0	5.1	5.8
Max Green Setting (Gmax), s		92.4		27.8	6.9	80.4
Max Q Clear Time (g_c+I1), s		19.5		7.4	5.0	49.8
Green Ext Time (p_c), s		23.7		0.0	0.0	26.2

Intersection Summary	
HCM 6th Ctrl Delay	16.2
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.



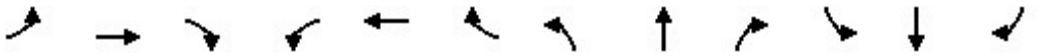
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	250	750	230	280	800	150	290	470	180	260	770	380
Future Volume (veh/h)	250	750	230	280	800	150	290	470	180	260	770	380
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93	1.00		0.93	1.00		0.91	1.00		0.90
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	301	904	277	315	899	169	414	671	257	302	895	442
Peak Hour Factor	0.83	0.83	0.83	0.89	0.89	0.89	0.70	0.70	0.70	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	283	870	698	283	870	649	381	1017	665	326	907	617
Arrive On Green	0.16	0.24	0.24	0.16	0.24	0.24	0.21	0.29	0.29	0.18	0.26	0.26
Sat Flow, veh/h	1781	3554	1467	1781	3554	1467	1781	3554	1446	1781	3554	1432
Grp Volume(v), veh/h	301	904	277	315	899	169	414	671	257	302	895	442
Grp Sat Flow(s),veh/h/ln	1781	1777	1467	1781	1777	1467	1781	1777	1446	1781	1777	1432
Q Serve(g_s), s	23.0	35.5	18.3	23.0	35.5	10.8	31.0	24.1	17.4	24.2	36.4	37.0
Cycle Q Clear(g_c), s	23.0	35.5	18.3	23.0	35.5	10.8	31.0	24.1	17.4	24.2	36.4	37.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	283	870	698	283	870	649	381	1017	665	326	907	617
V/C Ratio(X)	1.07	1.04	0.40	1.11	1.03	0.26	1.09	0.66	0.39	0.93	0.99	0.72
Avail Cap(c_a), veh/h	283	870	698	283	870	649	381	1017	665	369	907	617
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.0	54.8	26.2	61.0	54.8	26.8	57.0	45.6	27.2	58.3	53.8	36.0
Incr Delay (d2), s/veh	71.9	41.1	0.4	88.0	39.4	0.2	71.5	1.6	0.4	27.4	26.6	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.9	20.6	6.4	17.2	20.3	3.8	21.4	10.8	6.0	13.3	19.4	13.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	132.9	95.9	26.6	149.0	94.1	27.0	128.5	47.1	27.6	85.7	80.4	40.0
LnGrp LOS	F	F	C	F	F	C	F	D	C	F	F	D
Approach Vol, veh/h		1482			1383			1342			1639	
Approach Delay, s/veh		90.4			98.4			68.5			70.5	
Approach LOS		F			F			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	35.0	42.1	27.0	40.9	30.5	46.6	27.0	40.9
Change Period (Y+Rc), s	4.0	5.1	4.0	5.4	4.0	5.1	4.0	5.4
Max Green Setting (Gmax), s	31.0	37.0	23.0	35.5	30.0	38.0	23.0	35.5
Max Q Clear Time (g_c+I1), s	33.0	39.0	25.0	37.5	26.2	26.1	25.0	37.5
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.3	4.3	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	81.7
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.



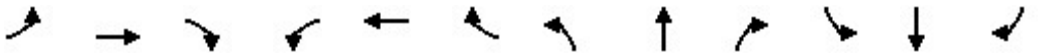
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	210	110	260	220	110	190	1300	110	70	1850	160
Future Volume (veh/h)	130	210	110	260	220	110	190	1300	110	70	1850	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.95	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	157	253	133	292	247	124	213	1461	124	72	1907	165
Peak Hour Factor	0.83	0.83	0.83	0.89	0.89	0.89	0.89	0.89	0.89	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	286	300	240	330	214	107	187	2163	184	91	1903	164
Arrive On Green	0.16	0.16	0.16	0.19	0.19	0.19	0.10	0.45	0.45	0.05	0.40	0.40
Sat Flow, veh/h	1781	1870	1499	1781	1153	579	1781	4777	405	1781	4770	410
Grp Volume(v), veh/h	157	253	133	292	0	371	213	1041	544	72	1358	714
Grp Sat Flow(s),veh/h/ln	1781	1870	1499	1781	0	1731	1781	1702	1778	1781	1702	1776
Q Serve(g_s), s	11.8	19.0	11.9	23.2	0.0	26.9	15.2	35.0	35.0	5.8	57.8	57.8
Cycle Q Clear(g_c), s	11.8	19.0	11.9	23.2	0.0	26.9	15.2	35.0	35.0	5.8	57.8	57.8
Prop In Lane	1.00		1.00	1.00		0.33	1.00		0.23	1.00		0.23
Lane Grp Cap(c), veh/h	286	300	240	330	0	321	187	1541	805	91	1358	708
V/C Ratio(X)	0.55	0.84	0.55	0.88	0.00	1.16	1.14	0.68	0.68	0.79	1.00	1.01
Avail Cap(c_a), veh/h	319	335	269	330	0	321	187	1541	805	113	1358	708
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.0	59.1	56.1	57.5	0.0	59.1	64.9	31.3	31.3	68.1	43.6	43.6
Incr Delay (d2), s/veh	1.6	16.2	2.0	23.4	0.0	99.2	108.8	2.4	4.5	25.8	24.3	36.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	10.4	4.6	12.6	0.0	20.6	12.4	14.4	15.5	3.3	27.9	31.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.7	75.3	58.1	80.9	0.0	158.3	173.7	33.7	35.8	93.8	67.9	79.6
LnGrp LOS	E	E	E	F	A	F	F	C	D	F	E	F
Approach Vol, veh/h		543			663			1798			2144	
Approach Delay, s/veh		66.0			124.2			50.9			72.7	
Approach LOS		E			F			D			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.2	71.5		28.4	21.0	63.6		32.0				
Change Period (Y+Rc), s	5.8	5.8		5.1	5.8	5.8		5.1				
Max Green Setting (Gmax), s	9.2	61.1		26.0	15.2	55.1		26.9				
Max Q Clear Time (g_c+I1), s	7.8	37.0		21.0	17.2	59.8		28.9				
Green Ext Time (p_c), s	0.0	11.5		1.1	0.0	0.0		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		71.0	
HCM 6th LOS		E	

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	10	50	10	10	0	80	1250	10	10	1000	20
Future Volume (veh/h)	10	10	50	10	10	0	80	1250	10	10	1000	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.95	0.98		1.00	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	11	56	22	22	0	85	1330	11	11	1111	22
Peak Hour Factor	0.89	0.89	0.89	0.45	0.45	0.45	0.94	0.94	0.94	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	145	128	203	142	126	214	539	1553	13	471	1394	28
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.00	0.30	0.43	0.43	0.26	0.39	0.39
Sat Flow, veh/h	673	948	1506	657	932	1585	1781	3611	30	1781	3560	70
Grp Volume(v), veh/h	22	0	56	44	0	0	85	654	687	11	554	579
Grp Sat Flow(s),veh/h/ln	1622	0	1506	1588	0	1585	1781	1777	1864	1781	1777	1854
Q Serve(g_s), s	0.0	0.0	3.3	0.1	0.0	0.0	3.5	33.2	33.3	0.5	27.6	27.6
Cycle Q Clear(g_c), s	1.0	0.0	3.3	2.1	0.0	0.0	3.5	33.2	33.3	0.5	27.6	27.6
Prop In Lane	0.50		1.00	0.50		1.00	1.00		0.02	1.00		0.04
Lane Grp Cap(c), veh/h	272	0	203	268	0	214	539	764	801	471	696	726
V/C Ratio(X)	0.08	0.00	0.28	0.16	0.00	0.00	0.16	0.86	0.86	0.02	0.80	0.80
Avail Cap(c_a), veh/h	550	0	468	539	0	493	539	800	839	471	743	775
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.68	0.68	0.68	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.9	0.0	38.9	38.3	0.0	0.0	25.5	25.7	25.7	27.2	26.9	26.9
Incr Delay (d2), s/veh	0.1	0.0	0.7	0.3	0.0	0.0	0.1	6.9	6.7	0.0	6.9	6.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	1.3	1.0	0.0	0.0	1.4	14.2	14.8	0.2	12.1	12.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.0	0.0	39.6	38.6	0.0	0.0	25.6	32.6	32.4	27.3	33.8	33.5
LnGrp LOS	D	A	D	D	A	A	C	C	C	C	C	C
Approach Vol, veh/h		78			44			1426			1144	
Approach Delay, s/veh		39.2			38.6			32.1			33.6	
Approach LOS		D			D			C			C	

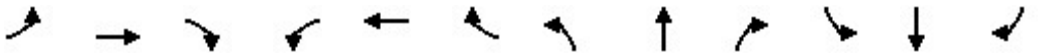
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	31.8	50.0		18.2	35.7	46.2		18.2				
Change Period (Y+Rc), s	5.4	7.0		* 4.7	5.4	7.0		* 4.7				
Max Green Setting (Gmax), s	6.8	45.0		* 31	10.0	41.8		* 31				
Max Q Clear Time (g_c+I1), s	2.5	35.3		5.3	5.5	29.6		4.1				
Green Ext Time (p_c), s	0.0	7.8		0.3	0.1	8.3		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		33.0	
HCM 6th LOS		C	

Notes

User approved pedestrian interval to be less than phase max green.

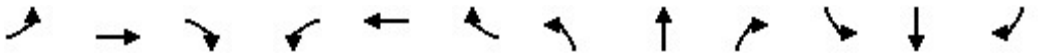
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	1150	10	10	820	90	20	0	15	40	0	30
Future Volume (veh/h)	60	1150	10	10	820	90	20	0	15	40	0	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.98		0.95	0.98		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	69	1322	11	11	901	99	33	0	25	59	0	44
Peak Hour Factor	0.87	0.87	0.87	0.91	0.91	0.91	0.61	0.61	0.61	0.68	0.68	0.68
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	89	2405	20	24	2025	222	172	16	95	167	16	89
Arrive On Green	0.05	0.67	0.67	0.01	0.63	0.63	0.14	0.00	0.14	0.14	0.00	0.14
Sat Flow, veh/h	1781	3611	30	1781	3216	353	775	115	674	738	114	636
Grp Volume(v), veh/h	69	650	683	11	498	502	58	0	0	103	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1864	1781	1777	1792	1564	0	0	1488	0	0
Q Serve(g_s), s	3.4	17.4	17.4	0.6	13.0	13.0	0.0	0.0	0.0	2.7	0.0	0.0
Cycle Q Clear(g_c), s	3.4	17.4	17.4	0.6	13.0	13.0	2.7	0.0	0.0	5.4	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.20	0.57		0.43	0.57		0.43
Lane Grp Cap(c), veh/h	89	1183	1241	24	1119	1128	283	0	0	272	0	0
V/C Ratio(X)	0.78	0.55	0.55	0.46	0.45	0.45	0.21	0.00	0.00	0.38	0.00	0.00
Avail Cap(c_a), veh/h	143	1183	1241	103	1119	1128	540	0	0	532	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.58	0.58	0.58	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	42.3	7.9	7.9	44.1	8.6	8.6	34.4	0.0	0.0	35.4	0.0	0.0
Incr Delay (d2), s/veh	5.4	1.8	1.8	3.0	0.7	0.7	0.4	0.0	0.0	0.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	5.3	5.5	0.3	4.0	4.1	1.1	0.0	0.0	2.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.7	9.8	9.7	47.1	9.3	9.3	34.8	0.0	0.0	36.3	0.0	0.0
LnGrp LOS	D	A	A	D	A	A	C	A	A	D	A	A
Approach Vol, veh/h		1402			1011			58			103	
Approach Delay, s/veh		11.6			9.7			34.8			36.3	
Approach LOS		B			A			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.6	66.1		17.3	9.9	62.9		17.3				
Change Period (Y+Rc), s	5.4	6.2		4.6	5.4	6.2		4.6				
Max Green Setting (Gmax), s	5.2	39.5		29.1	7.2	37.5		29.1				
Max Q Clear Time (g_c+I1), s	2.6	19.4		7.4	5.4	15.0		4.7				
Green Ext Time (p_c), s	0.0	11.3		0.5	0.0	8.6		0.3				

Intersection Summary												
HCM 6th Ctrl Delay			12.4									
HCM 6th LOS			B									



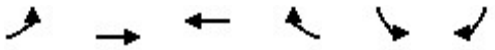
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	260	1000	500	150	550	200	350	600	250	250	700	230
Future Volume (veh/h)	260	1000	500	150	550	200	350	600	250	250	700	230
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.97	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	271	1042	521	165	604	220	376	645	269	272	761	250
Peak Hour Factor	0.96	0.96	0.96	0.91	0.91	0.91	0.93	0.93	0.93	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	600	1243	540	499	811	295	427	851	596	324	1070	320
Arrive On Green	0.17	0.35	0.35	0.14	0.32	0.32	0.12	0.24	0.24	0.09	0.21	0.21
Sat Flow, veh/h	3456	3554	1543	3456	2530	920	3456	3554	1532	3456	5106	1527
Grp Volume(v), veh/h	271	1042	521	165	424	400	376	645	269	272	761	250
Grp Sat Flow(s),veh/h/ln	1728	1777	1543	1728	1777	1673	1728	1777	1532	1728	1702	1527
Q Serve(g_s), s	10.2	39.1	48.1	6.2	30.9	31.0	15.5	24.5	19.0	11.2	20.1	22.4
Cycle Q Clear(g_c), s	10.2	39.1	48.1	6.2	30.9	31.0	15.5	24.5	19.0	11.2	20.1	22.4
Prop In Lane	1.00		1.00	1.00		0.55	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	600	1243	540	499	570	537	427	851	596	324	1070	320
V/C Ratio(X)	0.45	0.84	0.97	0.33	0.74	0.75	0.88	0.76	0.45	0.84	0.71	0.78
Avail Cap(c_a), veh/h	600	1245	541	499	573	540	491	877	607	424	1162	348
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.85	0.85	1.00	1.00	1.00	1.00	1.00	1.00	0.56	0.56	0.56
Uniform Delay (d), s/veh	53.7	43.4	46.3	55.7	43.9	44.0	62.5	51.2	33.4	64.6	53.2	54.2
Incr Delay (d2), s/veh	0.5	4.9	27.4	0.4	6.3	6.7	15.2	4.0	0.8	6.5	1.2	6.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	17.4	21.7	2.7	14.1	13.4	7.6	11.1	7.0	5.2	8.6	9.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.2	48.3	73.7	56.1	50.2	50.7	77.7	55.3	34.1	71.1	54.4	60.6
LnGrp LOS	D	D	E	E	D	D	E	E	C	E	D	E
Approach Vol, veh/h		1834			989			1290			1283	
Approach Delay, s/veh		56.4			51.4			57.4			59.2	
Approach LOS		E			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.0	41.7	26.3	57.9	23.3	37.4	30.6	53.7
Change Period (Y+Rc), s	5.4	7.0	5.4	7.2	5.4	7.0	5.4	7.2
Max Green Setting (Gmax), s	17.8	35.8	15.6	50.8	20.6	33.0	19.6	46.8
Max Q Clear Time (g_c+I1), s	13.2	26.5	8.2	50.1	17.5	24.4	12.2	33.0
Green Ext Time (p_c), s	0.4	4.5	0.3	0.7	0.4	4.6	0.5	6.8

Intersection Summary	
HCM 6th Ctrl Delay	56.4
HCM 6th LOS	E

Notes

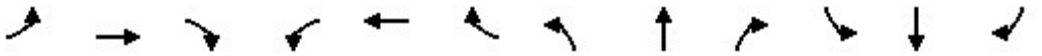
User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	140	1400	800	80	20	60
Future Volume (veh/h)	140	1400	800	80	20	60
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.96	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	154	1538	879	88	31	94
Peak Hour Factor	0.91	0.91	0.91	0.91	0.64	0.64
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	181	2466	1797	180	411	366
Arrive On Green	0.10	0.69	0.55	0.55	0.23	0.23
Sat Flow, veh/h	1781	3647	3343	325	1781	1585
Grp Volume(v), veh/h	154	1538	481	486	31	94
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1798	1781	1585
Q Serve(g_s), s	11.1	30.4	21.5	21.6	1.8	6.3
Cycle Q Clear(g_c), s	11.1	30.4	21.5	21.6	1.8	6.3
Prop In Lane	1.00			0.18	1.00	1.00
Lane Grp Cap(c), veh/h	181	2466	983	994	411	366
V/C Ratio(X)	0.85	0.62	0.49	0.49	0.08	0.26
Avail Cap(c_a), veh/h	341	2466	983	994	411	366
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.73	0.73	1.00	1.00
Uniform Delay (d), s/veh	57.4	10.7	17.8	17.8	39.1	40.9
Incr Delay (d2), s/veh	8.1	1.2	1.3	1.3	0.4	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	10.9	8.8	8.9	0.8	6.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	65.5	11.9	19.1	19.1	39.5	42.6
LnGrp LOS	E	B	B	B	D	D
Approach Vol, veh/h		1692	967		125	
Approach Delay, s/veh		16.8	19.1		41.8	
Approach LOS		B	B		D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		96.0		34.0	18.3	77.7
Change Period (Y+Rc), s		5.8		4.0	5.1	5.8
Max Green Setting (Gmax), s		90.2		30.0	24.9	60.2
Max Q Clear Time (g_c+I1), s		32.4		8.3	13.1	23.6
Green Ext Time (p_c), s		35.3		0.0	0.2	14.3

Intersection Summary						
HCM 6th Ctrl Delay			18.7			
HCM 6th LOS			B			



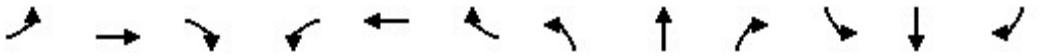
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	300	920	180	220	515	185	240	625	160	225	480	155
Future Volume (veh/h)	300	920	180	220	515	185	240	625	160	225	480	155
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.93	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	316	968	189	253	592	213	255	665	170	265	565	182
Peak Hour Factor	0.95	0.95	0.95	0.87	0.87	0.87	0.94	0.94	0.94	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	294	1137	742	168	886	642	280	982	559	292	1006	681
Arrive On Green	0.17	0.32	0.32	0.09	0.25	0.25	0.16	0.28	0.28	0.16	0.28	0.28
Sat Flow, veh/h	1781	3554	1541	1781	3554	1533	1781	3554	1480	1781	3554	1482
Grp Volume(v), veh/h	316	968	189	253	592	213	255	665	170	265	565	182
Grp Sat Flow(s),veh/h/ln	1781	1777	1541	1781	1777	1533	1781	1777	1480	1781	1777	1482
Q Serve(g_s), s	21.0	32.4	9.3	12.0	19.1	12.0	17.9	21.2	10.4	18.6	17.2	9.8
Cycle Q Clear(g_c), s	21.0	32.4	9.3	12.0	19.1	12.0	17.9	21.2	10.4	18.6	17.2	9.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	294	1137	742	168	886	642	280	982	559	292	1006	681
V/C Ratio(X)	1.07	0.85	0.25	1.51	0.67	0.33	0.91	0.68	0.30	0.91	0.56	0.27
Avail Cap(c_a), veh/h	294	1386	850	168	1134	749	294	1143	625	336	1226	773
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.1	40.4	19.8	57.6	43.0	25.4	52.7	41.0	28.5	52.2	38.9	22.1
Incr Delay (d2), s/veh	73.7	4.5	0.2	255.9	1.0	0.3	29.8	1.3	0.3	25.3	0.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.2	14.4	3.3	17.3	8.3	4.4	10.3	9.4	3.7	10.3	7.5	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	126.8	44.9	20.0	313.5	44.0	25.7	82.5	42.3	28.8	77.5	39.4	22.3
LnGrp LOS	F	D	B	F	D	C	F	D	C	E	D	C
Approach Vol, veh/h		1473			1058			1090			1012	
Approach Delay, s/veh		59.3			104.8			49.6			46.3	
Approach LOS		E			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.0	41.1	25.0	37.1	24.8	40.3	16.0	46.1
Change Period (Y+Rc), s	4.0	5.1	4.0	5.4	4.0	5.1	4.0	5.4
Max Green Setting (Gmax), s	21.0	43.9	21.0	40.6	24.0	40.9	12.0	49.6
Max Q Clear Time (g_c+I1), s	19.9	19.2	23.0	21.1	20.6	23.2	14.0	34.4
Green Ext Time (p_c), s	0.1	4.6	0.0	4.4	0.3	4.8	0.0	6.3

Intersection Summary	
HCM 6th Ctrl Delay	64.5
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	230	90	130	130	70	70	2110	250	90	1260	90
Future Volume (veh/h)	150	230	90	130	130	70	70	2110	250	90	1260	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.94	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	172	264	103	137	137	74	72	2175	258	98	1370	98
Peak Hour Factor	0.87	0.87	0.87	0.95	0.95	0.95	0.97	0.97	0.97	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	292	307	247	225	140	76	91	2290	266	113	2465	176
Arrive On Green	0.16	0.16	0.16	0.13	0.13	0.13	0.05	0.50	0.50	0.06	0.51	0.51
Sat Flow, veh/h	1781	1870	1503	1781	1113	601	1781	4617	536	1781	4849	347
Grp Volume(v), veh/h	172	264	103	137	0	211	72	1591	842	98	962	506
Grp Sat Flow(s),veh/h/ln	1781	1870	1503	1781	0	1714	1781	1702	1749	1781	1702	1792
Q Serve(g_s), s	13.0	19.9	8.9	10.6	0.0	17.8	5.8	64.1	67.8	7.9	28.1	28.1
Cycle Q Clear(g_c), s	13.0	19.9	8.9	10.6	0.0	17.8	5.8	64.1	67.8	7.9	28.1	28.1
Prop In Lane	1.00		1.00	1.00		0.35	1.00		0.31	1.00		0.19
Lane Grp Cap(c), veh/h	292	307	247	225	0	216	91	1688	868	113	1730	911
V/C Ratio(X)	0.59	0.86	0.42	0.61	0.00	0.98	0.79	0.94	0.97	0.87	0.56	0.56
Avail Cap(c_a), veh/h	326	342	275	225	0	216	155	1688	868	113	1730	911
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.1	59.0	54.4	60.0	0.0	63.1	68.0	34.6	35.5	67.3	24.4	24.4
Incr Delay (d2), s/veh	2.3	18.0	1.1	4.7	0.0	54.0	14.1	12.0	24.2	46.3	1.3	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	11.0	3.5	5.1	0.0	11.0	3.0	27.8	33.0	5.0	11.2	12.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.3	77.0	55.5	64.7	0.0	117.1	82.1	46.6	59.7	113.6	25.7	26.9
LnGrp LOS	E	E	E	E	A	F	F	D	E	F	C	C
Approach Vol, veh/h		539			348			2505			1566	
Approach Delay, s/veh		66.9			96.5			52.0			31.6	
Approach LOS		E			F			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.0	77.7		28.9	13.2	79.5		23.4				
Change Period (Y+Rc), s	5.8	5.8		5.1	5.8	5.8		5.1				
Max Green Setting (Gmax), s	9.2	69.2		26.5	12.6	65.8		18.3				
Max Q Clear Time (g_c+I1), s	9.9	69.8		21.9	7.8	30.1		19.8				
Green Ext Time (p_c), s	0.0	0.0		1.1	0.0	12.0		0.0				

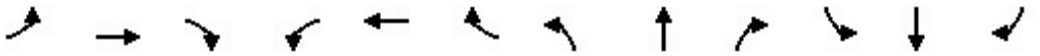
Intersection Summary			
HCM 6th Ctrl Delay		50.3	
HCM 6th LOS		D	

Notes

User approved pedestrian interval to be less than phase max green.

APPENDIX K

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – BUILDOUT + PROJECT



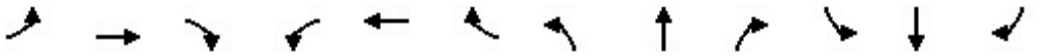
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	76	20	10	10	28	610	10	10	1108	20
Future Volume (veh/h)	10	0	76	20	10	10	28	610	10	10	1108	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.97	1.00		0.97	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	15	0	113	30	15	15	30	649	11	11	1274	23
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.94	0.94	0.94	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	93	0	455	78	28	455	195	1581	27	162	1514	27
Arrive On Green	0.30	0.00	0.30	0.30	0.30	0.30	0.11	0.44	0.44	0.09	0.42	0.42
Sat Flow, veh/h	69	0	1539	60	93	1539	1781	3573	61	1781	3568	64
Grp Volume(v), veh/h	15	0	113	45	0	15	30	323	337	11	634	663
Grp Sat Flow(s),veh/h/ln	69	0	1539	154	0	1539	1781	1777	1857	1781	1777	1856
Q Serve(g_s), s	1.1	0.0	5.6	1.8	0.0	0.7	1.5	12.4	12.4	0.6	32.0	32.0
Cycle Q Clear(g_c), s	29.1	0.0	5.6	29.5	0.0	0.7	1.5	12.4	12.4	0.6	32.0	32.0
Prop In Lane	1.00		1.00	0.67		1.00	1.00		0.03	1.00		0.03
Lane Grp Cap(c), veh/h	93	0	455	105	0	455	195	786	821	162	754	787
V/C Ratio(X)	0.16	0.00	0.25	0.43	0.00	0.03	0.15	0.41	0.41	0.07	0.84	0.84
Avail Cap(c_a), veh/h	114	0	478	128	0	478	195	800	835	162	800	835
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.53	0.53	0.53	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.1	0.0	26.8	37.4	0.0	25.1	40.3	19.0	19.0	41.6	25.8	25.8
Incr Delay (d2), s/veh	0.8	0.0	0.3	2.7	0.0	0.0	0.2	0.4	0.4	0.2	8.8	8.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	1.2	0.0	0.3	0.7	4.8	5.0	0.2	14.1	14.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.9	0.0	27.1	40.1	0.0	25.1	40.5	19.4	19.4	41.7	34.5	34.3
LnGrp LOS	D	A	C	D	A	C	D	B	B	D	C	C
Approach Vol, veh/h		128			60			690			1308	
Approach Delay, s/veh		29.7			36.3			20.3			34.5	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.7	51.2		35.0	15.6	49.4		35.0				
Change Period (Y+Rc), s	5.4	7.0		* 4.7	5.4	7.0		* 4.7				
Max Green Setting (Gmax), s	6.8	45.0		* 31	6.8	45.0		* 31				
Max Q Clear Time (g_c+I1), s	2.6	14.4		31.1	3.5	34.0		31.5				
Green Ext Time (p_c), s	0.0	7.9		0.0	0.0	8.4		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		29.8	
HCM 6th LOS		C	

Notes

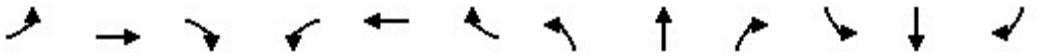
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	456	10	15	903	33	40	0	16	81	0	60
Future Volume (veh/h)	10	456	10	15	903	33	40	0	16	81	0	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.99		0.96	0.99		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	524	11	21	1272	46	42	0	17	100	0	74
Peak Hour Factor	0.87	0.87	0.87	0.71	0.71	0.71	0.96	0.96	0.96	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	24	2201	46	40	2194	79	233	11	71	200	16	114
Arrive On Green	0.01	0.62	0.62	0.02	0.63	0.63	0.18	0.00	0.18	0.18	0.00	0.18
Sat Flow, veh/h	1781	3556	75	1781	3493	126	920	63	398	770	90	636
Grp Volume(v), veh/h	11	262	273	21	646	672	59	0	0	174	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1854	1781	1777	1842	1381	0	0	1496	0	0
Q Serve(g_s), s	0.6	5.9	5.9	1.0	19.1	19.2	0.0	0.0	0.0	6.3	0.0	0.0
Cycle Q Clear(g_c), s	0.6	5.9	5.9	1.0	19.1	19.2	3.1	0.0	0.0	9.4	0.0	0.0
Prop In Lane	1.00		0.04	1.00		0.07	0.71		0.29	0.57		0.43
Lane Grp Cap(c), veh/h	24	1100	1147	40	1116	1157	315	0	0	330	0	0
V/C Ratio(X)	0.46	0.24	0.24	0.52	0.58	0.58	0.19	0.00	0.00	0.53	0.00	0.00
Avail Cap(c_a), veh/h	101	1100	1147	111	1116	1157	514	0	0	539	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.30	0.30	0.30	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	44.1	7.7	7.7	43.5	9.8	9.8	31.6	0.0	0.0	34.0	0.0	0.0
Incr Delay (d2), s/veh	5.1	0.5	0.5	1.2	0.7	0.6	0.3	0.0	0.0	1.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.9	2.0	0.5	5.8	6.0	1.1	0.0	0.0	3.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.2	8.2	8.2	44.6	10.4	10.4	31.9	0.0	0.0	35.3	0.0	0.0
LnGrp LOS	D	A	A	D	B	B	C	A	A	D	A	A
Approach Vol, veh/h		546			1339			59			174	
Approach Delay, s/veh		9.0			11.0			31.9			35.3	
Approach LOS		A			B			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.4	61.9		20.7	6.6	62.7		20.7				
Change Period (Y+Rc), s	5.4	6.2		4.6	5.4	6.2		4.6				
Max Green Setting (Gmax), s	5.6	39.0		29.2	5.1	39.5		29.2				
Max Q Clear Time (g_c+I1), s	3.0	7.9		11.4	2.6	21.2		5.1				
Green Ext Time (p_c), s	0.0	4.3		0.9	0.0	10.5		0.3				

Intersection Summary			
HCM 6th Ctrl Delay		13.0	
HCM 6th LOS		B	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	708	340	435	830	133	500	800	329	159	400	250
Future Volume (veh/h)	270	708	340	435	830	133	500	800	329	159	400	250
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.97	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	310	814	391	458	874	140	568	909	374	192	482	301
Peak Hour Factor	0.87	0.87	0.87	0.95	0.95	0.95	0.88	0.88	0.88	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	453	915	395	601	917	147	608	1163	780	238	1124	337
Arrive On Green	0.13	0.26	0.26	0.17	0.30	0.30	0.18	0.33	0.33	0.07	0.22	0.22
Sat Flow, veh/h	3456	3554	1535	3456	3053	489	3456	3554	1541	3456	5106	1529
Grp Volume(v), veh/h	310	814	391	458	509	505	568	909	374	192	482	301
Grp Sat Flow(s),veh/h/ln	1728	1777	1535	1728	1777	1765	1728	1777	1541	1728	1702	1529
Q Serve(g_s), s	12.4	32.0	36.8	18.3	40.7	40.7	23.5	33.5	23.2	7.9	11.8	27.7
Cycle Q Clear(g_c), s	12.4	32.0	36.8	18.3	40.7	40.7	23.5	33.5	23.2	7.9	11.8	27.7
Prop In Lane	1.00		1.00	1.00		0.28	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	453	915	395	601	534	530	608	1163	780	238	1124	337
V/C Ratio(X)	0.68	0.89	0.99	0.76	0.95	0.95	0.93	0.78	0.48	0.81	0.43	0.89
Avail Cap(c_a), veh/h	453	915	395	601	537	533	610	1169	783	260	1162	348
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00	0.48	0.48	0.48
Uniform Delay (d), s/veh	60.1	51.9	53.6	57.0	49.7	49.7	58.9	44.1	23.8	66.5	48.7	54.9
Incr Delay (d2), s/veh	4.1	11.2	42.1	5.7	27.9	28.0	21.6	3.7	0.7	8.1	0.2	13.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	15.2	18.3	8.3	21.5	21.4	11.9	15.0	8.2	3.7	5.0	11.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.3	63.0	95.7	62.7	77.6	77.7	80.5	47.8	24.5	74.7	48.9	68.6
LnGrp LOS	E	E	F	E	E	E	F	D	C	E	D	E
Approach Vol, veh/h		1515			1472			1851			975	
Approach Delay, s/veh		71.7			73.0			53.1			60.0	
Approach LOS		E			E			D			E	

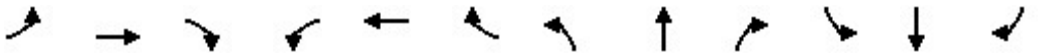
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.4	54.4	30.6	44.5	30.9	38.9	24.4	50.7
Change Period (Y+Rc), s	5.4	7.0	5.4	7.2	5.4	7.0	5.4	7.2
Max Green Setting (Gmax), s	10.9	47.7	24.4	37.0	25.6	33.0	17.6	43.8
Max Q Clear Time (g_c+I1), s	9.9	35.5	20.3	38.8	25.5	29.7	14.4	42.7
Green Ext Time (p_c), s	0.1	7.3	0.7	0.0	0.0	1.7	0.3	0.9

Intersection Summary	
HCM 6th Ctrl Delay	64.2
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

User approved changes to right turn type.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	800	26	7	1500	10	98	3	25	20	1	70
Future Volume (veh/h)	30	800	26	7	1500	10	98	3	25	20	1	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.96	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	42	1127	37	9	1829	12	108	3	27	23	1	80
Peak Hour Factor	0.71	0.71	0.71	0.82	0.82	0.82	0.91	0.91	0.91	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	54	1896	62	19	1866	12	69	22	199	296	5	397
Arrive On Green	0.03	0.54	0.54	0.01	0.52	0.52	0.04	0.14	0.14	0.17	0.26	0.26
Sat Flow, veh/h	1781	3510	115	1781	3618	24	1781	161	1449	1781	19	1519
Grp Volume(v), veh/h	42	570	594	9	897	944	108	0	30	23	0	81
Grp Sat Flow(s),veh/h/ln	1781	1777	1848	1781	1777	1865	1781	0	1610	1781	0	1538
Q Serve(g_s), s	3.0	28.3	28.3	0.7	64.2	64.5	5.0	0.0	2.1	1.4	0.0	5.3
Cycle Q Clear(g_c), s	3.0	28.3	28.3	0.7	64.2	64.5	5.0	0.0	2.1	1.4	0.0	5.3
Prop In Lane	1.00		0.06	1.00		0.01	1.00		0.90	1.00		0.99
Lane Grp Cap(c), veh/h	54	960	998	19	917	962	69	0	222	296	0	402
V/C Ratio(X)	0.78	0.59	0.59	0.47	0.98	0.98	1.58	0.00	0.14	0.08	0.00	0.20
Avail Cap(c_a), veh/h	73	960	998	69	917	962	69	0	223	296	0	402
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.19	0.19	0.19	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	62.6	20.2	20.3	63.9	30.8	30.8	62.5	0.0	49.3	45.8	0.0	37.4
Incr Delay (d2), s/veh	26.9	2.7	2.6	3.4	8.9	9.0	318.0	0.0	0.3	0.5	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	11.9	12.3	0.3	27.9	29.5	8.3	0.0	0.9	0.7	0.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	89.5	23.0	22.9	67.4	39.7	39.8	380.5	0.0	49.5	46.3	0.0	38.5
LnGrp LOS	F	C	C	E	D	D	F	A	D	D	A	D
Approach Vol, veh/h		1206			1850			138			104	
Approach Delay, s/veh		25.2			39.9			308.5			40.3	
Approach LOS		C			D			F			D	

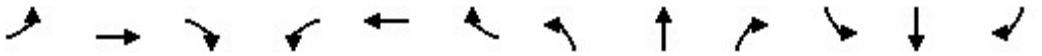
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.9	76.0	9.5	38.6	9.0	72.9	25.6	22.5
Change Period (Y+Rc), s	4.5	5.8	4.5	4.6	5.1	5.8	4.0	* 4.6
Max Green Setting (Gmax), s	5.0	66.6	5.0	34.0	5.3	65.7	21.6	* 18
Max Q Clear Time (g_c+I1), s	2.7	30.3	7.0	7.3	5.0	66.5	3.4	4.1
Green Ext Time (p_c), s	0.0	18.1	0.0	0.4	0.0	0.0	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	45.8
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



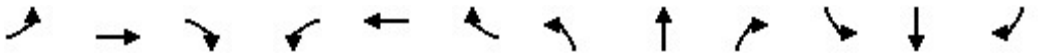
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	256	763	236	280	803	150	292	470	180	260	770	382
Future Volume (veh/h)	256	763	236	280	803	150	292	470	180	260	770	382
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93	1.00		0.93	1.00		0.91	1.00		0.91
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	308	919	284	315	902	169	417	671	257	302	895	444
Peak Hour Factor	0.83	0.83	0.83	0.89	0.89	0.89	0.70	0.70	0.70	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	271	895	698	271	895	660	369	1014	654	326	929	617
Arrive On Green	0.15	0.25	0.25	0.15	0.25	0.25	0.21	0.29	0.29	0.18	0.26	0.26
Sat Flow, veh/h	1781	3554	1470	1781	3554	1470	1781	3554	1446	1781	3554	1435
Grp Volume(v), veh/h	308	919	284	315	902	169	417	671	257	302	895	444
Grp Sat Flow(s),veh/h/ln	1781	1777	1470	1781	1777	1470	1781	1777	1446	1781	1777	1435
Q Serve(g_s), s	22.1	36.5	18.8	22.1	36.5	10.6	30.0	24.1	17.6	24.2	36.1	37.9
Cycle Q Clear(g_c), s	22.1	36.5	18.8	22.1	36.5	10.6	30.0	24.1	17.6	24.2	36.1	37.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	271	895	698	271	895	660	369	1014	654	326	929	617
V/C Ratio(X)	1.13	1.03	0.41	1.16	1.01	0.26	1.13	0.66	0.39	0.93	0.96	0.72
Avail Cap(c_a), veh/h	271	895	698	271	895	660	369	1014	654	369	929	617
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.5	54.3	26.3	61.5	54.3	26.2	57.5	45.6	27.9	58.3	52.9	36.1
Incr Delay (d2), s/veh	95.8	37.3	0.4	105.1	32.1	0.2	87.6	1.6	0.4	27.4	21.1	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.1	20.6	6.6	17.8	20.0	3.7	22.4	10.9	6.1	13.3	18.6	13.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	157.3	91.5	26.7	166.5	86.4	26.4	145.1	47.3	28.3	85.7	74.0	40.2
LnGrp LOS	F	F	C	F	F	C	F	D	C	F	E	D
Approach Vol, veh/h		1511			1386			1345			1641	
Approach Delay, s/veh		92.7			97.3			74.0			67.0	
Approach LOS		F			F			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	34.0	43.0	26.1	41.9	30.5	46.5	26.1	41.9
Change Period (Y+Rc), s	4.0	5.1	4.0	5.4	4.0	5.1	4.0	5.4
Max Green Setting (Gmax), s	30.0	37.9	22.1	36.5	30.0	37.9	22.1	36.5
Max Q Clear Time (g_c+I1), s	32.0	39.9	24.1	38.5	26.2	26.1	24.1	38.5
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.3	4.3	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	82.3
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.



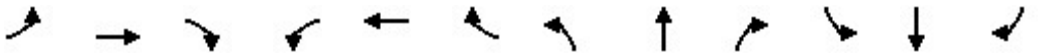
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	210	110	260	220	111	190	1308	110	73	1880	163
Future Volume (veh/h)	131	210	110	260	220	111	190	1308	110	73	1880	163
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.95	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	158	253	133	292	247	125	213	1470	124	75	1938	168
Peak Hour Factor	0.83	0.83	0.83	0.89	0.89	0.89	0.89	0.89	0.89	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	288	302	242	318	205	104	187	2181	184	94	1929	166
Arrive On Green	0.16	0.16	0.16	0.18	0.18	0.18	0.10	0.46	0.46	0.05	0.40	0.40
Sat Flow, veh/h	1781	1870	1499	1781	1148	581	1781	4780	403	1781	4769	411
Grp Volume(v), veh/h	158	253	133	292	0	372	213	1047	547	75	1379	727
Grp Sat Flow(s),veh/h/ln	1781	1870	1499	1781	0	1729	1781	1702	1779	1781	1702	1776
Q Serve(g_s), s	11.8	19.0	11.8	23.4	0.0	25.9	15.2	35.0	35.0	6.0	58.7	58.7
Cycle Q Clear(g_c), s	11.8	19.0	11.8	23.4	0.0	25.9	15.2	35.0	35.0	6.0	58.7	58.7
Prop In Lane	1.00		1.00	1.00		0.34	1.00		0.23	1.00		0.23
Lane Grp Cap(c), veh/h	288	302	242	318	0	309	187	1554	812	94	1377	718
V/C Ratio(X)	0.55	0.84	0.55	0.92	0.00	1.20	1.14	0.67	0.67	0.80	1.00	1.01
Avail Cap(c_a), veh/h	343	360	288	318	0	309	187	1554	812	138	1377	718
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.9	58.9	55.9	58.5	0.0	59.6	64.9	30.9	30.9	67.9	43.2	43.2
Incr Delay (d2), s/veh	1.6	13.7	1.9	30.3	0.0	118.5	108.8	2.4	4.5	17.8	24.7	36.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	10.2	4.6	13.2	0.0	21.5	12.4	14.4	15.5	3.2	28.3	31.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.5	72.6	57.8	88.8	0.0	178.1	173.7	33.3	35.4	85.7	67.8	79.7
LnGrp LOS	E	E	E	F	A	F	F	C	D	F	F	F
Approach Vol, veh/h		544			664			1807			2181	
Approach Delay, s/veh		64.6			138.8			50.5			72.4	
Approach LOS		E			F			D			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.5	72.0		28.5	21.0	64.5		31.0				
Change Period (Y+Rc), s	5.8	5.8		5.1	5.8	5.8		5.1				
Max Green Setting (Gmax), s	11.2	58.2		27.9	15.2	54.2		25.9				
Max Q Clear Time (g_c+I1), s	8.0	37.0		21.0	17.2	60.7		27.9				
Green Ext Time (p_c), s	0.0	10.8		1.4	0.0	0.0		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			72.5									
HCM 6th LOS			E									

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	10	53	10	10	0	81	1263	10	10	1030	20
Future Volume (veh/h)	10	10	53	10	10	0	81	1263	10	10	1030	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.95	0.98		1.00	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	15	15	79	15	15	0	86	1344	11	11	1184	23
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.94	0.94	0.94	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	151	134	215	147	130	226	603	1581	13	534	1422	28
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.00	0.34	0.44	0.41	0.30	0.40	0.37
Sat Flow, veh/h	681	942	1509	654	914	1585	1781	3611	30	1781	3562	69
Grp Volume(v), veh/h	30	0	79	30	0	0	86	661	694	11	590	617
Grp Sat Flow(s),veh/h/ln	1622	0	1509	1568	0	1585	1781	1777	1864	1781	1777	1854
Q Serve(g_s), s	0.0	0.0	4.7	0.0	0.0	0.0	3.4	33.3	33.4	0.4	29.9	29.9
Cycle Q Clear(g_c), s	1.4	0.0	4.7	1.4	0.0	0.0	3.4	33.3	33.4	0.4	29.9	29.9
Prop In Lane	0.50		1.00	0.50		1.00	1.00		0.02	1.00		0.04
Lane Grp Cap(c), veh/h	285	0	215	277	0	226	603	778	816	534	709	740
V/C Ratio(X)	0.11	0.00	0.37	0.11	0.00	0.00	0.14	0.85	0.85	0.02	0.83	0.83
Avail Cap(c_a), veh/h	640	0	554	619	0	582	603	778	816	534	734	766
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.61	0.61	0.61	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.4	0.0	38.8	37.4	0.0	0.0	23.0	25.2	25.2	24.7	27.0	27.1
Incr Delay (d2), s/veh	0.2	0.0	1.0	0.2	0.0	0.0	0.1	6.1	5.9	0.0	8.9	8.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	1.8	0.7	0.0	0.0	1.3	14.0	14.7	0.2	13.4	13.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.5	0.0	39.8	37.5	0.0	0.0	23.1	31.3	31.1	24.7	36.0	35.7
LnGrp LOS	D	A	D	D	A	A	C	C	C	C	D	D
Approach Vol, veh/h		109			30			1441			1218	
Approach Delay, s/veh		39.2			37.5			30.7			35.7	
Approach LOS		D			D			C			D	

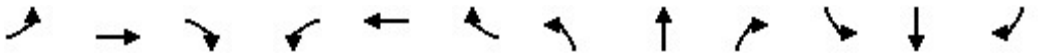
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	34.0	47.8		18.2	37.8	43.9		18.2				
Change Period (Y+Rc), s	5.4	7.0		* 4.7	5.4	7.0		* 4.7				
Max Green Setting (Gmax), s	7.9	39.0		* 36	8.6	38.3		* 36				
Max Q Clear Time (g_c+I1), s	2.4	35.4		6.7	5.4	31.9		3.4				
Green Ext Time (p_c), s	0.0	3.1		0.4	0.0	5.0		0.1				

Intersection Summary	
HCM 6th Ctrl Delay	33.3
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



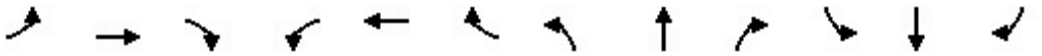
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	1173	10	12	830	91	20	0	20	43	0	30
Future Volume (veh/h)	60	1173	10	12	830	91	20	0	20	43	0	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.98		0.95	0.98		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	69	1631	11	17	1415	128	21	0	21	53	0	37
Peak Hour Factor	0.87	0.87	0.87	0.71	0.71	0.71	0.96	0.96	0.96	0.81	0.81	0.81
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	115	2498	17	62	2171	195	151	18	109	170	15	85
Arrive On Green	0.06	0.69	0.67	0.03	0.66	0.64	0.14	0.00	0.13	0.14	0.00	0.13
Sat Flow, veh/h	1781	3617	24	1781	3287	295	643	130	773	755	110	604
Grp Volume(v), veh/h	69	801	841	17	761	782	42	0	0	90	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1865	1781	1777	1805	1546	0	0	1468	0	0
Q Serve(g_s), s	3.4	22.8	22.9	0.8	22.9	23.5	0.0	0.0	0.0	2.8	0.0	0.0
Cycle Q Clear(g_c), s	3.4	22.8	22.9	0.8	22.9	23.5	2.0	0.0	0.0	4.8	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.16	0.50		0.50	0.59		0.41
Lane Grp Cap(c), veh/h	115	1227	1288	62	1174	1193	278	0	0	271	0	0
V/C Ratio(X)	0.60	0.65	0.65	0.27	0.65	0.66	0.15	0.00	0.00	0.33	0.00	0.00
Avail Cap(c_a), veh/h	135	1227	1288	129	1174	1193	545	0	0	537	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.62	0.62	0.62	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	40.9	7.8	7.9	42.3	9.1	9.3	34.2	0.0	0.0	35.2	0.0	0.0
Incr Delay (d2), s/veh	2.4	2.7	2.6	0.5	1.7	1.8	0.2	0.0	0.0	0.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	6.7	7.0	0.4	6.8	7.2	0.8	0.0	0.0	1.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.3	10.5	10.4	42.9	10.8	11.0	34.4	0.0	0.0	36.0	0.0	0.0
LnGrp LOS	D	B	B	D	B	B	C	A	A	D	A	A
Approach Vol, veh/h		1711			1560			42			90	
Approach Delay, s/veh		11.8			11.3			34.4			36.0	
Approach LOS		B			B			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.1	66.2		16.7	9.8	63.5		16.7				
Change Period (Y+Rc), s	5.4	6.2		4.6	5.4	6.2		4.6				
Max Green Setting (Gmax), s	5.1	39.7		29.0	5.4	39.4		29.0				
Max Q Clear Time (g_c+I1), s	2.8	24.9		6.8	5.4	25.5		4.0				
Green Ext Time (p_c), s	0.0	11.1		0.4	0.0	10.1		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		12.5	
HCM 6th LOS		B	

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	260	1030	500	166	563	215	350	600	286	283	700	230
Future Volume (veh/h)	260	1030	500	166	563	215	350	600	286	283	700	230
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	299	1184	575	175	593	226	398	682	325	341	843	277
Peak Hour Factor	0.87	0.87	0.87	0.95	0.95	0.95	0.88	0.88	0.88	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	693	1348	586	574	861	328	474	792	587	419	1056	316
Arrive On Green	0.20	0.38	0.38	0.17	0.35	0.32	0.14	0.22	0.21	0.12	0.21	0.21
Sat Flow, veh/h	3456	3554	1545	3456	2495	949	3456	3554	1528	3456	5106	1527
Grp Volume(v), veh/h	299	1184	575	175	422	397	398	682	325	341	843	277
Grp Sat Flow(s),veh/h/ln	1728	1777	1545	1728	1777	1667	1728	1777	1528	1728	1702	1527
Q Serve(g_s), s	11.0	45.0	53.4	6.4	29.6	29.9	16.3	26.8	24.4	14.0	22.7	25.5
Cycle Q Clear(g_c), s	11.0	45.0	53.4	6.4	29.6	29.9	16.3	26.8	24.4	14.0	22.7	25.5
Prop In Lane	1.00		1.00	1.00		0.57	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	693	1348	586	574	613	575	474	792	587	419	1056	316
V/C Ratio(X)	0.43	0.88	0.98	0.30	0.69	0.69	0.84	0.86	0.55	0.81	0.80	0.88
Avail Cap(c_a), veh/h	693	1348	586	574	613	575	500	792	587	453	1056	316
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.74	0.74	0.74	1.00	1.00	1.00	1.00	1.00	1.00	0.51	0.51	0.51
Uniform Delay (d), s/veh	50.7	41.9	44.5	53.1	40.8	41.7	61.0	54.2	35.6	62.1	54.6	55.7
Incr Delay (d2), s/veh	0.3	5.6	27.5	0.3	4.2	4.5	11.6	9.8	1.4	5.5	2.4	13.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	19.9	23.9	2.8	13.2	12.7	7.8	12.8	9.0	6.3	9.8	10.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.1	47.5	72.0	53.4	45.0	46.2	72.6	64.0	37.0	67.7	57.0	69.5
LnGrp LOS	D	D	E	D	D	D	E	E	D	E	E	E
Approach Vol, veh/h		2058			994			1405			1461	
Approach Delay, s/veh		54.9			46.9			60.2			61.9	
Approach LOS		D			D			E			E	

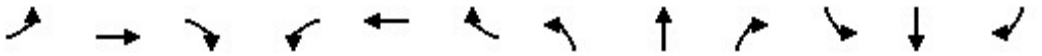
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.6	36.3	28.1	59.0	23.9	34.0	33.1	54.0
Change Period (Y+Rc), s	5.4	7.0	5.4	7.2	5.4	7.0	5.4	7.2
Max Green Setting (Gmax), s	17.6	29.0	21.6	51.8	19.6	27.0	27.6	45.8
Max Q Clear Time (g_c+I1), s	16.0	28.8	8.4	55.4	18.3	27.5	13.0	31.9
Green Ext Time (p_c), s	0.2	0.2	0.4	0.0	0.2	0.0	0.8	6.8

Intersection Summary	
HCM 6th Ctrl Delay	56.5
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

User approved changes to right turn type.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	1400	99	25	800	80	44	1	11	20	3	60
Future Volume (veh/h)	140	1400	99	25	800	80	44	1	11	20	3	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.96	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	197	1972	139	30	976	98	45	1	11	23	3	69
Peak Hour Factor	0.71	0.71	0.71	0.82	0.82	0.82	0.98	0.98	0.98	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	235	1937	135	44	1531	154	58	17	183	274	16	358
Arrive On Green	0.13	0.58	0.56	0.02	0.47	0.46	0.03	0.12	0.12	0.15	0.24	0.25
Sat Flow, veh/h	1781	3368	234	1781	3247	326	1781	134	1472	1781	64	1480
Grp Volume(v), veh/h	197	1028	1083	30	534	540	45	0	12	23	0	72
Grp Sat Flow(s),veh/h/ln	1781	1777	1826	1781	1777	1796	1781	0	1605	1781	0	1545
Q Serve(g_s), s	15.1	80.5	80.5	2.3	31.8	31.9	3.5	0.0	0.9	1.6	0.0	5.2
Cycle Q Clear(g_c), s	15.1	80.5	80.5	2.3	31.8	31.9	3.5	0.0	0.9	1.6	0.0	5.2
Prop In Lane	1.00		0.13	1.00		0.18	1.00		0.92	1.00		0.96
Lane Grp Cap(c), veh/h	235	1022	1050	44	838	847	58	0	200	274	0	374
V/C Ratio(X)	0.84	1.01	1.03	0.68	0.64	0.64	0.78	0.00	0.06	0.08	0.00	0.19
Avail Cap(c_a), veh/h	327	1022	1050	64	838	847	64	0	206	274	0	374
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.64	0.64	0.64	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	59.3	29.7	29.9	67.7	27.9	28.1	67.2	0.0	54.0	50.8	0.0	41.9
Incr Delay (d2), s/veh	11.5	29.8	36.1	11.4	2.4	2.4	41.4	0.0	0.1	0.6	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	40.1	43.1	1.2	13.7	13.9	2.3	0.0	0.4	0.7	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.9	59.5	65.9	79.2	30.3	30.5	108.7	0.0	54.2	51.4	0.0	43.1
LnGrp LOS	E	F	F	E	C	C	F	A	D	D	A	D
Approach Vol, veh/h		2308			1104			57			95	
Approach Delay, s/veh		63.5			31.7			97.2			45.1	
Approach LOS		E			C			F			D	

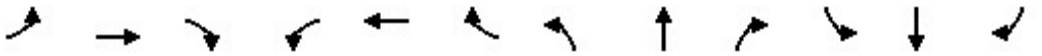
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	84.5	9.1	38.5	22.4	70.0	25.5	22.1
Change Period (Y+Rc), s	4.5	5.8	4.5	4.6	5.1	5.8	4.0	* 4.6
Max Green Setting (Gmax), s	5.0	76.7	5.0	33.9	24.6	56.5	21.5	* 18
Max Q Clear Time (g_c+I1), s	4.3	82.5	5.5	7.2	17.1	33.9	3.6	2.9
Green Ext Time (p_c), s	0.0	0.0	0.0	0.4	0.2	12.6	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	53.7
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



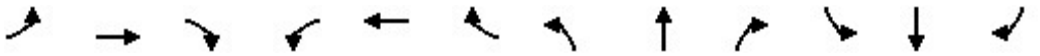
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	303	926	183	220	528	185	246	625	160	225	480	161
Future Volume (veh/h)	303	926	183	220	528	185	246	625	160	225	480	161
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.93	1.00		0.89	1.00		0.87
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	365	1116	220	247	593	208	351	893	229	262	558	187
Peak Hour Factor	0.83	0.83	0.83	0.89	0.89	0.89	0.70	0.70	0.70	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	395	1181	799	276	943	629	358	829	564	286	685	606
Arrive On Green	0.22	0.33	0.32	0.15	0.27	0.25	0.20	0.23	0.23	0.16	0.19	0.18
Sat Flow, veh/h	1781	3554	1491	1781	3554	1471	1781	3554	1414	1781	3554	1381
Grp Volume(v), veh/h	365	1116	220	247	593	208	351	893	229	262	558	187
Grp Sat Flow(s),veh/h/ln	1781	1777	1491	1781	1777	1471	1781	1777	1414	1781	1777	1381
Q Serve(g_s), s	26.9	41.0	11.1	18.3	19.8	12.9	26.3	31.3	16.1	19.4	20.2	12.5
Cycle Q Clear(g_c), s	26.9	41.0	11.1	18.3	19.8	12.9	26.3	31.3	16.1	19.4	20.2	12.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	395	1181	799	276	943	629	358	829	564	286	685	606
V/C Ratio(X)	0.92	0.94	0.28	0.90	0.63	0.33	0.98	1.08	0.41	0.92	0.81	0.31
Avail Cap(c_a), veh/h	532	1183	799	415	950	632	358	829	564	298	688	608
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.2	43.6	17.9	55.7	43.5	26.7	53.4	51.5	30.8	55.5	51.9	27.4
Incr Delay (d2), s/veh	18.3	14.9	0.2	15.4	1.3	0.3	42.1	54.0	0.5	30.9	7.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.8	20.0	3.8	9.3	8.7	4.5	15.9	20.0	5.5	11.1	9.7	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.5	58.5	18.1	71.1	44.8	27.0	95.5	105.5	31.3	86.4	59.4	27.7
LnGrp LOS	E	E	B	E	D	C	F	F	C	F	E	C
Approach Vol, veh/h		1701			1048			1473			1007	
Approach Delay, s/veh		55.6			47.5			91.5			60.5	
Approach LOS		E			D			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	31.0	29.9	33.8	39.6	25.5	35.3	24.8	48.6
Change Period (Y+Rc), s	4.0	5.1	4.0	5.4	4.0	5.1	4.0	5.4
Max Green Setting (Gmax), s	27.0	24.9	40.1	34.5	22.5	29.4	31.3	43.3
Max Q Clear Time (g_c+I1), s	28.3	22.2	28.9	21.8	21.4	33.3	20.3	43.0
Green Ext Time (p_c), s	0.0	1.2	0.8	3.7	0.1	0.0	0.5	0.2

Intersection Summary	
HCM 6th Ctrl Delay	65.1
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	153	230	90	130	130	73	70	2140	250	91	1273	91
Future Volume (veh/h)	153	230	90	130	130	73	70	2140	250	91	1273	91
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.94	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	184	277	108	146	146	82	79	2404	281	94	1312	94
Peak Hour Factor	0.83	0.83	0.83	0.89	0.89	0.89	0.89	0.89	0.89	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	233	245	194	289	178	100	121	2507	283	98	2562	184
Arrive On Green	0.13	0.13	0.13	0.16	0.16	0.15	0.07	0.54	0.53	0.06	0.53	0.52
Sat Flow, veh/h	1781	1870	1484	1781	1099	617	1781	4633	524	1781	4849	347
Grp Volume(v), veh/h	184	277	108	146	0	228	79	1745	940	94	921	485
Grp Sat Flow(s),veh/h/ln	1781	1870	1484	1781	0	1716	1781	1702	1753	1781	1702	1792
Q Serve(g_s), s	14.5	19.0	9.9	10.8	0.0	18.6	6.3	70.0	77.0	7.6	25.4	25.5
Cycle Q Clear(g_c), s	14.5	19.0	9.9	10.8	0.0	18.6	6.3	70.0	77.0	7.6	25.4	25.5
Prop In Lane	1.00		1.00	1.00		0.36	1.00		0.30	1.00		0.19
Lane Grp Cap(c), veh/h	233	245	194	289	0	279	121	1842	948	98	1798	947
V/C Ratio(X)	0.79	1.13	0.56	0.50	0.00	0.82	0.65	0.95	0.99	0.96	0.51	0.51
Avail Cap(c_a), veh/h	233	245	194	565	0	544	344	1842	948	98	1798	947
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.1	63.0	59.0	55.4	0.0	58.9	65.9	31.3	33.2	68.3	22.1	22.3
Incr Delay (d2), s/veh	16.4	97.1	3.4	1.4	0.0	5.9	5.8	11.7	27.2	76.5	1.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	15.7	3.9	5.0	0.0	8.6	3.0	29.7	37.6	5.5	10.0	10.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.4	160.1	62.5	56.8	0.0	64.7	71.7	43.1	60.4	144.8	23.2	24.2
LnGrp LOS	E	F	E	E	A	E	E	D	E	F	C	C
Approach Vol, veh/h		569			374			2764			1500	
Approach Delay, s/veh		114.8			61.6			49.8			31.1	
Approach LOS		F			E			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.0	82.5		23.0	13.9	80.6		27.5				
Change Period (Y+Rc), s	5.8	5.8		5.1	5.8	5.8		5.1				
Max Green Setting (Gmax), s	6.2	54.2		17.9	26.2	34.2		44.9				
Max Q Clear Time (g_c+I1), s	9.6	79.0		21.0	8.3	27.5		20.6				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.1	4.3		1.8				

Intersection Summary			
HCM 6th Ctrl Delay		52.4	
HCM 6th LOS		D	

Notes

User approved pedestrian interval to be less than phase max green.

Appendix M
Water Service Analysis

WATER SERIVCE ANALYSIS

Water Service Analysis

Modera Melrose
Oceanside, California

Southeast Corner of Melrose Drive & Oceanside Boulevard

Date:

July 2022

Prepared for:

MCRT INVESTMENTS LLC.

949 South Coast Drive

Suite 400

Costa Mesa, California 92626

Prepared by:

KIMLEY-HORN AND ASSOCIATES, INC.

401 B Street

Suite 600

San Diego, California 92101

WATER SERVICE ANALYSIS

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1. PROJECT ANALYSIS

Project Information

The Modera Melrose development (the "Project") is located in the City of Oceanside (the City) on the southeast corner of Melrose Drive and Oceanside Boulevard. The project site consists of two parcels that will be merged for a total project area of 7.40-acres (APN: 161-030-23, 161-030-24). Refer to the appendix for project specific information.

Dexter Wilson Engineering, Inc. (DWE) prepared a Water Service Analysis for the Melrose+Oceanside Project (also known as Melrose Heights) in the City of Oceanside on August 30, 2017 (see **Attachment 1**). This DWE memorandum prepared water modeling for the existing public water lines that the proposed Modera Project would connect to for fire and and domestic water service. The water modeling and analysis has been used as the baseline conditions for the evaluation of the Project on the existing public water lines.

Design Criteria

The design criteria for the potable water system are listed in the *2017 City of Oceanside – Water, Sewer, and Reclaimed Water Design & Construction Manual* and summarized in **Table 1**.

Table 1: Water Design Criteria

Design Criteria	
Average Daily Demand (20-30 DU/ac)	4,100 gpcd
Maximum Daily Demand Factor	2.0 × ADD
Peak Hourly Demand Factor	3.0 × ADD
Fire Flow (Multi-Family Residential)	3000 gpm @ 20 psi
Fire Mains - Max Velocity	7.5 fps
Fire Mains - Max Velocity w/ Fire Flow	10 fps

Proposed Water Service

The proposed on-site water system will consist of a 10-inch looped fire main with two (2) points of connection to the existing 12-inch water main in Oceanside Blvd, as depicted in the Water Exhibit. The fire main will connect to six (6) building points of connection with and four (4) onsite fire hydrants. The onsite fire hydrants will connect to the main line via 10-inch fire hydrant laterals.

Additionally, there will be six (6) potable water service connections from each proposed builing to the existing 12-inch main in Oceanside Blvd.

There are a total of six (6) proposed buildings: five (5) buildings are residential units and one (1) is a mixed-use building with residential units (1,745 square feet of leasing office/mail room and 2,365 square feet of commercial use). A breakdown of total square footage per building is summarized in **Table 2**.

Table 2: Building Area

*Building Area per Architecture Plans**	
Building Identification	***Building Square Footage (SF)***
1	45,397 SF
2	61,961 SF
3	150,790 SF
4	30,210 SF
5	70,520 SF
6	56,826 SF
Total	415,704 SF (9.54 acres)**

*Architecture Plans depict 323 Residential Units are proposed
**Due to mixed use project, the floor area ratio (FAR) exceeds total site area.

Since the project's FAR exceeds 1.0, the area of 9.54 acres corresponding to the total developed area will be used for calculations.

Table 3: Average Daily Water Demand

Calculations			
Acreage	***Demand Factor***	***Gallons per Day (GPD)***	***Gallons per Minute (GPM)***
9.54	4,100 gpd/acre	39,127	27.2

Based on the calculations for average daily demand (ADD), the total of 39,127 gallons per day will be used to analyze the Project's impact on the existing City of Oceanside's water system.

Table 4: Maximum Day and Peak Hourly Water Demand

Calculations		
Peaking Factor	***Gallons per Day (GPD)***	***Gallons per Minute (GPM)***
MDD = ADD * 2.0	78,255	54.3
PHD = ADD * 3.0	234,764	81.5

Table 5: Fire Flow Demand

Calculations	
Scenario	***Gallons per Minute (GPM)***
Maximum Day Demand	53.3
Fire Flow Demand	3,000.0
Maximum Day + Fire Flow Demand	3,053.3

Existing Water Analysis / Basis of Design

Dexter Wilson Engineering, Inc. (DWE) prepared a Water Service Analysis for the Modera Project in the City of Oceanside on August 30, 2017 (see **Attachment 1**). The DWE study was used as a basis of design for the analysis of the proposed water system.

Shown in **Table 6** are the results from the DWE study that were used to calibrate the proposed water model by Kimley-Horn.

Table 6: Basis of Design – Pressures

Existing Study Results			
Model Node	***Elevation***	***Condition 2 (MDD) Pressure***	***Condition 5 (MDD+FF) Pressure***
56	433.00 ft	53.50 psi	38.70 psi
932	455.00 ft	43.97 psi	26.80 psi

Node 56 is located near the northwest corner of the proposed Project, at the intersection of Melrose Drive and West Bobier Drive (Oceanside Blvd). Node 932 is located near the northeast corner of the Project, at the intersection of Sports Park Way and West Bobier Drive. Both Nodes 56 and 932 are part of the existing 12-inch water line in West Bobier Drive that will serve the Project.

Condition No. 2 of the existing DWE study models the Maximum Day Demand (MDD) througout the Peacok Hills 626 Pressure Zone. Condition No. 5 of the exitsting DWE study models the Maximum Day Demand plus Fire Flow (MDD+FF), with fire demand simulated at Node 918. Conditions No. 2 and No. 5 were as selected as a reference points for calibration because of the proximity of Node 918 to the proposed Project area.

Water Analysis

Bentley's WaterCAD program was utilized to analyze residual pressures and flow velocities in the proposed condition. This analysis determines that with the addition of water demands generated by the Project, the water system within the 626 Pressure Zone still operates within the City's standards.

WaterCAD is a dynamic water distribution system modeling software that models multiple fire flow events evaluating velocities, pressures, and headlosses across the entire system. Preparation and calibration of the model was based on the following information:

- System layout (see **Exhibit A** for node and pipe layout)
- Existing DWE Water Service Analysis (see **Attachment 1**)
- Hazen-Williams headloss coefficient (C) of 130 used for all on-site pipes to account for minor losses

In addition to this info, artificial demands were assumed to calibrate the model. Adding these demands allowed the observed field conditions (pressure) to be matched without having to model the entire water system.

Since the off-site water system is looped, the model was set up such that there are two feed pipes to the existing 12-inch waterline. Feed pipes were run from the reservoir to existing Nodes 56 and 932 with artificial demand nodes placed in the middle of the feed pipe runs. The length and size of these pipes, as well as the artificial demands, were adjusted so that the residual pressures at both Nodes matched the residual pressures of the existing DWE model.

WaterCAD inputs consist of node elevations, pipe diameters, pipe roughness coefficients, and flow rates. See **Table 7** and **Table 8** for a summary of the model results for the proposed Project. Detailed model results are provided in **Attachment 2**.

Table 7: Proposed Water System – Maximum Day and Peak Hourly Demand

Summary		
Node	***MDD Residual Pressure (psi)***	***PHD Residual Pressure (psi)***
WATR-POC-1	44.93	44.82
WATR-POC-2	44.81	44.43
WATR-POC-3	44.02	41.41
WATR-POC-4	47.65	47.36
WATR-POC-5	51.23	51.06
WATR-POC-6	46.88	46.76

Table 8: Proposed Fire Water System – Maxiumum Day Plus Fire Flow

Summary		
Node	***Hydrant Residual Pressure (psi)***	***Max Velocity in 10" Fire Main (fps)***
FH-1	21.27	7.74
FH-2	22.98	6.18
FH-3	24.56	8.23
FH-4	24.13	8.44

2. RECOMMENDATIONS & CONCLUSIONS

A 10-inch looped fire main is recommended to to meet the *2017 City of Oceanside – Water, Sewer, and Reclaimed Water Design & Construction Manual* and typical engineering best-practices based on the preliminary design. Pipe size locations are shown on the **Water Exhibit.**

The Projects proposed demand will not require additional improvements to the existing water system. It is recommended that a fire flow test be performed prior to construction to verify the availability of sufficient system pressure.



Davie Cowan, P.E.
CA PE 86803

EXHIBITS

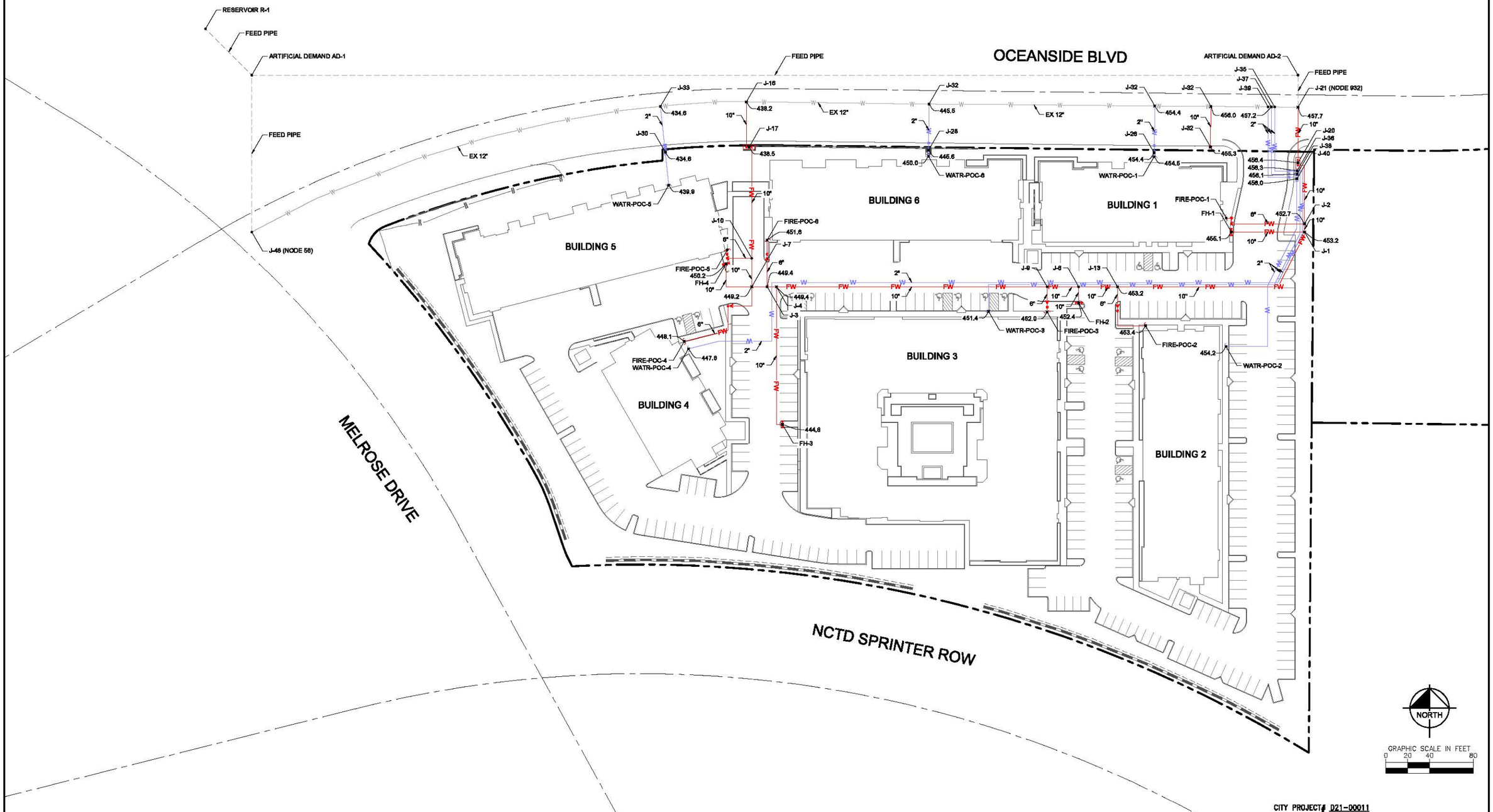
Figure 1 - VICINITY MAP



Source: NearMap, 2022

LEGEND

- BUILDING OUTLINE
- RETAINING WALL
- PROP PRIVATE WATER SERVICE
- PROP PRIVATE FIRE SERVICE
- PROJECT BOUNDARY



CITY PROJECT# DZ1-00011

REVISIONS				
SHT.	DESCRIPTION	DATE	BY	APRD

APPROVALS		INITIAL	DATE
	PROJECT ENG.		

Kimley»Horn

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401 B STREET, SUITE 600, SAN DIEGO, CA 92101
PHONE: 619-234-9411

PREPARED BY: EUGENE DAVIS COWAN III (FIRST LASTNAME) R.C.E. NO.: 86803 DATE: 7/26/2022

SCALE:	AS SHOWN
DESIGN:	EL
DRAWN:	SM
CHECKED:	DC
APPROVED:	--
DATE:	7/26/22

CITY OF OCEANSIDE

WATER EXHIBIT

ATTACHMENTS

1. DWE WATER SERVICE ANALYSIS (FOR REFERENCE)

DEXTER WILSON ENGINEERING, INC.

WATER • WASTEWATER • RECYCLED WATER

CONSULTING ENGINEERS

WATER SERVICE ANALYSIS
FOR THE
MELROSE+OCEANSIDE PROJECT
IN THE CITY OF OCEANSIDE

Revised August 30, 2017

2234 FARADAY AVENUE • CARLSBAD, CA • (760) 438-4422

WATER SERVICE ANALYSIS
FOR THE
MELROSE+OCEANSIDE PROJECT
IN THE CITY OF OCEANSIDE

Revised August 30, 2017



8-30-2017

Prepared by:
Dexter Wilson Engineering, Inc.
2234 Faraday Avenue
Carlsbad, CA 92008
760-438-4422

Job No. 965-001

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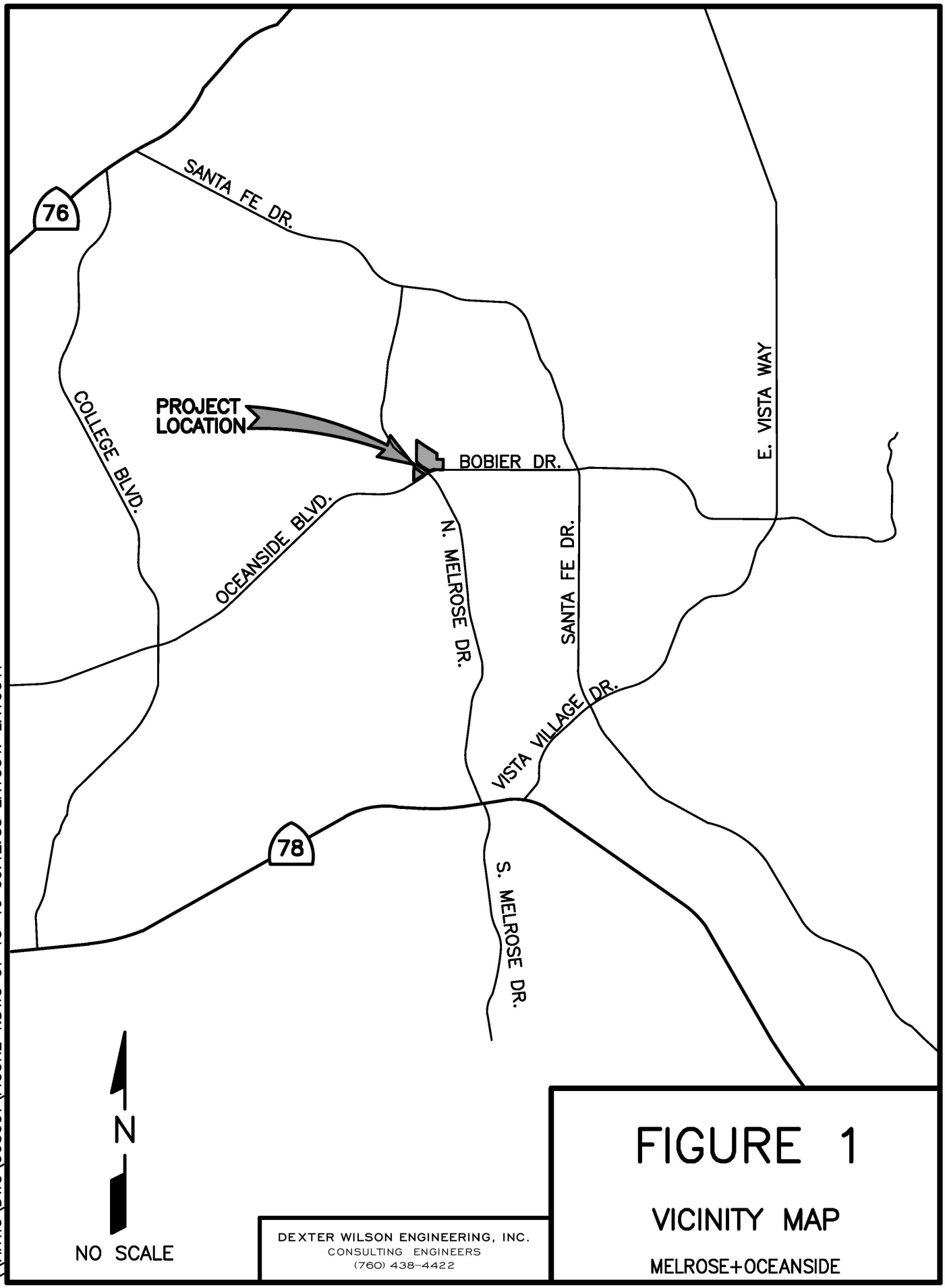
Attention: Mike Lake, Project Manager

Subject: Water Service Analysis for the Melrose+Oceanside Residential Project in the City of Oceanside

Introduction

This report is an update of the February 16, 2016, report for the same project. This update reflects a small reduction in the total number of proposed dwelling units and reflects increasing onsite pipe size for Planning Area 1 from 8-inch to 10-inch as requested by the Water Utilities Department in their October 21, 2016, comments (Comment W30) on the February 16, 2016, water study.

This report provides an analysis of water service to the Melrose+Oceanside project in the City of Oceanside. Melrose+Oceanside is a master-planned residential community on approximately 70.65 acres located in the City of Oceanside's Peacock Hills Neighborhood Area. The Melrose+Oceanside project plan proposes the development of 33 single family and 268 townhouse residential units on 33.5 acres, 20,000 square feet of office/retail space on 1.53 acres, and provides for the conservation of approximately 34.11 acres of natural open space onsite. The existing right-of-way and adjacent landscape for Sports Park Way comprises the remaining 1.51 acres of the Development Plan area. A vicinity map is provided as Figure 1.



\\ARTIC\DWG\965001\FIGURE 1.DWG 01-13-16 09:12:53 LAYOUT: LAYOUT1

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FIGURE 1

VICINITY MAP

MELROSE+OCEANSIDE

Water Service

The Melrose+Oceanside project is within the city limits of the City of Oceanside; water service will be provided by the City. The project is situated at the City's eastern boundary in an area served by the Peacock Hills 626 Pressure Zone which is identified by the City of Oceanside as a subzone of the Guajome 511 Pressure Zone.

Generally the water supply to the 626 Pressure Zone comes from the 800 Pressure Zone aqueduct piping in North Santa Fe Avenue originating at the City of Oceanside Weese Water Treatment Plant off of Gopher Canyon Road west of Interstate 15. At Mesa Drive and North Santa Fe Avenue, a 24" 800 Pressure Zone pipeline extends west and south in Mesa Drive to Old Grove Road. At Old Grove Road, the 24" pipeline turns south and east to just south of Ocean Ranch Boulevard terminating at a pressure regulating station. This pressure regulating station breaks the 800 Pressure Zone down to the 626 Pressure Zone. The station includes a 6" and a 12" pressure regulating valve.

A second source of supply to the 626 Pressure Zone is a pressure regulating station located at the intersection of Crestview Drive and Darwin Drive. Here there is a 24" 800 Pressure Zone pipeline which is the main supply to the two Guajome Tanks located at the intersection of Peacock Boulevard and Temple Heights Drive. This pressure regulating station includes a 4" and a 10" pressure reducing valve.

Existing 626 Pressure Zone distribution piping is located adjacent to the Melrose+Oceanside project. Oceanside Boulevard west of Melrose Drive and West Bobier Drive east of Melrose Drive include existing 12" 626 Pressure Zone pipelines. The pipeline in Melrose Drive extending north to Meadowbrook Drive is also a 12" 626 Pressure Zone water main. Figure 2 shows the existing 626 Pressure Zone water lines in the vicinity of the Melrose+Oceanside project.

TWO EXISTING 24" TRANSMISSION MAINS

CRESTVIEW PRESSURE REDUCING STATION

GUAJOME TANKS

SUNRIDGE DR

DARWIN DR

MELROSE DR

EASTVIEW COURT

CRESTVIEW DRIVE

MEADOWBROOK DRIVE

TEMPLE HEIGHTS DR

PEACOCK BLVD

BROKEN HITCH

TEMPLE HEIGHTS DR

RISING GLEN

CREEK

BOULDER

OCEANSIDE BLVD

W. BOBIER DRIVE

MELROSE DRIVE

CITY OF VISTA

CITY OF OCEANSIDE

EXISTING PEACOCK HILLS 626 PRESSURE ZONE BOUNDARY

626 ZONE
511 ZONE

511 ZONE
626 ZONE

LEGEND

- EXISTING WATER
- MELROSE+OCEANSIDE PROJECT
- CITY BOUNDARY
- 626 PRESSURE ZONE BOUNDARY

N

SCALE: 1" = 600'

0 600 FEET

FIGURE 2

EXISTING WATER SYSTEM

MELROSE+OCEANSIDE

\\ARTIC\DWG\965001\WATER\FIGURE-2.DWG 08-30-17 16:42:08 LAYOUT: LAYOUT

Water System Design Criteria

Water system design criteria such as estimating potable water demands and evaluating the capacity of existing transmission and distribution pipes are based on the August 2005 City of Oceanside Water, Sewer, and Reclaimed Water Design and Construction Manual (Rev. 3 December 2010). Based on the design manual, domestic average day water demands are determined using land use acreage and an associated water demand factor, the rates are presented in Table 1.

TABLE 1
AVERAGE DAILY WATER DEMAND FACTORS

Land Use	Gallons Per Day Per Acre
Residential (1-2 DU/ac)	1,200
Residential. (2-4 DU/ac)	2,100
Residential (4-8 DU/ac)	2,400
Residential (8-12 DU/ac)	2,500
Residential (12-15 DU/ac)	2,800
Residential (15-20 DU/ac)	3,200
Residential (20-30 DU/ac)	4,100
Commercial	1,850
Institutional	1,675

The fire flow requirement for the project is estimated to be 4,000 gpm for commercial land use and 3,000 gpm for multi-family residential land use based on the Design & Construction Manual.

During peak hour demands, the public water system must maintain a minimum residual pressure of 35 psi. Residual pressure under maximum day demands plus fire flow must be greater than 20 psi. Pipeline velocity must not exceed 7.5 feet per second (fps) under maximum domestic demands (no fire flow).

Potable Water Demands

Based on the water use factors presented in the City's Design and Construction Manual and the proposed development plan for the Melrose+Oceanside project, the estimated water demand for the project is calculated using the proposed number of dwelling units and the area of the development. The dwelling unit density for the Melrose+Oceanside project is calculated below in Table 2.

TABLE 2
RESIDENTIAL DENSITY FOR MELROSE+OCEANSIDE

Planning Area	DUs	Area (acres)	Density, DU/acre
1	78	8.15[1]	9.6
2	33	6.17	5.3
3	190	19.01	10.0

[1] Note that area for commercial land use is not counted as residential area in PA 1.

The proposed dwelling unit densities correspond to a water demand factor of 2,400 gpd per acre for Planning Area 2 and 2,500 gpd per acre for Planning Areas 1 and 3. The commercial land use water demand is 1,850 gpd per acre. The total estimated average water demand for the Melrose+Oceanside project is calculated below in Table 3.

TABLE 3
WATER DEMANDS FOR MELROSE+OCEANSIDE

Planning Area	Land Use	Water Demand Factor (gpd/acre)	Area (acres)	Average Water Demand, gpd
1	Residential	2,500	8.15	20,375
1	Commercial	1,850	1.53	2,831
2	Residential	2,400	6.17	14,808
3	Residential	2,500	19.01	47,525
TOTAL				**85,539**

Referenced from the City of Oceanside Water Utilities Department Water, Sewer, and Reclaimed Water Design and Construction Manual

The maximum day demand is 2 times the average day demand, and peak hour demand is 3 times the average according to the City's design manual. This corresponds to 171,078 gpd (119 gpm) and 256,617 gpd (178 gpm) respectively.

Fire Flows

Fire hydrant flow requirements vary by the type of land use and are established by the local fire protection agency. The City's Design and Construction Manual identifies the fire flow requirement for multi-family residential development to be 3,000 gpm at 20 psi residual and for commercial development to be 4,000 gpd at 20 psi residual for water system planning purposes. Actual fire hydrant flow requirements for the Melrose+Oceanside project may be reduced based on having fire sprinkler systems installed as part of building construction.

For the Peacock Hills 626 Pressure Zone maximum day demands plus 4,000 gpm fire flow is greater than the peak hour demand; therefore, the maximum day demand plus fire flow requirement will govern the water system sizing.

Available Water System Pressure

Water service to the project will be from the Peacock Hills 626 Pressure Zone of the City's public water system. Elevations on the Melrose+Oceanside property range between 330 feet and 425 feet. This results in a maximum static water pressure range of 94 psi to 135 psi on the property.

Fire Hydrant Flow Testing

In order to obtain a better understanding of the operation of the 626 Zone system and to obtain field data to use in calibrating a computer model for the 626 Zone, we worked with the City of Oceanside Fire Department to conduct three fire hydrant flow tests. The three tests were located within the 626 Pressure Zone. The location of the three tests can be described briefly as follows.

1. Hydrant Flow Test No. 1 – Darwin Drive between Glenhaven Drive and Peacock Boulevard.

2. Hydrant Flow Test No. 2 – Meadowbrook Drive at Melrose Drive.

3. Hydrant Flow Test No. 3 – Oceanside Boulevard at Melrose Drive.

These three hydrant flow tests were performed on the morning of Monday, December 21, 2015. The details for the flow tests and the test results are presented in Appendix A.

One notable result of the hydrant testing is that the measured static pressures at each of the three test sites yielded a calculated hydraulic grade line of 587 to 588 feet. The elevations used for the test hydrants were obtained from Google Earth. The expectation was that the calculated hydraulic grade line would be closer to 626 feet.

Upon bringing this result to the attention of the Water Utilities Department, the Department responded that Water Operations checked the Old Grove Pressure Reducing Station settings and discovered that the regulators were set about 16 psi (37 feet) too low. By raising the setpoint 16 psi, the working hydraulic grade line would be higher by 37 feet, or 588 + 37 = 625 feet which is what would be expected. Water Utilities indicated in an email dated 1-11-2016 that Water Operations was going to adjust upwards the Old Grove Pressure Regulating Station setpoint.

Computer Model Development for 626 Zone System Analysis

The purpose of the three hydrant flow tests was to generate field data which could be used to calibrate a computer model of the 626 Pressure Zone system. The approach was to calibrate the computer model under existing conditions using the hydrant flow test field data, then use that model to analyze the addition of the Melrose+Oceanside project to the 626 Pressure Zone system.

The KYPIPE computer software program developed by the University of Kentucky was used to evaluate the proposed onsite and offsite public water system. The program utilizes the Hazen-Williams equation for determining head loss in pipes and a "C" value of 120 was used for all pipes. Minor fitting losses throughout the system were modeled as equivalent lengths of pipe.

As mentioned earlier in this report, the primary source of supply to the 626 Pressure Zone is a pressure regulating station located near the intersection of Old Grove Road and Ocean Ranch Boulevard. The second source of supply is the existing Crestview Pressure Reducing Station.

A computer model was developed for the entire 626 Pressure Zone in order to analyze existing demand conditions as well as existing plus Melrose+Oceanside project demands. This was done so that any impact of the Melrose+Oceanside project on the 626 Pressure Zone system can be determined. For the computer model of the 626 Pressure Zone system, the available hydraulic grade line at the two sources of supply were set based on the field hydrant testing results.

626 Pressure Zone Demands. The computer model for the 626 Pressure Zone incorporates all of the major piping within the pressure zone. Cul-de-sac piping and short side loops were not included in order to minimize the computer model's complexity and size. Water demands were calculated for the entire 626 Pressure Zone service area based on land use. Table 4 presents a summary of the different land uses within the 626 Pressure Zone and their estimated water demand using the water demand factors from the City of Oceanside Design Guide. The peaking factors used in the model for maximum day demand and peak hour demand are 2 and 3 respectively, per the Design Guide.

TABLE 4 626 PRESSURE ZONE WATER DEMANDS[1]				
Land Use	**Estimated Area, acres**	**Average Water Demand, gpd/acre**	**Average Day Demand, gpd**	**Average Day Demand, gpm**
Residential 4-8 DU/acre	477	2,400	1,144,242	795
Residential 8-12 DU/acre	101	2500	252,112	175
Residential 20-30 DU/acre	42	4100	171,304	119
Commercial	241	1,850	445,461	309
Institutional	11	1,675	18,457	13
Total			**2,031,577**	**1,411**

[1] Based on build-out of existing land uses with the 626 Pressure Zone.

Computer Modeling Analysis of Field Hydrant Flow Testing

Appendix B presents the results of the calibrated computer model for the 626 Pressure Zone simulating the three hydrant flow test performed in the field on December 21, 2015. Two main adjustments were made to the computer model in order to have it simulate closely the field hydrant flow test results. One was to decrease the hydraulic grade setpoints at the Old Grove and Crestview pressure regulating stations. The setpoint grade lines for the four valves were adjusted to the following values.

Old Grove – 6" valve – 614 feet (= 119 psi at elev. 340 ft.) [Pipe 6 in the model]
Old Grove – 12" valve – 598 feet (= 112 psi at elev. 340 ft.) [Pipe 12 in the model]
Crestview – 4" valve – 558 feet (= 69 psi at elev. 400 ft.) [Pipe 4 in the model]
Crestview – 10" valve – 553 feet (= 66 psi at elev. 400 ft.) [Pipe 10 in the model]

The second adjustment that was made was to increase the Hazen-Williams 'C' value for all existing 12" and larger water main from 120 to 130. This assisted in raising the residual pressures for the Hydrant Flow Tests Nos. 2 and 3 but did not bring them up enough to match the field results exactly as will be shown below.

Appendix B shows all the results for the simulation of the three hydrant flow tests. Exhibit A presents the Node and Pipe Diagram for the 626 Pressure Zone computer model. To assist in understanding the modeling results, below is a summary of the Nodes in the computer model which correspond to the hydrant flow tests.

Hydrant Flow Test No. 1 – Darwin Drive

Gauge Hydrant – Node 10
Flow Hydrant – Node 122

Hydrant Flow Test No. 2 – Meadowbrook Drive

Gauge Hydrant – Node 60
Flow Hydrant – Node 46

Hydrant Flow Test No. 3 – Oceanside Boulevard

Gauge Hydrant – Node 114
Flow Hydrant – Node 58

Here are the key results summarized for easy comparison.

Hydrant Flow Test No. 1 – Darwin Drive

Gauge Hydrant Field Static Pressure – 80 psi
Node 10 Average Day Demand Pressure – 80.22 psi

Gauge Hydrant Residual Pressure at 1,186.5 gpm – 67 psi
Node 10 Pressure at Avg. Day plus 1,186.5 gpm – 67.13 psi

Hydrant Flow Test No. 2 – Meadowbrook Drive

Gauge Hydrant Field Static Pressure – 113 psi
Node 60 Average Day Demand Pressure – 112.61 psi

Gauge Hydrant Residual Pressure at 1,162.5 gpm – 105 psi
Node 60 Pressure at Avg. Day plus 1,186.5 gpm – 98.62 psi

Hydrant Flow Test No. 3 – Oceanside Boulevard

Gauge Hydrant Field Static Pressure – 85 psi
Node 114 Average Day Demand Pressure – 84.84 psi
Gauge Hydrant Residual Pressure at 963.9 gpm – 79 psi
Node 114 Pressure at Avg. Day plus 1,186.5 gpm – 72.32 psi

The simulation results have good correlation to the actual field test results.

Computer Modeling of Existing Plus Melrose+Oceanside Project

The next step in the study was to analyze the 626 Pressure Zone system with the addition of the Melrose+Oceanside project. This analysis used the existing 626 Zone computer model which closely simulated the results of the field hydrant testing and added the proposed water system layout and demands for the Melrose+Oceanside project.

Melrose+Oceanside Onsite Water System. The onsite water system for the Melrose+Oceanside project is expected to include public water lines to provide domestic service and fire protection within the development site. In the development west of Melrose Drive, Planning Area 1, a 10" public water line is proposed to loop through the site and connect to the existing 12" water main in Oceanside Boulevard at two locations.

For the Melrose+Oceanside project east of Melrose Drive proposed 8" water lines will loop through Planning Areas 2 and 3. The proposed 8" onsite public water piping will connect to the existing 12" main in Melrose Drive in Planning Area 2 and to the proposed 8" water line extension in Sports Park Way in Planning Area 3. The 8" water line in Sports Park Way is a proposed water line improvement which will be constructed from the terminus of the City of Oceanside's 12" water line in West Bobier Drive. Figure 3 shows the onsite water system for the Melrose+Oceanside project.

Expected finish grade elevations for all areas of the Melrose+Oceanside development project will be such that static pressures will be greater than 80 psi; therefore pressure regulators will be required for all building services within the proposed project.

\\ARTIC\DWG\965001\WATER\FIGURE-3.DWG 08-22-17 10:06:26 LAYOUT: LAYOUT

EXISTING 42" 800 PRESSURE ZONE AQUEDUCT

TWO EXISTING 24" TRANSMISSION MAINS

N. SANTA FE AVE.

MELROSE DR

DARWIN DR

SUNRIDGE DR

EX. 10"

EX. 8"

CITY OF VISTA

CITY OF OCEANSIDE

EASTVIEW COURT

CRESTVIEW DRIVE

EX. 12"

MEADOWBROOK DRIVE

PROPOSED 8" PUBLIC WATER PIPING THROUGH PLANNING AREA 2

PROPOSED 8" PUBLIC WATER PIPING THROUGH PLANNING AREA 3

W. BOBIER DRIVE

PROPOSED 10" PUBLIC WATER PIPING THROUGH PLANNING AREA 1

MELROSE DRIVE

EXISTING PEACOCK HILLS 626 PRESSURE ZONE BOUNDARY

LEGEND

- EXISTING WATER
- PROPOSED WATER
- MELROSE+OCEANSIDE PROJECT
- CITY BOUNDARY
- 626 PRESSURE ZONE BOUNDARY

N

SCALE: 1" = 600'

0 600 FEET

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FIGURE 3

PROPOSED WATER SYSTEM IMPROVEMENTS

MELROSE+OCEANSIDE

Computer Modeling of the Melrose+Oceanside Project

Maximum day demand plus fire flow scenarios were modeled for both the commercial fire flow of 4,000 gpm (for the office building in Planning Area 1) and the multi-family residential fire flow of 3,000 gpm in Planning Area 3. Appendix C includes the computer printout results for these analyses.

A summary of the analysis results is provided below.

Planning Area 1
Multi-Family Residential 3,000 gpm fire flow at Node 944 – 41 psi residual
Office Commercial 4,000 gpm fire flow at Node 940 – 31 psi residual

Planning Area 2
Single Family Residential 1,500 gpm fire flow at Node 908 – 83 psi residual

Planning Area 3
Multi-Family Residential 3,000 gpm fire flow at Node 915 – 31 psi residual
Multi-Family Residential 3,000 gpm fire flow at Node 924 – 29 psi residual

In all cases, the Maximum Day Demand plus Fire Flow is met with greater than 20 psi residual pressure at the fire flow location.

Conclusions and Recommendations

The following conclusions and recommendations are summarized based on the water system analysis prepared for the Melrose+Oceanside development project.

1. The Melrose+Oceanside multi-family and office commercial project will be served by the City of Oceanside Peacock Hills 626 Pressure Zone.

2. Public water system connections for the Melrose+Oceanside project will be made to the existing 12" water lines in Oceanside Boulevard and Melrose Drive. Eight-inch public water lines will loop through each of the three planning areas of the proposed development.

3. At the southeast corner of the Melrose+Oceanside project, a new 8" public water main is proposed to be extended north in Sports Park Way off of Bobier Drive.

4. The fire flow available to the project site meets the City of Oceanside Design Guideline fire flow requirement of 4,000 gpm for office commercial land use, 3,000 gpm for multi-family residential land use, and 1,500 gpm for single family land use. All maximum day demand plus fire flow scenarios are achieved with greater than 20 psi residual.

5. The existing Peacock Hills 626 Pressure Zone has adequate distribution system capacity to provide acceptable service to the proposed Melrose+Oceanside project.

6. The computer modeling performed for this report is based on the available hydraulic grade line as measured on the day of the field hydrant flow testing. Subsequent to that field testing, the Water Utilities Department determined that the pressure setpoints for the 626 Pressure Zone were set too low and they were intending to adjust the setpoints upward. Thus, the results of the computer modeling in this report should be increased by 16 psi to reflect actual operating conditions.

7. Individual pressure regulators for all building services within the Melrose+Oceanside project are recommended to limit service pressures to 80 psi in accordance with the Uniform Plumbing Code and City of Oceanside standards.

8. For PVC pipe to be used for water lines within the project, we recommend the piping specification to be AWWA C900 DR18 PR235.

Thank you for the opportunity to provide water system planning services for this project. Please feel free to contact us to further discuss any aspect of the information presented in this water service analysis for the Melrose+Oceanside project.

Dexter Wilson Engineering, Inc.



Andrew Oven, P.E.

AO:ps

Attachments

APPENDIX A

RESULTS OF FLOW TESTING
OF THREE HYDRANTS
IN THE 626 PRESSURE ZONE

FLOW TEST SUMMARY REPORT page1

LOCATION:1458 Darwin Drive
Oceanside, CA 92056

DATE: 12-21-15
TIME: 9:00am

Static Hydrant Number: 1
Elevation: 1

Flowing Hydrant Number: 2
Elevation: .5

Dist. Between Hydrants: 325

Diameter of Main: 12

Outlet Diameter: 2.50 in

Number flowing: 1 Coeff.: 0.90

Static pressure: 80.00 psi

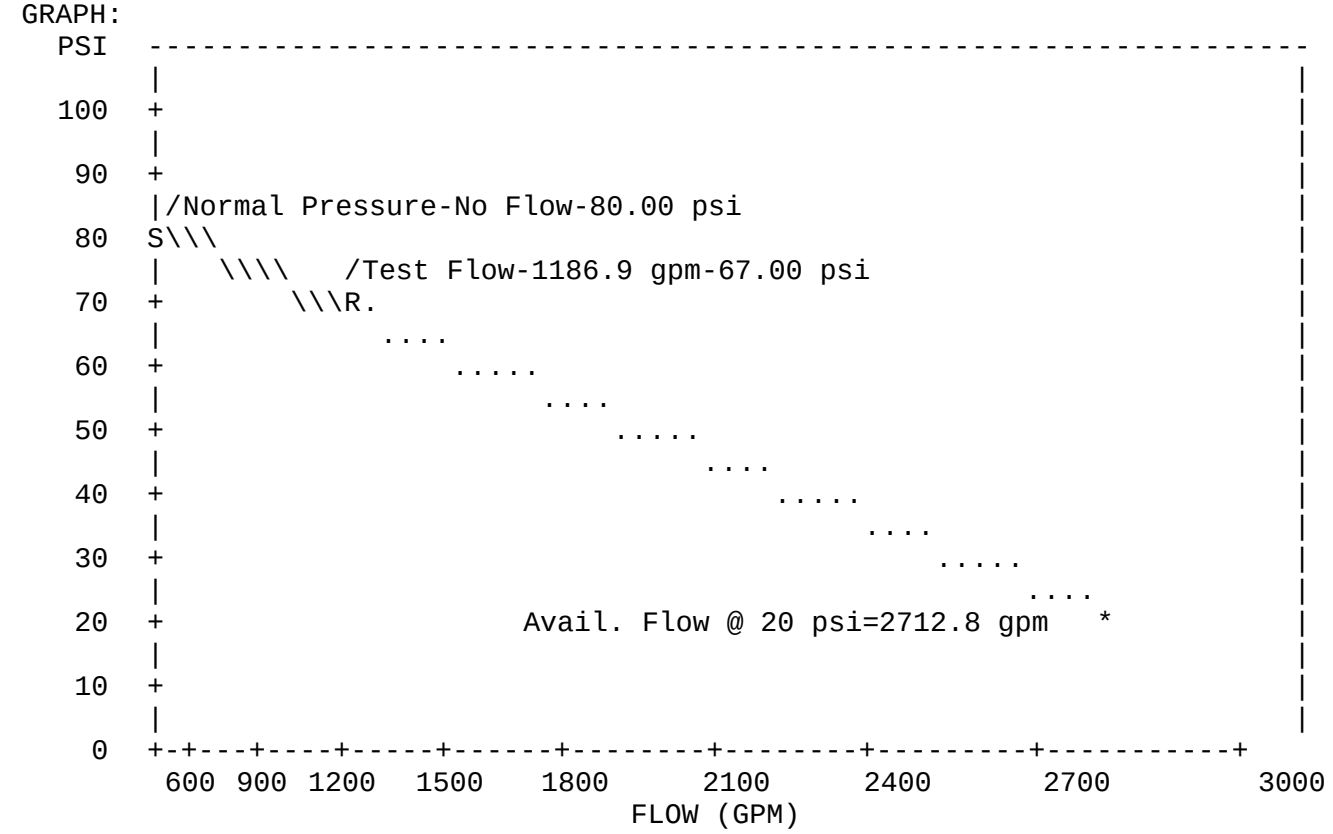
Residual pressure: 67.00 psi

Pitot Reading: 50.00 psi

Flow: 1186.9 gpm

Flow at 20 psi: 2712.8 gpm

GRAPH:

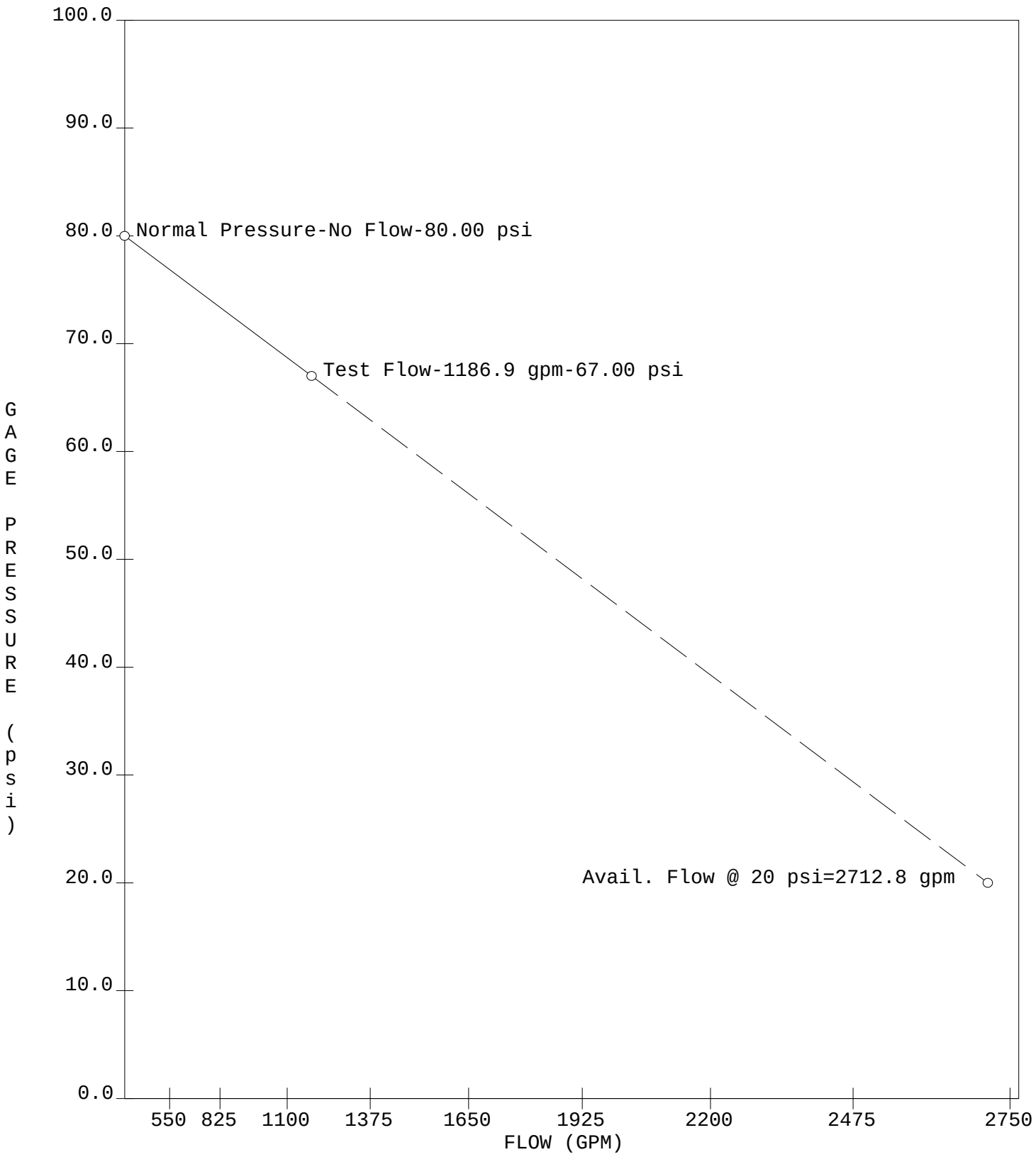


NOTES:

(1) Flowing hydrant is assumed to be on a circulating main or downstream of the pressure test hydrant on a dead-end system.

(2) Flow analysis assumes a gravity flow system with no distribution pumps and having no demand, other than the test flow.

(3) Distance between hydrants, elevations & main diameter are for information only.


100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
GAGE PRESSURE (psi)
Normal Pressure-No Flow-80.00 psi
Test Flow-1186.9 gpm-67.00 psi
Avail. Flow @ 20 psi=2712.8 gpm
550
825
1100
1375
1650
1925
2200
2475
2750
FLOW (GPM)

FLOW TEST SUMMARY REPORT page1

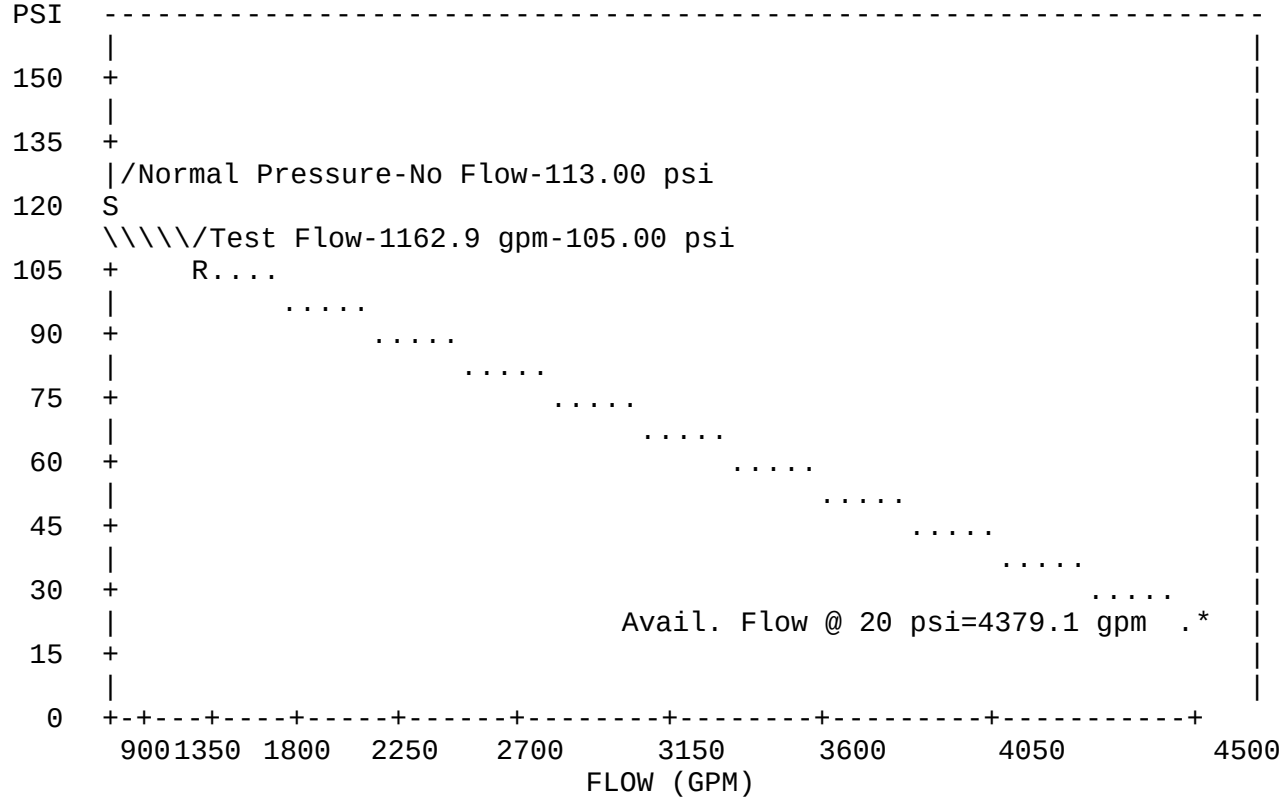
LOCATION:1437 Eastview Court
Oceanside, CA 92056

DATE: 12-21-15
TIME: 9:30am

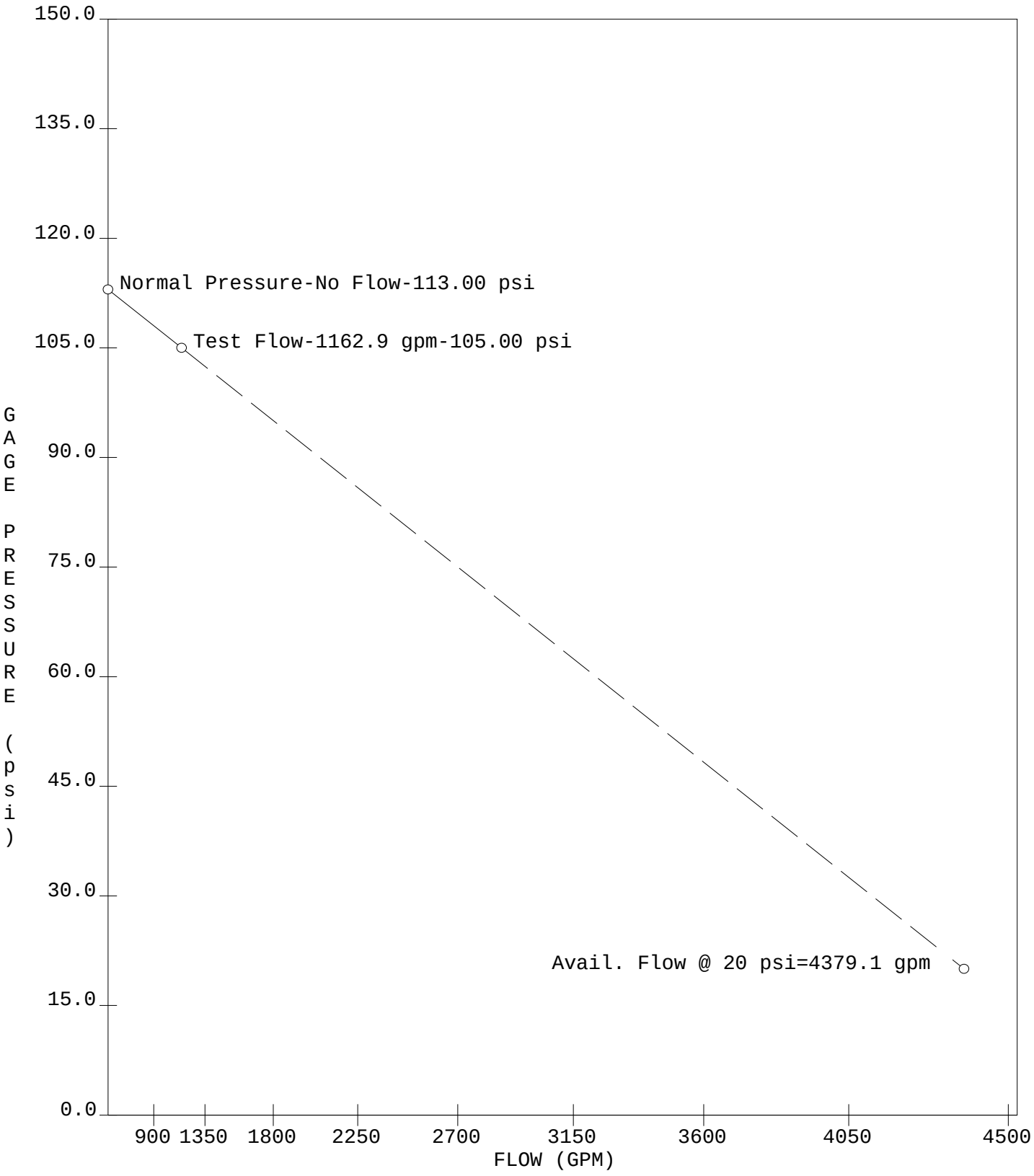
Static Hydrant Number:	1	Flowing Hydrant Number:	2
Elevation:	0	Elevation:	1.3
Dist. Between Hydrants:	550		
Diameter of Main:	8		
Outlet Diameter:	2.50 in	Number flowing: 1 Coeff.:	0.90
Static pressure:	113.00 psi	Residual pressure:	105.00 psi
Pitot Reading:	48.00 psi	Flow:	1162.9 gpm

Flow at 20 psi: 4379.1 gpm

GRAPH:



NOTES:
(1) Flowing hydrant is assumed to be on a circulating main or downstream of the pressure test hydrant on a dead-end system.
(2) Flow analysis assumes a gravity flow system with no distribution pumps and having no demand, other than the test flow.
(3) Distance between hydrants, elevations & main diameter are for information only.


150.0
135.0
120.0
105.0
90.0
75.0
60.0
45.0
30.0
15.0
0.0
GAGE PRESSURE (psi)
Normal Pressure-No Flow-113.00 psi
Test Flow-1162.9 gpm-105.00 psi
Avail. Flow @ 20 psi=4379.1 gpm
900
1350
1800
2250
2700
3150
3600
4050
4500
FLOW (GPM)

FLOW TEST SUMMARY REPORT page1

LOCATION:1501 N. Melrose Drive
Oceanside, CA 92056

DATE: 12-21-15
TIME: 10:00am

Static Hydrant Number: 1
Elevation: 1

Flowing Hydrant Number: 2
Elevation: .4

Dist. Between Hydrants: 1600

Diameter of Main: 12

Outlet Diameter: 2.50 in

Number flowing: 1 Coeff.: 0.90

Static pressure: 85.00 psi

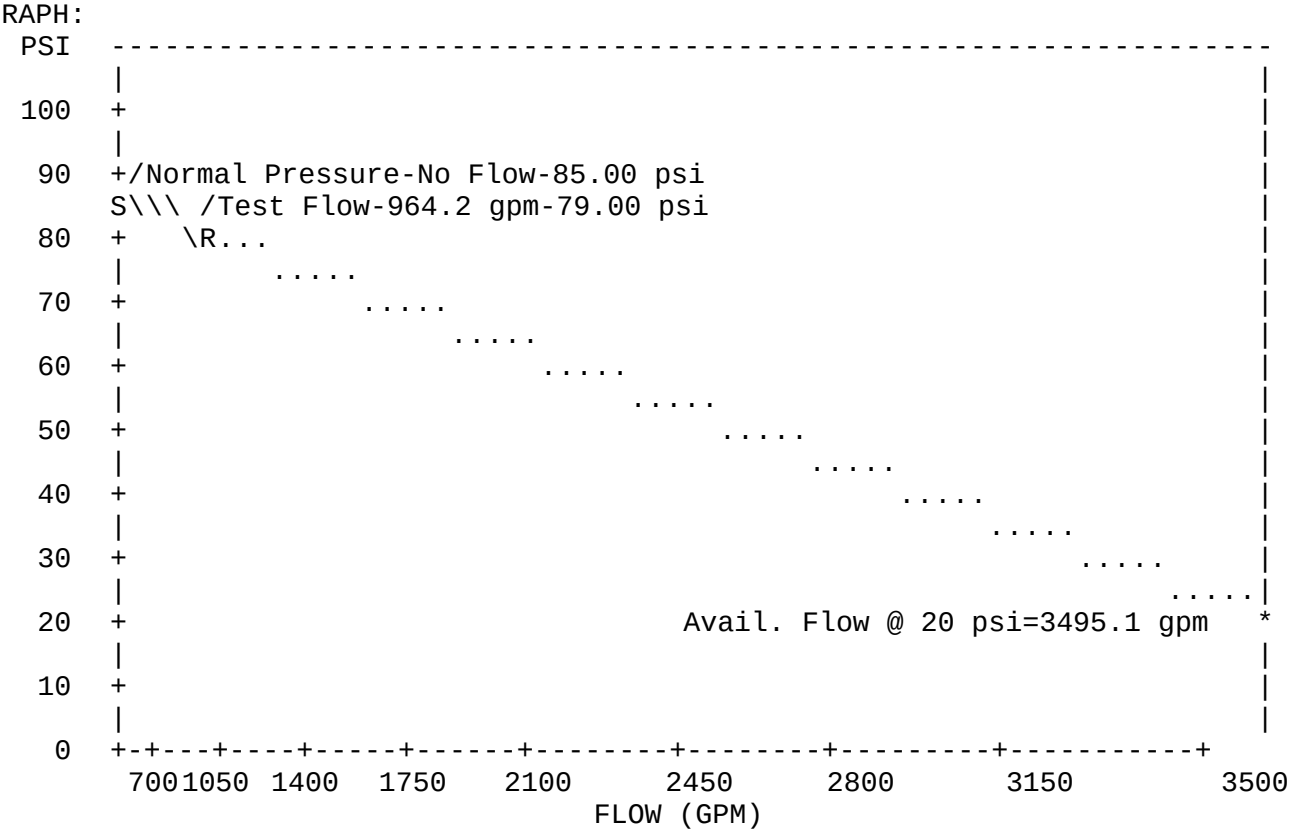
Residual pressure: 79.00 psi

Pitot Reading: 33.00 psi

Flow: 964.2 gpm

Flow at 20 psi: 3495.1 gpm

GRAPH:

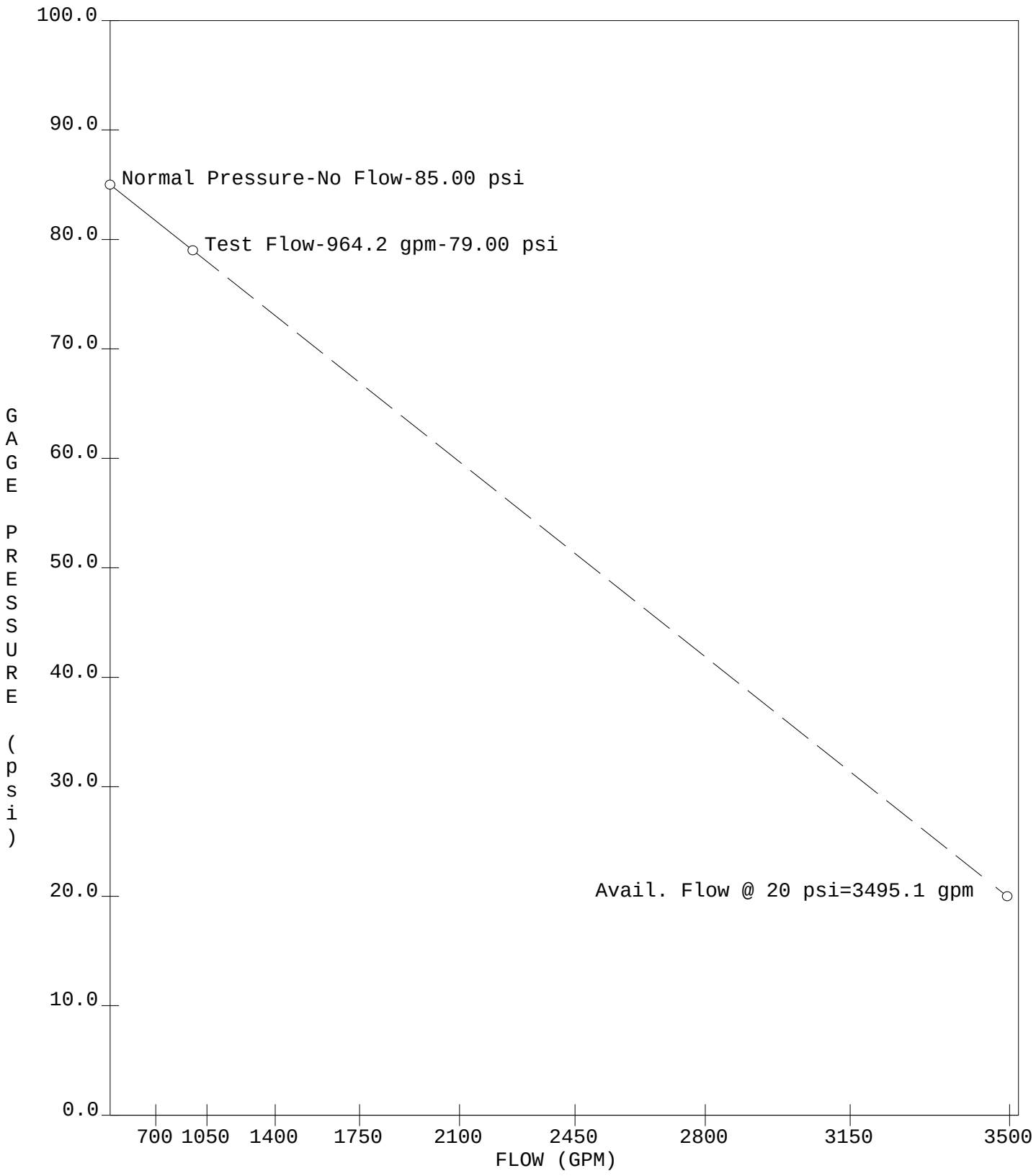


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100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
GAGE PRESSURE (psi)
Normal Pressure-No Flow-85.00 psi
Test Flow-964.2 gpm-79.00 psi
Avail. Flow @ 20 psi=3495.1 gpm
700
1050
1400
1750
2100
2450
2800
3150
3500
FLOW (GPM)

City of Oceanside
Fire Flow Test Request Form

Today's Date: Nov. 19, 2015 **Request Number:** _____ (Year – Number)

Requester's Name	Project Address or APN #	Contact Phone Number
Andrew Oven	Melrose Drive and Oceanside Blvd (See map attached)	(760) 438-4422
		Email Address: andrew@dwilsoneng.com

Fire Flow Test Requested Date (10 Business-Day Lead Time): Dec. 7, 2015 (or around)
We will try to Accommodate the Requested Date if Possible

Is a Location Available for Water Run-Off? YES ☒ NO ☐

Explain what will be Done with the Discharged Water: Route into street and it will flow into storm drain system.

Public Hydrant(s) Private Hydrant(s) (Circle One)

HYDRANT MAP MUST BE PROVIDED WITH HYDRANT LOCATIONS AND AFFECTED ADDRESS(ES)
(Hydrant Maps may be Requested from the Water-Utilities Department Front Desk)

Administrative Use Only:

Fire Department

1. Fire and Water–Utilities Inspection Fees Paid _____ (Initial) Fire- $119 Water- $_____	2. Hydrant Map Provided _____ (Initial)	3. Deliver a copy of this form and the Hydrant Map to the Water-Utilities Department. Deliver the originals to the Fire Prevention Bureau Plans Review Team.

Water–Utilities Department

4. Write down the Date and Time a Water-Utilities Inspector is available to perform the test; Try to accommodate the Requested Date. _____	5. Email the Inspection Date / Time and the Request Number (Top Right Side of this Form) to the Fire Prevention Bureau. fire-prevention@ci.oceanside.ca.us	6. The Fire Department will contact the customer after ensuring a Fire Inspector is available for the date / time in block #4. If a Fire Inspector is unavailable, the Fire Department will advise the Water Department.

Inspectors

7. Request the Calculation Results to be emailed to: fire-prevention@ci.oceanside.ca.us	8. The Fire Inspector must make an entry into the Hydrant Book after the results are received.	9. The Fire Inspector will email a copy of the results to Water-Utilities at: _____@ci.oceanside.ca.us

Comments

Version- 8-19-14

11/13/2012

- SOURCE: MERRICK 2009 ORTHOPHOTO AND CONTOURS
- THIS MAP PREPARED SOLELY FOR ILLUSTRATION PURPOSE & IS NOT TO BE RELIED UPON FOR ENGINEERING DRAWINGS.
- SOME INFORMATION MAY NOT BE ACCURATE.

Water Map No. P18

PAGE INDEX

O17	P17	Q17
O18	P18	Q18
O19	P19	Q19

N

1" = 200'

P18

Gauge Hydrant #1

Flow Hydrant #1

Fire Flow Test Request #1

DETAIL A

CLOSED

GUAJOME

DARWIN DR

PEACOCK BLVD

TEMPLE HEIGHTS DR

MYSTIK RD

HIGH RIDGE DR

ROLLING HILLS DR

LIVE OAK CT

JASMINE ST

WESTWOOD PL

CRESTHAVEN PL

NORTHMORE PL

WESTMORE PL

EASTMORE PL

CRESTVIEW DR

GREY OAKS CT

EASTVIEW CT

MEADOWBROOK DR

GLENHAVEN DR

CATALINA CIR

City of Oceanside
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Water Map No. P18

PAGE INDEX

O17	P17	Q17
O18	P18	Q18
O19	P19	Q19

N

1" = 200'

P18

Flow Hydrant #2

Gauge Hydrant #2

Fire Flow Test Request #2

DETAIL A

GUAJOME

GUAJOME

CLOSED

CLOSED

DETAIL A

W-00574

W-00336

W-00078

W-00334

W-01095

W-01096

W-02958

R-02959

R-02440

R-02439

R-02888

R-02730

R-02729

R-02728

R-02727

R-02726

R-03089

R-03090

R-03091

R-03092

R-03079

R-03080

R-03081

R-03082

R-03137

R-03138

R-03140

R-02886

W-01599

HGL 511

HGL 626

DARWIN DR

PEACOCK BLVD

TEMPLE HEIGHTS DR

MYSTIK RD

HIGH RIDGE DR

JASMINE ST

ROLLING HILLS DR

LIVE OAK CT

WESTWOOD PL

CRESTHAVEN PL

NORTHMORE PL

WESTMORE PL

EASTMORE PL

MEADOWBROOK DR

CRESTVIEW DR

GREY OAKS CT

EASTVIEW CT

GLENHAVEN DR

CATALINA CIR

24" CONCRETE 1976

10" AC 1980

12" AC 1989

12" AC 1979

14" AC 1977

18" AC 1976

6" AC 1978

8" AC 1979

8" AC 1988

12" AC 1988

10" AC 1988

12" AC 1979

12" AC 1980

City of Oceanside
Fire Flow Test Request Form

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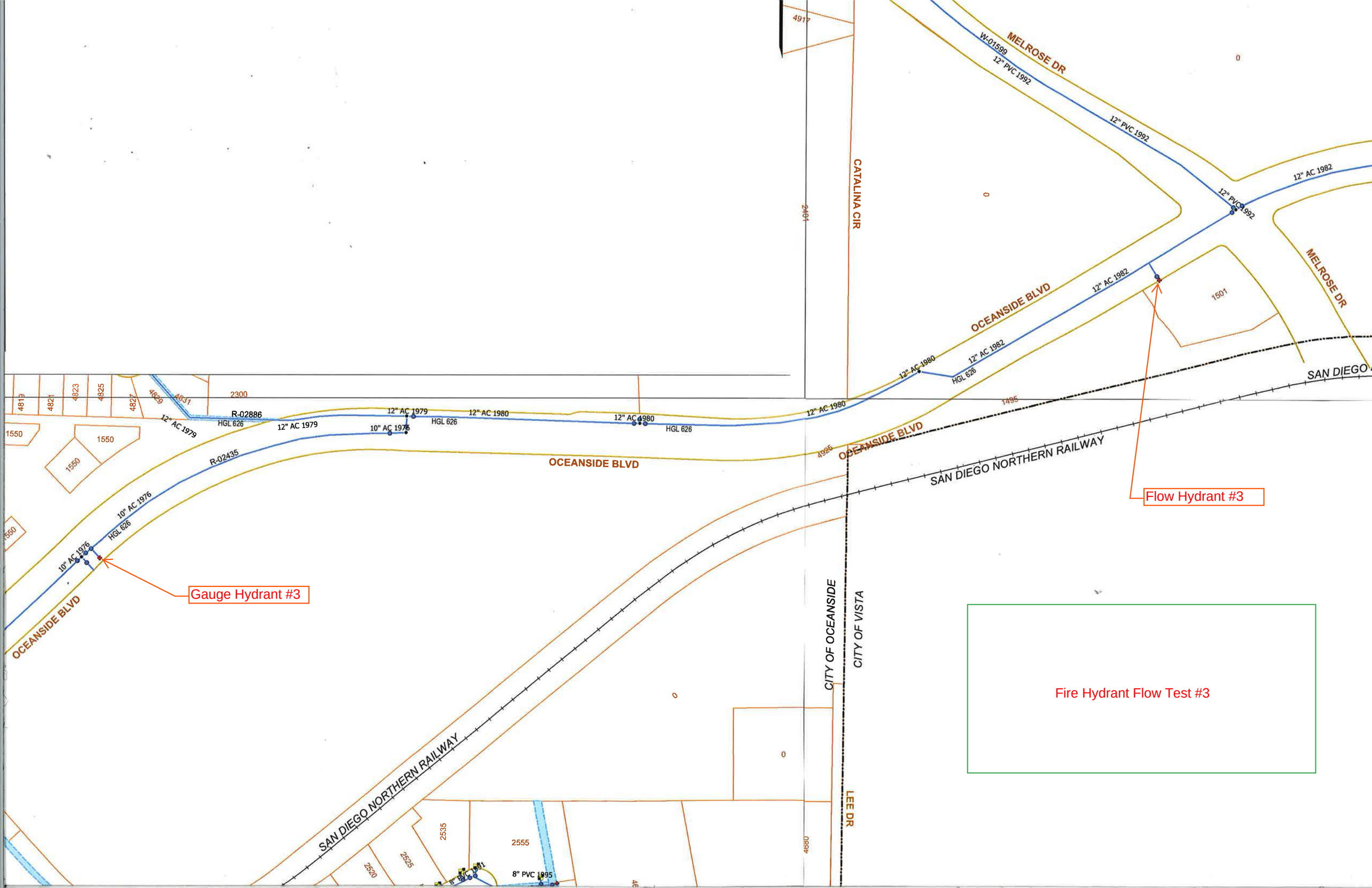
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Comments

Version- 8-19-14


MELROSE DR
W-01599
12" PVC 1992
12" PVC 1992
12" PVC 1992
12" AC 1982
12" AC 1982
CATALINA CIR
2491
4917
OCEANSIDE BLVD
12" AC 1980
12" AC 1982
HGL 626
1501
MELROSE DR
SAN DIEGO
1495
4925
OCEANSIDE BLVD
SAN DIEGO NORTHERN RAILWAY
Flow Hydrant #3
4811
4821
4823
4825
4827
4829
4831
2300
R-02886
12" AC 1979
HGL 626
12" AC 1979
12" AC 1979
10" AC 1976
HGL 626
12" AC 1980
12" AC 1980
HGL 626
1550
1550
1550
R-02435
10" AC 1976
HGL 626
10" AC 1976
OCEANSIDE BLVD
Gauge Hydrant #3
SAN DIEGO NORTHERN RAILWAY
CITY OF OCEANSIDE
CITY OF VISTA
LEE DR
2535
2555
2525
2520
8" PVC 1995
8" PVC 1991
4680
Fire Hydrant Flow Test #3

APPENDIX B

COMPUTER MODEL RESULTS

PEACOCK HILLS 626 PRESSURE ZONE

EXISTING SYSTEM

MODELING OF HYDRANT FLOW TESTING TO CHECK MODELING RESULTS AGAINST FIELD TEST RESULTS

Node and Pipe Diagram: See Exhibit A

Conditions Modeled:

1. Average Day Demand
2. Maximum Day Demand (Two times Average Day Demand)
3. Peak Hour Demand (Three times Average Day Demand)
4. Average Day Demand plus 1,186.5 gpm Fire Flow at Node 122, Darwin Drive
5. Average Day Demand plus 1,162.5 gpm Fire Flow Node 46, Meadowbrook Drive
6. Average Day Demand plus 963.9 gpm Fire Flow at Node 58, Oceanside Boulevard

FLOWRATE IS EXPRESSED IN GPM AND PRESSURE IN PSIG

A SUMMARY OF THE ORIGINAL DATA FOLLOWS

PIPE NO.	NODE NOS.		LENGTH (FEET)	DIAMETER (INCHES)	ROUGHNESS	MINOR LOSS K	FIXED GRADE
4	0	32	50.0	4.0	120.0	.00	558.00
THERE IS A CHECK VALVE IN LINE NUMBER 4							
5	4	8	167.0	14.0	130.0	.00	
6	0	438	150.0	6.0	120.0	.00	614.00
9	8	12	760.0	10.0	120.0	.00	
10	0	32	10.0	10.0	120.0	.00	553.00
THERE IS A CHECK VALVE IN LINE NUMBER 10							
12	0	438	150.0	12.0	130.0	.00	598.00
THERE IS A CHECK VALVE IN LINE NUMBER 12							
13	12	16	412.0	10.0	120.0	.00	
17	16	20	306.0	8.0	120.0	.00	
21	20	24	207.0	8.0	120.0	.00	
25	20	28	527.0	8.0	120.0	.00	
29	16	32	632.0	10.0	120.0	.00	
33	32	36	715.0	8.0	120.0	.00	
41	46	44	930.0	8.0	120.0	.00	
43	48	46	150.0	8.0	120.0	.00	
45	48	52	199.0	10.0	120.0	.00	
49	52	900	630.0	12.0	130.0	.00	
53	114	952	1410.0	12.0	130.0	.00	
57	116	114	780.0	12.0	130.0	.00	
61	116	72	1554.0	8.0	120.0	.00	
63	72	76	426.0	8.0	120.0	.00	
67	68	72	312.0	8.0	120.0	.00	
71	68	60	395.0	10.0	120.0	.00	
75	60	52	259.0	10.0	120.0	.00	
79	60	64	642.0	8.0	120.0	.00	
83	32	68	1110.0	12.0	130.0	.00	
87	80	68	299.0	8.0	120.0	.00	
91	80	84	816.0	8.0	120.0	.00	
95	88	84	273.0	8.0	120.0	.00	
99	92	88	854.0	8.0	120.0	.00	
103	92	80	315.0	8.0	120.0	.00	
107	96	92	301.0	8.0	120.0	.00	
111	96	100	864.0	8.0	120.0	.00	
115	104	100	323.0	8.0	120.0	.00	
119	108	104	823.0	8.0	120.0	.00	
123	108	96	319.0	8.0	120.0	.00	
127	112	108	753.0	8.0	120.0	.00	
131	112	116	306.0	12.0	130.0	.00	
135	120	112	302.0	12.0	130.0	.00	
137	10	122	315.0	12.0	130.0	.00	
139	8	10	753.0	12.0	130.0	.00	
141	122	120	330.0	12.0	130.0	.00	

143	120	124	317.0	8.0	120.0	.00
147	124	128	330.0	8.0	120.0	.00
151	132	128	336.0	8.0	120.0	.00
155	192	132	721.0	8.0	120.0	.00
159	4	192	285.0	14.0	130.0	.00
163	192	188	433.0	8.0	120.0	.00
167	188	136	322.0	6.0	120.0	.00
171	136	132	327.0	6.0	120.0	.00
175	136	140	505.0	6.0	120.0	.00
179	144	140	274.0	8.0	120.0	.00
183	128	144	279.0	8.0	120.0	.00
187	144	148	308.0	6.0	120.0	.00
191	148	152	331.0	6.0	120.0	.00
195	140	156	408.0	8.0	120.0	.00
199	156	160	614.0	8.0	120.0	.00
203	160	164	292.0	8.0	120.0	.00
207	164	168	301.0	8.0	120.0	.00
211	168	172	287.0	8.0	120.0	.00
215	176	164	502.0	8.0	120.0	.00
219	180	176	266.0	8.0	120.0	.00
223	180	156	289.0	8.0	120.0	.00
227	180	204	243.0	8.0	120.0	.00
231	184	180	587.0	8.0	120.0	.00
235	188	184	342.0	8.0	120.0	.00
239	188	200	357.0	8.0	120.0	.00
243	196	200	381.0	8.0	120.0	.00
247	192	196	655.0	14.0	130.0	.00
251	196	208	293.0	14.0	130.0	.00
253	208	212	344.0	8.0	120.0	.00
257	212	12	1672.0	8.0	120.0	.00
261	208	216	550.0	8.0	120.0	.00
265	200	216	324.0	8.0	120.0	.00
269	216	204	990.0	8.0	120.0	.00
273	208	260	579.0	14.0	130.0	.00
277	260	268	1257.0	8.0	120.0	.00
281	260	264	296.0	14.0	130.0	.00
285	264	268	337.0	14.0	130.0	.00
289	268	276	726.0	14.0	130.0	.00
293	276	272	261.0	8.0	120.0	.00
297	256	272	1100.0	8.0	120.0	.00
301	260	256	376.0	10.0	120.0	.00
305	256	252	354.0	10.0	120.0	.00
309	252	248	298.0	10.0	120.0	.00
313	248	244	291.0	10.0	120.0	.00
317	244	240	388.0	10.0	120.0	.00
321	240	228	259.0	8.0	120.0	.00
325	228	232	699.0	8.0	120.0	.00
329	232	306	263.0	8.0	120.0	.00
333	236	164	324.0	8.0	120.0	.00
337	224	228	195.0	8.0	120.0	.00
341	220	224	357.0	8.0	120.0	.00
345	216	220	447.0	8.0	120.0	.00
349	236	282	395.0	8.0	120.0	.00
353	282	286	263.0	8.0	120.0	.00

357	286	290	704.0	8.0	120.0	.00
361	290	294	209.0	8.0	120.0	.00
365	294	232	1600.0	10.0	120.0	.00
369	290	298	333.0	8.0	120.0	.00
373	298	302	595.0	8.0	120.0	.00
377	302	306	533.0	8.0	120.0	.00
381	306	236	333.0	8.0	120.0	.00
385	310	114	1840.0	10.0	120.0	.00
389	310	314	1230.0	10.0	120.0	.00
393	314	318	348.0	10.0	120.0	.00
397	318	322	827.0	10.0	120.0	.00
401	322	326	394.0	10.0	120.0	.00
405	322	330	1060.0	10.0	120.0	.00
409	318	330	200.0	10.0	120.0	.00
413	330	334	472.0	10.0	120.0	.00
417	330	334	1450.0	8.0	120.0	.00
419	310	326	595.0	10.0	120.0	.00
423	338	326	1098.0	10.0	120.0	.00
427	338	342	325.0	10.0	120.0	.00
431	342	346	502.0	10.0	120.0	.00
435	342	346	1507.0	8.0	120.0	.00
439	338	350	309.0	10.0	120.0	.00
443	350	354	1090.0	10.0	120.0	.00
447	350	358	1237.0	10.0	120.0	.00
451	212	362	2080.0	8.0	120.0	.00
455	276	366	286.0	10.0	120.0	.00
459	366	370	982.0	8.0	120.0	.00
463	370	374	456.0	8.0	120.0	.00
467	370	378	742.0	8.0	120.0	.00
471	366	382	394.0	10.0	120.0	.00
475	382	386	1159.0	8.0	120.0	.00
479	386	390	904.0	8.0	120.0	.00
483	382	390	1817.0	10.0	120.0	.00
487	390	394	278.0	10.0	120.0	.00
491	394	398	193.0	10.0	120.0	.00
495	398	402	1553.0	10.0	120.0	.00
499	402	406	1075.0	10.0	120.0	.00
503	402	410	1250.0	8.0	120.0	.00
507	276	414	1035.0	14.0	130.0	.00
511	414	416	11998.0	14.0	130.0	.00
513	416	418	464.0	14.0	130.0	.00
515	418	422	734.0	14.0	130.0	.00
519	422	426	541.0	14.0	130.0	.00
523	426	428	835.0	14.0	130.0	.00
525	428	430	1260.0	14.0	130.0	.00
527	430	434	548.0	14.0	130.0	.00
531	434	438	626.0	14.0	130.0	.00
535	434	442	1353.0	8.0	120.0	.00
539	442	446	464.0	8.0	120.0	.00
543	430	446	966.0	10.0	120.0	.00
547	446	450	441.0	10.0	120.0	.00
551	450	428	1631.0	10.0	120.0	.00
555	446	454	866.0	10.0	120.0	.00
559	450	454	1407.0	8.0	120.0	.00

563	454	458	1098.0	10.0	120.0	.00
567	458	462	425.0	12.0	130.0	.00
571	462	466	549.0	12.0	130.0	.00
573	466	468	280.0	12.0	130.0	.00
575	468	470	300.0	12.0	130.0	.00
579	470	474	394.0	12.0	130.0	.00
581	474	476	350.0	12.0	130.0	.00
583	476	478	721.0	12.0	130.0	.00
587	478	426	1577.0	10.0	120.0	.00
591	470	482	1245.0	8.0	120.0	.00
595	466	482	294.0	8.0	120.0	.00
599	462	482	673.0	8.0	120.0	.00
603	414	486	209.0	8.0	120.0	.00
607	486	490	247.0	8.0	120.0	.00
611	490	494	549.0	8.0	120.0	.00
615	494	498	379.0	8.0	120.0	.00
619	498	502	812.0	8.0	120.0	.00
623	502	506	951.0	8.0	120.0	.00
627	506	498	1100.0	8.0	120.0	.00
629	506	416	216.0	8.0	120.0	.00
631	506	490	1097.0	8.0	120.0	.00
635	414	510	193.0	8.0	120.0	.00
639	510	514	603.0	8.0	120.0	.00
643	514	518	255.0	8.0	120.0	.00
647	518	522	271.0	8.0	120.0	.00
651	522	526	727.0	8.0	120.0	.00
655	526	510	1129.0	8.0	120.0	.00
659	526	530	216.0	8.0	120.0	.00
663	530	418	518.0	8.0	120.0	.00
667	530	534	479.0	8.0	120.0	.00
671	534	538	440.0	8.0	120.0	.00
675	538	542	765.0	8.0	120.0	.00
679	542	546	193.0	8.0	120.0	.00
683	546	550	286.0	8.0	120.0	.00
687	550	554	255.0	8.0	120.0	.00
691	554	558	1051.0	8.0	120.0	.00
695	558	562	332.0	8.0	120.0	.00
699	562	422	178.0	8.0	120.0	.00
703	534	566	170.0	8.0	120.0	.00
707	566	570	271.0	8.0	120.0	.00
711	570	554	255.0	8.0	120.0	.00
715	570	574	293.0	8.0	120.0	.00
719	574	578	155.0	8.0	120.0	.00
723	578	582	170.0	8.0	120.0	.00
727	582	562	796.0	8.0	120.0	.00
731	418	586	216.0	10.0	120.0	.00
735	586	590	340.0	10.0	120.0	.00
739	586	594	216.0	8.0	120.0	.00
743	594	598	394.0	8.0	120.0	.00
747	598	422	255.0	8.0	120.0	.00
751	598	602	309.0	8.0	120.0	.00
755	602	604	456.0	8.0	120.0	.00
759	602	604	688.0	8.0	120.0	.00
763	594	604	1800.0	8.0	120.0	.00

945	56	932	950.0	12.0	130.0	.00
949	900	56	950.0	12.0	130.0	.00
951	58	56	250.0	12.0	130.0	.00
953	936	58	160.0	12.0	130.0	.00
977	952	936	350.0	12.0	130.0	.00

JUNCTION NUMBER	DEMAND	ELEVATION	CONNECTING PIPES				
4	3.40	468.00	5	159			
8	8.70	456.00	5	9	139		
10	.00	402.00	137	139			
12	14.20	431.00	9	13	257		
16	5.10	420.00	13	17	29		
20	3.80	444.00	17	21	25		
24	6.10	454.00	21				
28	6.10	476.00	25				
32	6.30	403.00	4	10	29	33	83
36	6.10	427.00	33				
44	8.70	376.00	41				
46	.00	321.00	41	43			
48	6.30	318.00	43	45			
52	.70	321.00	45	49	75		
56	.00	433.00	945	949	951		
58	.00	420.00	951	953			
60	4.40	327.00	71	75	79		
64	4.10	351.00	79				
68	7.80	320.00	67	71	83	87	
72	12.70	359.00	61	63	67		
76	.00	348.00	63				
80	6.90	323.00	87	91	103		
84	7.70	386.00	91	95			
88	7.80	372.00	95	99			
92	6.40	327.00	99	103	107		
96	5.80	347.00	107	111	123		
100	8.40	415.00	111	115			
104	7.70	417.00	115	119			
108	11.20	355.00	119	123	127		
112	6.10	375.00	127	131	135		
114	38.40	391.00	53	57	385		
116	7.00	379.00	57	61	131		
120	8.70	377.00	135	141	143		
122	.00	385.00	137	141			
124	4.80	401.00	143	147			
128	3.80	422.00	147	151	183		
132	6.50	456.00	151	155	171		
136	7.50	446.00	167	171	175		
140	5.70	446.00	175	179	195		
144	5.10	429.00	179	183	187		
148	5.40	415.00	187	191			
152	8.30	390.00	191				
156	7.20	423.00	195	199	223		
160	7.70	393.00	199	203			
164	4.00	426.00	203	207	215	333	
168	6.90	396.00	207	211			

172	12.10	380.00	211			
176	.00	454.00	215	219		
180	5.90	445.00	219	223	227	231
184	7.50	446.00	231	235		
188	5.40	461.00	163	167	235	239
192	5.60	477.00	155	159	163	247
196	4.50	475.00	243	247	251	
200	5.90	454.00	239	243	265	
204	10.50	423.00	227	269		
208	6.20	455.00	251	253	261	273
212	14.80	415.00	253	257	451	
216	6.20	471.00	261	265	269	345
220	6.90	445.00	341	345		
224	10.10	439.00	337	341		
228	9.60	409.00	321	325	337	
232	3.80	397.00	325	329	365	
236	4.10	463.00	333	349	381	
240	5.80	353.00	317	321		
244	5.10	366.00	313	317		
248	7.30	369.00	309	313		
252	10.60	387.00	305	309		
256	12.40	404.00	297	301	305	
260	12.20	427.00	273	277	281	301
264	3.70	443.00	281	285		
268	10.10	453.00	277	285	289	
272	12.90	455.00	293	297		
276	11.20	457.00	289	293	455	507
282	6.90	394.00	349	353		
286	5.80	380.00	353	357		
290	8.90	387.00	357	361	369	
294	24.50	389.00	361	365		
298	7.00	396.00	369	373		
302	7.30	410.00	373	377		
306	5.20	411.00	329	377	381	
310	12.80	358.00	385	389	419	
314	7.50	340.00	389	393		
318	5.50	344.00	393	397	409	
322	9.90	354.00	397	401	405	
326	13.90	359.00	401	419	423	
330	9.80	348.00	405	409	413	417
334	9.90	346.00	413	417		
338	16.20	352.00	423	427	439	
342	9.80	358.00	427	431	435	
346	17.90	382.00	431	435		
350	14.50	344.00	439	443	447	
354	96.10	323.00	443			
358	15.20	372.00	447			
362	.00	364.00	451			
366	7.30	437.00	455	459	471	
370	10.90	406.00	459	463	467	
374	3.50	372.00	463			
378	6.40	377.00	467			
382	13.30	436.00	471	475	483	
386	15.50	380.00	475	479		

390	21.90	367.00	479	483	487	
394	3.50	350.00	487	491		
398	1.20	351.00	491	495		
402	19.60	379.00	495	499	503	
406	6.30	365.00	499			
410	6.90	357.00	503			
414	5.50	464.00	507	511	603	635
416	7.70	434.00	511	513	629	
418	3.40	421.00	513	515	663	731
422	4.40	442.00	515	519	699	747
426	9.40	410.00	519	523	587	
428	44.40	410.00	523	525	551	
430	43.60	397.00	525	527	543	
434	14.90	363.00	527	531	535	
438	.00	315.00	6	12	531	
442	20.10	375.00	535	539		
446	9.20	367.00	539	543	547	555
450	27.00	383.00	547	551	559	
454	24.90	348.00	555	559	563	
458	2.80	366.00	563	567		
462	5.40	373.00	567	571	599	
466	7.60	382.00	571	573	595	
468	.00	385.00	573	575		
470	12.30	387.00	575	579	591	
474	10.90	389.00	579	581		
476	.00	381.00	581	583		
478	21.10	332.00	583	587		
482	13.70	389.00	591	595	599	
486	10.30	459.00	603	607		
490	8.40	450.00	607	611	631	
494	6.40	431.00	611	615		
498	9.30	424.00	615	619	627	
502	4.40	399.00	619	623		
506	11.90	425.00	623	627	629	631
510	9.60	456.00	635	639	655	
514	12.20	415.00	639	643		
518	9.00	409.00	643	647		
522	6.40	407.00	647	651		
526	6.60	399.00	651	655	659	
530	7.50	397.00	659	663	667	
534	.00	399.00	667	671	703	
538	.00	415.00	671	675		
542	.00	393.00	675	679		
546	5.80	386.00	679	683		
550	6.00	381.00	683	687		
554	4.40	382.00	687	691	711	
558	.00	422.00	691	695		
562	.00	435.00	695	699	727	
566	6.00	392.00	703	707		
570	6.40	383.00	707	711	715	
574	5.50	384.00	715	719		
578	5.70	386.00	719	723		
582	5.70	387.00	723	727		
586	4.70	408.00	731	735	739	

590	.00	375.00	735		
594	16.50	417.00	739	743	763
598	9.50	428.00	743	747	751
602	3.40	420.00	751	755	759
604	10.30	402.00	755	759	763
900	.00	345.00	49	949	
932	.00	455.00	945		
936	.00	424.00	953	977	
952	.00	416.00	53	977	

OUTPUT SELECTION: ALL RESULTS ARE OUTPUT EACH PERIOD
10 VALUES ARE OUTPUT FOR MAXIMUM AND MINIMUM PRESSURES

THIS SYSTEM HAS 208 PIPES WITH 163 JUNCTIONS , 42 LOOPS AND 4 FGNS

THE RESULTS ARE OBTAINED AFTER 7 TRIALS WITH AN ACCURACY = .00109

Melrose+Oceanside Project in the City of Oceanside 965001F1
Existing 626 Pressure Zone Analysis - Calibration Using Fire Hydrant Flow Tests
Average Day Demand

PIPE NO.	NODE NOS.		FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
THE CHECK VALVE IN LINE NUMBER 4 IS CLOSED								
5	4	8	309.81	.02	.00	.00	.65	.14
6	0	438	1124.70	16.04	.00	.00	12.76	106.92
9	8	12	95.72	.07	.00	.00	.39	.09
THE CHECK VALVE IN LINE NUMBER 10 IS CLOSED								
12	0	438	286.30	.04	.00	.00	.81	.25
13	12	16	151.11	.09	.00	.00	.62	.22
17	16	20	16.00	.00	.00	.00	.10	.01
21	20	24	6.10	.00	.00	.00	.04	.00
25	20	28	6.10	.00	.00	.00	.04	.00
29	16	32	130.01	.10	.00	.00	.53	.16
33	32	36	6.10	.00	.00	.00	.04	.00
41	46	44	8.70	.00	.00	.00	.06	.00
43	48	46	8.70	.00	.00	.00	.06	.00
45	48	52	-15.00	.00	.00	.00	-.06	.00
49	52	900	64.45	.01	.00	.00	.18	.02
53	114	952	-64.45	-.02	.00	.00	-.18	-.02
57	116	114	212.95	.11	.00	.00	.60	.14
61	116	72	8.42	.00	.00	.00	.05	.00
63	72	76	.00	.00	.00	.00	.00	.00
67	68	72	4.28	.00	.00	.00	.03	.00
71	68	60	88.65	.03	.00	.00	.36	.08
75	60	52	80.15	.02	.00	.00	.33	.07
79	60	64	4.10	.00	.00	.00	.03	.00
83	32	68	117.61	.05	.00	.00	.33	.05

87	80	68	-16.89	.00	.00	.00	-.11	-.01
91	80	84	7.91	.00	.00	.00	.05	.00
95	88	84	-.21	.00	.00	.00	.00	.00
99	92	88	7.59	.00	.00	.00	.05	.00
103	92	80	-2.07	.00	.00	.00	-.01	.00
107	96	92	11.91	.00	.00	.00	.08	.01
111	96	100	3.35	.00	.00	.00	.02	.00
115	104	100	5.05	.00	.00	.00	.03	.00
119	108	104	12.75	.01	.00	.00	.08	.01
123	108	96	21.06	.01	.00	.00	.13	.02
127	112	108	45.01	.05	.00	.00	.29	.07
131	112	116	228.37	.05	.00	.00	.65	.16
135	120	112	279.49	.07	.00	.00	.79	.24
137	10	122	205.39	.04	.00	.00	.58	.14
139	8	10	205.39	.10	.00	.00	.58	.14
141	122	120	205.39	.04	.00	.00	.58	.14
143	120	124	-82.80	-.07	.00	.00	-.53	-.21
147	124	128	-87.60	-.08	.00	.00	-.56	-.23
151	132	128	60.86	.04	.00	.00	.39	.12
155	192	132	53.81	.07	.00	.00	.34	.09
159	4	192	-313.21	-.04	.00	.00	-.65	-.14
163	192	188	-5.64	.00	.00	.00	-.04	.00
167	188	136	36.12	.06	.00	.00	.41	.18
171	136	132	13.55	.01	.00	.00	.15	.03
175	136	140	15.07	.02	.00	.00	.17	.04
179	144	140	-49.34	-.02	.00	.00	-.31	-.08
183	128	144	-30.54	-.01	.00	.00	-.19	-.03
187	144	148	13.70	.01	.00	.00	.16	.03
191	148	152	8.30	.00	.00	.00	.09	.01
195	140	156	-39.97	-.02	.00	.00	-.26	-.05
199	156	160	-1.84	.00	.00	.00	-.01	.00
203	160	164	-9.54	.00	.00	.00	-.06	.00
207	164	168	19.00	.00	.00	.00	.12	.01
211	168	172	12.10	.00	.00	.00	.08	.01
215	176	164	25.83	.01	.00	.00	.16	.02
219	180	176	25.83	.01	.00	.00	.16	.02
223	180	156	45.33	.02	.00	.00	.29	.07
227	180	204	-47.11	-.02	.00	.00	-.30	-.07
231	184	180	29.95	.02	.00	.00	.19	.03
235	188	184	37.45	.02	.00	.00	.24	.05
239	188	200	-84.61	-.08	.00	.00	-.54	-.22
243	196	200	59.80	.04	.00	.00	.38	.11
247	192	196	-366.98	-.12	.00	.00	-.76	-.19
251	196	208	-431.28	-.07	.00	.00	-.90	-.25
253	208	212	84.39	.07	.00	.00	.54	.22
257	212	12	69.59	.25	.00	.00	.44	.15
261	208	216	79.39	.11	.00	.00	.51	.19
265	200	216	-30.71	-.01	.00	.00	-.20	-.03
269	216	204	57.61	.11	.00	.00	.37	.11
273	208	260	-601.26	-.27	.00	.00	-1.25	-.47
277	260	268	-82.91	-.26	.00	.00	-.53	-.21
281	260	264	-564.68	-.12	.00	.00	-1.18	-.42
285	264	268	-568.38	-.14	.00	.00	-1.18	-.42
289	268	276	-661.39	-.40	.00	.00	-1.38	-.56

293	276	272	141.91	.15	.00	.00	.91	.57
297	256	272	-129.01	-.53	.00	.00	-.82	-.48
301	260	256	34.13	.01	.00	.00	.14	.01
305	256	252	150.74	.08	.00	.00	.62	.21
309	252	248	140.14	.06	.00	.00	.57	.19
313	248	244	132.84	.05	.00	.00	.54	.17
317	244	240	127.74	.06	.00	.00	.52	.16
321	240	228	121.94	.11	.00	.00	.78	.43
325	228	232	80.21	.14	.00	.00	.51	.20
329	232	306	42.19	.02	.00	.00	.27	.06
333	236	164	6.71	.00	.00	.00	.04	.00
337	224	228	-32.13	-.01	.00	.00	-.21	-.04
341	220	224	-22.03	-.01	.00	.00	-.14	-.02
345	216	220	-15.13	.00	.00	.00	-.10	-.01
349	236	282	10.30	.00	.00	.00	.07	.00
353	282	286	3.40	.00	.00	.00	.02	.00
357	286	290	-2.40	.00	.00	.00	-.02	.00
361	290	294	-9.72	.00	.00	.00	-.06	.00
365	294	232	-34.22	-.02	.00	.00	-.14	-.01
369	290	298	-1.58	.00	.00	.00	-.01	.00
373	298	302	-8.58	.00	.00	.00	-.05	.00
377	302	306	-15.88	-.01	.00	.00	-.10	-.01
381	306	236	21.11	.01	.00	.00	.13	.02
385	310	114	-239.00	-.93	.00	.00	-.98	-.50
389	310	314	81.14	.08	.00	.00	.33	.07
393	314	318	73.64	.02	.00	.00	.30	.06
397	318	322	29.23	.01	.00	.00	.12	.01
401	322	326	38.54	.01	.00	.00	.16	.02
405	322	330	-19.21	-.01	.00	.00	-.08	.00
409	318	330	38.91	.00	.00	.00	.16	.02
413	330	334	7.29	.00	.00	.00	.03	.00
417	330	334	2.61	.00	.00	.00	.02	.00
419	310	326	145.06	.12	.00	.00	.59	.20
423	338	326	-169.70	-.29	.00	.00	-.69	-.27
427	338	342	27.70	.00	.00	.00	.11	.01
431	342	346	13.64	.00	.00	.00	.06	.00
435	342	346	4.26	.00	.00	.00	.03	.00
439	338	350	125.80	.05	.00	.00	.51	.15
443	350	354	96.10	.10	.00	.00	.39	.09
447	350	358	15.20	.00	.00	.00	.06	.00
451	212	362	.00	.00	.00	.00	.00	.00
455	276	366	116.30	.04	.00	.00	.48	.13
459	366	370	20.80	.02	.00	.00	.13	.02
463	370	374	3.50	.00	.00	.00	.02	.00
467	370	378	6.40	.00	.00	.00	.04	.00
471	366	382	88.20	.03	.00	.00	.36	.08
475	382	386	29.35	.04	.00	.00	.19	.03
479	386	390	13.85	.01	.00	.00	.09	.01
483	382	390	45.55	.04	.00	.00	.19	.02
487	390	394	37.50	.00	.00	.00	.15	.02
491	394	398	34.00	.00	.00	.00	.14	.01
495	398	402	32.80	.02	.00	.00	.13	.01
499	402	406	6.30	.00	.00	.00	.03	.00
503	402	410	6.90	.00	.00	.00	.04	.00

507	276	414	-930.80	-1.08	.00	.00	-1.94	-1.05
511	414	416	-368.18	-2.26	.00	.00	-.77	-.19
513	416	418	-702.05	-.29	.00	.00	-1.46	-.62
515	418	422	-762.14	-.53	.00	.00	-1.59	-.72
519	422	426	-1143.70	-.83	.00	.00	-2.38	-1.53
523	426	428	-995.72	-.99	.00	.00	-2.08	-1.19
525	428	430	-888.79	-1.21	.00	.00	-1.85	-.96
527	430	434	-1212.24	-.94	.00	.00	-2.53	-1.71
531	434	438	-1411.00	-1.42	.00	.00	-2.94	-2.26
535	434	442	183.86	1.25	.00	.00	1.17	.92
539	442	446	163.76	.34	.00	.00	1.05	.74
543	430	446	279.85	.65	.00	.00	1.14	.68
547	446	450	229.61	.21	.00	.00	.94	.47
551	450	428	151.33	.35	.00	.00	.62	.22
555	446	454	204.80	.33	.00	.00	.84	.38
559	450	454	51.28	.12	.00	.00	.33	.09
563	454	458	231.18	.52	.00	.00	.94	.47
567	458	462	228.38	.07	.00	.00	.65	.16
571	462	466	173.56	.05	.00	.00	.49	.10
573	466	468	166.62	.03	.00	.00	.47	.09
575	468	470	166.62	.03	.00	.00	.47	.09
579	470	474	189.38	.05	.00	.00	.54	.12
581	474	476	178.48	.04	.00	.00	.51	.10
583	476	478	178.48	.08	.00	.00	.51	.10
587	478	426	157.38	.37	.00	.00	.64	.23
591	470	482	-35.06	-.05	.00	.00	-.22	-.04
595	466	482	-.65	.00	.00	.00	.00	.00
599	462	482	49.42	.05	.00	.00	.32	.08
603	414	486	-275.47	-.41	.00	.00	-1.76	-1.95
607	486	490	-285.77	-.51	.00	.00	-1.82	-2.08
611	490	494	-136.29	-.29	.00	.00	-.87	-.53
615	494	498	-142.69	-.22	.00	.00	-.91	-.58
619	498	502	-65.01	-.11	.00	.00	-.41	-.13
623	502	506	-69.41	-.14	.00	.00	-.44	-.15
627	506	498	86.98	.25	.00	.00	.56	.23
629	506	416	-326.17	-.57	.00	.00	-2.08	-2.66
631	506	490	157.88	.76	.00	.00	1.01	.69
635	414	510	-292.65	-.42	.00	.00	-1.87	-2.18
639	510	514	-121.89	-.26	.00	.00	-.78	-.43
643	514	518	-134.09	-.13	.00	.00	-.86	-.51
647	518	522	-143.09	-.16	.00	.00	-.91	-.58
651	522	526	-149.49	-.46	.00	.00	-.95	-.63
655	526	510	180.37	1.00	.00	.00	1.15	.89
659	526	530	-336.45	-.61	.00	.00	-2.15	-2.82
663	530	418	-191.52	-.51	.00	.00	-1.22	-.99
667	530	534	-152.43	-.31	.00	.00	-.97	-.65
671	534	538	-47.76	-.03	.00	.00	-.30	-.08
675	538	542	-47.76	-.06	.00	.00	-.30	-.08
679	542	546	-47.76	-.01	.00	.00	-.30	-.08
683	546	550	-53.56	-.03	.00	.00	-.34	-.09
687	550	554	-59.56	-.03	.00	.00	-.38	-.11
691	554	558	-96.30	-.29	.00	.00	-.61	-.28
695	558	562	-96.30	-.09	.00	.00	-.61	-.28
699	562	422	-197.93	-.19	.00	.00	-1.26	-1.05

703	534	566	-104.67	-.06	.00	.00	-.67	-.32
707	566	570	-110.67	-.10	.00	.00	-.71	-.36
711	570	554	-32.34	-.01	.00	.00	-.21	-.04
715	570	574	-84.73	-.06	.00	.00	-.54	-.22
719	574	578	-90.23	-.04	.00	.00	-.58	-.25
723	578	582	-95.93	-.05	.00	.00	-.61	-.28
727	582	562	-101.63	-.24	.00	.00	-.65	-.31
731	418	586	-134.83	-.04	.00	.00	-.55	-.17
735	586	590	.00	.00	.00	.00	.00	.00
739	586	594	-139.53	-.12	.00	.00	-.89	-.55
743	594	598	-114.35	-.15	.00	.00	-.73	-.38
747	598	422	-179.23	-.22	.00	.00	-1.14	-.88
751	598	602	55.38	.03	.00	.00	.35	.10
755	602	604	28.86	.01	.00	.00	.18	.03
759	602	604	23.12	.01	.00	.00	.15	.02
763	594	604	-41.68	-.11	.00	.00	-.27	-.06
945	56	932	.00	.00	.00	.00	.00	.00
949	900	56	64.45	.02	.00	.00	.18	.02
951	58	56	-64.45	.00	.00	.00	-.18	-.02
953	936	58	-64.45	.00	.00	.00	-.18	-.02
977	952	936	-64.45	-.01	.00	.00	-.18	-.02

JUNCTION	NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
4		3.40	587.24	468.00	51.67
8		8.70	587.21	456.00	56.86
10		.00	587.11	402.00	80.22
12		14.20	587.14	431.00	67.66
16		5.10	587.05	420.00	72.39
20		3.80	587.05	444.00	61.99
24		6.10	587.05	454.00	57.66
28		6.10	587.05	476.00	48.12
32		6.30	586.95	403.00	79.71
36		6.10	586.95	427.00	69.31
44		8.70	586.84	376.00	91.37
46		.00	586.85	321.00	115.20
48		6.30	586.85	318.00	116.50
52		.70	586.85	321.00	115.20
56		.00	586.82	433.00	66.66
58		.00	586.82	420.00	72.29
60		4.40	586.87	327.00	112.61
64		4.10	586.87	351.00	102.21
68		7.80	586.90	320.00	115.66
72		12.70	586.90	359.00	98.76
76		.00	586.90	348.00	103.52
80		6.90	586.89	323.00	114.35
84		7.70	586.89	386.00	87.05
88		7.80	586.89	372.00	93.12
92		6.40	586.89	327.00	112.62
96		5.80	586.90	347.00	103.96
100		8.40	586.90	415.00	74.49
104		7.70	586.90	417.00	73.62
108		11.20	586.90	355.00	100.49
112		6.10	586.95	375.00	91.85

114	38.40	586.79	391.00	84.84
116	7.00	586.90	379.00	90.09
120	8.70	587.02	377.00	91.01
122	.00	587.07	385.00	87.56
124	4.80	587.09	401.00	80.64
128	3.80	587.17	422.00	71.57
132	6.50	587.21	456.00	56.86
136	7.50	587.22	446.00	61.19
140	5.70	587.20	446.00	61.19
144	5.10	587.18	429.00	68.54
148	5.40	587.17	415.00	74.61
152	8.30	587.16	390.00	85.44
156	7.20	587.22	423.00	71.16
160	7.70	587.22	393.00	84.16
164	4.00	587.22	426.00	69.86
168	6.90	587.22	396.00	82.86
172	12.10	587.22	380.00	89.79
176	.00	587.24	454.00	57.74
180	5.90	587.24	445.00	61.64
184	7.50	587.26	446.00	61.21
188	5.40	587.28	461.00	54.72
192	5.60	587.28	477.00	47.79
196	4.50	587.40	475.00	48.71
200	5.90	587.36	454.00	57.79
204	10.50	587.26	423.00	71.18
208	6.20	587.47	455.00	57.40
212	14.80	587.40	415.00	74.71
216	6.20	587.37	471.00	50.43
220	6.90	587.37	445.00	61.69
224	10.10	587.38	439.00	64.30
228	9.60	587.38	409.00	77.30
232	3.80	587.25	397.00	82.44
236	4.10	587.22	463.00	53.83
240	5.80	587.49	353.00	101.61
244	5.10	587.56	366.00	96.01
248	7.30	587.61	369.00	94.73
252	10.60	587.66	387.00	86.95
256	12.40	587.74	404.00	79.62
260	12.20	587.74	427.00	69.66
264	3.70	587.87	443.00	62.78
268	10.10	588.01	453.00	58.50
272	12.90	588.26	455.00	57.75
276	11.20	588.41	457.00	56.95
282	6.90	587.22	394.00	83.73
286	5.80	587.22	380.00	89.80
290	8.90	587.22	387.00	86.76
294	24.50	587.22	389.00	85.90
298	7.00	587.22	396.00	82.86
302	7.30	587.22	410.00	76.80
306	5.20	587.23	411.00	76.37
310	12.80	585.86	358.00	98.74
314	7.50	585.78	340.00	106.50
318	5.50	585.76	344.00	104.76
322	9.90	585.75	354.00	100.42

326	13.90	585.74	359.00	98.25
330	9.80	585.75	348.00	103.03
334	9.90	585.75	346.00	103.89
338	16.20	585.45	352.00	101.16
342	9.80	585.45	358.00	98.56
346	17.90	585.44	382.00	88.16
350	14.50	585.40	344.00	104.61
354	96.10	585.30	323.00	113.66
358	15.20	585.40	372.00	92.47
362	.00	587.40	364.00	96.81
366	7.30	588.37	437.00	65.60
370	10.90	588.36	406.00	79.02
374	3.50	588.36	372.00	93.75
378	6.40	588.36	377.00	91.59
382	13.30	588.34	436.00	66.02
386	15.50	588.31	380.00	90.27
390	21.90	588.30	367.00	95.90
394	3.50	588.30	350.00	103.26
398	1.20	588.29	351.00	102.83
402	19.60	588.27	379.00	90.68
406	6.30	588.27	365.00	96.75
410	6.90	588.27	357.00	100.22
414	5.50	589.50	464.00	54.38
416	7.70	591.75	434.00	68.36
418	3.40	592.04	421.00	74.12
422	4.40	592.57	442.00	65.25
426	9.40	593.40	410.00	79.48
428	44.40	594.40	410.00	79.90
430	43.60	595.61	397.00	86.06
434	14.90	596.54	363.00	101.20
438	.00	597.96	315.00	122.62
442	20.10	595.30	375.00	95.46
446	9.20	594.96	367.00	98.78
450	27.00	594.75	383.00	91.76
454	24.90	594.63	348.00	106.87
458	2.80	594.11	366.00	98.85
462	5.40	594.04	373.00	95.78
466	7.60	593.98	382.00	91.86
468	.00	593.96	385.00	90.55
470	12.30	593.93	387.00	89.67
474	10.90	593.88	389.00	88.78
476	.00	593.85	381.00	92.23
478	21.10	593.77	332.00	113.43
482	13.70	593.98	389.00	88.83
486	10.30	589.90	459.00	56.72
490	8.40	590.42	450.00	60.85
494	6.40	590.71	431.00	69.21
498	9.30	590.93	424.00	72.33
502	4.40	591.04	399.00	83.22
506	11.90	591.18	425.00	72.01
510	9.60	589.92	456.00	58.03
514	12.20	590.18	415.00	75.91
518	9.00	590.31	409.00	78.57
522	6.40	590.46	407.00	79.50

526	6.60	590.92	399.00	83.17
530	7.50	591.53	397.00	84.30
534	.00	591.84	399.00	83.56
538	.00	591.87	415.00	76.64
542	.00	591.93	393.00	86.20
546	5.80	591.95	386.00	89.24
550	6.00	591.97	381.00	91.42
554	4.40	592.00	382.00	91.00
558	.00	592.29	422.00	73.79
562	.00	592.39	435.00	68.20
566	6.00	591.89	392.00	86.62
570	6.40	591.99	383.00	90.56
574	5.50	592.06	384.00	90.16
578	5.70	592.09	386.00	89.31
582	5.70	592.14	387.00	88.89
586	4.70	592.08	408.00	79.77
590	.00	592.08	375.00	94.07
594	16.50	592.20	417.00	75.92
598	9.50	592.35	428.00	71.22
602	3.40	592.32	420.00	74.67
604	10.30	592.31	402.00	82.47
900	.00	586.84	345.00	104.80
932	.00	586.82	455.00	57.12
936	.00	586.82	424.00	70.55
952	.00	586.81	416.00	74.02
	MAXIMUM PRESSURES			
438	.00	597.96	315.00	122.62
48	6.30	586.85	318.00	116.50
68	7.80	586.90	320.00	115.66
52	.70	586.85	321.00	115.20
46	.00	586.85	321.00	115.20
80	6.90	586.89	323.00	114.35
354	96.10	585.30	323.00	113.66
478	21.10	593.77	332.00	113.43
92	6.40	586.89	327.00	112.62
60	4.40	586.87	327.00	112.61
	MINIMUM PRESSURES			
192	5.60	587.28	477.00	47.79
28	6.10	587.05	476.00	48.12
196	4.50	587.40	475.00	48.71
216	6.20	587.37	471.00	50.43
4	3.40	587.24	468.00	51.67
236	4.10	587.22	463.00	53.83
414	5.50	589.50	464.00	54.38
188	5.40	587.28	461.00	54.72
486	10.30	589.90	459.00	56.72
132	6.50	587.21	456.00	56.86

THE NET SYSTEM DEMAND = 1411.00

SUMMARY OF INFLOWS(+) AND OUTFLOWS(-) FROM FIXED GRADE NODES

PIPE NUMBER	FLOWRATE
6	1124.70
12	286.30

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES = 1411.00
THE NET FLOW OUT OF THE SYSTEM INTO FIXED GRADE NODES = .00

A SUMMARY OF CONDITIONS SPECIFIED FOR THE NEXT SIMULATION FOLLOWS

THE DEMANDS ARE CHANGED FROM ORIGINAL VALUES BY A FACTOR = 2.00

THE RESULTS ARE OBTAINED AFTER 5 TRIALS WITH AN ACCURACY = .00005

Melrose+Oceanside Project in the City of Oceanside
Existing 626 Pressure Zone Analysis
Maximum Day Demand equals 2 x Avg Day Demand

PIPE NO.	NODE NOS.		FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
4	0	32	18.85	.02	.00	.00	.48	.40
5	4	8	607.15	.08	.00	.00	1.27	.48
6	0	438	1159.01	16.96	.00	.00	13.15	113.04
9	8	12	185.07	.24	.00	.00	.76	.31
THE CHECK VALVE IN LINE NUMBER 10 IS CLOSED								
12	0	438	1644.14	.96	.00	.00	4.66	6.37
13	12	16	293.06	.30	.00	.00	1.20	.74
17	16	20	32.00	.01	.00	.00	.20	.04
21	20	24	12.20	.00	.00	.00	.08	.01
25	20	28	12.20	.00	.00	.00	.08	.01
29	16	32	250.86	.35	.00	.00	1.02	.55
33	32	36	12.20	.00	.00	.00	.08	.01
41	46	44	17.40	.01	.00	.00	.11	.01
43	48	46	17.40	.00	.00	.00	.11	.01
45	48	52	-30.00	.00	.00	.00	-.12	-.01
49	52	900	130.41	.04	.00	.00	.37	.06
53	114	952	-130.41	-.08	.00	.00	-.37	-.06
57	116	114	424.39	.40	.00	.00	1.20	.52
61	116	72	11.41	.01	.00	.00	.07	.01
63	72	76	.00	.00	.00	.00	.00	.00
67	68	72	13.99	.00	.00	.00	.09	.01
71	68	60	178.81	.12	.00	.00	.73	.29
75	60	52	161.81	.06	.00	.00	.66	.25
79	60	64	8.20	.00	.00	.00	.05	.00
83	32	68	244.91	.21	.00	.00	.69	.19
87	80	68	-36.50	-.01	.00	.00	-.23	-.05
91	80	84	16.02	.01	.00	.00	.10	.01
95	88	84	-.62	.00	.00	.00	.00	.00
99	92	88	14.98	.01	.00	.00	.10	.01
103	92	80	-6.69	.00	.00	.00	-.04	.00

107	96	92	21.10	.01	.00	.00	.13	.02
111	96	100	7.46	.00	.00	.00	.05	.00
115	104	100	9.34	.00	.00	.00	.06	.00
119	108	104	24.74	.02	.00	.00	.16	.02
123	108	96	40.16	.02	.00	.00	.26	.05
127	112	108	87.30	.17	.00	.00	.56	.23
131	112	116	449.80	.18	.00	.00	1.28	.58
135	120	112	549.29	.25	.00	.00	1.56	.84
137	10	122	404.68	.15	.00	.00	1.15	.47
139	8	10	404.68	.36	.00	.00	1.15	.47
141	122	120	404.68	.16	.00	.00	1.15	.47
143	120	124	-162.01	-.23	.00	.00	-1.03	-.73
147	124	128	-171.61	-.27	.00	.00	-1.10	-.81
151	132	128	120.21	.14	.00	.00	.77	.42
155	192	132	106.77	.24	.00	.00	.68	.34
159	4	192	-613.95	-.14	.00	.00	-1.28	-.48
163	192	188	-8.51	.00	.00	.00	-.05	.00
167	188	136	71.67	.21	.00	.00	.81	.65
171	136	132	26.45	.03	.00	.00	.30	.10
175	136	140	30.23	.07	.00	.00	.34	.13
179	144	140	-96.60	-.08	.00	.00	-.62	-.28
183	128	144	-59.00	-.03	.00	.00	-.38	-.11
187	144	148	27.40	.03	.00	.00	.31	.11
191	148	152	16.60	.01	.00	.00	.19	.04
195	140	156	-77.77	-.08	.00	.00	-.50	-.19
199	156	160	-2.08	.00	.00	.00	-.01	.00
203	160	164	-17.48	.00	.00	.00	-.11	-.01
207	164	168	38.00	.01	.00	.00	.24	.05
211	168	172	24.20	.01	.00	.00	.15	.02
215	176	164	51.68	.04	.00	.00	.33	.09
219	180	176	51.68	.02	.00	.00	.33	.09
223	180	156	90.09	.07	.00	.00	.58	.25
227	180	204	-93.08	-.06	.00	.00	-.59	-.26
231	184	180	60.49	.07	.00	.00	.39	.12
235	188	184	75.49	.06	.00	.00	.48	.18
239	188	200	-166.47	-.27	.00	.00	-1.06	-.77
243	196	200	118.65	.16	.00	.00	.76	.41
247	192	196	-723.41	-.43	.00	.00	-1.51	-.66
251	196	208	-851.06	-.26	.00	.00	-1.77	-.89
253	208	212	165.99	.26	.00	.00	1.06	.76
257	212	12	136.39	.89	.00	.00	.87	.53
261	208	216	157.25	.38	.00	.00	1.00	.69
265	200	216	-59.62	-.04	.00	.00	-.38	-.11
269	216	204	114.08	.38	.00	.00	.73	.38
273	208	260	-1186.70	-.95	.00	.00	-2.47	-1.64
277	260	268	-163.81	-.93	.00	.00	-1.05	-.74
281	260	264	-1115.65	-.43	.00	.00	-2.33	-1.47
285	264	268	-1123.05	-.50	.00	.00	-2.34	-1.48
289	268	276	-1307.05	-1.43	.00	.00	-2.72	-1.97
293	276	272	280.70	.53	.00	.00	1.79	2.01
297	256	272	-254.90	-1.85	.00	.00	-1.63	-1.69
301	260	256	68.35	.02	.00	.00	.28	.05
305	256	252	298.45	.27	.00	.00	1.22	.76
309	252	248	277.25	.20	.00	.00	1.13	.66

313	248	244	262.65	.17	.00	.00	1.07	.60
317	244	240	252.45	.22	.00	.00	1.03	.56
321	240	228	240.85	.39	.00	.00	1.54	1.52
325	228	232	158.79	.49	.00	.00	1.01	.70
329	232	306	83.22	.06	.00	.00	.53	.21
333	236	164	11.79	.00	.00	.00	.08	.01
337	224	228	-62.86	-.02	.00	.00	-.40	-.13
341	220	224	-42.66	-.02	.00	.00	-.27	-.06
345	216	220	-28.86	-.01	.00	.00	-.18	-.03
349	236	282	21.14	.01	.00	.00	.13	.02
353	282	286	7.34	.00	.00	.00	.05	.00
357	286	290	-4.26	.00	.00	.00	-.03	.00
361	290	294	-18.98	.00	.00	.00	-.12	-.01
365	294	232	-67.98	-.08	.00	.00	-.28	-.05
369	290	298	-3.08	.00	.00	.00	-.02	.00
373	298	302	-17.08	-.01	.00	.00	-.11	-.01
377	302	306	-31.68	-.02	.00	.00	-.20	-.04
381	306	236	41.13	.02	.00	.00	.26	.06
385	310	114	-478.00	-3.35	.00	.00	-1.95	-1.82
389	310	314	162.29	.30	.00	.00	.66	.25
393	314	318	147.29	.07	.00	.00	.60	.21
397	318	322	58.46	.03	.00	.00	.24	.04
401	322	326	77.09	.02	.00	.00	.31	.06
405	322	330	-38.42	-.02	.00	.00	-.16	-.02
409	318	330	77.82	.01	.00	.00	.32	.06
413	330	334	15.19	.00	.00	.00	.06	.00
417	330	334	4.61	.00	.00	.00	.03	.00
419	310	326	290.11	.43	.00	.00	1.19	.72
423	338	326	-339.40	-1.06	.00	.00	-1.39	-.97
427	338	342	55.40	.01	.00	.00	.23	.03
431	342	346	27.39	.00	.00	.00	.11	.01
435	342	346	8.41	.00	.00	.00	.05	.00
439	338	350	251.60	.17	.00	.00	1.03	.55
443	350	354	192.20	.37	.00	.00	.79	.34
447	350	358	30.40	.01	.00	.00	.12	.01
451	212	362	.00	.00	.00	.00	.00	.00
455	276	366	232.60	.14	.00	.00	.95	.48
459	366	370	41.60	.06	.00	.00	.27	.06
463	370	374	7.00	.00	.00	.00	.04	.00
467	370	378	12.80	.00	.00	.00	.08	.01
471	366	382	176.40	.11	.00	.00	.72	.29
475	382	386	58.69	.13	.00	.00	.37	.11
479	386	390	27.69	.02	.00	.00	.18	.03
483	382	390	91.11	.15	.00	.00	.37	.08
487	390	394	75.00	.02	.00	.00	.31	.06
491	394	398	68.00	.01	.00	.00	.28	.05
495	398	402	65.60	.07	.00	.00	.27	.05
499	402	406	12.60	.00	.00	.00	.05	.00
503	402	410	13.80	.01	.00	.00	.09	.01
507	276	414	-1842.76	-3.84	.00	.00	-3.84	-3.71
511	414	416	-729.36	-8.01	.00	.00	-1.52	-.67
513	416	418	-1391.43	-1.02	.00	.00	-2.90	-2.21
515	418	422	-1511.15	-1.89	.00	.00	-3.15	-2.57
519	422	426	-2268.55	-2.95	.00	.00	-4.73	-5.46

523	426	428	-1975.86	-3.53	.00	.00	-4.12	-4.23
525	428	430	-1764.70	-4.32	.00	.00	-3.68	-3.43
527	430	434	-2408.01	-3.34	.00	.00	-5.02	-6.09
531	434	438	-2803.15	-5.05	.00	.00	-5.84	-8.07
535	434	442	365.35	4.44	.00	.00	2.33	3.28
539	442	446	325.15	1.23	.00	.00	2.08	2.65
543	430	446	556.11	2.33	.00	.00	2.27	2.41
547	446	450	455.94	.74	.00	.00	1.86	1.67
551	450	428	299.96	1.25	.00	.00	1.23	.77
555	446	454	406.91	1.17	.00	.00	1.66	1.35
559	450	454	101.98	.43	.00	.00	.65	.31
563	454	458	459.09	1.86	.00	.00	1.88	1.69
567	458	462	453.49	.25	.00	.00	1.29	.59
571	462	466	344.59	.19	.00	.00	.98	.35
573	466	468	330.54	.09	.00	.00	.94	.33
575	468	470	330.54	.10	.00	.00	.94	.33
579	470	474	375.49	.16	.00	.00	1.07	.41
581	474	476	353.69	.13	.00	.00	1.00	.37
583	476	478	353.69	.27	.00	.00	1.00	.37
587	478	426	311.49	1.30	.00	.00	1.27	.82
591	470	482	-69.55	-.19	.00	.00	-.44	-.15
595	466	482	-1.15	.00	.00	.00	-.01	.00
599	462	482	98.11	.19	.00	.00	.63	.29
603	414	486	-545.27	-1.44	.00	.00	-3.48	-6.89
607	486	490	-565.87	-1.82	.00	.00	-3.61	-7.38
611	490	494	-269.88	-1.03	.00	.00	-1.72	-1.87
615	494	498	-282.68	-.77	.00	.00	-1.80	-2.04
619	498	502	-128.85	-.39	.00	.00	-.82	-.48
623	502	506	-137.65	-.51	.00	.00	-.88	-.54
627	506	498	172.43	.90	.00	.00	1.10	.82
629	506	416	-646.67	-2.04	.00	.00	-4.13	-9.45
631	506	490	312.79	2.70	.00	.00	2.00	2.46
635	414	510	-579.13	-1.49	.00	.00	-3.70	-7.70
639	510	514	-241.09	-.92	.00	.00	-1.54	-1.52
643	514	518	-265.49	-.46	.00	.00	-1.69	-1.82
647	518	522	-283.49	-.56	.00	.00	-1.81	-2.05
651	522	526	-296.29	-1.62	.00	.00	-1.89	-2.23
655	526	510	357.24	3.56	.00	.00	2.28	3.15
659	526	530	-666.73	-2.16	.00	.00	-4.26	-10.00
663	530	418	-379.83	-1.83	.00	.00	-2.42	-3.53
667	530	534	-301.90	-1.10	.00	.00	-1.93	-2.31
671	534	538	-94.59	-.12	.00	.00	-.60	-.27
675	538	542	-94.59	-.21	.00	.00	-.60	-.27
679	542	546	-94.59	-.05	.00	.00	-.60	-.27
683	546	550	-106.19	-.10	.00	.00	-.68	-.33
687	550	554	-118.19	-.10	.00	.00	-.75	-.41
691	554	558	-191.13	-1.04	.00	.00	-1.22	-.99
695	558	562	-191.13	-.33	.00	.00	-1.22	-.99
699	562	422	-392.90	-.67	.00	.00	-2.51	-3.76
703	534	566	-207.31	-.20	.00	.00	-1.32	-1.15
707	566	570	-219.31	-.35	.00	.00	-1.40	-1.28
711	570	554	-64.14	-.03	.00	.00	-.41	-.13
715	570	574	-167.97	-.23	.00	.00	-1.07	-.78
719	574	578	-178.97	-.14	.00	.00	-1.14	-.88

723	578	582	-190.37	-.17	.00	.00	-1.22	-.98
727	582	562	-201.77	-.87	.00	.00	-1.29	-1.09
731	418	586	-266.91	-.13	.00	.00	-1.09	-.62
735	586	590	.00	.00	.00	.00	.00	.00
739	586	594	-276.31	-.42	.00	.00	-1.76	-1.96
743	594	598	-226.72	-.53	.00	.00	-1.45	-1.36
747	598	422	-355.71	-.80	.00	.00	-2.27	-3.12
751	598	602	109.99	.11	.00	.00	.70	.36
755	602	604	57.30	.05	.00	.00	.37	.11
759	602	604	45.89	.05	.00	.00	.29	.07
763	594	604	-82.59	-.38	.00	.00	-.53	-.21
945	56	932	.00	.00	.00	.00	.00	.00
949	900	56	130.41	.06	.00	.00	.37	.06
951	58	56	-130.41	-.01	.00	.00	-.37	-.06
953	936	58	-130.41	-.01	.00	.00	-.37	-.06
977	952	936	-130.41	-.02	.00	.00	-.37	-.06

JUNCTION NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
4	6.80	558.95	468.00	39.41
8	17.40	558.87	456.00	44.58
10	.00	558.51	402.00	67.82
12	28.40	558.63	431.00	55.31
16	10.20	558.33	420.00	59.94
20	7.60	558.32	444.00	49.54
24	12.20	558.32	454.00	45.20
28	12.20	558.31	476.00	35.67
32	12.60	557.98	403.00	67.16
36	12.20	557.98	427.00	56.76
44	17.40	557.58	376.00	78.68
46	.00	557.59	321.00	102.52
48	12.60	557.59	318.00	103.82
52	1.40	557.59	321.00	102.52
56	.00	557.50	433.00	53.95
58	.00	557.49	420.00	59.58
60	8.80	557.66	327.00	99.95
64	8.20	557.65	351.00	89.55
68	15.60	557.77	320.00	103.03
72	25.40	557.77	359.00	86.13
76	.00	557.77	348.00	90.90
80	13.80	557.76	323.00	101.73
84	15.40	557.75	386.00	74.43
88	15.60	557.75	372.00	80.49
92	12.80	557.76	327.00	100.00
96	11.60	557.76	347.00	91.33
100	16.80	557.76	415.00	61.86
104	15.40	557.76	417.00	61.00
108	22.40	557.78	355.00	87.87
112	12.20	557.95	375.00	79.28
114	76.80	557.37	391.00	72.10
116	14.00	557.78	379.00	77.47
120	17.40	558.21	377.00	78.52
122	.00	558.36	385.00	75.12
124	9.60	558.44	401.00	68.22

128	7.60	558.71	422.00	59.24
132	13.00	558.85	456.00	44.57
136	15.00	558.88	446.00	48.91
140	11.40	558.81	446.00	48.89
144	10.20	558.74	429.00	56.22
148	10.80	558.70	415.00	62.27
152	16.60	558.69	390.00	73.10
156	14.40	558.89	423.00	58.89
160	15.40	558.89	393.00	71.89
164	8.00	558.89	426.00	57.59
168	13.80	558.88	396.00	70.58
172	24.20	558.87	380.00	77.51
176	.00	558.94	454.00	45.47
180	11.80	558.96	445.00	49.38
184	15.00	559.03	446.00	48.98
188	10.80	559.09	461.00	42.51
192	11.20	559.09	477.00	35.57
196	9.00	559.52	475.00	36.62
200	11.80	559.36	454.00	45.66
204	21.00	559.02	423.00	58.94
208	12.40	559.78	455.00	45.40
212	29.60	559.52	415.00	62.62
216	12.40	559.40	471.00	38.31
220	13.80	559.41	445.00	49.58
224	20.20	559.44	439.00	52.19
228	19.20	559.46	409.00	65.20
232	7.60	558.97	397.00	70.19
236	8.20	558.89	463.00	41.55
240	11.60	559.85	353.00	89.64
244	10.20	560.07	366.00	84.10
248	14.60	560.24	369.00	82.87
252	21.20	560.44	387.00	75.16
256	24.80	560.71	404.00	67.91
260	24.40	560.73	427.00	57.95
264	7.40	561.16	443.00	51.20
268	20.20	561.66	453.00	47.09
272	25.80	562.57	455.00	46.61
276	22.40	563.09	457.00	45.97
282	13.80	558.89	394.00	71.45
286	11.60	558.89	380.00	77.52
290	17.80	558.89	387.00	74.48
294	49.00	558.89	389.00	73.62
298	14.00	558.89	396.00	70.59
302	14.60	558.90	410.00	64.52
306	10.40	558.91	411.00	64.10
310	25.60	554.02	358.00	84.94
314	15.00	553.72	340.00	92.61
318	11.00	553.65	344.00	90.85
322	19.80	553.62	354.00	86.50
326	27.80	553.59	359.00	84.32
330	19.60	553.63	348.00	89.11
334	19.80	553.63	346.00	89.97
338	32.40	552.53	352.00	86.90
342	19.60	552.52	358.00	84.29

346	35.80	552.52	382.00	73.89
350	29.00	552.36	344.00	90.29
354	192.20	551.99	323.00	99.23
358	30.40	552.35	372.00	78.15
362	.00	559.52	364.00	84.72
366	14.60	562.95	437.00	54.58
370	21.80	562.90	406.00	67.99
374	7.00	562.90	372.00	82.72
378	12.80	562.89	377.00	80.55
382	26.60	562.84	436.00	54.96
386	31.00	562.71	380.00	79.18
390	43.80	562.69	367.00	84.80
394	7.00	562.67	350.00	92.16
398	2.40	562.66	351.00	91.72
402	39.20	562.59	379.00	79.56
406	12.60	562.59	365.00	85.62
410	13.80	562.58	357.00	89.08
414	11.00	566.93	464.00	44.61
416	15.40	574.94	434.00	61.07
418	6.80	575.96	421.00	67.15
422	8.80	577.85	442.00	58.87
426	18.80	580.80	410.00	74.02
428	88.80	584.33	410.00	75.54
430	87.20	588.65	397.00	83.05
434	29.80	591.99	363.00	99.23
438	.00	597.04	315.00	122.22
442	40.20	587.55	375.00	92.10
446	18.40	586.32	367.00	95.04
450	54.00	585.59	383.00	87.79
454	49.80	585.15	348.00	102.77
458	5.60	583.29	366.00	94.16
462	10.80	583.05	373.00	91.02
466	15.20	582.85	382.00	87.04
468	.00	582.76	385.00	85.70
470	24.60	582.66	387.00	84.79
474	21.80	582.50	389.00	83.85
476	.00	582.37	381.00	87.26
478	42.20	582.10	332.00	108.38
482	27.40	582.85	389.00	84.00
486	20.60	568.38	459.00	47.40
490	16.80	570.20	450.00	52.09
494	12.80	571.23	431.00	60.76
498	18.60	572.00	424.00	64.13
502	8.80	572.39	399.00	75.13
506	23.80	572.90	425.00	64.09
510	19.20	568.42	456.00	48.72
514	24.40	569.34	415.00	66.88
518	18.00	569.80	409.00	69.68
522	12.80	570.36	407.00	70.79
526	13.20	571.98	399.00	74.96
530	15.00	574.14	397.00	76.76
534	.00	575.24	399.00	76.37
538	.00	575.36	415.00	69.49
542	.00	575.57	393.00	79.11

546	11.60	575.62	386.00	82.17
550	12.00	575.71	381.00	84.38
554	8.80	575.82	382.00	83.99
558	.00	576.85	422.00	67.10
562	.00	577.18	435.00	61.61
566	12.00	575.44	392.00	79.49
570	12.80	575.78	383.00	83.54
574	11.00	576.01	384.00	83.20
578	11.40	576.15	386.00	82.40
582	11.40	576.31	387.00	82.04
586	9.40	576.10	408.00	72.84
590	.00	576.10	375.00	87.14
594	33.00	576.52	417.00	69.13
598	19.00	577.06	428.00	64.59
602	6.80	576.95	420.00	68.01
604	20.60	576.90	402.00	75.79
900	.00	557.56	345.00	92.11
932	.00	557.50	455.00	44.42
936	.00	557.48	424.00	57.84
952	.00	557.46	416.00	61.30
	MAXIMUM PRESSURES			
438	.00	597.04	315.00	122.22
478	42.20	582.10	332.00	108.38
48	12.60	557.59	318.00	103.82
68	15.60	557.77	320.00	103.03
454	49.80	585.15	348.00	102.77
52	1.40	557.59	321.00	102.52
46	.00	557.59	321.00	102.52
80	13.80	557.76	323.00	101.73
92	12.80	557.76	327.00	100.00
60	8.80	557.66	327.00	99.95
	MINIMUM PRESSURES			
192	11.20	559.09	477.00	35.57
28	12.20	558.31	476.00	35.67
196	9.00	559.52	475.00	36.62
216	12.40	559.40	471.00	38.31
4	6.80	558.95	468.00	39.41
236	8.20	558.89	463.00	41.55
188	10.80	559.09	461.00	42.51
932	.00	557.50	455.00	44.42
132	13.00	558.85	456.00	44.57
8	17.40	558.87	456.00	44.58

THE NET SYSTEM DEMAND = 2822.00

SUMMARY OF INFLOWS(+) AND OUTFLOWS(-) FROM FIXED GRADE NODES

PIPE NUMBER	FLOWRATE
4	18.85
6	1159.01
12	1644.14

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES = 2822.00
THE NET FLOW OUT OF THE SYSTEM INTO FIXED GRADE NODES = .00

A SUMMARY OF CONDITIONS SPECIFIED FOR THE NEXT SIMULATION FOLLOWS

THE DEMANDS ARE CHANGED FROM ORIGINAL VALUES BY A FACTOR = 3.00

THE RESULTS ARE OBTAINED AFTER 5 TRIALS WITH AN ACCURACY = .00483

Melrose+Oceanside Project in the City of Oceanside
Existing 626 Pressure Zone Analysis
Peak Hour Demand equals 3 x Avg Day Demand

PIPE NO.	NODE NOS.		FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
4	0	32	374.62	5.03	.00	.00	9.56	100.55
5	4	8	291.61	.02	.00	.00	.61	.12
6	0	438	1180.35	17.54	.00	.00	13.39	116.92
9	8	12	-184.29	-.24	.00	.00	-.75	-.31
10	0	32	551.90	.02	.00	.00	2.25	2.38
12	0	438	2126.15	1.54	.00	.00	6.03	10.25
13	12	16	-168.40	-.11	.00	.00	-.69	-.26
17	16	20	48.00	.02	.00	.00	.31	.08
21	20	24	18.30	.00	.00	.00	.12	.01
25	20	28	18.30	.01	.00	.00	.12	.01
29	16	32	-231.70	-.30	.00	.00	-.95	-.48
33	32	36	18.30	.01	.00	.00	.12	.01
41	46	44	26.10	.02	.00	.00	.17	.02
43	48	46	26.10	.00	.00	.00	.17	.02
45	48	52	-45.00	.00	.00	.00	-.18	-.02
49	52	900	255.78	.13	.00	.00	.73	.20
53	114	952	-255.78	-.29	.00	.00	-.73	-.20
57	116	114	576.42	.71	.00	.00	1.64	.91
61	116	72	-97.99	-.45	.00	.00	-.63	-.29
63	72	76	.00	.00	.00	.00	.00	.00
67	68	72	136.09	.16	.00	.00	.87	.53
71	68	60	328.38	.36	.00	.00	1.34	.91
75	60	52	302.88	.20	.00	.00	1.24	.78
79	60	64	12.30	.00	.00	.00	.08	.01
83	32	68	657.61	1.30	.00	.00	1.87	1.17
87	80	68	-169.74	-.24	.00	.00	-1.08	-.79
91	80	84	53.36	.08	.00	.00	.34	.09
95	88	84	-30.26	-.01	.00	.00	-.19	-.03
99	92	88	-6.86	.00	.00	.00	-.04	.00
103	92	80	-95.68	-.09	.00	.00	-.61	-.27
107	96	92	-83.34	-.06	.00	.00	-.53	-.21
111	96	100	29.05	.03	.00	.00	.19	.03
115	104	100	-3.85	.00	.00	.00	-.02	.00
119	108	104	19.25	.01	.00	.00	.12	.01

123	108	96	-36.89	-.01	.00	.00	-.24	-.05
127	112	108	15.96	.01	.00	.00	.10	.01
131	112	116	499.43	.21	.00	.00	1.42	.70
135	120	112	533.69	.24	.00	.00	1.51	.79
137	10	122	449.80	.18	.00	.00	1.28	.58
139	8	10	449.80	.43	.00	.00	1.28	.58
141	122	120	449.80	.19	.00	.00	1.28	.58
143	120	124	-109.99	-.11	.00	.00	-.70	-.36
147	124	128	-124.39	-.15	.00	.00	-.79	-.45
151	132	128	137.43	.18	.00	.00	.88	.54
155	192	132	144.44	.42	.00	.00	.92	.59
159	4	192	-301.81	-.04	.00	.00	-.63	-.13
163	192	188	102.56	.14	.00	.00	.65	.31
167	188	136	83.84	.28	.00	.00	.95	.87
171	136	132	12.49	.01	.00	.00	.14	.03
175	136	140	48.85	.16	.00	.00	.55	.32
179	144	140	-54.76	-.03	.00	.00	-.35	-.10
183	128	144	1.64	.00	.00	.00	.01	.00
187	144	148	41.10	.07	.00	.00	.47	.23
191	148	152	24.90	.03	.00	.00	.28	.09
195	140	156	-23.02	-.01	.00	.00	-.15	-.02
199	156	160	54.73	.06	.00	.00	.35	.10
203	160	164	31.63	.01	.00	.00	.20	.04
207	164	168	57.00	.03	.00	.00	.36	.11
211	168	172	36.30	.01	.00	.00	.23	.05
215	176	164	81.11	.10	.00	.00	.52	.20
219	180	176	81.11	.05	.00	.00	.52	.20
223	180	156	99.34	.09	.00	.00	.63	.29
227	180	204	-93.37	-.06	.00	.00	-.60	-.26
231	184	180	104.78	.19	.00	.00	.67	.32
235	188	184	127.28	.16	.00	.00	.81	.47
239	188	200	-124.75	-.16	.00	.00	-.80	-.45
243	196	200	152.44	.25	.00	.00	.97	.65
247	192	196	-565.61	-.27	.00	.00	-1.18	-.42
251	196	208	-731.55	-.20	.00	.00	-1.52	-.67
253	208	212	102.89	.11	.00	.00	.66	.31
257	212	12	58.49	.18	.00	.00	.37	.11
261	208	216	171.66	.45	.00	.00	1.10	.81
265	200	216	9.98	.00	.00	.00	.06	.00
269	216	204	124.87	.45	.00	.00	.80	.45
273	208	260	-1024.69	-.73	.00	.00	-2.14	-1.25
277	260	268	-150.03	-.79	.00	.00	-.96	-.63
281	260	264	-1019.52	-.37	.00	.00	-2.12	-1.24
285	264	268	-1030.62	-.43	.00	.00	-2.15	-1.27
289	268	276	-1210.96	-1.24	.00	.00	-2.52	-1.71
293	276	272	272.43	.50	.00	.00	1.74	1.91
297	256	272	-233.73	-1.58	.00	.00	-1.49	-1.44
301	260	256	108.27	.04	.00	.00	.44	.12
305	256	252	304.80	.28	.00	.00	1.25	.79
309	252	248	273.00	.19	.00	.00	1.12	.65
313	248	244	251.10	.16	.00	.00	1.03	.55
317	244	240	235.80	.19	.00	.00	.96	.49
321	240	228	218.40	.33	.00	.00	1.39	1.27
325	228	232	176.76	.60	.00	.00	1.13	.86

329	232	306	83.70	.06	.00	.00	.53	.21
333	236	164	-43.74	-.02	.00	.00	-.28	-.06
337	224	228	-12.83	.00	.00	.00	-.08	-.01
341	220	224	17.47	.00	.00	.00	.11	.01
345	216	220	38.17	.02	.00	.00	.24	.05
349	236	282	51.95	.03	.00	.00	.33	.09
353	282	286	31.25	.01	.00	.00	.20	.03
357	286	290	13.85	.01	.00	.00	.09	.01
361	290	294	-8.17	.00	.00	.00	-.05	.00
365	294	232	-81.67	-.11	.00	.00	-.33	-.07
369	290	298	-4.68	.00	.00	.00	-.03	.00
373	298	302	-25.68	-.01	.00	.00	-.16	-.02
377	302	306	-47.58	-.04	.00	.00	-.30	-.08
381	306	236	20.52	.01	.00	.00	.13	.02
385	310	114	-717.00	-7.10	.00	.00	-2.93	-3.86
389	310	314	243.43	.64	.00	.00	.99	.52
393	314	318	220.93	.15	.00	.00	.90	.44
397	318	322	87.69	.07	.00	.00	.36	.08
401	322	326	115.63	.05	.00	.00	.47	.13
405	322	330	-57.64	-.04	.00	.00	-.24	-.04
409	318	330	116.74	.03	.00	.00	.48	.13
413	330	334	22.79	.00	.00	.00	.09	.01
417	330	334	6.91	.00	.00	.00	.04	.00
419	310	326	435.17	.91	.00	.00	1.78	1.53
423	338	326	-509.10	-2.25	.00	.00	-2.08	-2.05
427	338	342	83.10	.02	.00	.00	.34	.07
431	342	346	41.08	.01	.00	.00	.17	.02
435	342	346	12.62	.01	.00	.00	.08	.01
439	338	350	377.40	.36	.00	.00	1.54	1.18
443	350	354	288.30	.78	.00	.00	1.18	.71
447	350	358	45.60	.03	.00	.00	.19	.02
451	212	362	.00	.00	.00	.00	.00	.00
455	276	366	348.90	.29	.00	.00	1.43	1.02
459	366	370	62.40	.12	.00	.00	.40	.12
463	370	374	10.50	.00	.00	.00	.07	.00
467	370	378	19.20	.01	.00	.00	.12	.01
471	366	382	264.60	.24	.00	.00	1.08	.61
475	382	386	88.04	.27	.00	.00	.56	.24
479	386	390	41.54	.05	.00	.00	.27	.06
483	382	390	136.66	.33	.00	.00	.56	.18
487	390	394	112.50	.03	.00	.00	.46	.12
491	394	398	102.00	.02	.00	.00	.42	.10
495	398	402	98.40	.15	.00	.00	.40	.10
499	402	406	18.90	.00	.00	.00	.08	.00
503	402	410	20.70	.02	.00	.00	.13	.02
507	276	414	-1865.89	-3.93	.00	.00	-3.89	-3.80
511	414	416	-760.80	-8.66	.00	.00	-1.59	-.72
513	416	418	-1483.54	-1.15	.00	.00	-3.09	-2.49
515	418	422	-1641.32	-2.20	.00	.00	-3.42	-3.00
519	422	426	-2504.59	-3.55	.00	.00	-5.22	-6.55
523	426	428	-2221.73	-4.38	.00	.00	-4.63	-5.25
525	428	430	-2033.43	-5.61	.00	.00	-4.24	-4.46
527	430	434	-2827.14	-4.50	.00	.00	-5.89	-8.20
531	434	438	-3306.49	-6.86	.00	.00	-6.89	-10.96

535	434	442	434.65	6.13	.00	.00	2.77	4.53
539	442	446	374.35	1.59	.00	.00	2.39	3.43
543	430	446	662.91	3.22	.00	.00	2.71	3.34
547	446	450	527.77	.97	.00	.00	2.16	2.19
551	450	428	321.50	1.43	.00	.00	1.31	.87
555	446	454	481.89	1.60	.00	.00	1.97	1.85
559	450	454	125.27	.64	.00	.00	.80	.45
563	454	458	532.46	2.44	.00	.00	2.17	2.22
567	458	462	524.06	.33	.00	.00	1.49	.77
571	462	466	395.23	.25	.00	.00	1.12	.45
573	466	468	366.85	.11	.00	.00	1.04	.40
575	468	470	366.85	.12	.00	.00	1.04	.40
579	470	474	407.06	.19	.00	.00	1.15	.48
581	474	476	374.36	.14	.00	.00	1.06	.41
583	476	478	374.36	.30	.00	.00	1.06	.41
587	478	426	311.06	1.30	.00	.00	1.27	.82
591	470	482	-77.11	-.23	.00	.00	-.49	-.18
595	466	482	5.58	.00	.00	.00	.04	.00
599	462	482	112.64	.25	.00	.00	.72	.37
603	414	486	-547.54	-1.45	.00	.00	-3.49	-6.94
607	486	490	-578.44	-1.90	.00	.00	-3.69	-7.69
611	490	494	-275.93	-1.07	.00	.00	-1.76	-1.95
615	494	498	-295.13	-.84	.00	.00	-1.88	-2.21
619	498	502	-136.97	-.43	.00	.00	-.87	-.53
623	502	506	-150.17	-.60	.00	.00	-.96	-.63
627	506	498	186.06	1.03	.00	.00	1.19	.94
629	506	416	-699.64	-2.36	.00	.00	-4.47	-10.93
631	506	490	327.71	2.94	.00	.00	2.09	2.68
635	414	510	-574.05	-1.46	.00	.00	-3.66	-7.58
639	510	514	-233.62	-.86	.00	.00	-1.49	-1.43
643	514	518	-270.22	-.48	.00	.00	-1.72	-1.88
647	518	522	-297.22	-.61	.00	.00	-1.90	-2.24
651	522	526	-316.42	-1.83	.00	.00	-2.02	-2.52
655	526	510	369.22	3.78	.00	.00	2.36	3.35
659	526	530	-705.45	-2.40	.00	.00	-4.50	-11.10
663	530	418	-416.68	-2.17	.00	.00	-2.66	-4.19
667	530	534	-311.27	-1.17	.00	.00	-1.99	-2.44
671	534	538	-97.07	-.12	.00	.00	-.62	-.28
675	538	542	-97.07	-.22	.00	.00	-.62	-.28
679	542	546	-97.07	-.05	.00	.00	-.62	-.28
683	546	550	-114.47	-.11	.00	.00	-.73	-.38
687	550	554	-132.47	-.13	.00	.00	-.85	-.50
691	554	558	-216.11	-1.30	.00	.00	-1.38	-1.24
695	558	562	-216.11	-.41	.00	.00	-1.38	-1.24
699	562	422	-447.77	-.85	.00	.00	-2.86	-4.78
703	534	566	-214.19	-.21	.00	.00	-1.37	-1.22
707	566	570	-232.19	-.38	.00	.00	-1.48	-1.42
711	570	554	-70.44	-.04	.00	.00	-.45	-.16
715	570	574	-180.95	-.26	.00	.00	-1.15	-.89
719	574	578	-197.45	-.16	.00	.00	-1.26	-1.05
723	578	582	-214.55	-.21	.00	.00	-1.37	-1.22
727	582	562	-231.65	-1.12	.00	.00	-1.48	-1.41
731	418	586	-269.11	-.14	.00	.00	-1.10	-.63
735	586	590	.00	.00	.00	.00	.00	.00

739	586	594	-283.21	-.44	.00	.00	-1.81	-2.05
743	594	598	-245.80	-.62	.00	.00	-1.57	-1.58
747	598	422	-402.31	-1.00	.00	.00	-2.57	-3.92
751	598	602	128.00	.15	.00	.00	.82	.47
755	602	604	65.42	.06	.00	.00	.42	.14
759	602	604	52.39	.06	.00	.00	.33	.09
763	594	604	-86.90	-.41	.00	.00	-.55	-.23
945	56	932	.00	.00	.00	.00	.00	.00
949	900	56	255.78	.19	.00	.00	.73	.20
951	58	56	-255.78	-.05	.00	.00	-.73	-.20
953	936	58	-255.78	-.03	.00	.00	-.73	-.20
977	952	936	-255.78	-.07	.00	.00	-.73	-.20

JUNCTION NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
4	10.20	552.35	468.00	36.55
8	26.10	552.33	456.00	41.74
10	.00	551.89	402.00	64.95
12	42.60	552.57	431.00	52.68
16	15.30	552.68	420.00	57.49
20	11.40	552.65	444.00	47.08
24	18.30	552.65	454.00	42.75
28	18.30	552.64	476.00	33.21
32	18.90	552.98	403.00	64.99
36	18.30	552.97	427.00	54.59
44	26.10	551.09	376.00	75.87
46	.00	551.11	321.00	99.71
48	18.90	551.11	318.00	101.02
52	2.10	551.12	321.00	99.72
56	.00	550.80	433.00	51.05
58	.00	550.75	420.00	56.66
60	13.20	551.32	327.00	97.21
64	12.30	551.32	351.00	86.80
68	23.40	551.68	320.00	100.40
72	38.10	551.52	359.00	83.42
76	.00	551.52	348.00	88.19
80	20.70	551.44	323.00	98.99
84	23.10	551.37	386.00	71.66
88	23.40	551.36	372.00	77.72
92	19.20	551.36	327.00	97.22
96	17.40	551.29	347.00	88.53
100	25.20	551.27	415.00	59.05
104	23.10	551.27	417.00	58.18
108	33.60	551.28	355.00	85.05
112	18.30	551.29	375.00	76.39
114	115.20	550.36	391.00	69.06
116	21.00	551.07	379.00	74.56
120	26.10	551.52	377.00	75.63
122	.00	551.71	385.00	72.24
124	14.40	551.64	401.00	65.28
128	11.40	551.78	422.00	56.24
132	19.50	551.96	456.00	41.58
136	22.50	551.97	446.00	45.92
140	17.10	551.81	446.00	45.85

144	15.30	551.78	429.00	53.21
148	16.20	551.71	415.00	59.24
152	24.90	551.68	390.00	70.06
156	21.60	551.82	423.00	55.82
160	23.10	551.76	393.00	68.80
164	12.00	551.75	426.00	54.49
168	20.70	551.72	396.00	67.48
172	36.30	551.70	380.00	74.41
176	.00	551.85	454.00	42.40
180	17.70	551.90	445.00	46.33
184	22.50	552.09	446.00	45.97
188	16.20	552.25	461.00	39.54
192	16.80	552.39	477.00	32.67
196	13.50	552.66	475.00	33.65
200	17.70	552.41	454.00	42.65
204	31.50	551.97	423.00	55.89
208	18.60	552.86	455.00	42.41
212	44.40	552.75	415.00	59.69
216	18.60	552.41	471.00	35.28
220	20.70	552.39	445.00	46.54
224	30.30	552.39	439.00	49.13
228	28.80	552.39	409.00	62.13
232	11.40	551.79	397.00	67.08
236	12.30	551.73	463.00	38.45
240	17.40	552.72	353.00	86.54
244	15.30	552.91	366.00	80.99
248	21.90	553.07	369.00	79.76
252	31.80	553.26	387.00	72.05
256	37.20	553.54	404.00	64.80
260	36.60	553.58	427.00	54.85
264	11.10	553.95	443.00	48.08
268	30.30	554.38	453.00	43.93
272	38.70	555.12	455.00	43.38
276	33.60	555.62	457.00	42.73
282	20.70	551.69	394.00	68.33
286	17.40	551.68	380.00	74.40
290	26.70	551.68	387.00	71.36
294	73.50	551.68	389.00	70.49
298	21.00	551.68	396.00	67.46
302	21.90	551.69	410.00	61.40
306	15.60	551.73	411.00	60.98
310	38.40	543.26	358.00	80.28
314	22.50	542.61	340.00	87.80
318	16.50	542.46	344.00	86.00
322	29.70	542.40	354.00	81.64
326	41.70	542.35	359.00	79.45
330	29.40	542.44	348.00	84.26
334	29.70	542.43	346.00	85.12
338	48.60	540.10	352.00	81.51
342	29.40	540.07	358.00	78.90
346	53.70	540.06	382.00	68.49
350	43.50	539.73	344.00	84.82
354	288.30	538.96	323.00	93.58
358	45.60	539.71	372.00	72.67

362	.00	552.75	364.00	81.79
366	21.90	555.33	437.00	51.27
370	32.70	555.20	406.00	64.65
374	10.50	555.20	372.00	79.39
378	19.20	555.19	377.00	77.22
382	39.90	555.09	436.00	51.60
386	46.50	554.81	380.00	75.75
390	65.70	554.76	367.00	81.36
394	10.50	554.73	350.00	88.71
398	3.60	554.71	351.00	88.27
402	58.80	554.55	379.00	76.07
406	18.90	554.55	365.00	82.14
410	20.70	554.53	357.00	85.60
414	16.50	559.55	464.00	41.40
416	23.10	568.21	434.00	58.16
418	10.20	569.36	421.00	64.29
422	13.20	571.56	442.00	56.14
426	28.20	575.10	410.00	71.55
428	133.20	579.49	410.00	73.45
430	130.80	585.10	397.00	81.51
434	44.70	589.60	363.00	98.19
438	.00	596.46	315.00	121.97
442	60.30	583.47	375.00	90.34
446	27.60	581.88	367.00	93.11
450	81.00	580.91	383.00	85.76
454	74.70	580.28	348.00	100.65
458	8.40	577.84	366.00	91.80
462	16.20	577.51	373.00	88.62
466	22.80	577.26	382.00	84.61
468	.00	577.15	385.00	83.26
470	36.90	577.03	387.00	82.35
474	32.70	576.84	389.00	81.40
476	.00	576.70	381.00	84.80
478	63.30	576.40	332.00	105.91
482	41.10	577.26	389.00	81.58
486	30.90	561.00	459.00	44.20
490	25.20	562.90	450.00	48.92
494	19.20	563.97	431.00	57.62
498	27.90	564.81	424.00	61.02
502	13.20	565.24	399.00	72.04
506	35.70	565.84	425.00	61.03
510	28.80	561.01	456.00	45.51
514	36.60	561.88	415.00	63.65
518	27.00	562.36	409.00	66.45
522	19.20	562.96	407.00	67.58
526	19.80	564.79	399.00	71.84
530	22.50	567.19	397.00	73.75
534	.00	568.36	399.00	73.39
538	.00	568.48	415.00	66.51
542	.00	568.70	393.00	76.14
546	17.40	568.75	386.00	79.19
550	18.00	568.86	381.00	81.41
554	13.20	568.99	382.00	81.03
558	.00	570.30	422.00	64.26

562	.00	570.71	435.00	58.81
566	18.00	568.57	392.00	76.51
570	19.20	568.95	383.00	80.58
574	16.50	569.21	384.00	80.26
578	17.10	569.38	386.00	79.46
582	17.10	569.58	387.00	79.12
586	14.10	569.49	408.00	69.98
590	.00	569.49	375.00	84.28
594	49.50	569.94	417.00	66.27
598	28.50	570.56	428.00	61.78
602	10.20	570.41	420.00	65.18
604	30.90	570.35	402.00	72.95
900	.00	550.99	345.00	89.26
932	.00	550.80	455.00	41.51
936	.00	550.72	424.00	54.91
952	.00	550.64	416.00	58.35

MAXIMUM PRESSURES

438	.00	596.46	315.00	121.97
478	63.30	576.40	332.00	105.91
48	18.90	551.11	318.00	101.02
454	74.70	580.28	348.00	100.65
68	23.40	551.68	320.00	100.40
52	2.10	551.12	321.00	99.72
46	.00	551.11	321.00	99.71
80	20.70	551.44	323.00	98.99
434	44.70	589.60	363.00	98.19
92	19.20	551.36	327.00	97.22

MINIMUM PRESSURES

192	16.80	552.39	477.00	32.67
28	18.30	552.64	476.00	33.21
196	13.50	552.66	475.00	33.65
216	18.60	552.41	471.00	35.28
4	10.20	552.35	468.00	36.55
236	12.30	551.73	463.00	38.45
188	16.20	552.25	461.00	39.54
414	16.50	559.55	464.00	41.40
932	.00	550.80	455.00	41.51
132	19.50	551.96	456.00	41.58

THE NET SYSTEM DEMAND = 4233.00

SUMMARY OF INFLOWS(+) AND OUTFLOWS(-) FROM FIXED GRADE NODES

PIPE NUMBER	FLOWRATE
4	374.62
6	1180.35
10	551.90
12	2126.15

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES = 4233.01
THE NET FLOW OUT OF THE SYSTEM INTO FIXED GRADE NODES = .00

A SUMMARY OF CONDITIONS SPECIFIED FOR THE NEXT SIMULATION FOLLOWS

THE FOLLOWING SPECIFIC DEMAND CHANGES ARE MADE :

JUNCTION NUMBER	DEMAND
122	1186.50

THE RESULTS ARE OBTAINED AFTER 4 TRIALS WITH AN ACCURACY = .00079

Melrose+Oceanside Project in the City of Oceanside
Existing 626 Pressure Zone Analysis
Avg Day Demand plus 1186.5 gpm at Test Hydrant Node 122

PIPE NO.	NODE NOS.		FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
4	0	32	121.78	.63	.00	.00	3.11	12.55
5	4	8	1006.57	.20	.00	.00	2.10	1.21
6	0	438	1147.45	16.64	.00	.00	13.02	110.96
9	8	12	144.43	.15	.00	.00	.59	.20
THE CHECK VALVE IN LINE NUMBER 10 IS CLOSED								
12	0	438	1328.26	.64	.00	.00	3.77	4.29
13	12	16	315.67	.35	.00	.00	1.29	.84
17	16	20	16.00	.00	.00	.00	.10	.01
21	20	24	6.10	.00	.00	.00	.04	.00
25	20	28	6.10	.00	.00	.00	.04	.00
29	16	32	294.57	.47	.00	.00	1.20	.74
33	32	36	6.10	.00	.00	.00	.04	.00
41	46	44	8.70	.00	.00	.00	.06	.00
43	48	46	8.70	.00	.00	.00	.06	.00
45	48	52	-15.00	.00	.00	.00	-.06	.00
49	52	900	150.39	.05	.00	.00	.43	.08
53	114	952	-150.39	-.11	.00	.00	-.43	-.08
57	116	114	127.01	.04	.00	.00	.36	.06
61	116	72	-83.66	-.33	.00	.00	-.53	-.21
63	72	76	.00	.00	.00	.00	.00	.00
67	68	72	96.36	.09	.00	.00	.61	.28
71	68	60	174.59	.11	.00	.00	.71	.28
75	60	52	166.09	.07	.00	.00	.68	.26
79	60	64	4.10	.00	.00	.00	.03	.00
83	32	68	403.96	.53	.00	.00	1.15	.47
87	80	68	-125.21	-.14	.00	.00	-.80	-.45
91	80	84	37.44	.04	.00	.00	.24	.05
95	88	84	-29.74	-.01	.00	.00	-.19	-.03
99	92	88	-21.94	-.02	.00	.00	-.14	-.02
103	92	80	-80.87	-.06	.00	.00	-.52	-.20
107	96	92	-96.41	-.08	.00	.00	-.62	-.28
111	96	100	29.50	.03	.00	.00	.19	.03
115	104	100	-21.10	-.01	.00	.00	-.13	-.02
119	108	104	-13.40	-.01	.00	.00	-.09	-.01
123	108	96	-61.11	-.04	.00	.00	-.39	-.12
127	112	108	-63.31	-.10	.00	.00	-.40	-.13

131	112	116	50.35	.00	.00	.00	.14	.01
135	120	112	-6.86	.00	.00	.00	-.02	.00
137	10	122	853.45	.60	.00	.00	2.42	1.89
139	8	10	853.45	1.42	.00	.00	2.42	1.89
141	122	120	-333.05	-.11	.00	.00	-.94	-.33
143	120	124	-334.90	-.89	.00	.00	-2.14	-2.79
147	124	128	-339.70	-.95	.00	.00	-2.17	-2.87
151	132	128	182.66	.31	.00	.00	1.17	.91
155	192	132	124.50	.32	.00	.00	.79	.45
159	4	192	-1009.97	-.35	.00	.00	-2.10	-1.22
163	192	188	-129.69	-.21	.00	.00	-.83	-.48
167	188	136	95.09	.35	.00	.00	1.08	1.10
171	136	132	64.66	.18	.00	.00	.73	.54
175	136	140	22.93	.04	.00	.00	.26	.08
179	144	140	-179.63	-.24	.00	.00	-1.15	-.88
183	128	144	-160.83	-.20	.00	.00	-1.03	-.72
187	144	148	13.70	.01	.00	.00	.16	.03
191	148	152	8.30	.00	.00	.00	.09	.01
195	140	156	-162.41	-.30	.00	.00	-1.04	-.73
199	156	160	-58.85	-.07	.00	.00	-.38	-.11
203	160	164	-66.55	-.04	.00	.00	-.42	-.14
207	164	168	19.00	.00	.00	.00	.12	.01
211	168	172	12.10	.00	.00	.00	.08	.01
215	176	164	-13.24	.00	.00	.00	-.08	-.01
219	180	176	-13.24	.00	.00	.00	-.08	-.01
223	180	156	110.76	.10	.00	.00	.71	.36
227	180	204	-120.33	-.10	.00	.00	-.77	-.42
231	184	180	-16.91	-.01	.00	.00	-.11	-.01
235	188	184	-9.41	.00	.00	.00	-.06	.00
239	188	200	-220.77	-.46	.00	.00	-1.41	-1.29
243	196	200	107.34	.13	.00	.00	.69	.34
247	192	196	-1010.39	-.80	.00	.00	-2.11	-1.22
251	196	208	-1122.23	-.43	.00	.00	-2.34	-1.48
253	208	212	200.25	.37	.00	.00	1.28	1.08
257	212	12	185.45	1.56	.00	.00	1.18	.93
261	208	216	168.32	.43	.00	.00	1.07	.78
265	200	216	-119.33	-.13	.00	.00	-.76	-.41
269	216	204	130.83	.49	.00	.00	.84	.49
273	208	260	-1496.99	-1.46	.00	.00	-3.12	-2.53
277	260	268	-196.23	-1.31	.00	.00	-1.25	-1.04
281	260	264	-1339.24	-.61	.00	.00	-2.79	-2.06
285	264	268	-1342.94	-.70	.00	.00	-2.80	-2.07
289	268	276	-1549.27	-1.96	.00	.00	-3.23	-2.69
293	276	272	318.74	.67	.00	.00	2.03	2.55
297	256	272	-305.84	-2.60	.00	.00	-1.95	-2.36
301	260	256	26.28	.00	.00	.00	.11	.01
305	256	252	319.72	.31	.00	.00	1.31	.86
309	252	248	309.12	.24	.00	.00	1.26	.81
313	248	244	301.82	.23	.00	.00	1.23	.78
317	244	240	296.72	.29	.00	.00	1.21	.75
321	240	228	290.92	.56	.00	.00	1.86	2.15
325	228	232	176.28	.60	.00	.00	1.13	.85
329	232	306	103.85	.08	.00	.00	.66	.32
333	236	164	102.78	.10	.00	.00	.66	.31

337	224	228	-105.04	-.06	.00	.00	-.67	-.33
341	220	224	-94.94	-.10	.00	.00	-.61	-.27
345	216	220	-88.04	-.11	.00	.00	-.56	-.24
349	236	282	-26.30	-.01	.00	.00	-.17	-.03
353	282	286	-33.20	-.01	.00	.00	-.21	-.04
357	286	290	-39.00	-.04	.00	.00	-.25	-.05
361	290	294	-44.14	-.01	.00	.00	-.28	-.07
365	294	232	-68.64	-.08	.00	.00	-.28	-.05
369	290	298	-3.76	.00	.00	.00	-.02	.00
373	298	302	-10.76	.00	.00	.00	-.07	.00
377	302	306	-18.06	-.01	.00	.00	-.12	-.01
381	306	236	80.58	.07	.00	.00	.51	.20
385	310	114	-239.00	-.93	.00	.00	-.98	-.50
389	310	314	81.14	.08	.00	.00	.33	.07
393	314	318	73.64	.02	.00	.00	.30	.06
397	318	322	29.23	.01	.00	.00	.12	.01
401	322	326	38.54	.01	.00	.00	.16	.02
405	322	330	-19.21	-.01	.00	.00	-.08	.00
409	318	330	38.91	.00	.00	.00	.16	.02
413	330	334	7.60	.00	.00	.00	.03	.00
417	330	334	2.30	.00	.00	.00	.01	.00
419	310	326	145.06	.12	.00	.00	.59	.20
423	338	326	-169.70	-.29	.00	.00	-.69	-.27
427	338	342	27.70	.00	.00	.00	.11	.01
431	342	346	13.69	.00	.00	.00	.06	.00
435	342	346	4.21	.00	.00	.00	.03	.00
439	338	350	125.80	.05	.00	.00	.51	.15
443	350	354	96.10	.10	.00	.00	.39	.09
447	350	358	15.20	.00	.00	.00	.06	.00
451	212	362	.00	.00	.00	.00	.00	.00
455	276	366	116.30	.04	.00	.00	.48	.13
459	366	370	20.80	.02	.00	.00	.13	.02
463	370	374	3.50	.00	.00	.00	.02	.00
467	370	378	6.40	.00	.00	.00	.04	.00
471	366	382	88.20	.03	.00	.00	.36	.08
475	382	386	29.35	.04	.00	.00	.19	.03
479	386	390	13.85	.01	.00	.00	.09	.01
483	382	390	45.55	.04	.00	.00	.19	.02
487	390	394	37.50	.00	.00	.00	.15	.02
491	394	398	34.00	.00	.00	.00	.14	.01
495	398	402	32.80	.02	.00	.00	.13	.01
499	402	406	6.30	.00	.00	.00	.03	.00
503	402	410	6.90	.00	.00	.00	.04	.00
507	276	414	-1995.52	-4.45	.00	.00	-4.16	-4.30
511	414	416	-763.79	-8.72	.00	.00	-1.59	-.73
513	416	418	-1418.08	-1.06	.00	.00	-2.96	-2.29
515	418	422	-1504.70	-1.87	.00	.00	-3.14	-2.55
519	422	426	-2208.42	-2.81	.00	.00	-4.60	-5.19
523	426	428	-1877.26	-3.21	.00	.00	-3.91	-3.84
525	428	430	-1618.16	-3.68	.00	.00	-3.37	-2.92
527	430	434	-2143.01	-2.69	.00	.00	-4.47	-4.91
531	434	438	-2475.72	-4.02	.00	.00	-5.16	-6.42
535	434	442	317.80	3.43	.00	.00	2.03	2.54
539	442	446	297.70	1.04	.00	.00	1.90	2.25

543	430	446	481.26	1.78	.00	.00	1.97	1.84
547	446	450	413.80	.61	.00	.00	1.69	1.39
551	450	428	303.50	1.28	.00	.00	1.24	.79
555	446	454	355.96	.91	.00	.00	1.45	1.06
559	450	454	83.30	.30	.00	.00	.53	.21
563	454	458	414.36	1.53	.00	.00	1.69	1.40
567	458	462	411.56	.21	.00	.00	1.17	.49
571	462	466	316.38	.17	.00	.00	.90	.30
573	466	468	317.79	.08	.00	.00	.90	.30
575	468	470	317.79	.09	.00	.00	.90	.30
579	470	474	372.56	.16	.00	.00	1.06	.41
581	474	476	361.66	.13	.00	.00	1.03	.39
583	476	478	361.66	.28	.00	.00	1.03	.39
587	478	426	340.56	1.53	.00	.00	1.39	.97
591	470	482	-67.07	-.18	.00	.00	-.43	-.14
595	466	482	-9.01	.00	.00	.00	-.06	.00
599	462	482	89.78	.16	.00	.00	.57	.24
603	414	486	-595.89	-1.70	.00	.00	-3.80	-8.12
607	486	490	-606.19	-2.07	.00	.00	-3.87	-8.38
611	490	494	-288.94	-1.17	.00	.00	-1.84	-2.13
615	494	498	-295.34	-.84	.00	.00	-1.88	-2.21
619	498	502	-131.68	-.40	.00	.00	-.84	-.50
623	502	506	-136.08	-.50	.00	.00	-.87	-.53
627	506	498	172.96	.90	.00	.00	1.10	.82
629	506	416	-646.59	-2.04	.00	.00	-4.13	-9.45
631	506	490	325.64	2.91	.00	.00	2.08	2.65
635	414	510	-641.34	-1.80	.00	.00	-4.09	-9.31
639	510	514	-273.10	-1.15	.00	.00	-1.74	-1.91
643	514	518	-285.30	-.53	.00	.00	-1.82	-2.08
647	518	522	-294.30	-.60	.00	.00	-1.88	-2.20
651	522	526	-300.70	-1.66	.00	.00	-1.92	-2.29
655	526	510	377.84	3.94	.00	.00	2.41	3.49
659	526	530	-685.14	-2.27	.00	.00	-4.37	-10.52
663	530	418	-373.10	-1.77	.00	.00	-2.38	-3.41
667	530	534	-319.53	-1.23	.00	.00	-2.04	-2.56
671	534	538	-100.58	-.13	.00	.00	-.64	-.30
675	538	542	-100.58	-.23	.00	.00	-.64	-.30
679	542	546	-100.58	-.06	.00	.00	-.64	-.30
683	546	550	-106.38	-.10	.00	.00	-.68	-.33
687	550	554	-112.38	-.09	.00	.00	-.72	-.37
691	554	558	-179.67	-.93	.00	.00	-1.15	-.88
695	558	562	-179.67	-.29	.00	.00	-1.15	-.88
699	562	422	-365.03	-.58	.00	.00	-2.33	-3.28
703	534	566	-218.96	-.22	.00	.00	-1.40	-1.27
707	566	570	-224.96	-.36	.00	.00	-1.44	-1.34
711	570	554	-62.89	-.03	.00	.00	-.40	-.13
715	570	574	-168.47	-.23	.00	.00	-1.08	-.78
719	574	578	-173.97	-.13	.00	.00	-1.11	-.83
723	578	582	-179.67	-.15	.00	.00	-1.15	-.88
727	582	562	-185.37	-.74	.00	.00	-1.18	-.93
731	418	586	-289.88	-.16	.00	.00	-1.18	-.72
735	586	590	.00	.00	.00	.00	.00	.00
739	586	594	-294.58	-.48	.00	.00	-1.88	-2.20
743	594	598	-225.88	-.53	.00	.00	-1.44	-1.35

747	598	422	-334.28	-.71	.00	.00	-2.13	-2.78
751	598	602	98.91	.09	.00	.00	.63	.29
755	602	604	53.03	.04	.00	.00	.34	.09
759	602	604	42.47	.04	.00	.00	.27	.06
763	594	604	-85.21	-.40	.00	.00	-.54	-.22
945	56	932	.00	.00	.00	.00	.00	.00
949	900	56	150.39	.07	.00	.00	.43	.08
951	58	56	-150.39	-.02	.00	.00	-.43	-.08
953	936	58	-150.39	-.01	.00	.00	-.43	-.08
977	952	936	-150.39	-.03	.00	.00	-.43	-.08

JUNCTION	NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
4		3.40	558.54	468.00	39.24
8		8.70	558.34	456.00	44.35
10		.00	556.92	402.00	67.13
12		14.20	558.19	431.00	55.12
16		5.10	557.84	420.00	59.73
20		3.80	557.84	444.00	49.33
24		6.10	557.84	454.00	45.00
28		6.10	557.84	476.00	35.46
32		6.30	557.37	403.00	66.89
36		6.10	557.37	427.00	56.49
44		8.70	556.67	376.00	78.29
46		.00	556.67	321.00	102.12
48		6.30	556.67	318.00	103.42
52		.70	556.67	321.00	102.12
56		.00	556.55	433.00	53.54
58		.00	556.53	420.00	59.16
60		4.40	556.74	327.00	99.55
64		4.10	556.74	351.00	89.15
68		7.80	556.85	320.00	102.63
72		12.70	556.76	359.00	85.70
76		.00	556.76	348.00	90.46
80		6.90	556.71	323.00	101.28
84		7.70	556.67	386.00	73.96
88		7.80	556.66	372.00	80.02
92		6.40	556.65	327.00	99.51
96		5.80	556.57	347.00	90.81
100		8.40	556.54	415.00	61.33
104		7.70	556.53	417.00	60.46
108		11.20	556.53	355.00	87.33
112		6.10	556.43	375.00	78.62
114		38.40	556.38	391.00	71.67
116		7.00	556.43	379.00	76.89
120		8.70	556.43	377.00	77.75
122		1186.50	556.32	385.00	74.24
124		4.80	557.32	401.00	67.74
128		3.80	558.26	422.00	59.05
132		6.50	558.57	456.00	44.45
136		7.50	558.74	446.00	48.86
140		5.70	558.71	446.00	48.84
144		5.10	558.46	429.00	56.10
148		5.40	558.45	415.00	62.16

152	8.30	558.45	390.00	73.00
156	7.20	559.00	423.00	58.93
160	7.70	559.07	393.00	71.96
164	4.00	559.11	426.00	57.68
168	6.90	559.11	396.00	70.68
172	12.10	559.11	380.00	77.61
176	.00	559.11	454.00	45.55
180	5.90	559.11	445.00	49.45
184	7.50	559.10	446.00	49.01
188	5.40	559.10	461.00	42.51
192	5.60	558.89	477.00	35.49
196	4.50	559.69	475.00	36.70
200	5.90	559.56	454.00	45.74
204	10.50	559.21	423.00	59.02
208	6.20	560.12	455.00	45.55
212	14.80	559.75	415.00	62.73
216	6.20	559.69	471.00	38.43
220	6.90	559.80	445.00	49.75
224	10.10	559.90	439.00	52.39
228	9.60	559.96	409.00	65.42
232	3.80	559.36	397.00	70.36
236	4.10	559.21	463.00	41.69
240	5.80	560.52	353.00	89.92
244	5.10	560.81	366.00	84.42
248	7.30	561.04	369.00	83.22
252	10.60	561.28	387.00	75.52
256	12.40	561.58	404.00	68.29
260	12.20	561.59	427.00	58.32
264	3.70	562.20	443.00	51.65
268	10.10	562.89	453.00	47.62
272	12.90	564.18	455.00	47.31
276	11.20	564.85	457.00	46.73
282	6.90	559.22	394.00	71.60
286	5.80	559.23	380.00	77.67
290	8.90	559.27	387.00	74.65
294	24.50	559.28	389.00	73.79
298	7.00	559.27	396.00	70.75
302	7.30	559.27	410.00	64.69
306	5.20	559.28	411.00	64.26
310	12.80	555.46	358.00	85.56
314	7.50	555.37	340.00	93.33
318	5.50	555.35	344.00	91.59
322	9.90	555.34	354.00	87.25
326	13.90	555.34	359.00	85.08
330	9.80	555.35	348.00	89.85
334	9.90	555.35	346.00	90.72
338	16.20	555.04	352.00	87.99
342	9.80	555.04	358.00	85.38
346	17.90	555.04	382.00	74.98
350	14.50	555.00	344.00	91.43
354	96.10	554.89	323.00	100.49
358	15.20	554.99	372.00	79.30
362	.00	559.75	364.00	84.83
366	7.30	564.81	437.00	55.38

370	10.90	564.79	406.00	68.81
374	3.50	564.79	372.00	83.54
378	6.40	564.79	377.00	81.38
382	13.30	564.78	436.00	55.80
386	15.50	564.74	380.00	80.06
390	21.90	564.74	367.00	85.69
394	3.50	564.73	350.00	93.05
398	1.20	564.73	351.00	92.62
402	19.60	564.71	379.00	80.47
406	6.30	564.71	365.00	86.54
410	6.90	564.71	357.00	90.01
414	5.50	569.30	464.00	45.63
416	7.70	578.02	434.00	62.41
418	3.40	579.08	421.00	68.50
422	4.40	580.95	442.00	60.21
426	9.40	583.76	410.00	75.30
428	44.40	586.97	410.00	76.69
430	43.60	590.65	397.00	83.91
434	14.90	593.34	363.00	99.81
438	.00	597.36	315.00	122.35
442	20.10	589.91	375.00	93.13
446	9.20	588.87	367.00	96.14
450	27.00	588.25	383.00	88.94
454	24.90	587.95	348.00	103.98
458	2.80	586.42	366.00	95.51
462	5.40	586.21	373.00	92.39
466	7.60	586.05	382.00	88.42
468	.00	585.96	385.00	87.08
470	12.30	585.87	387.00	86.18
474	10.90	585.71	389.00	85.24
476	.00	585.57	381.00	88.65
478	21.10	585.30	332.00	109.76
482	13.70	586.05	389.00	85.39
486	10.30	571.00	459.00	48.53
490	8.40	573.07	450.00	53.33
494	6.40	574.24	431.00	62.07
498	9.30	575.08	424.00	65.47
502	4.40	575.48	399.00	76.47
506	11.90	575.98	425.00	65.42
510	9.60	571.10	456.00	49.88
514	12.20	572.25	415.00	68.14
518	9.00	572.78	409.00	70.97
522	6.40	573.38	407.00	72.10
526	6.60	575.04	399.00	76.28
530	7.50	577.31	397.00	78.14
534	.00	578.54	399.00	77.80
538	.00	578.67	415.00	70.92
542	.00	578.90	393.00	80.56
546	5.80	578.96	386.00	83.62
550	6.00	579.06	381.00	85.82
554	4.40	579.15	382.00	85.43
558	.00	580.08	422.00	68.50
562	.00	580.37	435.00	62.99
566	6.00	578.76	392.00	80.93

570	6.40	579.12	383.00	84.98
574	5.50	579.35	384.00	84.65
578	5.70	579.48	386.00	83.84
582	5.70	579.63	387.00	83.47
586	4.70	579.24	408.00	74.20
590	.00	579.24	375.00	88.50
594	16.50	579.71	417.00	70.51
598	9.50	580.24	428.00	65.97
602	3.40	580.15	420.00	69.40
604	10.30	580.11	402.00	77.18
900	.00	556.62	345.00	91.70
932	.00	556.55	455.00	44.00
936	.00	556.52	424.00	57.42
952	.00	556.49	416.00	60.88
	MAXIMUM PRESSURES			
438	.00	597.36	315.00	122.35
478	21.10	585.30	332.00	109.76
454	24.90	587.95	348.00	103.98
48	6.30	556.67	318.00	103.42
68	7.80	556.85	320.00	102.63
52	.70	556.67	321.00	102.12
46	.00	556.67	321.00	102.12
80	6.90	556.71	323.00	101.28
354	96.10	554.89	323.00	100.49
434	14.90	593.34	363.00	99.81
	MINIMUM PRESSURES			
28	6.10	557.84	476.00	35.46
192	5.60	558.89	477.00	35.49
196	4.50	559.69	475.00	36.70
216	6.20	559.69	471.00	38.43
4	3.40	558.54	468.00	39.24
236	4.10	559.21	463.00	41.69
188	5.40	559.10	461.00	42.51
932	.00	556.55	455.00	44.00
8	8.70	558.34	456.00	44.35
132	6.50	558.57	456.00	44.45

THE NET SYSTEM DEMAND = 2597.50

SUMMARY OF INFLOWS(+) AND OUTFLOWS(-) FROM FIXED GRADE NODES

PIPE NUMBER	FLOWRATE
4	121.78
6	1147.45
12	1328.26

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES = 2597.50
THE NET FLOW OUT OF THE SYSTEM INTO FIXED GRADE NODES = .00

A SUMMARY OF CONDITIONS SPECIFIED FOR THE NEXT SIMULATION FOLLOWS

THE FOLLOWING SPECIFIC DEMAND CHANGES ARE MADE :

JUNCTION NUMBER	DEMAND
46	1162.50

THE RESULTS ARE OBTAINED AFTER 3 TRIALS WITH AN ACCURACY = .00033

Melrose+Oceanside Project in the City of Oceanside
Existing 626 Pressure Zone Analysis
Avg Day Demand plus 1162.5 gpm at Test Hydrant Node 46

PIPE NO.	NODE NOS.		FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
4	0	32	133.68	.75	.00	.00	3.41	14.91
5	4	8	974.01	.19	.00	.00	2.03	1.14
6	0	438	1146.31	16.61	.00	.00	13.01	110.75
9	8	12	292.52	.56	.00	.00	1.19	.73
THE CHECK VALVE IN LINE NUMBER 10 IS CLOSED								
12	0	438	1293.51	.61	.00	.00	3.67	4.08
13	12	16	478.86	.75	.00	.00	1.96	1.83
17	16	20	16.00	.00	.00	.00	.10	.01
21	20	24	6.10	.00	.00	.00	.04	.00
25	20	28	6.10	.00	.00	.00	.04	.00
29	16	32	457.76	1.06	.00	.00	1.87	1.68
33	32	36	6.10	.00	.00	.00	.04	.00
41	46	44	8.70	.00	.00	.00	.06	.00
43	48	46	1171.20	4.26	.00	.00	7.48	28.39
45	48	52	-1177.50	-1.92	.00	.00	-4.81	-9.67
49	52	900	-438.84	-.35	.00	.00	-1.24	-.55
53	114	952	438.84	.78	.00	.00	1.24	.55
57	116	114	716.24	1.07	.00	.00	2.03	1.37
61	116	72	88.89	.37	.00	.00	.57	.24
63	72	76	.00	.00	.00	.00	.00	.00
67	68	72	-76.19	-.06	.00	.00	-.49	-.18
71	68	60	747.86	1.65	.00	.00	3.05	4.17
75	60	52	739.36	1.06	.00	.00	3.02	4.09
79	60	64	4.10	.00	.00	.00	.03	.00
83	32	68	579.04	1.02	.00	.00	1.64	.92
87	80	68	100.43	.09	.00	.00	.64	.30
91	80	84	-22.98	-.02	.00	.00	-.15	-.02
95	88	84	30.68	.01	.00	.00	.20	.03
99	92	88	38.48	.04	.00	.00	.25	.05
103	92	80	84.36	.07	.00	.00	.54	.22
107	96	92	129.23	.14	.00	.00	.82	.48
111	96	100	-30.24	-.03	.00	.00	-.19	-.03
115	104	100	38.64	.02	.00	.00	.25	.05
119	108	104	46.34	.06	.00	.00	.30	.07
123	108	96	104.79	.10	.00	.00	.67	.32
127	112	108	162.33	.55	.00	.00	1.04	.73

131	112	116	812.13	.53	.00	.00	2.30	1.72
135	120	112	980.56	.74	.00	.00	2.78	2.45
137	10	122	672.78	.38	.00	.00	1.91	1.22
139	8	10	672.78	.92	.00	.00	1.91	1.22
141	122	120	672.78	.40	.00	.00	1.91	1.22
143	120	124	-316.48	-.80	.00	.00	-2.02	-2.52
147	124	128	-321.28	-.85	.00	.00	-2.05	-2.59
151	132	128	172.99	.28	.00	.00	1.10	.82
155	192	132	117.93	.29	.00	.00	.75	.40
159	4	192	-977.41	-.33	.00	.00	-2.04	-1.15
163	192	188	-125.17	-.20	.00	.00	-.80	-.45
167	188	136	90.85	.33	.00	.00	1.03	1.01
171	136	132	61.56	.16	.00	.00	.70	.49
175	136	140	21.79	.04	.00	.00	.25	.07
179	144	140	-170.89	-.22	.00	.00	-1.09	-.80
183	128	144	-152.09	-.18	.00	.00	-.97	-.65
187	144	148	13.70	.01	.00	.00	.16	.03
191	148	152	8.30	.00	.00	.00	.09	.01
195	140	156	-154.80	-.27	.00	.00	-.99	-.67
199	156	160	-55.97	-.06	.00	.00	-.36	-.10
203	160	164	-63.67	-.04	.00	.00	-.41	-.13
207	164	168	19.00	.00	.00	.00	.12	.01
211	168	172	12.10	.00	.00	.00	.08	.01
215	176	164	-11.51	.00	.00	.00	-.07	-.01
219	180	176	-11.51	.00	.00	.00	-.07	-.01
223	180	156	106.03	.10	.00	.00	.68	.33
227	180	204	-116.08	-.10	.00	.00	-.74	-.39
231	184	180	-15.67	-.01	.00	.00	-.10	-.01
235	188	184	-8.17	.00	.00	.00	-.05	.00
239	188	200	-213.26	-.43	.00	.00	-1.36	-1.21
243	196	200	103.67	.12	.00	.00	.66	.32
247	192	196	-975.76	-.75	.00	.00	-2.03	-1.14
251	196	208	-1083.93	-.41	.00	.00	-2.26	-1.39
253	208	212	215.34	.42	.00	.00	1.37	1.23
257	212	12	200.54	1.81	.00	.00	1.28	1.08
261	208	216	162.47	.40	.00	.00	1.04	.73
265	200	216	-115.49	-.13	.00	.00	-.74	-.39
269	216	204	126.58	.46	.00	.00	.81	.46
273	208	260	-1467.94	-1.41	.00	.00	-3.06	-2.44
277	260	268	-192.42	-1.26	.00	.00	-1.23	-1.00
281	260	264	-1313.14	-.59	.00	.00	-2.74	-1.98
285	264	268	-1316.84	-.67	.00	.00	-2.74	-1.99
289	268	276	-1519.35	-1.89	.00	.00	-3.17	-2.60
293	276	272	312.77	.64	.00	.00	2.00	2.46
297	256	272	-299.87	-2.50	.00	.00	-1.91	-2.28
301	260	256	25.41	.00	.00	.00	.10	.01
305	256	252	312.88	.29	.00	.00	1.28	.83
309	252	248	302.28	.23	.00	.00	1.23	.78
313	248	244	294.98	.22	.00	.00	1.20	.75
317	244	240	289.88	.28	.00	.00	1.18	.72
321	240	228	284.08	.53	.00	.00	1.81	2.06
325	228	232	171.68	.57	.00	.00	1.10	.81
329	232	306	100.86	.08	.00	.00	.64	.30
333	236	164	98.18	.09	.00	.00	.63	.29

337	224	228	-102.80	-.06	.00	.00	-.66	-.31
341	220	224	-92.70	-.09	.00	.00	-.59	-.26
345	216	220	-85.80	-.10	.00	.00	-.55	-.22
349	236	282	-24.73	-.01	.00	.00	-.16	-.02
353	282	286	-31.63	-.01	.00	.00	-.20	-.04
357	286	290	-37.43	-.03	.00	.00	-.24	-.05
361	290	294	-42.52	-.01	.00	.00	-.27	-.06
365	294	232	-67.02	-.08	.00	.00	-.27	-.05
369	290	298	-3.81	.00	.00	.00	-.02	.00
373	298	302	-10.81	.00	.00	.00	-.07	.00
377	302	306	-18.11	-.01	.00	.00	-.12	-.01
381	306	236	77.55	.06	.00	.00	.49	.19
385	310	114	-239.00	-.93	.00	.00	-.98	-.50
389	310	314	81.14	.08	.00	.00	.33	.07
393	314	318	73.64	.02	.00	.00	.30	.06
397	318	322	29.23	.01	.00	.00	.12	.01
401	322	326	38.54	.01	.00	.00	.16	.02
405	322	330	-19.21	-.01	.00	.00	-.08	.00
409	318	330	38.91	.00	.00	.00	.16	.02
413	330	334	7.60	.00	.00	.00	.03	.00
417	330	334	2.30	.00	.00	.00	.01	.00
419	310	326	145.06	.12	.00	.00	.59	.20
423	338	326	-169.70	-.29	.00	.00	-.69	-.27
427	338	342	27.70	.00	.00	.00	.11	.01
431	342	346	13.69	.00	.00	.00	.06	.00
435	342	346	4.21	.00	.00	.00	.03	.00
439	338	350	125.80	.05	.00	.00	.51	.15
443	350	354	96.10	.10	.00	.00	.39	.09
447	350	358	15.20	.00	.00	.00	.06	.00
451	212	362	.00	.00	.00	.00	.00	.00
455	276	366	116.30	.04	.00	.00	.48	.13
459	366	370	20.80	.02	.00	.00	.13	.02
463	370	374	3.50	.00	.00	.00	.02	.00
467	370	378	6.40	.00	.00	.00	.04	.00
471	366	382	88.20	.03	.00	.00	.36	.08
475	382	386	29.35	.04	.00	.00	.19	.03
479	386	390	13.85	.01	.00	.00	.09	.01
483	382	390	45.55	.04	.00	.00	.19	.02
487	390	394	37.50	.00	.00	.00	.15	.02
491	394	398	34.00	.00	.00	.00	.14	.01
495	398	402	32.80	.02	.00	.00	.13	.01
499	402	406	6.30	.00	.00	.00	.03	.00
503	402	410	6.90	.00	.00	.00	.04	.00
507	276	414	-1959.62	-4.31	.00	.00	-4.08	-4.16
511	414	416	-750.45	-8.44	.00	.00	-1.56	-.70
513	416	418	-1393.93	-1.03	.00	.00	-2.91	-2.21
515	418	422	-1479.65	-1.82	.00	.00	-3.08	-2.47
519	422	426	-2172.52	-2.72	.00	.00	-4.53	-5.04
523	426	428	-1847.52	-3.12	.00	.00	-3.85	-3.73
525	428	430	-1593.55	-3.57	.00	.00	-3.32	-2.84
527	430	434	-2111.63	-2.62	.00	.00	-4.40	-4.78
531	434	438	-2439.82	-3.91	.00	.00	-5.08	-6.24
535	434	442	313.29	3.34	.00	.00	2.00	2.47
539	442	446	293.19	1.01	.00	.00	1.87	2.18

543	430	446	474.48	1.74	.00	.00	1.94	1.80
547	446	450	407.60	.60	.00	.00	1.66	1.36
551	450	428	298.37	1.24	.00	.00	1.22	.76
555	446	454	350.88	.89	.00	.00	1.43	1.03
559	450	454	82.23	.29	.00	.00	.52	.21
563	454	458	408.20	1.49	.00	.00	1.67	1.36
567	458	462	405.40	.20	.00	.00	1.15	.48
571	462	466	311.57	.16	.00	.00	.88	.29
573	466	468	312.71	.08	.00	.00	.89	.29
575	468	470	312.71	.09	.00	.00	.89	.29
579	470	474	366.40	.16	.00	.00	1.04	.39
581	474	476	355.50	.13	.00	.00	1.01	.37
583	476	478	355.50	.27	.00	.00	1.01	.37
587	478	426	334.40	1.48	.00	.00	1.37	.94
591	470	482	-66.00	-.17	.00	.00	-.42	-.14
595	466	482	-8.73	.00	.00	.00	-.06	.00
599	462	482	88.43	.16	.00	.00	.56	.24
603	414	486	-585.09	-1.64	.00	.00	-3.73	-7.85
607	486	490	-595.39	-2.00	.00	.00	-3.80	-8.11
611	490	494	-283.80	-1.13	.00	.00	-1.81	-2.06
615	494	498	-290.20	-.81	.00	.00	-1.85	-2.14
619	498	502	-129.43	-.39	.00	.00	-.83	-.48
623	502	506	-133.83	-.49	.00	.00	-.85	-.51
627	506	498	170.06	.88	.00	.00	1.09	.80
629	506	416	-635.79	-1.98	.00	.00	-4.06	-9.16
631	506	490	319.99	2.82	.00	.00	2.04	2.57
635	414	510	-629.59	-1.74	.00	.00	-4.02	-8.99
639	510	514	-268.01	-1.12	.00	.00	-1.71	-1.85
643	514	518	-280.21	-.51	.00	.00	-1.79	-2.01
647	518	522	-289.21	-.58	.00	.00	-1.85	-2.13
651	522	526	-295.61	-1.61	.00	.00	-1.89	-2.22
655	526	510	371.18	3.82	.00	.00	2.37	3.38
659	526	530	-673.39	-2.20	.00	.00	-4.30	-10.19
663	530	418	-366.98	-1.71	.00	.00	-2.34	-3.31
667	530	534	-313.91	-1.19	.00	.00	-2.00	-2.48
671	534	538	-98.80	-.13	.00	.00	-.63	-.29
675	538	542	-98.80	-.22	.00	.00	-.63	-.29
679	542	546	-98.80	-.06	.00	.00	-.63	-.29
683	546	550	-104.60	-.09	.00	.00	-.67	-.32
687	550	554	-110.60	-.09	.00	.00	-.71	-.36
691	554	558	-176.86	-.90	.00	.00	-1.13	-.86
695	558	562	-176.86	-.28	.00	.00	-1.13	-.86
699	562	422	-359.41	-.57	.00	.00	-2.29	-3.18
703	534	566	-215.11	-.21	.00	.00	-1.37	-1.23
707	566	570	-221.11	-.35	.00	.00	-1.41	-1.30
711	570	554	-61.86	-.03	.00	.00	-.39	-.12
715	570	574	-165.65	-.22	.00	.00	-1.06	-.76
719	574	578	-171.15	-.12	.00	.00	-1.09	-.81
723	578	582	-176.85	-.15	.00	.00	-1.13	-.86
727	582	562	-182.55	-.72	.00	.00	-1.17	-.91
731	418	586	-284.66	-.15	.00	.00	-1.16	-.70
735	586	590	.00	.00	.00	.00	.00	.00
739	586	594	-289.36	-.46	.00	.00	-1.85	-2.13
743	594	598	-222.12	-.51	.00	.00	-1.42	-1.31

747	598	422	-329.06	-.69	.00	.00	-2.10	-2.70
751	598	602	97.44	.09	.00	.00	.62	.28
755	602	604	52.22	.04	.00	.00	.33	.09
759	602	604	41.82	.04	.00	.00	.27	.06
763	594	604	-83.74	-.39	.00	.00	-.53	-.21
945	56	932	.00	.00	.00	.00	.00	.00
949	900	56	-438.84	-.52	.00	.00	-1.24	-.55
951	58	56	438.84	.14	.00	.00	1.24	.55
953	936	58	438.84	.09	.00	.00	1.24	.55
977	952	936	438.84	.19	.00	.00	1.24	.55

JUNCTION	NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
4		3.40	559.82	468.00	39.79
8		8.70	559.63	456.00	44.91
10		.00	558.71	402.00	67.91
12		14.20	559.07	431.00	55.50
16		5.10	558.32	420.00	59.94
20		3.80	558.31	444.00	49.54
24		6.10	558.31	454.00	45.20
28		6.10	558.31	476.00	35.67
32		6.30	557.25	403.00	66.84
36		6.10	557.25	427.00	56.44
44		8.70	547.34	376.00	74.25
46		1162.50	547.34	321.00	98.08
48		6.30	551.60	318.00	101.23
52		.70	553.52	321.00	100.76
56		.00	554.40	433.00	52.61
58		.00	554.53	420.00	58.30
60		4.40	554.58	327.00	98.62
64		4.10	554.58	351.00	88.22
68		7.80	556.23	320.00	102.37
72		12.70	556.29	359.00	85.49
76		.00	556.29	348.00	90.26
80		6.90	556.32	323.00	101.11
84		7.70	556.34	386.00	73.81
88		7.80	556.35	372.00	79.88
92		6.40	556.39	327.00	99.40
96		5.80	556.53	347.00	90.80
100		8.40	556.56	415.00	61.34
104		7.70	556.58	417.00	60.48
108		11.20	556.64	355.00	87.38
112		6.10	557.19	375.00	78.95
114		38.40	555.59	391.00	71.32
116		7.00	556.66	379.00	76.99
120		8.70	557.93	377.00	78.40
122		.00	558.33	385.00	75.11
124		4.80	558.72	401.00	68.35
128		3.80	559.58	422.00	59.62
132		6.50	559.85	456.00	45.00
136		7.50	560.01	446.00	49.41
140		5.70	559.98	446.00	49.39
144		5.10	559.76	429.00	56.66
148		5.40	559.75	415.00	62.72

152	8.30	559.74	390.00	73.56
156	7.20	560.25	423.00	59.48
160	7.70	560.31	393.00	72.50
164	4.00	560.35	426.00	58.22
168	6.90	560.35	396.00	71.22
172	12.10	560.35	380.00	78.15
176	.00	560.35	454.00	46.08
180	5.90	560.35	445.00	49.98
184	7.50	560.34	446.00	49.55
188	5.40	560.34	461.00	43.05
192	5.60	560.14	477.00	36.03
196	4.50	560.89	475.00	37.22
200	5.90	560.77	454.00	46.27
204	10.50	560.44	423.00	59.56
208	6.20	561.30	455.00	46.06
212	14.80	560.88	415.00	63.21
216	6.20	560.90	471.00	38.96
220	6.90	561.00	445.00	50.27
224	10.10	561.09	439.00	52.91
228	9.60	561.15	409.00	65.93
232	3.80	560.59	397.00	70.89
236	4.10	560.44	463.00	42.23
240	5.80	561.69	353.00	90.43
244	5.10	561.97	366.00	84.92
248	7.30	562.18	369.00	83.71
252	10.60	562.42	387.00	76.01
256	12.40	562.71	404.00	68.77
260	12.20	562.71	427.00	58.81
264	3.70	563.30	443.00	52.13
268	10.10	563.97	453.00	48.09
272	12.90	565.21	455.00	47.76
276	11.20	565.86	457.00	47.17
282	6.90	560.45	394.00	72.13
286	5.80	560.46	380.00	78.20
290	8.90	560.50	387.00	75.18
294	24.50	560.51	389.00	74.32
298	7.00	560.50	396.00	71.28
302	7.30	560.50	410.00	65.22
306	5.20	560.51	411.00	64.79
310	12.80	554.67	358.00	85.22
314	7.50	554.58	340.00	92.99
318	5.50	554.56	344.00	91.24
322	9.90	554.55	354.00	86.91
326	13.90	554.55	359.00	84.74
330	9.80	554.56	348.00	89.51
334	9.90	554.56	346.00	90.37
338	16.20	554.25	352.00	87.64
342	9.80	554.25	358.00	85.04
346	17.90	554.25	382.00	74.64
350	14.50	554.20	344.00	91.09
354	96.10	554.10	323.00	100.14
358	15.20	554.20	372.00	78.95
362	.00	560.88	364.00	85.31
366	7.30	565.82	437.00	55.82

370	10.90	565.80	406.00	69.25
374	3.50	565.80	372.00	83.98
378	6.40	565.80	377.00	81.81
382	13.30	565.79	436.00	56.24
386	15.50	565.75	380.00	80.49
390	21.90	565.74	367.00	86.12
394	3.50	565.74	350.00	93.49
398	1.20	565.74	351.00	93.05
402	19.60	565.72	379.00	80.91
406	6.30	565.72	365.00	86.98
410	6.90	565.71	357.00	90.44
414	5.50	570.16	464.00	46.00
416	7.70	578.60	434.00	62.66
418	3.40	579.63	421.00	68.74
422	4.40	581.44	442.00	60.43
426	9.40	584.17	410.00	75.47
428	44.40	587.29	410.00	76.82
430	43.60	590.86	397.00	84.01
434	14.90	593.48	363.00	99.87
438	.00	597.39	315.00	122.37
442	20.10	590.14	375.00	93.23
446	9.20	589.12	367.00	96.25
450	27.00	588.53	383.00	89.06
454	24.90	588.23	348.00	104.10
458	2.80	586.74	366.00	95.65
462	5.40	586.54	373.00	92.53
466	7.60	586.38	382.00	88.56
468	.00	586.30	385.00	87.23
470	12.30	586.21	387.00	86.32
474	10.90	586.05	389.00	85.39
476	.00	585.92	381.00	88.80
478	21.10	585.65	332.00	109.92
482	13.70	586.38	389.00	85.53
486	10.30	571.80	459.00	48.88
490	8.40	573.81	450.00	53.65
494	6.40	574.94	431.00	62.37
498	9.30	575.75	424.00	65.76
502	4.40	576.14	399.00	76.76
506	11.90	576.62	425.00	65.70
510	9.60	571.90	456.00	50.22
514	12.20	573.01	415.00	68.47
518	9.00	573.53	409.00	71.29
522	6.40	574.10	407.00	72.41
526	6.60	575.71	399.00	76.58
530	7.50	577.92	397.00	78.40
534	.00	579.10	399.00	78.04
538	.00	579.23	415.00	71.17
542	.00	579.45	393.00	80.80
546	5.80	579.51	386.00	83.85
550	6.00	579.60	381.00	86.06
554	4.40	579.69	382.00	85.67
558	.00	580.59	422.00	68.72
562	.00	580.88	435.00	63.21
566	6.00	579.31	392.00	81.17

570	6.40	579.66	383.00	85.22
574	5.50	579.88	384.00	84.88
578	5.70	580.01	386.00	84.07
582	5.70	580.16	387.00	83.70
586	4.70	579.78	408.00	74.44
590	.00	579.78	375.00	88.74
594	16.50	580.24	417.00	70.74
598	9.50	580.76	428.00	66.19
602	3.40	580.67	420.00	69.62
604	10.30	580.63	402.00	77.40
900	.00	553.87	345.00	90.51
932	.00	554.40	455.00	43.07
936	.00	554.62	424.00	56.60
952	.00	554.82	416.00	60.15
	MAXIMUM PRESSURES			
438	.00	597.39	315.00	122.37
478	21.10	585.65	332.00	109.92
454	24.90	588.23	348.00	104.10
68	7.80	556.23	320.00	102.37
48	6.30	551.60	318.00	101.23
80	6.90	556.32	323.00	101.11
52	.70	553.52	321.00	100.76
354	96.10	554.10	323.00	100.14
434	14.90	593.48	363.00	99.87
92	6.40	556.39	327.00	99.40
	MINIMUM PRESSURES			
28	6.10	558.31	476.00	35.67
192	5.60	560.14	477.00	36.03
196	4.50	560.89	475.00	37.22
216	6.20	560.90	471.00	38.96
4	3.40	559.82	468.00	39.79
236	4.10	560.44	463.00	42.23
188	5.40	560.34	461.00	43.05
932	.00	554.40	455.00	43.07
8	8.70	559.63	456.00	44.91
132	6.50	559.85	456.00	45.00

THE NET SYSTEM DEMAND = 2573.50

SUMMARY OF INFLOWS(+) AND OUTFLOWS(-) FROM FIXED GRADE NODES

PIPE NUMBER	FLOWRATE
4	133.68
6	1146.31
12	1293.51

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES = 2573.50
THE NET FLOW OUT OF THE SYSTEM INTO FIXED GRADE NODES = .00

A SUMMARY OF CONDITIONS SPECIFIED FOR THE NEXT SIMULATION FOLLOWS

THE FOLLOWING SPECIFIC DEMAND CHANGES ARE MADE :

JUNCTION NUMBER	DEMAND
58	963.90

THE RESULTS ARE OBTAINED AFTER 3 TRIALS WITH AN ACCURACY = .00044

Melrose+Oceanside Project in the City of Oceanside
Existing 626 Pressure Zone Analysis
Avg Day Demand plus 963.9 gpm at Test Hydrant Node 58

PIPE NO.	NODE NOS.		FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
THE CHECK VALVE IN LINE NUMBER 4 IS CLOSED								
5	4	8	932.29	.18	.00	.00	1.94	1.05
6	0	438	1144.29	16.56	.00	.00	12.98	110.39
9	8	12	282.41	.52	.00	.00	1.15	.69
THE CHECK VALVE IN LINE NUMBER 10 IS CLOSED								
12	0	438	1230.61	.56	.00	.00	3.49	3.72
13	12	16	460.83	.70	.00	.00	1.88	1.70
17	16	20	16.00	.00	.00	.00	.10	.01
21	20	24	6.10	.00	.00	.00	.04	.00
25	20	28	6.10	.00	.00	.00	.04	.00
29	16	32	439.73	.99	.00	.00	1.80	1.56
33	32	36	6.10	.00	.00	.00	.04	.00
41	46	44	8.70	.00	.00	.00	.06	.00
43	48	46	8.70	.00	.00	.00	.06	.00
45	48	52	-15.00	.00	.00	.00	-.06	.00
49	52	900	475.62	.40	.00	.00	1.35	.64
53	114	952	488.28	.95	.00	.00	1.39	.67
57	116	114	765.68	1.21	.00	.00	2.17	1.55
61	116	72	28.32	.04	.00	.00	.18	.03
63	72	76	.00	.00	.00	.00	.00	.00
67	68	72	-15.62	.00	.00	.00	-.10	-.01
71	68	60	499.82	.78	.00	.00	2.04	1.98
75	60	52	491.32	.50	.00	.00	2.01	1.92
79	60	64	4.10	.00	.00	.00	.03	.00
83	32	68	427.33	.58	.00	.00	1.21	.53
87	80	68	64.67	.04	.00	.00	.41	.13
91	80	84	-13.00	-.01	.00	.00	-.08	-.01
95	88	84	20.70	.00	.00	.00	.13	.02
99	92	88	28.50	.02	.00	.00	.18	.03
103	92	80	58.57	.03	.00	.00	.37	.11
107	96	92	93.47	.08	.00	.00	.60	.26
111	96	100	-20.43	-.01	.00	.00	-.13	-.02
115	104	100	28.83	.01	.00	.00	.18	.03
119	108	104	36.53	.04	.00	.00	.23	.05
123	108	96	78.84	.06	.00	.00	.50	.19
127	112	108	126.57	.35	.00	.00	.81	.46

131	112	116	801.00	.51	.00	.00	2.27	1.68
135	120	112	933.67	.67	.00	.00	2.65	2.23
137	10	122	641.18	.35	.00	.00	1.82	1.11
139	8	10	641.18	.84	.00	.00	1.82	1.11
141	122	120	641.18	.37	.00	.00	1.82	1.11
143	120	124	-301.19	-.73	.00	.00	-1.92	-2.30
147	124	128	-305.99	-.78	.00	.00	-1.95	-2.36
151	132	128	165.44	.25	.00	.00	1.06	.76
155	192	132	113.54	.27	.00	.00	.72	.38
159	4	192	-935.69	-.30	.00	.00	-1.95	-1.06
163	192	188	-118.01	-.18	.00	.00	-.75	-.40
167	188	136	87.02	.30	.00	.00	.99	.93
171	136	132	58.40	.15	.00	.00	.66	.45
175	136	140	21.12	.03	.00	.00	.24	.07
179	144	140	-163.14	-.20	.00	.00	-1.04	-.74
183	128	144	-144.34	-.16	.00	.00	-.92	-.59
187	144	148	13.70	.01	.00	.00	.16	.03
191	148	152	8.30	.00	.00	.00	.09	.01
195	140	156	-147.72	-.25	.00	.00	-.94	-.61
199	156	160	-53.13	-.06	.00	.00	-.34	-.09
203	160	164	-60.83	-.03	.00	.00	-.39	-.12
207	164	168	19.00	.00	.00	.00	.12	.01
211	168	172	12.10	.00	.00	.00	.08	.01
215	176	164	-8.51	.00	.00	.00	-.05	.00
219	180	176	-8.51	.00	.00	.00	-.05	.00
223	180	156	101.79	.09	.00	.00	.65	.31
227	180	204	-111.59	-.09	.00	.00	-.71	-.37
231	184	180	-12.42	.00	.00	.00	-.08	-.01
235	188	184	-4.92	.00	.00	.00	-.03	.00
239	188	200	-205.51	-.40	.00	.00	-1.31	-1.13
243	196	200	101.06	.12	.00	.00	.64	.30
247	192	196	-936.82	-.69	.00	.00	-1.95	-1.06
251	196	208	-1042.38	-.38	.00	.00	-2.17	-1.29
253	208	212	207.43	.40	.00	.00	1.32	1.15
257	212	12	192.63	1.68	.00	.00	1.23	1.00
261	208	216	157.19	.38	.00	.00	1.00	.69
265	200	216	-110.36	-.12	.00	.00	-.70	-.36
269	216	204	122.09	.43	.00	.00	.78	.43
273	208	260	-1413.20	-1.32	.00	.00	-2.95	-2.27
277	260	268	-185.51	-1.18	.00	.00	-1.18	-.94
281	260	264	-1265.92	-.55	.00	.00	-2.64	-1.85
285	264	268	-1269.62	-.63	.00	.00	-2.65	-1.86
289	268	276	-1465.22	-1.76	.00	.00	-3.05	-2.43
293	276	272	301.98	.60	.00	.00	1.93	2.31
297	256	272	-289.08	-2.34	.00	.00	-1.84	-2.13
301	260	256	26.03	.00	.00	.00	.11	.01
305	256	252	302.71	.28	.00	.00	1.24	.78
309	252	248	292.11	.22	.00	.00	1.19	.73
313	248	244	284.81	.20	.00	.00	1.16	.70
317	244	240	279.71	.26	.00	.00	1.14	.68
321	240	228	273.91	.50	.00	.00	1.75	1.93
325	228	232	165.85	.53	.00	.00	1.06	.76
329	232	306	97.07	.07	.00	.00	.62	.28
333	236	164	92.35	.08	.00	.00	.59	.26

337	224	228	-98.46	-.06	.00	.00	-.63	-.29
341	220	224	-88.36	-.08	.00	.00	-.56	-.24
345	216	220	-81.46	-.09	.00	.00	-.52	-.20
349	236	282	-22.73	-.01	.00	.00	-.15	-.02
353	282	286	-29.63	-.01	.00	.00	-.19	-.03
357	286	290	-35.43	-.03	.00	.00	-.23	-.04
361	290	294	-40.48	-.01	.00	.00	-.26	-.06
365	294	232	-64.98	-.07	.00	.00	-.27	-.05
369	290	298	-3.86	.00	.00	.00	-.02	.00
373	298	302	-10.86	.00	.00	.00	-.07	.00
377	302	306	-18.16	-.01	.00	.00	-.12	-.01
381	306	236	73.71	.06	.00	.00	.47	.17
385	310	114	-239.00	-.93	.00	.00	-.98	-.50
389	310	314	81.14	.08	.00	.00	.33	.07
393	314	318	73.64	.02	.00	.00	.30	.06
397	318	322	29.23	.01	.00	.00	.12	.01
401	322	326	38.54	.01	.00	.00	.16	.02
405	322	330	-19.21	-.01	.00	.00	-.08	.00
409	318	330	38.91	.00	.00	.00	.16	.02
413	330	334	7.60	.00	.00	.00	.03	.00
417	330	334	2.30	.00	.00	.00	.01	.00
419	310	326	145.06	.12	.00	.00	.59	.20
423	338	326	-169.70	-.29	.00	.00	-.69	-.27
427	338	342	27.70	.00	.00	.00	.11	.01
431	342	346	13.69	.00	.00	.00	.06	.00
435	342	346	4.21	.00	.00	.00	.03	.00
439	338	350	125.80	.05	.00	.00	.51	.15
443	350	354	96.10	.10	.00	.00	.39	.09
447	350	358	15.20	.00	.00	.00	.06	.00
451	212	362	.00	.00	.00	.00	.00	.00
455	276	366	116.30	.04	.00	.00	.48	.13
459	366	370	20.80	.02	.00	.00	.13	.02
463	370	374	3.50	.00	.00	.00	.02	.00
467	370	378	6.40	.00	.00	.00	.04	.00
471	366	382	88.20	.03	.00	.00	.36	.08
475	382	386	29.35	.04	.00	.00	.19	.03
479	386	390	13.85	.01	.00	.00	.09	.01
483	382	390	45.55	.04	.00	.00	.19	.02
487	390	394	37.50	.00	.00	.00	.15	.02
491	394	398	34.00	.00	.00	.00	.14	.01
495	398	402	32.80	.02	.00	.00	.13	.01
499	402	406	6.30	.00	.00	.00	.03	.00
503	402	410	6.90	.00	.00	.00	.04	.00
507	276	414	-1894.70	-4.05	.00	.00	-3.95	-3.91
511	414	416	-726.32	-7.94	.00	.00	-1.51	-.66
513	416	418	-1350.27	-.97	.00	.00	-2.81	-2.09
515	418	422	-1434.36	-1.71	.00	.00	-2.99	-2.33
519	422	426	-2107.60	-2.58	.00	.00	-4.39	-4.76
523	426	428	-1793.73	-2.95	.00	.00	-3.74	-3.53
525	428	430	-1549.04	-3.39	.00	.00	-3.23	-2.69
527	430	434	-2054.87	-2.49	.00	.00	-4.28	-4.54
531	434	438	-2374.90	-3.72	.00	.00	-4.95	-5.94
535	434	442	305.13	3.18	.00	.00	1.95	2.35
539	442	446	285.03	.96	.00	.00	1.82	2.07

543	430	446	462.23	1.65	.00	.00	1.89	1.71
547	446	450	396.38	.57	.00	.00	1.62	1.29
551	450	428	289.09	1.17	.00	.00	1.18	.72
555	446	454	341.68	.85	.00	.00	1.40	.98
559	450	454	80.29	.28	.00	.00	.51	.20
563	454	458	397.07	1.42	.00	.00	1.62	1.29
567	458	462	394.27	.19	.00	.00	1.12	.45
571	462	466	302.89	.15	.00	.00	.86	.28
573	466	468	303.52	.08	.00	.00	.86	.28
575	468	470	303.52	.08	.00	.00	.86	.28
579	470	474	355.27	.15	.00	.00	1.01	.37
581	474	476	344.37	.12	.00	.00	.98	.35
583	476	478	344.37	.25	.00	.00	.98	.35
587	478	426	323.27	1.39	.00	.00	1.32	.88
591	470	482	-64.05	-.16	.00	.00	-.41	-.13
595	466	482	-8.23	.00	.00	.00	-.05	.00
599	462	482	85.98	.15	.00	.00	.55	.23
603	414	486	-565.55	-1.54	.00	.00	-3.61	-7.37
607	486	490	-575.85	-1.88	.00	.00	-3.68	-7.62
611	490	494	-274.49	-1.06	.00	.00	-1.75	-1.93
615	494	498	-280.89	-.76	.00	.00	-1.79	-2.02
619	498	502	-125.37	-.37	.00	.00	-.80	-.45
623	502	506	-129.77	-.46	.00	.00	-.83	-.48
627	506	498	164.82	.83	.00	.00	1.05	.75
629	506	416	-616.25	-1.87	.00	.00	-3.93	-8.64
631	506	490	309.76	2.65	.00	.00	1.98	2.42
635	414	510	-608.33	-1.63	.00	.00	-3.88	-8.44
639	510	514	-258.79	-1.05	.00	.00	-1.65	-1.73
643	514	518	-270.99	-.48	.00	.00	-1.73	-1.89
647	518	522	-279.99	-.54	.00	.00	-1.79	-2.01
651	522	526	-286.39	-1.52	.00	.00	-1.83	-2.09
655	526	510	359.14	3.59	.00	.00	2.29	3.18
659	526	530	-652.13	-2.07	.00	.00	-4.16	-9.60
663	530	418	-355.91	-1.62	.00	.00	-2.27	-3.13
667	530	534	-303.73	-1.12	.00	.00	-1.94	-2.33
671	534	538	-95.58	-.12	.00	.00	-.61	-.27
675	538	542	-95.58	-.21	.00	.00	-.61	-.27
679	542	546	-95.58	-.05	.00	.00	-.61	-.27
683	546	550	-101.38	-.09	.00	.00	-.65	-.31
687	550	554	-107.38	-.09	.00	.00	-.69	-.34
691	554	558	-171.78	-.85	.00	.00	-1.10	-.81
695	558	562	-171.78	-.27	.00	.00	-1.10	-.81
699	562	422	-349.23	-.54	.00	.00	-2.23	-3.02
703	534	566	-208.15	-.20	.00	.00	-1.33	-1.16
707	566	570	-214.15	-.33	.00	.00	-1.37	-1.22
711	570	554	-60.00	-.03	.00	.00	-.38	-.12
715	570	574	-160.55	-.21	.00	.00	-1.02	-.72
719	574	578	-166.05	-.12	.00	.00	-1.06	-.76
723	578	582	-171.75	-.14	.00	.00	-1.10	-.81
727	582	562	-177.45	-.69	.00	.00	-1.13	-.86
731	418	586	-275.22	-.14	.00	.00	-1.12	-.66
735	586	590	.00	.00	.00	.00	.00	.00
739	586	594	-279.92	-.43	.00	.00	-1.79	-2.00
743	594	598	-215.32	-.49	.00	.00	-1.37	-1.23

747	598	422	-319.62	-.65	.00	.00	-2.04	-2.56
751	598	602	94.79	.08	.00	.00	.61	.27
755	602	604	50.75	.04	.00	.00	.32	.08
759	602	604	40.64	.04	.00	.00	.26	.06
763	594	604	-81.09	-.36	.00	.00	-.52	-.20
945	56	932	.00	.00	.00	.00	.00	.00
949	900	56	475.62	.61	.00	.00	1.35	.64
951	58	56	-475.62	-.16	.00	.00	-1.35	-.64
953	936	58	488.28	.11	.00	.00	1.39	.67
977	952	936	488.28	.24	.00	.00	1.39	.67

JUNCTION	NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
4		3.40	562.01	468.00	40.74
8		8.70	561.84	456.00	45.86
10		.00	561.00	402.00	68.90
12		14.20	561.32	431.00	56.47
16		5.10	560.61	420.00	60.93
20		3.80	560.61	444.00	50.53
24		6.10	560.61	454.00	46.20
28		6.10	560.61	476.00	36.66
32		6.30	559.63	403.00	67.87
36		6.10	559.63	427.00	57.47
44		8.70	557.76	376.00	78.76
46		.00	557.77	321.00	102.60
48		6.30	557.77	318.00	103.90
52		.70	557.77	321.00	102.60
56		.00	556.76	433.00	53.63
58		963.90	556.60	420.00	59.19
60		4.40	558.26	327.00	100.21
64		4.10	558.26	351.00	89.81
68		7.80	559.05	320.00	103.59
72		12.70	559.05	359.00	86.69
76		.00	559.05	348.00	91.45
80		6.90	559.09	323.00	102.30
84		7.70	559.09	386.00	75.01
88		7.80	559.10	372.00	81.07
92		6.40	559.12	327.00	100.59
96		5.80	559.20	347.00	91.95
100		8.40	559.21	415.00	62.49
104		7.70	559.22	417.00	61.63
108		11.20	559.26	355.00	88.51
112		6.10	559.61	375.00	80.00
114		38.40	557.89	391.00	72.32
116		7.00	559.09	379.00	78.04
120		8.70	560.28	377.00	79.42
122		.00	560.65	385.00	76.11
124		4.80	561.01	401.00	69.34
128		3.80	561.79	422.00	60.58
132		6.50	562.04	456.00	45.95
136		7.50	562.19	446.00	50.35
140		5.70	562.16	446.00	50.33
144		5.10	561.95	429.00	57.61
148		5.40	561.94	415.00	63.68

152	8.30	561.94	390.00	74.51
156	7.20	562.41	423.00	60.41
160	7.70	562.46	393.00	73.43
164	4.00	562.50	426.00	59.15
168	6.90	562.49	396.00	72.15
172	12.10	562.49	380.00	79.08
176	.00	562.50	454.00	47.01
180	5.90	562.50	445.00	50.91
184	7.50	562.49	446.00	50.48
188	5.40	562.49	461.00	43.98
192	5.60	562.32	477.00	36.97
196	4.50	563.01	475.00	38.14
200	5.90	562.89	454.00	47.19
204	10.50	562.58	423.00	60.49
208	6.20	563.39	455.00	46.97
212	14.80	562.99	415.00	64.13
216	6.20	563.01	471.00	39.87
220	6.90	563.10	445.00	51.18
224	10.10	563.19	439.00	53.81
228	9.60	563.24	409.00	66.84
232	3.80	562.71	397.00	71.81
236	4.10	562.58	463.00	43.15
240	5.80	563.74	353.00	91.32
244	5.10	564.00	366.00	85.80
248	7.30	564.21	369.00	84.59
252	10.60	564.42	387.00	76.88
256	12.40	564.70	404.00	69.64
260	12.20	564.70	427.00	59.67
264	3.70	565.25	443.00	52.98
268	10.10	565.88	453.00	48.91
272	12.90	567.04	455.00	48.55
276	11.20	567.64	457.00	47.95
282	6.90	562.59	394.00	73.06
286	5.80	562.60	380.00	79.13
290	8.90	562.63	387.00	76.11
294	24.50	562.64	389.00	75.24
298	7.00	562.63	396.00	72.21
302	7.30	562.63	410.00	66.14
306	5.20	562.64	411.00	65.71
310	12.80	556.96	358.00	86.22
314	7.50	556.87	340.00	93.98
318	5.50	556.85	344.00	92.24
322	9.90	556.85	354.00	87.90
326	13.90	556.84	359.00	85.73
330	9.80	556.85	348.00	90.50
334	9.90	556.85	346.00	91.37
338	16.20	556.55	352.00	88.64
342	9.80	556.54	358.00	86.04
346	17.90	556.54	382.00	75.63
350	14.50	556.50	344.00	92.08
354	96.10	556.40	323.00	101.14
358	15.20	556.49	372.00	79.95
362	.00	562.99	364.00	86.23
366	7.30	567.61	437.00	56.60

370	10.90	567.59	406.00	70.02
374	3.50	567.59	372.00	84.76
378	6.40	567.59	377.00	82.59
382	13.30	567.57	436.00	57.02
386	15.50	567.54	380.00	81.27
390	21.90	567.53	367.00	86.90
394	3.50	567.53	350.00	94.26
398	1.20	567.52	351.00	93.83
402	19.60	567.50	379.00	81.69
406	6.30	567.50	365.00	87.75
410	6.90	567.50	357.00	91.22
414	5.50	571.69	464.00	46.67
416	7.70	579.63	434.00	63.11
418	3.40	580.60	421.00	69.16
422	4.40	582.32	442.00	60.80
426	9.40	584.89	410.00	75.79
428	44.40	587.84	410.00	77.06
430	43.60	591.23	397.00	84.17
434	14.90	593.72	363.00	99.98
438	.00	597.44	315.00	122.39
442	20.10	590.54	375.00	93.40
446	9.20	589.58	367.00	96.45
450	27.00	589.01	383.00	89.27
454	24.90	588.73	348.00	104.32
458	2.80	587.31	366.00	95.90
462	5.40	587.12	373.00	92.79
466	7.60	586.97	382.00	88.82
468	.00	586.89	385.00	87.49
470	12.30	586.81	387.00	86.58
474	10.90	586.66	389.00	85.65
476	.00	586.54	381.00	89.07
478	21.10	586.28	332.00	110.19
482	13.70	586.97	389.00	85.79
486	10.30	573.23	459.00	49.50
490	8.40	575.11	450.00	54.22
494	6.40	576.17	431.00	62.91
498	9.30	576.94	424.00	66.27
502	4.40	577.31	399.00	77.27
506	11.90	577.77	425.00	66.20
510	9.60	573.32	456.00	50.84
514	12.20	574.36	415.00	69.06
518	9.00	574.84	409.00	71.87
522	6.40	575.39	407.00	72.97
526	6.60	576.91	399.00	77.09
530	7.50	578.98	397.00	78.86
534	.00	580.10	399.00	78.48
538	.00	580.22	415.00	71.60
542	.00	580.43	393.00	81.22
546	5.80	580.48	386.00	84.28
550	6.00	580.57	381.00	86.48
554	4.40	580.66	382.00	86.08
558	.00	581.51	422.00	69.12
562	.00	581.78	435.00	63.60
566	6.00	580.30	392.00	81.59

570	6.40	580.63	383.00	85.64
574	5.50	580.84	384.00	85.30
578	5.70	580.95	386.00	84.48
582	5.70	581.09	387.00	84.11
586	4.70	580.74	408.00	74.86
590	.00	580.74	375.00	89.16
594	16.50	581.18	417.00	71.14
598	9.50	581.66	428.00	66.59
602	3.40	581.58	420.00	70.02
604	10.30	581.54	402.00	77.80
900	.00	557.36	345.00	92.02
932	.00	556.76	455.00	44.09
936	.00	556.70	424.00	57.51
952	.00	556.94	416.00	61.07
	MAXIMUM PRESSURES			
438	.00	597.44	315.00	122.39
478	21.10	586.28	332.00	110.19
454	24.90	588.73	348.00	104.32
48	6.30	557.77	318.00	103.90
68	7.80	559.05	320.00	103.59
52	.70	557.77	321.00	102.60
46	.00	557.77	321.00	102.60
80	6.90	559.09	323.00	102.30
354	96.10	556.40	323.00	101.14
92	6.40	559.12	327.00	100.59
	MINIMUM PRESSURES			
28	6.10	560.61	476.00	36.66
192	5.60	562.32	477.00	36.97
196	4.50	563.01	475.00	38.14
216	6.20	563.01	471.00	39.87
4	3.40	562.01	468.00	40.74
236	4.10	562.58	463.00	43.15
188	5.40	562.49	461.00	43.98
932	.00	556.76	455.00	44.09
8	8.70	561.84	456.00	45.86
132	6.50	562.04	456.00	45.95

THE NET SYSTEM DEMAND = 2374.90

SUMMARY OF INFLOWS(+) AND OUTFLOWS(-) FROM FIXED GRADE NODES

PIPE NUMBER	FLOWRATE
6	1144.29
12	1230.61

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES = 2374.90
THE NET FLOW OUT OF THE SYSTEM INTO FIXED GRADE NODES = .00

APPENDIX C

COMPUTER MODEL RESULTS

PEACOCK HILLS 626 PRESSURE ZONE

EXISTING SYSTEM

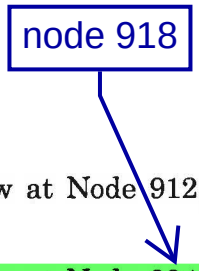
PLUS

SYSTEM LAYOUT AND NEW DEMANDS FOR THE MELROSE+OCEANSIDE PROJECT

Node and Pipe Diagram: See Exhibit A

Conditions Modeled:

1. Average Day Demand
2. Maximum Day Demand
3. Peak Hour Demand
4. Maximum Day Demand plus 3,000 gpm Fire Flow at Node 912, Planning Area 3, Multi-Family Residential
5. Maximum Day Demand plus 3,000 gpm Fire Flow at Node ~~924,~~ Planning Area 3, Multi-Family Residential
6. Maximum Day Demand plus 4,000 gpm Fire Flow at Node 940, Planning Area 1, Office Commercial
7. Maximum Day Demand plus 1,500 gpm Fire Flow at Node 908, Planning Area 2, Single Family Residential
8. Maximum Day Demand plus 3,000 gpm Fire Flow at Node 944, Planning Area 1, Multi-Family Residential



FLOWRATE IS EXPRESSED IN GPM AND PRESSURE IN PSIG

A SUMMARY OF THE ORIGINAL DATA FOLLOWS

PIPE NO.	NODE NOS.		LENGTH (FEET)	DIAMETER (INCHES)	ROUGHNESS	MINOR LOSS K	FIXED GRADE
4	0	32	50.0	4.0	120.0	.00	558.00
THERE IS A CHECK VALVE IN LINE NUMBER 4							
5	4	8	167.0	14.0	130.0	.00	
6	0	438	150.0	6.0	120.0	.00	614.00
9	8	12	760.0	10.0	120.0	.00	
10	0	32	10.0	10.0	120.0	.00	553.00
THERE IS A CHECK VALVE IN LINE NUMBER 10							
12	0	438	150.0	12.0	130.0	.00	598.00
THERE IS A CHECK VALVE IN LINE NUMBER 12							
13	12	16	412.0	10.0	120.0	.00	
17	16	20	306.0	8.0	120.0	.00	
21	20	24	207.0	8.0	120.0	.00	
25	20	28	527.0	8.0	120.0	.00	
29	16	32	632.0	10.0	120.0	.00	
33	32	36	715.0	8.0	120.0	.00	
41	46	44	930.0	8.0	120.0	.00	
43	48	46	150.0	8.0	120.0	.00	
45	48	52	199.0	10.0	120.0	.00	
49	52	900	630.0	12.0	130.0	.00	
53	114	952	1410.0	12.0	130.0	.00	
57	116	114	780.0	12.0	130.0	.00	
61	116	72	1554.0	8.0	120.0	.00	
63	72	76	426.0	8.0	120.0	.00	
67	68	72	312.0	8.0	120.0	.00	
71	68	60	395.0	10.0	120.0	.00	
75	60	52	259.0	10.0	120.0	.00	
79	60	64	642.0	8.0	120.0	.00	
83	32	68	1110.0	12.0	130.0	.00	
87	80	68	299.0	8.0	120.0	.00	
91	80	84	816.0	8.0	120.0	.00	
95	88	84	273.0	8.0	120.0	.00	
99	92	88	854.0	8.0	120.0	.00	
103	92	80	315.0	8.0	120.0	.00	
107	96	92	301.0	8.0	120.0	.00	
111	96	100	864.0	8.0	120.0	.00	
115	104	100	323.0	8.0	120.0	.00	
119	108	104	823.0	8.0	120.0	.00	
123	108	96	319.0	8.0	120.0	.00	
127	112	108	753.0	8.0	120.0	.00	
131	112	116	306.0	12.0	130.0	.00	
135	120	112	302.0	12.0	130.0	.00	
137	10	122	315.0	12.0	130.0	.00	
139	8	10	753.0	12.0	130.0	.00	
141	122	120	330.0	12.0	130.0	.00	
143	120	124	317.0	8.0	120.0	.00	
147	124	128	330.0	8.0	120.0	.00	
151	132	128	336.0	8.0	120.0	.00	
155	192	132	721.0	8.0	120.0	.00	
159	4	192	285.0	14.0	130.0	.00	
163	192	188	433.0	8.0	120.0	.00	
167	188	136	322.0	6.0	120.0	.00	
171	136	132	327.0	6.0	120.0	.00	
175	136	140	505.0	6.0	120.0	.00	
179	144	140	274.0	8.0	120.0	.00	

183	128	144	279.0	8.0	120.0	.00
187	144	148	308.0	6.0	120.0	.00
191	148	152	331.0	6.0	120.0	.00
195	140	156	408.0	8.0	120.0	.00
199	156	160	614.0	8.0	120.0	.00
203	160	164	292.0	8.0	120.0	.00
207	164	168	301.0	8.0	120.0	.00
211	168	172	287.0	8.0	120.0	.00
215	176	164	502.0	8.0	120.0	.00
219	180	176	266.0	8.0	120.0	.00
223	180	156	289.0	8.0	120.0	.00
227	180	204	243.0	8.0	120.0	.00
231	184	180	587.0	8.0	120.0	.00
235	188	184	342.0	8.0	120.0	.00
239	188	200	357.0	8.0	120.0	.00
243	196	200	381.0	8.0	120.0	.00
247	192	196	655.0	14.0	130.0	.00
251	196	208	293.0	14.0	130.0	.00
253	208	212	344.0	8.0	120.0	.00
257	212	12	1672.0	8.0	120.0	.00
261	208	216	550.0	8.0	120.0	.00
265	200	216	324.0	8.0	120.0	.00
269	216	204	990.0	8.0	120.0	.00
273	208	260	579.0	14.0	130.0	.00
277	260	268	1257.0	8.0	120.0	.00
281	260	264	296.0	14.0	130.0	.00
285	264	268	337.0	14.0	130.0	.00
289	268	276	726.0	14.0	130.0	.00
293	276	272	261.0	8.0	120.0	.00
297	256	272	1100.0	8.0	120.0	.00
301	260	256	376.0	10.0	120.0	.00
305	256	252	354.0	10.0	120.0	.00
309	252	248	298.0	10.0	120.0	.00
313	248	244	291.0	10.0	120.0	.00
317	244	240	388.0	10.0	120.0	.00
321	240	228	259.0	8.0	120.0	.00
325	228	232	699.0	8.0	120.0	.00
329	232	306	263.0	8.0	120.0	.00
333	236	164	324.0	8.0	120.0	.00
337	224	228	195.0	8.0	120.0	.00
341	220	224	357.0	8.0	120.0	.00
345	216	220	447.0	8.0	120.0	.00
349	236	282	395.0	8.0	120.0	.00
353	282	286	263.0	8.0	120.0	.00
357	286	290	704.0	8.0	120.0	.00
361	290	294	209.0	8.0	120.0	.00
365	294	232	1600.0	10.0	120.0	.00
369	290	298	333.0	8.0	120.0	.00
373	298	302	595.0	8.0	120.0	.00
377	302	306	533.0	8.0	120.0	.00
381	306	236	333.0	8.0	120.0	.00
385	310	114	1840.0	10.0	120.0	.00
389	310	314	1230.0	10.0	120.0	.00
393	314	318	348.0	10.0	120.0	.00
397	318	322	827.0	10.0	120.0	.00
401	322	326	394.0	10.0	120.0	.00
405	322	330	1060.0	10.0	120.0	.00
409	318	330	200.0	10.0	120.0	.00
413	330	334	472.0	10.0	120.0	.00
417	330	334	1450.0	8.0	120.0	.00
419	310	326	595.0	10.0	120.0	.00
423	338	326	1098.0	10.0	120.0	.00
427	338	342	325.0	10.0	120.0	.00

431	342	346	502.0	10.0	120.0	.00
435	342	346	1507.0	8.0	120.0	.00
439	338	350	309.0	10.0	120.0	.00
443	350	354	1090.0	10.0	120.0	.00
447	350	358	1237.0	10.0	120.0	.00
451	212	362	2080.0	8.0	120.0	.00
455	276	366	286.0	10.0	120.0	.00
459	366	370	982.0	8.0	120.0	.00
463	370	374	456.0	8.0	120.0	.00
467	370	378	742.0	8.0	120.0	.00
471	366	382	394.0	10.0	120.0	.00
475	382	386	1159.0	8.0	120.0	.00
479	386	390	904.0	8.0	120.0	.00
483	382	390	1817.0	10.0	120.0	.00
487	390	394	278.0	10.0	120.0	.00
491	394	398	193.0	10.0	120.0	.00
495	398	402	1553.0	10.0	120.0	.00
499	402	406	1075.0	10.0	120.0	.00
503	402	410	1250.0	8.0	120.0	.00
507	276	414	1035.0	14.0	130.0	.00
511	414	416	11998.0	14.0	130.0	.00
513	416	418	464.0	14.0	130.0	.00
515	418	422	734.0	14.0	130.0	.00
519	422	426	541.0	14.0	130.0	.00
523	426	428	835.0	14.0	130.0	.00
525	428	430	1260.0	14.0	130.0	.00
527	430	434	548.0	14.0	130.0	.00
531	434	438	626.0	14.0	130.0	.00
535	434	442	1353.0	8.0	120.0	.00
539	442	446	464.0	8.0	120.0	.00
543	430	446	966.0	10.0	120.0	.00
547	446	450	441.0	10.0	120.0	.00
551	450	428	1631.0	10.0	120.0	.00
555	446	454	866.0	10.0	120.0	.00
559	450	454	1407.0	8.0	120.0	.00
563	454	458	1098.0	10.0	120.0	.00
567	458	462	425.0	12.0	130.0	.00
571	462	466	549.0	12.0	130.0	.00
573	466	468	280.0	12.0	130.0	.00
575	468	470	300.0	12.0	130.0	.00
579	470	474	394.0	12.0	130.0	.00
581	474	476	350.0	12.0	130.0	.00
583	476	478	721.0	12.0	130.0	.00
587	478	426	1577.0	10.0	120.0	.00
591	470	482	1245.0	8.0	120.0	.00
595	466	482	294.0	8.0	120.0	.00
599	462	482	673.0	8.0	120.0	.00
603	414	486	209.0	8.0	120.0	.00
607	486	490	247.0	8.0	120.0	.00
611	490	494	549.0	8.0	120.0	.00
615	494	498	379.0	8.0	120.0	.00
619	498	502	812.0	8.0	120.0	.00
623	502	506	951.0	8.0	120.0	.00
627	506	498	1100.0	8.0	120.0	.00
629	506	416	216.0	8.0	120.0	.00
631	506	490	1097.0	8.0	120.0	.00
635	414	510	193.0	8.0	120.0	.00
639	510	514	603.0	8.0	120.0	.00
643	514	518	255.0	8.0	120.0	.00
647	518	522	271.0	8.0	120.0	.00
651	522	526	727.0	8.0	120.0	.00
655	526	510	1129.0	8.0	120.0	.00
659	526	530	216.0	8.0	120.0	.00

663	530	418	518.0	8.0	120.0	.00
667	530	534	479.0	8.0	120.0	.00
671	534	538	440.0	8.0	120.0	.00
675	538	542	765.0	8.0	120.0	.00
679	542	546	193.0	8.0	120.0	.00
683	546	550	286.0	8.0	120.0	.00
687	550	554	255.0	8.0	120.0	.00
691	554	558	1051.0	8.0	120.0	.00
695	558	562	332.0	8.0	120.0	.00
699	562	422	178.0	8.0	120.0	.00
703	534	566	170.0	8.0	120.0	.00
707	566	570	271.0	8.0	120.0	.00
711	570	554	255.0	8.0	120.0	.00
715	570	574	293.0	8.0	120.0	.00
719	574	578	155.0	8.0	120.0	.00
723	578	582	170.0	8.0	120.0	.00
727	582	562	796.0	8.0	120.0	.00
731	418	586	216.0	10.0	120.0	.00
735	586	590	340.0	10.0	120.0	.00
739	586	594	216.0	8.0	120.0	.00
743	594	598	394.0	8.0	120.0	.00
747	598	422	255.0	8.0	120.0	.00
751	598	602	309.0	8.0	120.0	.00
755	602	604	456.0	8.0	120.0	.00
759	602	604	688.0	8.0	120.0	.00
763	594	604	1800.0	8.0	120.0	.00
901	900	904	160.0	8.0	130.0	.00
905	904	908	500.0	8.0	130.0	.00
909	904	908	480.0	8.0	130.0	.00
913	904	912	600.0	8.0	130.0	.00
917	916	912	440.0	8.0	130.0	.00
918	915	914	165.0	8.0	130.0	.00
919	916	915	175.0	8.0	130.0	.00
920	915	919	530.0	8.0	130.0	.00
921	916	918	535.0	8.0	130.0	.00
922	917	919	235.0	8.0	130.0	.00
923	918	917	170.0	8.0	130.0	.00
924	923	919	300.0	8.0	130.0	.00
925	918	920	90.0	8.0	130.0	.00
927	920	921	125.0	8.0	130.0	.00
929	924	920	285.0	8.0	130.0	.00
931	924	923	150.0	8.0	130.0	.00
933	926	924	140.0	8.0	130.0	.00
937	928	926	215.0	8.0	130.0	.00
941	932	928	680.0	8.0	130.0	.00
945	56	932	950.0	12.0	130.0	.00
949	900	56	950.0	12.0	130.0	.00
951	58	56	250.0	12.0	130.0	.00
953	936	58	160.0	12.0	130.0	.00
957	936	940	500.0	10.0	130.0	.00
961	940	944	340.0	10.0	130.0	.00
965	948	944	360.0	10.0	130.0	.00
969	948	940	160.0	10.0	130.0	.00
973	952	948	200.0	10.0	130.0	.00
977	952	936	350.0	12.0	130.0	.00

JUNCTION NUMBER	DEMAND	ELEVATION	CONNECTING PIPES		
4	3.40	468.00	5	159	
8	8.70	456.00	5	9	139
10	.00	402.00	137	139	
12	14.20	431.00	9	13	257
16	5.10	420.00	13	17	29

20	3.80	444.00	17	21	25		
24	6.10	454.00	21				
28	6.10	476.00	25				
32	6.30	403.00	4	10	29	33	83
36	6.10	427.00	33				
44	8.70	376.00	41				
46	.00	321.00	41	43			
48	6.30	318.00	43	45			
52	.70	321.00	45	49	75		
56	.00	433.00	945	949	951		
58	.00	420.00	951	953			
60	4.40	327.00	71	75	79		
64	4.10	351.00	79				
68	7.80	320.00	67	71	83	87	
72	12.70	359.00	61	63	67		
76	.00	348.00	63				
80	6.90	323.00	87	91	103		
84	7.70	386.00	91	95			
88	7.80	372.00	95	99			
92	6.40	327.00	99	103	107		
96	5.80	347.00	107	111	123		
100	8.40	415.00	111	115			
104	7.70	417.00	115	119			
108	11.20	355.00	119	123	127		
112	6.10	375.00	127	131	135		
114	38.40	391.00	53	57	385		
116	7.00	379.00	57	61	131		
120	8.70	377.00	135	141	143		
122	.00	385.00	137	141			
124	4.80	401.00	143	147			
128	3.80	422.00	147	151	183		
132	6.50	456.00	151	155	171		
136	7.50	446.00	167	171	175		
140	5.70	446.00	175	179	195		
144	5.10	429.00	179	183	187		
148	5.40	415.00	187	191			
152	8.30	390.00	191				
156	7.20	423.00	195	199	223		
160	7.70	393.00	199	203			
164	4.00	426.00	203	207	215	333	
168	6.90	396.00	207	211			
172	12.10	380.00	211				
176	.00	454.00	215	219			
180	5.90	445.00	219	223	227	231	
184	7.50	446.00	231	235			
188	5.40	461.00	163	167	235	239	
192	5.60	477.00	155	159	163	247	
196	4.50	475.00	243	247	251		
200	5.90	454.00	239	243	265		
204	10.50	423.00	227	269			
208	6.20	455.00	251	253	261	273	
212	14.80	415.00	253	257	451		
216	6.20	471.00	261	265	269	345	
220	6.90	445.00	341	345			
224	10.10	439.00	337	341			
228	9.60	409.00	321	325	337		
232	3.80	397.00	325	329	365		
236	4.10	463.00	333	349	381		
240	5.80	353.00	317	321			
244	5.10	366.00	313	317			
248	7.30	369.00	309	313			
252	10.60	387.00	305	309			
256	12.40	404.00	297	301	305		

260	12.20	427.00	273	277	281	301
264	3.70	443.00	281	285		
268	10.10	453.00	277	285	289	
272	12.90	455.00	293	297		
276	11.20	457.00	289	293	455	507
282	6.90	394.00	349	353		
286	5.80	380.00	353	357		
290	8.90	387.00	357	361	369	
294	24.50	389.00	361	365		
298	7.00	396.00	369	373		
302	7.30	410.00	373	377		
306	5.20	411.00	329	377	381	
310	12.80	358.00	385	389	419	
314	7.50	340.00	389	393		
318	5.50	344.00	393	397	409	
322	9.90	354.00	397	401	405	
326	13.90	359.00	401	419	423	
330	9.80	348.00	405	409	413	417
334	9.90	346.00	413	417		
338	16.20	352.00	423	427	439	
342	9.80	358.00	427	431	435	
346	17.90	382.00	431	435		
350	14.50	344.00	439	443	447	
354	96.10	323.00	443			
358	15.20	372.00	447			
362	.00	364.00	451			
366	7.30	437.00	455	459	471	
370	10.90	406.00	459	463	467	
374	3.50	372.00	463			
378	6.40	377.00	467			
382	13.30	436.00	471	475	483	
386	15.50	380.00	475	479		
390	21.90	367.00	479	483	487	
394	3.50	350.00	487	491		
398	1.20	351.00	491	495		
402	19.60	379.00	495	499	503	
406	6.30	365.00	499			
410	6.90	357.00	503			
414	5.50	464.00	507	511	603	635
416	7.70	434.00	511	513	629	
418	3.40	421.00	513	515	663	731
422	4.40	442.00	515	519	699	747
426	9.40	410.00	519	523	587	
428	44.40	410.00	523	525	551	
430	43.60	397.00	525	527	543	
434	14.90	363.00	527	531	535	
438	.00	315.00	6	12	531	
442	20.10	375.00	535	539		
446	9.20	367.00	539	543	547	555
450	27.00	383.00	547	551	559	
454	24.90	348.00	555	559	563	
458	2.80	366.00	563	567		
462	5.40	373.00	567	571	599	
466	7.60	382.00	571	573	595	
468	.00	385.00	573	575		
470	12.30	387.00	575	579	591	
474	10.90	389.00	579	581		
476	.00	381.00	581	583		
478	21.10	332.00	583	587		
482	13.70	389.00	591	595	599	
486	10.30	459.00	603	607		
490	8.40	450.00	607	611	631	
494	6.40	431.00	611	615		

498	9.30	424.00	615	619	627	
502	4.40	399.00	619	623		
506	11.90	425.00	623	627	629	631
510	9.60	456.00	635	639	655	
514	12.20	415.00	639	643		
518	9.00	409.00	643	647		
522	6.40	407.00	647	651		
526	6.60	399.00	651	655	659	
530	7.50	397.00	659	663	667	
534	.00	399.00	667	671	703	
538	.00	415.00	671	675		
542	.00	393.00	675	679		
546	5.80	386.00	679	683		
550	6.00	381.00	683	687		
554	4.40	382.00	687	691	711	
558	.00	422.00	691	695		
562	.00	435.00	695	699	727	
566	6.00	392.00	703	707		
570	6.40	383.00	707	711	715	
574	5.50	384.00	715	719		
578	5.70	386.00	719	723		
582	5.70	387.00	723	727		
586	4.70	408.00	731	735	739	
590	.00	375.00	735			
594	16.50	417.00	739	743	763	
598	9.50	428.00	743	747	751	
602	3.40	420.00	751	755	759	
604	10.30	402.00	755	759	763	
900	.00	345.00	49	901	949	
904	7.40	346.00	901	905	909	913
908	7.40	339.00	905	909		
912	8.30	366.00	913	917		
914	.00	388.00	918			
915	.00	389.00	918	919	920	
916	8.30	391.00	917	919	921	
917	.00	395.00	922	923		
918	.00	397.00	921	923	925	
919	.00	393.00	920	922	924	
920	8.30	398.00	925	927	929	
921	.00	396.00	927			
923	.00	396.00	924	931		
924	8.30	400.00	929	931	933	
926	.00	406.00	933	937		
928	.00	412.00	937	941		
932	.00	455.00	941	945		
936	.00	420.00	953	957	977	
940	5.40	421.00	957	961	969	
944	5.40	417.00	961	965		
948	5.40	422.00	965	969	973	
952	.00	416.00	53	973	977	

OUTPUT SELECTION: ALL RESULTS ARE OUTPUT EACH PERIOD
10 VALUES ARE OUTPUT FOR MAXIMUM AND MINIMUM PRESSURES

THIS SYSTEM HAS 232 PIPES WITH 181 JUNCTIONS , 48 LOOPS AND 4 FGNS

THE RESULTS ARE OBTAINED AFTER 7 TRIALS WITH AN ACCURACY = .00184

Melrose+Oceanside Project in the City of Oceanside **96501MO1**
Existing 626 Pressure Zone Plus Melrose+Oceanside Project Demands
Average Day Demand

PIPE NO.	NODE NOS.		FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
THE CHECK VALVE IN LINE NUMBER 4 IS CLOSED								
5	4	8	351.08	.03	.00	.00	.73	.17
6	0	438	1125.34	16.05	.00	.00	12.77	107.03
9	8	12	108.65	.09	.00	.00	.44	.12
THE CHECK VALVE IN LINE NUMBER 10 IS CLOSED								
12	0	438	349.86	.05	.00	.00	.99	.36
13	12	16	172.20	.11	.00	.00	.70	.27
17	16	20	16.00	.00	.00	.00	.10	.01
21	20	24	6.10	.00	.00	.00	.04	.00
25	20	28	6.10	.00	.00	.00	.04	.00
29	16	32	151.10	.14	.00	.00	.62	.22
33	32	36	6.10	.00	.00	.00	.04	.00
41	46	44	8.70	.00	.00	.00	.06	.00
43	48	46	8.70	.00	.00	.00	.06	.00
45	48	52	-15.00	.00	.00	.00	-.06	.00
49	52	900	96.90	.02	.00	.00	.27	.03
53	114	952	-32.70	-.01	.00	.00	-.09	.00
57	116	114	244.70	.15	.00	.00	.69	.19
61	116	72	13.06	.01	.00	.00	.08	.01
63	72	76	.00	.00	.00	.00	.00	.00
67	68	72	-.36	.00	.00	.00	.00	.00
71	68	60	121.10	.06	.00	.00	.49	.14
75	60	52	112.60	.03	.00	.00	.46	.13
79	60	64	4.10	.00	.00	.00	.03	.00
83	32	68	138.70	.07	.00	.00	.39	.07
87	80	68	-10.16	.00	.00	.00	-.06	.00
91	80	84	7.58	.00	.00	.00	.05	.00
95	88	84	.12	.00	.00	.00	.00	.00
99	92	88	7.92	.00	.00	.00	.05	.00
103	92	80	4.32	.00	.00	.00	.03	.00
107	96	92	18.64	.00	.00	.00	.12	.01
111	96	100	1.34	.00	.00	.00	.01	.00
115	104	100	7.06	.00	.00	.00	.05	.00
119	108	104	14.76	.01	.00	.00	.09	.01
123	108	96	25.77	.01	.00	.00	.16	.02
127	112	108	51.74	.07	.00	.00	.33	.09
131	112	116	264.76	.07	.00	.00	.75	.22
135	120	112	322.60	.09	.00	.00	.92	.31
137	10	122	233.73	.05	.00	.00	.66	.17
139	8	10	233.73	.13	.00	.00	.66	.17
141	122	120	233.73	.06	.00	.00	.66	.17
143	120	124	-97.57	-.09	.00	.00	-.62	-.28
147	124	128	-102.37	-.10	.00	.00	-.65	-.31
151	132	128	67.47	.05	.00	.00	.43	.14
155	192	132	57.74	.08	.00	.00	.37	.11
159	4	192	-354.48	-.05	.00	.00	-.74	-.18
163	192	188	-13.87	.00	.00	.00	-.09	-.01
167	188	136	38.78	.07	.00	.00	.44	.21
171	136	132	16.23	.01	.00	.00	.18	.04
175	136	140	15.05	.02	.00	.00	.17	.04
179	144	140	-57.50	-.03	.00	.00	-.37	-.11
183	128	144	-38.70	-.01	.00	.00	-.25	-.05
187	144	148	13.70	.01	.00	.00	.16	.03
191	148	152	8.30	.00	.00	.00	.09	.01
195	140	156	-48.15	-.03	.00	.00	-.31	-.08
199	156	160	-7.24	.00	.00	.00	-.05	.00

203	160	164	-14.94	.00	.00	.00	-.10	-.01
207	164	168	19.00	.00	.00	.00	.12	.01
211	168	172	12.10	.00	.00	.00	.08	.01
215	176	164	25.51	.01	.00	.00	.16	.02
219	180	176	25.51	.01	.00	.00	.16	.02
223	180	156	48.11	.02	.00	.00	.31	.08
227	180	204	-51.22	-.02	.00	.00	-.33	-.09
231	184	180	28.30	.02	.00	.00	.18	.03
235	188	184	35.80	.02	.00	.00	.23	.04
239	188	200	-93.85	-.09	.00	.00	-.60	-.26
243	196	200	63.14	.05	.00	.00	.40	.13
247	192	196	-403.96	-.15	.00	.00	-.84	-.22
251	196	208	-471.60	-.09	.00	.00	-.98	-.30
253	208	212	92.55	.09	.00	.00	.59	.26
257	212	12	77.75	.31	.00	.00	.50	.19
261	208	216	84.75	.12	.00	.00	.54	.22
265	200	216	-36.61	-.02	.00	.00	-.23	-.05
269	216	204	61.72	.12	.00	.00	.39	.12
273	208	260	-655.09	-.32	.00	.00	-1.37	-.55
277	260	268	-89.74	-.31	.00	.00	-.57	-.24
281	260	264	-611.40	-.14	.00	.00	-1.27	-.48
285	264	268	-615.10	-.16	.00	.00	-1.28	-.49
289	268	276	-714.94	-.47	.00	.00	-1.49	-.64
293	276	272	152.56	.17	.00	.00	.97	.65
297	256	272	-139.66	-.61	.00	.00	-.89	-.55
301	260	256	33.84	.01	.00	.00	.14	.01
305	256	252	161.11	.09	.00	.00	.66	.24
309	252	248	150.51	.06	.00	.00	.61	.21
313	248	244	143.21	.06	.00	.00	.58	.20
317	244	240	138.11	.07	.00	.00	.56	.18
321	240	228	132.31	.13	.00	.00	.84	.50
325	228	232	85.93	.16	.00	.00	.55	.22
329	232	306	45.78	.02	.00	.00	.29	.07
333	236	164	12.43	.00	.00	.00	.08	.01
337	224	228	-36.78	-.01	.00	.00	-.23	-.05
341	220	224	-26.68	-.01	.00	.00	-.17	-.03
345	216	220	-19.78	-.01	.00	.00	-.13	-.01
349	236	282	7.75	.00	.00	.00	.05	.00
353	282	286	.85	.00	.00	.00	.01	.00
357	286	290	-4.95	.00	.00	.00	-.03	.00
361	290	294	-11.85	.00	.00	.00	-.08	-.01
365	294	232	-36.35	-.02	.00	.00	-.15	-.02
369	290	298	-2.00	.00	.00	.00	-.01	.00
373	298	302	-9.00	.00	.00	.00	-.06	.00
377	302	306	-16.30	-.01	.00	.00	-.10	-.01
381	306	236	24.28	.01	.00	.00	.15	.02
385	310	114	-239.00	-.93	.00	.00	-.98	-.50
389	310	314	81.14	.08	.00	.00	.33	.07
393	314	318	73.64	.02	.00	.00	.30	.06
397	318	322	29.23	.01	.00	.00	.12	.01
401	322	326	38.54	.01	.00	.00	.16	.02
405	322	330	-19.21	-.01	.00	.00	-.08	.00
409	318	330	38.91	.00	.00	.00	.16	.02
413	330	334	7.29	.00	.00	.00	.03	.00
417	330	334	2.61	.00	.00	.00	.02	.00
419	310	326	145.06	.12	.00	.00	.59	.20
423	338	326	-169.70	-.29	.00	.00	-.69	-.27
427	338	342	27.70	.00	.00	.00	.11	.01
431	342	346	13.64	.00	.00	.00	.06	.00
435	342	346	4.26	.00	.00	.00	.03	.00
439	338	350	125.80	.05	.00	.00	.51	.15
443	350	354	96.10	.10	.00	.00	.39	.09
447	350	358	15.20	.00	.00	.00	.06	.00

451	212	362	.00	.00	.00	.00	.00	.00
455	276	366	116.30	.04	.00	.00	.48	.13
459	366	370	20.80	.02	.00	.00	.13	.02
463	370	374	3.50	.00	.00	.00	.02	.00
467	370	378	6.40	.00	.00	.00	.04	.00
471	366	382	88.20	.03	.00	.00	.36	.08
475	382	386	29.35	.04	.00	.00	.19	.03
479	386	390	13.85	.01	.00	.00	.09	.01
483	382	390	45.55	.04	.00	.00	.19	.02
487	390	394	37.50	.00	.00	.00	.15	.02
491	394	398	34.00	.00	.00	.00	.14	.01
495	398	402	32.80	.02	.00	.00	.13	.01
499	402	406	6.30	.00	.00	.00	.03	.00
503	402	410	6.90	.00	.00	.00	.04	.00
507	276	414	-995.00	-1.23	.00	.00	-2.07	-1.19
511	414	416	-392.02	-2.54	.00	.00	-.82	-.21
513	416	418	-745.21	-.32	.00	.00	-1.55	-.69
515	418	422	-806.88	-.59	.00	.00	-1.68	-.80
519	422	426	-1207.90	-.92	.00	.00	-2.52	-1.70
523	426	428	-1048.82	-1.09	.00	.00	-2.19	-1.31
525	428	430	-932.71	-1.33	.00	.00	-1.94	-1.05
527	430	434	-1268.35	-1.02	.00	.00	-2.64	-1.86
531	434	438	-1475.20	-1.54	.00	.00	-3.07	-2.46
535	434	442	191.95	1.35	.00	.00	1.23	1.00
539	442	446	171.85	.38	.00	.00	1.10	.81
543	430	446	292.04	.71	.00	.00	1.19	.73
547	446	450	240.74	.23	.00	.00	.98	.51
551	450	428	160.51	.39	.00	.00	.66	.24
555	446	454	213.95	.36	.00	.00	.87	.41
559	450	454	53.24	.13	.00	.00	.34	.09
563	454	458	242.28	.57	.00	.00	.99	.52
567	458	462	239.48	.08	.00	.00	.68	.18
571	462	466	182.21	.06	.00	.00	.52	.11
573	466	468	175.79	.03	.00	.00	.50	.10
575	468	470	175.79	.03	.00	.00	.50	.10
579	470	474	200.48	.05	.00	.00	.57	.13
581	474	476	189.58	.04	.00	.00	.54	.12
583	476	478	189.58	.08	.00	.00	.54	.12
587	478	426	168.48	.42	.00	.00	.69	.26
591	470	482	-37.00	-.06	.00	.00	-.24	-.05
595	466	482	-1.18	.00	.00	.00	-.01	.00
599	462	482	51.87	.06	.00	.00	.33	.09
603	414	486	-294.79	-.46	.00	.00	-1.88	-2.21
607	486	490	-305.09	-.58	.00	.00	-1.95	-2.35
611	490	494	-145.50	-.33	.00	.00	-.93	-.60
615	494	498	-151.90	-.24	.00	.00	-.97	-.65
619	498	502	-69.04	-.12	.00	.00	-.44	-.15
623	502	506	-73.44	-.16	.00	.00	-.47	-.17
627	506	498	92.16	.28	.00	.00	.59	.26
629	506	416	-345.49	-.64	.00	.00	-2.21	-2.96
631	506	490	167.99	.85	.00	.00	1.07	.78
635	414	510	-313.69	-.48	.00	.00	-2.00	-2.48
639	510	514	-131.02	-.30	.00	.00	-.84	-.49
643	514	518	-143.22	-.15	.00	.00	-.91	-.58
647	518	522	-152.22	-.18	.00	.00	-.97	-.65
651	522	526	-158.62	-.51	.00	.00	-1.01	-.70
655	526	510	192.27	1.13	.00	.00	1.23	1.00
659	526	530	-357.49	-.68	.00	.00	-2.28	-3.15
663	530	418	-202.46	-.57	.00	.00	-1.29	-1.10
667	530	534	-162.53	-.35	.00	.00	-1.04	-.73
671	534	538	-50.96	-.04	.00	.00	-.33	-.09
675	538	542	-50.96	-.07	.00	.00	-.33	-.09
679	542	546	-50.96	-.02	.00	.00	-.33	-.09

683	546	550	-56.76	-.03	.00	.00	-.36	-.10
687	550	554	-62.76	-.03	.00	.00	-.40	-.13
691	554	558	-101.34	-.32	.00	.00	-.65	-.31
695	558	562	-101.34	-.10	.00	.00	-.65	-.31
699	562	422	-208.03	-.21	.00	.00	-1.33	-1.16
703	534	566	-111.57	-.06	.00	.00	-.71	-.36
707	566	570	-117.57	-.11	.00	.00	-.75	-.40
711	570	554	-34.18	-.01	.00	.00	-.22	-.04
715	570	574	-89.79	-.07	.00	.00	-.57	-.24
719	574	578	-95.29	-.04	.00	.00	-.61	-.27
723	578	582	-100.99	-.05	.00	.00	-.64	-.30
727	582	562	-106.69	-.27	.00	.00	-.68	-.34
731	418	586	-144.19	-.04	.00	.00	-.59	-.20
735	586	590	.00	.00	.00	.00	.00	.00
739	586	594	-148.89	-.13	.00	.00	-.95	-.62
743	594	598	-121.08	-.17	.00	.00	-.77	-.42
747	598	422	-188.59	-.25	.00	.00	-1.20	-.96
751	598	602	58.01	.03	.00	.00	.37	.11
755	602	604	30.33	.01	.00	.00	.19	.03
759	602	604	24.29	.01	.00	.00	.16	.02
763	594	604	-44.31	-.12	.00	.00	-.28	-.07
901	900	904	36.66	.01	.00	.00	.23	.04
905	904	908	3.66	.00	.00	.00	.02	.00
909	904	908	3.74	.00	.00	.00	.02	.00
913	904	912	21.86	.01	.00	.00	.14	.02
917	916	912	-13.56	.00	.00	.00	-.09	-.01
918	915	914	.00	.00	.00	.00	.00	.00
919	916	915	2.23	.00	.00	.00	.01	.00
920	915	919	2.23	.00	.00	.00	.01	.00
921	916	918	3.03	.00	.00	.00	.02	.00
922	917	919	-1.86	.00	.00	.00	-.01	.00
923	918	917	-1.86	.00	.00	.00	-.01	.00
924	923	919	-.37	.00	.00	.00	.00	.00
925	918	920	4.89	.00	.00	.00	.03	.00
927	920	921	.00	.00	.00	.00	.00	.00
929	924	920	3.41	.00	.00	.00	.02	.00
931	924	923	-.37	.00	.00	.00	.00	.00
933	926	924	11.34	.00	.00	.00	.07	.00
937	928	926	11.34	.00	.00	.00	.07	.00
941	932	928	11.34	.00	.00	.00	.07	.00
945	56	932	11.34	.00	.00	.00	.03	.00
949	900	56	60.24	.01	.00	.00	.17	.01
951	58	56	-48.90	.00	.00	.00	-.14	-.01
953	936	58	-48.90	.00	.00	.00	-.14	-.01
957	936	940	16.57	.00	.00	.00	.07	.00
961	940	944	4.28	.00	.00	.00	.02	.00
965	948	944	1.12	.00	.00	.00	.00	.00
969	948	940	-6.89	.00	.00	.00	-.03	.00
973	952	948	-.37	.00	.00	.00	.00	.00
977	952	936	-32.32	.00	.00	.00	-.09	.00

JUNCTION NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
4	3.40	586.00	468.00	51.13
8	8.70	585.97	456.00	56.32
10	.00	585.84	402.00	79.67
12	14.20	585.88	431.00	67.12
16	5.10	585.77	420.00	71.83
20	3.80	585.77	444.00	61.43
24	6.10	585.77	454.00	57.10
28	6.10	585.77	476.00	47.57
32	6.30	585.63	403.00	79.14
36	6.10	585.63	427.00	68.74

44	8.70	585.47	376.00	90.77
46	.00	585.47	321.00	114.60
48	6.30	585.47	318.00	115.90
52	.70	585.47	321.00	114.61
56	.00	585.44	433.00	66.06
58	.00	585.44	420.00	71.69
60	4.40	585.51	327.00	112.02
64	4.10	585.51	351.00	101.62
68	7.80	585.56	320.00	115.08
72	12.70	585.56	359.00	98.18
76	.00	585.56	348.00	102.94
80	6.90	585.56	323.00	113.78
84	7.70	585.56	386.00	86.48
88	7.80	585.56	372.00	92.54
92	6.40	585.56	327.00	112.04
96	5.80	585.57	347.00	103.38
100	8.40	585.57	415.00	73.91
104	7.70	585.57	417.00	73.05
108	11.20	585.57	355.00	99.92
112	6.10	585.64	375.00	91.28
114	38.40	585.43	391.00	84.25
116	7.00	585.57	379.00	89.52
120	8.70	585.73	377.00	90.45
122	.00	585.79	385.00	87.01
124	4.80	585.82	401.00	80.09
128	3.80	585.93	422.00	71.03
132	6.50	585.97	456.00	56.32
136	7.50	585.99	446.00	60.66
140	5.70	585.97	446.00	60.65
144	5.10	585.94	429.00	68.01
148	5.40	585.93	415.00	74.07
152	8.30	585.93	390.00	84.90
156	7.20	586.00	423.00	70.63
160	7.70	586.00	393.00	83.63
164	4.00	586.01	426.00	69.34
168	6.90	586.00	396.00	82.33
172	12.10	586.00	380.00	89.27
176	.00	586.02	454.00	57.21
180	5.90	586.02	445.00	61.11
184	7.50	586.04	446.00	60.68
188	5.40	586.06	461.00	54.19
192	5.60	586.05	477.00	47.26
196	4.50	586.20	475.00	48.19
200	5.90	586.15	454.00	57.27
204	10.50	586.04	423.00	70.65
208	6.20	586.29	455.00	56.89
212	14.80	586.20	415.00	74.19
216	6.20	586.17	471.00	49.90
220	6.90	586.17	445.00	61.17
224	10.10	586.18	439.00	63.78
228	9.60	586.19	409.00	76.78
232	3.80	586.03	397.00	81.91
236	4.10	586.01	463.00	53.30
240	5.80	586.32	353.00	101.11
244	5.10	586.39	366.00	95.50
248	7.30	586.45	369.00	94.23
252	10.60	586.51	387.00	86.45
256	12.40	586.60	404.00	79.13
260	12.20	586.60	427.00	69.16
264	3.70	586.75	443.00	62.29
268	10.10	586.91	453.00	58.03
272	12.90	587.21	455.00	57.29
276	11.20	587.38	457.00	56.50

282	6.90	586.01	394.00	83.20
286	5.80	586.01	380.00	89.27
290	8.90	586.01	387.00	86.24
294	24.50	586.01	389.00	85.37
298	7.00	586.01	396.00	82.34
302	7.30	586.01	410.00	76.27
306	5.20	586.01	411.00	75.84
310	12.80	584.50	358.00	98.15
314	7.50	584.41	340.00	105.91
318	5.50	584.40	344.00	104.17
322	9.90	584.39	354.00	99.83
326	13.90	584.38	359.00	97.66
330	9.80	584.39	348.00	102.44
334	9.90	584.39	346.00	103.30
338	16.20	584.09	352.00	100.57
342	9.80	584.08	358.00	97.97
346	17.90	584.08	382.00	87.57
350	14.50	584.04	344.00	104.02
354	96.10	583.94	323.00	113.07
358	15.20	584.03	372.00	91.88
362	.00	586.20	364.00	96.29
366	7.30	587.34	437.00	65.15
370	10.90	587.32	406.00	78.57
374	3.50	587.32	372.00	93.31
378	6.40	587.32	377.00	91.14
382	13.30	587.31	436.00	65.57
386	15.50	587.27	380.00	89.82
390	21.90	587.26	367.00	95.45
394	3.50	587.26	350.00	102.81
398	1.20	587.26	351.00	102.38
402	19.60	587.24	379.00	90.24
406	6.30	587.24	365.00	96.30
410	6.90	587.23	357.00	99.77
414	5.50	588.60	464.00	53.99
416	7.70	591.14	434.00	68.09
418	3.40	591.46	421.00	73.87
422	4.40	592.05	442.00	65.02
426	9.40	592.97	410.00	79.29
428	44.40	594.06	410.00	79.76
430	43.60	595.39	397.00	85.97
434	14.90	596.41	363.00	101.14
438	.00	597.95	315.00	122.61
442	20.10	595.06	375.00	95.36
446	9.20	594.68	367.00	98.66
450	27.00	594.46	383.00	91.63
454	24.90	594.32	348.00	106.74
458	2.80	593.76	366.00	98.69
462	5.40	593.68	373.00	95.63
466	7.60	593.62	382.00	91.70
468	.00	593.59	385.00	90.39
470	12.30	593.56	387.00	89.51
474	10.90	593.51	389.00	88.62
476	.00	593.47	381.00	92.07
478	21.10	593.39	332.00	113.27
482	13.70	593.62	389.00	88.67
486	10.30	589.06	459.00	56.36
490	8.40	589.65	450.00	60.51
494	6.40	589.97	431.00	68.89
498	9.30	590.22	424.00	72.03
502	4.40	590.34	399.00	82.91
506	11.90	590.50	425.00	71.72
510	9.60	589.08	456.00	57.67
514	12.20	589.38	415.00	75.56

518	9.00	589.53	409.00	78.23
522	6.40	589.70	407.00	79.17
526	6.60	590.21	399.00	82.86
530	7.50	590.89	397.00	84.02
534	.00	591.24	399.00	83.30
538	.00	591.28	415.00	76.39
542	.00	591.34	393.00	85.95
546	5.80	591.36	386.00	88.99
550	6.00	591.39	381.00	91.17
554	4.40	591.42	382.00	90.75
558	.00	591.74	422.00	73.56
562	.00	591.85	435.00	67.97
566	6.00	591.30	392.00	86.36
570	6.40	591.41	383.00	90.31
574	5.50	591.48	384.00	89.91
578	5.70	591.53	386.00	89.06
582	5.70	591.58	387.00	88.65
586	4.70	591.50	408.00	79.52
590	.00	591.50	375.00	93.82
594	16.50	591.64	417.00	75.68
598	9.50	591.81	428.00	70.98
602	3.40	591.77	420.00	74.43
604	10.30	591.76	402.00	82.23
900	.00	585.45	345.00	104.20
904	7.40	585.45	346.00	103.76
908	7.40	585.45	339.00	106.79
912	8.30	585.44	366.00	95.09
914	.00	585.43	388.00	85.55
915	.00	585.43	389.00	85.12
916	8.30	585.43	391.00	84.25
917	.00	585.43	395.00	82.52
918	.00	585.43	397.00	81.65
919	.00	585.43	393.00	83.39
920	8.30	585.43	398.00	81.22
921	.00	585.43	396.00	82.09
923	.00	585.43	396.00	82.09
924	8.30	585.43	400.00	80.35
926	.00	585.43	406.00	77.75
928	.00	585.44	412.00	75.16
932	.00	585.44	455.00	56.52
936	.00	585.44	420.00	71.69
940	5.40	585.43	421.00	71.25
944	5.40	585.43	417.00	72.99
948	5.40	585.43	422.00	70.82
952	.00	585.43	416.00	73.42
	MAXIMUM PRESSURES			
438	.00	597.95	315.00	122.61
48	6.30	585.47	318.00	115.90
68	7.80	585.56	320.00	115.08
52	.70	585.47	321.00	114.61
46	.00	585.47	321.00	114.60
80	6.90	585.56	323.00	113.78
478	21.10	593.39	332.00	113.27
354	96.10	583.94	323.00	113.07
92	6.40	585.56	327.00	112.04
60	4.40	585.51	327.00	112.02
	MINIMUM PRESSURES			
192	5.60	586.05	477.00	47.26
28	6.10	585.77	476.00	47.57
196	4.50	586.20	475.00	48.19
216	6.20	586.17	471.00	49.90

4	3.40	586.00	468.00	51.13
236	4.10	586.01	463.00	53.30
414	5.50	588.60	464.00	53.99
188	5.40	586.06	461.00	54.19
8	8.70	585.97	456.00	56.32
132	6.50	585.97	456.00	56.32

THE NET SYSTEM DEMAND = 1475.20

SUMMARY OF INFLOWS(+) AND OUTFLOWS(-) FROM FIXED GRADE NODES

PIPE NUMBER	FLOWRATE
6	1125.34
12	349.86

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES = 1475.20
THE NET FLOW OUT OF THE SYSTEM INTO FIXED GRADE NODES = .00

A SUMMARY OF CONDITIONS SPECIFIED FOR THE NEXT SIMULATION FOLLOWS

THE DEMANDS ARE CHANGED FROM ORIGINAL VALUES BY A FACTOR = 2.00

THE RESULTS ARE OBTAINED AFTER 6 TRIALS WITH AN ACCURACY = .00016

Melrose+Oceanside Project in the City of Oceanside
Existing 626 Pressure Zone System Plus Melrose+Oceanside Project
Maximum Day Demand equals 2 x Avg Day Demand

PIPE NO.	NODE NOS.		FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
4	0	32	126.10	.67	.00	.00	3.22	13.38
5	4	8	618.38	.08	.00	.00	1.29	.49
6	0	438	1159.82	16.98	.00	.00	13.16	113.18
9	8	12	173.26	.21	.00	.00	.71	.28
THE CHECK VALVE IN LINE NUMBER 10 IS CLOSED								
12	0	438	1664.48	.98	.00	.00	4.72	6.52
13	12	16	281.47	.28	.00	.00	1.15	.68
17	16	20	32.00	.01	.00	.00	.20	.04
21	20	24	12.20	.00	.00	.00	.08	.01
25	20	28	12.20	.00	.00	.00	.08	.01
29	16	32	239.27	.32	.00	.00	.98	.51
33	32	36	12.20	.00	.00	.00	.08	.01
41	46	44	17.40	.01	.00	.00	.11	.01
43	48	46	17.40	.00	.00	.00	.11	.01
45	48	52	-30.00	.00	.00	.00	-.12	-.01
49	52	900	202.55	.08	.00	.00	.57	.13
53	114	952	-74.15	-.03	.00	.00	-.21	-.02
57	116	114	480.65	.51	.00	.00	1.36	.65
61	116	72	-11.44	-.01	.00	.00	-.07	-.01
63	72	76	.00	.00	.00	.00	.00	.00
67	68	72	36.84	.01	.00	.00	.24	.05
71	68	60	250.95	.22	.00	.00	1.03	.55
75	60	52	233.95	.13	.00	.00	.96	.48
79	60	64	8.20	.00	.00	.00	.05	.00
83	32	68	340.58	.38	.00	.00	.97	.34
87	80	68	-37.18	-.01	.00	.00	-.24	-.05
91	80	84	16.08	.01	.00	.00	.10	.01
95	88	84	-.68	.00	.00	.00	.00	.00
99	92	88	14.92	.01	.00	.00	.10	.01
103	92	80	-7.30	.00	.00	.00	-.05	.00
107	96	92	20.42	.00	.00	.00	.13	.02
111	96	100	7.65	.00	.00	.00	.05	.00
115	104	100	9.15	.00	.00	.00	.06	.00
119	108	104	24.55	.02	.00	.00	.16	.02
123	108	96	39.66	.02	.00	.00	.25	.05
127	112	108	86.62	.17	.00	.00	.55	.23
131	112	116	483.21	.20	.00	.00	1.37	.66
135	120	112	582.02	.28	.00	.00	1.65	.93
137	10	122	427.71	.17	.00	.00	1.21	.53
139	8	10	427.71	.40	.00	.00	1.21	.53
141	122	120	427.71	.17	.00	.00	1.21	.53
143	120	124	-171.71	-.26	.00	.00	-1.10	-.81
147	124	128	-181.31	-.30	.00	.00	-1.16	-.90
151	132	128	124.96	.15	.00	.00	.80	.45
155	192	132	110.00	.26	.00	.00	.70	.36
159	4	192	-625.18	-.14	.00	.00	-1.30	-.50
163	192	188	-9.69	.00	.00	.00	-.06	.00
167	188	136	73.59	.22	.00	.00	.83	.69
171	136	132	27.96	.04	.00	.00	.32	.11
175	136	140	30.63	.07	.00	.00	.35	.14
179	144	140	-101.55	-.08	.00	.00	-.65	-.31
183	128	144	-63.95	-.04	.00	.00	-.41	-.13
187	144	148	27.40	.03	.00	.00	.31	.11
191	148	152	16.60	.01	.00	.00	.19	.04
195	140	156	-82.33	-.08	.00	.00	-.53	-.21
199	156	160	-4.88	.00	.00	.00	-.03	.00

203	160	164	-20.28	.00	.00	.00	-.13	-.02
207	164	168	38.00	.01	.00	.00	.24	.05
211	168	172	24.20	.01	.00	.00	.15	.02
215	176	164	52.07	.04	.00	.00	.33	.09
219	180	176	52.07	.02	.00	.00	.33	.09
223	180	156	91.84	.07	.00	.00	.59	.25
227	180	204	-94.91	-.07	.00	.00	-.61	-.27
231	184	180	60.80	.07	.00	.00	.39	.12
235	188	184	75.80	.06	.00	.00	.48	.18
239	188	200	-169.87	-.28	.00	.00	-1.08	-.79
243	196	200	120.27	.16	.00	.00	.77	.42
247	192	196	-736.69	-.45	.00	.00	-1.54	-.68
251	196	208	-865.96	-.27	.00	.00	-1.80	-.92
253	208	212	166.21	.26	.00	.00	1.06	.76
257	212	12	136.61	.89	.00	.00	.87	.53
261	208	216	159.57	.39	.00	.00	1.02	.71
265	200	216	-61.40	-.04	.00	.00	-.39	-.12
269	216	204	115.91	.39	.00	.00	.74	.39
273	208	260	-1204.13	-.98	.00	.00	-2.51	-1.69
277	260	268	-166.06	-.96	.00	.00	-1.06	-.76
281	260	264	-1131.03	-.45	.00	.00	-2.36	-1.50
285	264	268	-1138.43	-.51	.00	.00	-2.37	-1.52
289	268	276	-1324.69	-1.46	.00	.00	-2.76	-2.01
293	276	272	284.21	.54	.00	.00	1.81	2.06
297	256	272	-258.41	-1.90	.00	.00	-1.65	-1.73
301	260	256	68.55	.02	.00	.00	.28	.05
305	256	252	302.16	.28	.00	.00	1.23	.78
309	252	248	280.96	.20	.00	.00	1.15	.68
313	248	244	266.36	.18	.00	.00	1.09	.62
317	244	240	256.16	.22	.00	.00	1.05	.57
321	240	228	244.56	.40	.00	.00	1.56	1.56
325	228	232	161.21	.50	.00	.00	1.03	.72
329	232	306	84.76	.06	.00	.00	.54	.22
333	236	164	14.21	.00	.00	.00	.09	.01
337	224	228	-64.15	-.03	.00	.00	-.41	-.13
341	220	224	-43.95	-.02	.00	.00	-.28	-.06
345	216	220	-30.15	-.01	.00	.00	-.19	-.03
349	236	282	20.14	.01	.00	.00	.13	.02
353	282	286	6.34	.00	.00	.00	.04	.00
357	286	290	-5.26	.00	.00	.00	-.03	.00
361	290	294	-19.86	.00	.00	.00	-.13	-.01
365	294	232	-68.86	-.08	.00	.00	-.28	-.05
369	290	298	-3.20	.00	.00	.00	-.02	.00
373	298	302	-17.20	-.01	.00	.00	-.11	-.01
377	302	306	-31.80	-.02	.00	.00	-.20	-.04
381	306	236	42.55	.02	.00	.00	.27	.06
385	310	114	-478.00	-3.35	.00	.00	-1.95	-1.82
389	310	314	162.29	.30	.00	.00	.66	.25
393	314	318	147.29	.07	.00	.00	.60	.21
397	318	322	58.46	.03	.00	.00	.24	.04
401	322	326	77.09	.02	.00	.00	.31	.06
405	322	330	-38.42	-.02	.00	.00	-.16	-.02
409	318	330	77.82	.01	.00	.00	.32	.06
413	330	334	15.19	.00	.00	.00	.06	.00
417	330	334	4.61	.00	.00	.00	.03	.00
419	310	326	290.11	.43	.00	.00	1.19	.72
423	338	326	-339.40	-1.06	.00	.00	-1.39	-.97
427	338	342	55.40	.01	.00	.00	.23	.03
431	342	346	27.39	.00	.00	.00	.11	.01
435	342	346	8.41	.00	.00	.00	.05	.00
439	338	350	251.60	.17	.00	.00	1.03	.55
443	350	354	192.20	.37	.00	.00	.79	.34
447	350	358	30.40	.01	.00	.00	.12	.01

451	212	362	.00	.00	.00	.00	.00	.00
455	276	366	232.60	.14	.00	.00	.95	.48
459	366	370	41.60	.06	.00	.00	.27	.06
463	370	374	7.00	.00	.00	.00	.04	.00
467	370	378	12.80	.00	.00	.00	.08	.01
471	366	382	176.40	.11	.00	.00	.72	.29
475	382	386	58.69	.13	.00	.00	.37	.11
479	386	390	27.69	.02	.00	.00	.18	.03
483	382	390	91.11	.15	.00	.00	.37	.08
487	390	394	75.00	.02	.00	.00	.31	.06
491	394	398	68.00	.01	.00	.00	.28	.05
495	398	402	65.60	.07	.00	.00	.27	.05
499	402	406	12.60	.00	.00	.00	.05	.00
503	402	410	13.80	.01	.00	.00	.09	.01
507	276	414	-1863.90	-3.93	.00	.00	-3.88	-3.79
511	414	416	-737.21	-8.17	.00	.00	-1.54	-.68
513	416	418	-1405.64	-1.04	.00	.00	-2.93	-2.25
515	418	422	-1525.88	-1.92	.00	.00	-3.18	-2.62
519	422	426	-2289.70	-3.00	.00	.00	-4.77	-5.55
523	426	428	-1993.35	-3.59	.00	.00	-4.15	-4.29
525	428	430	-1779.16	-4.38	.00	.00	-3.71	-3.48
527	430	434	-2426.49	-3.39	.00	.00	-5.06	-6.18
531	434	438	-2824.30	-5.13	.00	.00	-5.89	-8.19
535	434	442	368.01	4.50	.00	.00	2.35	3.33
539	442	446	327.81	1.25	.00	.00	2.09	2.69
543	430	446	560.13	2.36	.00	.00	2.29	2.44
547	446	450	459.61	.75	.00	.00	1.88	1.69
551	450	428	302.98	1.28	.00	.00	1.24	.78
555	446	454	409.92	1.19	.00	.00	1.67	1.37
559	450	454	102.63	.44	.00	.00	.66	.31
563	454	458	462.75	1.88	.00	.00	1.89	1.72
567	458	462	457.15	.25	.00	.00	1.30	.60
571	462	466	347.44	.20	.00	.00	.99	.36
573	466	468	333.56	.09	.00	.00	.95	.33
575	468	470	333.56	.10	.00	.00	.95	.33
579	470	474	379.15	.17	.00	.00	1.08	.42
581	474	476	357.35	.13	.00	.00	1.01	.38
583	476	478	357.35	.27	.00	.00	1.01	.38
587	478	426	315.15	1.33	.00	.00	1.29	.84
591	470	482	-70.19	-.19	.00	.00	-.45	-.15
595	466	482	-1.33	.00	.00	.00	-.01	.00
599	462	482	98.92	.20	.00	.00	.63	.29
603	414	486	-551.63	-1.47	.00	.00	-3.52	-7.04
607	486	490	-572.23	-1.86	.00	.00	-3.65	-7.54
611	490	494	-272.91	-1.05	.00	.00	-1.74	-1.91
615	494	498	-285.71	-.79	.00	.00	-1.82	-2.08
619	498	502	-130.17	-.39	.00	.00	-.83	-.49
623	502	506	-138.97	-.52	.00	.00	-.89	-.55
627	506	498	174.14	.92	.00	.00	1.11	.83
629	506	416	-653.03	-2.08	.00	.00	-4.17	-9.62
631	506	490	316.12	2.75	.00	.00	2.02	2.51
635	414	510	-586.06	-1.52	.00	.00	-3.74	-7.88
639	510	514	-244.10	-.94	.00	.00	-1.56	-1.56
643	514	518	-268.50	-.47	.00	.00	-1.71	-1.86
647	518	522	-286.50	-.57	.00	.00	-1.83	-2.09
651	522	526	-299.30	-1.65	.00	.00	-1.91	-2.27
655	526	510	361.16	3.63	.00	.00	2.31	3.21
659	526	530	-673.66	-2.20	.00	.00	-4.30	-10.19
663	530	418	-383.43	-1.86	.00	.00	-2.45	-3.59
667	530	534	-305.22	-1.13	.00	.00	-1.95	-2.35
671	534	538	-95.64	-.12	.00	.00	-.61	-.27
675	538	542	-95.64	-.21	.00	.00	-.61	-.27
679	542	546	-95.64	-.05	.00	.00	-.61	-.27

683	546	550	-107.24	-.10	.00	.00	-.68	-.34
687	550	554	-119.24	-.11	.00	.00	-.76	-.41
691	554	558	-192.78	-1.06	.00	.00	-1.23	-1.00
695	558	562	-192.78	-.33	.00	.00	-1.23	-1.00
699	562	422	-396.22	-.68	.00	.00	-2.53	-3.81
703	534	566	-209.58	-.20	.00	.00	-1.34	-1.17
707	566	570	-221.58	-.35	.00	.00	-1.41	-1.30
711	570	554	-64.74	-.03	.00	.00	-.41	-.13
715	570	574	-169.64	-.23	.00	.00	-1.08	-.79
719	574	578	-180.64	-.14	.00	.00	-1.15	-.89
723	578	582	-192.04	-.17	.00	.00	-1.23	-1.00
727	582	562	-203.44	-.88	.00	.00	-1.30	-1.11
731	418	586	-269.99	-.14	.00	.00	-1.10	-.63
735	586	590	.00	.00	.00	.00	.00	.00
739	586	594	-279.39	-.43	.00	.00	-1.78	-2.00
743	594	598	-228.94	-.54	.00	.00	-1.46	-1.38
747	598	422	-358.79	-.81	.00	.00	-2.29	-3.17
751	598	602	110.86	.11	.00	.00	.71	.36
755	602	604	57.78	.05	.00	.00	.37	.11
759	602	604	46.27	.05	.00	.00	.30	.07
763	594	604	-83.46	-.38	.00	.00	-.53	-.21
901	900	904	74.59	.02	.00	.00	.48	.15
905	904	908	7.32	.00	.00	.00	.05	.00
909	904	908	7.48	.00	.00	.00	.05	.00
913	904	912	44.99	.04	.00	.00	.29	.06
917	916	912	-28.39	-.01	.00	.00	-.18	-.02
918	915	914	.00	.00	.00	.00	.00	.00
919	916	915	5.08	.00	.00	.00	.03	.00
920	915	919	5.08	.00	.00	.00	.03	.00
921	916	918	6.71	.00	.00	.00	.04	.00
922	917	919	-3.38	.00	.00	.00	-.02	.00
923	918	917	-3.38	.00	.00	.00	-.02	.00
924	923	919	-1.70	.00	.00	.00	-.01	.00
925	918	920	10.09	.00	.00	.00	.06	.00
927	920	921	.00	.00	.00	.00	.00	.00
929	924	920	6.51	.00	.00	.00	.04	.00
931	924	923	-1.70	.00	.00	.00	-.01	.00
933	926	924	21.41	.00	.00	.00	.14	.01
937	928	926	21.41	.00	.00	.00	.14	.01
941	932	928	21.41	.01	.00	.00	.14	.01
945	56	932	21.41	.00	.00	.00	.06	.00
949	900	56	127.96	.05	.00	.00	.36	.06
951	58	56	-106.55	-.01	.00	.00	-.30	-.04
953	936	58	-106.55	-.01	.00	.00	-.30	-.04
957	936	940	35.20	.01	.00	.00	.14	.01
961	940	944	9.80	.00	.00	.00	.04	.00
965	948	944	1.00	.00	.00	.00	.00	.00
969	948	940	-14.60	.00	.00	.00	-.06	.00
973	952	948	-2.80	.00	.00	.00	-.01	.00
977	952	936	-71.35	-.01	.00	.00	-.20	-.02

JUNCTION NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
4	6.80	558.23	468.00	39.10
8	17.40	558.14	456.00	44.26
10	.00	557.75	402.00	67.49
12	28.40	557.93	431.00	55.00
16	10.20	557.65	420.00	59.65
20	7.60	557.64	444.00	49.24
24	12.20	557.64	454.00	44.91
28	12.20	557.64	476.00	35.38
32	12.60	557.33	403.00	66.88
36	12.20	557.33	427.00	56.47

44	17.40	556.59	376.00	78.26
46	.00	556.60	321.00	102.09
48	12.60	556.60	318.00	103.39
52	1.40	556.60	321.00	102.10
56	.00	556.47	433.00	53.50
58	.00	556.46	420.00	59.13
60	8.80	556.73	327.00	99.55
64	8.20	556.73	351.00	89.15
68	15.60	556.95	320.00	102.68
72	25.40	556.93	359.00	85.77
76	.00	556.93	348.00	90.54
80	13.80	556.93	323.00	101.37
84	15.40	556.93	386.00	74.07
88	15.60	556.93	372.00	80.13
92	12.80	556.93	327.00	99.64
96	11.60	556.94	347.00	90.97
100	16.80	556.94	415.00	61.51
104	15.40	556.94	417.00	60.64
108	22.40	556.95	355.00	87.51
112	12.20	557.13	375.00	78.92
114	76.80	556.42	391.00	71.68
116	14.00	556.92	379.00	77.10
120	17.40	557.41	377.00	78.18
122	.00	557.58	385.00	74.79
124	9.60	557.66	401.00	67.89
128	7.60	557.96	422.00	58.92
132	13.00	558.11	456.00	44.25
136	15.00	558.15	446.00	48.60
140	11.40	558.08	446.00	48.57
144	10.20	558.00	429.00	55.90
148	10.80	557.96	415.00	61.95
152	16.60	557.95	390.00	72.78
156	14.40	558.17	423.00	58.57
160	15.40	558.17	393.00	71.57
164	8.00	558.17	426.00	57.27
168	13.80	558.16	396.00	70.27
172	24.20	558.15	380.00	77.20
176	.00	558.22	454.00	45.16
180	11.80	558.24	445.00	49.07
184	15.00	558.31	446.00	48.67
188	10.80	558.37	461.00	42.19
192	11.20	558.37	477.00	35.26
196	9.00	558.81	475.00	36.32
200	11.80	558.65	454.00	45.35
204	21.00	558.30	423.00	58.63
208	12.40	559.08	455.00	45.10
212	29.60	558.82	415.00	62.32
216	12.40	558.69	471.00	38.00
220	13.80	558.71	445.00	49.27
224	20.20	558.73	439.00	51.88
228	19.20	558.76	409.00	64.89
232	7.60	558.25	397.00	69.88
236	8.20	558.17	463.00	41.24
240	11.60	559.16	353.00	89.34
244	10.20	559.38	366.00	83.80
248	14.60	559.56	369.00	82.58
252	21.20	559.77	387.00	74.86
256	24.80	560.04	404.00	67.62
260	24.40	560.06	427.00	57.66
264	7.40	560.50	443.00	50.92
268	20.20	561.02	453.00	46.81
272	25.80	561.94	455.00	46.34
276	22.40	562.48	457.00	45.71

282	13.80	558.17	394.00	71.14
286	11.60	558.17	380.00	77.21
290	17.80	558.17	387.00	74.17
294	49.00	558.17	389.00	73.31
298	14.00	558.17	396.00	70.27
302	14.60	558.17	410.00	64.21
306	10.40	558.19	411.00	63.78
310	25.60	553.06	358.00	84.53
314	15.00	552.76	340.00	92.20
318	11.00	552.69	344.00	90.43
322	19.80	552.66	354.00	86.09
326	27.80	552.63	359.00	83.91
330	19.60	552.68	348.00	88.69
334	19.80	552.68	346.00	89.56
338	32.40	551.57	352.00	86.48
342	19.60	551.56	358.00	83.88
346	35.80	551.56	382.00	73.48
350	29.00	551.40	344.00	89.87
354	192.20	551.03	323.00	98.82
358	30.40	551.39	372.00	77.73
362	.00	558.82	364.00	84.42
366	14.60	562.34	437.00	54.32
370	21.80	562.29	406.00	67.72
374	7.00	562.28	372.00	82.46
378	12.80	562.28	377.00	80.29
382	26.60	562.23	436.00	54.70
386	31.00	562.10	380.00	78.91
390	43.80	562.08	367.00	84.53
394	7.00	562.06	350.00	91.89
398	2.40	562.05	351.00	91.46
402	39.20	561.98	379.00	79.29
406	12.60	561.98	365.00	85.36
410	13.80	561.97	357.00	88.82
414	11.00	566.41	464.00	44.38
416	15.40	574.57	434.00	60.91
418	6.80	575.61	421.00	67.00
422	8.80	577.54	442.00	58.73
426	18.80	580.54	410.00	73.90
428	88.80	584.13	410.00	75.45
430	87.20	588.51	397.00	82.99
434	29.80	591.90	363.00	99.19
438	.00	597.02	315.00	122.21
442	40.20	587.40	375.00	92.04
446	18.40	586.15	367.00	94.96
450	54.00	585.40	383.00	87.71
454	49.80	584.96	348.00	102.68
458	5.60	583.08	366.00	94.07
462	10.80	582.83	373.00	90.92
466	15.20	582.63	382.00	86.94
468	.00	582.54	385.00	85.60
470	24.60	582.44	387.00	84.69
474	21.80	582.27	389.00	83.75
476	.00	582.14	381.00	87.16
478	42.20	581.87	332.00	108.28
482	27.40	582.63	389.00	83.91
486	20.60	567.88	459.00	47.18
490	16.80	569.74	450.00	51.89
494	12.80	570.79	431.00	60.57
498	18.60	571.58	424.00	63.95
502	8.80	571.97	399.00	74.95
506	23.80	572.49	425.00	63.91
510	19.20	567.93	456.00	48.50
514	24.40	568.86	415.00	66.67

518	18.00	569.34	409.00	69.48
522	12.80	569.90	407.00	70.59
526	13.20	571.55	399.00	74.77
530	15.00	573.76	397.00	76.59
534	.00	574.88	399.00	76.22
538	.00	575.00	415.00	69.33
542	.00	575.21	393.00	78.96
546	11.60	575.27	386.00	82.02
550	12.00	575.36	381.00	84.22
554	8.80	575.47	382.00	83.84
558	.00	576.52	422.00	66.96
562	.00	576.86	435.00	61.47
566	12.00	575.08	392.00	79.34
570	12.80	575.43	383.00	83.39
574	11.00	575.67	384.00	83.06
578	11.40	575.80	386.00	82.25
582	11.40	575.97	387.00	81.89
586	9.40	575.75	408.00	72.69
590	.00	575.75	375.00	86.99
594	33.00	576.18	417.00	68.98
598	19.00	576.73	428.00	64.45
602	6.80	576.62	420.00	67.87
604	20.60	576.57	402.00	75.65
900	.00	556.52	345.00	91.66
904	14.80	556.50	346.00	91.22
908	14.80	556.50	339.00	94.25
912	16.60	556.46	366.00	82.53
914	.00	556.45	388.00	73.00
915	.00	556.45	389.00	72.56
916	16.60	556.45	391.00	71.70
917	.00	556.45	395.00	69.96
918	.00	556.45	397.00	69.10
919	.00	556.45	393.00	70.83
920	16.60	556.45	398.00	68.66
921	.00	556.45	396.00	69.53
923	.00	556.45	396.00	69.53
924	16.60	556.45	400.00	67.80
926	.00	556.45	406.00	65.20
928	.00	556.46	412.00	62.60
932	.00	556.47	455.00	43.97
936	.00	556.45	420.00	59.13
940	10.80	556.44	421.00	58.69
944	10.80	556.44	417.00	60.43
948	10.80	556.44	422.00	58.26
952	.00	556.44	416.00	60.86
	MAXIMUM PRESSURES			
438	.00	597.02	315.00	122.21
478	42.20	581.87	332.00	108.28
48	12.60	556.60	318.00	103.39
454	49.80	584.96	348.00	102.68
68	15.60	556.95	320.00	102.68
52	1.40	556.60	321.00	102.10
46	.00	556.60	321.00	102.09
80	13.80	556.93	323.00	101.37
92	12.80	556.93	327.00	99.64
60	8.80	556.73	327.00	99.55
	MINIMUM PRESSURES			
192	11.20	558.37	477.00	35.26
28	12.20	557.64	476.00	35.38
196	9.00	558.81	475.00	36.32
216	12.40	558.69	471.00	38.00

4	6.80	558.23	468.00	39.10
236	8.20	558.17	463.00	41.24
188	10.80	558.37	461.00	42.19
932	.00	556.47	455.00	43.97
132	13.00	558.11	456.00	44.25
8	17.40	558.14	456.00	44.26

THE NET SYSTEM DEMAND = 2950.40

SUMMARY OF INFLOWS(+) AND OUTFLOWS(-) FROM FIXED GRADE NODES

PIPE NUMBER	FLOWRATE
4	126.10
6	1159.82
12	1664.48

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES = 2950.40
THE NET FLOW OUT OF THE SYSTEM INTO FIXED GRADE NODES = .00

A SUMMARY OF CONDITIONS SPECIFIED FOR THE NEXT SIMULATION FOLLOWS

THE DEMANDS ARE CHANGED FROM ORIGINAL VALUES BY A FACTOR = 3.00

THE RESULTS ARE OBTAINED AFTER 4 TRIALS WITH AN ACCURACY = .00276

Melrose+Oceanside Project in the City of Oceanside
Existing 626 Pressure Zone System Plus Melrose+Oceanside Project
Peak Hour Demand equals 3 x Avg Day Demand

PIPE NO.	NODE NOS.		FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
4	0	32	375.28	5.04	.00	.00	9.58	100.88
5	4	8	293.18	.02	.00	.00	.61	.12
6	0	438	1180.79	17.55	.00	.00	13.40	117.00
9	8	12	-226.98	-.35	.00	.00	-.93	-.46
10	0	32	734.20	.04	.00	.00	3.00	4.03
12	0	438	2135.32	1.55	.00	.00	6.06	10.33
13	12	16	-224.25	-.18	.00	.00	-.92	-.45
17	16	20	48.00	.02	.00	.00	.31	.08
21	20	24	18.30	.00	.00	.00	.12	.01
25	20	28	18.30	.01	.00	.00	.12	.01
29	16	32	-287.55	-.45	.00	.00	-1.17	-.71
33	32	36	18.30	.01	.00	.00	.12	.01
41	46	44	26.10	.02	.00	.00	.17	.02
43	48	46	26.10	.00	.00	.00	.17	.02
45	48	52	-45.00	.00	.00	.00	-.18	-.02
49	52	900	366.19	.25	.00	.00	1.04	.39
53	114	952	-173.59	-.14	.00	.00	-.49	-.10
57	116	114	658.61	.91	.00	.00	1.87	1.17
61	116	72	-107.67	-.53	.00	.00	-.69	-.34
63	72	76	.00	.00	.00	.00	.00	.00
67	68	72	145.77	.19	.00	.00	.93	.60
71	68	60	438.79	.61	.00	.00	1.79	1.55
75	60	52	413.29	.36	.00	.00	1.69	1.39
79	60	64	12.30	.00	.00	.00	.08	.01
83	32	68	784.73	1.80	.00	.00	2.23	1.62
87	80	68	-176.77	-.26	.00	.00	-1.13	-.86
91	80	84	55.51	.08	.00	.00	.35	.10
95	88	84	-32.41	-.01	.00	.00	-.21	-.04
99	92	88	-9.01	.00	.00	.00	-.06	.00
103	92	80	-100.56	-.09	.00	.00	-.64	-.30
107	96	92	-90.37	-.07	.00	.00	-.58	-.25
111	96	100	30.65	.03	.00	.00	.20	.03
115	104	100	-5.45	.00	.00	.00	-.03	.00
119	108	104	17.65	.01	.00	.00	.11	.01
123	108	96	-42.32	-.02	.00	.00	-.27	-.06
127	112	108	8.93	.00	.00	.00	.06	.00
131	112	116	571.94	.28	.00	.00	1.62	.90
135	120	112	599.17	.30	.00	.00	1.70	.98
137	10	122	494.06	.22	.00	.00	1.40	.69
139	8	10	494.06	.52	.00	.00	1.40	.69
141	122	120	494.06	.23	.00	.00	1.40	.69
143	120	124	-131.21	-.16	.00	.00	-.84	-.49
147	124	128	-145.61	-.20	.00	.00	-.93	-.60
151	132	128	146.43	.20	.00	.00	.93	.60
155	192	132	151.28	.46	.00	.00	.97	.64
159	4	192	-303.38	-.04	.00	.00	-.63	-.13
163	192	188	106.24	.14	.00	.00	.68	.33
167	188	136	87.92	.31	.00	.00	1.00	.95
171	136	132	14.65	.01	.00	.00	.17	.03
175	136	140	50.76	.17	.00	.00	.58	.34
179	144	140	-66.98	-.04	.00	.00	-.43	-.14
183	128	144	-10.58	.00	.00	.00	-.07	.00
187	144	148	41.10	.07	.00	.00	.47	.23
191	148	152	24.90	.03	.00	.00	.28	.09
195	140	156	-33.32	-.02	.00	.00	-.21	-.04
199	156	160	50.98	.05	.00	.00	.33	.09

203	160	164	27.88	.01	.00	.00	.18	.03
207	164	168	57.00	.03	.00	.00	.36	.11
211	168	172	36.30	.01	.00	.00	.23	.05
215	176	164	81.44	.10	.00	.00	.52	.20
219	180	176	81.44	.05	.00	.00	.52	.20
223	180	156	105.90	.10	.00	.00	.68	.33
227	180	204	-96.92	-.07	.00	.00	-.62	-.28
231	184	180	108.12	.20	.00	.00	.69	.34
235	188	184	130.62	.17	.00	.00	.83	.49
239	188	200	-128.50	-.17	.00	.00	-.82	-.47
243	196	200	156.08	.26	.00	.00	1.00	.68
247	192	196	-577.70	-.28	.00	.00	-1.20	-.43
251	196	208	-747.28	-.20	.00	.00	-1.56	-.70
253	208	212	89.72	.08	.00	.00	.57	.24
257	212	12	45.32	.12	.00	.00	.29	.07
261	208	216	175.57	.46	.00	.00	1.12	.84
265	200	216	9.88	.00	.00	.00	.06	.00
269	216	204	128.42	.47	.00	.00	.82	.47
273	208	260	-1031.17	-.73	.00	.00	-2.15	-1.27
277	260	268	-151.05	-.80	.00	.00	-.96	-.64
281	260	264	-1026.48	-.37	.00	.00	-2.14	-1.26
285	264	268	-1037.58	-.43	.00	.00	-2.16	-1.28
289	268	276	-1218.94	-1.25	.00	.00	-2.54	-1.73
293	276	272	274.08	.50	.00	.00	1.75	1.93
297	256	272	-235.38	-1.60	.00	.00	-1.50	-1.45
301	260	256	109.77	.04	.00	.00	.45	.12
305	256	252	307.95	.29	.00	.00	1.26	.81
309	252	248	276.15	.20	.00	.00	1.13	.66
313	248	244	254.25	.16	.00	.00	1.04	.57
317	244	240	238.95	.20	.00	.00	.98	.50
321	240	228	221.55	.34	.00	.00	1.41	1.30
325	228	232	180.18	.62	.00	.00	1.15	.89
329	232	306	86.15	.06	.00	.00	.55	.23
333	236	164	-40.32	-.02	.00	.00	-.26	-.06
337	224	228	-12.57	.00	.00	.00	-.08	-.01
341	220	224	17.73	.00	.00	.00	.11	.01
345	216	220	38.43	.02	.00	.00	.25	.05
349	236	282	51.19	.03	.00	.00	.33	.09
353	282	286	30.49	.01	.00	.00	.19	.03
357	286	290	13.09	.00	.00	.00	.08	.01
361	290	294	-9.13	.00	.00	.00	-.06	.00
365	294	232	-82.63	-.11	.00	.00	-.34	-.07
369	290	298	-4.48	.00	.00	.00	-.03	.00
373	298	302	-25.48	-.01	.00	.00	-.16	-.02
377	302	306	-47.38	-.04	.00	.00	-.30	-.07
381	306	236	23.17	.01	.00	.00	.15	.02
385	310	114	-717.00	-7.10	.00	.00	-2.93	-3.86
389	310	314	243.43	.64	.00	.00	.99	.52
393	314	318	220.93	.15	.00	.00	.90	.44
397	318	322	87.69	.07	.00	.00	.36	.08
401	322	326	115.63	.05	.00	.00	.47	.13
405	322	330	-57.64	-.04	.00	.00	-.24	-.04
409	318	330	116.74	.03	.00	.00	.48	.13
413	330	334	22.79	.00	.00	.00	.09	.01
417	330	334	6.91	.00	.00	.00	.04	.00
419	310	326	435.17	.91	.00	.00	1.78	1.53
423	338	326	-509.10	-2.25	.00	.00	-2.08	-2.05
427	338	342	83.10	.02	.00	.00	.34	.07
431	342	346	41.08	.01	.00	.00	.17	.02
435	342	346	12.62	.01	.00	.00	.08	.01
439	338	350	377.40	.36	.00	.00	1.54	1.18
443	350	354	288.30	.78	.00	.00	1.18	.71
447	350	358	45.60	.03	.00	.00	.19	.02

451	212	362	.00	.00	.00	.00	.00	.00
455	276	366	348.90	.29	.00	.00	1.43	1.02
459	366	370	62.40	.12	.00	.00	.40	.12
463	370	374	10.50	.00	.00	.00	.07	.00
467	370	378	19.20	.01	.00	.00	.12	.01
471	366	382	264.60	.24	.00	.00	1.08	.61
475	382	386	88.04	.27	.00	.00	.56	.24
479	386	390	41.54	.05	.00	.00	.27	.06
483	382	390	136.66	.33	.00	.00	.56	.18
487	390	394	112.50	.03	.00	.00	.46	.12
491	394	398	102.00	.02	.00	.00	.42	.10
495	398	402	98.40	.15	.00	.00	.40	.10
499	402	406	18.90	.00	.00	.00	.08	.00
503	402	410	20.70	.02	.00	.00	.13	.02
507	276	414	-1875.52	-3.97	.00	.00	-3.91	-3.84
511	414	416	-764.37	-8.73	.00	.00	-1.59	-.73
513	416	418	-1490.01	-1.16	.00	.00	-3.11	-2.51
515	418	422	-1648.01	-2.22	.00	.00	-3.43	-3.02
519	422	426	-2514.22	-3.57	.00	.00	-5.24	-6.60
523	426	428	-2229.67	-4.41	.00	.00	-4.65	-5.28
525	428	430	-2040.00	-5.65	.00	.00	-4.25	-4.48
527	430	434	-2835.55	-4.52	.00	.00	-5.91	-8.25
531	434	438	-3316.12	-6.90	.00	.00	-6.91	-11.02
535	434	442	435.87	6.16	.00	.00	2.78	4.55
539	442	446	375.57	1.60	.00	.00	2.40	3.45
543	430	446	664.75	3.24	.00	.00	2.72	3.35
547	446	450	529.45	.97	.00	.00	2.16	2.20
551	450	428	322.87	1.44	.00	.00	1.32	.88
555	446	454	483.27	1.61	.00	.00	1.97	1.86
559	450	454	125.58	.64	.00	.00	.80	.45
563	454	458	534.15	2.46	.00	.00	2.18	2.24
567	458	462	525.75	.33	.00	.00	1.49	.77
571	462	466	396.54	.25	.00	.00	1.12	.46
573	466	468	368.24	.11	.00	.00	1.04	.40
575	468	470	368.24	.12	.00	.00	1.04	.40
579	470	474	408.75	.19	.00	.00	1.16	.48
581	474	476	376.05	.15	.00	.00	1.07	.41
583	476	478	376.05	.30	.00	.00	1.07	.41
587	478	426	312.75	1.31	.00	.00	1.28	.83
591	470	482	-77.41	-.23	.00	.00	-.49	-.19
595	466	482	5.50	.00	.00	.00	.04	.00
599	462	482	113.01	.25	.00	.00	.72	.37
603	414	486	-550.44	-1.47	.00	.00	-3.51	-7.01
607	486	490	-581.34	-1.92	.00	.00	-3.71	-7.76
611	490	494	-277.31	-1.08	.00	.00	-1.77	-1.97
615	494	498	-296.51	-.85	.00	.00	-1.89	-2.23
619	498	502	-137.58	-.44	.00	.00	-.88	-.54
623	502	506	-150.78	-.61	.00	.00	-.96	-.64
627	506	498	186.84	1.04	.00	.00	1.19	.95
629	506	416	-702.54	-2.38	.00	.00	-4.48	-11.02
631	506	490	329.23	2.97	.00	.00	2.10	2.71
635	414	510	-577.21	-1.48	.00	.00	-3.68	-7.66
639	510	514	-235.00	-.87	.00	.00	-1.50	-1.45
643	514	518	-271.60	-.48	.00	.00	-1.73	-1.90
647	518	522	-298.60	-.61	.00	.00	-1.91	-2.26
651	522	526	-317.80	-1.84	.00	.00	-2.03	-2.54
655	526	510	371.01	3.81	.00	.00	2.37	3.38
659	526	530	-708.61	-2.42	.00	.00	-4.52	-11.20
663	530	418	-418.32	-2.18	.00	.00	-2.67	-4.22
667	530	534	-312.79	-1.18	.00	.00	-2.00	-2.46
671	534	538	-97.56	-.13	.00	.00	-.62	-.28
675	538	542	-97.56	-.22	.00	.00	-.62	-.28
679	542	546	-97.56	-.05	.00	.00	-.62	-.28

683	546	550	-114.96	-.11	.00	.00	-.73	-.39
687	550	554	-132.96	-.13	.00	.00	-.85	-.50
691	554	558	-216.87	-1.31	.00	.00	-1.38	-1.25
695	558	562	-216.87	-.41	.00	.00	-1.38	-1.25
699	562	422	-449.29	-.86	.00	.00	-2.87	-4.81
703	534	566	-215.23	-.21	.00	.00	-1.37	-1.23
707	566	570	-233.23	-.39	.00	.00	-1.49	-1.43
711	570	554	-70.72	-.04	.00	.00	-.45	-.16
715	570	574	-181.72	-.26	.00	.00	-1.16	-.90
719	574	578	-198.22	-.16	.00	.00	-1.27	-1.06
723	578	582	-215.32	-.21	.00	.00	-1.37	-1.23
727	582	562	-232.42	-1.13	.00	.00	-1.48	-1.42
731	418	586	-270.52	-.14	.00	.00	-1.10	-.63
735	586	590	.00	.00	.00	.00	.00	.00
739	586	594	-284.62	-.45	.00	.00	-1.82	-2.07
743	594	598	-246.81	-.63	.00	.00	-1.58	-1.59
747	598	422	-403.72	-1.01	.00	.00	-2.58	-3.95
751	598	602	128.40	.15	.00	.00	.82	.47
755	602	604	65.64	.06	.00	.00	.42	.14
759	602	604	52.56	.06	.00	.00	.34	.09
763	594	604	-87.30	-.42	.00	.00	-.56	-.23
901	900	904	121.98	.06	.00	.00	.78	.37
905	904	908	10.98	.00	.00	.00	.07	.00
909	904	908	11.22	.00	.00	.00	.07	.00
913	904	912	77.58	.10	.00	.00	.50	.16
917	916	912	-52.68	-.03	.00	.00	-.34	-.08
918	915	914	.00	.00	.00	.00	.00	.00
919	916	915	12.57	.00	.00	.00	.08	.01
920	915	919	12.57	.00	.00	.00	.08	.01
921	916	918	15.21	.00	.00	.00	.10	.01
922	917	919	-4.37	.00	.00	.00	-.03	.00
923	918	917	-4.37	.00	.00	.00	-.03	.00
924	923	919	-8.20	.00	.00	.00	-.05	.00
925	918	920	19.58	.00	.00	.00	.12	.01
927	920	921	.00	.00	.00	.00	.00	.00
929	924	920	5.32	.00	.00	.00	.03	.00
931	924	923	-8.20	.00	.00	.00	-.05	.00
933	926	924	22.02	.00	.00	.00	.14	.02
937	928	926	22.02	.00	.00	.00	.14	.02
941	932	928	22.02	.01	.00	.00	.14	.02
945	56	932	22.02	.00	.00	.00	.06	.00
949	900	56	244.21	.18	.00	.00	.69	.19
951	58	56	-222.19	-.04	.00	.00	-.63	-.16
953	936	58	-222.19	-.03	.00	.00	-.63	-.16
957	936	940	71.88	.02	.00	.00	.29	.05
961	940	944	21.68	.00	.00	.00	.09	.01
965	948	944	-5.48	.00	.00	.00	-.02	.00
969	948	940	-34.00	.00	.00	.00	-.14	-.01
973	952	948	-23.28	.00	.00	.00	-.10	-.01
977	952	936	-150.32	-.03	.00	.00	-.43	-.08

JUNCTION NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
4	10.20	552.00	468.00	36.40
8	26.10	551.98	456.00	41.59
10	.00	551.46	402.00	64.77
12	42.60	552.33	431.00	52.57
16	15.30	552.51	420.00	57.42
20	11.40	552.49	444.00	47.01
24	18.30	552.48	454.00	42.68
28	18.30	552.48	476.00	33.14
32	18.90	552.96	403.00	64.98
36	18.30	552.95	427.00	54.58

44	26.10	550.16	376.00	75.47
46	.00	550.18	321.00	99.31
48	18.90	550.18	318.00	100.61
52	2.10	550.19	321.00	99.32
56	.00	549.76	433.00	50.60
58	.00	549.72	420.00	56.21
60	13.20	550.55	327.00	96.87
64	12.30	550.54	351.00	86.47
68	23.40	551.16	320.00	100.17
72	38.10	550.98	359.00	83.19
76	.00	550.98	348.00	87.96
80	20.70	550.91	323.00	98.76
84	23.10	550.83	386.00	71.42
88	23.40	550.82	372.00	77.49
92	19.20	550.81	327.00	96.99
96	17.40	550.74	347.00	88.29
100	25.20	550.71	415.00	58.81
104	23.10	550.71	417.00	57.94
108	33.60	550.72	355.00	84.81
112	18.30	550.72	375.00	76.15
114	115.20	549.53	391.00	68.70
116	21.00	550.45	379.00	74.29
120	26.10	551.02	377.00	75.41
122	.00	551.24	385.00	72.04
124	14.40	551.17	401.00	65.08
128	11.40	551.37	422.00	56.06
132	19.50	551.57	456.00	41.41
136	22.50	551.58	446.00	45.75
140	17.10	551.41	446.00	45.68
144	15.30	551.37	429.00	53.03
148	16.20	551.30	415.00	59.06
152	24.90	551.27	390.00	69.88
156	21.60	551.43	423.00	55.65
160	23.10	551.37	393.00	68.63
164	12.00	551.37	426.00	54.33
168	20.70	551.33	396.00	67.31
172	36.30	551.32	380.00	74.24
176	.00	551.47	454.00	42.24
180	17.70	551.52	445.00	46.16
184	22.50	551.72	446.00	45.81
188	16.20	551.89	461.00	39.39
192	16.80	552.04	477.00	32.52
196	13.50	552.32	475.00	33.51
200	17.70	552.06	454.00	42.49
204	31.50	551.59	423.00	55.72
208	18.60	552.52	455.00	42.26
212	44.40	552.44	415.00	59.56
216	18.60	552.06	471.00	35.13
220	20.70	552.04	445.00	46.38
224	30.30	552.03	439.00	48.98
228	28.80	552.03	409.00	61.98
232	11.40	551.41	397.00	66.91
236	12.30	551.35	463.00	38.28
240	17.40	552.37	353.00	86.39
244	15.30	552.57	366.00	80.85
248	21.90	552.73	369.00	79.62
252	31.80	552.93	387.00	71.90
256	37.20	553.21	404.00	64.66
260	36.60	553.26	427.00	54.71
264	11.10	553.63	443.00	47.94
268	30.30	554.06	453.00	43.79
272	38.70	554.81	455.00	43.25
276	33.60	555.32	457.00	42.60

282	20.70	551.31	394.00	68.17
286	17.40	551.31	380.00	74.23
290	26.70	551.30	387.00	71.20
294	73.50	551.30	389.00	70.33
298	21.00	551.30	396.00	67.30
302	21.90	551.32	410.00	61.24
306	15.60	551.36	411.00	60.82
310	38.40	542.43	358.00	79.92
314	22.50	541.79	340.00	87.44
318	16.50	541.64	344.00	85.64
322	29.70	541.57	354.00	81.28
326	41.70	541.52	359.00	79.09
330	29.40	541.61	348.00	83.90
334	29.70	541.61	346.00	84.76
338	48.60	539.27	352.00	81.15
342	29.40	539.25	358.00	78.54
346	53.70	539.24	382.00	68.14
350	43.50	538.91	344.00	84.46
354	288.30	538.13	323.00	93.22
358	45.60	538.88	372.00	72.31
362	.00	552.44	364.00	81.66
366	21.90	555.03	437.00	51.14
370	32.70	554.90	406.00	64.52
374	10.50	554.90	372.00	79.26
378	19.20	554.89	377.00	77.09
382	39.90	554.79	436.00	51.47
386	46.50	554.51	380.00	75.62
390	65.70	554.46	367.00	81.23
394	10.50	554.42	350.00	88.58
398	3.60	554.40	351.00	88.14
402	58.80	554.25	379.00	75.94
406	18.90	554.25	365.00	82.01
410	20.70	554.23	357.00	85.47
414	16.50	559.29	464.00	41.29
416	23.10	568.02	434.00	58.07
418	10.20	569.18	421.00	64.21
422	13.20	571.40	442.00	56.07
426	28.20	574.97	410.00	71.49
428	133.20	579.38	410.00	73.40
430	130.80	585.03	397.00	81.48
434	44.70	589.55	363.00	98.17
438	.00	596.45	315.00	121.96
442	60.30	583.39	375.00	90.30
446	27.60	581.79	367.00	93.07
450	81.00	580.82	383.00	85.72
454	74.70	580.18	348.00	100.61
458	8.40	577.72	366.00	91.75
462	16.20	577.39	373.00	88.57
466	22.80	577.14	382.00	84.56
468	.00	577.03	385.00	83.21
470	36.90	576.91	387.00	82.30
474	32.70	576.72	389.00	81.35
476	.00	576.58	381.00	84.75
478	63.30	576.28	332.00	105.85
482	41.10	577.14	389.00	81.53
486	30.90	560.75	459.00	44.09
490	25.20	562.67	450.00	48.82
494	19.20	563.75	431.00	57.53
498	27.90	564.60	424.00	60.92
502	13.20	565.03	399.00	71.95
506	35.70	565.64	425.00	60.94
510	28.80	560.76	456.00	45.40
514	36.60	561.64	415.00	63.54

518	27.00	562.12	409.00	66.35
522	19.20	562.73	407.00	67.48
526	19.80	564.58	399.00	71.75
530	22.50	567.00	397.00	73.66
534	.00	568.17	399.00	73.31
538	.00	568.30	415.00	66.43
542	.00	568.52	393.00	76.06
546	17.40	568.57	386.00	79.11
550	18.00	568.68	381.00	81.33
554	13.20	568.81	382.00	80.95
558	.00	570.12	422.00	64.19
562	.00	570.54	435.00	58.73
566	18.00	568.38	392.00	76.43
570	19.20	568.77	383.00	80.50
574	16.50	569.04	384.00	80.18
578	17.10	569.20	386.00	79.39
582	17.10	569.41	387.00	79.04
586	14.10	569.32	408.00	69.90
590	.00	569.32	375.00	84.20
594	49.50	569.76	417.00	66.20
598	28.50	570.39	428.00	61.70
602	10.20	570.24	420.00	65.11
604	30.90	570.18	402.00	72.88
900	.00	549.94	345.00	88.81
904	22.20	549.88	346.00	88.35
908	22.20	549.88	339.00	91.38
912	24.90	549.78	366.00	79.64
914	.00	549.75	388.00	70.09
915	.00	549.75	389.00	69.66
916	24.90	549.75	391.00	68.79
917	.00	549.75	395.00	67.06
918	.00	549.75	397.00	66.19
919	.00	549.75	393.00	67.92
920	24.90	549.74	398.00	65.76
921	.00	549.74	396.00	66.62
923	.00	549.75	396.00	66.62
924	24.90	549.74	400.00	64.89
926	.00	549.75	406.00	62.29
928	.00	549.75	412.00	59.69
932	.00	549.76	455.00	41.06
936	.00	549.70	420.00	56.20
940	16.20	549.68	421.00	55.76
944	16.20	549.67	417.00	57.49
948	16.20	549.67	422.00	55.33
952	.00	549.67	416.00	57.92
	MAXIMUM PRESSURES			
438	.00	596.45	315.00	121.96
478	63.30	576.28	332.00	105.85
48	18.90	550.18	318.00	100.61
454	74.70	580.18	348.00	100.61
68	23.40	551.16	320.00	100.17
52	2.10	550.19	321.00	99.32
46	.00	550.18	321.00	99.31
80	20.70	550.91	323.00	98.76
434	44.70	589.55	363.00	98.17
92	19.20	550.81	327.00	96.99
	MINIMUM PRESSURES			
192	16.80	552.04	477.00	32.52
28	18.30	552.48	476.00	33.14
196	13.50	552.32	475.00	33.51
216	18.60	552.06	471.00	35.13

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         4             10.20      552.00      468.00       36.40
       236             12.30      551.35      463.00       38.28
       188             16.20      551.89      461.00       39.39
       932               .00      549.76      455.00       41.06
       414             16.50      559.29      464.00       41.29
       132             19.50      551.57      456.00       41.41

 THE NET SYSTEM DEMAND =   4425.60

 SUMMARY OF INFLOWS(+) AND OUTFLOWS(-) FROM FIXED GRADE NODES

    PIPE NUMBER    FLOWRATE
         4          375.28
         6         1180.79
        10          734.20
        12         2135.32

 THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES =   4425.59
 THE NET FLOW OUT OF THE SYSTEM INTO FIXED GRADE NODES =       .00



 A SUMMARY OF CONDITIONS SPECIFIED FOR THE NEXT SIMULATION FOLLOWS


 THE DEMANDS ARE CHANGED FROM ORIGINAL VALUES BY A FACTOR =   2.00

 THE FOLLOWING SPECIFIC DEMAND CHANGES ARE MADE :
 JUNCTION NUMBER       DEMAND
       915           3000.00


 THE RESULTS ARE OBTAINED AFTER  3 TRIALS WITH AN ACCURACY =  .00385
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Melrose+Oceanside Project in the City of Oceanside
Existing 626 Pressure Zone System Plus Melrose+Oceanside Project
Maximum Day Demand Plus 3000 gpm Fire Flow at Node 915 in M+O Multi-Fam Res

PIPE NO.	NODE NOS.		FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
4	0	32	388.54	5.38	.00	.00	9.92	107.58
5	4	8	738.24	.11	.00	.00	1.54	.68
6	0	438	1171.11	17.28	.00	.00	13.29	115.23
9	8	12	-531.12	-1.68	.00	.00	-2.17	-2.21
10	0	32	2461.42	.38	.00	.00	10.05	37.90
12	0	438	1929.32	1.28	.00	.00	5.47	8.56
13	12	16	-595.67	-1.13	.00	.00	-2.43	-2.74
17	16	20	32.00	.01	.00	.00	.20	.04
21	20	24	12.20	.00	.00	.00	.08	.01
25	20	28	12.20	.00	.00	.00	.08	.01
29	16	32	-637.87	-1.96	.00	.00	-2.61	-3.11
33	32	36	12.20	.00	.00	.00	.08	.01
41	46	44	17.40	.01	.00	.00	.11	.01
43	48	46	17.40	.00	.00	.00	.11	.01
45	48	52	-30.00	.00	.00	.00	-.12	-.01
49	52	900	1747.69	4.49	.00	.00	4.96	7.13
53	114	952	1380.71	6.50	.00	.00	3.92	4.61
57	116	114	1935.51	6.72	.00	.00	5.49	8.62
61	116	72	-217.31	-1.95	.00	.00	-1.39	-1.25
63	72	76	.00	.00	.00	.00	.00	.00
67	68	72	242.71	.48	.00	.00	1.55	1.54
71	68	60	1796.09	8.35	.00	.00	7.34	21.14
75	60	52	1779.09	5.38	.00	.00	7.27	20.77
79	60	64	8.20	.00	.00	.00	.05	.00
83	32	68	2187.30	11.99	.00	.00	6.20	10.81
87	80	68	-132.90	-.15	.00	.00	-.85	-.50
91	80	84	41.56	.05	.00	.00	.27	.06
95	88	84	-26.16	-.01	.00	.00	-.17	-.02
99	92	88	-10.56	.00	.00	.00	-.07	.00
103	92	80	-77.55	-.06	.00	.00	-.49	-.19
107	96	92	-75.30	-.05	.00	.00	-.48	-.18
111	96	100	24.22	.02	.00	.00	.15	.02
115	104	100	-7.42	.00	.00	.00	-.05	.00
119	108	104	7.98	.00	.00	.00	.05	.00
123	108	96	-39.49	-.02	.00	.00	-.25	-.05
127	112	108	-9.10	.00	.00	.00	-.06	.00
131	112	116	1732.21	2.15	.00	.00	4.91	7.01
135	120	112	1735.30	2.13	.00	.00	4.92	7.04
137	10	122	1251.97	1.21	.00	.00	3.55	3.84
139	8	10	1251.97	2.90	.00	.00	3.55	3.84
141	122	120	1251.97	1.27	.00	.00	3.55	3.84
143	120	124	-500.74	-1.87	.00	.00	-3.20	-5.89
147	124	128	-510.34	-2.01	.00	.00	-3.26	-6.10
151	132	128	299.64	.76	.00	.00	1.91	2.27
155	192	132	235.05	1.05	.00	.00	1.50	1.45
159	4	192	-745.04	-.20	.00	.00	-1.55	-.69
163	192	188	26.32	.01	.00	.00	.17	.03
167	188	136	146.32	.79	.00	.00	1.66	2.45
171	136	132	77.59	.25	.00	.00	.88	.76
175	136	140	53.73	.19	.00	.00	.61	.38
179	144	140	-255.90	-.47	.00	.00	-1.63	-1.70
183	128	144	-218.30	-.35	.00	.00	-1.39	-1.26
187	144	148	27.40	.03	.00	.00	.31	.11
191	148	152	16.60	.01	.00	.00	.19	.04
195	140	156	-213.57	-.50	.00	.00	-1.36	-1.21
199	156	160	-63.01	-.08	.00	.00	-.40	-.13

203	160	164	-78.41	-.06	.00	.00	-.50	-.19
207	164	168	38.00	.01	.00	.00	.24	.05
211	168	172	24.20	.01	.00	.00	.15	.02
215	176	164	58.30	.06	.00	.00	.37	.11
219	180	176	58.30	.03	.00	.00	.37	.11
223	180	156	164.96	.22	.00	.00	1.05	.75
227	180	204	-142.38	-.14	.00	.00	-.91	-.57
231	184	180	92.68	.15	.00	.00	.59	.26
235	188	184	107.68	.12	.00	.00	.69	.34
239	188	200	-238.48	-.53	.00	.00	-1.52	-1.49
243	196	200	165.48	.29	.00	.00	1.06	.76
247	192	196	-1017.61	-.81	.00	.00	-2.12	-1.24
251	196	208	-1192.10	-.49	.00	.00	-2.48	-1.66
253	208	212	-6.54	.00	.00	.00	-.04	.00
257	212	12	-36.14	-.08	.00	.00	-.23	-.05
261	208	216	219.54	.70	.00	.00	1.40	1.28
265	200	216	-84.80	-.07	.00	.00	-.54	-.22
269	216	204	163.38	.73	.00	.00	1.04	.74
273	208	260	-1417.50	-1.32	.00	.00	-2.95	-2.28
277	260	268	-195.40	-1.29	.00	.00	-1.25	-1.03
281	260	264	-1331.59	-.60	.00	.00	-2.78	-2.03
285	264	268	-1338.99	-.69	.00	.00	-2.79	-2.06
289	268	276	-1554.59	-1.97	.00	.00	-3.24	-2.71
293	276	272	330.44	.71	.00	.00	2.11	2.73
297	256	272	-304.64	-2.58	.00	.00	-1.94	-2.34
301	260	256	85.10	.03	.00	.00	.35	.07
305	256	252	364.94	.39	.00	.00	1.49	1.10
309	252	248	343.74	.29	.00	.00	1.40	.99
313	248	244	329.14	.27	.00	.00	1.34	.91
317	244	240	318.94	.33	.00	.00	1.30	.86
321	240	228	307.34	.62	.00	.00	1.96	2.38
325	228	232	213.11	.85	.00	.00	1.36	1.21
329	232	306	117.47	.11	.00	.00	.75	.40
333	236	164	66.11	.04	.00	.00	.42	.14
337	224	228	-75.03	-.03	.00	.00	-.48	-.17
341	220	224	-54.83	-.03	.00	.00	-.35	-.10
345	216	220	-41.03	-.03	.00	.00	-.26	-.06
349	236	282	-2.12	.00	.00	.00	-.01	.00
353	282	286	-15.92	.00	.00	.00	-.10	-.01
357	286	290	-27.52	-.02	.00	.00	-.18	-.03
361	290	294	-39.04	-.01	.00	.00	-.25	-.05
365	294	232	-88.04	-.13	.00	.00	-.36	-.08
369	290	298	-6.27	.00	.00	.00	-.04	.00
373	298	302	-20.27	-.01	.00	.00	-.13	-.02
377	302	306	-34.87	-.02	.00	.00	-.22	-.04
381	306	236	72.19	.05	.00	.00	.46	.16
385	310	114	-478.00	-3.35	.00	.00	-1.95	-1.82
389	310	314	162.29	.30	.00	.00	.66	.25
393	314	318	147.29	.07	.00	.00	.60	.21
397	318	322	58.46	.03	.00	.00	.24	.04
401	322	326	77.09	.02	.00	.00	.31	.06
405	322	330	-38.42	-.02	.00	.00	-.16	-.02
409	318	330	77.82	.01	.00	.00	.32	.06
413	330	334	15.19	.00	.00	.00	.06	.00
417	330	334	4.61	.00	.00	.00	.03	.00
419	310	326	290.11	.43	.00	.00	1.19	.72
423	338	326	-339.40	-1.06	.00	.00	-1.39	-.97
427	338	342	55.40	.01	.00	.00	.23	.03
431	342	346	27.39	.00	.00	.00	.11	.01
435	342	346	8.41	.00	.00	.00	.05	.00
439	338	350	251.60	.17	.00	.00	1.03	.55
443	350	354	192.20	.37	.00	.00	.79	.34
447	350	358	30.40	.01	.00	.00	.12	.01

451	212	362	.00	.00	.00	.00	.00	.00
455	276	366	232.60	.14	.00	.00	.95	.48
459	366	370	41.60	.06	.00	.00	.27	.06
463	370	374	7.00	.00	.00	.00	.04	.00
467	370	378	12.80	.00	.00	.00	.08	.01
471	366	382	176.40	.11	.00	.00	.72	.29
475	382	386	58.69	.13	.00	.00	.37	.11
479	386	390	27.69	.02	.00	.00	.18	.03
483	382	390	91.11	.15	.00	.00	.37	.08
487	390	394	75.00	.02	.00	.00	.31	.06
491	394	398	68.00	.01	.00	.00	.28	.05
495	398	402	65.60	.07	.00	.00	.27	.05
499	402	406	12.60	.00	.00	.00	.05	.00
503	402	410	13.80	.01	.00	.00	.09	.01
507	276	414	-2140.04	-5.07	.00	.00	-4.46	-4.90
511	414	416	-839.75	-10.39	.00	.00	-1.75	-.87
513	416	418	-1591.29	-1.31	.00	.00	-3.32	-2.83
515	418	422	-1718.33	-2.39	.00	.00	-3.58	-3.26
519	422	426	-2565.84	-3.71	.00	.00	-5.35	-6.85
523	426	428	-2221.75	-4.38	.00	.00	-4.63	-5.25
525	428	430	-1968.09	-5.28	.00	.00	-4.10	-4.19
527	430	434	-2667.84	-4.04	.00	.00	-5.56	-7.37
531	434	438	-3100.44	-6.09	.00	.00	-6.46	-9.73
535	434	442	402.80	5.32	.00	.00	2.57	3.93
539	442	446	362.60	1.50	.00	.00	2.31	3.24
543	430	446	612.55	2.79	.00	.00	2.50	2.88
547	446	450	507.49	.90	.00	.00	2.07	2.04
551	450	428	342.47	1.60	.00	.00	1.40	.98
555	446	454	449.25	1.41	.00	.00	1.84	1.62
559	450	454	111.03	.51	.00	.00	.71	.36
563	454	458	510.48	2.26	.00	.00	2.09	2.06
567	458	462	504.88	.30	.00	.00	1.43	.72
571	462	466	384.62	.24	.00	.00	1.09	.43
573	466	468	372.97	.11	.00	.00	1.06	.41
575	468	470	372.97	.12	.00	.00	1.06	.41
579	470	474	426.88	.21	.00	.00	1.21	.52
581	474	476	405.08	.17	.00	.00	1.15	.48
583	476	478	405.08	.34	.00	.00	1.15	.48
587	478	426	362.88	1.72	.00	.00	1.48	1.09
591	470	482	-78.51	-.24	.00	.00	-.50	-.19
595	466	482	-3.56	.00	.00	.00	-.02	.00
599	462	482	109.47	.24	.00	.00	.70	.35
603	414	486	-634.74	-1.91	.00	.00	-4.05	-9.13
607	486	490	-655.34	-2.39	.00	.00	-4.18	-9.69
611	490	494	-312.51	-1.35	.00	.00	-1.99	-2.46
615	494	498	-325.31	-1.00	.00	.00	-2.08	-2.65
619	498	502	-147.47	-.50	.00	.00	-.94	-.61
623	502	506	-156.27	-.65	.00	.00	-1.00	-.68
627	506	498	196.44	1.14	.00	.00	1.25	1.04
629	506	416	-736.14	-2.59	.00	.00	-4.70	-12.01
631	506	490	359.62	3.50	.00	.00	2.30	3.19
635	414	510	-676.55	-1.98	.00	.00	-4.32	-10.28
639	510	514	-283.37	-1.24	.00	.00	-1.81	-2.05
643	514	518	-307.77	-.61	.00	.00	-1.96	-2.39
647	518	522	-325.77	-.72	.00	.00	-2.08	-2.65
651	522	526	-338.57	-2.07	.00	.00	-2.16	-2.85
655	526	510	412.38	4.64	.00	.00	2.63	4.11
659	526	530	-764.15	-2.78	.00	.00	-4.88	-12.87
663	530	418	-430.51	-2.30	.00	.00	-2.75	-4.45
667	530	534	-348.64	-1.44	.00	.00	-2.23	-3.01
671	534	538	-109.37	-.15	.00	.00	-.70	-.35
675	538	542	-109.37	-.27	.00	.00	-.70	-.35
679	542	546	-109.37	-.07	.00	.00	-.70	-.35

683	546	550	-120.97	-.12	.00	.00	-.77	-.42
687	550	554	-132.97	-.13	.00	.00	-.85	-.50
691	554	558	-214.44	-1.29	.00	.00	-1.37	-1.22
695	558	562	-214.44	-.41	.00	.00	-1.37	-1.22
699	562	422	-439.64	-.82	.00	.00	-2.81	-4.62
703	534	566	-239.27	-.25	.00	.00	-1.53	-1.50
707	566	570	-251.27	-.44	.00	.00	-1.60	-1.64
711	570	554	-72.67	-.04	.00	.00	-.46	-.16
715	570	574	-191.40	-.29	.00	.00	-1.22	-.99
719	574	578	-202.40	-.17	.00	.00	-1.29	-1.10
723	578	582	-213.80	-.21	.00	.00	-1.36	-1.22
727	582	562	-225.20	-1.07	.00	.00	-1.44	-1.34
731	418	586	-310.26	-.18	.00	.00	-1.27	-.82
735	586	590	.00	.00	.00	.00	.00	.00
739	586	594	-319.66	-.55	.00	.00	-2.04	-2.56
743	594	598	-257.89	-.68	.00	.00	-1.65	-1.72
747	598	422	-399.06	-.99	.00	.00	-2.55	-3.87
751	598	602	122.18	.13	.00	.00	.78	.43
755	602	604	64.07	.06	.00	.00	.41	.13
759	602	604	51.31	.06	.00	.00	.33	.09
763	594	604	-94.78	-.49	.00	.00	-.60	-.27
901	900	904	1599.86	6.98	.00	.00	10.21	43.62
905	904	908	7.32	.00	.00	.00	.05	.00
909	904	908	7.48	.00	.00	.00	.05	.00
913	904	912	1570.26	25.28	.00	.00	10.02	42.13
917	916	912	-1553.66	-18.18	.00	.00	-9.92	-41.31
918	915	914	.00	.00	.00	.00	.00	.00
919	916	915	1914.79	10.65	.00	.00	12.22	60.84
920	915	919	-1085.21	-11.27	.00	.00	-6.93	-21.26
921	916	918	-377.74	-1.61	.00	.00	-2.41	-3.01
922	917	919	337.69	.57	.00	.00	2.16	2.45
923	918	917	337.69	.42	.00	.00	2.16	2.45
924	923	919	747.51	3.20	.00	.00	4.77	10.66
925	918	920	-715.43	-.88	.00	.00	-4.57	-9.83
927	920	921	.00	.00	.00	.00	.00	.00
929	924	920	732.03	2.92	.00	.00	4.67	10.25
931	924	923	747.51	1.60	.00	.00	4.77	10.66
933	926	924	1496.15	5.39	.00	.00	9.55	38.53
937	928	926	1496.15	8.28	.00	.00	9.55	38.53
941	932	928	1496.15	26.20	.00	.00	9.55	38.53
945	56	932	1496.15	5.08	.00	.00	4.24	5.35
949	900	56	147.83	.07	.00	.00	.42	.07
951	58	56	1348.31	1.10	.00	.00	3.82	4.41
953	936	58	1348.31	.71	.00	.00	3.82	4.41
957	936	940	-379.02	-.51	.00	.00	-1.55	-1.02
961	940	944	-117.21	-.04	.00	.00	-.48	-.12
965	948	944	128.01	.05	.00	.00	.52	.14
969	948	940	272.61	.09	.00	.00	1.11	.56
973	952	948	411.42	.24	.00	.00	1.68	1.19
977	952	936	969.29	.84	.00	.00	2.75	2.39

JUNCTION NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
4	6.80	547.96	468.00	34.65
8	17.40	547.85	456.00	39.80
10	.00	544.95	402.00	61.95
12	28.40	549.53	431.00	51.36
16	10.20	550.66	420.00	56.62
20	7.60	550.65	444.00	46.21
24	12.20	550.64	454.00	41.88
28	12.20	550.64	476.00	32.35
32	12.60	552.62	403.00	64.84
36	12.20	552.62	427.00	54.43

44	17.40	526.88	376.00	65.38
46	.00	526.89	321.00	89.22
48	12.60	526.89	318.00	90.52
52	1.40	526.90	321.00	89.22
56	.00	522.33	433.00	38.71
58	.00	523.44	420.00	44.82
60	8.80	532.28	327.00	88.95
64	8.20	532.27	351.00	78.55
68	15.60	540.63	320.00	95.61
72	25.40	540.15	359.00	78.50
76	.00	540.15	348.00	83.26
80	13.80	540.48	323.00	94.24
84	15.40	540.43	386.00	66.92
88	15.60	540.42	372.00	72.98
92	12.80	540.42	327.00	92.48
96	11.60	540.36	347.00	83.79
100	16.80	540.35	415.00	54.32
104	15.40	540.35	417.00	53.45
108	22.40	540.35	355.00	80.32
112	12.20	540.34	375.00	71.65
114	76.80	531.48	391.00	60.87
116	14.00	538.20	379.00	68.99
120	17.40	542.47	377.00	71.70
122	.00	543.74	385.00	68.79
124	9.60	544.34	401.00	62.11
128	7.60	546.35	422.00	53.88
132	13.00	547.11	456.00	39.48
136	15.00	547.36	446.00	43.92
140	11.40	547.17	446.00	43.84
144	10.20	546.70	429.00	51.00
148	10.80	546.67	415.00	57.06
152	16.60	546.65	390.00	67.88
156	14.40	547.66	423.00	54.02
160	15.40	547.74	393.00	67.05
164	8.00	547.79	426.00	52.78
168	13.80	547.78	396.00	65.77
172	24.20	547.77	380.00	72.70
176	.00	547.85	454.00	40.67
180	11.80	547.88	445.00	44.58
184	15.00	548.03	446.00	44.21
188	10.80	548.15	461.00	37.76
192	11.20	548.16	477.00	30.84
196	9.00	548.97	475.00	32.05
200	11.80	548.68	454.00	41.03
204	21.00	548.02	423.00	54.17
208	12.40	549.45	455.00	40.93
212	29.60	549.45	415.00	58.26
216	12.40	548.75	471.00	33.69
220	13.80	548.78	445.00	44.97
224	20.20	548.81	439.00	47.58
228	19.20	548.84	409.00	60.60
232	7.60	548.00	397.00	65.43
236	8.20	547.84	463.00	36.76
240	11.60	549.46	353.00	85.13
244	10.20	549.80	366.00	79.64
248	14.60	550.06	369.00	78.46
252	21.20	550.36	387.00	70.79
256	24.80	550.75	404.00	63.59
260	24.40	550.77	427.00	53.64
264	7.40	551.38	443.00	46.96
268	20.20	552.07	453.00	42.93
272	25.80	553.33	455.00	42.61
276	22.40	554.04	457.00	42.05

282	13.80	547.84	394.00	66.66
286	11.60	547.84	380.00	72.73
290	17.80	547.86	387.00	69.71
294	49.00	547.87	389.00	68.84
298	14.00	547.86	396.00	65.81
302	14.60	547.87	410.00	59.74
306	10.40	547.89	411.00	59.32
310	25.60	528.13	358.00	73.72
314	15.00	527.82	340.00	81.39
318	11.00	527.75	344.00	79.63
322	19.80	527.72	354.00	75.28
326	27.80	527.70	359.00	73.10
330	19.60	527.74	348.00	77.89
334	19.80	527.74	346.00	78.75
338	32.40	526.64	352.00	75.68
342	19.60	526.63	358.00	73.07
346	35.80	526.62	382.00	62.67
350	29.00	526.46	344.00	79.07
354	192.20	526.10	323.00	88.01
358	30.40	526.45	372.00	66.93
362	.00	549.45	364.00	80.36
366	14.60	553.90	437.00	50.66
370	21.80	553.84	406.00	64.07
374	7.00	553.84	372.00	78.80
378	12.80	553.84	377.00	76.63
382	26.60	553.79	436.00	51.04
386	31.00	553.66	380.00	75.25
390	43.80	553.63	367.00	80.87
394	7.00	553.62	350.00	88.23
398	2.40	553.61	351.00	87.80
402	39.20	553.54	379.00	75.63
406	12.60	553.53	365.00	81.70
410	13.80	553.53	357.00	85.16
414	11.00	559.11	464.00	41.21
416	15.40	569.50	434.00	58.72
418	6.80	570.81	421.00	64.92
422	8.80	573.21	442.00	56.86
426	18.80	576.92	410.00	72.33
428	88.80	581.30	410.00	74.23
430	87.20	586.59	397.00	82.15
434	29.80	590.62	363.00	98.64
438	.00	596.72	315.00	122.08
442	40.20	585.30	375.00	91.13
446	18.40	583.80	367.00	93.95
450	54.00	582.90	383.00	86.62
454	49.80	582.39	348.00	101.57
458	5.60	580.13	366.00	92.79
462	10.80	579.83	373.00	89.63
466	15.20	579.59	382.00	85.62
468	.00	579.48	385.00	84.27
470	24.60	579.36	387.00	83.35
474	21.80	579.15	389.00	82.40
476	.00	578.98	381.00	85.79
478	42.20	578.64	332.00	106.88
482	27.40	579.59	389.00	82.59
486	20.60	561.02	459.00	44.21
490	16.80	563.41	450.00	49.14
494	12.80	564.76	431.00	57.96
498	18.60	565.76	424.00	61.43
502	8.80	566.26	399.00	72.48
506	23.80	566.91	425.00	61.49
510	19.20	561.09	456.00	45.54
514	24.40	562.33	415.00	63.84

518	18.00	562.94	409.00	66.71
522	12.80	563.66	407.00	67.88
526	13.20	565.73	399.00	72.25
530	15.00	568.51	397.00	74.32
534	.00	569.95	399.00	74.08
538	.00	570.11	415.00	67.21
542	.00	570.37	393.00	76.86
546	11.60	570.44	386.00	79.93
550	12.00	570.56	381.00	82.14
554	8.80	570.69	382.00	81.77
558	.00	571.98	422.00	64.99
562	.00	572.38	435.00	59.53
566	12.00	570.21	392.00	77.22
570	12.80	570.65	383.00	81.32
574	11.00	570.94	384.00	81.01
578	11.40	571.11	386.00	80.21
582	11.40	571.32	387.00	79.87
586	9.40	570.99	408.00	70.63
590	.00	570.99	375.00	84.93
594	33.00	571.54	417.00	66.97
598	19.00	572.22	428.00	62.50
602	6.80	572.09	420.00	65.91
604	20.60	572.03	402.00	73.68
900	.00	522.40	345.00	76.87
904	14.80	515.42	346.00	73.42
908	14.80	515.42	339.00	76.45
912	16.60	490.14	366.00	53.80
914	.00	461.32	388.00	31.77
915	3000.00	461.32	389.00	31.34
916	16.60	471.97	391.00	35.09
917	.00	473.16	395.00	33.87
918	.00	473.58	397.00	33.18
919	.00	472.59	393.00	34.49
920	16.60	474.46	398.00	33.13
921	.00	474.46	396.00	34.00
923	.00	475.78	396.00	34.57
924	16.60	477.38	400.00	33.53
926	.00	482.77	406.00	33.27
928	.00	491.06	412.00	34.26
932	.00	517.25	455.00	26.98
936	.00	524.14	420.00	45.13
940	10.80	524.65	421.00	44.92
944	10.80	524.69	417.00	46.67
948	10.80	524.74	422.00	44.52
952	.00	524.98	416.00	47.22
	MAXIMUM PRESSURES			
438	.00	596.72	315.00	122.08
478	42.20	578.64	332.00	106.88
454	49.80	582.39	348.00	101.57
434	29.80	590.62	363.00	98.64
68	15.60	540.63	320.00	95.61
80	13.80	540.48	323.00	94.24
446	18.40	583.80	367.00	93.95
458	5.60	580.13	366.00	92.79
92	12.80	540.42	327.00	92.48
442	40.20	585.30	375.00	91.13
	MINIMUM PRESSURES			
932	.00	517.25	455.00	26.98
192	11.20	548.16	477.00	30.84
915	3000.00	461.32	389.00	31.34
914	.00	461.32	388.00	31.77

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      196              9.00      548.97      475.00       32.05
       28             12.20      550.64      476.00       32.35
      920             16.60      474.46      398.00       33.13
      918               .00      473.58      397.00       33.18
      926               .00      482.77      406.00       33.27
      924             16.60      477.38      400.00       33.53

THE NET SYSTEM DEMAND =   5950.40

SUMMARY OF INFLOWS(+) AND OUTFLOWS(-) FROM FIXED GRADE NODES

   PIPE NUMBER    FLOWRATE
        4         388.54
        6        1171.11
       10        2461.42
       12        1929.32

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES =   5950.40
THE NET FLOW OUT OF THE SYSTEM INTO FIXED GRADE NODES =       .00



A SUMMARY OF CONDITIONS SPECIFIED FOR THE NEXT SIMULATION FOLLOWS


THE DEMANDS ARE CHANGED FROM ORIGINAL VALUES BY A FACTOR =   2.00

THE FOLLOWING SPECIFIC DEMAND CHANGES ARE MADE :
JUNCTION NUMBER       DEMAND
      918           3000.00


THE RESULTS ARE OBTAINED AFTER  3 TRIALS WITH AN ACCURACY =  .00159
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Melrose+Oceanside Project in the City of Oceanside
Existing 626 Pressure Zone System Plus Melrose+Oceanside Project
Maximum Day Demand Plus 3000 gpm Fire Flow at Node 918 in M+O Multi-Fam Res

PIPE NO.	NODE NOS.		FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
4	0	32	388.54	5.38	.00	.00	9.92	107.58
5	4	8	738.26	.11	.00	.00	1.54	.68
6	0	438	1171.12	17.28	.00	.00	13.29	115.23
9	8	12	-531.26	-1.68	.00	.00	-2.17	-2.22
10	0	32	2461.37	.38	.00	.00	10.05	37.89
12	0	438	1929.38	1.28	.00	.00	5.47	8.56
13	12	16	-595.80	-1.13	.00	.00	-2.43	-2.74
17	16	20	32.00	.01	.00	.00	.20	.04
21	20	24	12.20	.00	.00	.00	.08	.01
25	20	28	12.20	.00	.00	.00	.08	.01
29	16	32	-638.00	-1.96	.00	.00	-2.61	-3.11
33	32	36	12.20	.00	.00	.00	.08	.01
41	46	44	17.40	.01	.00	.00	.11	.01
43	48	46	17.40	.00	.00	.00	.11	.01
45	48	52	-30.00	.00	.00	.00	-.12	-.01
49	52	900	1746.30	4.49	.00	.00	4.95	7.12
53	114	952	1382.10	6.51	.00	.00	3.92	4.62
57	116	114	1936.90	6.73	.00	.00	5.49	8.63
61	116	72	-217.64	-1.95	.00	.00	-1.39	-1.26
63	72	76	.00	.00	.00	.00	.00	.00
67	68	72	243.04	.48	.00	.00	1.55	1.54
71	68	60	1794.70	8.34	.00	.00	7.33	21.11
75	60	52	1777.70	5.37	.00	.00	7.26	20.74
79	60	64	8.20	.00	.00	.00	.05	.00
83	32	68	2187.11	11.99	.00	.00	6.20	10.80
87	80	68	-133.77	-.15	.00	.00	-.85	-.51
91	80	84	41.82	.05	.00	.00	.27	.06
95	88	84	-26.42	-.01	.00	.00	-.17	-.03
99	92	88	-10.82	.00	.00	.00	-.07	.00
103	92	80	-78.15	-.06	.00	.00	-.50	-.19
107	96	92	-76.17	-.05	.00	.00	-.49	-.18
111	96	100	24.41	.02	.00	.00	.16	.02
115	104	100	-7.61	.00	.00	.00	-.05	.00
119	108	104	7.79	.00	.00	.00	.05	.00
123	108	96	-40.16	-.02	.00	.00	-.26	-.05
127	112	108	-9.97	.00	.00	.00	-.06	.00
131	112	116	1733.26	2.15	.00	.00	4.92	7.02
135	120	112	1735.49	2.13	.00	.00	4.92	7.04
137	10	122	1252.11	1.21	.00	.00	3.55	3.85
139	8	10	1252.11	2.90	.00	.00	3.55	3.85
141	122	120	1252.11	1.27	.00	.00	3.55	3.85
143	120	124	-500.78	-1.87	.00	.00	-3.20	-5.89
147	124	128	-510.38	-2.01	.00	.00	-3.26	-6.10
151	132	128	299.68	.76	.00	.00	1.91	2.27
155	192	132	235.09	1.05	.00	.00	1.50	1.45
159	4	192	-745.06	-.20	.00	.00	-1.55	-.69
163	192	188	26.24	.01	.00	.00	.17	.02
167	188	136	146.33	.79	.00	.00	1.66	2.45
171	136	132	77.59	.25	.00	.00	.88	.76
175	136	140	53.74	.19	.00	.00	.61	.38
179	144	140	-255.90	-.47	.00	.00	-1.63	-1.70
183	128	144	-218.30	-.35	.00	.00	-1.39	-1.26
187	144	148	27.40	.03	.00	.00	.31	.11
191	148	152	16.60	.01	.00	.00	.19	.04
195	140	156	-213.56	-.50	.00	.00	-1.36	-1.21
199	156	160	-63.03	-.08	.00	.00	-.40	-.13

203	160	164	-78.43	-.06	.00	.00	-.50	-.19
207	164	168	38.00	.01	.00	.00	.24	.05
211	168	172	24.20	.01	.00	.00	.15	.02
215	176	164	58.30	.06	.00	.00	.37	.11
219	180	176	58.30	.03	.00	.00	.37	.11
223	180	156	164.93	.22	.00	.00	1.05	.75
227	180	204	-142.40	-.14	.00	.00	-.91	-.57
231	184	180	92.62	.15	.00	.00	.59	.26
235	188	184	107.62	.12	.00	.00	.69	.34
239	188	200	-238.51	-.53	.00	.00	-1.52	-1.49
243	196	200	165.52	.29	.00	.00	1.06	.76
247	192	196	-1017.58	-.81	.00	.00	-2.12	-1.24
251	196	208	-1192.10	-.49	.00	.00	-2.48	-1.66
253	208	212	-6.54	.00	.00	.00	-.04	.00
257	212	12	-36.14	-.08	.00	.00	-.23	-.05
261	208	216	219.57	.70	.00	.00	1.40	1.28
265	200	216	-84.80	-.07	.00	.00	-.54	-.22
269	216	204	163.40	.73	.00	.00	1.04	.74
273	208	260	-1417.53	-1.32	.00	.00	-2.95	-2.28
277	260	268	-195.41	-1.29	.00	.00	-1.25	-1.03
281	260	264	-1331.63	-.60	.00	.00	-2.78	-2.03
285	264	268	-1339.03	-.69	.00	.00	-2.79	-2.06
289	268	276	-1554.64	-1.97	.00	.00	-3.24	-2.71
293	276	272	330.45	.71	.00	.00	2.11	2.73
297	256	272	-304.65	-2.58	.00	.00	-1.94	-2.34
301	260	256	85.11	.03	.00	.00	.35	.07
305	256	252	364.96	.39	.00	.00	1.49	1.11
309	252	248	343.76	.29	.00	.00	1.40	.99
313	248	244	329.16	.27	.00	.00	1.34	.91
317	244	240	318.96	.33	.00	.00	1.30	.86
321	240	228	307.36	.62	.00	.00	1.96	2.38
325	228	232	213.13	.85	.00	.00	1.36	1.21
329	232	306	117.48	.11	.00	.00	.75	.40
333	236	164	66.13	.04	.00	.00	.42	.14
337	224	228	-75.03	-.03	.00	.00	-.48	-.17
341	220	224	-54.83	-.03	.00	.00	-.35	-.10
345	216	220	-41.03	-.03	.00	.00	-.26	-.06
349	236	282	-2.12	.00	.00	.00	-.01	.00
353	282	286	-15.92	.00	.00	.00	-.10	-.01
357	286	290	-27.52	-.02	.00	.00	-.18	-.03
361	290	294	-39.05	-.01	.00	.00	-.25	-.05
365	294	232	-88.05	-.13	.00	.00	-.36	-.08
369	290	298	-6.26	.00	.00	.00	-.04	.00
373	298	302	-20.26	-.01	.00	.00	-.13	-.02
377	302	306	-34.86	-.02	.00	.00	-.22	-.04
381	306	236	72.21	.05	.00	.00	.46	.16
385	310	114	-478.00	-3.35	.00	.00	-1.95	-1.82
389	310	314	162.29	.30	.00	.00	.66	.25
393	314	318	147.29	.07	.00	.00	.60	.21
397	318	322	58.46	.03	.00	.00	.24	.04
401	322	326	77.09	.02	.00	.00	.31	.06
405	322	330	-38.42	-.02	.00	.00	-.16	-.02
409	318	330	77.82	.01	.00	.00	.32	.06
413	330	334	15.19	.00	.00	.00	.06	.00
417	330	334	4.61	.00	.00	.00	.03	.00
419	310	326	290.11	.43	.00	.00	1.19	.72
423	338	326	-339.40	-1.06	.00	.00	-1.39	-.97
427	338	342	55.40	.01	.00	.00	.23	.03
431	342	346	27.39	.00	.00	.00	.11	.01
435	342	346	8.41	.00	.00	.00	.05	.00
439	338	350	251.60	.17	.00	.00	1.03	.55
443	350	354	192.20	.37	.00	.00	.79	.34
447	350	358	30.40	.01	.00	.00	.12	.01

451	212	362	.00	.00	.00	.00	.00	.00
455	276	366	232.60	.14	.00	.00	.95	.48
459	366	370	41.60	.06	.00	.00	.27	.06
463	370	374	7.00	.00	.00	.00	.04	.00
467	370	378	12.80	.00	.00	.00	.08	.01
471	366	382	176.40	.11	.00	.00	.72	.29
475	382	386	58.69	.13	.00	.00	.37	.11
479	386	390	27.69	.02	.00	.00	.18	.03
483	382	390	91.11	.15	.00	.00	.37	.08
487	390	394	75.00	.02	.00	.00	.31	.06
491	394	398	68.00	.01	.00	.00	.28	.05
495	398	402	65.60	.07	.00	.00	.27	.05
499	402	406	12.60	.00	.00	.00	.05	.00
503	402	410	13.80	.01	.00	.00	.09	.01
507	276	414	-2140.09	-5.07	.00	.00	-4.46	-4.90
511	414	416	-839.77	-10.39	.00	.00	-1.75	-.87
513	416	418	-1591.33	-1.31	.00	.00	-3.32	-2.83
515	418	422	-1718.37	-2.39	.00	.00	-3.58	-3.26
519	422	426	-2565.89	-3.71	.00	.00	-5.35	-6.85
523	426	428	-2221.80	-4.38	.00	.00	-4.63	-5.25
525	428	430	-1968.13	-5.29	.00	.00	-4.10	-4.19
527	430	434	-2667.89	-4.04	.00	.00	-5.56	-7.37
531	434	438	-3100.49	-6.09	.00	.00	-6.46	-9.73
535	434	442	402.81	5.32	.00	.00	2.57	3.93
539	442	446	362.61	1.50	.00	.00	2.31	3.24
543	430	446	612.56	2.79	.00	.00	2.50	2.88
547	446	450	507.50	.90	.00	.00	2.07	2.04
551	450	428	342.47	1.60	.00	.00	1.40	.98
555	446	454	449.26	1.41	.00	.00	1.84	1.62
559	450	454	111.03	.51	.00	.00	.71	.36
563	454	458	510.49	2.26	.00	.00	2.09	2.06
567	458	462	504.89	.30	.00	.00	1.43	.72
571	462	466	384.62	.24	.00	.00	1.09	.43
573	466	468	372.98	.11	.00	.00	1.06	.41
575	468	470	372.98	.12	.00	.00	1.06	.41
579	470	474	426.89	.21	.00	.00	1.21	.52
581	474	476	405.09	.17	.00	.00	1.15	.48
583	476	478	405.09	.34	.00	.00	1.15	.48
587	478	426	362.89	1.72	.00	.00	1.48	1.09
591	470	482	-78.51	-.24	.00	.00	-.50	-.19
595	466	482	-3.56	.00	.00	.00	-.02	.00
599	462	482	109.47	.24	.00	.00	.70	.35
603	414	486	-634.75	-1.91	.00	.00	-4.05	-9.13
607	486	490	-655.35	-2.39	.00	.00	-4.18	-9.69
611	490	494	-312.52	-1.35	.00	.00	-1.99	-2.46
615	494	498	-325.32	-1.00	.00	.00	-2.08	-2.65
619	498	502	-147.47	-.50	.00	.00	-.94	-.61
623	502	506	-156.27	-.65	.00	.00	-1.00	-.68
627	506	498	196.45	1.14	.00	.00	1.25	1.04
629	506	416	-736.15	-2.60	.00	.00	-4.70	-12.01
631	506	490	359.63	3.50	.00	.00	2.30	3.19
635	414	510	-676.57	-1.98	.00	.00	-4.32	-10.28
639	510	514	-283.38	-1.24	.00	.00	-1.81	-2.05
643	514	518	-307.78	-.61	.00	.00	-1.96	-2.39
647	518	522	-325.78	-.72	.00	.00	-2.08	-2.65
651	522	526	-338.58	-2.07	.00	.00	-2.16	-2.85
655	526	510	412.39	4.64	.00	.00	2.63	4.11
659	526	530	-764.17	-2.78	.00	.00	-4.88	-12.87
663	530	418	-430.52	-2.30	.00	.00	-2.75	-4.45
667	530	534	-348.65	-1.44	.00	.00	-2.23	-3.01
671	534	538	-109.37	-.15	.00	.00	-.70	-.35
675	538	542	-109.37	-.27	.00	.00	-.70	-.35
679	542	546	-109.37	-.07	.00	.00	-.70	-.35

683	546	550	-120.97	-.12	.00	.00	-.77	-.42
687	550	554	-132.97	-.13	.00	.00	-.85	-.50
691	554	558	-214.44	-1.29	.00	.00	-1.37	-1.22
695	558	562	-214.44	-.41	.00	.00	-1.37	-1.22
699	562	422	-439.65	-.82	.00	.00	-2.81	-4.62
703	534	566	-239.28	-.25	.00	.00	-1.53	-1.50
707	566	570	-251.28	-.44	.00	.00	-1.60	-1.64
711	570	554	-72.67	-.04	.00	.00	-.46	-.16
715	570	574	-191.41	-.29	.00	.00	-1.22	-.99
719	574	578	-202.41	-.17	.00	.00	-1.29	-1.10
723	578	582	-213.81	-.21	.00	.00	-1.36	-1.22
727	582	562	-225.21	-1.07	.00	.00	-1.44	-1.34
731	418	586	-310.27	-.18	.00	.00	-1.27	-.82
735	586	590	.00	.00	.00	.00	.00	.00
739	586	594	-319.67	-.55	.00	.00	-2.04	-2.56
743	594	598	-257.89	-.68	.00	.00	-1.65	-1.72
747	598	422	-399.07	-.99	.00	.00	-2.55	-3.87
751	598	602	122.18	.13	.00	.00	.78	.43
755	602	604	64.07	.06	.00	.00	.41	.13
759	602	604	51.31	.06	.00	.00	.33	.09
763	594	604	-94.78	-.49	.00	.00	-.60	-.27
901	900	904	1539.96	6.50	.00	.00	9.83	40.64
905	904	908	7.32	.00	.00	.00	.05	.00
909	904	908	7.48	.00	.00	.00	.05	.00
913	904	912	1510.36	23.52	.00	.00	9.64	39.21
917	916	912	-1493.76	-16.90	.00	.00	-9.53	-38.41
918	915	914	.00	.00	.00	.00	.00	.00
919	916	915	482.31	.83	.00	.00	3.08	4.73
920	915	919	482.31	2.51	.00	.00	3.08	4.73
921	916	918	994.85	9.68	.00	.00	6.35	18.09
922	917	919	-920.75	-3.68	.00	.00	-5.88	-15.68
923	918	917	-920.75	-2.67	.00	.00	-5.88	-15.68
924	923	919	438.44	1.19	.00	.00	2.80	3.97
925	918	920	-1084.40	-1.91	.00	.00	-6.92	-21.23
927	920	921	.00	.00	.00	.00	.00	.00
929	924	920	1101.00	6.22	.00	.00	7.03	21.83
931	924	923	438.44	.60	.00	.00	2.80	3.97
933	926	924	1556.04	5.80	.00	.00	9.93	41.43
937	928	926	1556.04	8.91	.00	.00	9.93	41.43
941	932	928	1556.04	28.17	.00	.00	9.93	41.43
945	56	932	1556.04	5.46	.00	.00	4.41	5.75
949	900	56	206.34	.13	.00	.00	.59	.14
951	58	56	1349.70	1.10	.00	.00	3.83	4.42
953	936	58	1349.70	.71	.00	.00	3.83	4.42
957	936	940	-379.43	-.51	.00	.00	-1.55	-1.02
961	940	944	-117.34	-.04	.00	.00	-.48	-.12
965	948	944	128.14	.05	.00	.00	.52	.14
969	948	940	272.89	.09	.00	.00	1.11	.56
973	952	948	411.83	.24	.00	.00	1.68	1.19
977	952	936	970.28	.84	.00	.00	2.75	2.40

JUNCTION NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
4	6.80	547.96	468.00	34.65
8	17.40	547.84	456.00	39.80
10	.00	544.95	402.00	61.94
12	28.40	549.53	431.00	51.36
16	10.20	550.66	420.00	56.62
20	7.60	550.64	444.00	46.21
24	12.20	550.64	454.00	41.88
28	12.20	550.64	476.00	32.34
32	12.60	552.62	403.00	64.84
36	12.20	552.62	427.00	54.43

44	17.40	526.90	376.00	65.39
46	.00	526.91	321.00	89.23
48	12.60	526.92	318.00	90.53
52	1.40	526.92	321.00	89.23
56	.00	522.30	433.00	38.70
58	.00	523.41	420.00	44.81
60	8.80	532.29	327.00	88.96
64	8.20	532.29	351.00	78.56
68	15.60	540.63	320.00	95.61
72	25.40	540.15	359.00	78.50
76	.00	540.15	348.00	83.26
80	13.80	540.48	323.00	94.24
84	15.40	540.43	386.00	66.92
88	15.60	540.42	372.00	72.98
92	12.80	540.42	327.00	92.48
96	11.60	540.36	347.00	83.79
100	16.80	540.34	415.00	54.32
104	15.40	540.34	417.00	53.45
108	22.40	540.35	355.00	80.32
112	12.20	540.34	375.00	71.65
114	76.80	531.46	391.00	60.87
116	14.00	538.19	379.00	68.98
120	17.40	542.47	377.00	71.70
122	.00	543.74	385.00	68.79
124	9.60	544.33	401.00	62.11
128	7.60	546.35	422.00	53.88
132	13.00	547.11	456.00	39.48
136	15.00	547.36	446.00	43.92
140	11.40	547.16	446.00	43.84
144	10.20	546.70	429.00	51.00
148	10.80	546.66	415.00	57.05
152	16.60	546.65	390.00	67.88
156	14.40	547.66	423.00	54.02
160	15.40	547.74	393.00	67.05
164	8.00	547.79	426.00	52.78
168	13.80	547.78	396.00	65.77
172	24.20	547.77	380.00	72.70
176	.00	547.85	454.00	40.67
180	11.80	547.88	445.00	44.58
184	15.00	548.03	446.00	44.21
188	10.80	548.15	461.00	37.76
192	11.20	548.16	477.00	30.83
196	9.00	548.97	475.00	32.05
200	11.80	548.68	454.00	41.03
204	21.00	548.02	423.00	54.17
208	12.40	549.45	455.00	40.93
212	29.60	549.45	415.00	58.26
216	12.40	548.75	471.00	33.69
220	13.80	548.77	445.00	44.97
224	20.20	548.81	439.00	47.58
228	19.20	548.84	409.00	60.60
232	7.60	548.00	397.00	65.43
236	8.20	547.84	463.00	36.76
240	11.60	549.46	353.00	85.13
244	10.20	549.79	366.00	79.64
248	14.60	550.06	369.00	78.46
252	21.20	550.35	387.00	70.79
256	24.80	550.75	404.00	63.59
260	24.40	550.77	427.00	53.64
264	7.40	551.38	443.00	46.96
268	20.20	552.07	453.00	42.93
272	25.80	553.32	455.00	42.61
276	22.40	554.04	457.00	42.05

282	13.80	547.84	394.00	66.66
286	11.60	547.84	380.00	72.73
290	17.80	547.86	387.00	69.71
294	49.00	547.87	389.00	68.84
298	14.00	547.86	396.00	65.81
302	14.60	547.87	410.00	59.74
306	10.40	547.89	411.00	59.32
310	25.60	528.11	358.00	73.72
314	15.00	527.81	340.00	81.38
318	11.00	527.74	344.00	79.62
322	19.80	527.71	354.00	75.27
326	27.80	527.68	359.00	73.10
330	19.60	527.73	348.00	77.88
334	19.80	527.72	346.00	78.75
338	32.40	526.62	352.00	75.67
342	19.60	526.61	358.00	73.06
346	35.80	526.61	382.00	62.66
350	29.00	526.45	344.00	79.06
354	192.20	526.08	323.00	88.00
358	30.40	526.44	372.00	66.92
362	.00	549.45	364.00	80.36
366	14.60	553.90	437.00	50.66
370	21.80	553.84	406.00	64.06
374	7.00	553.84	372.00	78.80
378	12.80	553.84	377.00	76.63
382	26.60	553.79	436.00	51.04
386	31.00	553.66	380.00	75.25
390	43.80	553.63	367.00	80.87
394	7.00	553.62	350.00	88.23
398	2.40	553.61	351.00	87.80
402	39.20	553.53	379.00	75.63
406	12.60	553.53	365.00	81.70
410	13.80	553.53	357.00	85.16
414	11.00	559.11	464.00	41.21
416	15.40	569.50	434.00	58.72
418	6.80	570.81	421.00	64.92
422	8.80	573.21	442.00	56.86
426	18.80	576.92	410.00	72.33
428	88.80	581.30	410.00	74.23
430	87.20	586.58	397.00	82.15
434	29.80	590.62	363.00	98.64
438	.00	596.72	315.00	122.08
442	40.20	585.30	375.00	91.13
446	18.40	583.80	367.00	93.95
450	54.00	582.90	383.00	86.62
454	49.80	582.39	348.00	101.57
458	5.60	580.13	366.00	92.79
462	10.80	579.83	373.00	89.63
466	15.20	579.59	382.00	85.62
468	.00	579.48	385.00	84.27
470	24.60	579.36	387.00	83.35
474	21.80	579.15	389.00	82.40
476	.00	578.98	381.00	85.79
478	42.20	578.64	332.00	106.88
482	27.40	579.59	389.00	82.59
486	20.60	561.01	459.00	44.21
490	16.80	563.41	450.00	49.14
494	12.80	564.76	431.00	57.96
498	18.60	565.76	424.00	61.43
502	8.80	566.26	399.00	72.48
506	23.80	566.90	425.00	61.49
510	19.20	561.09	456.00	45.54
514	24.40	562.33	415.00	63.84

518	18.00	562.94	409.00	66.71
522	12.80	563.65	407.00	67.88
526	13.20	565.73	399.00	72.25
530	15.00	568.51	397.00	74.32
534	.00	569.95	399.00	74.08
538	.00	570.10	415.00	67.21
542	.00	570.37	393.00	76.86
546	11.60	570.44	386.00	79.92
550	12.00	570.56	381.00	82.14
554	8.80	570.69	382.00	81.77
558	.00	571.98	422.00	64.99
562	.00	572.38	435.00	59.53
566	12.00	570.20	392.00	77.22
570	12.80	570.65	383.00	81.31
574	11.00	570.94	384.00	81.01
578	11.40	571.11	386.00	80.21
582	11.40	571.32	387.00	79.87
586	9.40	570.99	408.00	70.63
590	.00	570.99	375.00	84.93
594	33.00	571.54	417.00	66.97
598	19.00	572.22	428.00	62.50
602	6.80	572.09	420.00	65.90
604	20.60	572.03	402.00	73.68
900	.00	522.43	345.00	76.89
904	14.80	515.93	346.00	73.64
908	14.80	515.93	339.00	76.67
912	16.60	492.41	366.00	54.78
914	.00	474.68	388.00	37.56
915	.00	474.68	389.00	37.13
916	16.60	475.50	391.00	36.62
917	.00	468.49	395.00	31.85
918	3000.00	465.82	397.00	29.82
919	.00	472.17	393.00	34.31
920	16.60	467.73	398.00	30.22
921	.00	467.73	396.00	31.09
923	.00	473.36	396.00	33.52
924	16.60	473.96	400.00	32.05
926	.00	479.76	406.00	31.96
928	.00	488.67	412.00	33.22
932	.00	516.84	455.00	26.80
936	.00	524.11	420.00	45.12
940	10.80	524.63	421.00	44.90
944	10.80	524.67	417.00	46.66
948	10.80	524.72	422.00	44.51
952	.00	524.95	416.00	47.21

MAXIMUM PRESSURES

438	.00	596.72	315.00	122.08
478	42.20	578.64	332.00	106.88
454	49.80	582.39	348.00	101.57
434	29.80	590.62	363.00	98.64
68	15.60	540.63	320.00	95.61
80	13.80	540.48	323.00	94.24
446	18.40	583.80	367.00	93.95
458	5.60	580.13	366.00	92.79
92	12.80	540.42	327.00	92.48
442	40.20	585.30	375.00	91.13

MINIMUM PRESSURES

932	.00	516.84	455.00	26.80
918	3000.00	465.82	397.00	29.82
920	16.60	467.73	398.00	30.22
192	11.20	548.16	477.00	30.83

921	.00	467.73	396.00	31.09
917	.00	468.49	395.00	31.85
926	.00	479.76	406.00	31.96
924	16.60	473.96	400.00	32.05
196	9.00	548.97	475.00	32.05
28	12.20	550.64	476.00	32.34

THE NET SYSTEM DEMAND = 5950.40

SUMMARY OF INFLOWS(+) AND OUTFLOWS(-) FROM FIXED GRADE NODES

PIPE NUMBER	FLOWRATE
4	388.54
6	1171.12
10	2461.37
12	1929.38

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES = 5950.40
THE NET FLOW OUT OF THE SYSTEM INTO FIXED GRADE NODES = .00

A SUMMARY OF CONDITIONS SPECIFIED FOR THE NEXT SIMULATION FOLLOWS

THE DEMANDS ARE CHANGED FROM ORIGINAL VALUES BY A FACTOR = 2.00

THE FOLLOWING SPECIFIC DEMAND CHANGES ARE MADE :

JUNCTION NUMBER	DEMAND
940	4010.80

THE RESULTS ARE OBTAINED AFTER 5 TRIALS WITH AN ACCURACY = .00079

Melrose+Oceanside Project in the City of Oceanside
Existing 626 Pressure Zone System Plus Melrose+Oceanside Project
Maximum Day Demand Plus 4000 gpm Fire Flow at Node 940 in M+O Office Area

PIPE NO.	NODE NOS.		FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
4	0	32	399.46	5.66	.00	.00	10.20	113.24
5	4	8	837.77	.14	.00	.00	1.75	.86
6	0	438	1176.57	17.43	.00	.00	13.35	116.23
9	8	12	-735.51	-3.08	.00	.00	-3.00	-4.05
10	0	32	3326.98	.66	.00	.00	13.59	66.22
12	0	438	2047.39	1.43	.00	.00	5.81	9.56
13	12	16	-901.87	-2.43	.00	.00	-3.68	-5.90
17	16	20	32.00	.01	.00	.00	.20	.04
21	20	24	12.20	.00	.00	.00	.08	.01
25	20	28	12.20	.00	.00	.00	.08	.01
29	16	32	-944.07	-4.06	.00	.00	-3.86	-6.42
33	32	36	12.20	.00	.00	.00	.08	.01
41	46	44	17.40	.01	.00	.00	.11	.01
43	48	46	17.40	.00	.00	.00	.11	.01
45	48	52	-30.00	.00	.00	.00	-.12	-.01
49	52	900	2005.04	5.79	.00	.00	5.69	9.20
53	114	952	2123.36	14.42	.00	.00	6.02	10.23
57	116	114	2678.16	12.26	.00	.00	7.60	15.72
61	116	72	-360.47	-4.98	.00	.00	-2.30	-3.20
63	72	76	.00	.00	.00	.00	.00	.00
67	68	72	385.87	1.13	.00	.00	2.46	3.63
71	68	60	2053.44	10.70	.00	.00	8.39	27.09
75	60	52	2036.44	6.91	.00	.00	8.32	26.68
79	60	64	8.20	.00	.00	.00	.05	.00
83	32	68	2757.57	18.42	.00	.00	7.82	16.60
87	80	68	-302.66	-.69	.00	.00	-1.93	-2.32
91	80	84	89.31	.20	.00	.00	.57	.24
95	88	84	-73.91	-.05	.00	.00	-.47	-.17
99	92	88	-58.31	-.09	.00	.00	-.37	-.11
103	92	80	-199.55	-.34	.00	.00	-1.27	-1.07
107	96	92	-245.06	-.47	.00	.00	-1.56	-1.57
111	96	100	73.50	.15	.00	.00	.47	.17
115	104	100	-56.70	-.03	.00	.00	-.36	-.10
119	108	104	-41.30	-.05	.00	.00	-.26	-.06
123	108	96	-159.96	-.23	.00	.00	-1.02	-.71
127	112	108	-178.86	-.66	.00	.00	-1.14	-.87
131	112	116	2331.69	3.72	.00	.00	6.61	12.16
135	120	112	2165.03	3.20	.00	.00	6.14	10.60
137	10	122	1555.88	1.81	.00	.00	4.41	5.75
139	8	10	1555.88	4.33	.00	.00	4.41	5.75
141	122	120	1555.88	1.90	.00	.00	4.41	5.75
143	120	124	-626.55	-2.83	.00	.00	-4.00	-8.91
147	124	128	-636.15	-3.03	.00	.00	-4.06	-9.17
151	132	128	366.62	1.11	.00	.00	2.34	3.30
155	192	132	282.63	1.47	.00	.00	1.80	2.04
159	4	192	-844.57	-.25	.00	.00	-1.76	-.88
163	192	188	25.86	.01	.00	.00	.17	.02
167	188	136	174.07	1.09	.00	.00	1.98	3.38
171	136	132	96.99	.37	.00	.00	1.10	1.14
175	136	140	62.08	.25	.00	.00	.70	.50
179	144	140	-314.72	-.68	.00	.00	-2.01	-2.49
183	128	144	-277.12	-.55	.00	.00	-1.77	-1.97
187	144	148	27.40	.03	.00	.00	.31	.11
191	148	152	16.60	.01	.00	.00	.19	.04
195	140	156	-264.05	-.73	.00	.00	-1.69	-1.80
199	156	160	-83.46	-.13	.00	.00	-.53	-.21

203	160	164	-98.86	-.09	.00	.00	-.63	-.29
207	164	168	38.00	.01	.00	.00	.24	.05
211	168	172	24.20	.01	.00	.00	.15	.02
215	176	164	56.90	.05	.00	.00	.36	.10
219	180	176	56.90	.03	.00	.00	.36	.10
223	180	156	194.99	.30	.00	.00	1.24	1.03
227	180	204	-163.30	-.18	.00	.00	-1.04	-.74
231	184	180	100.39	.18	.00	.00	.64	.30
235	188	184	115.39	.13	.00	.00	.74	.39
239	188	200	-274.40	-.69	.00	.00	-1.75	-1.93
243	196	200	186.50	.36	.00	.00	1.19	.94
247	192	196	-1164.26	-1.04	.00	.00	-2.43	-1.59
251	196	208	-1359.76	-.62	.00	.00	-2.83	-2.11
253	208	212	-108.36	-.12	.00	.00	-.69	-.35
257	212	12	-137.96	-.90	.00	.00	-.88	-.54
261	208	216	248.41	.88	.00	.00	1.59	1.61
265	200	216	-99.70	-.10	.00	.00	-.64	-.30
269	216	204	184.30	.92	.00	.00	1.18	.92
273	208	260	-1512.21	-1.49	.00	.00	-3.15	-2.57
277	260	268	-208.53	-1.46	.00	.00	-1.33	-1.16
281	260	264	-1421.29	-.68	.00	.00	-2.96	-2.30
285	264	268	-1428.69	-.78	.00	.00	-2.98	-2.32
289	268	276	-1657.42	-2.22	.00	.00	-3.45	-3.05
293	276	272	351.14	.80	.00	.00	2.24	3.05
297	256	272	-325.34	-2.91	.00	.00	-2.08	-2.65
301	260	256	93.20	.03	.00	.00	.38	.09
305	256	252	393.75	.45	.00	.00	1.61	1.27
309	252	248	372.55	.34	.00	.00	1.52	1.15
313	248	244	357.95	.31	.00	.00	1.46	1.07
317	244	240	347.75	.39	.00	.00	1.42	1.01
321	240	228	336.15	.73	.00	.00	2.15	2.81
325	228	232	234.96	1.01	.00	.00	1.50	1.45
329	232	306	131.43	.13	.00	.00	.84	.49
333	236	164	87.96	.08	.00	.00	.56	.23
337	224	228	-81.99	-.04	.00	.00	-.52	-.21
341	220	224	-61.79	-.04	.00	.00	-.39	-.12
345	216	220	-47.99	-.03	.00	.00	-.31	-.08
349	236	282	-10.82	.00	.00	.00	-.07	.00
353	282	286	-24.62	-.01	.00	.00	-.16	-.02
357	286	290	-36.22	-.03	.00	.00	-.23	-.05
361	290	294	-46.93	-.02	.00	.00	-.30	-.07
365	294	232	-95.93	-.15	.00	.00	-.39	-.09
369	290	298	-7.09	.00	.00	.00	-.05	.00
373	298	302	-21.09	-.01	.00	.00	-.13	-.02
377	302	306	-35.69	-.02	.00	.00	-.23	-.04
381	306	236	85.34	.07	.00	.00	.54	.22
385	310	114	-478.00	-3.35	.00	.00	-1.95	-1.82
389	310	314	162.29	.30	.00	.00	.66	.25
393	314	318	147.29	.07	.00	.00	.60	.21
397	318	322	58.46	.03	.00	.00	.24	.04
401	322	326	77.09	.02	.00	.00	.31	.06
405	322	330	-38.42	-.02	.00	.00	-.16	-.02
409	318	330	77.82	.01	.00	.00	.32	.06
413	330	334	15.19	.00	.00	.00	.06	.00
417	330	334	4.61	.00	.00	.00	.03	.00
419	310	326	290.11	.43	.00	.00	1.19	.72
423	338	326	-339.40	-1.06	.00	.00	-1.39	-.97
427	338	342	55.40	.01	.00	.00	.23	.03
431	342	346	27.39	.00	.00	.00	.11	.01
435	342	346	8.41	.00	.00	.00	.05	.00
439	338	350	251.60	.17	.00	.00	1.03	.55
443	350	354	192.20	.37	.00	.00	.79	.34
447	350	358	30.40	.01	.00	.00	.12	.01

451	212	362	.00	.00	.00	.00	.00	.00
455	276	366	232.60	.14	.00	.00	.95	.48
459	366	370	41.60	.06	.00	.00	.27	.06
463	370	374	7.00	.00	.00	.00	.04	.00
467	370	378	12.80	.00	.00	.00	.08	.01
471	366	382	176.40	.11	.00	.00	.72	.29
475	382	386	58.69	.13	.00	.00	.37	.11
479	386	390	27.69	.02	.00	.00	.18	.03
483	382	390	91.11	.15	.00	.00	.37	.08
487	390	394	75.00	.02	.00	.00	.31	.06
491	394	398	68.00	.01	.00	.00	.28	.05
495	398	402	65.60	.07	.00	.00	.27	.05
499	402	406	12.60	.00	.00	.00	.05	.00
503	402	410	13.80	.01	.00	.00	.09	.01
507	276	414	-2263.56	-5.62	.00	.00	-4.72	-5.43
511	414	416	-885.63	-11.47	.00	.00	-1.85	-.96
513	416	418	-1674.34	-1.44	.00	.00	-3.49	-3.11
515	418	422	-1804.44	-2.62	.00	.00	-3.76	-3.57
519	422	426	-2689.36	-4.05	.00	.00	-5.60	-7.48
523	426	428	-2323.96	-4.76	.00	.00	-4.84	-5.71
525	428	430	-2052.63	-5.71	.00	.00	-4.28	-4.53
527	430	434	-2775.80	-4.35	.00	.00	-5.78	-7.93
531	434	438	-3223.96	-6.55	.00	.00	-6.72	-10.46
535	434	442	418.35	5.71	.00	.00	2.67	4.22
539	442	446	378.15	1.62	.00	.00	2.41	3.50
543	430	446	635.97	2.99	.00	.00	2.60	3.09
547	446	450	528.90	.97	.00	.00	2.16	2.20
551	450	428	360.13	1.76	.00	.00	1.47	1.08
555	446	454	466.83	1.51	.00	.00	1.91	1.74
559	450	454	114.77	.54	.00	.00	.73	.38
563	454	458	531.80	2.44	.00	.00	2.17	2.22
567	458	462	526.20	.33	.00	.00	1.49	.77
571	462	466	401.23	.26	.00	.00	1.14	.47
573	466	468	390.57	.12	.00	.00	1.11	.44
575	468	470	390.57	.13	.00	.00	1.11	.44
579	470	474	448.20	.23	.00	.00	1.27	.57
581	474	476	426.40	.18	.00	.00	1.21	.52
583	476	478	426.40	.38	.00	.00	1.21	.52
587	478	426	384.20	1.92	.00	.00	1.57	1.22
591	470	482	-82.23	-.26	.00	.00	-.52	-.21
595	466	482	-4.54	.00	.00	.00	-.03	.00
599	462	482	114.17	.26	.00	.00	.73	.38
603	414	486	-671.91	-2.12	.00	.00	-4.29	-10.15
607	486	490	-692.51	-2.65	.00	.00	-4.42	-10.73
611	490	494	-330.23	-1.49	.00	.00	-2.11	-2.72
615	494	498	-343.03	-1.11	.00	.00	-2.19	-2.92
619	498	502	-155.21	-.55	.00	.00	-.99	-.67
623	502	506	-164.01	-.71	.00	.00	-1.05	-.74
627	506	498	206.42	1.25	.00	.00	1.32	1.14
629	506	416	-773.31	-2.84	.00	.00	-4.94	-13.16
631	506	490	379.09	3.86	.00	.00	2.42	3.51
635	414	510	-717.02	-2.21	.00	.00	-4.58	-11.44
639	510	514	-300.93	-1.38	.00	.00	-1.92	-2.29
643	514	518	-325.33	-.68	.00	.00	-2.08	-2.65
647	518	522	-343.33	-.79	.00	.00	-2.19	-2.93
651	522	526	-356.13	-2.28	.00	.00	-2.27	-3.13
655	526	510	435.29	5.13	.00	.00	2.78	4.54
659	526	530	-804.62	-3.06	.00	.00	-5.14	-14.17
663	530	418	-451.57	-2.52	.00	.00	-2.88	-4.86
667	530	534	-368.05	-1.59	.00	.00	-2.35	-3.33
671	534	538	-115.51	-.17	.00	.00	-.74	-.39
675	538	542	-115.51	-.30	.00	.00	-.74	-.39
679	542	546	-115.51	-.08	.00	.00	-.74	-.39

683	546	550	-127.11	-.13	.00	.00	-.81	-.46
687	550	554	-139.11	-.14	.00	.00	-.89	-.55
691	554	558	-224.12	-1.40	.00	.00	-1.43	-1.33
695	558	562	-224.12	-.44	.00	.00	-1.43	-1.33
699	562	422	-459.05	-.89	.00	.00	-2.93	-5.01
703	534	566	-252.54	-.28	.00	.00	-1.61	-1.66
707	566	570	-264.54	-.49	.00	.00	-1.69	-1.81
711	570	554	-76.21	-.05	.00	.00	-.49	-.18
715	570	574	-201.13	-.32	.00	.00	-1.28	-1.09
719	574	578	-212.13	-.19	.00	.00	-1.35	-1.20
723	578	582	-223.53	-.22	.00	.00	-1.43	-1.32
727	582	562	-234.93	-1.15	.00	.00	-1.50	-1.45
731	418	586	-328.27	-.20	.00	.00	-1.34	-.91
735	586	590	.00	.00	.00	.00	.00	.00
739	586	594	-337.67	-.61	.00	.00	-2.16	-2.84
743	594	598	-270.83	-.74	.00	.00	-1.73	-1.89
747	598	422	-417.07	-1.07	.00	.00	-2.66	-4.19
751	598	602	127.24	.14	.00	.00	.81	.47
755	602	604	66.88	.06	.00	.00	.43	.14
759	602	604	53.56	.06	.00	.00	.34	.09
763	594	604	-99.84	-.53	.00	.00	-.64	-.30
901	900	904	383.47	.50	.00	.00	2.45	3.10
905	904	908	7.32	.00	.00	.00	.05	.00
909	904	908	7.48	.00	.00	.00	.05	.00
913	904	912	353.87	1.60	.00	.00	2.26	2.67
917	916	912	-337.27	-1.07	.00	.00	-2.15	-2.44
918	915	914	.00	.00	.00	.00	.00	.00
919	916	915	148.38	.09	.00	.00	.95	.53
920	915	919	148.38	.28	.00	.00	.95	.53
921	916	918	172.29	.38	.00	.00	1.10	.70
922	917	919	-1.87	.00	.00	.00	-.01	.00
923	918	917	-1.87	.00	.00	.00	-.01	.00
924	923	919	-146.51	-.16	.00	.00	-.94	-.52
925	918	920	174.16	.06	.00	.00	1.11	.72
927	920	921	.00	.00	.00	.00	.00	.00
929	924	920	-157.56	-.17	.00	.00	-1.01	-.60
931	924	923	-146.51	-.08	.00	.00	-.94	-.52
933	926	924	-287.47	-.25	.00	.00	-1.83	-1.82
937	928	926	-287.47	-.39	.00	.00	-1.83	-1.82
941	932	928	-287.47	-1.23	.00	.00	-1.83	-1.82
945	56	932	-287.47	-.24	.00	.00	-.82	-.25
949	900	56	1621.56	5.90	.00	.00	4.60	6.21
951	58	56	-1909.04	-2.10	.00	.00	-5.42	-8.40
953	936	58	-1909.04	-1.34	.00	.00	-5.42	-8.40
957	936	940	1704.84	8.28	.00	.00	6.96	16.55
961	940	944	-712.58	-1.12	.00	.00	-2.91	-3.29
965	948	944	723.38	1.22	.00	.00	2.95	3.38
969	948	940	1593.38	2.34	.00	.00	6.51	14.60
973	952	948	2327.56	5.89	.00	.00	9.51	29.46
977	952	936	-204.20	-.05	.00	.00	-.58	-.13

JUNCTION NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
4	6.80	542.91	468.00	32.46
8	17.40	542.77	456.00	37.60
10	.00	538.44	402.00	59.12
12	28.40	545.85	431.00	49.77
16	10.20	548.28	420.00	55.59
20	7.60	548.27	444.00	45.18
24	12.20	548.27	454.00	40.85
28	12.20	548.26	476.00	31.31
32	12.60	552.34	403.00	64.71
36	12.20	552.33	427.00	54.31

44	17.40	516.29	376.00	60.79
46	.00	516.30	321.00	84.63
48	12.60	516.30	318.00	85.93
52	1.40	516.31	321.00	84.63
56	.00	504.61	433.00	31.03
58	.00	502.52	420.00	35.76
60	8.80	523.22	327.00	85.03
64	8.20	523.21	351.00	74.63
68	15.60	533.92	320.00	92.70
72	25.40	532.78	359.00	75.31
76	.00	532.78	348.00	80.07
80	13.80	533.22	323.00	91.10
84	15.40	533.03	386.00	63.71
88	15.60	532.98	372.00	69.76
92	12.80	532.89	327.00	89.22
96	11.60	532.42	347.00	80.35
100	16.80	532.27	415.00	50.82
104	15.40	532.24	417.00	49.94
108	22.40	532.19	355.00	76.78
112	12.20	531.53	375.00	67.83
114	76.80	515.55	391.00	53.97
116	14.00	527.81	379.00	64.48
120	17.40	534.73	377.00	68.35
122	.00	536.63	385.00	65.71
124	9.60	537.56	401.00	59.17
128	7.60	540.58	422.00	51.39
132	13.00	541.69	456.00	37.13
136	15.00	542.07	446.00	41.63
140	11.40	541.81	446.00	41.52
144	10.20	541.13	429.00	48.59
148	10.80	541.10	415.00	54.64
152	16.60	541.08	390.00	65.47
156	14.40	542.55	423.00	51.80
160	15.40	542.68	393.00	64.86
164	8.00	542.76	426.00	50.60
168	13.80	542.75	396.00	63.59
172	24.20	542.74	380.00	70.52
176	.00	542.82	454.00	38.49
180	11.80	542.84	445.00	42.40
184	15.00	543.02	446.00	42.04
188	10.80	543.15	461.00	35.60
192	11.20	543.16	477.00	28.67
196	9.00	544.20	475.00	29.99
200	11.80	543.84	454.00	38.93
204	21.00	543.02	423.00	52.01
208	12.40	544.82	455.00	38.92
212	29.60	544.94	415.00	56.31
216	12.40	543.94	471.00	31.61
220	13.80	543.97	445.00	42.89
224	20.20	544.02	439.00	45.51
228	19.20	544.06	409.00	58.52
232	7.60	543.04	397.00	63.29
236	8.20	542.84	463.00	34.60
240	11.60	544.79	353.00	83.11
244	10.20	545.18	366.00	77.64
248	14.60	545.49	369.00	76.48
252	21.20	545.83	387.00	68.83
256	24.80	546.28	404.00	61.65
260	24.40	546.31	427.00	51.70
264	7.40	546.99	443.00	45.06
268	20.20	547.77	453.00	41.07
272	25.80	549.19	455.00	40.82
276	22.40	549.99	457.00	40.30

282	13.80	542.84	394.00	64.50
286	11.60	542.85	380.00	70.57
290	17.80	542.88	387.00	67.55
294	49.00	542.90	389.00	66.69
298	14.00	542.88	396.00	63.65
302	14.60	542.89	410.00	57.59
306	10.40	542.91	411.00	57.16
310	25.60	512.19	358.00	66.82
314	15.00	511.89	340.00	74.49
318	11.00	511.82	344.00	72.72
322	19.80	511.79	354.00	68.38
326	27.80	511.76	359.00	66.20
330	19.60	511.81	348.00	70.98
334	19.80	511.81	346.00	71.85
338	32.40	510.70	352.00	68.77
342	19.60	510.69	358.00	66.17
346	35.80	510.69	382.00	55.76
350	29.00	510.53	344.00	72.16
354	192.20	510.16	323.00	81.10
358	30.40	510.52	372.00	60.02
362	.00	544.94	364.00	78.41
366	14.60	549.85	437.00	48.90
370	21.80	549.79	406.00	62.31
374	7.00	549.79	372.00	77.04
378	12.80	549.79	377.00	74.88
382	26.60	549.74	436.00	49.29
386	31.00	549.61	380.00	73.50
390	43.80	549.59	367.00	79.12
394	7.00	549.57	350.00	86.48
398	2.40	549.56	351.00	86.04
402	39.20	549.49	379.00	73.88
406	12.60	549.49	365.00	79.94
410	13.80	549.48	357.00	83.41
414	11.00	555.61	464.00	39.70
416	15.40	567.08	434.00	57.67
418	6.80	568.53	421.00	63.93
422	8.80	571.15	442.00	55.96
426	18.80	575.19	410.00	71.58
428	88.80	579.96	410.00	73.65
430	87.20	585.67	397.00	81.76
434	29.80	590.02	363.00	98.37
438	.00	596.57	315.00	122.01
442	40.20	584.31	375.00	90.70
446	18.40	582.69	367.00	93.46
450	54.00	581.72	383.00	86.11
454	49.80	581.18	348.00	101.04
458	5.60	578.74	366.00	92.19
462	10.80	578.41	373.00	89.01
466	15.20	578.15	382.00	85.00
468	.00	578.03	385.00	83.65
470	24.60	577.90	387.00	82.72
474	21.80	577.67	389.00	81.76
476	.00	577.49	381.00	85.14
478	42.20	577.11	332.00	106.21
482	27.40	578.15	389.00	81.97
486	20.60	557.73	459.00	42.79
490	16.80	560.38	450.00	47.83
494	12.80	561.88	431.00	56.71
498	18.60	562.99	424.00	60.23
502	8.80	563.53	399.00	71.30
506	23.80	564.24	425.00	60.34
510	19.20	557.82	456.00	44.12
514	24.40	559.20	415.00	62.49

518	18.00	559.88	409.00	65.38
522	12.80	560.67	407.00	66.59
526	13.20	562.95	399.00	71.04
530	15.00	566.01	397.00	73.24
534	.00	567.60	399.00	73.06
538	.00	567.77	415.00	66.20
542	.00	568.07	393.00	75.86
546	11.60	568.15	386.00	78.93
550	12.00	568.28	381.00	81.15
554	8.80	568.42	382.00	80.78
558	.00	569.81	422.00	64.05
562	.00	570.26	435.00	58.61
566	12.00	567.88	392.00	76.22
570	12.80	568.37	383.00	80.33
574	11.00	568.69	384.00	80.03
578	11.40	568.88	386.00	79.25
582	11.40	569.10	387.00	78.91
586	9.40	568.72	408.00	69.65
590	.00	568.72	375.00	83.95
594	33.00	569.33	417.00	66.01
598	19.00	570.08	428.00	61.57
602	6.80	569.93	420.00	64.97
604	20.60	569.87	402.00	72.74
900	.00	510.51	345.00	71.72
904	14.80	510.02	346.00	71.07
908	14.80	510.02	339.00	74.11
912	16.60	508.42	366.00	61.71
914	.00	507.25	388.00	51.67
915	.00	507.25	389.00	51.24
916	16.60	507.34	391.00	50.41
917	.00	506.97	395.00	48.52
918	.00	506.97	397.00	47.65
919	.00	506.97	393.00	49.39
920	16.60	506.90	398.00	47.19
921	.00	506.90	396.00	48.06
923	.00	506.81	396.00	48.02
924	16.60	506.73	400.00	46.25
926	.00	506.48	406.00	43.54
928	.00	506.09	412.00	40.77
932	.00	504.85	455.00	21.60
936	.00	501.17	420.00	35.17
940	4010.80	492.90	421.00	31.15
944	10.80	494.01	417.00	33.37
948	10.80	495.23	422.00	31.73
952	.00	501.12	416.00	36.89
	MAXIMUM PRESSURES			
438	.00	596.57	315.00	122.01
478	42.20	577.11	332.00	106.21
454	49.80	581.18	348.00	101.04
434	29.80	590.02	363.00	98.37
446	18.40	582.69	367.00	93.46
68	15.60	533.92	320.00	92.70
458	5.60	578.74	366.00	92.19
80	13.80	533.22	323.00	91.10
442	40.20	584.31	375.00	90.70
92	12.80	532.89	327.00	89.22
	MINIMUM PRESSURES			
932	.00	504.85	455.00	21.60
192	11.20	543.16	477.00	28.67
196	9.00	544.20	475.00	29.99
56	.00	504.61	433.00	31.03

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       940           4010.80      492.90      421.00       31.15
        28             12.20      548.26      476.00       31.31
       216             12.40      543.94      471.00       31.61
       948             10.80      495.23      422.00       31.73
         4              6.80      542.91      468.00       32.46
       944             10.80      494.01      417.00       33.37

 THE NET SYSTEM DEMAND =   6950.40

 SUMMARY OF INFLOWS(+) AND OUTFLOWS(-) FROM FIXED GRADE NODES

    PIPE NUMBER    FLOWRATE
         4         399.46
         6        1176.57
        10        3326.98
        12        2047.39

 THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES =   6950.40
 THE NET FLOW OUT OF THE SYSTEM INTO FIXED GRADE NODES =       .00



 A SUMMARY OF CONDITIONS SPECIFIED FOR THE NEXT SIMULATION FOLLOWS


 THE DEMANDS ARE CHANGED FROM ORIGINAL VALUES BY A FACTOR =   2.00

 THE FOLLOWING SPECIFIC DEMAND CHANGES ARE MADE :
 JUNCTION NUMBER       DEMAND
       908           1514.80


 THE RESULTS ARE OBTAINED AFTER  4 TRIALS WITH AN ACCURACY =  .00144
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Melrose+Oceanside Project in the City of Oceanside
Existing 626 Pressure Zone System Plus Melrose+Oceanside Project
Maximum Day Demand Plus 1500 gpm Fire Flow at Node 908 in M+O Single Fam Res

PIPE NO.	NODE NOS.		FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
4	0	32	376.85	5.08	.00	.00	9.62	101.66
5	4	8	641.53	.09	.00	.00	1.34	.53
6	0	438	1166.39	17.16	.00	.00	13.23	114.37
9	8	12	-225.59	-.34	.00	.00	-.92	-.45
10	0	32	1085.03	.08	.00	.00	4.43	8.31
12	0	438	1822.14	1.16	.00	.00	5.17	7.70
13	12	16	-140.85	-.08	.00	.00	-.58	-.19
17	16	20	32.00	.01	.00	.00	.20	.04
21	20	24	12.20	.00	.00	.00	.08	.01
25	20	28	12.20	.00	.00	.00	.08	.01
29	16	32	-183.05	-.19	.00	.00	-.75	-.31
33	32	36	12.20	.00	.00	.00	.08	.01
41	46	44	17.40	.01	.00	.00	.11	.01
43	48	46	17.40	.00	.00	.00	.11	.01
45	48	52	-30.00	.00	.00	.00	-.12	-.01
49	52	900	970.15	1.51	.00	.00	2.75	2.40
53	114	952	658.25	1.65	.00	.00	1.87	1.17
57	116	114	1213.05	2.83	.00	.00	3.44	3.63
61	116	72	-125.82	-.71	.00	.00	-.80	-.46
63	72	76	.00	.00	.00	.00	.00	.00
67	68	72	151.22	.20	.00	.00	.97	.64
71	68	60	1018.55	2.92	.00	.00	4.16	7.39
75	60	52	1001.55	1.86	.00	.00	4.09	7.17
79	60	64	8.20	.00	.00	.00	.05	.00
83	32	68	1254.03	4.28	.00	.00	3.56	3.86
87	80	68	-68.66	-.04	.00	.00	-.44	-.15
91	80	84	21.86	.01	.00	.00	.14	.02
95	88	84	-6.46	.00	.00	.00	-.04	.00
99	92	88	9.14	.00	.00	.00	.06	.00
103	92	80	-32.99	-.01	.00	.00	-.21	-.04
107	96	92	-11.06	.00	.00	.00	-.07	-.01
111	96	100	14.49	.01	.00	.00	.09	.01
115	104	100	2.31	.00	.00	.00	.01	.00
119	108	104	17.71	.01	.00	.00	.11	.01
123	108	96	15.03	.00	.00	.00	.10	.01
127	112	108	55.14	.07	.00	.00	.35	.10
131	112	116	1101.23	.93	.00	.00	3.12	3.03
135	120	112	1168.57	1.02	.00	.00	3.31	3.38
137	10	122	849.72	.59	.00	.00	2.41	1.88
139	8	10	849.72	1.41	.00	.00	2.41	1.88
141	122	120	849.72	.62	.00	.00	2.41	1.88
143	120	124	-336.25	-.89	.00	.00	-2.15	-2.81
147	124	128	-345.85	-.98	.00	.00	-2.21	-2.97
151	132	128	212.02	.40	.00	.00	1.35	1.20
155	192	132	172.47	.59	.00	.00	1.10	.82
159	4	192	-648.33	-.15	.00	.00	-1.35	-.54
163	192	188	17.17	.00	.00	.00	.11	.01
167	188	136	109.97	.46	.00	.00	1.25	1.44
171	136	132	52.55	.12	.00	.00	.60	.37
175	136	140	42.42	.12	.00	.00	.48	.25
179	144	140	-179.03	-.24	.00	.00	-1.14	-.88
183	128	144	-141.43	-.16	.00	.00	-.90	-.57
187	144	148	27.40	.03	.00	.00	.31	.11
191	148	152	16.60	.01	.00	.00	.19	.04
195	140	156	-148.01	-.25	.00	.00	-.94	-.62
199	156	160	-35.62	-.03	.00	.00	-.23	-.04

203	160	164	-51.02	-.03	.00	.00	-.33	-.09
207	164	168	38.00	.01	.00	.00	.24	.05
211	168	172	24.20	.01	.00	.00	.15	.02
215	176	164	57.29	.05	.00	.00	.37	.11
219	180	176	57.29	.03	.00	.00	.37	.11
223	180	156	126.79	.13	.00	.00	.81	.46
227	180	204	-116.80	-.10	.00	.00	-.75	-.40
231	184	180	79.08	.11	.00	.00	.50	.19
235	188	184	94.08	.09	.00	.00	.60	.27
239	188	200	-197.68	-.38	.00	.00	-1.26	-1.05
243	196	200	138.85	.21	.00	.00	.89	.55
247	192	196	-849.17	-.58	.00	.00	-1.77	-.88
251	196	208	-997.01	-.35	.00	.00	-2.08	-1.19
253	208	212	142.74	.20	.00	.00	.91	.58
257	212	12	113.14	.63	.00	.00	.72	.37
261	208	216	183.94	.51	.00	.00	1.17	.92
265	200	216	-70.63	-.05	.00	.00	-.45	-.16
269	216	204	137.80	.53	.00	.00	.88	.54
273	208	260	-1336.09	-1.19	.00	.00	-2.78	-2.05
277	260	268	-183.53	-1.15	.00	.00	-1.17	-.92
281	260	264	-1250.41	-.54	.00	.00	-2.61	-1.81
285	264	268	-1257.81	-.62	.00	.00	-2.62	-1.83
289	268	276	-1461.54	-1.75	.00	.00	-3.05	-2.42
293	276	272	311.59	.64	.00	.00	1.99	2.44
297	256	272	-285.79	-2.29	.00	.00	-1.82	-2.08
301	260	256	73.44	.02	.00	.00	.30	.06
305	256	252	334.43	.33	.00	.00	1.37	.94
309	252	248	313.23	.25	.00	.00	1.28	.83
313	248	244	298.63	.22	.00	.00	1.22	.76
317	244	240	288.43	.28	.00	.00	1.18	.71
321	240	228	276.83	.51	.00	.00	1.77	1.96
325	228	232	186.73	.66	.00	.00	1.19	.95
329	232	306	100.83	.08	.00	.00	.64	.30
333	236	164	39.73	.02	.00	.00	.25	.05
337	224	228	-70.90	-.03	.00	.00	-.45	-.16
341	220	224	-50.70	-.03	.00	.00	-.32	-.08
345	216	220	-36.90	-.02	.00	.00	-.24	-.05
349	236	282	9.17	.00	.00	.00	.06	.00
353	282	286	-4.63	.00	.00	.00	-.03	.00
357	286	290	-16.23	-.01	.00	.00	-.10	-.01
361	290	294	-29.30	-.01	.00	.00	-.19	-.03
365	294	232	-78.30	-.10	.00	.00	-.32	-.06
369	290	298	-4.73	.00	.00	.00	-.03	.00
373	298	302	-18.73	-.01	.00	.00	-.12	-.01
377	302	306	-33.33	-.02	.00	.00	-.21	-.04
381	306	236	57.10	.04	.00	.00	.36	.11
385	310	114	-478.00	-3.35	.00	.00	-1.95	-1.82
389	310	314	162.29	.30	.00	.00	.66	.25
393	314	318	147.29	.07	.00	.00	.60	.21
397	318	322	58.46	.03	.00	.00	.24	.04
401	322	326	77.09	.02	.00	.00	.31	.06
405	322	330	-38.42	-.02	.00	.00	-.16	-.02
409	318	330	77.82	.01	.00	.00	.32	.06
413	330	334	15.19	.00	.00	.00	.06	.00
417	330	334	4.61	.00	.00	.00	.03	.00
419	310	326	290.11	.43	.00	.00	1.19	.72
423	338	326	-339.40	-1.06	.00	.00	-1.39	-.97
427	338	342	55.40	.01	.00	.00	.23	.03
431	342	346	27.39	.00	.00	.00	.11	.01
435	342	346	8.41	.00	.00	.00	.05	.00
439	338	350	251.60	.17	.00	.00	1.03	.55
443	350	354	192.20	.37	.00	.00	.79	.34
447	350	358	30.40	.01	.00	.00	.12	.01

451	212	362	.00	.00	.00	.00	.00	.00
455	276	366	232.60	.14	.00	.00	.95	.48
459	366	370	41.60	.06	.00	.00	.27	.06
463	370	374	7.00	.00	.00	.00	.04	.00
467	370	378	12.80	.00	.00	.00	.08	.01
471	366	382	176.40	.11	.00	.00	.72	.29
475	382	386	58.69	.13	.00	.00	.37	.11
479	386	390	27.69	.02	.00	.00	.18	.03
483	382	390	91.11	.15	.00	.00	.37	.08
487	390	394	75.00	.02	.00	.00	.31	.06
491	394	398	68.00	.01	.00	.00	.28	.05
495	398	402	65.60	.07	.00	.00	.27	.05
499	402	406	12.60	.00	.00	.00	.05	.00
503	402	410	13.80	.01	.00	.00	.09	.01
507	276	414	-2028.12	-4.59	.00	.00	-4.23	-4.43
511	414	416	-798.19	-9.46	.00	.00	-1.66	-.79
513	416	418	-1516.04	-1.20	.00	.00	-3.16	-2.59
515	418	422	-1640.33	-2.20	.00	.00	-3.42	-2.99
519	422	426	-2453.92	-3.41	.00	.00	-5.11	-6.31
523	426	428	-2129.17	-4.05	.00	.00	-4.44	-4.85
525	428	430	-1891.50	-4.91	.00	.00	-3.94	-3.90
527	430	434	-2570.02	-3.77	.00	.00	-5.36	-6.88
531	434	438	-2988.52	-5.69	.00	.00	-6.23	-9.09
535	434	442	388.70	4.98	.00	.00	2.48	3.68
539	442	446	348.50	1.40	.00	.00	2.22	3.01
543	430	446	591.31	2.61	.00	.00	2.42	2.70
547	446	450	488.10	.83	.00	.00	1.99	1.89
551	450	428	326.46	1.47	.00	.00	1.33	.90
555	446	454	433.32	1.32	.00	.00	1.77	1.52
559	450	454	107.63	.48	.00	.00	.69	.34
563	454	458	491.15	2.10	.00	.00	2.01	1.92
567	458	462	485.55	.28	.00	.00	1.38	.67
571	462	466	369.56	.22	.00	.00	1.05	.40
573	466	468	357.02	.11	.00	.00	1.01	.38
575	468	470	357.02	.11	.00	.00	1.01	.38
579	470	474	407.55	.19	.00	.00	1.16	.48
581	474	476	385.75	.15	.00	.00	1.09	.43
583	476	478	385.75	.31	.00	.00	1.09	.43
587	478	426	343.55	1.56	.00	.00	1.40	.99
591	470	482	-75.14	-.22	.00	.00	-.48	-.18
595	466	482	-2.66	.00	.00	.00	-.02	.00
599	462	482	105.20	.22	.00	.00	.67	.33
603	414	486	-601.05	-1.72	.00	.00	-3.84	-8.25
607	486	490	-621.65	-2.17	.00	.00	-3.97	-8.78
611	490	494	-296.46	-1.22	.00	.00	-1.89	-2.23
615	494	498	-309.26	-.91	.00	.00	-1.97	-2.41
619	498	502	-140.46	-.45	.00	.00	-.90	-.56
623	502	506	-149.26	-.59	.00	.00	-.95	-.63
627	506	498	187.40	1.05	.00	.00	1.20	.95
629	506	416	-702.45	-2.38	.00	.00	-4.48	-11.02
631	506	490	341.99	3.19	.00	.00	2.18	2.90
635	414	510	-639.88	-1.79	.00	.00	-4.08	-9.27
639	510	514	-267.46	-1.11	.00	.00	-1.71	-1.84
643	514	518	-291.86	-.55	.00	.00	-1.86	-2.17
647	518	522	-309.86	-.66	.00	.00	-1.98	-2.42
651	522	526	-322.66	-1.90	.00	.00	-2.06	-2.61
655	526	510	391.62	4.21	.00	.00	2.50	3.73
659	526	530	-727.48	-2.54	.00	.00	-4.64	-11.75
663	530	418	-411.43	-2.12	.00	.00	-2.63	-4.09
667	530	534	-331.05	-1.31	.00	.00	-2.11	-2.73
671	534	538	-103.81	-.14	.00	.00	-.66	-.32
675	538	542	-103.81	-.24	.00	.00	-.66	-.32
679	542	546	-103.81	-.06	.00	.00	-.66	-.32

683	546	550	-115.41	-.11	.00	.00	-.74	-.39
687	550	554	-127.41	-.12	.00	.00	-.81	-.47
691	554	558	-205.66	-1.19	.00	.00	-1.31	-1.13
695	558	562	-205.66	-.38	.00	.00	-1.31	-1.13
699	562	422	-422.05	-.76	.00	.00	-2.69	-4.29
703	534	566	-227.24	-.23	.00	.00	-1.45	-1.36
707	566	570	-239.24	-.41	.00	.00	-1.53	-1.50
711	570	554	-69.45	-.04	.00	.00	-.44	-.15
715	570	574	-182.59	-.27	.00	.00	-1.17	-.91
719	574	578	-193.59	-.16	.00	.00	-1.24	-1.01
723	578	582	-204.99	-.19	.00	.00	-1.31	-1.13
727	582	562	-216.39	-.99	.00	.00	-1.38	-1.24
731	418	586	-293.94	-.16	.00	.00	-1.20	-.74
735	586	590	.00	.00	.00	.00	.00	.00
739	586	594	-303.34	-.50	.00	.00	-1.94	-2.33
743	594	598	-246.15	-.62	.00	.00	-1.57	-1.58
747	598	422	-382.74	-.91	.00	.00	-2.44	-3.58
751	598	602	117.59	.12	.00	.00	.75	.40
755	602	604	61.52	.06	.00	.00	.39	.12
759	602	604	49.27	.06	.00	.00	.31	.08
763	594	604	-90.19	-.44	.00	.00	-.58	-.25
901	900	904	1271.50	4.56	.00	.00	8.12	28.50
905	904	908	749.05	5.35	.00	.00	4.78	10.70
909	904	908	765.75	5.35	.00	.00	4.89	11.14
913	904	912	-258.10	-.89	.00	.00	-1.65	-1.49
917	916	912	274.70	.73	.00	.00	1.75	1.67
918	915	914	.00	.00	.00	.00	.00	.00
919	916	915	-134.98	-.08	.00	.00	-.86	-.45
920	915	919	-134.98	-.24	.00	.00	-.86	-.45
921	916	918	-156.32	-.31	.00	.00	-1.00	-.59
922	917	919	-9.34	.00	.00	.00	-.06	.00
923	918	917	-9.34	.00	.00	.00	-.06	.00
924	923	919	144.32	.15	.00	.00	.92	.51
925	918	920	-146.98	-.05	.00	.00	-.94	-.52
927	920	921	.00	.00	.00	.00	.00	.00
929	924	920	163.58	.18	.00	.00	1.04	.64
931	924	923	144.32	.08	.00	.00	.92	.51
933	926	924	324.50	.32	.00	.00	2.07	2.27
937	928	926	324.50	.49	.00	.00	2.07	2.27
941	932	928	324.50	1.55	.00	.00	2.07	2.27
945	56	932	324.50	.30	.00	.00	.92	.32
949	900	56	-301.35	-.26	.00	.00	-.85	-.28
951	58	56	625.85	.27	.00	.00	1.78	1.06
953	936	58	625.85	.17	.00	.00	1.78	1.06
957	936	940	-172.47	-.12	.00	.00	-.70	-.24
961	940	944	-53.09	-.01	.00	.00	-.22	-.03
965	948	944	63.89	.01	.00	.00	.26	.04
969	948	940	130.18	.02	.00	.00	.53	.14
973	952	948	204.87	.07	.00	.00	.84	.33
977	952	936	453.38	.21	.00	.00	1.29	.59

JUNCTION NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
4	6.80	552.39	468.00	36.57
8	17.40	552.30	456.00	41.73
10	.00	550.89	402.00	64.52
12	28.40	552.64	431.00	52.71
16	10.20	552.72	420.00	57.51
20	7.60	552.71	444.00	47.11
24	12.20	552.71	454.00	42.77
28	12.20	552.71	476.00	33.24
32	12.60	552.92	403.00	64.96
36	12.20	552.91	427.00	54.56

44	17.40	543.84	376.00	72.73
46	.00	543.86	321.00	96.57
48	12.60	543.86	318.00	97.87
52	1.40	543.86	321.00	96.57
56	.00	542.61	433.00	47.50
58	.00	542.88	420.00	53.25
60	8.80	545.72	327.00	94.78
64	8.20	545.71	351.00	84.38
68	15.60	548.64	320.00	99.08
72	25.40	548.44	359.00	82.09
76	.00	548.44	348.00	86.86
80	13.80	548.59	323.00	97.76
84	15.40	548.58	386.00	70.45
88	15.60	548.58	372.00	76.52
92	12.80	548.58	327.00	96.02
96	11.60	548.58	347.00	87.35
100	16.80	548.57	415.00	57.88
104	15.40	548.57	417.00	57.01
108	22.40	548.58	355.00	83.89
112	12.20	548.66	375.00	75.25
114	76.80	544.90	391.00	66.69
116	14.00	547.73	379.00	73.12
120	17.40	549.68	377.00	74.83
122	.00	550.30	385.00	71.63
124	9.60	550.57	401.00	64.81
128	7.60	551.55	422.00	56.14
132	13.00	551.95	456.00	41.58
136	15.00	552.07	446.00	45.96
140	11.40	551.95	446.00	45.91
144	10.20	551.71	429.00	53.17
148	10.80	551.67	415.00	59.22
152	16.60	551.66	390.00	70.05
156	14.40	552.20	423.00	55.99
160	15.40	552.22	393.00	69.00
164	8.00	552.25	426.00	54.71
168	13.80	552.23	396.00	67.70
172	24.20	552.23	380.00	74.63
176	.00	552.30	454.00	42.60
180	11.80	552.33	445.00	46.51
184	15.00	552.44	446.00	46.13
188	10.80	552.54	461.00	39.67
192	11.20	552.54	477.00	32.73
196	9.00	553.12	475.00	33.85
200	11.80	552.91	454.00	42.86
204	21.00	552.43	423.00	56.09
208	12.40	553.47	455.00	42.67
212	29.60	553.27	415.00	59.92
216	12.40	552.96	471.00	35.52
220	13.80	552.98	445.00	46.79
224	20.20	553.01	439.00	49.41
228	19.20	553.04	409.00	62.42
232	7.60	552.38	397.00	67.33
236	8.20	552.27	463.00	38.68
240	11.60	553.55	353.00	86.91
244	10.20	553.83	366.00	81.39
248	14.60	554.05	369.00	80.19
252	21.20	554.30	387.00	72.50
256	24.80	554.63	404.00	65.27
260	24.40	554.65	427.00	55.32
264	7.40	555.19	443.00	48.62
268	20.20	555.81	453.00	44.55
272	25.80	556.92	455.00	44.17
276	22.40	557.56	457.00	43.58

282	13.80	552.27	394.00	68.58
286	11.60	552.27	380.00	74.65
290	17.80	552.27	387.00	71.62
294	49.00	552.28	389.00	70.75
298	14.00	552.27	396.00	67.72
302	14.60	552.28	410.00	61.66
306	10.40	552.30	411.00	61.23
310	25.60	541.55	358.00	79.54
314	15.00	541.24	340.00	87.21
318	11.00	541.17	344.00	85.44
322	19.80	541.14	354.00	81.10
326	27.80	541.12	359.00	78.92
330	19.60	541.16	348.00	83.70
334	19.80	541.16	346.00	84.57
338	32.40	540.06	352.00	81.49
342	19.60	540.05	358.00	78.89
346	35.80	540.04	382.00	68.48
350	29.00	539.89	344.00	84.88
354	192.20	539.52	323.00	93.82
358	30.40	539.87	372.00	72.74
362	.00	553.27	364.00	82.02
366	14.60	557.42	437.00	52.18
370	21.80	557.37	406.00	65.59
374	7.00	557.37	372.00	80.33
378	12.80	557.36	377.00	78.16
382	26.60	557.31	436.00	52.57
386	31.00	557.18	380.00	76.78
390	43.80	557.16	367.00	82.40
394	7.00	557.14	350.00	89.76
398	2.40	557.13	351.00	89.32
402	39.20	557.06	379.00	77.16
406	12.60	557.06	365.00	83.22
410	13.80	557.05	357.00	86.69
414	11.00	562.15	464.00	42.53
416	15.40	571.61	434.00	59.63
418	6.80	572.81	421.00	65.79
422	8.80	575.01	442.00	57.64
426	18.80	578.42	410.00	72.98
428	88.80	582.47	410.00	74.74
430	87.20	587.39	397.00	82.50
434	29.80	591.15	363.00	98.87
438	.00	596.84	315.00	122.13
442	40.20	586.17	375.00	91.51
446	18.40	584.78	367.00	94.37
450	54.00	583.94	383.00	87.07
454	49.80	583.46	348.00	102.03
458	5.60	581.36	366.00	93.32
462	10.80	581.07	373.00	90.17
466	15.20	580.85	382.00	86.17
468	.00	580.75	385.00	84.82
470	24.60	580.64	387.00	83.91
474	21.80	580.45	389.00	82.96
476	.00	580.29	381.00	86.36
478	42.20	579.98	332.00	107.46
482	27.40	580.85	389.00	83.14
486	20.60	563.88	459.00	45.45
490	16.80	566.05	450.00	50.29
494	12.80	567.27	431.00	59.05
498	18.60	568.18	424.00	62.48
502	8.80	568.64	399.00	73.51
506	23.80	569.23	425.00	62.50
510	19.20	563.94	456.00	46.77
514	24.40	565.05	415.00	65.02

518	18.00	565.60	409.00	67.86
522	12.80	566.26	407.00	69.01
526	13.20	568.15	399.00	73.30
530	15.00	570.69	397.00	75.27
534	.00	572.00	399.00	74.97
538	.00	572.14	415.00	68.10
542	.00	572.39	393.00	77.73
546	11.60	572.45	386.00	80.79
550	12.00	572.56	381.00	83.01
554	8.80	572.68	382.00	82.63
558	.00	573.87	422.00	65.81
562	.00	574.25	435.00	60.34
566	12.00	572.23	392.00	78.10
570	12.80	572.64	383.00	82.18
574	11.00	572.91	384.00	81.86
578	11.40	573.06	386.00	81.06
582	11.40	573.26	387.00	80.71
586	9.40	572.97	408.00	71.49
590	.00	572.97	375.00	85.79
594	33.00	573.47	417.00	67.81
598	19.00	574.10	428.00	63.31
602	6.80	573.97	420.00	66.72
604	20.60	573.92	402.00	74.50
900	.00	542.35	345.00	85.52
904	14.80	537.79	346.00	83.11
908	1514.80	532.44	339.00	83.82
912	16.60	538.68	366.00	74.83
914	.00	539.49	388.00	65.65
915	.00	539.49	389.00	65.21
916	16.60	539.41	391.00	64.31
917	.00	539.73	395.00	62.72
918	.00	539.73	397.00	61.85
919	.00	539.73	393.00	63.58
920	16.60	539.78	398.00	61.44
921	.00	539.78	396.00	62.30
923	.00	539.88	396.00	62.35
924	16.60	539.96	400.00	60.65
926	.00	540.28	406.00	58.19
928	.00	540.77	412.00	55.80
932	.00	542.31	455.00	37.83
936	.00	543.05	420.00	53.32
940	10.80	543.16	421.00	52.94
944	10.80	543.17	417.00	54.67
948	10.80	543.19	422.00	52.51
952	.00	543.25	416.00	55.14
	MAXIMUM PRESSURES			
438	.00	596.84	315.00	122.13
478	42.20	579.98	332.00	107.46
454	49.80	583.46	348.00	102.03
68	15.60	548.64	320.00	99.08
434	29.80	591.15	363.00	98.87
48	12.60	543.86	318.00	97.87
80	13.80	548.59	323.00	97.76
52	1.40	543.86	321.00	96.57
46	.00	543.86	321.00	96.57
92	12.80	548.58	327.00	96.02
	MINIMUM PRESSURES			
192	11.20	552.54	477.00	32.73
28	12.20	552.71	476.00	33.24
196	9.00	553.12	475.00	33.85
216	12.40	552.96	471.00	35.52

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         4              6.80      552.39      468.00       36.57
       932               .00      542.31      455.00       37.83
       236              8.20      552.27      463.00       38.68
       188             10.80      552.54      461.00       39.67
       132             13.00      551.95      456.00       41.58
         8             17.40      552.30      456.00       41.73

 THE NET SYSTEM DEMAND =   4450.40

 SUMMARY OF INFLOWS(+) AND OUTFLOWS(-) FROM FIXED GRADE NODES

    PIPE NUMBER    FLOWRATE
         4         376.85
         6        1166.39
        10        1085.03
        12        1822.14

 THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES =   4450.41
 THE NET FLOW OUT OF THE SYSTEM INTO FIXED GRADE NODES =       .00



 A SUMMARY OF CONDITIONS SPECIFIED FOR THE NEXT SIMULATION FOLLOWS


 THE DEMANDS ARE CHANGED FROM ORIGINAL VALUES BY A FACTOR =   2.00

 THE FOLLOWING SPECIFIC DEMAND CHANGES ARE MADE :
 JUNCTION NUMBER       DEMAND
       944           3010.80


 THE RESULTS ARE OBTAINED AFTER  4 TRIALS WITH AN ACCURACY =  .00320
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Melrose+Oceanside Project in the City of Oceanside
Existing 626 Pressure Zone System Plus Melrose+Oceanside Project
Maximum Day Demand Plus 3000 gpm Fire Flow at Node 944 in M+O Multi-Fam Res

PIPE NO.	NODE NOS.		FLOWRATE	HEAD LOSS	PUMP HEAD	MINOR LOSS	VELOCITY	HL/1000
4	0	32	388.45	5.38	.00	.00	9.92	107.53
5	4	8	748.16	.12	.00	.00	1.56	.70
6	0	438	1171.50	17.30	.00	.00	13.29	115.30
9	8	12	-547.61	-1.78	.00	.00	-2.24	-2.34
10	0	32	2452.69	.38	.00	.00	10.02	37.65
12	0	438	1937.77	1.30	.00	.00	5.50	8.63
13	12	16	-624.22	-1.23	.00	.00	-2.55	-2.99
17	16	20	32.00	.01	.00	.00	.20	.04
21	20	24	12.20	.00	.00	.00	.08	.01
25	20	28	12.20	.00	.00	.00	.08	.01
29	16	32	-666.42	-2.13	.00	.00	-2.72	-3.37
33	32	36	12.20	.00	.00	.00	.08	.01
41	46	44	17.40	.01	.00	.00	.11	.01
43	48	46	17.40	.00	.00	.00	.11	.01
45	48	52	-30.00	.00	.00	.00	-.12	-.01
49	52	900	1544.40	3.57	.00	.00	4.38	5.67
53	114	952	1584.00	8.38	.00	.00	4.49	5.94
57	116	114	2138.80	8.09	.00	.00	6.07	10.37
61	116	72	-278.21	-3.08	.00	.00	-1.78	-1.98
63	72	76	.00	.00	.00	.00	.00	.00
67	68	72	303.61	.73	.00	.00	1.94	2.33
71	68	60	1592.80	6.69	.00	.00	6.51	16.92
75	60	52	1575.80	4.30	.00	.00	6.44	16.59
79	60	64	8.20	.00	.00	.00	.05	.00
83	32	68	2149.91	11.62	.00	.00	6.10	10.47
87	80	68	-237.90	-.44	.00	.00	-1.52	-1.48
91	80	84	71.40	.13	.00	.00	.46	.16
95	88	84	-56.00	-.03	.00	.00	-.36	-.10
99	92	88	-40.40	-.05	.00	.00	-.26	-.06
103	92	80	-152.70	-.21	.00	.00	-.97	-.65
107	96	92	-180.30	-.27	.00	.00	-1.15	-.89
111	96	100	55.49	.09	.00	.00	.35	.10
115	104	100	-38.69	-.02	.00	.00	-.25	-.05
119	108	104	-23.29	-.02	.00	.00	-.15	-.02
123	108	96	-113.20	-.12	.00	.00	-.72	-.37
127	112	108	-114.10	-.29	.00	.00	-.73	-.38
131	112	116	1874.58	2.48	.00	.00	5.32	8.12
135	120	112	1772.69	2.21	.00	.00	5.03	7.32
137	10	122	1278.37	1.26	.00	.00	3.63	4.00
139	8	10	1278.37	3.01	.00	.00	3.63	4.00
141	122	120	1278.37	1.32	.00	.00	3.63	4.00
143	120	124	-511.72	-1.94	.00	.00	-3.27	-6.13
147	124	128	-521.32	-2.09	.00	.00	-3.33	-6.34
151	132	128	305.48	.79	.00	.00	1.95	2.36
155	192	132	239.19	1.08	.00	.00	1.53	1.50
159	4	192	-754.96	-.20	.00	.00	-1.57	-.71
163	192	188	25.98	.01	.00	.00	.17	.02
167	188	136	148.73	.81	.00	.00	1.69	2.52
171	136	132	79.28	.26	.00	.00	.90	.79
175	136	140	54.45	.20	.00	.00	.62	.39
179	144	140	-261.04	-.48	.00	.00	-1.67	-1.76
183	128	144	-223.44	-.37	.00	.00	-1.43	-1.32
187	144	148	27.40	.03	.00	.00	.31	.11
191	148	152	16.60	.01	.00	.00	.19	.04
195	140	156	-217.99	-.51	.00	.00	-1.39	-1.26
199	156	160	-64.86	-.08	.00	.00	-.41	-.13

203	160	164	-80.26	-.06	.00	.00	-.51	-.20
207	164	168	38.00	.01	.00	.00	.24	.05
211	168	172	24.20	.01	.00	.00	.15	.02
215	176	164	58.20	.05	.00	.00	.37	.11
219	180	176	58.20	.03	.00	.00	.37	.11
223	180	156	167.54	.22	.00	.00	1.07	.77
227	180	204	-144.27	-.14	.00	.00	-.92	-.59
231	184	180	93.27	.15	.00	.00	.60	.26
235	188	184	108.27	.12	.00	.00	.69	.35
239	188	200	-241.82	-.55	.00	.00	-1.54	-1.53
243	196	200	167.51	.30	.00	.00	1.07	.77
247	192	196	-1031.33	-.83	.00	.00	-2.15	-1.27
251	196	208	-1207.84	-.50	.00	.00	-2.52	-1.70
253	208	212	-18.61	.00	.00	.00	-.12	-.01
257	212	12	-48.21	-.13	.00	.00	-.31	-.08
261	208	216	222.31	.72	.00	.00	1.42	1.31
265	200	216	-86.11	-.07	.00	.00	-.55	-.23
269	216	204	165.27	.75	.00	.00	1.05	.76
273	208	260	-1423.94	-1.33	.00	.00	-2.97	-2.30
277	260	268	-196.34	-1.31	.00	.00	-1.25	-1.04
281	260	264	-1337.99	-.61	.00	.00	-2.79	-2.05
285	264	268	-1345.39	-.70	.00	.00	-2.80	-2.07
289	268	276	-1561.93	-1.98	.00	.00	-3.26	-2.73
293	276	272	331.93	.72	.00	.00	2.12	2.75
297	256	272	-306.13	-2.60	.00	.00	-1.95	-2.37
301	260	256	86.00	.03	.00	.00	.35	.08
305	256	252	367.33	.40	.00	.00	1.50	1.12
309	252	248	346.13	.30	.00	.00	1.41	1.00
313	248	244	331.53	.27	.00	.00	1.35	.92
317	244	240	321.33	.34	.00	.00	1.31	.87
321	240	228	309.73	.63	.00	.00	1.98	2.42
325	228	232	215.05	.86	.00	.00	1.37	1.23
329	232	306	118.70	.11	.00	.00	.76	.41
333	236	164	68.05	.05	.00	.00	.43	.15
337	224	228	-75.48	-.03	.00	.00	-.48	-.18
341	220	224	-55.28	-.04	.00	.00	-.35	-.10
345	216	220	-41.48	-.03	.00	.00	-.26	-.06
349	236	282	-2.91	.00	.00	.00	-.02	.00
353	282	286	-16.71	.00	.00	.00	-.11	-.01
357	286	290	-28.31	-.02	.00	.00	-.18	-.03
361	290	294	-39.75	-.01	.00	.00	-.25	-.05
365	294	232	-88.75	-.13	.00	.00	-.36	-.08
369	290	298	-6.36	.00	.00	.00	-.04	.00
373	298	302	-20.36	-.01	.00	.00	-.13	-.02
377	302	306	-34.96	-.02	.00	.00	-.22	-.04
381	306	236	73.34	.06	.00	.00	.47	.17
385	310	114	-478.00	-3.35	.00	.00	-1.95	-1.82
389	310	314	162.29	.30	.00	.00	.66	.25
393	314	318	147.29	.07	.00	.00	.60	.21
397	318	322	58.46	.03	.00	.00	.24	.04
401	322	326	77.09	.02	.00	.00	.31	.06
405	322	330	-38.42	-.02	.00	.00	-.16	-.02
409	318	330	77.82	.01	.00	.00	.32	.06
413	330	334	15.19	.00	.00	.00	.06	.00
417	330	334	4.61	.00	.00	.00	.03	.00
419	310	326	290.11	.43	.00	.00	1.19	.72
423	338	326	-339.40	-1.06	.00	.00	-1.39	-.97
427	338	342	55.40	.01	.00	.00	.23	.03
431	342	346	27.39	.00	.00	.00	.11	.01
435	342	346	8.41	.00	.00	.00	.05	.00
439	338	350	251.60	.17	.00	.00	1.03	.55
443	350	354	192.20	.37	.00	.00	.79	.34
447	350	358	30.40	.01	.00	.00	.12	.01

451	212	362	.00	.00	.00	.00	.00	.00
455	276	366	232.60	.14	.00	.00	.95	.48
459	366	370	41.60	.06	.00	.00	.27	.06
463	370	374	7.00	.00	.00	.00	.04	.00
467	370	378	12.80	.00	.00	.00	.08	.01
471	366	382	176.40	.11	.00	.00	.72	.29
475	382	386	58.69	.13	.00	.00	.37	.11
479	386	390	27.69	.02	.00	.00	.18	.03
483	382	390	91.11	.15	.00	.00	.37	.08
487	390	394	75.00	.02	.00	.00	.31	.06
491	394	398	68.00	.01	.00	.00	.28	.05
495	398	402	65.60	.07	.00	.00	.27	.05
499	402	406	12.60	.00	.00	.00	.05	.00
503	402	410	13.80	.01	.00	.00	.09	.01
507	276	414	-2148.86	-5.11	.00	.00	-4.48	-4.94
511	414	416	-843.03	-10.47	.00	.00	-1.76	-.87
513	416	418	-1597.22	-1.32	.00	.00	-3.33	-2.85
515	418	422	-1724.49	-2.41	.00	.00	-3.59	-3.28
519	422	426	-2574.66	-3.73	.00	.00	-5.37	-6.90
523	426	428	-2229.06	-4.41	.00	.00	-4.65	-5.28
525	428	430	-1974.13	-5.32	.00	.00	-4.11	-4.22
527	430	434	-2675.55	-4.06	.00	.00	-5.58	-7.41
531	434	438	-3109.26	-6.12	.00	.00	-6.48	-9.78
535	434	442	403.91	5.35	.00	.00	2.58	3.95
539	442	446	363.71	1.51	.00	.00	2.32	3.26
543	430	446	614.22	2.80	.00	.00	2.51	2.90
547	446	450	509.02	.90	.00	.00	2.08	2.05
551	450	428	343.73	1.61	.00	.00	1.40	.99
555	446	454	450.51	1.41	.00	.00	1.84	1.63
559	450	454	111.30	.51	.00	.00	.71	.36
563	454	458	512.01	2.27	.00	.00	2.09	2.07
567	458	462	506.41	.31	.00	.00	1.44	.72
571	462	466	385.80	.24	.00	.00	1.09	.43
573	466	468	374.23	.12	.00	.00	1.06	.41
575	468	470	374.23	.12	.00	.00	1.06	.41
579	470	474	428.41	.21	.00	.00	1.22	.53
581	474	476	406.61	.17	.00	.00	1.15	.48
583	476	478	406.61	.35	.00	.00	1.15	.48
587	478	426	364.41	1.74	.00	.00	1.49	1.10
591	470	482	-78.78	-.24	.00	.00	-.50	-.19
595	466	482	-3.63	.00	.00	.00	-.02	.00
599	462	482	109.80	.24	.00	.00	.70	.35
603	414	486	-637.39	-1.92	.00	.00	-4.07	-9.20
607	486	490	-657.99	-2.41	.00	.00	-4.20	-9.76
611	490	494	-313.78	-1.36	.00	.00	-2.00	-2.48
615	494	498	-326.58	-1.01	.00	.00	-2.08	-2.67
619	498	502	-148.02	-.50	.00	.00	-.94	-.62
623	502	506	-156.82	-.65	.00	.00	-1.00	-.69
627	506	498	197.15	1.15	.00	.00	1.26	1.05
629	506	416	-738.79	-2.61	.00	.00	-4.72	-12.09
631	506	490	361.01	3.52	.00	.00	2.30	3.21
635	414	510	-679.44	-2.00	.00	.00	-4.34	-10.36
639	510	514	-284.63	-1.25	.00	.00	-1.82	-2.07
643	514	518	-309.03	-.61	.00	.00	-1.97	-2.41
647	518	522	-327.03	-.72	.00	.00	-2.09	-2.67
651	522	526	-339.83	-2.09	.00	.00	-2.17	-2.87
655	526	510	414.02	4.67	.00	.00	2.64	4.14
659	526	530	-767.04	-2.80	.00	.00	-4.90	-12.96
663	530	418	-432.01	-2.32	.00	.00	-2.76	-4.48
667	530	534	-350.03	-1.45	.00	.00	-2.23	-3.03
671	534	538	-109.81	-.16	.00	.00	-.70	-.35
675	538	542	-109.81	-.27	.00	.00	-.70	-.35
679	542	546	-109.81	-.07	.00	.00	-.70	-.35

683	546	550	-121.41	-.12	.00	.00	-.77	-.43
687	550	554	-133.41	-.13	.00	.00	-.85	-.51
691	554	558	-215.13	-1.29	.00	.00	-1.37	-1.23
695	558	562	-215.13	-.41	.00	.00	-1.37	-1.23
699	562	422	-441.03	-.83	.00	.00	-2.81	-4.65
703	534	566	-240.22	-.26	.00	.00	-1.53	-1.51
707	566	570	-252.22	-.45	.00	.00	-1.61	-1.65
711	570	554	-72.92	-.04	.00	.00	-.47	-.17
715	570	574	-192.10	-.29	.00	.00	-1.23	-1.00
719	574	578	-203.10	-.17	.00	.00	-1.30	-1.11
723	578	582	-214.50	-.21	.00	.00	-1.37	-1.22
727	582	562	-225.90	-1.07	.00	.00	-1.44	-1.35
731	418	586	-311.55	-.18	.00	.00	-1.27	-.82
735	586	590	.00	.00	.00	.00	.00	.00
739	586	594	-320.95	-.56	.00	.00	-2.05	-2.58
743	594	598	-258.81	-.68	.00	.00	-1.65	-1.73
747	598	422	-400.35	-.99	.00	.00	-2.56	-3.89
751	598	602	122.54	.13	.00	.00	.78	.43
755	602	604	64.27	.06	.00	.00	.41	.13
759	602	604	51.47	.06	.00	.00	.33	.09
763	594	604	-95.14	-.49	.00	.00	-.61	-.27
901	900	904	307.73	.33	.00	.00	1.96	2.06
905	904	908	7.32	.00	.00	.00	.05	.00
909	904	908	7.48	.00	.00	.00	.05	.00
913	904	912	278.13	1.02	.00	.00	1.78	1.71
917	916	912	-261.53	-.67	.00	.00	-1.67	-1.52
918	915	914	.00	.00	.00	.00	.00	.00
919	916	915	113.36	.06	.00	.00	.72	.32
920	915	919	113.36	.17	.00	.00	.72	.32
921	916	918	131.57	.23	.00	.00	.84	.43
922	917	919	-2.82	.00	.00	.00	-.02	.00
923	918	917	-2.82	.00	.00	.00	-.02	.00
924	923	919	-110.54	-.09	.00	.00	-.71	-.31
925	918	920	134.39	.04	.00	.00	.86	.44
927	920	921	.00	.00	.00	.00	.00	.00
929	924	920	-117.79	-.10	.00	.00	-.75	-.35
931	924	923	-110.54	-.05	.00	.00	-.71	-.31
933	926	924	-211.73	-.14	.00	.00	-1.35	-1.03
937	928	926	-211.73	-.22	.00	.00	-1.35	-1.03
941	932	928	-211.73	-.70	.00	.00	-1.35	-1.03
945	56	932	-211.73	-.14	.00	.00	-.60	-.14
949	900	56	1236.67	3.57	.00	.00	3.51	3.76
951	58	56	-1448.40	-1.26	.00	.00	-4.11	-5.04
953	936	58	-1448.40	-.81	.00	.00	-4.11	-5.04
957	936	940	1170.61	4.12	.00	.00	4.78	8.25
961	940	944	1515.77	4.53	.00	.00	6.19	13.31
965	948	944	1495.03	4.67	.00	.00	6.11	12.98
969	948	940	355.95	.15	.00	.00	1.45	.91
973	952	948	1861.79	3.90	.00	.00	7.60	19.48
977	952	936	-277.79	-.08	.00	.00	-.79	-.24

JUNCTION NUMBER	DEMAND	GRADE LINE	ELEVATION	PRESSURE
4	6.80	547.60	468.00	34.49
8	17.40	547.48	456.00	39.64
10	.00	544.47	402.00	61.74
12	28.40	549.26	431.00	51.25
16	10.20	550.49	420.00	56.55
20	7.60	550.48	444.00	46.14
24	12.20	550.48	454.00	41.81
28	12.20	550.48	476.00	32.27
32	12.60	552.62	403.00	64.84
36	12.20	552.62	427.00	54.43

44	17.40	530.01	376.00	66.74
46	.00	530.02	321.00	90.58
48	12.60	530.02	318.00	91.88
52	1.40	530.02	321.00	90.58
56	.00	522.88	433.00	38.95
58	.00	521.62	420.00	44.04
60	8.80	534.32	327.00	89.84
64	8.20	534.32	351.00	79.44
68	15.60	541.01	320.00	95.77
72	25.40	540.28	359.00	78.55
76	.00	540.28	348.00	83.32
80	13.80	540.56	323.00	94.28
84	15.40	540.43	386.00	66.92
88	15.60	540.41	372.00	72.98
92	12.80	540.36	327.00	92.45
96	11.60	540.09	347.00	83.67
100	16.80	540.00	415.00	54.17
104	15.40	539.99	417.00	53.29
108	22.40	539.97	355.00	80.15
112	12.20	539.68	375.00	71.36
114	76.80	529.11	391.00	59.85
116	14.00	537.20	379.00	68.55
120	17.40	541.90	377.00	71.45
122	.00	543.21	385.00	68.56
124	9.60	543.84	401.00	61.90
128	7.60	545.93	422.00	53.70
132	13.00	546.72	456.00	39.31
136	15.00	546.98	446.00	43.76
140	11.40	546.78	446.00	43.67
144	10.20	546.30	429.00	50.83
148	10.80	546.26	415.00	56.88
152	16.60	546.25	390.00	67.71
156	14.40	547.30	423.00	53.86
160	15.40	547.38	393.00	66.90
164	8.00	547.44	426.00	52.62
168	13.80	547.42	396.00	65.62
172	24.20	547.41	380.00	72.55
176	.00	547.49	454.00	40.51
180	11.80	547.52	445.00	44.43
184	15.00	547.67	446.00	44.06
188	10.80	547.79	461.00	37.61
192	11.20	547.80	477.00	30.68
196	9.00	548.63	475.00	31.91
200	11.80	548.34	454.00	40.88
204	21.00	547.66	423.00	54.02
208	12.40	549.13	455.00	40.79
212	29.60	549.13	415.00	58.12
216	12.40	548.41	471.00	33.54
220	13.80	548.44	445.00	44.82
224	20.20	548.47	439.00	47.44
228	19.20	548.51	409.00	60.45
232	7.60	547.65	397.00	65.28
236	8.20	547.48	463.00	36.61
240	11.60	549.13	353.00	84.99
244	10.20	549.47	366.00	79.50
248	14.60	549.74	369.00	78.32
252	21.20	550.04	387.00	70.65
256	24.80	550.43	404.00	63.46
260	24.40	550.46	427.00	53.50
264	7.40	551.07	443.00	46.83
268	20.20	551.77	453.00	42.80
272	25.80	553.04	455.00	42.48
276	22.40	553.75	457.00	41.93

282	13.80	547.48	394.00	66.51
286	11.60	547.49	380.00	72.58
290	17.80	547.51	387.00	69.55
294	49.00	547.52	389.00	68.69
298	14.00	547.51	396.00	65.65
302	14.60	547.52	410.00	59.59
306	10.40	547.54	411.00	59.17
310	25.60	525.76	358.00	72.70
314	15.00	525.46	340.00	80.37
318	11.00	525.39	344.00	78.60
322	19.80	525.36	354.00	74.25
326	27.80	525.33	359.00	72.08
330	19.60	525.38	348.00	76.86
334	19.80	525.37	346.00	77.73
338	32.40	524.27	352.00	74.65
342	19.60	524.26	358.00	72.05
346	35.80	524.26	382.00	61.64
350	29.00	524.10	344.00	78.04
354	192.20	523.73	323.00	86.98
358	30.40	524.09	372.00	65.90
362	.00	549.13	364.00	80.22
366	14.60	553.62	437.00	50.53
370	21.80	553.56	406.00	63.94
374	7.00	553.56	372.00	78.68
378	12.80	553.55	377.00	76.51
382	26.60	553.50	436.00	50.92
386	31.00	553.38	380.00	75.13
390	43.80	553.35	367.00	80.75
394	7.00	553.33	350.00	88.11
398	2.40	553.32	351.00	87.67
402	39.20	553.25	379.00	75.51
406	12.60	553.25	365.00	81.58
410	13.80	553.24	357.00	85.04
414	11.00	558.86	464.00	41.11
416	15.40	569.33	434.00	58.64
418	6.80	570.65	421.00	64.85
422	8.80	573.06	442.00	56.79
426	18.80	576.80	410.00	72.28
428	88.80	581.21	410.00	74.19
430	87.20	586.52	397.00	82.13
434	29.80	590.58	363.00	98.62
438	.00	596.70	315.00	122.07
442	40.20	585.23	375.00	91.10
446	18.40	583.72	367.00	93.91
450	54.00	582.82	383.00	86.59
454	49.80	582.31	348.00	101.53
458	5.60	580.04	366.00	92.75
462	10.80	579.73	373.00	89.58
466	15.20	579.49	382.00	85.58
468	.00	579.38	385.00	84.23
470	24.60	579.25	387.00	83.31
474	21.80	579.05	389.00	82.35
476	.00	578.88	381.00	85.75
478	42.20	578.53	332.00	106.83
482	27.40	579.49	389.00	82.55
486	20.60	560.79	459.00	44.11
490	16.80	563.20	450.00	49.05
494	12.80	564.56	431.00	57.87
498	18.60	565.57	424.00	61.35
502	8.80	566.07	399.00	72.40
506	23.80	566.72	425.00	61.41
510	19.20	560.86	456.00	45.44
514	24.40	562.11	415.00	63.75

518	18.00	562.72	409.00	66.61
522	12.80	563.45	407.00	67.79
526	13.20	565.53	399.00	72.16
530	15.00	568.33	397.00	74.24
534	.00	569.79	399.00	74.01
538	.00	569.94	415.00	67.14
542	.00	570.21	393.00	76.79
546	11.60	570.28	386.00	79.86
550	12.00	570.40	381.00	82.07
554	8.80	570.53	382.00	81.70
558	.00	571.83	422.00	64.92
562	.00	572.24	435.00	59.47
566	12.00	570.04	392.00	77.15
570	12.80	570.49	383.00	81.25
574	11.00	570.78	384.00	80.94
578	11.40	570.95	386.00	80.15
582	11.40	571.16	387.00	79.80
586	9.40	570.83	408.00	70.56
590	.00	570.83	375.00	84.86
594	33.00	571.39	417.00	66.90
598	19.00	572.07	428.00	62.43
602	6.80	571.94	420.00	65.84
604	20.60	571.88	402.00	73.61
900	.00	526.45	345.00	78.63
904	14.80	526.12	346.00	78.05
908	14.80	526.12	339.00	81.09
912	16.60	525.10	366.00	68.94
914	.00	524.37	388.00	59.09
915	.00	524.37	389.00	58.66
916	16.60	524.43	391.00	57.82
917	.00	524.20	395.00	55.99
918	.00	524.20	397.00	55.12
919	.00	524.20	393.00	56.85
920	16.60	524.16	398.00	54.67
921	.00	524.16	396.00	55.53
923	.00	524.10	396.00	55.51
924	16.60	524.08	400.00	53.77
926	.00	523.94	406.00	51.11
928	.00	523.72	412.00	48.41
932	.00	523.02	455.00	29.47
936	.00	520.82	420.00	43.69
940	10.80	516.69	421.00	41.47
944	3010.80	512.17	417.00	41.24
948	10.80	516.84	422.00	41.10
952	.00	520.73	416.00	45.38
	MAXIMUM PRESSURES			
438	.00	596.70	315.00	122.07
478	42.20	578.53	332.00	106.83
454	49.80	582.31	348.00	101.53
434	29.80	590.58	363.00	98.62
68	15.60	541.01	320.00	95.77
80	13.80	540.56	323.00	94.28
446	18.40	583.72	367.00	93.91
458	5.60	580.04	366.00	92.75
92	12.80	540.36	327.00	92.45
48	12.60	530.02	318.00	91.88
	MINIMUM PRESSURES			
932	.00	523.02	455.00	29.47
192	11.20	547.80	477.00	30.68
196	9.00	548.63	475.00	31.91
28	12.20	550.48	476.00	32.27

216	12.40	548.41	471.00	33.54
4	6.80	547.60	468.00	34.49
236	8.20	547.48	463.00	36.61
188	10.80	547.79	461.00	37.61
56	.00	522.88	433.00	38.95
132	13.00	546.72	456.00	39.31

THE NET SYSTEM DEMAND = 5950.40

SUMMARY OF INFLOWS(+) AND OUTFLOWS(-) FROM FIXED GRADE NODES

PIPE NUMBER	FLOWRATE
4	388.45
6	1171.50
10	2452.69
12	1937.77

THE NET FLOW INTO THE SYSTEM FROM FIXED GRADE NODES = 5950.40
THE NET FLOW OUT OF THE SYSTEM INTO FIXED GRADE NODES = .00

N

300 0 300 600 FEET

SCALE: 1" = 300'

LEGEND

- EXISTING WATER
- PROPOSED WATER
- MELROSE+OCEANSIDE PROJECT
- CITY BOUNDARY
- 626 PRESSURE ZONE BOUNDARY
- (24) COMPUTER MODEL NODE NUMBER
- [23] COMPUTER MODEL PIPE NUMBER
- PRESSURE REDUCING STATION

N. SANTA FE AVE.

SUNRIDGE DRIVE

DARWIN DR

MELROSE DRIVE

EX. 4" PRV
EX. 10" PRV

DETAIL B
NOT TO SCALE

CITY OF VISTA
CITY OF OCEANSIDE

CRESTVIEW DRIVE

WESTMORE PLACE

MEADOWBROOK DRIVE

GLENHAVEN DRIVE

W. BOBIER DRIVE

MELROSE DRIVE

NORTHERLY ST

DARWIN DR

TEMPLE HEIGHTS DR

PEACOCK BLVD

DARWIN DRIVE

OCEANSIDE BLVD.

QUAJOME TANKS
511 ZONE

EXISTING PEACOCK HILLS
626 PRESSURE ZONE
BOUNDARY

EX. 626/526 PRESSURE
REDUCING STATION

HEIGHTS DR

TEMPLE

EMPRESA DRIVE

MESA DRIVE

AVENIDA

COLLEGE
BOULEVARD

OLD GROVE ROAD

AVE. DEL LA PLATA

EX. 4" PRV
EX. 12" PRV

DETAIL A
NOT TO SCALE

DETAIL A

DETAIL B

DEXTER WILSON ENGINEERING, INC.
CONSULTING ENGINEERS
2234 FARADAY AVENUE
CARLSBAD, CA 92008
(760) 438-4422

EXHIBIT A
NODE AND PIPE DIAGRAM
MELROSE+OCEANSIDE

\\ARTEX\DWG\MISC\\WATER\EXHIBIT-A_ALT-HEADING 06-23-17 13:17:43 LAYOUT: LAYOUT

2. CALCULATIONS

Scenario Summary	
ID	129
Label	1.0 Existing Model MDD
Notes	
Active Topology	1. Existing Layout
User Data Extensions	Base User Data Extensions
Physical	Base Physical
Demand	1. Calibration MDD
Initial Settings	Base Initial Settings
Operational	Base Operational
Age	Base Age
Constituent	Base Constituent
Trace	Base Trace
Fire Flow	Base Fire Flow
Energy Cost	Base Energy Cost
Pressure Dependent Demand	Base Pressure Dependent Demand
Transient	Base Transient
Failure History	Base Failure History
SCADA	Base SCADA
Steady State / EPS Solver Calculation Options	Base Calculation Options
Transient Solver Calculation Options	Base Calculation Options

Hydraulic Summary			
Time Analysis Type	Steady State	Simulation Start Date	1/1/2000
Friction Method	Hazen-Williams	Hydraulic Time Step	1.000
Accuracy	0.001	Duration	24.000
Trials	40	Calculation Type	Hydraulics Only

Reservoir Table - Time: 0.00 hours

ID	Label	Elevation (ft)
126	R-1	561.7

Report - Junction Table - Time: 0.00 hours

Label	Demand (gpm)	Elevation (ft)	Pressure (psi)
AD-1	500.00	435.7	53.42
AD-2	500.00	457.7	43.58
J-15	0.00	456.0	44.43
J-16	0.00	438.2	52.19
J-21 (932)	0.00	457.7	43.68
J-32	0.00	445.5	49.01
J-33	0.00	434.6	53.76
J-34	0.00	454.4	45.13
J-35	0.00	457.2	43.90
J-37	0.00	457.2	43.90
J-39	0.00	457.2	43.90
J-48 (56)	0.00	435.7	53.34

Report - Pipe Table - Time: 0.00 hours

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Hazen-Williams C	Flow (Absolute) (gpm)	Velocity (ft/s)
FEED-1	J-48 (56)	AD-1	500	12.0	130.0	338.42	0.96
FEED-2	AD-1	R-1	1,000	12.0	130.0	1,000.00	2.84
FEED-3	J-21 (932)	AD-2	100	8.0	130.0	338.42	2.16
FEED-4	AD-2	AD-1	1,200	8.0	130.0	161.58	1.03
V-WATR-36	J-21 (932)	J-35	21	12.0	130.0	338.42	0.96
V-WATR-37	J-33	J-48 (56)	394	12.0	130.0	338.42	0.96
V-WATR-38	J-16	J-33	79	12.0	130.0	338.42	0.96
V-WATR-39	J-32	J-16	167	12.0	130.0	338.42	0.96
V-WATR-40	J-34	J-32	207	12.0	130.0	338.42	0.96
V-WATR-41	J-15	J-34	52	12.0	130.0	338.42	0.96
V-WATR-42	J-39	J-15	52	12.0	130.0	338.42	0.96
V-WATR-43	J-37	J-39	3	12.0	130.0	338.42	0.96
V-WATR-44	J-35	J-37	3	12.0	130.0	338.42	0.96

Scenario Summary	
ID	130
Label	2.0 Existing Model MDD + FF
Notes	
Active Topology	1. Existing Layout
User Data Extensions	Base User Data Extensions
Physical	Base Physical
Demand	2. Calibration MDD + FF
Initial Settings	Base Initial Settings
Operational	Base Operational
Age	Base Age
Constituent	Base Constituent
Trace	Base Trace
Fire Flow	Base Fire Flow
Energy Cost	Base Energy Cost
Pressure Dependent Demand	Base Pressure Dependent Demand
Transient	Base Transient
Failure History	Base Failure History
SCADA	Base SCADA
Steady State / EPS Solver Calculation Options	Base Calculation Options
Transient Solver Calculation Options	Base Calculation Options

Hydraulic Summary			
Time Analysis Type	Steady State	Simulation Start Date	1/1/2000
Friction Method	Hazen-Williams	Hydraulic Time Step	1.000
Accuracy	0.001	Duration	24.000
Trials	40	Calculation Type	Hydraulics Only

Reservoir Table - Time: 0.00 hours

ID	Label	Elevation (ft)
126	R-1	561.7

Report - Junction Table - Time: 0.00 hours

Label	Demand (gpm)	Elevation (ft)	Pressure (psi)
AD-1	1,500.00	435.7	40.22
AD-2	2,500.00	457.7	24.32
J-15	0.00	456.0	27.38
J-16	0.00	438.2	36.31
J-21 (932)	0.00	457.7	26.41
J-32	0.00	445.5	32.67
J-33	0.00	434.6	38.10
J-34	0.00	454.4	28.22
J-35	0.00	457.2	26.69
J-37	0.00	457.2	26.70
J-39	0.00	457.2	26.71
J-48 (56)	0.00	435.7	38.77

Report - Pipe Table - Time: 0.00 hours

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Hazen-Williams C	Flow (Absolute) (gpm)	Velocity (ft/s)
FEED-1	J-48 (56)	AD-1	500	12.0	130.0	1,692.11	4.80
FEED-2	AD-1	R-1	1,000	12.0	130.0	4,000.00	11.35
FEED-3	J-21 (932)	AD-2	100	8.0	130.0	1,692.11	10.80
FEED-4	AD-2	AD-1	1,200	8.0	130.0	807.89	5.16
V-WATR-36	J-21 (932)	J-35	21	12.0	130.0	1,692.11	4.80
V-WATR-37	J-33	J-48 (56)	394	12.0	130.0	1,692.11	4.80
V-WATR-38	J-16	J-33	79	12.0	130.0	1,692.11	4.80
V-WATR-39	J-32	J-16	167	12.0	130.0	1,692.11	4.80
V-WATR-40	J-34	J-32	207	12.0	130.0	1,692.11	4.80
V-WATR-41	J-15	J-34	52	12.0	130.0	1,692.11	4.80
V-WATR-42	J-39	J-15	52	12.0	130.0	1,692.11	4.80
V-WATR-43	J-37	J-39	3	12.0	130.0	1,692.11	4.80
V-WATR-44	J-35	J-37	3	12.0	130.0	1,692.11	4.80

Scenario Summary	
ID	132
Label	3.1 Proposed Model MDD
Notes	
Active Topology	2. Proposed Layout
User Data Extensions	Base User Data Extensions
Physical	Base Physical
Demand	3.1 Project MDD
Initial Settings	Base Initial Settings
Operational	Base Operational
Age	Base Age
Constituent	Base Constituent
Trace	Base Trace
Fire Flow	Base Fire Flow
Energy Cost	Base Energy Cost
Pressure Dependent Demand	Base Pressure Dependent Demand
Transient	Base Transient
Failure History	Base Failure History
SCADA	Base SCADA
Steady State / EPS Solver Calculation Options	Base Calculation Options
Transient Solver Calculation Options	Base Calculation Options

Hydraulic Summary			
Time Analysis Type	Steady State	Simulation Start Date	1/1/2000
Friction Method	Hazen-Williams	Hydraulic Time Step	1.000
Accuracy	0.001	Duration	24.000
Trials	40	Calculation Type	Hydraulics Only

Reservoir Table - Time: 0.00 hours

ID	Label	Elevation (ft)
126	R-1	561.7

Report - Junction Table - Time: 0.00 hours

Label	Demand (gpm)	Elevation (ft)	Pressure (psi)
AD-1	500.00	435.7	53.30
AD-2	500.00	457.7	43.45
FH-1	0.00	455.1	44.69
FH-2	0.00	452.4	45.87
FH-3	0.00	444.8	49.17
FH-4	0.00	450.2	46.84
FIRE-POC-1	0.00	455.1	44.69
FIRE-POC-2	0.00	453.4	45.43
FIRE-POC-3	0.00	452.0	46.04
FIRE-POC-4	0.00	448.1	47.74
FIRE-POC-5	0.00	450.0	46.92
FIRE-POC-6	0.00	451.6	46.23
J-1	0.00	453.2	45.51
J-2	0.00	452.7	45.73
J-3	0.00	449.4	47.18
J-4	0.00	449.4	47.18
J-6	0.00	452.3	45.91
J-7	0.00	449.2	47.27
J-9	0.00	451.8	46.13
J-10	0.00	450.0	46.92
J-13	0.00	453.2	45.52
J-14	0.00	455.3	44.60
J-15	0.00	456.0	44.30
J-16	0.00	438.2	52.04
J-17	0.00	438.5	51.90
J-20	0.00	456.4	44.12
J-21 (932)	0.00	457.7	43.56
J-26	0.00	454.4	44.97
J-28	0.00	445.6	48.79
J-30	0.00	434.6	53.56
J-32	0.00	445.5	48.86
J-33	0.00	434.6	53.61
J-34	0.00	454.4	44.99
J-35	0.00	457.2	43.77
J-36	0.00	456.3	44.14
J-37	0.00	457.2	43.77
J-38	0.00	456.1	43.85
J-39	0.00	457.2	43.77
J-40	0.00	456.0	44.21
J-48 (56)	0.00	435.7	53.21
WATR-POC-1	5.93	454.5	44.93
WATR-POC-2	8.10	454.2	44.81
WATR-POC-3	19.71	451.4	44.02
WATR-POC-4	3.95	447.8	47.65
WATR-POC-5	9.22	439.9	51.23
WATR-POC-6	7.43	450.0	46.88

Report - Pipe Table - Time: 0.00 hours

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Hazen-Williams C	Flow (Absolute) (gpm)	Velocity (ft/s)
C-FIRE-13	J-16	J-17	44	10.0	130.0	119.71	0.49
C-FIRE-14	J-7	FH-4	44	10.0	130.0	0.00	0.00
C-FIRE-15	FH-2	J-6	14	10.0	130.0	0.00	0.00
C-FIRE-16	J-7	J-3	14	10.0	130.0	119.71	0.49
C-FIRE-17	FIRE-POC-3	J-9	23	6.0	130.0	0.00	0.00
C-FIRE-18	J-3	FIRE-POC-6	43	6.0	130.0	0.00	0.00
C-FIRE-19	FIRE-POC-4	J-7	103	6.0	130.0	0.00	0.00
C-FIRE-20	J-14	J-15	37	6.0	130.0	0.00	0.00
C-FIRE-21	FIRE-POC-2	J-13	61	6.0	130.0	0.00	0.00
C-FIRE-22	J-10	FIRE-POC-5	30	6.0	130.0	0.00	0.00
C-FIRE-23	FH-1	J-1	67	10.0	130.0	0.00	0.00
C-FIRE-24	FIRE-POC-1	J-2	77	6.0	130.0	0.00	0.00
C-FIRE-25	J-4	FH-3	132	10.0	130.0	0.00	0.00
C-FIRE-26	J-1	J-2	8	10.0	130.0	119.71	0.49
C-FIRE-27	J-2	J-20	62	10.0	130.0	119.71	0.49
C-FIRE-28	J-20	J-21 (932)	51	10.0	130.0	119.71	0.49
C-FIRE-29	J-17	J-10	104	10.0	130.0	119.71	0.49
C-FIRE-30	J-10	J-7	26	10.0	130.0	119.71	0.49
C-FIRE-31	J-4	J-9	248	10.0	130.0	119.71	0.49
C-FIRE-32	J-3	J-4	9	10.0	130.0	119.71	0.49
C-FIRE-33	J-9	J-6	29	10.0	130.0	119.71	0.49
C-FIRE-34	J-6	J-13	36	10.0	130.0	119.71	0.49
C-FIRE-35	J-13	J-1	203	10.0	130.0	119.71	0.49
C-WATR-1	J-35	J-36	79	2.0	130.0	3.95	0.40
C-WATR-2	J-37	J-38	85	2.0	130.0	19.71	2.01
C-WATR-3	J-39	J-40	92	2.0	130.0	8.10	0.83
C-WATR-4	J-34	J-26	43	2.0	130.0	5.93	0.61
C-WATR-5	J-26	WATR-POC-1	4	2.0	130.0	5.93	0.61
C-WATR-6	J-32	J-28	42	2.0	130.0	7.43	0.76
C-WATR-7	J-28	WATR-POC-6	6	2.0	130.0	7.43	0.76
C-WATR-8	J-33	J-30	42	2.0	130.0	9.22	0.94
C-WATR-9	J-30	WATR-POC-5	30	2.0	130.0	9.22	0.94
C-WATR-10	J-40	WATR-POC-2	198	2.0	130.0	8.10	0.83
C-WATR-11	J-38	WATR-POC-3	396	2.0	130.0	19.71	2.01
C-WATR-12	J-36	WATR-POC-4	707	2.0	130.0	3.95	0.40
FEED-1	J-48 (56)	AD-1	500	12.0	130.0	390.09	1.11
FEED-2	AD-1	R-1	1,000	12.0	130.0	1,054.34	2.99
FEED-3	J-21 (932)	AD-2	100	8.0	130.0	335.74	2.14
FEED-4	AD-2	AD-1	1,200	8.0	130.0	164.26	1.05
V-WATR-36	J-21 (932)	J-35	21	12.0	130.0	216.03	0.61
V-WATR-37	J-33	J-48 (56)	394	12.0	130.0	390.09	1.11
V-WATR-38	J-16	J-33	79	12.0	130.0	380.87	1.08
V-WATR-39	J-32	J-16	167	12.0	130.0	261.15	0.74
V-WATR-40	J-34	J-32	207	12.0	130.0	253.72	0.72
V-WATR-41	J-15	J-34	52	12.0	130.0	247.79	0.70
V-WATR-42	J-39	J-15	52	12.0	130.0	247.79	0.70
V-WATR-43	J-37	J-39	3	12.0	130.0	239.69	0.68
V-WATR-44	J-35	J-37	3	12.0	130.0	219.98	0.62

Scenario Summary	
ID	152
Label	3.2 Proposed Model PHD
Notes	
Active Topology	2. Proposed Layout
User Data Extensions	Base User Data Extensions
Physical	Base Physical
Demand	3.2 Project PHD
Initial Settings	Base Initial Settings
Operational	Base Operational
Age	Base Age
Constituent	Base Constituent
Trace	Base Trace
Fire Flow	Base Fire Flow
Energy Cost	Base Energy Cost
Pressure Dependent Demand	Base Pressure Dependent Demand
Transient	Base Transient
Failure History	Base Failure History
SCADA	Base SCADA
Steady State / EPS Solver Calculation Options	Base Calculation Options
Transient Solver Calculation Options	Base Calculation Options

Hydraulic Summary			
Time Analysis Type	Steady State	Simulation Start Date	1/1/2000
Friction Method	Hazen-Williams	Hydraulic Time Step	1.000
Accuracy	0.001	Duration	24.000
Trials	40	Calculation Type	Hydraulics Only

Reservoir Table - Time: 0.00 hours

ID	Label	Elevation (ft)
126	R-1	561.7

Report - Junction Table - Time: 0.00 hours

Label	Demand (gpm)	Elevation (ft)	Pressure (psi)
AD-1	500.00	435.7	53.25
AD-2	500.00	457.7	43.37
FH-1	0.00	455.1	44.61
FH-2	0.00	452.4	45.79
FH-3	0.00	444.8	49.09
FH-4	0.00	450.2	46.76
FIRE-POC-1	0.00	455.1	44.61
FIRE-POC-2	0.00	453.4	45.35
FIRE-POC-3	0.00	452.0	45.96
FIRE-POC-4	0.00	448.1	47.67
FIRE-POC-5	0.00	450.0	46.85
FIRE-POC-6	0.00	451.6	46.15
J-1	0.00	453.2	45.43
J-2	0.00	452.7	45.65
J-3	0.00	449.4	47.10
J-4	0.00	449.4	47.10
J-6	0.00	452.3	45.83
J-7	0.00	449.2	47.19
J-9	0.00	451.8	46.05
J-10	0.00	450.0	46.85
J-13	0.00	453.2	45.44
J-14	0.00	455.3	44.52
J-15	0.00	456.0	44.22
J-16	0.00	438.2	51.96
J-17	0.00	438.5	51.83
J-20	0.00	456.4	44.04
J-21 (932)	0.00	457.7	43.48
J-26	0.00	454.4	44.87
J-28	0.00	445.6	48.67
J-30	0.00	434.6	53.43
J-32	0.00	445.5	48.78
J-33	0.00	434.6	53.53
J-34	0.00	454.4	44.91
J-35	0.00	457.2	43.69
J-36	0.00	456.3	44.04
J-37	0.00	457.2	43.69
J-38	0.00	456.1	43.32
J-39	0.00	457.2	43.69
J-40	0.00	456.0	44.04
J-48 (56)	0.00	435.7	53.14
WATR-POC-1	8.90	454.5	44.82
WATR-POC-2	12.15	454.2	44.43
WATR-POC-3	29.57	451.4	41.41
WATR-POC-4	5.92	447.8	47.36
WATR-POC-5	13.83	439.9	51.06
WATR-POC-6	11.14	450.0	46.76

Report - Pipe Table - Time: 0.00 hours

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Hazen-Williams C	Flow (Absolute) (gpm)	Velocity (ft/s)
C-FIRE-13	J-16	J-17	44	10.0	130.0	124.07	0.51
C-FIRE-14	J-7	FH-4	44	10.0	130.0	0.00	0.00
C-FIRE-15	FH-2	J-6	14	10.0	130.0	0.00	0.00
C-FIRE-16	J-7	J-3	14	10.0	130.0	124.07	0.51
C-FIRE-17	FIRE-POC-3	J-9	23	6.0	130.0	0.00	0.00
C-FIRE-18	J-3	FIRE-POC-6	43	6.0	130.0	0.00	0.00
C-FIRE-19	FIRE-POC-4	J-7	103	6.0	130.0	0.00	0.00
C-FIRE-20	J-14	J-15	37	6.0	130.0	0.00	0.00
C-FIRE-21	FIRE-POC-2	J-13	61	6.0	130.0	0.00	0.00
C-FIRE-22	J-10	FIRE-POC-5	30	6.0	130.0	0.00	0.00
C-FIRE-23	FH-1	J-1	67	10.0	130.0	0.00	0.00
C-FIRE-24	FIRE-POC-1	J-2	77	6.0	130.0	0.00	0.00
C-FIRE-25	J-4	FH-3	132	10.0	130.0	0.00	0.00
C-FIRE-26	J-1	J-2	8	10.0	130.0	124.07	0.51
C-FIRE-27	J-2	J-20	62	10.0	130.0	124.07	0.51
C-FIRE-28	J-20	J-21 (932)	51	10.0	130.0	124.07	0.51
C-FIRE-29	J-17	J-10	104	10.0	130.0	124.07	0.51
C-FIRE-30	J-10	J-7	26	10.0	130.0	124.07	0.51
C-FIRE-31	J-4	J-9	248	10.0	130.0	124.07	0.51
C-FIRE-32	J-3	J-4	9	10.0	130.0	124.07	0.51
C-FIRE-33	J-9	J-6	29	10.0	130.0	124.07	0.51
C-FIRE-34	J-6	J-13	36	10.0	130.0	124.07	0.51
C-FIRE-35	J-13	J-1	203	10.0	130.0	124.07	0.51
C-WATR-1	J-35	J-36	79	2.0	130.0	5.92	0.60
C-WATR-2	J-37	J-38	85	2.0	130.0	29.57	3.02
C-WATR-3	J-39	J-40	92	2.0	130.0	12.15	1.24
C-WATR-4	J-34	J-26	43	2.0	130.0	8.90	0.91
C-WATR-5	J-26	WATR-POC-1	4	2.0	130.0	8.90	0.91
C-WATR-6	J-32	J-28	42	2.0	130.0	11.14	1.14
C-WATR-7	J-28	WATR-POC-6	6	2.0	130.0	11.14	1.14
C-WATR-8	J-33	J-30	42	2.0	130.0	13.83	1.41
C-WATR-9	J-30	WATR-POC-5	30	2.0	130.0	13.83	1.41
C-WATR-10	J-40	WATR-POC-2	198	2.0	130.0	12.15	1.24
C-WATR-11	J-38	WATR-POC-3	396	2.0	130.0	29.57	3.02
C-WATR-12	J-36	WATR-POC-4	707	2.0	130.0	5.92	0.60
FEED-1	J-48 (56)	AD-1	500	12.0	130.0	412.11	1.17
FEED-2	AD-1	R-1	1,000	12.0	130.0	1,081.51	3.07
FEED-3	J-21 (932)	AD-2	100	8.0	130.0	330.60	2.11
FEED-4	AD-2	AD-1	1,200	8.0	130.0	169.40	1.08
V-WATR-36	J-21 (932)	J-35	21	12.0	130.0	206.53	0.59
V-WATR-37	J-33	J-48 (56)	394	12.0	130.0	412.11	1.17
V-WATR-38	J-16	J-33	79	12.0	130.0	398.28	1.13
V-WATR-39	J-32	J-16	167	12.0	130.0	274.21	0.78
V-WATR-40	J-34	J-32	207	12.0	130.0	263.07	0.75
V-WATR-41	J-15	J-34	52	12.0	130.0	254.17	0.72
V-WATR-42	J-39	J-15	52	12.0	130.0	254.17	0.72
V-WATR-43	J-37	J-39	3	12.0	130.0	242.02	0.69
V-WATR-44	J-35	J-37	3	12.0	130.0	212.45	0.60

Scenario Summary	
ID	133
Label	4.1 Proposed Model MDD + FF (FH-1)
Notes	
Active Topology	2. Proposed Layout
User Data Extensions	Base User Data Extensions
Physical	Base Physical
Demand	4.1 Project MDD + FF
Initial Settings	Base Initial Settings
Operational	Base Operational
Age	Base Age
Constituent	Base Constituent
Trace	Base Trace
Fire Flow	Base Fire Flow
Energy Cost	Base Energy Cost
Pressure Dependent Demand	Base Pressure Dependent Demand
Transient	Base Transient
Failure History	Base Failure History
SCADA	Base SCADA
Steady State / EPS Solver Calculation Options	Base Calculation Options
Transient Solver Calculation Options	Base Calculation Options

Hydraulic Summary			
Time Analysis Type	Steady State	Simulation Start Date	1/1/2000
Friction Method	Hazen-Williams	Hydraulic Time Step	1.000
Accuracy	0.001	Duration	24.000
Trials	40	Calculation Type	Hydraulics Only

Reservoir Table - Time: 0.00 hours

ID	Label	Elevation (ft)
126	R-1	561.7

Report - Junction Table - Time: 0.00 hours

Label	Demand (gpm)	Elevation (ft)	Pressure (psi)
AD-1	500.00	435.7	39.86
AD-2	500.00	457.7	22.70
FH-1	3,000.00	455.1	21.27
FH-2	0.00	452.4	24.57
FH-3	0.00	444.8	28.74
FH-4	0.00	450.2	26.48
FIRE-POC-1	0.00	455.1	22.70
FIRE-POC-2	0.00	453.4	24.02
FIRE-POC-3	0.00	452.0	24.83
FIRE-POC-4	0.00	448.1	27.39
FIRE-POC-5	0.00	450.0	26.65
FIRE-POC-6	0.00	451.6	25.83
J-1	0.00	453.2	23.46
J-2	0.00	452.7	23.74
J-3	0.00	449.4	26.78
J-4	0.00	449.4	26.75
J-6	0.00	452.3	24.61
J-7	0.00	449.2	26.91
J-9	0.00	451.8	24.92
J-10	0.00	450.0	26.65
J-13	0.00	453.2	24.11
J-14	0.00	455.3	23.79
J-15	0.00	456.0	23.49
J-16	0.00	438.2	32.23
J-17	0.00	438.5	31.96
J-20	0.00	456.4	22.68
J-21 (932)	0.00	457.7	22.56
J-26	0.00	454.4	24.28
J-28	0.00	445.6	28.58
J-30	0.00	434.6	34.27
J-32	0.00	445.5	28.66
J-33	0.00	434.6	34.32
J-34	0.00	454.4	24.30
J-35	0.00	457.2	22.82
J-36	0.00	456.3	23.20
J-37	0.00	457.2	22.83
J-38	0.00	456.1	22.91
J-39	0.00	457.2	22.84
J-40	0.00	456.0	23.27
J-48 (56)	0.00	435.7	36.50
WATR-POC-1	5.93	454.5	24.24
WATR-POC-2	8.10	454.2	23.87
WATR-POC-3	19.71	451.4	23.08
WATR-POC-4	3.95	447.8	26.70
WATR-POC-5	9.22	439.9	31.94
WATR-POC-6	7.43	450.0	26.68

Report - Pipe Table - Time: 0.00 hours

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Hazen-Williams C	Flow (Absolute) (gpm)	Velocity (ft/s)
C-FIRE-13	J-16	J-17	44	10.0	130.0	1,104.70	4.51
C-FIRE-14	J-7	FH-4	44	10.0	130.0	0.00	0.00
C-FIRE-15	FH-2	J-6	14	10.0	130.0	0.00	0.00
C-FIRE-16	J-7	J-3	14	10.0	130.0	1,104.70	4.51
C-FIRE-17	FIRE-POC-3	J-9	23	6.0	130.0	0.00	0.00
C-FIRE-18	J-3	FIRE-POC-6	43	6.0	130.0	0.00	0.00
C-FIRE-19	FIRE-POC-4	J-7	103	6.0	130.0	0.00	0.00
C-FIRE-20	J-14	J-15	37	6.0	130.0	0.00	0.00
C-FIRE-21	FIRE-POC-2	J-13	61	6.0	130.0	0.00	0.00
C-FIRE-22	J-10	FIRE-POC-5	30	6.0	130.0	0.00	0.00
C-FIRE-23	FH-1	J-1	67	10.0	130.0	3,000.00	12.25
C-FIRE-24	FIRE-POC-1	J-2	77	6.0	130.0	0.00	0.00
C-FIRE-25	J-4	FH-3	132	10.0	130.0	0.00	0.00
C-FIRE-26	J-1	J-2	8	10.0	130.0	1,895.31	7.74
C-FIRE-27	J-2	J-20	62	10.0	130.0	1,895.31	7.74
C-FIRE-28	J-20	J-21 (932)	51	10.0	130.0	1,895.31	7.74
C-FIRE-29	J-17	J-10	104	10.0	130.0	1,104.70	4.51
C-FIRE-30	J-10	J-7	26	10.0	130.0	1,104.70	4.51
C-FIRE-31	J-4	J-9	248	10.0	130.0	1,104.70	4.51
C-FIRE-32	J-3	J-4	9	10.0	130.0	1,104.70	4.51
C-FIRE-33	J-9	J-6	29	10.0	130.0	1,104.69	4.51
C-FIRE-34	J-6	J-13	36	10.0	130.0	1,104.69	4.51
C-FIRE-35	J-13	J-1	203	10.0	130.0	1,104.69	4.51
C-WATR-1	J-35	J-36	79	2.0	130.0	3.95	0.40
C-WATR-2	J-37	J-38	85	2.0	130.0	19.71	2.01
C-WATR-3	J-39	J-40	92	2.0	130.0	8.10	0.83
C-WATR-4	J-34	J-26	43	2.0	130.0	5.93	0.61
C-WATR-5	J-26	WATR-POC-1	4	2.0	130.0	5.93	0.61
C-WATR-6	J-32	J-28	42	2.0	130.0	7.43	0.76
C-WATR-7	J-28	WATR-POC-6	6	2.0	130.0	7.43	0.76
C-WATR-8	J-33	J-30	42	2.0	130.0	9.22	0.94
C-WATR-9	J-30	WATR-POC-5	30	2.0	130.0	9.22	0.94
C-WATR-10	J-40	WATR-POC-2	198	2.0	130.0	8.10	0.83
C-WATR-11	J-38	WATR-POC-3	396	2.0	130.0	19.71	2.01
C-WATR-12	J-36	WATR-POC-4	707	2.0	130.0	3.95	0.40
FEED-1	J-48 (56)	AD-1	500	12.0	130.0	2,664.08	7.56
FEED-2	AD-1	R-1	1,000	12.0	130.0	4,054.34	11.50
FEED-3	J-21 (932)	AD-2	100	8.0	130.0	390.26	2.49
FEED-4	AD-2	AD-1	1,200	8.0	130.0	890.26	5.68
V-WATR-36	J-21 (932)	J-35	21	12.0	130.0	1,505.04	4.27
V-WATR-37	J-33	J-48 (56)	394	12.0	130.0	2,664.08	7.56
V-WATR-38	J-16	J-33	79	12.0	130.0	2,654.86	7.53
V-WATR-39	J-32	J-16	167	12.0	130.0	1,550.17	4.40
V-WATR-40	J-34	J-32	207	12.0	130.0	1,542.73	4.38
V-WATR-41	J-15	J-34	52	12.0	130.0	1,536.80	4.36
V-WATR-42	J-39	J-15	52	12.0	130.0	1,536.80	4.36
V-WATR-43	J-37	J-39	3	12.0	130.0	1,528.70	4.34
V-WATR-44	J-35	J-37	3	12.0	130.0	1,508.99	4.28

Scenario Summary	
ID	146
Label	4.2 Proposed Model MDD + FF (FH-2)
Notes	
Active Topology	2. Proposed Layout
User Data Extensions	Base User Data Extensions
Physical	Base Physical
Demand	4.2 Project MDD + FF
Initial Settings	Base Initial Settings
Operational	Base Operational
Age	Base Age
Constituent	Base Constituent
Trace	Base Trace
Fire Flow	Base Fire Flow
Energy Cost	Base Energy Cost
Pressure Dependent Demand	Base Pressure Dependent Demand
Transient	Base Transient
Failure History	Base Failure History
SCADA	Base SCADA
Steady State / EPS Solver Calculation Options	Base Calculation Options
Transient Solver Calculation Options	Base Calculation Options

Hydraulic Summary			
Time Analysis Type	Steady State	Simulation Start Date	1/1/2000
Friction Method	Hazen-Williams	Hydraulic Time Step	1.000
Accuracy	0.001	Duration	24.000
Trials	40	Calculation Type	Hydraulics Only

Reservoir Table - Time: 0.00 hours

ID	Label	Elevation (ft)
126	R-1	561.7

Report - Junction Table - Time: 0.00 hours

Label	Demand (gpm)	Elevation (ft)	Pressure (psi)
AD-1	500.00	435.7	39.86
AD-2	500.00	457.7	23.08
FH-1	0.00	455.1	23.41
FH-2	3,000.00	452.4	22.98
FH-3	0.00	444.8	28.13
FH-4	0.00	450.2	25.93
FIRE-POC-1	0.00	455.1	23.46
FIRE-POC-2	0.00	453.4	23.02
FIRE-POC-3	0.00	452.0	23.59
FIRE-POC-4	0.00	448.1	26.84
FIRE-POC-5	0.00	450.0	26.16
FIRE-POC-6	0.00	451.6	25.24
J-1	0.00	453.2	24.24
J-2	0.00	452.7	24.49
J-3	0.00	449.4	26.19
J-4	0.00	449.4	26.14
J-6	0.00	452.3	23.30
J-7	0.00	449.2	26.36
J-9	0.00	451.8	23.68
J-10	0.00	450.0	26.16
J-13	0.00	453.2	23.11
J-14	0.00	455.3	24.11
J-15	0.00	456.0	23.80
J-16	0.00	438.2	32.12
J-17	0.00	438.5	31.74
J-20	0.00	456.4	23.24
J-21 (932)	0.00	457.7	22.96
J-26	0.00	454.4	24.55
J-28	0.00	445.6	28.64
J-30	0.00	434.6	34.17
J-32	0.00	445.5	28.72
J-33	0.00	434.6	34.21
J-34	0.00	454.4	24.57
J-35	0.00	457.2	23.20
J-36	0.00	456.3	23.57
J-37	0.00	457.2	23.21
J-38	0.00	456.1	23.28
J-39	0.00	457.2	23.21
J-40	0.00	456.0	23.65
J-48 (56)	0.00	435.7	36.44
WATR-POC-1	5.93	454.5	24.50
WATR-POC-2	8.10	454.2	24.24
WATR-POC-3	19.71	451.4	23.45
WATR-POC-4	3.95	447.8	27.08
WATR-POC-5	9.22	439.9	31.84
WATR-POC-6	7.43	450.0	26.73

Report - Pipe Table - Time: 0.00 hours

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Hazen-Williams C	Flow (Absolute) (gpm)	Velocity (ft/s)
C-FIRE-13	J-16	J-17	44	10.0	130.0	1,513.41	6.18
C-FIRE-14	J-7	FH-4	44	10.0	130.0	0.00	0.00
C-FIRE-15	FH-2	J-6	14	10.0	130.0	3,000.00	12.25
C-FIRE-16	J-7	J-3	14	10.0	130.0	1,513.41	6.18
C-FIRE-17	FIRE-POC-3	J-9	23	6.0	130.0	0.00	0.00
C-FIRE-18	J-3	FIRE-POC-6	43	6.0	130.0	0.00	0.00
C-FIRE-19	FIRE-POC-4	J-7	103	6.0	130.0	0.00	0.00
C-FIRE-20	J-14	J-15	37	6.0	130.0	0.00	0.00
C-FIRE-21	FIRE-POC-2	J-13	61	6.0	130.0	0.00	0.00
C-FIRE-22	J-10	FIRE-POC-5	30	6.0	130.0	0.00	0.00
C-FIRE-23	FH-1	J-1	67	10.0	130.0	0.00	0.00
C-FIRE-24	FIRE-POC-1	J-2	77	6.0	130.0	0.00	0.00
C-FIRE-25	J-4	FH-3	132	10.0	130.0	0.00	0.00
C-FIRE-26	J-1	J-2	8	10.0	130.0	1,486.59	6.07
C-FIRE-27	J-2	J-20	62	10.0	130.0	1,486.59	6.07
C-FIRE-28	J-20	J-21 (932)	51	10.0	130.0	1,486.59	6.07
C-FIRE-29	J-17	J-10	104	10.0	130.0	1,513.41	6.18
C-FIRE-30	J-10	J-7	26	10.0	130.0	1,513.41	6.18
C-FIRE-31	J-4	J-9	248	10.0	130.0	1,513.41	6.18
C-FIRE-32	J-3	J-4	9	10.0	130.0	1,513.41	6.18
C-FIRE-33	J-9	J-6	29	10.0	130.0	1,513.41	6.18
C-FIRE-34	J-6	J-13	36	10.0	130.0	1,486.59	6.07
C-FIRE-35	J-13	J-1	203	10.0	130.0	1,486.59	6.07
C-WATR-1	J-35	J-36	79	2.0	130.0	3.95	0.40
C-WATR-2	J-37	J-38	85	2.0	130.0	19.71	2.01
C-WATR-3	J-39	J-40	92	2.0	130.0	8.10	0.83
C-WATR-4	J-34	J-26	43	2.0	130.0	5.93	0.61
C-WATR-5	J-26	WATR-POC-1	4	2.0	130.0	5.93	0.61
C-WATR-6	J-32	J-28	42	2.0	130.0	7.43	0.76
C-WATR-7	J-28	WATR-POC-6	6	2.0	130.0	7.43	0.76
C-WATR-8	J-33	J-30	42	2.0	130.0	9.22	0.94
C-WATR-9	J-30	WATR-POC-5	30	2.0	130.0	9.22	0.94
C-WATR-10	J-40	WATR-POC-2	198	2.0	130.0	8.10	0.83
C-WATR-11	J-38	WATR-POC-3	396	2.0	130.0	19.71	2.01
C-WATR-12	J-36	WATR-POC-4	707	2.0	130.0	3.95	0.40
FEED-1	J-48 (56)	AD-1	500	12.0	130.0	2,688.41	7.63
FEED-2	AD-1	R-1	1,000	12.0	130.0	4,054.34	11.50
FEED-3	J-21 (932)	AD-2	100	8.0	130.0	365.93	2.34
FEED-4	AD-2	AD-1	1,200	8.0	130.0	865.93	5.53
V-WATR-36	J-21 (932)	J-35	21	12.0	130.0	1,120.65	3.18
V-WATR-37	J-33	J-48 (56)	394	12.0	130.0	2,688.41	7.63
V-WATR-38	J-16	J-33	79	12.0	130.0	2,679.19	7.60
V-WATR-39	J-32	J-16	167	12.0	130.0	1,165.78	3.31
V-WATR-40	J-34	J-32	207	12.0	130.0	1,158.35	3.29
V-WATR-41	J-15	J-34	52	12.0	130.0	1,152.42	3.27
V-WATR-42	J-39	J-15	52	12.0	130.0	1,152.41	3.27
V-WATR-43	J-37	J-39	3	12.0	130.0	1,144.31	3.25
V-WATR-44	J-35	J-37	3	12.0	130.0	1,124.60	3.19

Scenario Summary	
ID	147
Label	4.3 Proposed Model MDD + FF (FH-3)
Notes	
Active Topology	2. Proposed Layout
User Data Extensions	Base User Data Extensions
Physical	Base Physical
Demand	4.3 Project MDD + FF
Initial Settings	Base Initial Settings
Operational	Base Operational
Age	Base Age
Constituent	Base Constituent
Trace	Base Trace
Fire Flow	Base Fire Flow
Energy Cost	Base Energy Cost
Pressure Dependent Demand	Base Pressure Dependent Demand
Transient	Base Transient
Failure History	Base Failure History
SCADA	Base SCADA
Steady State / EPS Solver Calculation Options	Base Calculation Options
Transient Solver Calculation Options	Base Calculation Options

Hydraulic Summary			
Time Analysis Type	Steady State	Simulation Start Date	1/1/2000
Friction Method	Hazen-Williams	Hydraulic Time Step	1.000
Accuracy	0.001	Duration	24.000
Trials	40	Calculation Type	Hydraulics Only

Reservoir Table - Time: 0.00 hours

ID	Label	Elevation (ft)
126	R-1	561.7

Report - Junction Table - Time: 0.00 hours

Label	Demand (gpm)	Elevation (ft)	Pressure (psi)
AD-1	500.00	435.7	39.86
AD-2	500.00	457.7	23.42
FH-1	0.00	455.1	24.12
FH-2	0.00	452.4	24.67
FH-3	3,000.00	444.8	24.56
FH-4	0.00	450.2	25.13
FIRE-POC-1	0.00	455.1	24.14
FIRE-POC-2	0.00	453.4	24.33
FIRE-POC-3	0.00	452.0	24.77
FIRE-POC-4	0.00	448.1	26.03
FIRE-POC-5	0.00	450.0	25.47
FIRE-POC-6	0.00	451.6	24.38
J-1	0.00	453.2	24.95
J-2	0.00	452.7	25.18
J-3	0.00	449.4	25.33
J-4	0.00	449.4	25.25
J-6	0.00	452.3	24.72
J-7	0.00	449.2	25.56
J-9	0.00	451.8	24.86
J-10	0.00	450.0	25.47
J-13	0.00	453.2	24.42
J-14	0.00	455.3	24.39
J-15	0.00	456.0	24.09
J-16	0.00	438.2	32.02
J-17	0.00	438.5	31.46
J-20	0.00	456.4	23.74
J-21 (932)	0.00	457.7	23.31
J-26	0.00	454.4	24.78
J-28	0.00	445.6	28.69
J-30	0.00	434.6	34.07
J-32	0.00	445.5	28.77
J-33	0.00	434.6	34.12
J-34	0.00	454.4	24.81
J-35	0.00	457.2	23.54
J-36	0.00	456.3	23.91
J-37	0.00	457.2	23.54
J-38	0.00	456.1	23.61
J-39	0.00	457.2	23.54
J-40	0.00	456.0	23.98
J-48 (56)	0.00	435.7	36.39
WATR-POC-1	5.93	454.5	24.74
WATR-POC-2	8.10	454.2	24.58
WATR-POC-3	19.71	451.4	23.79
WATR-POC-4	3.95	447.8	27.42
WATR-POC-5	9.22	439.9	31.74
WATR-POC-6	7.43	450.0	26.78

Report - Pipe Table - Time: 0.00 hours

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Hazen-Williams C	Flow (Absolute) (gpm)	Velocity (ft/s)
C-FIRE-13	J-16	J-17	44	10.0	130.0	2,014.35	8.23
C-FIRE-14	J-7	FH-4	44	10.0	130.0	0.00	0.00
C-FIRE-15	FH-2	J-6	14	10.0	130.0	0.00	0.00
C-FIRE-16	J-7	J-3	14	10.0	130.0	2,014.35	8.23
C-FIRE-17	FIRE-POC-3	J-9	23	6.0	130.0	0.00	0.00
C-FIRE-18	J-3	FIRE-POC-6	43	6.0	130.0	0.00	0.00
C-FIRE-19	FIRE-POC-4	J-7	103	6.0	130.0	0.00	0.00
C-FIRE-20	J-14	J-15	37	6.0	130.0	0.00	0.00
C-FIRE-21	FIRE-POC-2	J-13	61	6.0	130.0	0.00	0.00
C-FIRE-22	J-10	FIRE-POC-5	30	6.0	130.0	0.00	0.00
C-FIRE-23	FH-1	J-1	67	10.0	130.0	0.00	0.00
C-FIRE-24	FIRE-POC-1	J-2	77	6.0	130.0	0.00	0.00
C-FIRE-25	J-4	FH-3	132	10.0	130.0	3,000.00	12.25
C-FIRE-26	J-1	J-2	8	10.0	130.0	985.65	4.03
C-FIRE-27	J-2	J-20	62	10.0	130.0	985.65	4.03
C-FIRE-28	J-20	J-21 (932)	51	10.0	130.0	985.65	4.03
C-FIRE-29	J-17	J-10	104	10.0	130.0	2,014.35	8.23
C-FIRE-30	J-10	J-7	26	10.0	130.0	2,014.35	8.23
C-FIRE-31	J-4	J-9	248	10.0	130.0	985.65	4.03
C-FIRE-32	J-3	J-4	9	10.0	130.0	2,014.35	8.23
C-FIRE-33	J-9	J-6	29	10.0	130.0	985.65	4.03
C-FIRE-34	J-6	J-13	36	10.0	130.0	985.65	4.03
C-FIRE-35	J-13	J-1	203	10.0	130.0	985.65	4.03
C-WATR-1	J-35	J-36	79	2.0	130.0	3.95	0.40
C-WATR-2	J-37	J-38	85	2.0	130.0	19.71	2.01
C-WATR-3	J-39	J-40	92	2.0	130.0	8.10	0.83
C-WATR-4	J-34	J-26	43	2.0	130.0	5.93	0.61
C-WATR-5	J-26	WATR-POC-1	4	2.0	130.0	5.93	0.61
C-WATR-6	J-32	J-28	42	2.0	130.0	7.43	0.76
C-WATR-7	J-28	WATR-POC-6	6	2.0	130.0	7.43	0.76
C-WATR-8	J-33	J-30	42	2.0	130.0	9.22	0.94
C-WATR-9	J-30	WATR-POC-5	30	2.0	130.0	9.22	0.94
C-WATR-10	J-40	WATR-POC-2	198	2.0	130.0	8.10	0.83
C-WATR-11	J-38	WATR-POC-3	396	2.0	130.0	19.71	2.01
C-WATR-12	J-36	WATR-POC-4	707	2.0	130.0	3.95	0.40
FEED-1	J-48 (56)	AD-1	500	12.0	130.0	2,710.58	7.69
FEED-2	AD-1	R-1	1,000	12.0	130.0	4,054.34	11.50
FEED-3	J-21 (932)	AD-2	100	8.0	130.0	343.76	2.19
FEED-4	AD-2	AD-1	1,200	8.0	130.0	843.76	5.39
V-WATR-36	J-21 (932)	J-35	21	12.0	130.0	641.89	1.82
V-WATR-37	J-33	J-48 (56)	394	12.0	130.0	2,710.58	7.69
V-WATR-38	J-16	J-33	79	12.0	130.0	2,701.36	7.66
V-WATR-39	J-32	J-16	167	12.0	130.0	687.01	1.95
V-WATR-40	J-34	J-32	207	12.0	130.0	679.58	1.93
V-WATR-41	J-15	J-34	52	12.0	130.0	673.65	1.91
V-WATR-42	J-39	J-15	52	12.0	130.0	673.65	1.91
V-WATR-43	J-37	J-39	3	12.0	130.0	665.55	1.89
V-WATR-44	J-35	J-37	3	12.0	130.0	645.84	1.83

Scenario Summary	
ID	148
Label	4.4 Proposed Model MDD + FF (FH-4)
Notes	
Active Topology	2. Proposed Layout
User Data Extensions	Base User Data Extensions
Physical	Base Physical
Demand	4.4 Project MDD + FF
Initial Settings	Base Initial Settings
Operational	Base Operational
Age	Base Age
Constituent	Base Constituent
Trace	Base Trace
Fire Flow	Base Fire Flow
Energy Cost	Base Energy Cost
Pressure Dependent Demand	Base Pressure Dependent Demand
Transient	Base Transient
Failure History	Base Failure History
SCADA	Base SCADA
Steady State / EPS Solver Calculation Options	Base Calculation Options
Transient Solver Calculation Options	Base Calculation Options

Hydraulic Summary			
Time Analysis Type	Steady State	Simulation Start Date	1/1/2000
Friction Method	Hazen-Williams	Hydraulic Time Step	1.000
Accuracy	0.001	Duration	24.000
Trials	40	Calculation Type	Hydraulics Only

Reservoir Table - Time: 0.00 hours

ID	Label	Elevation (ft)
126	R-1	561.7

Report - Junction Table - Time: 0.00 hours

Label	Demand (gpm)	Elevation (ft)	Pressure (psi)
AD-1	500.00	435.7	39.86
AD-2	500.00	457.7	23.45
FH-1	0.00	455.1	24.18
FH-2	0.00	452.4	24.79
FH-3	0.00	444.8	27.43
FH-4	3,000.00	450.2	24.13
FIRE-POC-1	0.00	455.1	24.20
FIRE-POC-2	0.00	453.4	24.44
FIRE-POC-3	0.00	452.0	24.89
FIRE-POC-4	0.00	448.1	25.94
FIRE-POC-5	0.00	450.0	25.39
FIRE-POC-6	0.00	451.6	24.46
J-1	0.00	453.2	25.00
J-2	0.00	452.7	25.24
J-3	0.00	449.4	25.42
J-4	0.00	449.4	25.44
J-6	0.00	452.3	24.83
J-7	0.00	449.2	25.47
J-9	0.00	451.8	24.98
J-10	0.00	450.0	25.39
J-13	0.00	453.2	24.53
J-14	0.00	455.3	24.41
J-15	0.00	456.0	24.11
J-16	0.00	438.2	32.01
J-17	0.00	438.5	31.43
J-20	0.00	456.4	23.78
J-21 (932)	0.00	457.7	23.34
J-26	0.00	454.4	24.80
J-28	0.00	445.6	28.70
J-30	0.00	434.6	34.06
J-32	0.00	445.5	28.77
J-33	0.00	434.6	34.11
J-34	0.00	454.4	24.82
J-35	0.00	457.2	23.56
J-36	0.00	456.3	23.93
J-37	0.00	457.2	23.56
J-38	0.00	456.1	23.64
J-39	0.00	457.2	23.57
J-40	0.00	456.0	24.00
J-48 (56)	0.00	435.7	36.38
WATR-POC-1	5.93	454.5	24.76
WATR-POC-2	8.10	454.2	24.60
WATR-POC-3	19.71	451.4	23.81
WATR-POC-4	3.95	447.8	27.44
WATR-POC-5	9.22	439.9	31.74
WATR-POC-6	7.43	450.0	26.79

Report - Pipe Table - Time: 0.00 hours

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Hazen-Williams C	Flow (Absolute) (gpm)	Velocity (ft/s)
C-FIRE-13	J-16	J-17	44	10.0	130.0	2,065.97	8.44
C-FIRE-14	J-7	FH-4	44	10.0	130.0	3,000.00	12.25
C-FIRE-15	FH-2	J-6	14	10.0	130.0	0.00	0.00
C-FIRE-16	J-7	J-3	14	10.0	130.0	934.03	3.82
C-FIRE-17	FIRE-POC-3	J-9	23	6.0	130.0	0.00	0.00
C-FIRE-18	J-3	FIRE-POC-6	43	6.0	130.0	0.00	0.00
C-FIRE-19	FIRE-POC-4	J-7	103	6.0	130.0	0.00	0.00
C-FIRE-20	J-14	J-15	37	6.0	130.0	0.00	0.00
C-FIRE-21	FIRE-POC-2	J-13	61	6.0	130.0	0.00	0.00
C-FIRE-22	J-10	FIRE-POC-5	30	6.0	130.0	0.00	0.00
C-FIRE-23	FH-1	J-1	67	10.0	130.0	0.00	0.00
C-FIRE-24	FIRE-POC-1	J-2	77	6.0	130.0	0.00	0.00
C-FIRE-25	J-4	FH-3	132	10.0	130.0	0.00	0.00
C-FIRE-26	J-1	J-2	8	10.0	130.0	934.03	3.82
C-FIRE-27	J-2	J-20	62	10.0	130.0	934.03	3.82
C-FIRE-28	J-20	J-21 (932)	51	10.0	130.0	934.03	3.82
C-FIRE-29	J-17	J-10	104	10.0	130.0	2,065.97	8.44
C-FIRE-30	J-10	J-7	26	10.0	130.0	2,065.97	8.44
C-FIRE-31	J-4	J-9	248	10.0	130.0	934.03	3.82
C-FIRE-32	J-3	J-4	9	10.0	130.0	934.03	3.82
C-FIRE-33	J-9	J-6	29	10.0	130.0	934.03	3.82
C-FIRE-34	J-6	J-13	36	10.0	130.0	934.03	3.82
C-FIRE-35	J-13	J-1	203	10.0	130.0	934.03	3.82
C-WATR-1	J-35	J-36	79	2.0	130.0	3.95	0.40
C-WATR-2	J-37	J-38	85	2.0	130.0	19.71	2.01
C-WATR-3	J-39	J-40	92	2.0	130.0	8.10	0.83
C-WATR-4	J-34	J-26	43	2.0	130.0	5.93	0.61
C-WATR-5	J-26	WATR-POC-1	4	2.0	130.0	5.93	0.61
C-WATR-6	J-32	J-28	42	2.0	130.0	7.43	0.76
C-WATR-7	J-28	WATR-POC-6	6	2.0	130.0	7.43	0.76
C-WATR-8	J-33	J-30	42	2.0	130.0	9.22	0.94
C-WATR-9	J-30	WATR-POC-5	30	2.0	130.0	9.22	0.94
C-WATR-10	J-40	WATR-POC-2	198	2.0	130.0	8.10	0.83
C-WATR-11	J-38	WATR-POC-3	396	2.0	130.0	19.71	2.01
C-WATR-12	J-36	WATR-POC-4	707	2.0	130.0	3.95	0.40
FEED-1	J-48 (56)	AD-1	500	12.0	130.0	2,712.33	7.69
FEED-2	AD-1	R-1	1,000	12.0	130.0	4,054.34	11.50
FEED-3	J-21 (932)	AD-2	100	8.0	130.0	342.01	2.18
FEED-4	AD-2	AD-1	1,200	8.0	130.0	842.01	5.37
V-WATR-36	J-21 (932)	J-35	21	12.0	130.0	592.02	1.68
V-WATR-37	J-33	J-48 (56)	394	12.0	130.0	2,712.33	7.69
V-WATR-38	J-16	J-33	79	12.0	130.0	2,703.11	7.67
V-WATR-39	J-32	J-16	167	12.0	130.0	637.14	1.81
V-WATR-40	J-34	J-32	207	12.0	130.0	629.71	1.79
V-WATR-41	J-15	J-34	52	12.0	130.0	623.78	1.77
V-WATR-42	J-39	J-15	52	12.0	130.0	623.78	1.77
V-WATR-43	J-37	J-39	3	12.0	130.0	615.68	1.75
V-WATR-44	J-35	J-37	3	12.0	130.0	595.97	1.69

Appendix N
Sewer Service Analysis

SEWER SERIVCE ANALYSIS

Sewer Service Analysis

Modera Melrose
Oceanside, California

Southeast Corner of Melrose Drive & Oceanside Boulevard

Date:

July 2022

Prepared for:

MCRT INVESTMENTS LLC.

949 South Coast Drive

Suite 400

Costa Mesa, California 92626

Prepared by:

KIMLEY-HORN AND ASSOCIATES, INC.

401 B Street

Suite 600

San Diego, California 92101

SEWER SERVICE ANALYSIS

1. PROJECT ANALYSIS

Project Information

The Modera Melrose development (the "Project") is located in the City of Oceanside (the City) on the southeast corner of Melrose Drive and Oceanside Boulevard. The project site consists of two parcels that will be merged for a total project area of 7.40-acres (APN: 161-030-23, 161-030-24). Refer to the appendix for project specific information.

Dexter Wilson Engineering, Inc. (DWE) prepared a Sewer Service Due Diligence Summary for the Modera Project in the City of Oceanside on March 10, 2021 (see Attachments). This DWE memorandum prepared flow monitoring for the existing public sewer lines that the Modera Project would discharge to. The flow monitoring and analysis has been used as the baseline conditions for the evaluation of the Project on the existing public sewer lines.

Design Criteria

The design criteria for the sanitary sewer are listed in the *2017 City of Oceanside – Water, Sewer, and Reclaimed Water Design & Construction Manual* and summarized in **Table 1**.

Table 1: Design Criteria

Design Criteria	
Minimum Slope for Sewer Laterals	2.00%
Minimum Velocity	2 ft/s
Normal Depth (d/D) of 12 inches and larger	≤0.67
Normal Depth (d/D) of 10 inches and smaller	≤0.50
Commercial Land Use	1,000 gdp/acre

Proposed Sewer Service

The proposed on-site sanitary sewer will convey sewage from each building into a private 6" PVC sewer mainline as depicted in the Sewer Exhibit. The 6" PVC sewer mainline will convey sewage to a proposed manhole located at the right-of-way on Oceanside Boulevard. An 8" PVC sewer mainline will discharge from this proposed manhole to an existing sanitary sewer manhole located in Oceanside Boulevard (refer to City of Oceanside Drawing No. 1772).

There are a total of six (6) proposed buildings: five (5) buildings are residential units and one (1) is a mixed-use building with residential units (1,745 square feet of leasing office/mail room and 2,365 square feet of commercial use). A breakdown of total square footage per building is summarized in **Table 2**.

Table 2: Building Area

*Building Area per Architecture Plans**	
Building Identification	***Building Square Footage (SF)***
1	45,397 SF
2	61,961 SF
3	150,790 SF
4	30,210 SF
5	70,520 SF
6	56,826 SF
Total	415,704 SF. (9.54 acres)**

*Architecture Plans depict 323 Residential Units are proposed
**Due to mixed use project, the floor area ratio (FAR) exceeds total site area.

Since the project's FAR exceeds 1.0, the area of 9.54 acres corresponding to the total developed area will be used for calculations.

Table 3: Average Daily Sewer Demand

Calculations		
Acreage	***Units***	***Total Gallons per Day (GPD)***
9.54	1,000 gpd/acre	9,540

Based on the calculations for demand, the total of 9,540 gallons per day will be used to analyze the Project's impact on the existing City of Oceanside's sewer system.

The City's sewer design manual states that peak daily flows for residential developments shall be determined based on a ratio of peak to average flow. The following ratios from the City design criteria were used to calculate the peak daily flow for the Project.

Average Flow to Peak Flow	
Population	***Ratio of Peak to Average Flow***
Less than 500	3.50
500 to 1,000	**2.75**
1,000 to 5,000	2.50
Greater than 5,000	2.00

Peak Flow = Average Flow * 2.75
Peak Flow = 9,540 GPD * 2.75 = 26,235 GPD
=0.026235 MGD
= 0.04 CFS

Using the City's design criteria, the peak daily flow for the Project is determined to be 26,235 gallons per day, or 0.04 cubic feet per second.

Sewer Analysis

Bentley's FlowMaster program was utilized to analyze the depth of flow in the City's gravity sewer under both existing and proposed conditions. This analysis determines that with the addition of sewer flows generated by the Project, the sewer system will still operate within the City's standards.

Manning's "n": The gravity sewer analyses are made using the Bentley Flowmaster which uses the Manning Equation for the calculations. The Manning's "n" used by the program is held as a constant for all depths in a circular conduit. The value of Manning's "n" used for this study is 0.013.

Depth and Velocity of Flow in Gravity Sewers: Per the City of Oceanside design manual, pipes that are 10-inches in diameter and smaller are designed to convey this flow with a maximum depth-to-diameter (d/D) ratio of 0.50. The gravity sewer lines are designed to maintain a minimum velocity of 2.0 feet per second at peak flow to prevent the deposition of solids.

FlowMaster inputs consist of pipe slope, pipe diameter, pipe roughness coefficient, and flow rate. As-builts and the City's flow data were used to gather slope, diameter, and flow rates for FlowMaster inputs. An overview of the maximum depths of flow in the analyzed sewer segment is shown in **Table 3**.

Table 3: Proposed Sewer Analysis

Sewer Impacts		
Gravity Sewer Section	***Maximum d/D Ratio (Theoretical Flows)***	***Maximum d/D Ratio (Project Sewer Flows)***
6-inch Diameter	0.50	0.15
8-inch Diameter	0.50	0.11

d/D = depth to diameter ratio

Existing Sewer Analysis

Table 4: Existing Sewer Analysis + Project

Sewer Impacts		
Gravity Sewer Section	***Maximum d/D Ratio (Existing Sewer Flow)***	***Maximum d/D Ratio (Existing plus Project Sewer Flows)***
8-inch Diameter (POC)	0.00/0.50 (Theoretical)	0.20
8-inch Diameter	0.35	0.36
8-inch Diameter (Monitored)	0.13	0.16
~~10-inch Diameter*~~	~~>1.0~~	~~>1.0~~
12-inch Diameter	0.58	0.59
15-inch Diameter	0.46	0.47
18-inch Diameter (Monitored)	0.21	0.22

d/D = depth to diameter ratio

** Field investigation through flow-monitoring and as-built research determined that the 10-inch diameter segment in the City's Sewer Atlas was replaced in 1986 with an 18-inch diameter line. The 18-inch diameter information in the table represents the flow testing monitoring prepared by the Client's subconsultant.*

Offsite Sewer Upgrades

Based on the updated analysis for this Project compared to the previous analysis prepared by Dexter Wilson Engineering, Inc., portions of the existing gravity sewer meets the City design criteria for existing and existing plus project conditions. However, as discussed above, the previously required offsite upgrade for the 10-inch diameter sewer was field verified and determined to be an 18-inch diameter sewer. Therefore, no offsite sewer improvements are required for this project.

2. RECOMMENDATIONS & CONCLUSIONS

On-Site

A series of 6-inch and 8-inch PVC pipes are recommended to meet the *2017 City of Oceanside – Water, Sewer, and Reclaimed Water Design & Construction Manual* and typical engineering best-practices based on the preliminary design. Pipe size locations are shown on the **Sewer Exhibit.**

Off-Site

No offsite improvements have been determined based on the analysis prepared.

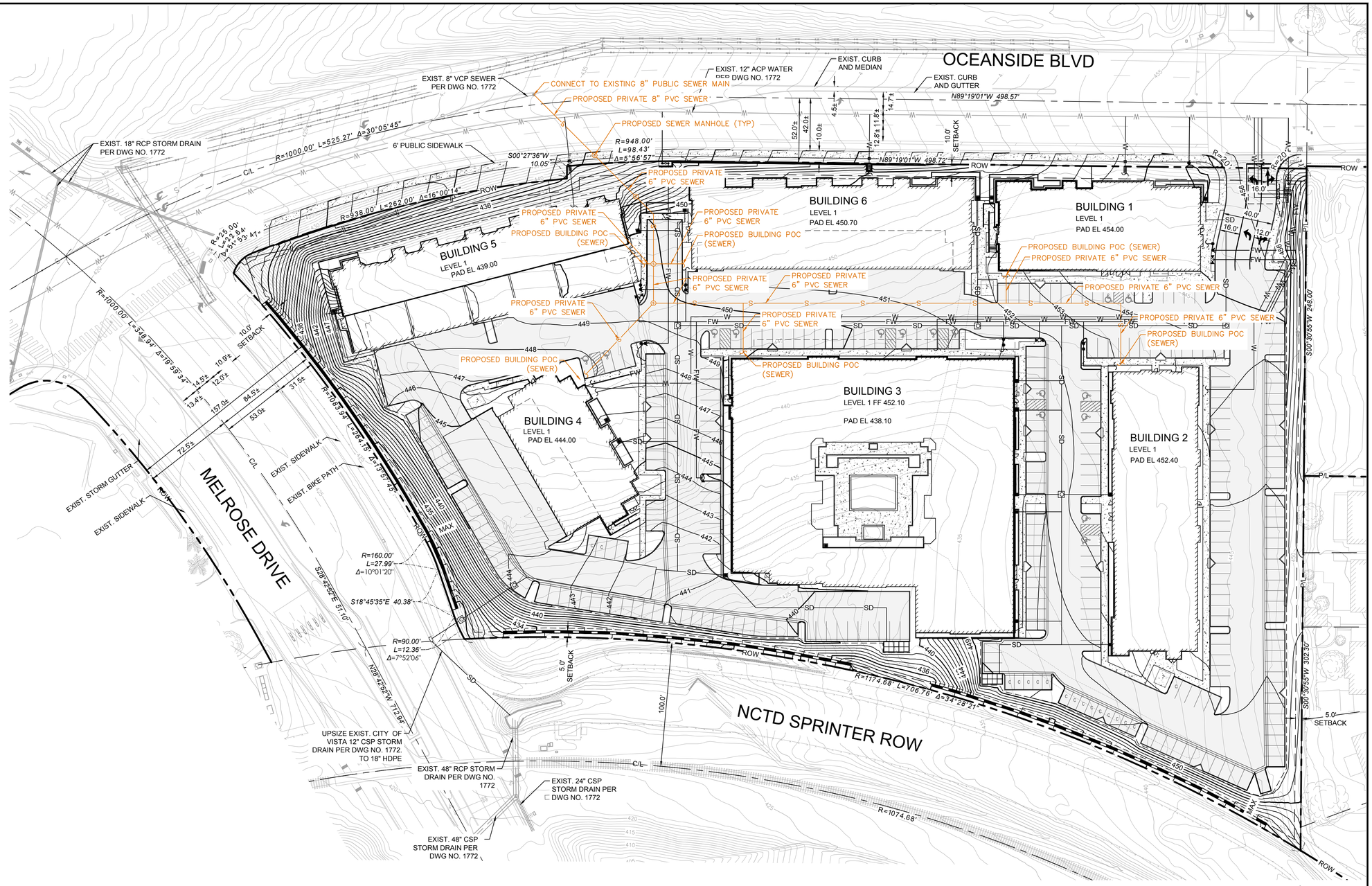


Davie Cowan, P.E.
CA PE # 86803
Date: 07-19-2022

EXHIBITS

LEGEND

- PROP PAVING
- BUILDING OUTLINE
- RETAINING WALL
- S — PROP PRIVATE SEWER
- SD — PROP PRIVATE STORM DRAIN
- FW — PROP PRIVATE FIRE SERVICE
- PROJECT BOUNDARY



MAPPING NOTE:
2 EXISTING LOTS TO BE MERGED BY CERTIFICATE OF COMPLIANCE

NORTH

GRAPHIC SCALE IN FEET
0 20 40 80

CITY PROJECT# D21-00011

REVISIONS					
⚠	SHT.	DESCRIPTION	DATE	BY	APRD

APPROVALS		INITIAL	DATE
	PROJECT ENG.		

Kimley»Horn

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401 B STREET, SUITE 600, SAN DIEGO, CA 92101
PHONE: 619-234-9411

PREPARED BY: R.C.E. NO.: 86803
EUGENE DAVIS COWAN III DATE: 7/10/2022
FIRST LASTNAME

SCALE:	AS SHOWN
DESIGN:	EL
DRAWN:	SM
CHECKED:	DC
APPROVED:	--
DATE:	7/10/22

CITY OF OCEANSIDE

SEWER EXHIBIT

1 OF 1

Figure 1 - VICINITY MAP



Source: NearMap, 2022

ATTACHMENTS

1. BENTLEY FLOWMASTER CALCULATIONS

6" PVC

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data		
Roughness Coefficient	0.013	
Channel Slope	2.000	%
Diameter	6.0	in
Discharge	0.04	cfs

Results		
Normal Depth	0.9	in
Flow Area	0.0	ft²
Wetted Perimeter	0.4	ft
Hydraulic Radius	0.6	in
Top Width	0.36	ft
Critical Depth	1.2	in
Percent Full	15.3	%
Critical Slope	0.730	%
Velocity	2.11	ft/s
Velocity Head	0.07	ft
Specific Energy	0.15	ft
Froude Number	1.621	
Maximum Discharge	0.85	cfs
Discharge Full	0.79	cfs
Slope Full	0.005	%
Flow Type	Supercritical	

GVF Input Data		
Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	15.3	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.9	in
Critical Depth	1.2	in
Channel Slope	2.000	%
Critical Slope	0.730	%

8" PVC

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data		
Roughness Coefficient	0.013	
Channel Slope	2.000	%
Diameter	8.0	in
Discharge	0.04	cfs

Results		
Normal Depth	0.8	in
Flow Area	0.0	ft²
Wetted Perimeter	0.4	ft
Hydraulic Radius	0.5	in
Top Width	0.41	ft
Critical Depth	1.1	in
Percent Full	10.6	%
Critical Slope	0.707	%
Velocity	2.03	ft/s
Velocity Head	0.06	ft
Specific Energy	0.13	ft
Froude Number	1.634	
Maximum Discharge	1.84	cfs
Discharge Full	1.71	cfs
Slope Full	0.001	%
Flow Type	Supercritical	

GVF Input Data		
Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	10.6	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.8	in
Critical Depth	1.1	in
Channel Slope	2.000	%
Critical Slope	0.707	%

Worksheet for 8" - Existing Immediately Adjacent

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data		
Roughness Coefficient	0.010	
Channel Slope	0.500	%
Diameter	8.0	in
Discharge	0.059	MGD

Results		
Normal Depth	1.6	in
Flow Area	0.0	ft²
Wetted Perimeter	0.6	ft
Hydraulic Radius	0.9	in
Top Width	0.53	ft
Critical Depth	1.6	in
Percent Full	19.4	%
Critical Slope	0.390	%
Velocity	1.92	ft/s
Velocity Head	0.06	ft
Specific Energy	0.19	ft
Froude Number	1.126	
Maximum Discharge	0.772	MGD
Discharge Full	0.718	MGD
Slope Full	0.003	%
Flow Type	Supercritical	

GVF Input Data		
Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	19.4	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.6	in
Critical Depth	1.6	in
Channel Slope	0.500	%
Critical Slope	0.390	%

Worksheet for 8" - Existing

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data		
Roughness Coefficient	0.013	
Channel Slope	4.000	%
Normal Depth	2.8	in
Diameter	8.0	in

Results		
Discharge	0.411	MGD
Flow Area	0.1	ft^2
Wetted Perimeter	0.8	ft
Hydraulic Radius	1.5	in
Top Width	0.64	ft
Critical Depth	4.5	in
Percent Full	35.0	%
Critical Slope	0.748	%
Velocity	5.84	ft/s
Velocity Head	0.53	ft
Specific Energy	0.76	ft
Froude Number	2.487	
Maximum Discharge	1.680	MGD
Discharge Full	1.562	MGD
Slope Full	0.277	%
Flow Type	Supercritical	

GVF Input Data		
Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	35.0	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	2.8	in
Critical Depth	4.5	in
Channel Slope	4.000	%
Critical Slope	0.748	%

Worksheet for 8" - Plus Project

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data		
Roughness Coefficient	0.013	
Channel Slope	4.000	%
Diameter	8.0	in
Discharge	0.436	MGD

Results		
Normal Depth	2.9	in
Flow Area	0.1	ft^2
Wetted Perimeter	0.9	ft
Hydraulic Radius	1.6	in
Top Width	0.64	ft
Critical Depth	4.7	in
Percent Full	36.2	%
Critical Slope	0.762	%
Velocity	5.93	ft/s
Velocity Head	0.55	ft
Specific Energy	0.79	ft
Froude Number	2.479	
Maximum Discharge	1.680	MGD
Discharge Full	1.562	MGD
Slope Full	0.312	%
Flow Type	Supercritical	

GVF Input Data		
Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	36.2	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	2.9	in
Critical Depth	4.7	in
Channel Slope	4.000	%
Critical Slope	0.762	%

Worksheet for 8" - Monitored

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data		
Roughness Coefficient	0.013	
Channel Slope	4.000	%
Diameter	8.0	in
Discharge	0.059	MGD

Results		
Normal Depth	1.1	in
Flow Area	0.0	ft^2
Wetted Perimeter	0.5	ft
Hydraulic Radius	0.7	in
Top Width	0.45	ft
Critical Depth	1.6	in
Percent Full	13.3	%
Critical Slope	0.659	%
Velocity	3.32	ft/s
Velocity Head	0.17	ft
Specific Energy	0.26	ft
Froude Number	2.374	
Maximum Discharge	1.680	MGD
Discharge Full	1.562	MGD
Slope Full	0.006	%
Flow Type	Supercritical	

GVF Input Data		
Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	13.3	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.1	in
Critical Depth	1.6	in
Channel Slope	4.000	%
Critical Slope	0.659	%

Worksheet for 8" - Monitored Plus Project

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data		
Roughness Coefficient	0.013	
Channel Slope	4.000	%
Diameter	8.0	in
Discharge	0.085	MGD

Results		
Normal Depth	1.3	in
Flow Area	0.0	ft²
Wetted Perimeter	0.5	ft
Hydraulic Radius	0.8	in
Top Width	0.49	ft
Critical Depth	2.0	in
Percent Full	15.8	%
Critical Slope	0.646	%
Velocity	3.70	ft/s
Velocity Head	0.21	ft
Specific Energy	0.32	ft
Froude Number	2.414	
Maximum Discharge	1.680	MGD
Discharge Full	1.562	MGD
Slope Full	0.012	%
Flow Type	Supercritical	

GVF Input Data		
Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	15.8	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.3	in
Critical Depth	2.0	in
Channel Slope	4.000	%
Critical Slope	0.646	%

Worksheet for 12" - Existing

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data		
Roughness Coefficient	0.013	
Channel Slope	1.100	%
Normal Depth	7.0	in
Diameter	12.0	in

Results		
Discharge	1.539	MGD
Flow Area	0.5	ft²
Wetted Perimeter	1.7	ft
Hydraulic Radius	3.3	in
Top Width	0.99	ft
Critical Depth	7.9	in
Percent Full	58.0	%
Critical Slope	0.746	%
Velocity	5.04	ft/s
Velocity Head	0.40	ft
Specific Energy	0.98	ft
Froude Number	1.285	
Maximum Discharge	2.598	MGD
Discharge Full	2.415	MGD
Slope Full	0.447	%
Flow Type	Supercritical	

GVF Input Data		
Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	58.0	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	7.0	in
Critical Depth	7.9	in
Channel Slope	1.100	%
Critical Slope	0.746	%

Worksheet for 12" - Plus Project

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data		
Roughness Coefficient	0.013	
Channel Slope	1.100	%
Diameter	12.0	in
Discharge	1.565	MGD

Results		
Normal Depth	7.0	in
Flow Area	0.5	ft^2
Wetted Perimeter	1.7	ft
Hydraulic Radius	3.3	in
Top Width	0.99	ft
Critical Depth	8.0	in
Percent Full	58.6	%
Critical Slope	0.753	%
Velocity	5.06	ft/s
Velocity Head	0.40	ft
Specific Energy	0.98	ft
Froude Number	1.280	
Maximum Discharge	2.598	MGD
Discharge Full	2.415	MGD
Slope Full	0.462	%
Flow Type	Supercritical	

GVF Input Data		
Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	58.6	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	7.0	in
Critical Depth	8.0	in
Channel Slope	1.100	%
Critical Slope	0.753	%

Worksheet for 15" - Existing

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data		
Roughness Coefficient	0.013	
Channel Slope	0.820	%
Normal Depth	6.9	in
Diameter	15.0	in

Results		
Discharge	1.637	MGD
Flow Area	0.6	ft^2
Wetted Perimeter	1.9	ft
Hydraulic Radius	3.5	in
Top Width	1.25	ft
Critical Depth	7.7	in
Percent Full	46.0	%
Critical Slope	0.575	%
Velocity	4.59	ft/s
Velocity Head	0.33	ft
Specific Energy	0.90	ft
Froude Number	1.218	
Maximum Discharge	4.067	MGD
Discharge Full	3.780	MGD
Slope Full	0.154	%
Flow Type	Supercritical	

GVF Input Data		
Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	46.0	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	6.9	in
Critical Depth	7.7	in
Channel Slope	0.820	%
Critical Slope	0.575	%

Worksheet for 15" - Plus Project

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data		
Roughness Coefficient	0.013	
Channel Slope	0.820	%
Diameter	15.0	in
Discharge	1.663	MGD

Results		
Normal Depth	7.0	in
Flow Area	0.6	ft²
Wetted Perimeter	1.9	ft
Hydraulic Radius	3.6	in
Top Width	1.25	ft
Critical Depth	7.7	in
Percent Full	46.4	%
Critical Slope	0.577	%
Velocity	4.62	ft/s
Velocity Head	0.33	ft
Specific Energy	0.91	ft
Froude Number	1.217	
Maximum Discharge	4.067	MGD
Discharge Full	3.780	MGD
Slope Full	0.159	%
Flow Type	Supercritical	

GVF Input Data		
Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	46.4	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	7.0	in
Critical Depth	7.7	in
Channel Slope	0.820	%
Critical Slope	0.577	%

Worksheet for 18" - Existing

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data		
Roughness Coefficient	0.013	
Channel Slope	0.270	%
Diameter	18.0	in
Discharge	0.333	MGD

Results		
Normal Depth	3.7	in
Flow Area	0.3	ft^2
Wetted Perimeter	1.4	ft
Hydraulic Radius	2.2	in
Top Width	1.22	ft
Critical Depth	3.2	in
Percent Full	20.8	%
Critical Slope	0.512	%
Velocity	1.94	ft/s
Velocity Head	0.06	ft
Specific Energy	0.37	ft
Froude Number	0.733	
Maximum Discharge	3.795	MGD
Discharge Full	3.528	MGD
Slope Full	0.002	%
Flow Type	Subcritical	

GVF Input Data		
Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	17.1	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	3.7	in
Critical Depth	3.2	in
Channel Slope	0.270	%
Critical Slope	0.512	%

Worksheet for 18" - Plus Project

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data		
Roughness Coefficient	0.013	
Channel Slope	0.270	%
Diameter	18.0	in
Discharge	0.359	MGD

Results		
Normal Depth	3.9	in
Flow Area	0.3	ft^2
Wetted Perimeter	1.4	ft
Hydraulic Radius	2.3	in
Top Width	1.23	ft
Critical Depth	3.3	in
Percent Full	21.5	%
Critical Slope	0.510	%
Velocity	1.99	ft/s
Velocity Head	0.06	ft
Specific Energy	0.38	ft
Froude Number	0.735	
Maximum Discharge	3.795	MGD
Discharge Full	3.528	MGD
Slope Full	0.003	%
Flow Type	Subcritical	

GVF Input Data		
Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	17.1	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	3.9	in
Critical Depth	3.3	in
Channel Slope	0.270	%
Critical Slope	0.510	%

2. DEXTER WILSON ENGINEERING, INC. SEWER SERVICE DUE DILIGENCE SUMMARY (MARCH 10, 2021).

DEXTER WILSON ENGINEERING, INC.

DEXTER S. WILSON, P.E.
ANDREW M. OVEN, P.E.
STEPHEN M. NIELSEN, P.E.
NATALIE J. FRASCHETTI, P.E.
STEVEN J. HENDERSON, P.E.
FERNANDO FREGOSO, P.E.
KATHLEEN L. HEITT, P.E.

MEMORANDUM **556-020**

TO: **Jade Jordan, Fuscoe Engineering, Inc.**

FROM: **Andrew Oven, P.E., Dexter Wilson Engineering, Inc.**

DATE: **March 10, 2021**

SUBJECT: **Sewer Service Due Diligence Summary for the Modera Project in the City of Oceanside**

The purpose of this memorandum is to summarize due diligence findings related to the proposed Modera residential project and its associated impacts on existing immediate downstream gravity sewer facilities. The proposed project analyzed in this memorandum consists of developing 280 multi-family residential units at the southeast corner of West Bobier Drive and North Melrose Drive in the City of Oceanside. The project is located at the eastern edge of the City adjacent to the City of Vista.

Sewer Service

Sewer service to the site will be provided by the City of Oceanside Water Utilities Department from existing public sewer lines. This memorandum will analyze and discuss the project's impact on existing 8-inch diameter to 15-inch diameter gravity sewer in West Bobier Drive, Oceanside Boulevard, and in easements within commercial shopping centers along Loma Alta Creek. An overview map illustrating the location of the analyzed gravity sewer lines is included as Attachment 1 to this memorandum.

Most of the 8-inch diameter to 15-inch diameter gravity sewer analyzed meet the City design criteria for depth of flow for both existing flow and existing plus Modera project flow. An overview of the maximum depths of flow in the analyzed sewer segment is shown in Table 1. The design criteria are noted in the footnotes for Table 1.

TABLE 1
MODERA PROJECT DOWNSTREAM SEWER IMPACTS

Gravity Sewer Section	Maximum d/D Ratio (Existing Sewer Flows)	Maximum d/D Ratio (Existing plus Project Sewer Flows)
8-Inch Diameter[1]	0.35	0.41
10-Inch Diameter[1]	> 1.0	> 1.0
12-Inch Diameter[2]	0.58	0.60
15-Inch Diameter[2]	0.46	0.47

[1] For diameters 10 inches and smaller, maximum depth of flow shall not exceed 0.50 d/D.

[2] For diameters 12 inches and larger, maximum depth of flow shall not exceed 0.67 d/D.

Certain segments of 10-inch diameter sewer do not meet the City design criterion under existing flows (d/D = 0.50), and therefore, also exceed the design criterion under proposed project sewer flows. These 10-inch diameter segments are shown on the overview map in Attachment 1. Attachment 2 contains the City's atlas map and record drawings for these 10-inch diameter segments.

To accommodate sewer flows from the proposed Modera project, the 10-inch diameter gravity sewer needs to be upgraded to at least 12-inch diameter. This statement will be explained in the following paragraphs. The length of the gravity sewer upgrade is approximately 1,700 linear feet.

Two of the existing 10-inch diameter sewer segments have a particularly low slope. These two sections which have a slope of 0.3 percent need to be upsized to 15-inch diameter to comply with City maximum flow depth criteria. The remaining segments only need to be upsized to 12-inch diameter. The result is that a new 15-inch segment would flow into a new 12-inch segment. The City will be hesitant to permit this and may not allow this to occur.

Sewer agencies typically do not allow downstream pipes to be smaller in diameter than the upstream pipe.

This issue could be remedied by one of three solutions.

1. Replace the existing downstream 12-inch diameter gravity sewer with new 15-inch diameter gravity sewer until the new 15-inch sewer can be connected to an existing 15-inch sewer. This would increase the distance of offsite sewer improvements by approximately 2,800 linear feet resulting in a total offsite sewer improvement of 4,500 linear feet.

2. Adjust the slopes of the aforementioned 10-inch diameter sections to be no less than 0.4 percent. If there are no vertical design constraints such as existing utility crossings, then the slope of these two sections can be increased to 0.4 percent and all new sewer segments can be constructed as 12-inch pipe and connect to the existing 12-inch sewer.

3. City Approval of the Deviation – The project could seek the City's approval/exemption to allow two segments to be installed as 15-inch diameter while the sewer on either side is only 12-inch diameter. At present, it is unknown whether the City would accept this condition.

Summary and Conclusion

At a minimum, the Modera project would be required to upsize approximately 1,700 linear feet of offsite gravity sewer in Oceanside Boulevard between Royal Oak Drive and Arroyo Avenue. The worst case scenario is that a length of 4,500 linear feet of sewer would need to be replaced. A sewer system analysis would need to be prepared and submitted to the City Water Utilities Department for their review in order to determine what offsite sewer upgrades will be required for the Modera project.

As indicated in the previous paragraph, the due diligence level of information provided within this memorandum needs to be confirmed with more detailed studies.

AO:SH:ah

ATTACHMENT 1

OVERVIEW MAP OF ANALYZED GRAVITY SEWER

Modera Oceanside

Sewer Service Overview

Legend

Modera Project

Melrose Dr.

Sewer Monitor here (6/1/2021)

Ex. Gravity Sewer

Sewer Monitor here (6/1/2021)

Ex. 10" Section to be Upsized

Ex. 8"

Ex. 10"

Ex. 10"

Ex. 12"

Ex. 12"

Ex. 15"

Rancho Del Oro Dr.

Connection to 18"

College Blvd.

Google Earth

© 2021 Google

3000 ft

N

ATTACHMENT 2

CITY ATLAS MAP AND AS-BUILT RECORD DRAWINGS OF THE REQUIRED 10-INCH DIAMETER UPSIZED SECTIONS

1/8/2021

Sewer Atlas Map No. O20

- THIS MAP PREPARED SOLELY FOR ILLUSTRATION PURPOSE & IS NOT TO BE RELIED UPON FOR ENGINEERING DRAWINGS.
- SOME INFORMATION MAY NOT BE ACCURATE.

PAGE INDEX

N19	O19	P19
N20	O20	P20
N21	O21	P21

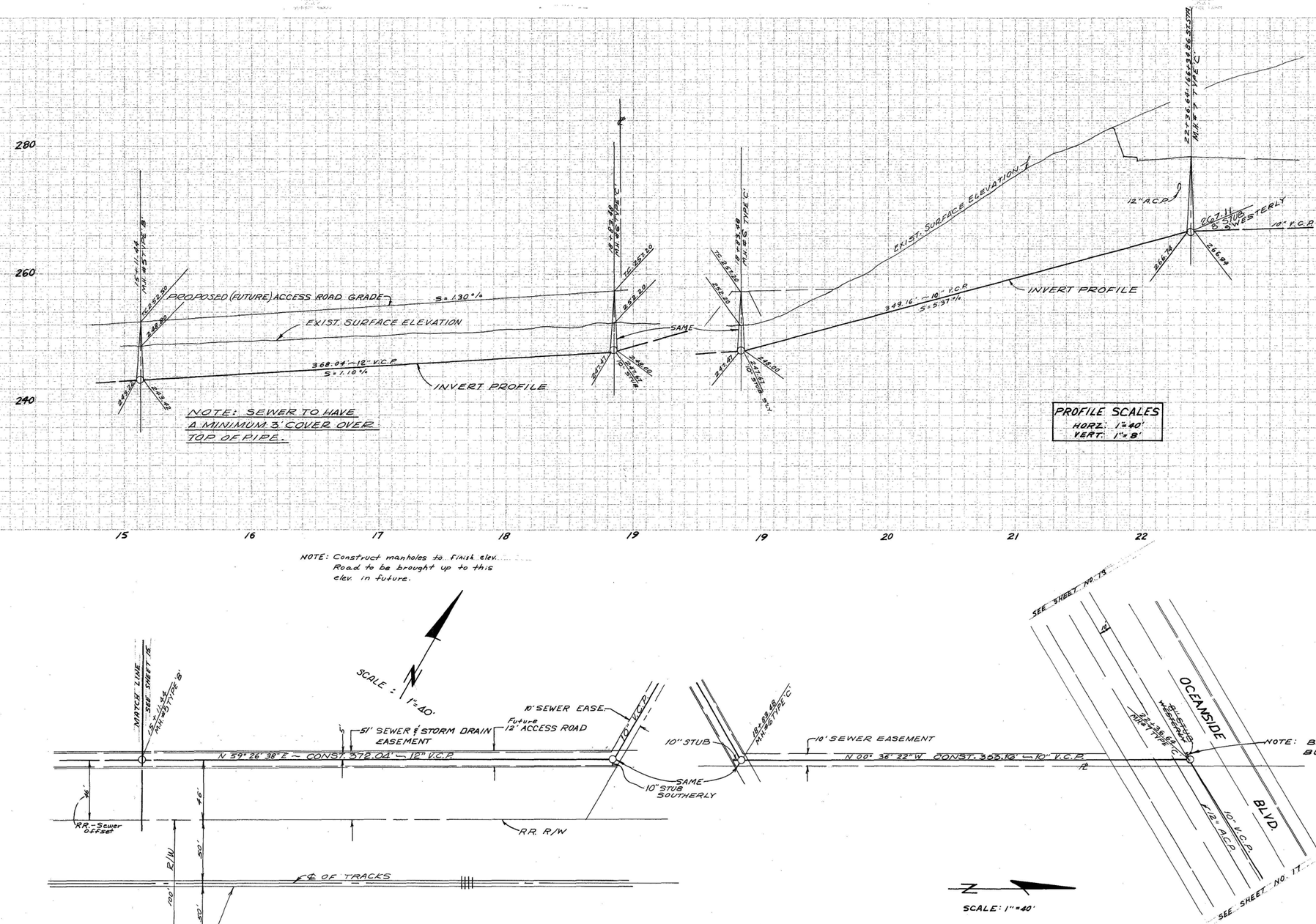
N

1" = 200'

O20

Ex. 10" Section to be Upsized

ROYAL OAK DR
QUAILRIDGE DR
BEVERLY GLEN DR
ROUND TREE DR
WESTRIDGE DR
PEACOCK BL
HAVENWOOD DR
VIA CUARTO
VIA QUINTO
VIA TERCERO
BLACKHAWK AV
NAVAJO AV
CHEYENNE CR
UTE AV
APACHE ST
ARROYO AV
PRIVATE RD
OCEANCREST PL
LOMA ALTA TRIBUTARY
LOMA ALTA CREEK
NORTH AV
MAPLE DR
SEASONS RD
AUTUMN DR
SUNBURST DR



AS BUILT
12/21/76

PREPARED BY:
BRIAN SMITH ENGINEERS, INC.
2656 STATE STREET
CARLSBAD, CALIFORNIA
E. Brian Smith
REG. CIVIL ENGINEER No 13,817

SHEET 16	CITY OF OCEANSIDE ENGINEERING DEPARTMENT	28 SHEETS

PLAN & PROFILE FOR SEWER IMPROVEMENTS FOR OCEAN VISTA IMPROVEMENT DISTRICT

APPROVED: Darrell A. Ruthen CITY ENGINEER — DATE: 8-5-75

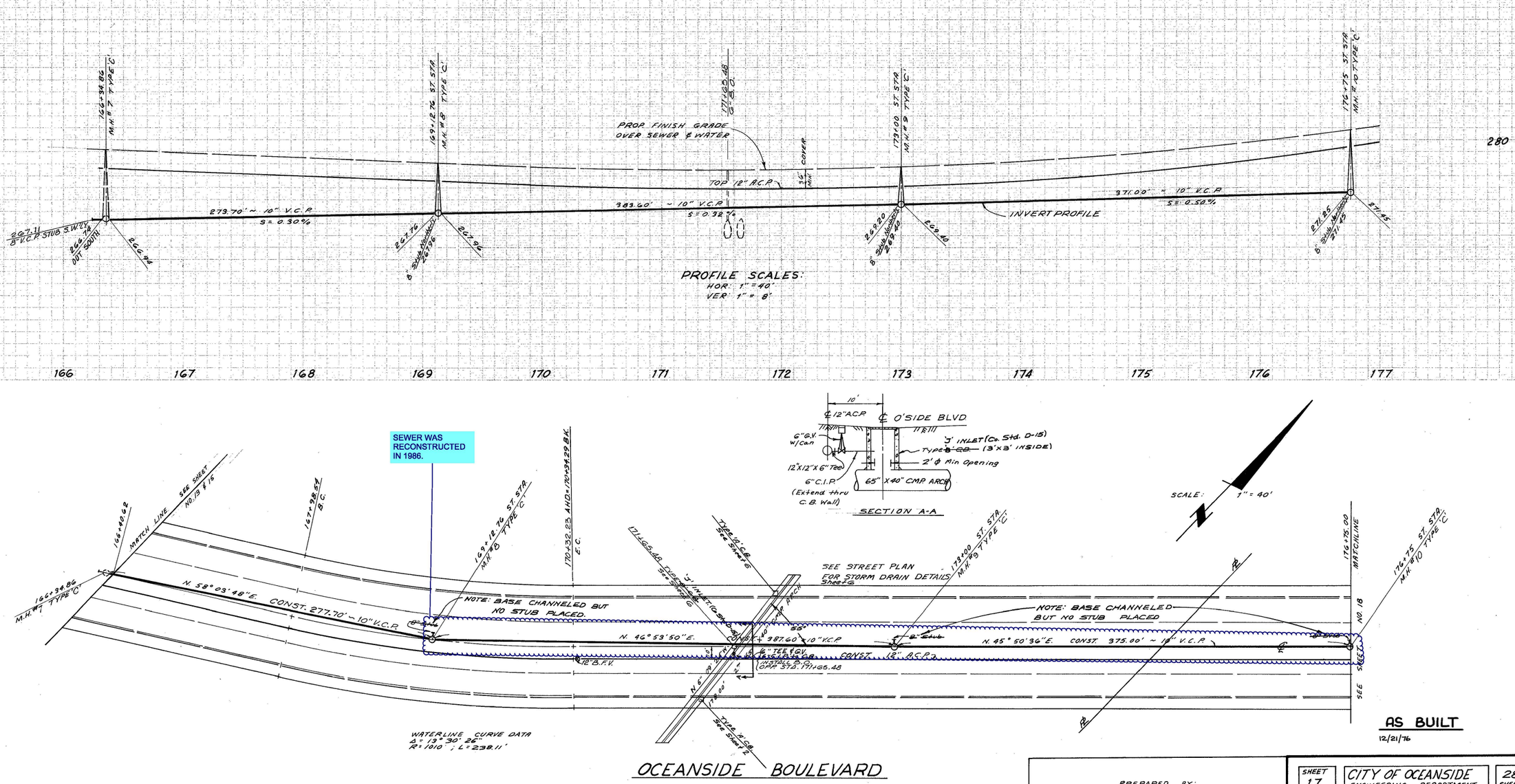
SCALES: HORIZ. AS SHOWN; VERT. AS SHOWN

DRAWN BY: ___ CHECKED BY: ___ FB. ___ L.B. ___

REVISED	DATE	OR

DRAWING No R 2430

4073



PROFILE SCALES:
HOR: 1" = 40'
VER: 1" = 8'

SEWER WAS RECONSTRUCTED IN 1986.

SECTION A-A

OCEANSIDE BOULEVARD

AS BUILT
12/21/76

PREPARED BY:
BRIAN SMITH ENGINEERS, INC.
2656 STATE STREET
CARLSBAD, CALIFORNIA
E. Brian Smith
REG. CIVIL ENGINEER NO. 13,817

SHEET 17	CITY OF OCEANSIDE ENGINEERING DEPARTMENT	28 SHEETS

PLAN & PROFILE
FOR SEWER, WATER & STORM DRAIN
IMPROVEMENTS IN OCEANSIDE BOULEVARD
OCEAN VISTA IMPROVEMENT DISTRICT

APPROVED: Donald A. Ruth, CITY ENGINEER
DATE: 8-8-75

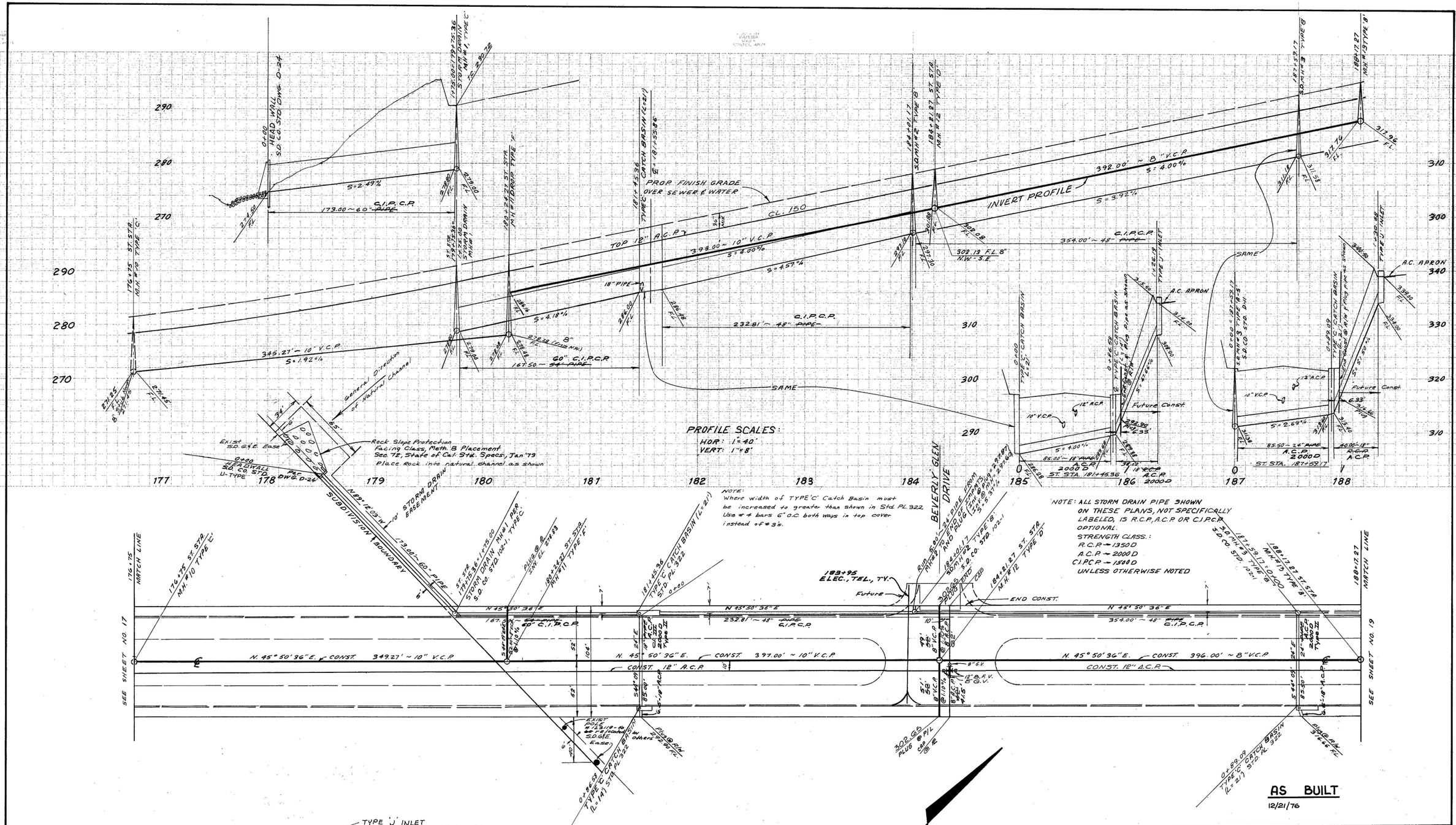
DRWN. BY:
CHK'D. BY:
F.B. ___ L.B. ___

REVISED	DATE	OK

SCALES
HORIZ. AS
VERT. SHOWN

DRAWING NO. R-2491

4073



PREPARED BY:
BRIAN SMITH ENGINEERS, INC.
2656 STATE STREET
CARLSBAD, CALIFORNIA
REG. CIVIL ENGINEER NO. 13,817

SHEET 18 | CITY OF OCEANSIDE ENGINEERING DEPARTMENT | 28 SHEETS

PLAN & PROFILE
FOR SEWER, WATER & STORM DRAINS
IMPROVEMENTS IN OCEANSIDE BOULEVARD
OCEAN VISTA IMPROVEMENT DISTRICT

APPROVED: _____ CITY ENGINEER
DATE: 8-8-75

DRWN. BY: ___ CHK'D. BY: ___ F.B. ___ L.B. ___

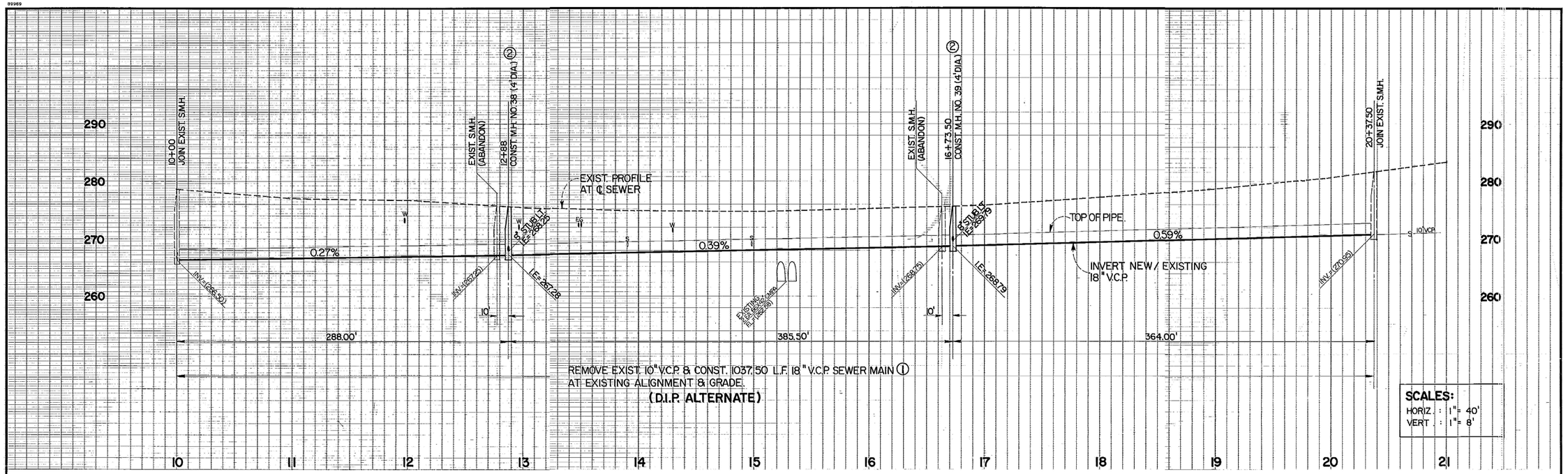
REVISED	DATE	O.E.

SCALES HORIZ. AS VERT. SHOWN
DRAWING NO. R-2432

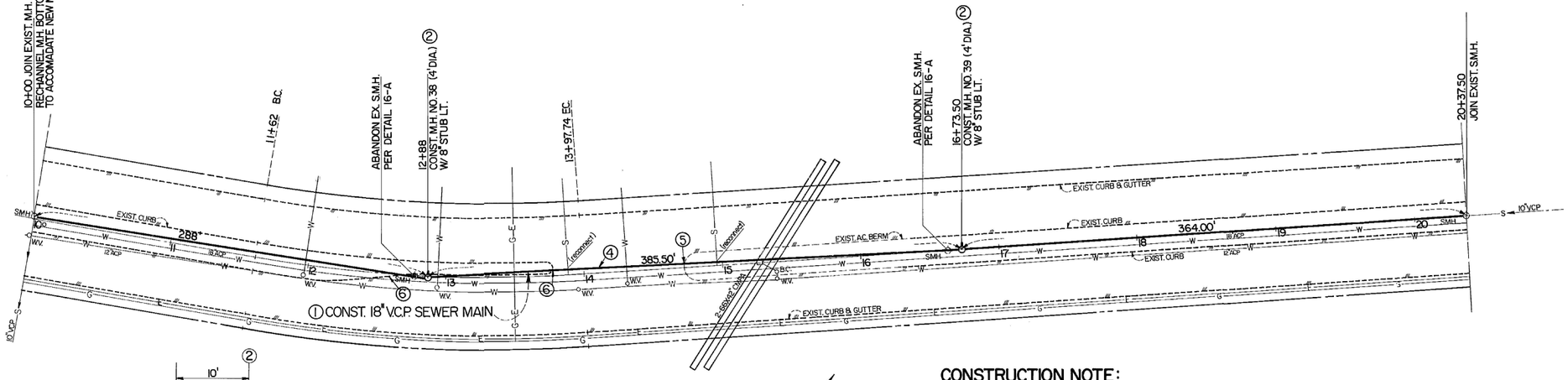
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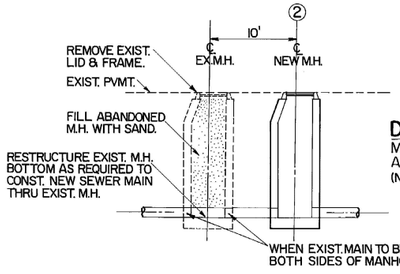
3. CITY AS-BUILT INFORMATION

89969



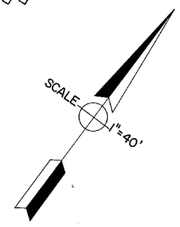
OCEANSIDE BOULEVARD





DETAIL 16-A

MANHOLE INSTALLATION AND ABANDONMENT.
(NO SCALE)



CONSTRUCTION NOTE:

UPON COMPLETION OF PROJECT AREA-C SEWER MAIN CONSTRUCTION:

- DAMAGED MEDIAN IRRIGATION SYSTEMS SHALL BE REPAIRED TO AN OPERATING LIKE KIND CONDITION.
- DAMAGED MEDIAN LANDSCAPE SHALL BE REPLACED TO MATCH EXISTING.

APPROVED CHANGES

No.	Description	Approved By	Date

BENCH MARK
Description:
Location:
Record From:
Elev: Datum:

SHEET 15 | CITY OF OCEANSIDE ENGINEERING DEPARTMENT | 15 SHEETS

PROJECT AREA-C
OCEANSIDE BOULEVARD TRUNK SEWER PROJECT
STA. 10+00 TO 20+37.50

Approved
RAY O'DONNELL RCE 26603 DEP. City Engineer

ENGINEER OF WORK
R.W. COATES RCE 19928

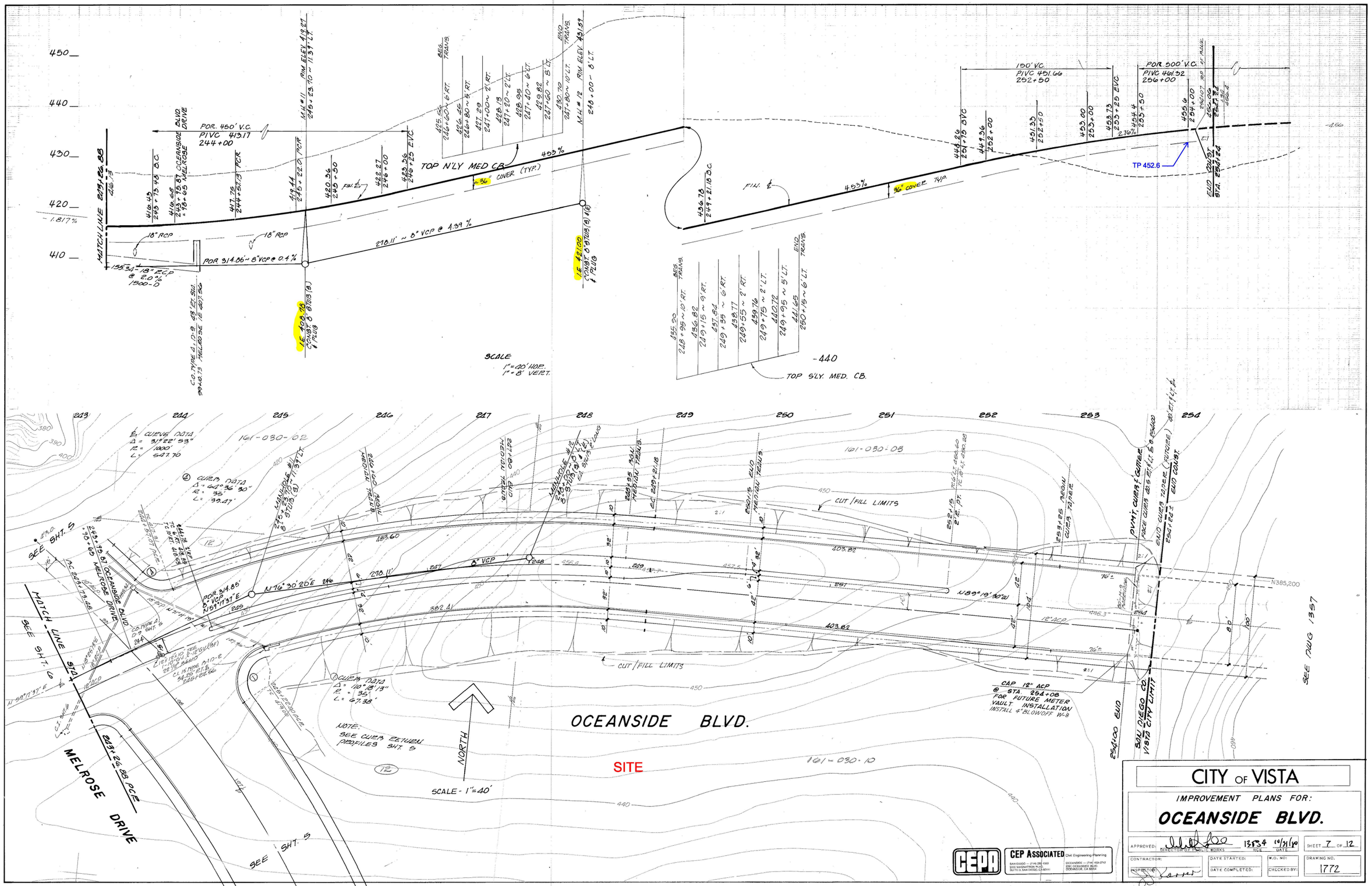
Checked by
Approval date 7/11/86

S-1792

EAST-FILE CORP. IRVINE, CA EFM-24

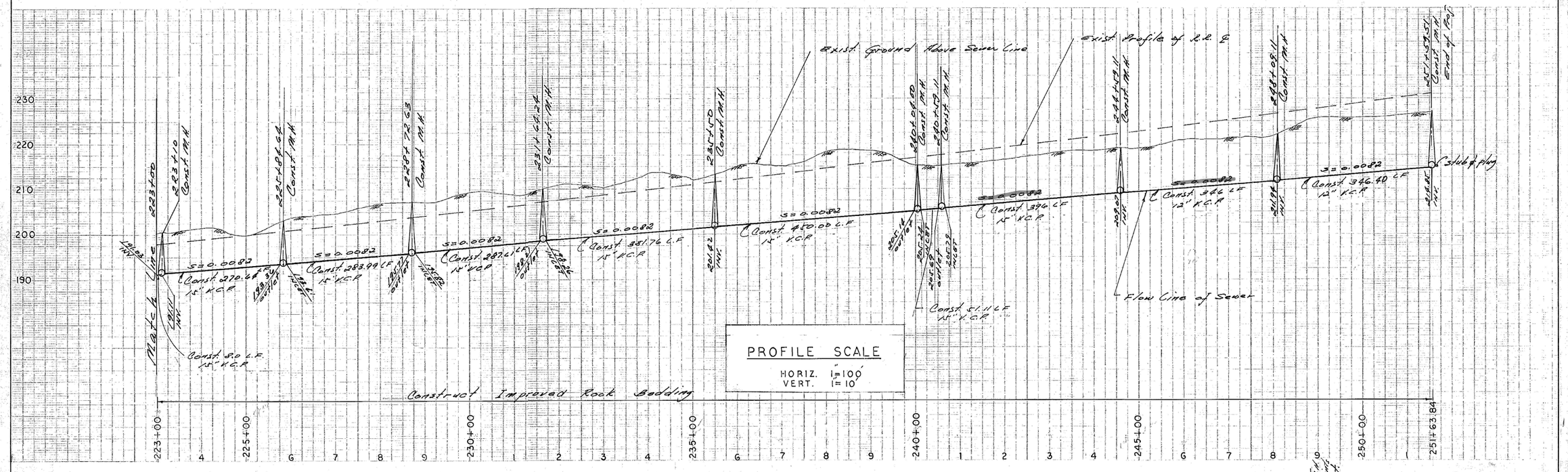
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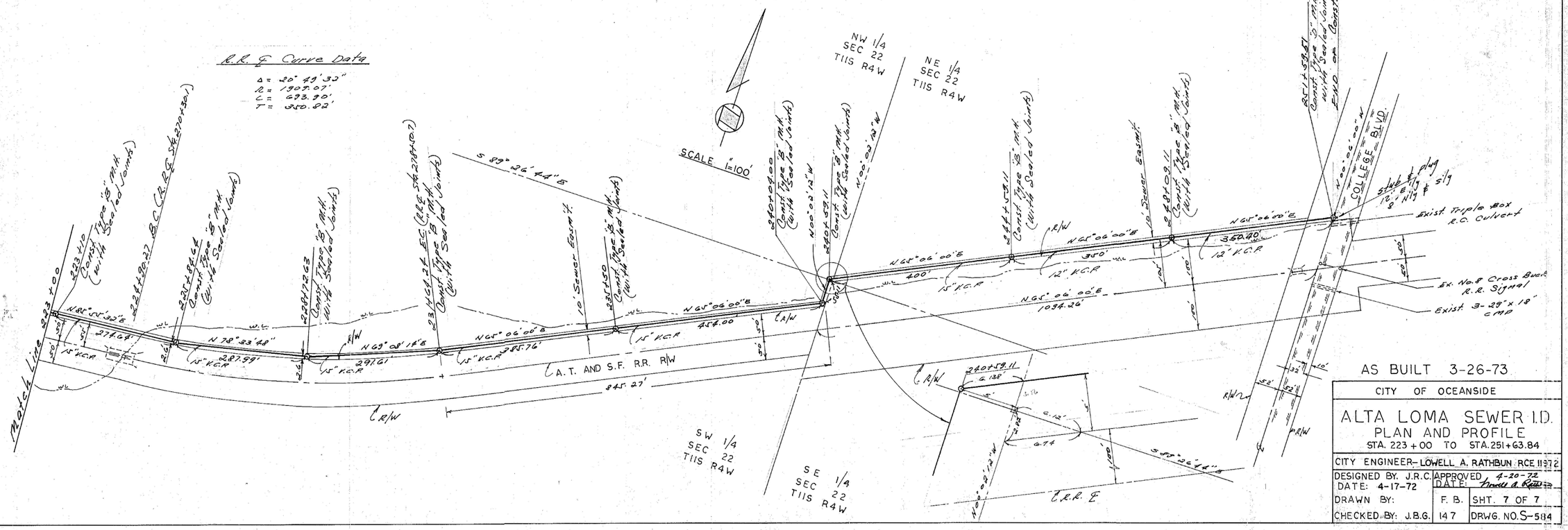
"PERFECT" PROFILE
PLATE A
RODNEY STOKES CO.



OCEANSIDE BLVD.
SITE
MELROSE DRIVE
MATCH-LINE SEE SHT. 6
SEE SHT. 5
SEE SHT. 5
SCALE - 1"=40'
NORTH
CUT/FILL LIMITS
CUT/FILL LIMITS
CURB DATA Δ = 110°18'13" R = 35' L = 67.38'
CURB DATA Δ = 64°36'30" R = 35' L = 39.47'
℄ CURVE DATA Δ = 51°22'33" R = 1000' L = 547.76
NOTE: SEE CURB RETURN PROFILES SHT. 5
CAP 12" ACP @ STA. 254+08 FOR FUTURE METER VAULT INSTALLATION INSTALL 4" BLOWOFF W-8
SAN DIEGO CO. VISTA CITY LIMITS
END CONST. STA. 254+22
N385,200
SEE DWG 1357
161-030-02
161-030-03
161-030-10
OCEANSIDE BLVD. 12" ACP
POR. 3+14.85 8" VCP N51°17'31"E
N76°30'20"E 246
N89°19'30"W
18" RCP
8" VCP
12" ACP
24" RCP
CL TYPE A-10-E
CL TYPE A-10-G
CL TYPE A-10-E
CL TYPE A-10-G
CL TYPE A-10-E
CL TYPE A-10-G

ENGEMR DIETZGEN CO
MADE IN U.S.A.





AS BUILT 3-26-73

CITY OF OCEANSIDE

ALTA LOMA SEWER I.D.
PLAN AND PROFILE
STA. 223+00 TO STA. 251+63.84

CITY ENGINEER– LOWELL A. RATHBUN RCE 11372		
DESIGNED BY. J.R.C. DATE: 4-17-72	APPROVED 4-20-72 DATE:	
DRAWN BY:	F. B.	SHT. 7 OF 7
CHECKED BY: J.B.G.	147	DRWG. NO. S-584

DRAWING NUMBER S-584

4. SITE DEVELOPMENT PLANS (APRIL 2022)

OCEANSIDE BLVD

SPORTS PARK WAY

EXIST. 8" VCP SEWER PER DWG NO. 1772

EXIST. 18" RCP STORM DRAIN PER DWG NO. 1772

R=1000.00' L=525.27' Δ=30°05'45"

C/L

S00°27'36"W 10.00'

R=948.00' L=98.43' Δ=5°56'57"

N89°19'01"W 498.67'

EXIST. 12" ACP WATER PER DWG NO. 1772

N89°19'01"W 498.72'

ROW

MULTI-FAMILY RESIDENTIAL STRUCTURE BUILDING HEIGHT 30'± 3 STORIES

EXIST. LOT LINE

EXIST. LOT LINE TO BE MERGED

EXIST. 10" ACP WATER PER DWG NO. 1772

EXIST. 12" ACP WATER PER DWG NO. 1772

R=25.00' L=22.84' Δ=51°55'57"

R=1000.00' L=374.37'

PARCEL B

APN: 161-030-23

AREA 5.26 ACRES

TOTAL GROSS LAND AREA 7.40 ACRES

PARCEL A

APN: 161-030-24

AREA 2.14 ACRES

PARCEL C

APN: 161-030-07

NOT A PART

EX. DIRT PATH

P/L

S00°30'55"W 240.00'

S00°30'55"W 302.36'

SINGLE-FAMILY RESIDENTIAL STRUCTURE BUILDING HEIGHT 10'± 1 STORY

MELROSE DRIVE

EXIST. SHELL GAS STATION

R=180.00' L=27.99' Δ=10°01'20"

S18°45'35"E 40.38'

S28°47'55"E 51.10'

R=90.00' L=12.38' Δ=7°52'06"

N28°45'35"W 713.94'

EXIST. 12" CSP STORM DRAIN PER DWG NO. 1772

EXIST. 48" RCP STORM DRAIN PER DWG NO. 1772

EXIST. 48" CSP STORM DRAIN PER DWG NO. 1772

EXIST. 24" CSP STORM DRAIN PER DWG NO. 1772

LOT LINE

NCTD SPRINTER ROW

R=1174.68' L=706.76' Δ=34°28'21"

R=1074.68'

EXIST. LOT LINE

100.0'

EXISTING EASEMENTS

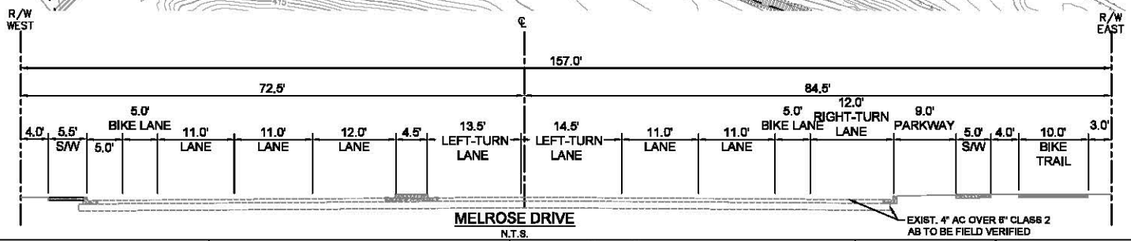
2 AN EASEMENT FOR PUBLIC HIGHWAY, DRAINAGE STRUCTURES AND EXCAVATION AND EBANKMENT SLOPES AND INCIDENTAL PURPOSES, RECORDED AUGUST 09, 1934 AS BOOK 311, PAGE 333 OF OFFICIAL RECORDS
IN FAVOR OF: THE COUNTY OF SAN DIEGO
(EASEMENT LOCATION IS OUT OF AREA, LIES WITHIN OCEANSIDE BLVD.)

3 AN EASEMENT FOR COUNTY HIGHWAY AND INCIDENTAL PURPOSES, RECORDED MARCH 11, 1980 AS INSTRUMENT NO. 80-083354 OF OFFICIAL RECORDS.
IN FAVOR OF: THE COUNTY OF SAN DIEGO
(EASEMENT LOCATION IS OUT OF AREA, LIES WITHIN WEST OCEANSIDE BLVD.)

5 AN EASEMENT FOR RIGHT TO EXTEND AND MAINTAIN DRAINAGE STRUCTURES AND EXCAVATION AND EMBANKMENT SLOPES BEYOND THE LIMITS OF THE RIGHT OF WAY GRANTED THEREIN WHERE REQUIRED FOR CONSTRUCTION AND MAINTENANCE AND INCIDENTAL PURPOSES, RECORDED MARCH 11, 1980 AS INSTRUMENT NO. 80-083354 OF OFFICIAL RECORDS. IN FAVOR OF: COUNTY OF SAN DIEGO
(EASEMENT LOCATION IS OUT OF AREA, LIES WITHIN MELROSE DRIVE AND OCEANSIDE BLVD.)

(8) A 30' WIDE DRIVEWAY ACCESS EASEMENT & RIGHTS INCIDENTAL THERETO PER PARCEL MAP NO. 17266. PLOTTED.

9 ABUTTER'S RIGHTS OF INGRESS AND EGRESS TO OR FROM MELROSE DRIVE AND OCEANSIDE BOULEVARD HAVE BEEN DEDICATED OR RELINQUISHED ON THE MAP OF PARCEL MAP NO. 17266 OF MAPS RECORDED DECEMBER 03, 1993.
(PLOTTED AS: //////)



BENCHMARK STATEMENT

CITY OF OCEANSIDE BENCHMARK NO. GPS 1049
ELEV: 417.22 NAVD88
DESCRIBED AS: 2.5" BRASS DISK SET IN CURB INLET, ON TOP OF WESTERLY CURB INLET OF MELROSE DRIVE (+/-) 150' SOUTH OF SPRINTER RAIL ROAD TRACKS.

CITY PROJECT# D21-00011

LAND SURVEYOR:
C&V CONSULTING, INC. CIVIL ENGINEERING LAND PLANNING AND SURVEYING
6 ORCHARD, SUITE 200, LAKE FOREST, CA 92630
(949) 916-3500

GEOTECHNICAL ENGINEER:
GEOCON INCORPORATED
6960 FLANDERS DRIVE, SAN DIEGO, CA, 92121
(858) 558.6158

REVISIONS					
⚠	SHT.	DESCRIPTION	DATE	BY	APRD

APPROVALS			
		INITIAL	DATE
PROJECT ENG.			

Kimley»Horn

© 2021 KIMLEY-HORN AND ASSOCIATES, INC.

401 B STREET, SUITE 600, SAN DIEGO, CA 92101
PHONE: 619-234-9411

PREPARED BY: R.C.E. NO.:
FIRST LASTNAME DATE: 4/5/2022

REGISTERED PROFESSIONAL ENGINEER ERIN L. YEE No. 92949 CIVIL STATE OF CALIFORNIA

SCALE:	AS SHOWN
DESIGN:	EL
DRAWN:	SM
CHECKED:	BN
APPROVED:	—
DATE:	4/5/22

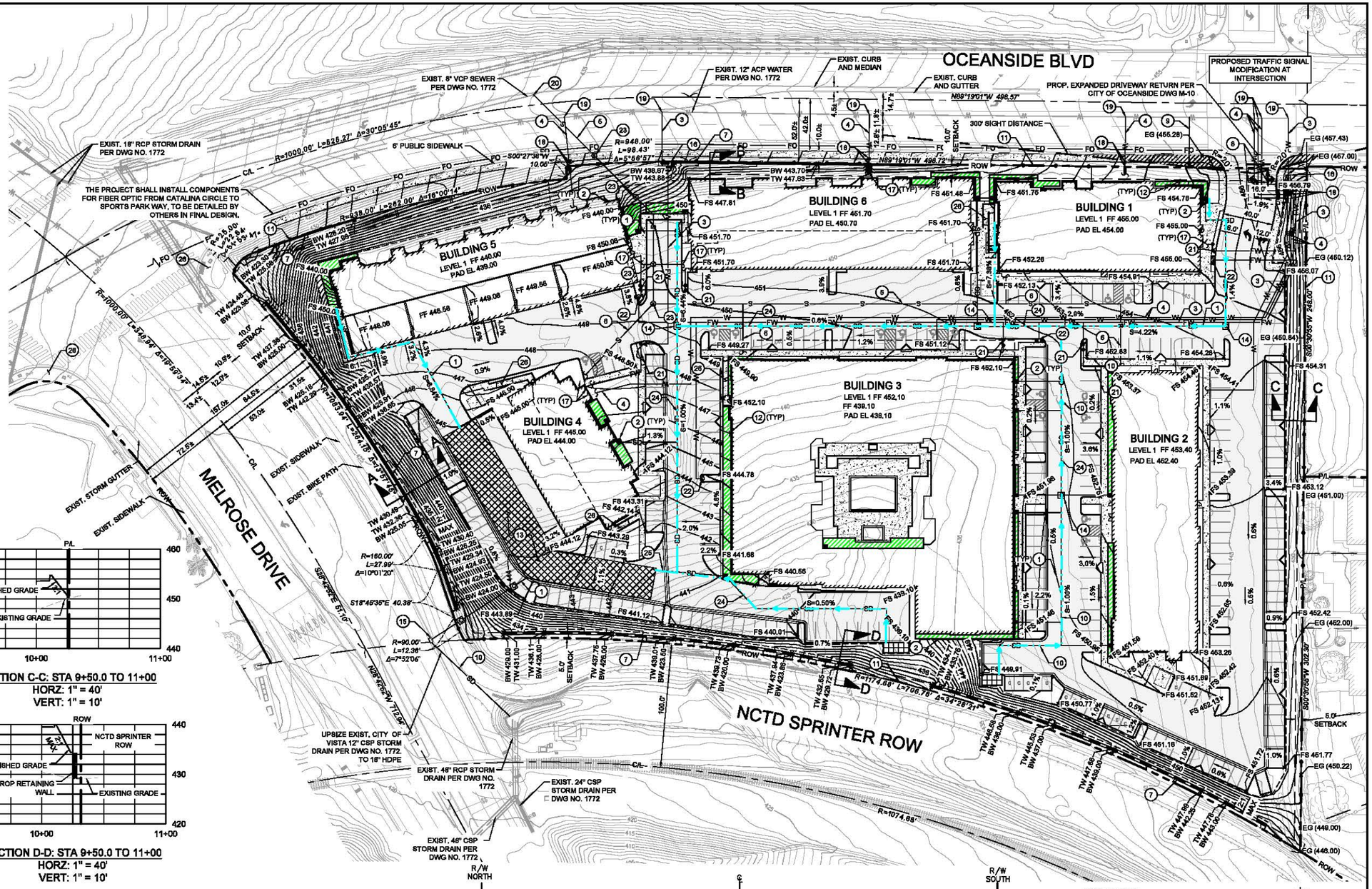
CITY OF OCEANSIDE

EXISTING CONDITIONS PLAN

C-1

GRADING NOTES

1. PROPOSED PRIVATE 12" HDPE STORM DRAIN
2. PROPOSED BIOFILTRATION RAISED PLANTER OVERFLOW
3. PROPOSED PRIVATE 10" PVC FIRE SERVICE
4. PROPOSED PRIVATE 2" DOMESTIC WATER SERVICE
5. PROPOSED PRIVATE 8" PVC SEWER
6. PROPOSED PRIVATE 6" PVC SEWER
7. PROPOSED RETAINING WALL
8. PROPOSED DOMESTIC WATER EASEMENT
9. RELOCATE EXIST. WATER BLOW-OFF
10. PROPOSED PRIVATE 18" HDPE STORM DRAIN
11. PROPOSED FENCE PER LANDSCAPE
12. PROPOSED BIOFILTRATION RAISED PLANTER BMP
13. PROPOSED UNDERGROUND STORMWATER VAULT
14. PROPOSED PRIVATE STORM DRAIN CLEANOUT
15. CONNECT TO EXIST. STORM DRAIN INLET
16. PROPOSED PRIVATE 10" RPDA
17. PROPOSED BUILDING POINT OF CONNECTION
18. PROPOSED 1.5" DOMESTIC METER AND BACKFLOW
19. CONNECT TO EXIST. 12" PUBLIC WATER MAIN
20. CONNECT TO EXIST. 8" PUBLIC SEWER MAIN
21. PROPOSED PRIVATE 6" BUILDING FIRE SERVICE WITH PIV AND FDC
22. PROPOSED PRIVATE 6" FIRE HYDRANT AND SERVICE
23. PROPOSED PRIVATE SEWER MANHOLE
24. PROPOSED PRIVATE 24" HDPE STORM DRAIN
25. PROPOSED PRIVATE 30" HDPE STORM DRAIN
26. ADA SIDEWALK TO BE PROVIDED IN FINAL DESIGN, ANY MODIFICATION TO EXISTING UTILITIES TO ACCOMMODATE SIDEWALK WILL BE PROVIDED IN FINAL DESIGN.



SECTION A-A: STA 9+50.0 TO 11+00
HORZ: 1" = 40'
VERT: 1" = 10'

SECTION B-B: STA 9+50.0 TO 11+00
HORZ: 1" = 40'
VERT: 1" = 10'

SECTION C-C: STA 9+50.0 TO 11+00
HORZ: 1" = 40'
VERT: 1" = 10'

SECTION D-D: STA 9+50.0 TO 11+00
HORZ: 1" = 40'
VERT: 1" = 10'

LEGEND

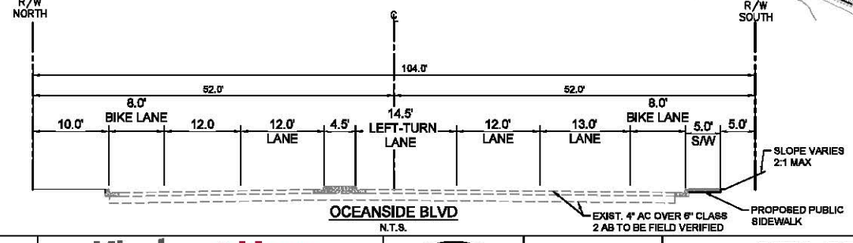
- PROP PAVING
- PROP STORM WATER VAULT
- BUILDING OUTLINE
- RETAINING WALL
- BIOFILTRATION PLANTERS BMP
- MODULAR WETLAND SYSTEM
- PROP PRIVATE STORM DRAIN
- PROP PRIVATE FIRE SERVICE
- PROJECT BOUNDARY
- PROP CONCRETE SIDEWALK
- PROP FENCE
- SITE TRIANGLE
- LINE OF SIGHT

SITE DATA

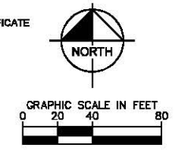
LOT AREA = 322,275 SF (7.40 AC)
BUILDING COVERAGE = 104,523 SF
LOT COVERAGE = 32.4%
PAVED AREA = 136,734 SF (3.12 AC) , 42.1%
PERMEABLE SURFACE AREA = 82,018 SF (1.88 AC), 25.5%
FRONT SETBACK = 10'
CORNER SIDE SETBACK = 10'
REAR SETBACK = 10'
RESIDENTIAL SIDE SET BACK = 10'
SITE IN ZONE X PER FEMA PANEL MAP NO. PANEL MAP NO. 06073C0757G, EFF. 5/16/2021

EARTH WORK

CUT 22,700 CY
FILL 86,000 CY
NET 42,300 CY FILL



MAPPING NOTE:
2 EXISTING LOTS TO BE MERGED BY CERTIFICATE OF COMPLIANCE



CITY PROJECT# D21-00011

REVISIONS				
⚠ SHT.	DESCRIPTION	DATE	BY	APRD

APPROVALS		INITIAL	DATE
	PROJECT ENG.		

Kimley»Horn

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401 B STREET, SUITE 600, SAN DIEGO, CA 92101
PHONE: 619-234-9411

PREPARED BY:
FIRST LASTNAME
R.C.E. NO.:
DATE: 4/5/2022

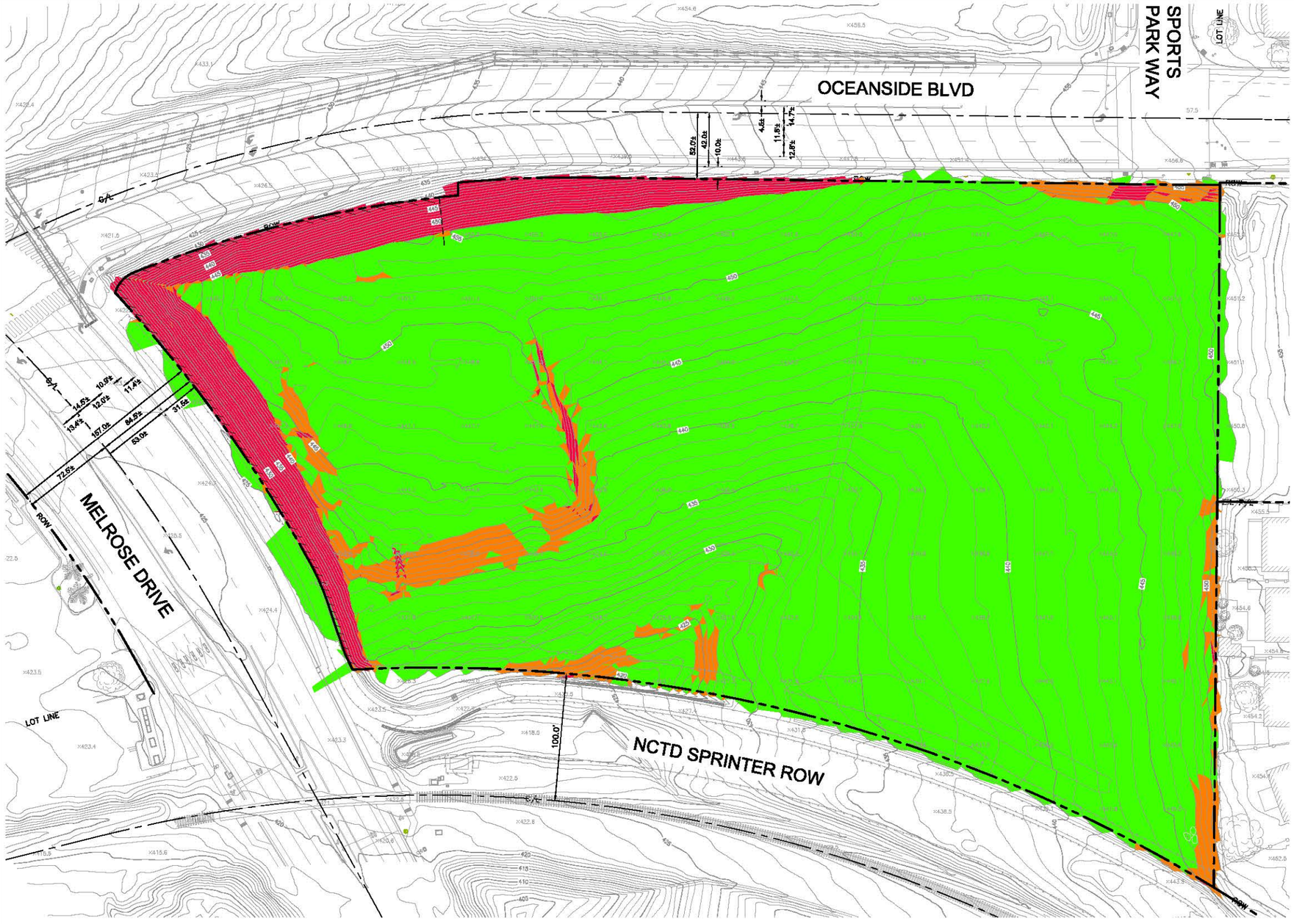
REGISTERED PROFESSIONAL ENGINEER ERIN L. VEE No. 92949 CIVIL STATE OF CALIFORNIA

SCALE:	AS SHOWN
DESIGN:	EL
DRAWN:	SM
CHECKED:	BN
APPROVED:	—
DATE:	4/5/22

CITY OF OCEANSIDE

CONCEPTUAL GRADING PLAN

C-2



Slopes Table				
Number	Minimum Slope	Maximum Slope	Area	Color
1	0.00%	20.00%	1025465.87	
2	20.00%	40.00%	97560.44	
3	40.00%	100.00%	71855.47	

CITY PROJECT# D21-00011

REVISIONS					
⚠	SHT.	DESCRIPTION	DATE	BY	APRD

APPROVALS		INITIAL	DATE
	PROJECT ENG.		

Kimley»Horn

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401 B STREET, SUITE 600, SAN DIEGO, CA 92101
PHONE: 619-234-9411

PREPARED BY: FIRST LASTNAME
R.C.E. NO.:
DATE: 4/5/2022

REGISTERED PROFESSIONAL ENGINEER — ERIN L. LEE — No. 92949 — CIVIL — STATE OF CALIFORNIA

SCALE:	AS SHOWN
DESIGN:	EL
DRAWN:	SM
CHECKED:	BN
APPROVED:	—
DATE:	4/5/22

CITY OF OCEANSIDE

SLOPE ANALYSIS PLAN

C-3

5. ARCHITECTURAL PLAN SET (APRIL 2022)



AGENCY SUBMITTAL
OCEANSIDE, CA
DECEMBER 20, 2021

SHEET INDEX

SHEET	DESCRIPTION
G1.0	COVER SHEET
G1.1	PROJECT INFORMATION - UNIT AND BUILDING SUMMARY
G1.2	PROJECT INFORMATION - UNIT SUMMARY, PARKING ANALYSIS
G.1.3	CONTEXTUAL SITE PLAN- MICRO/ MACRO
G.1.4	PHOTOGRAPHS OF NEIGHBORING BUILDINGS
A1.1	CONCEPTUAL PERSPECTIVES
A1.2	SITE PLAN- ON GRADE
A1.3	SITE PLAN- SUBTERRANEAN LEVEL
A1.4	OPEN SPACE PLAN
A1.5	FIRE MASTER PLAN
A1.5A	FIRE PLAN NOTES
A1.6	WASTE MANAGEMENT PLAN
A1.7	PATH OF TRAVEL
A2.0	BUILDING 1 COMPOSITE PLANS & ROOF PLAN
A2.1	BUILDING 1 ELEVATIONS
A2.2	BUILDING 1 ELEVATIONS
A2.3	BUILDING 2 COMPOSITE PLANS & ROOF PLAN
A2.4	BUILDING 2 ELEVATIONS
A2.5	BUILDING 2 ELEVATIONS
A2.6	BUILDING 3 COMPOSITE PLAN- SUBTERRANEAN LVL & LVL 1
A2.7	BUILDING 3 COMPOSITE PLAN- LEVELS 2, 3 &4
A2.8	BUILDING 3 COMPOSITE PLAN & ROOF PLAN
A2.9	BUILDING 3 ELEVATIONS
A2.10	BUILDING 3 ELEVATIONS
A2.11	BUILDING 4 COMPOSITE PLANS & ROOF PLAN
A2.12	BUILDING 4 ELEVATIONS
A2.13	BUILDING 4 ELEVATIONS
A2.14	BUILDING 5 COMPOSITE PLANS & ROOF PLAN
A2.15	BUILDING 5 ELEVATIONS
A2.16	BUILDING 5 ELEVATIONS
A2.17	BUILDING 6 COMPOSITE PLANS & ROOF PLAN
A2.18	BUILDING 6 ELEVATIONS
A2.19	BUILDING 6 ELEVATIONS
A2.20	BUILDING DETAILS
A3.0-A3.2	UNIT PLANS
A4.0	COLOR MATERIALS
L1	OVERALL PLANTING CONCEPT PLAN
L2	OVERALL LANDSCAPE CONCEPT PLAN
L3	RECREATION AREA ENLARGEMENT
L4	CONCEPTUAL DETAILS
C-1	EXISTING CONDITIONS PLAN
C-2.	CONCEPTUAL GRADING PLAN
C-3	SLOPE ANALYSIS

Project Team

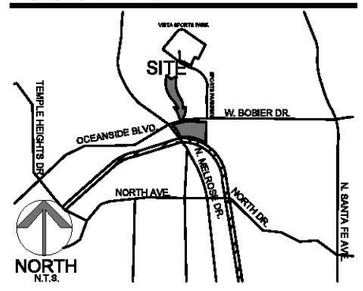
APPLICANT / OWNER
MILL CREEK RESIDENTIAL
949 SOUTH COAST DRIVE, SUITE 400
COSTA MESA, CA 92626
(714)800-1387
Contact: JOHN COLLETTI

RESIDENTIAL ARCHITECT
AO ARCHITECTS
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PHILLIP BARNES

CIVIL ENGINEER
KIMLEY-HORN
401 B Street, Suite 600
San Diego, CA 92101
(619) 452 2203
Contact: BRYAN C. NORD

VICINITY MAP



REVISION LOG		
NO.	DESCRIPTION	Date
1	ORIGINAL	08.12.21
2	RESUBMITTAL	10.18.21
3	RESUBMITTAL	12.20.21
4	RESUBMITTAL	04.04.21
5		
6		

NOTE: AS A RESIDENTIAL PROJECT WITH MORE THEN 16 DWELLING UNITS, THE PROJECT WILL BE SUBJECT TO THE PROPOSED CITYWIDE PUBLIC SAFETY CFD. ANNEXATION INTO THE CFD WILL BE A CONDITION OF PROJECT APPROVAL.

G1.0

MODERA MELROSE

OCEANSIDE, CALIFORNIA

DATE: 04-04-2022
JOB NO.: 2021-118

MILL CREEK RESIDENTIAL
949 SOUTH COAST DRIVE, SUITE 400, COSTA MESA, CA 92626
(714)800-1387

AO ARCHITECTS
144 NORTH ORANGE ST., ORANGE, CA 92866
(714) 639-9860

AO Architecture. Design. Relationships.

Monday, April 04, 2022 2:45:03 PM
\\AO-32\PS\RESIDENTIAL\2021\2021-118 MCR MEL ROSE & OCEANSIDE MIXED OCEANSIDE\03 DESIGN\SCHEMATIC\CAD\21-118_G1.0 COVER SHEET.DWG

PROJECT SUMMARY

THE MODERA MELROSE MIXED-USE PROJECT INCLUDES 323 RESIDENTIAL UNITS WITH 1,745 SQ.FT. OF LEASING AND 2,336 SQ.FT OF COMMERCIAL SPACE. ON- SITE PARKING WILL BE PROVIDED WITHIN ENCLOSED GARAGES, OPEN STALLS AND SUBTERRANEAN PODIUM PARKING.

THE BUILDING CLASSIFICATION IS AS FOLLOWS:

BUILDING 1 - 34 UNIT 4 STORY ELEVATOR SERVED MIXED-USE BUILDING WITH 1,745 SQ.FT. OF LEASING, 2,336 SQ.FT. OF COMMERCIAL ON THE GROUND FLOOR AND RESIDENTIAL UNITS ADJACENT TO IT AND ON UPPER LEVELS 2,3,4. THIS IS TYPE VA BUILDING.

BUILDING 2- 55 UNIT ELEVATOR SERVED BUILDING WITH 4 LEVELS OF TYPE VA UNITS.

BUILDING 3 - 108 UNIT ELEVATOR SERVED BUILDING WITH 4 LEVELS OF TYPE VA UNITS OVER 1 LEVEL OF TYPE I-A SUBTERRANEAN PARKING STRUCTURE.

BUILDING 4- 21 UNIT ELEVATOR SERVED BUILDING WITH 4 LEVELS OF TYPE VA UNITS.

BUILDING 5- 56 UNIT SPLIT BUILDING WITH 5 LEVELS OF UNITS ALONG BOBIER AND 3 LEVELS OF UNITS OVER TUCK UNDER GARAGES ON THE REAR SIDE. THIS IS A TYPE III-A BUILDING.

BUILDING 6- 49 UNIT 4 STORY ELEVATOR SERVED BUILDING WITH TUCK UNDER SINGLE CAR GARAGES. THIS IS A TYPE VA BUILDING.

GENERAL PLAN:	NEIGHBORHOOD COMMERCIAL (NC)		
ZONING:	NEIGHBORHOOD COMMERCIAL (CN)		
PROJECT ENTITLEMENT	MIXED-USE DEVELOPMENT PLAN		
TOTAL UNITS PROVIDED:	323	UNITS	
LOT AREA	7.40	ACRES	
	322,344	SQ.FT	
DENSITY:	43.65	DU/AC	
FAR:	1.29		
BUILDING COVERAGE	104,523	SQ.FT.	32%

BUILDING/ UNIT MIX

BUILDING #	BUILDING TYPE	1 BDRM												2 BDRM												3 BDRM			TOTAL UNITS	TOTAL GARAGE
		A1	A2	A3	A3 ALT	A4	A5	A6	AD2	AD3	AD5	AD6	AD6 ALT	B1	B2	B3	B4	B5	B6	B7	B8	B9	B9 ALT	B10	BD1	C1	C2	C3		
		1 BED/1 BATH	1 BED/1 BATH	1 BED/1 BATH	1 BED/1 BATH	1 BED/1 BATH	1 BED/ 1 BATH	1 BED/ 1 BATH	1 BED+ DEN /1 BATH	1 BED+ DEN /1 BATH	1 BED+ DEN /1 BATH	1 BED+ DEN /1 BATH	1 BED+ DEN /1 BATH	2 BED/2 BATH	2 BED/2 BATH	2 BED/2 BATH	2 BED/2 BATH	2 BED/2 BATH	2 BED/2 BATH	2 BED/2 BATH	2 BED/2 BATH	2 BED+ DEN /2 BATH	2 BED+ DEN /2 BATH	2 BED+ DEN /2 BATH	2 BED+ DEN /2 BATH	3 BED/2 BATH	3 BED/2 BATH	3 BED/2 BATH + DEN		
		756 SQ.FT.	756 SQ.FT.	718 SQ.FT.	700 SQ.FT.	666 SQ.FT.	703 SQ.FT.	744 SQ.FT.	872 SQ.FT.	884 SQ.FT.	1,020 SQ.FT.	914 SQ.FT.	904 SQ.FT.	1,159 SQ.FT.	1,162 SQ.FT.	1,090 SQ.FT.	1,161 SQ.FT.	1,090 SQ.FT.	1,263 SQ.FT.	1,066 SQ.FT.	1,164 SQ.FT.	952 SQ.FT.	940 SQ.FT.	976 SQ.FT.	1,038 SQ.FT.	1,416 SQ.FT.	1,330 SQ.FT.	1,429 SQ.FT.		
1	BUILDING 1 - 34 UNIT 4 STORY ELEVATOR SERVED MIXED-USE BUILDING WITH 1,745 SQ.FT. OF LEASING, 2,336 SQ.FT. OF COMMERCIAL ON THE GROUND FLOOR AND RESIDENTIAL UNITS ADJACENT TO IT AND ON UPPER LEVELS 2,3,4. THIS IS TYPE VA BUILDING.		6	7								4	3				7					3			4				**34**	
2	BUILDING 2- 55 UNIT ELEVATOR SERVED BUILDING WITH 4 LEVELS OF TYPE VA UNITS.			22	3							8				7	8					3		4					**55**	
3	BUILDING 3 - 108 UNIT ELEVATOR SERVED BUILDING WITH 4 LEVELS OF TYPE VA UNITS OVER 1 LEVEL OF TYPE I-A SUBTERRANEAN PARKING STRUCTURE.	3		27		1	1	1	4	8	4			14		12		3	4	3	8		3				8	3	1	**108**	
4	BUILDING 4- 21 UNIT ELEVATOR SERVED BUILDING WITH 4 LEVELS OF TYPE VA UNITS.														12	6							3							**21**	**8**
5	BUILDING 5- 56 UNIT SPLIT BUILDING WITH 5 LEVELS OF UNITS ALONG BOBIER AND 3 LEVELS OF UNITS OVER TUCK UNDER GARAGES ON THE REAR SIDE. THIS IS A TYPE III-A BUILDING.		10	6								3	3		15	3	10					3		3						**56**	**16**
6	BUILDING 6- 49 UNIT 4 STORY ELEVATOR SERVED BUILDING WITH TUCK UNDER SINGLE CAR GARAGES. THIS IS A TYPE VA BUILDING.		12	6	3							6			8		8					3		3						**49**	**15**
SUB-TOTAL	-	3	28	68	6	1	1	1	4	8	4	21	6	14	35	28	33	3	4	3	8	12	6	10	4	8	3	1	**323**	**39**
		151												160												12				
TOTAL		47%												50%												4%			**100%**	
%																														

GROSS FLOOR AREA (EXCLUDES GARAGE AND SUBTERRANEAN PARKING)

BUILDING #	QUANTITY	AREA PER BUILDING	TOTAL		FAR
1	1	45,397 SQ.FT.	45,397 SQ.FT.		0.14
2	1	61,961 SQ.FT.	61,961 SQ.FT.		0.19
3	1	150,790 SQ.FT.	150,790 SQ.FT.		0.47
4	1	30,210 SQ.FT.	30,210 SQ.FT.		0.09
5	1	70,520 SQ.FT.	70,520 SQ.FT.		0.22
6	1	56,826 SQ.FT.	56,826 SQ.FT.		0.18
TOTAL	6		415,704 SQ.FT.		1.28

COMMERCIAL AREA PROVIDED

BUILDING TYPE	COMMERCIAL AREA PER BUILDING
BUILDING 1 - 34 UNIT 4 STORY ELEVATOR SERVED MIXED-USE BUILDING WITH RESIDENTIAL UNITS ON LEVELS 2,3,4 AND A PORTION OF LEVEL 1 AND COMMERCIAL ON THE GROUND LEVEL	2,336 SQ.FT.
TOTAL	2,336 SQ.FT.

PROJECT INFORMATION - UNIT AND BUILDING SUMMARY

G1.1

MODERA MELROSE

OCEANSIDE, CALIFORNIA

DATE: 04-04-2022
JOB NO.: 2021-118

MILL CREEK RESIDENTIAL
949 SOUTH COAST DRIVE, SUITE 400, COSTA MESA, CA 92626
(714)800-1387

AO ARCHITECTS
144 NORTH ORANGE ST., ORANGE, CA 92866
(714) 639-9860

Architecture. Design. Relationships.

Monday, April 04, 2022 2:45:27 PM
\\AO-324\PS\RESIDENTIAL\2021\2021-118 MCR MELROSE & OCEANSIDE MIXED OCEANSIDE\03 DESIGN\SCHEMATIC\CAD\21-118_G1.1 - G1.2 PROJECT INFORMATION.DWG

6. Sewer Flow Monitoring Data

8 inch line

DateTime	Depth	Velocity	Flow
M/d/yyyy h:mm:ss tt	"inches"	"feet/sec"	"MGD"
6/3/2021 10:25	1.05	0.48	0.008
6/3/2021 10:20	1.06	0.46	0.008
6/3/2021 10:15	1.07	0.53	0.01
6/3/2021 10:10	0.75	0.37	0.004
6/3/2021 10:05	1.12	0.69	0.013
6/3/2021 10:00	1.1	0.94	0.017
6/3/2021 9:55	0.89	0.39	0.005
6/3/2021 9:50	1	0.44	0.007
6/3/2021 9:45	0.99	0.57	0.009
6/3/2021 9:40	0.93	0.65	0.01
6/3/2021 9:35	0.95	0.82	0.012
6/3/2021 9:30	0.94	0.81	0.012
6/3/2021 9:25	0.99	0.96	0.015
6/3/2021 9:20	1.21	0.92	0.019
6/3/2021 9:15	0.71	0.34	0.003
6/3/2021 9:10	1.17	0.42	0.008
6/3/2021 9:05	0.67	0.32	0.003
6/3/2021 9:00	0.66	0.4	0.003
6/3/2021 8:55	0.7	0.59	0.006
6/3/2021 8:50	1	0.55	0.009
6/3/2021 8:45	0.97	0.73	0.011
6/3/2021 8:40	0.97	0.74	0.011
6/3/2021 8:35	0.97	0.79	0.012
6/3/2021 8:30	0.97	0.62	0.01
6/3/2021 8:25	1	0.89	0.014
6/3/2021 8:20	0.92	0.93	0.013
6/3/2021 8:15	0.91	0.71	0.01
6/3/2021 8:10	0.94	0.7	0.01
6/3/2021 8:05	0.85	0.56	0.007
6/3/2021 8:00	0.91	0.68	0.01
6/3/2021 7:55	1.07	0.73	0.013
6/3/2021 7:50	1.09	1	0.018
6/3/2021 7:45	1.14	1.06	0.021
6/3/2021 7:40	1.27	1.11	0.025
6/3/2021 7:35	1.31	1.1	0.026
6/3/2021 7:30	1.42	1.37	0.037
6/3/2021 7:25	0.88	0.47	0.006
6/3/2021 7:20	1.2	1.04	0.022
6/3/2021 7:15	1.03	0.76	0.013
6/3/2021 7:10	1.1	0.99	0.018
6/3/2021 7:05	0.97	0.77	0.012

6/3/2021 7:00	1.04	0.84	0.014
6/3/2021 6:55	1.62	0.47	0.015
6/3/2021 6:50	1.43	0.41	0.011
6/3/2021 6:45	1.17	0.32	0.006
6/3/2021 6:40	0.88	0.29	0.004
6/3/2021 6:35	0.93	0.29	0.004
6/3/2021 6:30	0.94	0.3	0.004
6/3/2021 6:25	1.01	0.32	0.005
6/3/2021 6:20	1.28	0.45	0.01
6/3/2021 6:15	1.39	0.4	0.011
6/3/2021 6:10	1.6	0.47	0.015
6/3/2021 6:05	1.61	0.48	0.015
6/3/2021 6:00	0.96	0.32	0.005
6/3/2021 5:55	0.94	0.46	0.007
6/3/2021 5:50	0.92	0.35	0.005
6/3/2021 5:45	0.93	0.33	0.005
6/3/2021 5:40	1.46	0.5	0.014
6/3/2021 5:35	1.44	0.45	0.012
6/3/2021 5:30	1.22	0.36	0.008
6/3/2021 5:25	1.22	0.38	0.008
6/3/2021 5:20	1.3	0.42	0.01
6/3/2021 5:15	1.56	0.44	0.014
6/3/2021 5:10	1.12	0.35	0.007
6/3/2021 5:05	1.09	0.35	0.006
6/3/2021 5:00	1.18	0.38	0.008
6/3/2021 4:55	1.1	0.38	0.007
6/3/2021 4:50	1.05	0.36	0.006
6/3/2021 4:45	1.16	0.36	0.007
6/3/2021 4:40	1.53	0.36	0.011
6/3/2021 4:35	0.85	0.28	0.004
6/3/2021 4:30	0.87	0.29	0.004
6/3/2021 4:25	0.91	0.3	0.004
6/3/2021 4:20	1	0.48	0.008
6/3/2021 4:15	1.02	0.25	0.004
6/3/2021 4:10	0.82	0.23	0.003
6/3/2021 4:05	0.8	0.26	0.003
6/3/2021 4:00	0.83	0.26	0.003
6/3/2021 3:55	0.83	0.23	0.003
6/3/2021 3:50	0.82	0	0
6/3/2021 3:45	0.84	0	0
6/3/2021 3:40	0.86	0.2	0.003
6/3/2021 3:35	0.91	0.35	0.005
6/3/2021 3:30	0.9	0.39	0.005
6/3/2021 3:25	0.97	0.38	0.006

6/3/2021 3:20	1.01	0.4	0.007
6/3/2021 3:15	1.03	0.29	0.005
6/3/2021 3:10	0.85	0.29	0.004
6/3/2021 3:05	0.87	0.21	0.003
6/3/2021 3:00	0.9	0.46	0.006
6/3/2021 2:55	0.98	0.35	0.006
6/3/2021 2:50	1.12	0.36	0.007
6/3/2021 2:45	0.75	1.07	0.011
6/3/2021 2:40	0.84	0.34	0.004
6/3/2021 2:35	0.94	0.32	0.005
6/3/2021 2:30	0.95	0.31	0.005
6/3/2021 2:25	0.94	0.3	0.004
6/3/2021 2:20	1	0.31	0.005
6/3/2021 2:15	0.99	0.27	0.004
6/3/2021 2:10	0.91	0.17	0.002
6/3/2021 2:05	0.88	0.28	0.004
6/3/2021 2:00	0.88	0.29	0.004
6/3/2021 1:55	0.99	0.3	0.005
6/3/2021 1:50	1.11	0.28	0.005
6/3/2021 1:45	1.14	0.34	0.007
6/3/2021 1:40	1.14	0.36	0.007
6/3/2021 1:35	1.08	0.31	0.006
6/3/2021 1:30	1.23	0.33	0.007
6/3/2021 1:25	1.48	0.31	0.009
6/3/2021 1:20	1.64	0.44	0.015
6/3/2021 1:15	1.64	0.41	0.013
6/3/2021 1:10	0.86	0.33	0.004
6/3/2021 1:05	0.95	0.32	0.005
6/3/2021 1:00	0.95	0.28	0.004
6/3/2021 0:55	0.83	0.25	0.003
6/3/2021 0:50	0.88	0.25	0.003
6/3/2021 0:45	0.88	0.31	0.004
6/3/2021 0:40	0.88	0.32	0.004
6/3/2021 0:35	1.18	0.31	0.006
6/3/2021 0:30	0.96	0.33	0.005
6/3/2021 0:25	1	0.34	0.006
6/3/2021 0:20	1.44	0.38	0.01
6/3/2021 0:15	1.58	0.39	0.012
6/3/2021 0:10	0.78	0.29	0.003
6/3/2021 0:05	0.84	0.47	0.006
6/3/2021 0:00	0.85	0.33	0.004
6/2/2021 23:55	0.88	0.37	0.005
6/2/2021 23:50	0.88	0.36	0.005
6/2/2021 23:45	0.85	0.27	0.003

6/2/2021 23:40	0.86	0.38	0.005
6/2/2021 23:35	0.87	0.39	0.005
6/2/2021 23:30	1.1	0.55	0.01
6/2/2021 23:25	1.08	0.43	0.008
6/2/2021 23:20	1.09	0.48	0.009
6/2/2021 23:15	1.47	0.69	0.019
6/2/2021 23:10	0.87	0.46	0.006
6/2/2021 23:05	0.77	0.32	0.004
6/2/2021 23:00	0.8	0.42	0.005
6/2/2021 22:55	0.91	0.42	0.006
6/2/2021 22:50	0.91	0.4	0.006
6/2/2021 22:45	1.06	0.53	0.009
6/2/2021 22:40	1.08	0.47	0.008
6/2/2021 22:35	1.23	0.5	0.011
6/2/2021 22:30	0.94	0.7	0.01
6/2/2021 22:25	1.13	0.94	0.018
6/2/2021 22:20	1.05	0.86	0.015
6/2/2021 22:15	1.05	0.8	0.014
6/2/2021 22:10	1.06	0.92	0.016
6/2/2021 22:05	0.91	0.79	0.011
6/2/2021 22:00	0.91	0.64	0.009
6/2/2021 21:55	1.02	0.64	0.011
6/2/2021 21:50	1.09	0.97	0.018
6/2/2021 21:45	0.98	0.62	0.01
6/2/2021 21:40	1.04	0.72	0.012
6/2/2021 21:35	1.08	0.93	0.017
6/2/2021 21:30	1.13	0.96	0.018
6/2/2021 21:25	1.23	1	0.022
6/2/2021 21:20	1.25	1.04	0.023
6/2/2021 21:15	1.05	0.93	0.016
6/2/2021 21:10	1	0.97	0.016
6/2/2021 21:05	0.96	0.75	0.011
6/2/2021 21:00	0.93	0.74	0.011
6/2/2021 20:55	1	0.74	0.012
6/2/2021 20:50	0.86	0.54	0.007
6/2/2021 20:45	1.02	0.97	0.016
6/2/2021 20:40	1.06	1	0.018
6/2/2021 20:35	1.09	1.01	0.018
6/2/2021 20:30	1.03	1.02	0.017
6/2/2021 20:25	1.07	0.88	0.015
6/2/2021 20:20	1.07	0.95	0.017
6/2/2021 20:15	1.01	0.96	0.016
6/2/2021 20:10	1.14	0.94	0.018
6/2/2021 20:05	1.29	1.03	0.024

6/2/2021 20:00	1.31	1.15	0.027
6/2/2021 19:55	1.26	1.05	0.024
6/2/2021 19:50	1.18	1.04	0.021
6/2/2021 19:45	1.08	0.84	0.015
6/2/2021 19:40	1.23	1.06	0.023
6/2/2021 19:35	1.31	1.2	0.029
6/2/2021 19:30	1.2	1.06	0.022
6/2/2021 19:25	1.22	0.82	0.018
6/2/2021 19:20	0.92	0.57	0.008
6/2/2021 19:15	0.93	0.75	0.011
6/2/2021 19:10	0.93	0.78	0.011
6/2/2021 19:05	0.92	0.85	0.012
6/2/2021 19:00	0.9	0.74	0.01
6/2/2021 18:55	0.91	0.84	0.012
6/2/2021 18:50	1.06	0.83	0.014
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6/2/2021 18:40	1.04	1	0.017
6/2/2021 18:35	1.03	0.74	0.013
6/2/2021 18:30	1.03	0.75	0.013
6/2/2021 18:25	1.04	0.91	0.015
6/2/2021 18:20	0.9	0.6	0.008
6/2/2021 18:15	1.07	0.83	0.015
6/2/2021 18:10	0.87	0.65	0.009
6/2/2021 18:05	0.88	0.65	0.009
6/2/2021 18:00	0.96	0.87	0.013
6/2/2021 17:55	1.08	0.9	0.016
6/2/2021 17:50	1.09	0.9	0.016
6/2/2021 17:45	1.08	0.98	0.018
6/2/2021 17:40	1.08	0.91	0.016
6/2/2021 17:35	1.16	0.91	0.018
6/2/2021 17:30	1.07	0.86	0.015
6/2/2021 17:25	1.11	0.85	0.016
6/2/2021 17:20	1.18	0.94	0.019
6/2/2021 17:15	1.21	1	0.021
6/2/2021 17:10	1.05	0.79	0.014
6/2/2021 17:05	1.14	0.88	0.017
6/2/2021 17:00	1.29	1.16	0.027
6/2/2021 16:55	0.85	0.61	0.008
6/2/2021 16:50	0.93	0.86	0.012
6/2/2021 16:45	0.94	0.69	0.01
6/2/2021 16:40	0.86	0.69	0.009
6/2/2021 16:35	0.97	0.75	0.012
6/2/2021 16:30	0.97	0.92	0.014
6/2/2021 16:25	1.09	0.96	0.017

6/2/2021 16:20	1.84	0.53	0.021
6/2/2021 16:15	1.68	0.58	0.02
6/2/2021 16:10	0.9	0.56	0.008
6/2/2021 16:05	0.91	0.71	0.01
6/2/2021 16:00	1.04	0.87	0.015
6/2/2021 15:55	1.14	0.91	0.018
6/2/2021 15:50	1.17	0.93	0.019
6/2/2021 15:45	1.16	0.94	0.019
6/2/2021 15:40	1.26	1.09	0.025
6/2/2021 15:35	1.32	1.11	0.027
6/2/2021 15:30	1.32	1.08	0.026
6/2/2021 15:25	1.35	1.31	0.032
6/2/2021 15:20	1.05	0.87	0.015
6/2/2021 15:15	0.96	0.72	0.011
6/2/2021 15:10	1.12	0.9	0.017
6/2/2021 15:05	1.16	1.03	0.021
6/2/2021 15:00	1.18	0.91	0.019
6/2/2021 14:55	1.19	0.97	0.02
6/2/2021 14:50	1.33	1.15	0.028
6/2/2021 14:45	1.03	0.79	0.013
6/2/2021 14:40	1.07	0.87	0.016
6/2/2021 14:35	1.07	0.89	0.016
6/2/2021 14:30	1.3	1.05	0.025
6/2/2021 14:25	1.25	1.02	0.023
6/2/2021 14:20	1.09	0.93	0.017
6/2/2021 14:15	1.21	1.03	0.022
6/2/2021 14:10	1.21	1.05	0.022
6/2/2021 14:05	0.91	0.61	0.009
6/2/2021 14:00	0.92	0.6	0.008
6/2/2021 13:55	1	0.76	0.012
6/2/2021 13:50	1.09	0.87	0.016
6/2/2021 13:45	0.98	0.69	0.011
6/2/2021 13:40	1.08	0.88	0.016
6/2/2021 13:35	1.2	1	0.021
6/2/2021 13:30	1.17	0.99	0.02
6/2/2021 13:25	1.13	0.78	0.015
6/2/2021 13:20	1.4	1.27	0.033
6/2/2021 13:15	1.43	1.23	0.033
6/2/2021 13:10	1.11	0.93	0.018
6/2/2021 13:05	1.25	1.1	0.025
6/2/2021 13:00	1.34	0.94	0.023
6/2/2021 12:55	1.12	0.99	0.019
6/2/2021 12:50	1.07	0.85	0.015
6/2/2021 12:45	1.06	0.96	0.017

6/2/2021 12:40	1.03	0.88	0.015
6/2/2021 12:35	1.04	0.49	0.008
6/2/2021 12:30	1.13	0.43	0.008
6/2/2021 12:25	0.96	0.43	0.007
6/2/2021 12:20	0.91	0.84	0.012
6/2/2021 12:15	0.98	0.9	0.014
6/2/2021 12:10	1.05	0.9	0.016
6/2/2021 12:05	1.27	1.09	0.025
6/2/2021 12:00	1.28	1.1	0.025
6/2/2021 11:55	1.28	1.35	0.031
6/2/2021 11:50	1.22	1	0.022
6/2/2021 11:45	1.2	1.13	0.024
6/2/2021 11:40	1.03	0.57	0.01
6/2/2021 11:35	0.98	0.76	0.012
6/2/2021 11:30	0.97	0.76	0.012
6/2/2021 11:25	1.08	0.84	0.015
6/2/2021 11:20	1.12	0.86	0.016
6/2/2021 11:15	0.82	0.53	0.006
6/2/2021 11:10	0.8	0.63	0.007
6/2/2021 11:05	0.81	0.66	0.008
6/2/2021 11:00	1.03	0.81	0.014
6/2/2021 10:55	1.13	0.88	0.017
6/2/2021 10:50	1.22	0.98	0.021
6/2/2021 10:45	1.22	0.99	0.021
6/2/2021 10:40	1.2	0.99	0.021
6/2/2021 10:35	1.2	1.01	0.021
6/2/2021 10:30	0.87	0.61	0.008
6/2/2021 10:25	0.87	0.63	0.008
6/2/2021 10:20	0.97	0.68	0.01
6/2/2021 10:15	1	0.8	0.013
6/2/2021 10:10	1.09	0.88	0.016
6/2/2021 10:05	0.97	0.85	0.013
6/2/2021 10:00	1.18	0.98	0.02
6/2/2021 9:55	1.19	0.93	0.019
6/2/2021 9:50	1.35	1.21	0.03
6/2/2021 9:45	1.01	0.78	0.013
6/2/2021 9:40	1.11	0.78	0.014
6/2/2021 9:35	1.22	1.01	0.022
6/2/2021 9:30	0.86	0.62	0.008
6/2/2021 9:25	0.9	0.76	0.01
6/2/2021 9:20	0.8	0.52	0.006
6/2/2021 9:15	0.85	0.66	0.008
6/2/2021 9:10	1.01	0.82	0.013
6/2/2021 9:05	1.08	0.99	0.018

6/2/2021 9:00	1.1	0.98	0.018
6/2/2021 8:55	1.24	0.64	0.014
6/2/2021 8:50	0.79	0.52	0.006
6/2/2021 8:45	0.78	0.45	0.005
6/2/2021 8:40	0.78	0.4	0.005
6/2/2021 8:35	0.84	0.48	0.006
6/2/2021 8:30	1.21	0.36	0.008
6/2/2021 8:25	0.91	0.75	0.011
6/2/2021 8:20	0.92	0.7	0.01
6/2/2021 8:15	0.89	0.69	0.009
6/2/2021 8:10	0.98	0.75	0.012
6/2/2021 8:05	1.24	0.59	0.013
6/2/2021 8:00	1.14	0.58	0.011
6/2/2021 7:55	1.02	0.77	0.013
6/2/2021 7:50	0.9	0.68	0.009
6/2/2021 7:45	1.1	0.84	0.016
6/2/2021 7:40	1.07	0.85	0.015
6/2/2021 7:35	1.11	0.9	0.017
6/2/2021 7:30	1.14	0.47	0.009
6/2/2021 7:25	1.14	0.44	0.009
6/2/2021 7:20	1.14	1	0.02
6/2/2021 7:15	0.85	0.48	0.006
6/2/2021 7:10	0.8	0.61	0.007
6/2/2021 7:05	1.1	0.65	0.012
6/2/2021 7:00	1.14	0.31	0.006
6/2/2021 6:55	0.84	0.7	0.009
6/2/2021 6:50	0.99	0.49	0.008
6/2/2021 6:45	1.41	0.51	0.014
6/2/2021 6:40	0.9	0.41	0.006
6/2/2021 6:35	0.98	0.37	0.006
6/2/2021 6:30	0.85	0.47	0.006
6/2/2021 6:25	1.38	0.48	0.012
6/2/2021 6:20	0.83	0.64	0.008
6/2/2021 6:15	0.85	0.62	0.008
6/2/2021 6:10	0.85	0.52	0.007
6/2/2021 6:05	0.85	0.34	0.004
6/2/2021 6:00	0.86	0.48	0.006
6/2/2021 5:55	0.82	0.48	0.006
6/2/2021 5:50	0.84	0.53	0.007
6/2/2021 5:45	0.86	0.57	0.007
6/2/2021 5:40	1.43	0.53	0.014
6/2/2021 5:35	0.8	0.68	0.008
6/2/2021 5:30	0.93	0.84	0.012
6/2/2021 5:25	0.93	0.4	0.006

6/2/2021 5:20	2.22	0.44	0.022
6/2/2021 5:15	0.85	0.45	0.006
6/2/2021 5:10	0.85	0.45	0.006
6/2/2021 5:05	0.85	0.47	0.006
6/2/2021 5:00	0.9	0.47	0.007
6/2/2021 4:55	0.92	0.52	0.007
6/2/2021 4:50	0.92	0.6	0.009
6/2/2021 4:45	0.92	0.77	0.011
6/2/2021 4:40	0.92	0.4	0.006
6/2/2021 4:35	0.99	0.42	0.007
6/2/2021 4:30	0.89	0.43	0.006
6/2/2021 4:25	0.99	0.21	0.003
6/2/2021 4:20	0.64	0.45	0.004
6/2/2021 4:15	0.68	0.21	0.002
6/2/2021 4:10	0.7	0	0
6/2/2021 4:05	0.65	0	0
6/2/2021 4:00	1.04	0.23	0.004
6/2/2021 3:55	0.75	0.26	0.003
6/2/2021 3:50	0.79	0.31	0.004
6/2/2021 3:45	0.59	0.3	0.002
6/2/2021 3:40	0.62	0.68	0.005
6/2/2021 3:35	0.66	0	0
6/2/2021 3:30	0.97	0.22	0.003
6/2/2021 3:25	0.76	0.28	0.003
6/2/2021 3:20	0.84	0.3	0.004
6/2/2021 3:15	1.21	0.39	0.008
6/2/2021 3:10	1.33	0.4	0.01
6/2/2021 3:05	1.34	0.44	0.011
6/2/2021 3:00	1.34	0.31	0.008
6/2/2021 2:55	1.26	0.37	0.008
6/2/2021 2:50	1.27	0	0
6/2/2021 2:45	1.27	0	0
6/2/2021 2:40	1.28	0	0
6/2/2021 2:35	1.28	0.22	0.005
6/2/2021 2:30	1.28	0	0
6/2/2021 2:25	1.28	0.09	0.002
6/2/2021 2:20	1.27	0	0
6/2/2021 2:15	1.24	0.32	0.007
6/2/2021 2:10	1.25	0.27	0.006
6/2/2021 2:05	1.28	0.24	0.006
6/2/2021 2:00	1.25	0.23	0.005
6/2/2021 1:55	1.24	0.24	0.005
6/2/2021 1:50	1.24	0.22	0.005
6/2/2021 1:45	1.26	0.35	0.008

6/2/2021 1:40	1.6	0.26	0.008
6/2/2021 1:35	0.79	0.44	0.005
6/2/2021 1:30	1.32	0.56	0.014
6/2/2021 1:25	1.2	0.49	0.01
6/2/2021 1:20	0.87	0.31	0.004
6/2/2021 1:15	0.87	0.62	0.008
6/2/2021 1:10	0.85	0.63	0.008
6/2/2021 1:05	1.17	0.5	0.01
6/2/2021 1:00	0.85	0.38	0.005
6/2/2021 0:55	0.87	0.39	0.005
6/2/2021 0:50	0.84	0.33	0.004
6/2/2021 0:45	0.85	0.48	0.006
6/2/2021 0:40	0.9	0.35	0.005
6/2/2021 0:35	0.96	0.58	0.009
6/2/2021 0:30	0.85	0.36	0.005
6/2/2021 0:25	0.89	0.36	0.005
6/2/2021 0:20	0.96	0.36	0.006
6/2/2021 0:15	0.86	0.6	0.008
6/2/2021 0:10	0.9	0.37	0.005
6/2/2021 0:05	0.98	0.66	0.01
6/2/2021 0:00	1.51	0.78	0.023
6/1/2021 23:55	0.84	0.45	0.006
6/1/2021 23:50	0.86	0.43	0.006
6/1/2021 23:45	0.87	0.58	0.008
6/1/2021 23:40	0.89	0.59	0.008
6/1/2021 23:35	0.91	0.35	0.005
6/1/2021 23:30	0.91	0.3	0.004
6/1/2021 23:25	1.6	0.54	0.017
6/1/2021 23:20	1	0.72	0.012
6/1/2021 23:15	1.05	0.86	0.015
6/1/2021 23:10	0.94	0.66	0.01
6/1/2021 23:05	0.95	0.74	0.011
6/1/2021 23:00	0.95	0.8	0.012
6/1/2021 22:55	0.91	0.85	0.012
6/1/2021 22:50	0.84	0.5	0.006
6/1/2021 22:45	0.85	0.45	0.006
6/1/2021 22:40	0.85	0.55	0.007
6/1/2021 22:35	0.92	0.69	0.01
6/1/2021 22:30	1.11	0.91	0.017
6/1/2021 22:25	1.11	0.56	0.01
6/1/2021 22:20	0.89	0.83	0.011
6/1/2021 22:15	1.05	0.95	0.017
6/1/2021 22:10	1.1	0.94	0.017
6/1/2021 22:05	1.06	0.95	0.017

6/1/2021 22:00	1.02	0.83	0.014
6/1/2021 21:55	0.98	0.81	0.013
6/1/2021 21:50	0.79	0.59	0.007
6/1/2021 21:45	0.78	0.55	0.006
6/1/2021 21:40	1.04	0.94	0.016
6/1/2021 21:35	1.25	1.14	0.025
6/1/2021 21:30	1.24	1.01	0.022
6/1/2021 21:25	1.11	0.94	0.018
6/1/2021 21:20	1.15	0.99	0.02
6/1/2021 21:15	1.18	0.96	0.02
6/1/2021 21:10	1.26	1.06	0.024
6/1/2021 21:05	1.26	1.06	0.024
6/1/2021 21:00	1.32	1.11	0.027
6/1/2021 20:55	1.09	1.09	0.02
6/1/2021 20:50	1.01	0.92	0.015
6/1/2021 20:45	1.02	0.82	0.014
6/1/2021 20:40	0.87	0.62	0.008
6/1/2021 20:35	0.92	0.63	0.009
6/1/2021 20:30	1.14	0.97	0.019
6/1/2021 20:25	1.15	0.89	0.018
6/1/2021 20:20	1.33	1.3	0.032
6/1/2021 20:15	1.33	1.38	0.034
6/1/2021 20:10	1.23	1	0.022
6/1/2021 20:05	1.34	0.99	0.025
6/1/2021 20:00	1.48	1.34	0.038
6/1/2021 19:55	1.49	1.21	0.035
6/1/2021 19:50	1.51	1.42	0.041
6/1/2021 19:45	1.49	1.43	0.041
6/1/2021 19:40	1.49	1.35	0.039
6/1/2021 19:35	1.49	1.4	0.04
6/1/2021 19:30	1.13	0.97	0.019
6/1/2021 19:25	1.13	1.06	0.021
6/1/2021 19:20	1.01	0.84	0.014
6/1/2021 19:15	1.12	0.97	0.018
6/1/2021 19:10	1.1	0.86	0.016
6/1/2021 19:05	1.17	0.95	0.019
6/1/2021 19:00	1.18	1	0.021
6/1/2021 18:55	1.27	1	0.023
6/1/2021 18:50	1.21	1.17	0.025
6/1/2021 18:45	1.05	0.78	0.014
6/1/2021 18:40	1.15	1	0.02
6/1/2021 18:35	1.14	0.99	0.019
6/1/2021 18:30	1.11	0.98	0.018
6/1/2021 18:25	1.17	1.02	0.021

6/1/2021 18:20	1.06	1.03	0.018
6/1/2021 18:15	0.94	0.88	0.013
6/1/2021 18:10	0.93	0.69	0.01
6/1/2021 18:05	1.16	1.01	0.02
6/1/2021 18:00	0.83	0.47	0.006
6/1/2021 17:55	0.9	0.84	0.012
6/1/2021 17:50	1.14	0.99	0.02
6/1/2021 17:45	1.1	1	0.018
6/1/2021 17:40	1.07	0.95	0.017
6/1/2021 17:35	1.27	1.13	0.026
6/1/2021 17:30	1.2	1.05	0.022
6/1/2021 17:25	1.11	0.88	0.017
6/1/2021 17:20	1.5	1.3	0.038
6/1/2021 17:15	1.51	1.51	0.044
6/1/2021 17:10	1.5	1.6	0.046
6/1/2021 17:05	1.04	0.81	0.014
6/1/2021 17:00	1.16	1.05	0.021
6/1/2021 16:55	1.27	1.18	0.027
6/1/2021 16:50	1.27	1.21	0.028
6/1/2021 16:45	1.18	1.03	0.021
6/1/2021 16:40	1.1	0.83	0.015
6/1/2021 16:35	1.07	0.79	0.014
6/1/2021 16:30	1.03	0.78	0.013
6/1/2021 16:25	1.03	0.8	0.013
6/1/2021 16:20	1.2	0.99	0.021
6/1/2021 16:15	0.98	0.78	0.012
6/1/2021 16:10	1.16	0.85	0.017
6/1/2021 16:05	1.49	1.55	0.044
6/1/2021 16:00	1.49	1.55	0.044
6/1/2021 15:55	1.54	1.4	0.042
6/1/2021 15:50	1.57	1.61	0.05
6/1/2021 15:45	1.19	0.95	0.02
6/1/2021 15:40	0.88	0.65	0.009
6/1/2021 15:35	0.98	0.83	0.013
6/1/2021 15:30	1.04	0.79	0.013
6/1/2021 15:25	1.14	0.92	0.018
6/1/2021 15:20	1.36	1.27	0.032
6/1/2021 15:15	0.88	0.67	0.009
6/1/2021 15:10	1.13	0.96	0.019
6/1/2021 15:05	1.16	0.97	0.019
6/1/2021 15:00	1.34	1.09	0.027
6/1/2021 14:55	1.34	1.31	0.032
6/1/2021 14:50	1.45	1.39	0.039
6/1/2021 14:45	1.46	1.38	0.038

6/1/2021 14:40	1.5	1.47	0.043
6/1/2021 14:35	1.51	1.65	0.048
6/1/2021 14:30	0.96	0.77	0.012
6/1/2021 14:25	1.13	0.99	0.019
6/1/2021 14:20	1.08	1.01	0.018
6/1/2021 14:15	1.19	1.01	0.021
6/1/2021 14:10	1.21	1.02	0.022
6/1/2021 14:05	1.36	1.02	0.026
6/1/2021 14:00	1.32	1.2	0.029
6/1/2021 13:55	1.31	1.17	0.028
6/1/2021 13:50	1.15	1.01	0.02
6/1/2021 13:45	1.34	1.02	0.025
6/1/2021 13:40	1.25	0.98	0.022
6/1/2021 13:35	1.26	1.1	0.025
6/1/2021 13:30	1.13	1.05	0.02
6/1/2021 13:25	1.37	1.23	0.031
6/1/2021 13:20	1.54	1.66	0.05
6/1/2021 13:15	0.94	0.73	0.011
6/1/2021 13:10	1.17	1.05	0.021
6/1/2021 13:05	0.86	0.52	0.007
6/1/2021 13:00	0.86	0.76	0.01
6/1/2021 12:55	0.95	0.75	0.011
6/1/2021 12:50	0.79	0.56	0.006
6/1/2021 12:45	1.03	0.98	0.017
6/1/2021 12:40	1.14	1.02	0.02
6/1/2021 12:35	1.11	0.52	0.01
6/1/2021 12:30	1.18	1.21	0.025
6/1/2021 12:25	1.4	1.19	0.031
6/1/2021 12:20	0.89	0.67	0.009
6/1/2021 12:15	0.82	0.61	0.007
6/1/2021 12:10	0.88	0.59	0.008
6/1/2021 12:05	0.89	0.58	0.008
6/1/2021 12:00	0.9	0.91	0.013
6/1/2021 11:55	1.01	0.76	0.012
6/1/2021 11:50	1.17	0.92	0.019
6/1/2021 11:45	1.16	0.96	0.019
6/1/2021 11:40	1.24	1.33	0.03
6/1/2021 11:35	1.06	0.91	0.016
6/1/2021 11:30	1.06	0.92	0.016
6/1/2021 11:25	0.99	0.82	0.013
6/1/2021 11:20	1.03	0.87	0.015
6/1/2021 11:15	1.27	0.99	0.022
6/1/2021 11:10	1.4	1.22	0.032
6/1/2021 11:05	1.03	0.85	0.014

6/1/2021 11:00	1.06	0.82	0.015
6/1/2021 10:55	1.07	0.83	0.015
6/1/2021 10:50	1.27	1.27	0.029
6/1/2021 10:45	1.2	0.82	0.017
6/1/2021 10:40	1.2	0.84	0.018
6/1/2021 10:35	1.28	1.06	0.025
6/1/2021 10:30	1.07	0.78	0.014
6/1/2021 10:25	1.08	0.82	0.015
6/1/2021 10:20	1.11	0.82	0.016
6/1/2021 10:15	1.3	1.14	0.027
6/1/2021 10:10	1.32	0.91	0.022
6/1/2021 10:05	0.85	0.63	0.008
6/1/2021 10:00	0.84	0.63	0.008
6/1/2021 9:55	0.98	0.86	0.014
6/1/2021 9:50	1.13	0.86	0.016
6/1/2021 9:45	1.26	1.1	0.025
6/1/2021 9:40	1.29	0.98	0.023
6/1/2021 9:35	1.06	0.91	0.016
6/1/2021 9:30	1.05	0.81	0.014
6/1/2021 9:25	1.29	1.03	0.024
6/1/2021 9:20	0.85	0.7	0.009
6/1/2021 9:15	1.03	0.74	0.013
6/1/2021 9:10	1.08	0.79	0.014
6/1/2021 9:05	1.07	0.81	0.014
6/1/2021 9:00	1.32	0.91	0.022
6/1/2021 8:55	1.56	1.53	0.047
6/1/2021 8:50	1.12	0.87	0.017
6/1/2021 8:45	1.23	0.96	0.021
6/1/2021 8:40	1.31	1.03	0.025
6/1/2021 8:35	1.33	1.08	0.026
6/1/2021 8:30	1.31	1.1	0.026
6/1/2021 8:25	1.32	1.18	0.029
6/1/2021 8:20	1.36	1.27	0.032
6/1/2021 8:15	1.48	1.35	0.039
6/1/2021 8:10	0.98	0.6	0.009
6/1/2021 8:05	0.97	0.68	0.01
6/1/2021 8:00	1.13	0.89	0.017
6/1/2021 7:55	0.99	0.86	0.014
6/1/2021 7:50	1.01	0.85	0.014
6/1/2021 7:45	1.09	0.95	0.017
6/1/2021 7:40	1.01	0.72	0.012
6/1/2021 7:35	1.01	0.86	0.014
6/1/2021 7:30	1.04	0.85	0.014
6/1/2021 7:25	1.09	0.85	0.015

6/1/2021 7:20	0.92	0.79	0.011
6/1/2021 7:15	0.91	0.79	0.011
6/1/2021 7:10	1.07	0.87	0.016
6/1/2021 7:05	1.11	0.95	0.018
6/1/2021 7:00	1.1	1.07	0.02
6/1/2021 6:55	0.88	0.75	0.01
6/1/2021 6:50	0.89	0.8	0.011
6/1/2021 6:45	0.83	0.57	0.007
6/1/2021 6:40	1.08	0.5	0.009
6/1/2021 6:35	1.1	0.62	0.011
6/1/2021 6:30	1.12	0.61	0.012
6/1/2021 6:25	0.85	0.58	0.007
6/1/2021 6:20	0.81	0.5	0.006
6/1/2021 6:15	0.81	0.49	0.006
6/1/2021 6:10	0.81	0.51	0.006
6/1/2021 6:05	0.82	0.53	0.006
6/1/2021 6:00	0.83	0.56	0.007
6/1/2021 5:55	0.95	0.68	0.01
6/1/2021 5:50	0.93	0.53	0.008
6/1/2021 5:45	0.89	0.55	0.007
6/1/2021 5:40	0.86	0.69	0.009
6/1/2021 5:35	0.97	0.92	0.014
6/1/2021 5:30	0.89	0.78	0.011
6/1/2021 5:25	0.92	0.8	0.011
6/1/2021 5:20	0.93	0.55	0.008
6/1/2021 5:15	1.04	0.54	0.009
6/1/2021 5:10	0.76	0.55	0.006
6/1/2021 5:05	1.16	0.64	0.013
6/1/2021 5:00	0.82	0.65	0.008
6/1/2021 4:55	0.8	0.69	0.008
6/1/2021 4:50	0.82	0.69	0.008
6/1/2021 4:45	0.9	0.75	0.01
6/1/2021 4:40	0.91	0.82	0.012
6/1/2021 4:35	0.85	0.49	0.006
6/1/2021 4:30	1.42	0.48	0.013
6/1/2021 4:25	0.82	0.64	0.008
6/1/2021 4:20	0.82	0.43	0.005
6/1/2021 4:15	0.75	0.57	0.006
6/1/2021 4:10	0.74	0.48	0.005
6/1/2021 4:05	0.86	0.7	0.009
6/1/2021 4:00	0.86	0.64	0.008
6/1/2021 3:55	0.87	0.77	0.01
6/1/2021 3:50	0.86	0.77	0.01
6/1/2021 3:45	0.82	0.54	0.006

6/1/2021 3:40	1.3	0.38	0.009
6/1/2021 3:35	1.33	0.49	0.012
6/1/2021 3:30	0.88	0.66	0.009
6/1/2021 3:25	1.22	0.5	0.011
6/1/2021 3:20	1.13	0.52	0.01
6/1/2021 3:15	0.84	0.49	0.006
6/1/2021 3:10	1.29	0.53	0.012
6/1/2021 3:05	1.45	0.56	0.016
6/1/2021 3:00	0.79	0.64	0.007
6/1/2021 2:55	0.8	0.65	0.007
6/1/2021 2:50	0.81	0.65	0.008
6/1/2021 2:45	0.88	0.59	0.008
6/1/2021 2:40	1.03	0.54	0.009
6/1/2021 2:35	0.83	0.55	0.007
6/1/2021 2:30	0.83	0.55	0.007
6/1/2021 2:25	0.82	0.56	0.007
6/1/2021 2:20	0.81	0.56	0.007
6/1/2021 2:15	0.81	0.54	0.006
6/1/2021 2:10	0.81	0.51	0.006
6/1/2021 2:05	0.83	0.56	0.007
6/1/2021 2:00	1.42	0.57	0.015
6/1/2021 1:55	0.77	0.66	0.007
6/1/2021 1:50	0.78	0.67	0.008
6/1/2021 1:45	0.81	0.69	0.008
6/1/2021 1:40	0.83	0.58	0.007
6/1/2021 1:35	0.83	0.7	0.009
6/1/2021 1:30	0.83	0.63	0.008
6/1/2021 1:25	0.85	0.63	0.008
6/1/2021 1:20	0.87	0.65	0.009
6/1/2021 1:15	0.89	0.62	0.008
6/1/2021 1:10	0.89	0.68	0.009
6/1/2021 1:05	0.9	0.71	0.01
6/1/2021 1:00	0.87	0.71	0.009
6/1/2021 0:55	0.88	0.71	0.01
6/1/2021 0:50	0.97	0.78	0.012
6/1/2021 0:45	0.98	0.82	0.013
6/1/2021 0:40	0.96	0.83	0.013
6/1/2021 0:35	0.96	0.78	0.012
6/1/2021 0:30	0.96	0.76	0.012
6/1/2021 0:25	0.96	0.74	0.011
6/1/2021 0:20	0.99	0.83	0.013
6/1/2021 0:15	0.96	0.79	0.012
6/1/2021 0:10	0.97	0.85	0.013
6/1/2021 0:05	0.98	0.86	0.014

6/1/2021 0:00	0.96	0.73	0.011
5/31/2021 23:55	0.96	0.73	0.011
5/31/2021 23:50	1.06	1.03	0.018
5/31/2021 23:45	1.27	1.25	0.028
5/31/2021 23:40	0.96	0.74	0.011
5/31/2021 23:35	0.96	0.69	0.01
5/31/2021 23:30	1.02	0.69	0.011
5/31/2021 23:25	1.16	1.04	0.021
5/31/2021 23:20	0.8	0.44	0.005
5/31/2021 23:15	0.85	0.78	0.01
5/31/2021 23:10	0.94	0.87	0.013
5/31/2021 23:05	0.87	0.63	0.008
5/31/2021 23:00	1	0.78	0.013
5/31/2021 22:55	1.02	0.94	0.016
5/31/2021 22:50	0.99	0.76	0.012
5/31/2021 22:45	1.01	0.72	0.012
5/31/2021 22:40	1.05	1.03	0.018
5/31/2021 22:35	0.91	0.63	0.009
5/31/2021 22:30	0.86	0.62	0.008
5/31/2021 22:25	0.9	0.77	0.011
5/31/2021 22:20	0.9	0.79	0.011
5/31/2021 22:15	0.89	0.84	0.011
5/31/2021 22:10	0.89	0.9	0.012
5/31/2021 22:05	0.99	0.9	0.014
5/31/2021 22:00	1.09	0.85	0.016
5/31/2021 21:55	1.11	0.96	0.018
5/31/2021 21:50	1.1	0.91	0.017
5/31/2021 21:45	0.86	0.76	0.01
5/31/2021 21:40	0.91	0.66	0.009
5/31/2021 21:35	0.95	0.79	0.012
5/31/2021 21:30	0.78	0.61	0.007
5/31/2021 21:25	0.76	0.78	0.008
5/31/2021 21:20	1.2	1.03	0.022
5/31/2021 21:15	1.22	0.73	0.016
5/31/2021 21:10	1.38	1.26	0.032
5/31/2021 21:05	1.03	0.79	0.013
5/31/2021 21:00	0.96	0.73	0.011
5/31/2021 20:55	0.78	0.63	0.007
5/31/2021 20:50	0.82	0.51	0.006
5/31/2021 20:45	0.85	0.9	0.011
5/31/2021 20:40	1.04	0.87	0.015
5/31/2021 20:35	1.02	0.8	0.013
5/31/2021 20:30	0.9	0.75	0.01
5/31/2021 20:25	0.77	0.44	0.005

5/31/2021 20:20	0.76	0.52	0.006
5/31/2021 20:15	1.16	0.52	0.01
5/31/2021 20:10	1.02	0.83	0.014
5/31/2021 20:05	1.15	1.08	0.021
5/31/2021 20:00	1.13	0.81	0.016
5/31/2021 19:55	1.2	1.24	0.026
5/31/2021 19:50	1.26	1.1	0.025
5/31/2021 19:45	1.37	1.2	0.031
5/31/2021 19:40	1.37	1.2	0.031
5/31/2021 19:35	1.37	1.55	0.039
5/31/2021 19:30	0.8	0.7	0.008
5/31/2021 19:25	0.8	0.75	0.009
5/31/2021 19:20	1.5	0.56	0.016
5/31/2021 19:15	0.8	0.59	0.007
5/31/2021 19:10	0.77	0.65	0.007
5/31/2021 19:05	0.99	0.86	0.014
5/31/2021 19:00	1.03	0.81	0.014
5/31/2021 18:55	1.13	0.97	0.019
5/31/2021 18:50	1.08	0.95	0.017
5/31/2021 18:45	1.24	1.11	0.025
5/31/2021 18:40	1.22	1.05	0.023
5/31/2021 18:35	1.25	1.27	0.028
5/31/2021 18:30	1.51	1.19	0.035
5/31/2021 18:25	1.21	0.94	0.02
5/31/2021 18:20	1.27	1.12	0.026
5/31/2021 18:15	1.28	1.02	0.024
5/31/2021 18:10	1.28	1.15	0.027
5/31/2021 18:05	0.87	0.7	0.009
5/31/2021 18:00	0.87	0.66	0.009
5/31/2021 17:55	0.83	0.57	0.007
5/31/2021 17:50	0.84	0.71	0.009
5/31/2021 17:45	1.01	0.82	0.014
5/31/2021 17:40	1.15	1.05	0.021
5/31/2021 17:35	1.13	0.93	0.018
5/31/2021 17:30	1.36	1.24	0.031
5/31/2021 17:25	1.54	1.42	0.043
5/31/2021 17:20	1.03	0.86	0.014
5/31/2021 17:15	0.86	0.86	0.011
5/31/2021 17:10	1.2	0.9	0.019
5/31/2021 17:05	0.82	0.63	0.008
5/31/2021 17:00	0.85	0.58	0.007
5/31/2021 16:55	1.02	0.83	0.014
5/31/2021 16:50	1.03	0.79	0.013
5/31/2021 16:45	1	0.87	0.014

5/31/2021 16:40	1.15	1.04	0.021
5/31/2021 16:35	1.5	1.47	0.043
5/31/2021 16:30	1.5	1.29	0.038
5/31/2021 16:25	1.34	1.22	0.03
5/31/2021 16:20	1.34	1.63	0.04
5/31/2021 16:15	1.51	1.35	0.04
5/31/2021 16:10	1.11	0.87	0.016
5/31/2021 16:05	1.23	1.09	0.024
5/31/2021 16:00	1.3	1.15	0.027
5/31/2021 15:55	1.22	1.09	0.023
5/31/2021 15:50	1.3	1.04	0.024
5/31/2021 15:45	1.46	1.34	0.038
5/31/2021 15:40	1.57	1.35	0.042
5/31/2021 15:35	1.11	0.99	0.019
5/31/2021 15:30	1.16	0.98	0.02
5/31/2021 15:25	1.02	1.01	0.017
5/31/2021 15:20	0.94	0.79	0.012
5/31/2021 15:15	1.05	0.82	0.014
5/31/2021 15:10	1.17	0.84	0.017
5/31/2021 15:05	1.16	0.89	0.018
5/31/2021 15:00	1.3	0.97	0.023
5/31/2021 14:55	1.35	1.12	0.028
5/31/2021 14:50	1.38	1.16	0.03
5/31/2021 14:45	1.42	1.24	0.033
5/31/2021 14:40	1.18	0.98	0.02
5/31/2021 14:35	1.05	0.8	0.014
5/31/2021 14:30	1.05	0.97	0.017
5/31/2021 14:25	0.97	0.77	0.012
5/31/2021 14:20	1.23	1.13	0.025
5/31/2021 14:15	1.15	0.96	0.019
5/31/2021 14:10	1.23	1.08	0.024
5/31/2021 14:05	1.43	1.26	0.034
5/31/2021 14:00	1.43	1.24	0.034
5/31/2021 13:55	1.47	1.29	0.036
5/31/2021 13:50	1.53	1.38	0.041
5/31/2021 13:45	1.07	0.85	0.015
5/31/2021 13:40	1.21	0.98	0.021
5/31/2021 13:35	1.22	0.94	0.02
5/31/2021 13:30	1.26	1.1	0.025
5/31/2021 13:25	1.42	1.44	0.039
5/31/2021 13:20	1.38	1.19	0.03
5/31/2021 13:15	1.4	1.19	0.031
5/31/2021 13:10	1.41	1.2	0.032
5/31/2021 13:05	1.07	0.99	0.018

5/31/2021 13:00	0.82	0.64	0.008
5/31/2021 12:55	0.82	0.63	0.008
5/31/2021 12:50	0.82	0.59	0.007
5/31/2021 12:45	1.01	0.81	0.013
5/31/2021 12:40	1.18	1.11	0.023
5/31/2021 12:35	1.36	1.21	0.03
5/31/2021 12:30	1.36	1.28	0.032
5/31/2021 12:25	1.37	1.01	0.026
5/31/2021 12:20	1.36	1.01	0.026
5/31/2021 12:15	1.36	1.19	0.03
5/31/2021 12:10	1.23	1.08	0.024
5/31/2021 12:05	1.3	1.07	0.025
5/31/2021 12:00	1.34	1.36	0.033
5/31/2021 11:55	1.21	0.91	0.019
5/31/2021 11:50	1.18	1.14	0.023
5/31/2021 11:45	1.15	1.05	0.021
5/31/2021 11:40	1.03	0.86	0.014
5/31/2021 11:35	1.15	0.89	0.017
5/31/2021 11:30	1.32	1.05	0.026
5/31/2021 11:25	1.35	1.17	0.029
5/31/2021 11:20	1.31	1.18	0.028
5/31/2021 11:15	0.95	0.57	0.009
5/31/2021 11:10	1.05	0.79	0.014
5/31/2021 11:05	1.14	0.94	0.018
5/31/2021 11:00	1.11	0.9	0.017
5/31/2021 10:55	1.28	1.12	0.026
5/31/2021 10:50	1.07	0.86	0.015
5/31/2021 10:45	1.35	0.98	0.024
5/31/2021 10:40	1.35	1.03	0.026
5/31/2021 10:35	1.13	0.91	0.017
5/31/2021 10:30	1.01	0.8	0.013
5/31/2021 10:25	0.89	0.73	0.01
5/31/2021 10:20	0.86	0.74	0.01
5/31/2021 10:15	0.85	0.75	0.01
5/31/2021 10:10	0.97	0.73	0.011
5/31/2021 10:05	0.98	0.73	0.011
5/31/2021 10:00	0.98	0.77	0.012
5/31/2021 9:55	1.31	1.07	0.025
5/31/2021 9:50	1.37	1.12	0.028
5/31/2021 9:45	1.38	1.31	0.034
5/31/2021 9:40	1.19	1.55	0.032
5/31/2021 9:35	0.95	0.63	0.009
5/31/2021 9:30	0.9	0.56	0.008
5/31/2021 9:25	0.91	0.35	0.005

5/31/2021 9:20	0.91	0.57	0.008
5/31/2021 9:15	1.29	0.77	0.018
5/31/2021 9:10	0.9	0.77	0.011
5/31/2021 9:05	0.87	0.75	0.01
5/31/2021 9:00	0.83	0.72	0.009
5/31/2021 8:55	0.9	0.74	0.01
5/31/2021 8:50	0.95	0.76	0.011
5/31/2021 8:45	0.92	0.76	0.011
5/31/2021 8:40	1	0.78	0.013
5/31/2021 8:35	1.06	0.68	0.012
5/31/2021 8:30	0.88	0.75	0.01
5/31/2021 8:25	2.17	0.24	0.012
5/31/2021 8:20	2.22	0.25	0.012
5/31/2021 8:15	1.18	0.35	0.007
5/31/2021 8:10	2.59	0.36	0.023
5/31/2021 8:05	1.28	0.23	0.005
5/31/2021 8:00	1.26	0.27	0.006
5/31/2021 7:55	2.41	0.22	0.012
5/31/2021 7:50	1.38	0.26	0.007
5/31/2021 7:45	1.76	0.26	0.01
5/31/2021 7:40	2.27	0.29	0.015
5/31/2021 7:35	1.38	0.33	0.008
5/31/2021 7:30	1.29	0.4	0.009
5/31/2021 7:25	1.28	0.39	0.009
5/31/2021 7:20	1.28	0.43	0.01
5/31/2021 7:15	1.28	0.71	0.016
5/31/2021 7:10	1.28	0.57	0.013
5/31/2021 7:05	1.28	0.36	0.008
5/31/2021 7:00	1.28	0.37	0.009
5/31/2021 6:55	1.29	0.28	0.007
5/31/2021 6:50	1.31	0.43	0.01
5/31/2021 6:45	1.28	0.43	0.01
5/31/2021 6:40	1.22	0.26	0.006
5/31/2021 6:35	1.16	0.44	0.009
5/31/2021 6:30	0.98	0	0
5/31/2021 6:25	1.01	0.33	0.005
5/31/2021 6:20	1.03	0.36	0.006
5/31/2021 6:15	1.04	0.37	0.006
5/31/2021 6:10	1.11	0.37	0.007
5/31/2021 6:05	1.59	0.27	0.009
5/31/2021 6:00	1.33	0.34	0.008
5/31/2021 5:55	0.95	0.45	0.007
5/31/2021 5:50	1.18	0.39	0.008
5/31/2021 5:45	0.79	0.59	0.007

5/31/2021 5:40	1.69	0.4	0.014
5/31/2021 5:35	1.33	0.47	0.012
5/31/2021 5:30	0.8	0.35	0.004
5/31/2021 5:25	0.81	0.35	0.004
5/31/2021 5:20	0.79	0	0
5/31/2021 5:15	0.8	0.22	0.003
5/31/2021 5:10	0.8	0.26	0.003
5/31/2021 5:05	0.8	0.31	0.004
5/31/2021 5:00	0.76	0.33	0.004
5/31/2021 4:55	1.29	0.38	0.009
5/31/2021 4:50	0.84	0.39	0.005
5/31/2021 4:45	0.81	0.35	0.004
5/31/2021 4:40	1.03	0	0
5/31/2021 4:35	1.49	0.23	0.007
5/31/2021 4:30	1.94	0	0
5/31/2021 4:25	0.58	0	0
5/31/2021 4:20	1.44	0	0
5/31/2021 4:15	1.13	0.22	0.004
5/31/2021 4:10	1.54	0.44	0.013
5/31/2021 4:05	1.55	0	0
5/31/2021 4:00	1.03	0.23	0.004
5/31/2021 3:55	1.18	0	0
5/31/2021 3:50	1.24	0	0
5/31/2021 3:45	1.28	0	0
5/31/2021 3:40	1.3	0	0
5/31/2021 3:35	1.32	0	0
5/31/2021 3:30	1.33	0.08	0.002
5/31/2021 3:25	1.34	0	0
5/31/2021 3:20	1.34	0	0
5/31/2021 3:15	0.72	0.24	0.002
5/31/2021 3:10	0.73	0.26	0.003
5/31/2021 3:05	0.74	0.29	0.003
5/31/2021 3:00	0.75	0.34	0.004
5/31/2021 2:55	0.77	0.34	0.004
5/31/2021 2:50	0.84	0.33	0.004
5/31/2021 2:45	0.96	0.37	0.006
5/31/2021 2:40	0.83	0.43	0.005
5/31/2021 2:35	0.76	0.46	0.005
5/31/2021 2:30	0.72	0.43	0.004
5/31/2021 2:25	0.72	0.43	0.004
5/31/2021 2:20	0.85	0.45	0.006
5/31/2021 2:15	1.17	0.4	0.008
5/31/2021 2:10	0.8	0.41	0.005
5/31/2021 2:05	0.91	0.32	0.005

5/31/2021 2:00	1.51	0.25	0.007
5/31/2021 1:55	1.06	0.43	0.007
5/31/2021 1:50	1.13	0.46	0.009
5/31/2021 1:45	0.78	0.31	0.003
5/31/2021 1:40	0.78	0.48	0.005
5/31/2021 1:35	0.69	0.35	0.003
5/31/2021 1:30	0.99	0.37	0.006
5/31/2021 1:25	0.85	0.17	0.002
5/31/2021 1:20	1.08	0.31	0.006
5/31/2021 1:15	1.08	0.31	0.006
5/31/2021 1:10	0.87	0.36	0.005
5/31/2021 1:05	0.83	0.44	0.005
5/31/2021 1:00	0.84	0.33	0.004
5/31/2021 0:55	0.99	0.5	0.008
5/31/2021 0:50	0.87	0.55	0.007
5/31/2021 0:45	1.31	0.63	0.015
5/31/2021 0:40	0.83	0.52	0.006
5/31/2021 0:35	1.33	0.45	0.011
5/31/2021 0:30	0.8	0.59	0.007
5/31/2021 0:25	0.81	0.66	0.008
5/31/2021 0:20	0.86	0.49	0.006
5/31/2021 0:15	0.91	0.49	0.007
5/31/2021 0:10	0.9	0.68	0.009
5/31/2021 0:05	0.9	0.68	0.009
5/31/2021 0:00	0.95	0.6	0.009
5/30/2021 23:55	1.17	0.36	0.007
5/30/2021 23:50	1.2	0.31	0.006
5/30/2021 23:45	1.2	0.3	0.006
5/30/2021 23:40	0.91	0.43	0.006
5/30/2021 23:35	1.34	0.41	0.01
5/30/2021 23:30	0.95	0.68	0.01
5/30/2021 23:25	1.07	0.45	0.008
5/30/2021 23:20	1.26	0.46	0.01
5/30/2021 23:15	0.88	0.67	0.009
5/30/2021 23:10	0.91	0.65	0.009
5/30/2021 23:05	1.01	0.52	0.009
5/30/2021 23:00	1.31	0.96	0.023
5/30/2021 22:55	0.85	0.71	0.009
5/30/2021 22:50	0.87	0.73	0.01
5/30/2021 22:45	0.85	0.59	0.007
5/30/2021 22:40	1.04	0.48	0.008
5/30/2021 22:35	1.05	0.76	0.013
5/30/2021 22:30	0.93	0.93	0.014
5/30/2021 22:25	0.94	1.04	0.016

5/30/2021 22:20	0.94	0.89	0.013
5/30/2021 22:15	0.86	0.88	0.012
5/30/2021 22:10	1.23	1.07	0.023
5/30/2021 22:05	0.95	0.87	0.013
5/30/2021 22:00	1.32	1	0.024
5/30/2021 21:55	0.89	0.91	0.012
5/30/2021 21:50	0.95	0.89	0.013
5/30/2021 21:45	1.16	0.91	0.018
5/30/2021 21:40	1.17	0.89	0.018
5/30/2021 21:35	1.29	1.3	0.03
5/30/2021 21:30	1.31	1.11	0.027
5/30/2021 21:25	1.13	0.85	0.016
5/30/2021 21:20	0.99	0.95	0.015
5/30/2021 21:15	1.18	0.94	0.019
5/30/2021 21:10	1.39	1.3	0.034
5/30/2021 21:05	1.01	0.74	0.012
5/30/2021 21:00	1.01	0.75	0.012
5/30/2021 20:55	1.02	0.77	0.013
5/30/2021 20:50	0.93	0.71	0.01
5/30/2021 20:45	1.33	1.06	0.026
5/30/2021 20:40	1.37	1.1	0.028
5/30/2021 20:35	1.4	1.28	0.034
5/30/2021 20:30	1.26	1	0.022
5/30/2021 20:25	1.26	1.08	0.024
5/30/2021 20:20	1.28	1.09	0.025
5/30/2021 20:15	1.28	1	0.023
5/30/2021 20:10	1.42	1.34	0.036
5/30/2021 20:05	1.49	1.35	0.039
5/30/2021 20:00	1.14	0.6	0.012
5/30/2021 19:55	1.24	0.57	0.013
5/30/2021 19:50	0.86	0.78	0.01
5/30/2021 19:45	0.8	0.41	0.005
5/30/2021 19:40	0.79	0.64	0.007
5/30/2021 19:35	0.79	0.6	0.007
5/30/2021 19:30	0.87	0.58	0.008
5/30/2021 19:25	0.89	0.81	0.011
5/30/2021 19:20	0.89	0.91	0.012
5/30/2021 19:15	0.79	0.66	0.007
5/30/2021 19:10	1	0.79	0.013
5/30/2021 19:05	1.09	1.11	0.02
5/30/2021 19:00	0.94	0.65	0.01
5/30/2021 18:55	1.03	1.08	0.018
5/30/2021 18:50	1.03	1.05	0.018
5/30/2021 18:45	1.22	1.13	0.025

5/30/2021 18:40	1.15	0.99	0.02
5/30/2021 18:35	1.4	1.4	0.037
5/30/2021 18:30	1.36	1.1	0.028
5/30/2021 18:25	1.39	1.31	0.034
5/30/2021 18:20	1.22	1.18	0.025
5/30/2021 18:15	1.21	1.02	0.022
5/30/2021 18:10	1.02	0.91	0.015
5/30/2021 18:05	0.92	0.7	0.01
5/30/2021 18:00	0.87	0.7	0.009
5/30/2021 17:55	0.85	0.7	0.009
5/30/2021 17:50	0.91	0.76	0.011
5/30/2021 17:45	1.14	1.2	0.023
5/30/2021 17:40	1.23	1.22	0.027
5/30/2021 17:35	0.99	0.81	0.013
5/30/2021 17:30	0.98	0.92	0.015
5/30/2021 17:25	0.97	0.81	0.013
5/30/2021 17:20	0.97	0.8	0.012
5/30/2021 17:15	1.11	0.94	0.018
5/30/2021 17:10	1.26	0.96	0.022
5/30/2021 17:05	1.3	1.1	0.026
5/30/2021 17:00	1.36	1.17	0.03
5/30/2021 16:55	1.35	1.27	0.032
5/30/2021 16:50	1.17	0.99	0.02
5/30/2021 16:45	1	0.79	0.013
5/30/2021 16:40	1.03	0.78	0.013
5/30/2021 16:35	1.08	0.99	0.018
5/30/2021 16:30	1.14	0.94	0.018
5/30/2021 16:25	1.08	0.93	0.017
5/30/2021 16:20	1.09	0.89	0.016
5/30/2021 16:15	0.99	0.76	0.012
5/30/2021 16:10	1.12	0.93	0.018
5/30/2021 16:05	1.28	1.16	0.027
5/30/2021 16:00	1.19	0.99	0.021
5/30/2021 15:55	1.19	1.07	0.022
5/30/2021 15:50	1.19	1	0.021
5/30/2021 15:45	1.31	1.1	0.026
5/30/2021 15:40	1.46	1.16	0.032
5/30/2021 15:35	1.41	1.25	0.033
5/30/2021 15:30	0.83	0.51	0.006
5/30/2021 15:25	1.2	1.06	0.022
5/30/2021 15:20	1.28	1.03	0.024
5/30/2021 15:15	1.28	1.17	0.027
5/30/2021 15:10	1.26	1.11	0.025
5/30/2021 15:05	1.41	1.3	0.035

5/30/2021 15:00	1.41	1.3	0.035
5/30/2021 14:55	1.25	1.03	0.023
5/30/2021 14:50	1.31	1.17	0.028
5/30/2021 14:45	1.14	1.09	0.021
5/30/2021 14:40	1.3	1.29	0.03
5/30/2021 14:35	1.24	1.23	0.027
5/30/2021 14:30	1.3	1.15	0.027
5/30/2021 14:25	1.3	1.24	0.029
5/30/2021 14:20	1.35	1.26	0.032
5/30/2021 14:15	1.3	1.11	0.026
5/30/2021 14:10	1.19	1.05	0.022
5/30/2021 14:05	1.31	1.3	0.031
5/30/2021 14:00	0.95	0.81	0.012
5/30/2021 13:55	1.03	0.8	0.014
5/30/2021 13:50	1.08	0.85	0.015
5/30/2021 13:45	1.37	1.03	0.026
5/30/2021 13:40	1.15	0.97	0.019
5/30/2021 13:35	1.04	0.77	0.013
5/30/2021 13:30	1.04	0.82	0.014
5/30/2021 13:25	1.22	0.98	0.021
5/30/2021 13:20	1.23	0.99	0.022
5/30/2021 13:15	1.4	1.2	0.032
5/30/2021 13:10	1.49	1.21	0.035
5/30/2021 13:05	1.47	1.36	0.038
5/30/2021 13:00	1.65	1.43	0.047
5/30/2021 12:55	1.19	1.04	0.022
5/30/2021 12:50	1.2	0.98	0.021
5/30/2021 12:45	1.15	0.93	0.018
5/30/2021 12:40	1.36	1.3	0.033
5/30/2021 12:35	1.27	1	0.023
5/30/2021 12:30	1.28	1.21	0.028
5/30/2021 12:25	1.54	1.22	0.037
5/30/2021 12:20	1.58	1.57	0.049
5/30/2021 12:15	0.94	0.74	0.011
5/30/2021 12:10	0.99	0.74	0.012
5/30/2021 12:05	1.16	0.92	0.018
5/30/2021 12:00	1.26	1.14	0.026
5/30/2021 11:55	1.31	1.14	0.027
5/30/2021 11:50	1.43	1.23	0.033
5/30/2021 11:45	1.47	1.37	0.039
5/30/2021 11:40	1.54	1.5	0.046
5/30/2021 11:35	1.19	0.86	0.018
5/30/2021 11:30	1.27	1.02	0.023
5/30/2021 11:25	1.24	1.03	0.023

5/30/2021 11:20	1.12	1.01	0.019
5/30/2021 11:15	1.11	0.91	0.017
5/30/2021 11:10	1.09	0.84	0.015
5/30/2021 11:05	1.18	1.03	0.021
5/30/2021 11:00	1.24	0.95	0.021
5/30/2021 10:55	0.9	0.41	0.006
5/30/2021 10:50	1.17	1.04	0.021
5/30/2021 10:45	1.12	0.82	0.016
5/30/2021 10:40	1.27	1.03	0.024
5/30/2021 10:35	1.27	1.01	0.023
5/30/2021 10:30	1.32	1.07	0.026
5/30/2021 10:25	1.22	1.05	0.023
5/30/2021 10:20	1.23	1.03	0.022
5/30/2021 10:15	1.57	1.37	0.042
5/30/2021 10:10	1.49	0.98	0.028
5/30/2021 10:05	1.35	0.95	0.024
5/30/2021 10:00	1.39	1.1	0.029
5/30/2021 9:55	1.48	1.06	0.03
5/30/2021 9:50	1.3	1.21	0.029
5/30/2021 9:45	1.28	1.1	0.025
5/30/2021 9:40	1.24	1.06	0.023
5/30/2021 9:35	1.04	1.01	0.017
5/30/2021 9:30	1.11	0.99	0.019
5/30/2021 9:25	1.11	0.94	0.018
5/30/2021 9:20	1.18	0.96	0.02
5/30/2021 9:15	1.19	0.97	0.02
5/30/2021 9:10	0.92	0.83	0.012
5/30/2021 9:05	0.88	0.75	0.01
5/30/2021 9:00	1.15	0.89	0.018
5/30/2021 8:55	1.15	0.89	0.018
5/30/2021 8:50	1.2	0.85	0.018
5/30/2021 8:45	0.96	0.87	0.013
5/30/2021 8:40	0.85	0.63	0.008
5/30/2021 8:35	0.86	0.77	0.01
5/30/2021 8:30	0.92	0.77	0.011
5/30/2021 8:25	0.93	0.83	0.012
5/30/2021 8:20	0.83	0.63	0.008
5/30/2021 8:15	0.84	0.63	0.008
5/30/2021 8:10	0.87	0.72	0.01
5/30/2021 8:05	0.88	0.67	0.009
5/30/2021 8:00	0.79	0.51	0.006
5/30/2021 7:55	0.78	0.53	0.006
5/30/2021 7:50	1.05	0.97	0.017
5/30/2021 7:45	0.85	0.57	0.007

5/30/2021 7:40	1	0.98	0.016
5/30/2021 7:35	0.98	0.89	0.014
5/30/2021 7:30	0.96	0.3	0.005
5/30/2021 7:25	0.97	0.28	0.004
5/30/2021 7:20	0.97	0.28	0.004
5/30/2021 7:15	1.07	0.36	0.006
5/30/2021 7:10	0.86	0.52	0.007
5/30/2021 7:05	0.9	0.66	0.009
5/30/2021 7:00	0.91	0.31	0.004
5/30/2021 6:55	0.89	0.32	0.004
5/30/2021 6:50	0.85	0.28	0.004
5/30/2021 6:45	0.93	0.29	0.004
5/30/2021 6:40	0.96	0.29	0.004
5/30/2021 6:35	1.35	0.29	0.007
5/30/2021 6:30	0.89	0.3	0.004
5/30/2021 6:25	0.91	0.31	0.004
5/30/2021 6:20	0.85	0.28	0.004
5/30/2021 6:15	0.83	0.29	0.004
5/30/2021 6:10	0.79	0.29	0.003
5/30/2021 6:05	0.9	0.29	0.004
5/30/2021 6:00	0.87	0.27	0.004
5/30/2021 5:55	0.82	0.26	0.003
5/30/2021 5:50	0.64	0.26	0.002
5/30/2021 5:45	0.67	0.27	0.002
5/30/2021 5:40	0.67	0.25	0.002
5/30/2021 5:35	0.66	0.24	0.002
5/30/2021 5:30	0.64	0.24	0.002
5/30/2021 5:25	0.56	0.24	0.002
5/30/2021 5:20	0.56	0.23	0.002
5/30/2021 5:15	0.56	0	0
5/30/2021 5:10	0.56	0	0
5/30/2021 5:05	0.57	0	0
5/30/2021 5:00	0.58	0	0
5/30/2021 4:55	0.56	0	0
5/30/2021 4:50	0.57	0	0
5/30/2021 4:45	0.57	0.24	0.002
5/30/2021 4:40	0.57	0.27	0.002
5/30/2021 4:35	0.59	0.74	0.006
5/30/2021 4:30	0.71	0	0
5/30/2021 4:25	1.03	0.28	0.005
5/30/2021 4:20	1.06	0.36	0.006
5/30/2021 4:15	0.78	0.4	0.005
5/30/2021 4:10	0.78	0.44	0.005
5/30/2021 4:05	0.57	0.28	0.002

5/30/2021 4:00	0.56	0	0
5/30/2021 3:55	0.57	0	0
5/30/2021 3:50	0.57	0.27	0.002
5/30/2021 3:45	0.57	0.28	0.002
5/30/2021 3:40	0.57	0.31	0.002
5/30/2021 3:35	0.58	0.42	0.003
5/30/2021 3:30	0.6	0.71	0.005
5/30/2021 3:25	0.75	0.22	0.002
5/30/2021 3:20	0.61	0.23	0.002
5/30/2021 3:15	0.53	0	0
5/30/2021 3:10	0.53	0	0
5/30/2021 3:05	0.52	0	0
5/30/2021 3:00	1.14	0	0
5/30/2021 2:55	0.66	0.25	0.002
5/30/2021 2:50	0.66	0	0
5/30/2021 2:45	0.68	0	0
5/30/2021 2:40	1.26	0	0
5/30/2021 2:35	0.84	0.22	0.003
5/30/2021 2:30	1.02	0	0
5/30/2021 2:25	0.87	0.42	0.006
5/30/2021 2:20	0.87	0.44	0.006
5/30/2021 2:15	0.9	0.4	0.006
5/30/2021 2:10	0.85	0.5	0.006
5/30/2021 2:05	0.78	0.53	0.006
5/30/2021 2:00	0.79	0.55	0.006
5/30/2021 1:55	0.79	0.43	0.005
5/30/2021 1:50	0.92	0.45	0.007
5/30/2021 1:45	0.85	0.34	0.004
5/30/2021 1:40	0.8	0.35	0.004
5/30/2021 1:35	0.82	0.44	0.005
5/30/2021 1:30	1.03	0.46	0.008
5/30/2021 1:25	1.07	0	0
5/30/2021 1:20	0.75	0.8	0.008
5/30/2021 1:15	0.7	0.37	0.004
5/30/2021 1:10	0.7	0.32	0.003
5/30/2021 1:05	0.69	0.52	0.005
5/30/2021 1:00	0.67	0.38	0.003
5/30/2021 0:55	0.67	0.48	0.004
5/30/2021 0:50	0.69	0.29	0.003
5/30/2021 0:45	0.75	0.32	0.003
5/30/2021 0:40	0.75	0.27	0.003
5/30/2021 0:35	0.75	0.2	0.002
5/30/2021 0:30	0.77	0.43	0.005
5/30/2021 0:25	0.77	0.43	0.005

5/30/2021 0:20	0.77	0.46	0.005
5/30/2021 0:15	0.79	0.45	0.005
5/30/2021 0:10	0.79	0.7	0.008
5/30/2021 0:05	0.8	0.41	0.005
5/30/2021 0:00	0.77	0.54	0.006
5/29/2021 23:55	0.8	0.63	0.007
5/29/2021 23:50	0.92	0.74	0.011
5/29/2021 23:45	1.41	0.53	0.014
5/29/2021 23:40	0.89	0.71	0.01
5/29/2021 23:35	0.87	0.57	0.007
5/29/2021 23:30	0.77	0.46	0.005
5/29/2021 23:25	0.86	0.6	0.008
5/29/2021 23:20	0.85	0.64	0.008
5/29/2021 23:15	0.89	0.66	0.009
5/29/2021 23:10	1.12	0.67	0.013
5/29/2021 23:05	1.13	0.8	0.015
5/29/2021 23:00	1.02	0.7	0.012
5/29/2021 22:55	1.02	0.7	0.012
5/29/2021 22:50	1.38	0.44	0.011
5/29/2021 22:45	1.36	0.66	0.017
5/29/2021 22:40	0.95	0.8	0.012
5/29/2021 22:35	1.03	0.89	0.015
5/29/2021 22:30	1.06	0.65	0.011
5/29/2021 22:25	0.95	0.75	0.011
5/29/2021 22:20	0.78	0.69	0.008
5/29/2021 22:15	0.81	0.96	0.011
5/29/2021 22:10	1.4	0.51	0.013
5/29/2021 22:05	0.85	0.65	0.008
5/29/2021 22:00	0.86	0.73	0.009
5/29/2021 21:55	0.87	0.51	0.007
5/29/2021 21:50	0.86	0.56	0.007
5/29/2021 21:45	0.85	0.44	0.006
5/29/2021 21:40	0.93	0.47	0.007
5/29/2021 21:35	1.06	0.78	0.014
5/29/2021 21:30	1.17	1.05	0.021
5/29/2021 21:25	0.99	0.75	0.012
5/29/2021 21:20	0.96	0.83	0.013
5/29/2021 21:15	1.16	1.03	0.021
5/29/2021 21:10	1.17	0.94	0.019
5/29/2021 21:05	1.15	0.98	0.019
5/29/2021 21:00	2.26	0.65	0.034
5/29/2021 20:55	1.02	0.75	0.013
5/29/2021 20:50	1.02	0.69	0.011
5/29/2021 20:45	0.96	0.76	0.012

5/29/2021 20:40	0.87	0.67	0.009
5/29/2021 20:35	0.99	0.73	0.012
5/29/2021 20:30	0.95	0.66	0.01
5/29/2021 20:25	0.88	0.63	0.008
5/29/2021 20:20	1.07	0.81	0.014
5/29/2021 20:15	1.11	0.75	0.014
5/29/2021 20:10	1.12	0.98	0.019
5/29/2021 20:05	1.26	1.01	0.023
5/29/2021 20:00	1.31	1.04	0.025
5/29/2021 19:55	1.3	1.25	0.03
5/29/2021 19:50	1.31	1.33	0.032
5/29/2021 19:45	1.08	0.83	0.015
5/29/2021 19:40	1.14	0.92	0.018
5/29/2021 19:35	1.36	1.09	0.028
5/29/2021 19:30	0.85	0.6	0.008
5/29/2021 19:25	0.86	0.75	0.01
5/29/2021 19:20	0.83	0.76	0.009
5/29/2021 19:15	0.81	0.75	0.009
5/29/2021 19:10	0.93	0.73	0.011
5/29/2021 19:05	0.93	0.77	0.011
5/29/2021 19:00	0.91	0.73	0.01
5/29/2021 18:55	0.89	0.52	0.007
5/29/2021 18:50	0.9	0.68	0.009
5/29/2021 18:45	0.92	0.68	0.01
5/29/2021 18:40	1.06	0.85	0.015
5/29/2021 18:35	1.08	0.88	0.016
5/29/2021 18:30	0.99	0.74	0.012
5/29/2021 18:25	0.85	0.66	0.008
5/29/2021 18:20	0.86	0.73	0.009
5/29/2021 18:15	0.81	0.42	0.005
5/29/2021 18:10	0.81	0.62	0.007
5/29/2021 18:05	1.02	0.83	0.014
5/29/2021 18:00	1.02	0.89	0.015
5/29/2021 17:55	0.86	0.65	0.008
5/29/2021 17:50	0.79	0.46	0.005
5/29/2021 17:45	1.09	0.87	0.016
5/29/2021 17:40	1.09	0.88	0.016
5/29/2021 17:35	0.91	0.8	0.011
5/29/2021 17:30	1.07	0.87	0.016
5/29/2021 17:25	1.16	0.87	0.018
5/29/2021 17:20	1.09	0.98	0.018
5/29/2021 17:15	1.18	1.04	0.021
5/29/2021 17:10	1.22	1	0.022
5/29/2021 17:05	1.2	1.08	0.023

5/29/2021 17:00	1.23	1.09	0.024
5/29/2021 16:55	1.4	1.27	0.033
5/29/2021 16:50	1.46	1.27	0.035
5/29/2021 16:45	1.61	0.97	0.031
5/29/2021 16:40	1.13	0.9	0.017
5/29/2021 16:35	1.14	1.02	0.02
5/29/2021 16:30	1.11	0.95	0.018
5/29/2021 16:25	1.16	0.85	0.017
5/29/2021 16:20	1.06	0.82	0.014
5/29/2021 16:15	1.01	0.69	0.011
5/29/2021 16:10	1.14	0.86	0.017
5/29/2021 16:05	1.38	1.23	0.032
5/29/2021 16:00	1.36	1.22	0.031
5/29/2021 15:55	1.34	1.22	0.03
5/29/2021 15:50	1.27	1.03	0.024
5/29/2021 15:45	1.18	0.88	0.018
5/29/2021 15:40	1.32	1.09	0.026
5/29/2021 15:35	1.33	1.16	0.028
5/29/2021 15:30	1.45	1.4	0.039
5/29/2021 15:25	1.29	1.08	0.025
5/29/2021 15:20	1.27	1.15	0.026
5/29/2021 15:15	1.36	1.16	0.029
5/29/2021 15:10	1.37	1.26	0.032
5/29/2021 15:05	1.27	1.28	0.029
5/29/2021 15:00	1.38	1.15	0.03
5/29/2021 14:55	1.39	1.16	0.03
5/29/2021 14:50	1.42	1.27	0.034
5/29/2021 14:45	1.38	1.26	0.032
5/29/2021 14:40	1.37	1.16	0.03
5/29/2021 14:35	1.15	0.93	0.018
5/29/2021 14:30	1.18	1.02	0.021
5/29/2021 14:25	1.12	0.9	0.017
5/29/2021 14:20	1.12	0.88	0.017
5/29/2021 14:15	1.3	1.27	0.03
5/29/2021 14:10	1.6	1.24	0.039
5/29/2021 14:05	1.55	1.56	0.048
5/29/2021 14:00	1.3	1.17	0.028
5/29/2021 13:55	1.17	0.9	0.018
5/29/2021 13:50	1.01	0.71	0.012
5/29/2021 13:45	1.06	0.78	0.014
5/29/2021 13:40	1.02	0.8	0.013
5/29/2021 13:35	1.16	0.92	0.018
5/29/2021 13:30	1.23	1.06	0.023
5/29/2021 13:25	1.22	1.05	0.023

5/29/2021 13:20	1.08	0.85	0.015
5/29/2021 13:15	1.12	0.87	0.017
5/29/2021 13:10	1.3	1.02	0.024
5/29/2021 13:05	1.38	1.2	0.031
5/29/2021 13:00	1.46	1.18	0.033
5/29/2021 12:55	1.23	1	0.022
5/29/2021 12:50	1.15	1	0.02
5/29/2021 12:45	1.22	1.1	0.024
5/29/2021 12:40	1.45	1.06	0.029
5/29/2021 12:35	1.46	1.23	0.034
5/29/2021 12:30	1.47	1.18	0.033
5/29/2021 12:25	1.48	1.17	0.034
5/29/2021 12:20	1.55	1.22	0.037
5/29/2021 12:15	1.56	1.21	0.037
5/29/2021 12:10	1.44	1.34	0.037
5/29/2021 12:05	1.42	1.32	0.035
5/29/2021 12:00	1.41	1.21	0.032
5/29/2021 11:55	1.38	1.2	0.031
5/29/2021 11:50	1.33	1.25	0.031
5/29/2021 11:45	1.1	0.74	0.014
5/29/2021 11:40	1.32	1.1	0.027
5/29/2021 11:35	1.45	1.25	0.035
5/29/2021 11:30	1.49	1.27	0.036
5/29/2021 11:25	1.03	0.79	0.013
5/29/2021 11:20	1.09	0.72	0.013
5/29/2021 11:15	1.18	1.42	0.029
5/29/2021 11:10	1.2	0.97	0.021
5/29/2021 11:05	1.6	1.38	0.044
5/29/2021 11:00	0.82	0.47	0.006
5/29/2021 10:55	0.81	0.56	0.007
5/29/2021 10:50	1	0.76	0.012
5/29/2021 10:45	1.17	0.8	0.016
5/29/2021 10:40	0.96	0.77	0.012
5/29/2021 10:35	1.1	0.85	0.016
5/29/2021 10:30	1.14	1.01	0.02
5/29/2021 10:25	1.39	1.08	0.028
5/29/2021 10:20	1.43	1.28	0.035
5/29/2021 10:15	1.08	0.87	0.016
5/29/2021 10:10	1.17	1	0.02
5/29/2021 10:05	1.4	1.17	0.031
5/29/2021 10:00	1.41	1.43	0.038
5/29/2021 9:55	1.5	1.44	0.042
5/29/2021 9:50	1.5	1.44	0.042
5/29/2021 9:45	1.28	1.04	0.024

5/29/2021 9:40	1.1	0.82	0.015
5/29/2021 9:35	1.07	0.63	0.011
5/29/2021 9:30	1.11	0.78	0.015
5/29/2021 9:25	1.22	1.09	0.024
5/29/2021 9:20	1.2	1.07	0.023
5/29/2021 9:15	1.17	0.97	0.02
5/29/2021 9:10	1.39	0.98	0.026
5/29/2021 9:05	1.45	1.37	0.038
5/29/2021 9:00	1.45	1.12	0.031
5/29/2021 8:55	1.46	1.3	0.036
5/29/2021 8:50	1.34	1.29	0.032
5/29/2021 8:45	1.1	0.92	0.017
5/29/2021 8:40	1.09	0.88	0.016
5/29/2021 8:35	1.09	1.06	0.019
5/29/2021 8:30	0.97	0.76	0.012
5/29/2021 8:25	0.98	0.71	0.011
5/29/2021 8:20	1.01	0.7	0.011
5/29/2021 8:15	1.01	0.86	0.014
5/29/2021 8:10	0.95	0.84	0.013
5/29/2021 8:05	0.91	0.81	0.012
5/29/2021 8:00	0.91	0.82	0.011
5/29/2021 7:55	0.9	0.6	0.008
5/29/2021 7:50	0.91	0.58	0.008
5/29/2021 7:45	1.3	0.35	0.008
5/29/2021 7:40	0.95	0.75	0.011
5/29/2021 7:35	0.9	0.77	0.011
5/29/2021 7:30	1.01	0.87	0.014
5/29/2021 7:25	0.93	0.87	0.013
5/29/2021 7:20	0.91	0.72	0.01
5/29/2021 7:15	0.89	0.68	0.009
5/29/2021 7:10	0.87	0.54	0.007
5/29/2021 7:05	0.88	0.55	0.007
5/29/2021 7:00	0.92	0.47	0.007
5/29/2021 6:55	0.86	0.59	0.008
5/29/2021 6:50	0.85	0.58	0.007
5/29/2021 6:45	0.86	0.7	0.009
5/29/2021 6:40	0.87	0.72	0.01
5/29/2021 6:35	0.86	0.62	0.008
5/29/2021 6:30	0.87	0.54	0.007
5/29/2021 6:25	0.87	0.67	0.009
5/29/2021 6:20	0.88	0.71	0.009
5/29/2021 6:15	0.91	0.52	0.007
5/29/2021 6:10	1.22	0.44	0.009
5/29/2021 6:05	1.23	0.42	0.009

5/29/2021 6:00	1.23	0.28	0.006
5/29/2021 5:55	1.28	0.78	0.018
5/29/2021 5:50	1.31	0.34	0.008
5/29/2021 5:45	0.89	0.4	0.005
5/29/2021 5:40	0.89	0.42	0.006
5/29/2021 5:35	0.9	0.39	0.005
5/29/2021 5:30	1.05	0.46	0.008
5/29/2021 5:25	1.07	0.35	0.006
5/29/2021 5:20	1.31	0.31	0.007
5/29/2021 5:15	1	0.35	0.006
5/29/2021 5:10	1.01	0.38	0.006
5/29/2021 5:05	0.9	0.2	0.003
5/29/2021 5:00	0.93	0.3	0.004
5/29/2021 4:55	0.93	0.33	0.005
5/29/2021 4:50	0.9	0.31	0.004
5/29/2021 4:45	0.88	0.28	0.004
5/29/2021 4:40	0.8	0	0
5/29/2021 4:35	0.79	0.37	0.004
5/29/2021 4:30	0.93	0	0
5/29/2021 4:25	0.72	0	0
5/29/2021 4:20	0.72	0	0
5/29/2021 4:15	1.42	0	0
5/29/2021 4:10	0.77	0	0
5/29/2021 4:05	0.78	0	0
5/29/2021 4:00	0.89	0	0
5/29/2021 3:55	0.77	0	0
5/29/2021 3:50	0.76	0	0
5/29/2021 3:45	0.8	0.23	0.003
5/29/2021 3:40	0.81	0.22	0.003
5/29/2021 3:35	0.65	0	0
5/29/2021 3:30	0.56	0	0
5/29/2021 3:25	1	0	0
5/29/2021 3:20	0.91	0.24	0.003
5/29/2021 3:15	0.92	0.3	0.004
5/29/2021 3:10	0.58	0	0
5/29/2021 3:05	0.59	0	0
5/29/2021 3:00	0.61	0.28	0.002
5/29/2021 2:55	0.62	0.28	0.002
5/29/2021 2:50	0.72	0.28	0.003
5/29/2021 2:45	0.9	0.3	0.004
5/29/2021 2:40	1.05	0.33	0.006
5/29/2021 2:35	0.74	0.42	0.004
5/29/2021 2:30	0.75	0.19	0.002
5/29/2021 2:25	0.86	0.13	0.002

5/29/2021 2:20	0.86	0.25	0.003
5/29/2021 2:15	0.95	0.25	0.004
5/29/2021 2:10	1.13	0.28	0.005
5/29/2021 2:05	0.74	0.46	0.005
5/29/2021 2:00	0.81	0.22	0.003
5/29/2021 1:55	0.69	0.22	0.002
5/29/2021 1:50	0.69	0.25	0.002
5/29/2021 1:45	0.87	0.25	0.003
5/29/2021 1:40	0.94	0.37	0.006
5/29/2021 1:35	0.96	0.53	0.008
5/29/2021 1:30	0.9	0.45	0.006
5/29/2021 1:25	0.81	0.48	0.006
5/29/2021 1:20	0.8	0.33	0.004
5/29/2021 1:15	0.8	0.31	0.004
5/29/2021 1:10	0.78	0.36	0.004
5/29/2021 1:05	0.81	0.27	0.003
5/29/2021 1:00	0.87	0.36	0.005
5/29/2021 0:55	0.87	0.41	0.005
5/29/2021 0:50	0.87	0.41	0.005
5/29/2021 0:45	0.81	0.27	0.003
5/29/2021 0:40	0.8	0.26	0.003
5/29/2021 0:35	0.83	0.29	0.004
5/29/2021 0:30	0.93	0.28	0.004
5/29/2021 0:25	0.94	0.35	0.005
5/29/2021 0:20	0.84	0.39	0.005
5/29/2021 0:15	0.79	0.29	0.003
5/29/2021 0:10	0.92	0.27	0.004
5/29/2021 0:05	0.95	0.43	0.006
5/29/2021 0:00	0.95	0.53	0.008
5/28/2021 23:55	0.89	0.68	0.009
5/28/2021 23:50	0.88	0.5	0.007
5/28/2021 23:45	0.9	0.29	0.004
5/28/2021 23:40	0.9	0.47	0.007
5/28/2021 23:35	0.89	0.45	0.006
5/28/2021 23:30	0.89	0.58	0.008
5/28/2021 23:25	0.89	0.64	0.009
5/28/2021 23:20	0.91	0.72	0.01
5/28/2021 23:15	0.9	0.42	0.006
5/28/2021 23:10	0.91	0.41	0.006
5/28/2021 23:05	0.93	0.73	0.011
5/28/2021 23:00	0.99	0.8	0.013
5/28/2021 22:55	1.06	0.91	0.016
5/28/2021 22:50	0.78	0.53	0.006
5/28/2021 22:45	0.77	0.62	0.007

5/28/2021 22:40	0.84	0.62	0.008
5/28/2021 22:35	0.91	0.66	0.009
5/28/2021 22:30	0.95	0.88	0.013
5/28/2021 22:25	1.36	1.31	0.033
5/28/2021 22:20	1.01	0.87	0.014
5/28/2021 22:15	0.9	0.81	0.011
5/28/2021 22:10	1.02	0.77	0.013
5/28/2021 22:05	1.01	0.77	0.013
5/28/2021 22:00	0.88	0.72	0.01
5/28/2021 21:55	0.89	0.71	0.01
5/28/2021 21:50	0.9	0.73	0.01
5/28/2021 21:45	1.08	0.83	0.015
5/28/2021 21:40	1.26	1.02	0.023
5/28/2021 21:35	1.16	0.89	0.018
5/28/2021 21:30	1.3	1.11	0.026
5/28/2021 21:25	1.3	0.96	0.023
5/28/2021 21:20	1.35	1.28	0.032
5/28/2021 21:15	0.98	0.93	0.014
5/28/2021 21:10	1	0.86	0.014
5/28/2021 21:05	1.03	0.64	0.011
5/28/2021 21:00	1.04	0.73	0.013
5/28/2021 20:55	1.06	0.88	0.015
5/28/2021 20:50	1.06	0.87	0.015
5/28/2021 20:45	1.09	0.88	0.016
5/28/2021 20:40	1.14	1	0.019
5/28/2021 20:35	0.93	0.87	0.013
5/28/2021 20:30	0.7	0.55	0.005
5/28/2021 20:25	1.12	0.8	0.015
5/28/2021 20:20	1.24	1.02	0.022
5/28/2021 20:15	1.16	1.03	0.021
5/28/2021 20:10	1.27	0.96	0.022
5/28/2021 20:05	1.32	1.02	0.025
5/28/2021 20:00	1.32	1.4	0.034
5/28/2021 19:55	0.81	0.77	0.009
5/28/2021 19:50	0.91	0.74	0.01
5/28/2021 19:45	0.87	0.66	0.009
5/28/2021 19:40	0.87	0.72	0.009
5/28/2021 19:35	1	0.75	0.012
5/28/2021 19:30	0.94	0.73	0.011
5/28/2021 19:25	0.99	0.71	0.011
5/28/2021 19:20	1	0.66	0.011
5/28/2021 19:15	1.06	0.89	0.016
5/28/2021 19:10	0.96	0.82	0.013
5/28/2021 19:05	1.09	0.94	0.017

5/28/2021 19:00	1.23	1.18	0.026
5/28/2021 18:55	1.35	1.26	0.032
5/28/2021 18:50	1.37	1.11	0.028
5/28/2021 18:45	1.43	1.18	0.032
5/28/2021 18:40	1.41	1.18	0.031
5/28/2021 18:35	1.41	1.19	0.031
5/28/2021 18:30	1.45	1.19	0.033
5/28/2021 18:25	1.46	1.81	0.051
5/28/2021 18:20	0.93	0.76	0.011
5/28/2021 18:15	0.97	0.76	0.012
5/28/2021 18:10	0.98	0.76	0.012
5/28/2021 18:05	0.93	0.76	0.011
5/28/2021 18:00	1.18	0.88	0.018
5/28/2021 17:55	1.18	1.03	0.021
5/28/2021 17:50	1.16	1	0.02
5/28/2021 17:45	0.98	0.79	0.012
5/28/2021 17:40	1.06	0.84	0.015
5/28/2021 17:35	1.06	0.77	0.013
5/28/2021 17:30	1.09	0.98	0.018
5/28/2021 17:25	1.07	1.06	0.019
5/28/2021 17:20	1.19	1.03	0.021
5/28/2021 17:15	0.95	0.9	0.013
5/28/2021 17:10	0.91	0.7	0.01
5/28/2021 17:05	0.95	0.9	0.013
5/28/2021 17:00	1.11	0.94	0.018
5/28/2021 16:55	1.22	1.08	0.023
5/28/2021 16:50	1.21	1.14	0.024
5/28/2021 16:45	0.99	0.84	0.013
5/28/2021 16:40	1.06	0.84	0.015
5/28/2021 16:35	1.28	1.07	0.025
5/28/2021 16:30	1.07	0.99	0.018
5/28/2021 16:25	1.04	0.77	0.013
5/28/2021 16:20	1.24	1.06	0.023
5/28/2021 16:15	1.4	1.08	0.028
5/28/2021 16:10	1.54	1.17	0.035
5/28/2021 16:05	1.58	1.4	0.044
5/28/2021 16:00	1.5	1.27	0.037
5/28/2021 15:55	1.54	1.29	0.039
5/28/2021 15:50	1.58	1.3	0.041
5/28/2021 15:45	1.25	1.08	0.024
5/28/2021 15:40	1.43	1.14	0.031
5/28/2021 15:35	1.59	1.16	0.037
5/28/2021 15:30	1.15	0.97	0.019
5/28/2021 15:25	1.14	0.97	0.019

5/28/2021 15:20	1.32	0.98	0.024
5/28/2021 15:15	1.37	1.23	0.031
5/28/2021 15:10	1.35	1.21	0.03
5/28/2021 15:05	0.85	0.53	0.007
5/28/2021 15:00	0.9	0.71	0.01
5/28/2021 14:55	1.05	0.86	0.015
5/28/2021 14:50	1.12	0.9	0.017
5/28/2021 14:45	1.27	1.18	0.027
5/28/2021 14:40	0.85	0.64	0.008
5/28/2021 14:35	0.97	0.68	0.01
5/28/2021 14:30	1	0.68	0.011
5/28/2021 14:25	1.23	1.09	0.024
5/28/2021 14:20	1.33	1.14	0.028
5/28/2021 14:15	1.32	0.99	0.024
5/28/2021 14:10	1.27	1.09	0.025
5/28/2021 14:05	1.16	0.92	0.018
5/28/2021 14:00	1.21	1.08	0.023
5/28/2021 13:55	1.61	1.27	0.041
5/28/2021 13:50	0.96	0.79	0.012
5/28/2021 13:45	1.06	0.86	0.015
5/28/2021 13:40	1.46	1.24	0.035
5/28/2021 13:35	1.23	1.06	0.023
5/28/2021 13:30	1.28	1.08	0.025
5/28/2021 13:25	0.94	0.74	0.011
5/28/2021 13:20	0.83	0.68	0.008
5/28/2021 13:15	0.81	0.63	0.007
5/28/2021 13:10	0.81	0.63	0.007
5/28/2021 13:05	0.84	0.58	0.007
5/28/2021 13:00	0.96	0.65	0.01
5/28/2021 12:55	0.99	0.82	0.013
5/28/2021 12:50	0.99	0.84	0.013
5/28/2021 12:45	1.17	0.92	0.019
5/28/2021 12:40	1.27	0.99	0.022
5/28/2021 12:35	1.34	1.14	0.028
5/28/2021 12:30	1	0.67	0.011
5/28/2021 12:25	1.12	0.87	0.017
5/28/2021 12:20	1.33	1.07	0.026
5/28/2021 12:15	1.38	0.97	0.025
5/28/2021 12:10	1.28	0.9	0.021
5/28/2021 12:05	1.12	0.74	0.014
5/28/2021 12:00	1.16	0.98	0.02
5/28/2021 11:55	1.26	1.02	0.023
5/28/2021 11:50	1.34	1.15	0.029
5/28/2021 11:45	1.43	1.17	0.032

5/28/2021 11:40	1.46	1.11	0.031
5/28/2021 11:35	1.5	1.44	0.042
5/28/2021 11:30	1.5	1.33	0.039
5/28/2021 11:25	1.36	1.13	0.028
5/28/2021 11:20	1.33	1.06	0.026
5/28/2021 11:15	1.25	1.06	0.024
5/28/2021 11:10	1.23	1.17	0.025
5/28/2021 11:05	0.82	0.63	0.008
5/28/2021 11:00	0.82	0.64	0.008
5/28/2021 10:55	0.92	0.78	0.011
5/28/2021 10:50	0.93	0.73	0.011
5/28/2021 10:45	1.03	0.78	0.013
5/28/2021 10:40	0.97	0.67	0.01
5/28/2021 10:35	0.98	0.74	0.012
5/28/2021 10:30	1.04	0.85	0.015
5/28/2021 10:25	1.39	1.23	0.032
5/28/2021 10:20	1.39	1.03	0.027
5/28/2021 10:15	0.98	0.88	0.014
5/28/2021 10:10	1.19	0.92	0.019
5/28/2021 10:05	0.9	0.7	0.01
5/28/2021 10:00	0.96	0.83	0.013
5/28/2021 9:55	1.04	0.88	0.015
5/28/2021 9:50	1.2	0.88	0.019
5/28/2021 9:45	1.27	0.85	0.02
5/28/2021 9:40	0.99	0.78	0.012
5/28/2021 9:35	0.99	0.71	0.011
5/28/2021 9:30	1.19	0.94	0.02
5/28/2021 9:25	1.14	0.92	0.018
5/28/2021 9:20	1.17	0.91	0.018
5/28/2021 9:15	1.1	0.83	0.015
5/28/2021 9:10	1.21	1.15	0.024
5/28/2021 9:05	0.88	0.69	0.009
5/28/2021 9:00	1.05	0.75	0.013
5/28/2021 8:55	0.91	0.67	0.009
5/28/2021 8:50	0.94	0.76	0.011
5/28/2021 8:45	1	0.73	0.012
5/28/2021 8:40	1.2	1.13	0.024
5/28/2021 8:35	0.89	0.65	0.009
5/28/2021 8:30	0.93	0.67	0.01
5/28/2021 8:25	1.3	1.11	0.026
5/28/2021 8:20	1.38	1.55	0.04
5/28/2021 8:15	0.89	0.49	0.007
5/28/2021 8:10	0.94	0.65	0.01
5/28/2021 8:05	0.95	0.78	0.012

5/28/2021 8:00	0.99	0.71	0.011
5/28/2021 7:55	1.04	0.82	0.014
5/28/2021 7:50	1.11	0.94	0.018
5/28/2021 7:45	1.14	0.99	0.019
5/28/2021 7:40	1.18	1	0.02
5/28/2021 7:35	1.19	1.07	0.022
5/28/2021 7:30	0.84	0.65	0.008
5/28/2021 7:25	0.83	0.55	0.007
5/28/2021 7:20	1.04	0.91	0.016
5/28/2021 7:15	1.03	0.74	0.013
5/28/2021 7:10	1.23	1.08	0.024
5/28/2021 7:05	0.9	0.67	0.009
5/28/2021 7:00	1	0.85	0.014
5/28/2021 6:55	1.18	0.94	0.019
5/28/2021 6:50	1.24	0.38	0.008
5/28/2021 6:45	1.33	0.43	0.01
5/28/2021 6:40	1.08	0.33	0.006
5/28/2021 6:35	1.06	0.34	0.006
5/28/2021 6:30	1.16	0.34	0.007
5/28/2021 6:25	1.16	0.34	0.007
5/28/2021 6:20	1.17	0.35	0.007
5/28/2021 6:15	1.19	0.37	0.008
5/28/2021 6:10	1.14	0.34	0.007
5/28/2021 6:05	1.11	0.33	0.006
5/28/2021 6:00	0.99	0.32	0.005
5/28/2021 5:55	0.92	0.47	0.007
5/28/2021 5:50	0.93	0.28	0.004
5/28/2021 5:45	1.5	0.39	0.011
5/28/2021 5:40	0.85	0.42	0.005
5/28/2021 5:35	0.89	0.38	0.005
5/28/2021 5:30	1.23	0.39	0.009
5/28/2021 5:25	0.89	0.32	0.004
5/28/2021 5:20	1.32	0.28	0.007
5/28/2021 5:15	0.79	0.48	0.006
5/28/2021 5:10	0.79	0.49	0.006
5/28/2021 5:05	0.78	0.28	0.003
5/28/2021 5:00	0.86	0.36	0.005
5/28/2021 4:55	0.93	0.36	0.005
5/28/2021 4:50	1.03	0.4	0.007
5/28/2021 4:45	1.08	0.43	0.008
5/28/2021 4:40	0.79	0.43	0.005
5/28/2021 4:35	0.79	0.35	0.004
5/28/2021 4:30	0.62	0	0
5/28/2021 4:25	0.66	0.31	0.003

5/28/2021 4:20	0.59	0	0
5/28/2021 4:15	0.59	0	0
5/28/2021 4:10	0.59	0	0
5/28/2021 4:05	0.59	0	0
5/28/2021 4:00	0.58	0	0
5/28/2021 3:55	0.58	0	0
5/28/2021 3:50	0.57	0.72	0.005
5/28/2021 3:45	0.57	0	0
5/28/2021 3:40	0.56	0.53	0.004
5/28/2021 3:35	0.55	0.84	0.006
5/28/2021 3:30	0.53	0.26	0.002
5/28/2021 3:25	0.85	0.32	0.004
5/28/2021 3:20	0.8	0.32	0.004
5/28/2021 3:15	0.56	0	0
5/28/2021 3:10	0.56	0.74	0.005
5/28/2021 3:05	0.56	0	0
5/28/2021 3:00	0.55	0.22	0.001
5/28/2021 2:55	1.02	0.25	0.004
5/28/2021 2:50	0.57	0.21	0.001
5/28/2021 2:45	0.58	0.2	0.001
5/28/2021 2:40	0.63	0.25	0.002
5/28/2021 2:35	1	0.41	0.007
5/28/2021 2:30	1	0.17	0.003
5/28/2021 2:25	1.04	0.27	0.005
5/28/2021 2:20	0.87	0.31	0.004
5/28/2021 2:15	0.91	0.31	0.004
5/28/2021 2:10	0.83	0.39	0.005
5/28/2021 2:05	0.83	0.45	0.006
5/28/2021 2:00	0.84	0.58	0.007
5/28/2021 1:55	0.82	0.6	0.007
5/28/2021 1:50	0.83	0.59	0.007
5/28/2021 1:45	0.99	0.7	0.011
5/28/2021 1:40	1.05	0.68	0.012
5/28/2021 1:35	0.89	0.67	0.009
5/28/2021 1:30	1.17	0.37	0.008
5/28/2021 1:25	1.22	0.39	0.008
5/28/2021 1:20	1.16	0.42	0.008
5/28/2021 1:15	0.71	0.48	0.005
5/28/2021 1:10	0.7	0.47	0.005
5/28/2021 1:05	0.76	0.39	0.004
5/28/2021 1:00	0.98	0.25	0.004
5/28/2021 0:55	1.04	0.28	0.005
5/28/2021 0:50	1.09	0.59	0.011
5/28/2021 0:45	0.91	0.34	0.005

5/28/2021 0:40	0.98	0.35	0.005
5/28/2021 0:35	0.97	0.36	0.006
5/28/2021 0:30	0.95	0.66	0.01
5/28/2021 0:25	0.94	0.47	0.007
5/28/2021 0:20	1.32	0.59	0.014
5/28/2021 0:15	0.89	0.61	0.008
5/28/2021 0:10	0.89	0.68	0.009
5/28/2021 0:05	0.89	0.63	0.009
5/28/2021 0:00	0.93	0.57	0.008
5/27/2021 23:55	0.94	0.6	0.009
5/27/2021 23:50	1.09	0.51	0.009
5/27/2021 23:45	0.88	0.69	0.009
5/27/2021 23:40	0.83	0.69	0.008
5/27/2021 23:35	0.8	0.64	0.007
5/27/2021 23:30	1.17	0.42	0.009
5/27/2021 23:25	0.94	0.56	0.008
5/27/2021 23:20	0.94	0.63	0.009
5/27/2021 23:15	0.87	0.63	0.008
5/27/2021 23:10	0.9	0.8	0.011
5/27/2021 23:05	0.9	0.85	0.012
5/27/2021 23:00	0.98	0.76	0.012
5/27/2021 22:55	0.85	0.75	0.01
5/27/2021 22:50	1.05	0.76	0.013
5/27/2021 22:45	1.35	1.14	0.028
5/27/2021 22:40	0.82	0.44	0.005
5/27/2021 22:35	1.33	0.53	0.013
5/27/2021 22:30	0.99	0.75	0.012
5/27/2021 22:25	0.97	0.74	0.011
5/27/2021 22:20	0.95	0.68	0.01
5/27/2021 22:15	0.86	0.64	0.008
5/27/2021 22:10	0.88	0.78	0.01
5/27/2021 22:05	0.96	0.79	0.012
5/27/2021 22:00	0.99	0.75	0.012
5/27/2021 21:55	1.03	0.86	0.015
5/27/2021 21:50	1.02	0.87	0.014
5/27/2021 21:45	1.2	1.01	0.021
5/27/2021 21:40	1.26	1.07	0.024
5/27/2021 21:35	0.93	0.7	0.01
5/27/2021 21:30	0.99	0.64	0.01
5/27/2021 21:25	0.87	0.62	0.008
5/27/2021 21:20	0.9	0.76	0.01
5/27/2021 21:15	1.38	1	0.026
5/27/2021 21:10	1.07	0.94	0.017
5/27/2021 21:05	1.04	0.97	0.017

5/27/2021 21:00	1.19	1.02	0.021
5/27/2021 20:55	1.32	1.36	0.033
5/27/2021 20:50	1.11	0.83	0.016
5/27/2021 20:45	1.29	1.04	0.024
5/27/2021 20:40	1.28	1.04	0.024
5/27/2021 20:35	1.51	1.43	0.042
5/27/2021 20:30	0.97	0.71	0.011
5/27/2021 20:25	1.14	1.09	0.021
5/27/2021 20:20	1.14	1.02	0.02
5/27/2021 20:15	1.02	0.94	0.016
5/27/2021 20:10	1.26	0.95	0.022
5/27/2021 20:05	1.38	1.3	0.034
5/27/2021 20:00	1.4	1.43	0.037
5/27/2021 19:55	1.38	1.28	0.033
5/27/2021 19:50	1.39	1.41	0.037
5/27/2021 19:45	1	0.74	0.012
5/27/2021 19:40	1.05	0.94	0.016
5/27/2021 19:35	1.05	0.91	0.016
5/27/2021 19:30	1.31	1.05	0.025
5/27/2021 19:25	1.39	1.08	0.028
5/27/2021 19:20	1.43	1.41	0.038
5/27/2021 19:15	1.14	0.92	0.018
5/27/2021 19:10	1.19	1.01	0.021
5/27/2021 19:05	1.19	0.97	0.02
5/27/2021 19:00	1.23	1.04	0.023
5/27/2021 18:55	1.12	0.86	0.016
5/27/2021 18:50	0.96	0.75	0.011
5/27/2021 18:45	1.07	0.84	0.015
5/27/2021 18:40	1.11	0.84	0.016
5/27/2021 18:35	1.2	0.85	0.018
5/27/2021 18:30	1.15	0.93	0.018
5/27/2021 18:25	0.89	0.76	0.01
5/27/2021 18:20	0.92	0.78	0.011
5/27/2021 18:15	0.93	0.83	0.012
5/27/2021 18:10	0.93	0.8	0.012
5/27/2021 18:05	0.88	0.61	0.008
5/27/2021 18:00	0.88	0.66	0.009
5/27/2021 17:55	0.91	0.82	0.011
5/27/2021 17:50	0.94	0.82	0.012
5/27/2021 17:45	0.94	0.71	0.01
5/27/2021 17:40	1.13	1.01	0.019
5/27/2021 17:35	1.39	1.2	0.031
5/27/2021 17:30	1.41	1.2	0.032
5/27/2021 17:25	1.42	1.39	0.037

5/27/2021 17:20	1.19	1.02	0.021
5/27/2021 17:15	0.86	0.7	0.009
5/27/2021 17:10	1.01	0.91	0.015
5/27/2021 17:05	1.01	1	0.016
5/27/2021 17:00	1.01	0.81	0.013
5/27/2021 16:55	1.07	0.92	0.016
5/27/2021 16:50	1.13	1.01	0.019
5/27/2021 16:45	1.13	0.93	0.018
5/27/2021 16:40	1.41	1.16	0.031
5/27/2021 16:35	1.52	1.22	0.036
5/27/2021 16:30	1.51	1.2	0.035
5/27/2021 16:25	1.33	1.21	0.03
5/27/2021 16:20	1.47	1.59	0.045
5/27/2021 16:15	1.39	1.36	0.035
5/27/2021 16:10	1.2	0.99	0.021
5/27/2021 16:05	1.21	0.96	0.02
5/27/2021 16:00	1.39	1.11	0.029
5/27/2021 15:55	1.4	1.07	0.028
5/27/2021 15:50	1.4	1.28	0.034
5/27/2021 15:45	1.4	1.23	0.032
5/27/2021 15:40	1.29	1.24	0.029
5/27/2021 15:35	1.23	1.06	0.023
5/27/2021 15:30	1.23	1.15	0.025
5/27/2021 15:25	1.32	1.25	0.03
5/27/2021 15:20	1.53	1.25	0.037
5/27/2021 15:15	1.07	0.86	0.015
5/27/2021 15:10	1.04	0.9	0.015
5/27/2021 15:05	1.02	0.75	0.012
5/27/2021 15:00	1.02	0.78	0.013
5/27/2021 14:55	1.09	0.88	0.016
5/27/2021 14:50	1.35	1.32	0.033
5/27/2021 14:45	1.42	1.41	0.038
5/27/2021 14:40	1.38	1.27	0.033
5/27/2021 14:35	1.07	0.95	0.017
5/27/2021 14:30	1.15	0.99	0.019
5/27/2021 14:25	1.58	1.4	0.044
5/27/2021 14:20	0.94	0.74	0.011
5/27/2021 14:15	0.99	0.75	0.012
5/27/2021 14:10	1.1	0.87	0.016
5/27/2021 14:05	1.02	0.87	0.014
5/27/2021 14:00	0.96	0.75	0.011
5/27/2021 13:55	0.99	0.81	0.013
5/27/2021 13:50	1	0.71	0.011
5/27/2021 13:45	1.17	0.94	0.019

5/27/2021 13:40	1.16	0.94	0.019
5/27/2021 13:35	1.29	1.08	0.025
5/27/2021 13:30	1.32	1.14	0.028
5/27/2021 13:25	1.09	1.09	0.02
5/27/2021 13:20	1.06	0.92	0.016
5/27/2021 13:15	1.08	0.89	0.016
5/27/2021 13:10	1.19	0.96	0.02
5/27/2021 13:05	1.34	1.07	0.026
5/27/2021 13:00	1.23	0.98	0.021
5/27/2021 12:55	1.33	1.06	0.026
5/27/2021 12:50	0.97	0.8	0.012
5/27/2021 12:45	1.15	0.86	0.017
5/27/2021 12:40	1.28	1.09	0.025
5/27/2021 12:35	1.26	1.06	0.024
5/27/2021 12:30	1.34	1.16	0.029
5/27/2021 12:25	1.01	0.8	0.013
5/27/2021 12:20	1.04	0.71	0.012
5/27/2021 12:15	0.97	0.84	0.013
5/27/2021 12:10	1.06	0.93	0.016
5/27/2021 12:05	1.07	0.81	0.014
5/27/2021 12:00	1.11	1.01	0.019
5/27/2021 11:55	1.11	1.05	0.02
5/27/2021 11:50	1.4	0.57	0.015
5/27/2021 11:45	0.93	0.69	0.01
5/27/2021 11:40	1.01	0.83	0.014
5/27/2021 11:35	1.34	1.21	0.03
5/27/2021 11:30	1.41	1.21	0.032
5/27/2021 11:25	1.48	1.07	0.03
5/27/2021 11:20	0.94	0.69	0.01
5/27/2021 11:15	0.89	0.63	0.009
5/27/2021 11:10	0.94	0.69	0.01
5/27/2021 11:05	0.89	0.65	0.009
5/27/2021 11:00	1.02	0.82	0.014
5/27/2021 10:55	1.49	1.02	0.029
5/27/2021 10:50	1.1	1.02	0.019
5/27/2021 10:45	1.31	1.04	0.025
5/27/2021 10:40	1.32	1.38	0.033
5/27/2021 10:35	1.25	0.88	0.02
5/27/2021 10:30	1.04	0.85	0.015
5/27/2021 10:25	1.11	0.97	0.018
5/27/2021 10:20	1.1	0.86	0.016
5/27/2021 10:15	0.76	0.62	0.007
5/27/2021 10:10	0.87	0.68	0.009
5/27/2021 10:05	0.93	0.67	0.01

5/27/2021 10:00	0.94	0.57	0.008
5/27/2021 9:55	1.03	1.07	0.018
5/27/2021 9:50	0.8	0.55	0.006
5/27/2021 9:45	0.91	0.6	0.008
5/27/2021 9:40	0.91	0.6	0.008
5/27/2021 9:35	0.93	0.71	0.01
5/27/2021 9:30	1.03	0.87	0.015
5/27/2021 9:25	1.23	0.95	0.021
5/27/2021 9:20	1.23	0.99	0.022
5/27/2021 9:15	1.37	1.14	0.029
5/27/2021 9:10	1.38	1.14	0.03
5/27/2021 9:05	1.16	0.94	0.019
5/27/2021 9:00	0.85	0.62	0.008
5/27/2021 8:55	0.86	0.62	0.008
5/27/2021 8:50	0.96	0.78	0.012
5/27/2021 8:45	1.18	0.96	0.02
5/27/2021 8:40	1.99	0.81	0.035
5/27/2021 8:35	1.52	0.66	0.02
5/27/2021 8:30	1.16	0.54	0.011
5/27/2021 8:25	1.02	0.54	0.009
5/27/2021 8:20	0.97	0.41	0.006
5/27/2021 8:15	1.03	0.42	0.007
5/27/2021 8:10	1.22	0.52	0.011
5/27/2021 8:05	1.43	0.59	0.016
5/27/2021 8:00	1.54	0.57	0.017
5/27/2021 7:55	1.53	0.77	0.023
5/27/2021 7:50	1.59	0.77	0.024
5/27/2021 7:45	1.67	0.8	0.027
5/27/2021 7:40	1.73	0.74	0.026
5/27/2021 7:35	1.81	0.63	0.024
5/27/2021 7:30	1.69	0.68	0.023
5/27/2021 7:25	1.32	0.97	0.023
5/27/2021 7:20	1.33	0.97	0.024
5/27/2021 7:15	1.31	0.91	0.022
5/27/2021 7:10	1.33	0.96	0.024
5/27/2021 7:05	1.34	1.2	0.03
5/27/2021 7:00	1.42	1.33	0.036
5/27/2021 6:55	0.95	0.78	0.012
5/27/2021 6:50	0.97	0.79	0.012
5/27/2021 6:45	1	0.92	0.015
5/27/2021 6:40	1.05	0.92	0.016
5/27/2021 6:35	1.05	1	0.017
5/27/2021 6:30	0.98	0.83	0.013
5/27/2021 6:25	0.85	0.69	0.009

5/27/2021 6:20	0.87	0.73	0.01
5/27/2021 6:15	0.96	0.86	0.013
5/27/2021 6:10	0.98	0.81	0.013
5/27/2021 6:05	0.92	0.75	0.011
5/27/2021 6:00	0.89	0.73	0.01
5/27/2021 5:55	0.88	0.69	0.009
5/27/2021 5:50	0.92	0.68	0.01
5/27/2021 5:45	0.92	0.68	0.01
5/27/2021 5:40	0.92	0.65	0.009
5/27/2021 5:35	0.98	0.69	0.011
5/27/2021 5:30	1.03	0.83	0.014
5/27/2021 5:25	1.14	0.91	0.018
5/27/2021 5:20	1.21	0.48	0.01
5/27/2021 5:15	1.47	0.46	0.013
5/27/2021 5:10	1.11	0.63	0.012
5/27/2021 5:05	0.98	0.68	0.011
5/27/2021 5:00	1.19	0.6	0.012
5/27/2021 4:55	1.1	0.53	0.01
5/27/2021 4:50	1.14	0.57	0.011
5/27/2021 4:45	1.13	0.55	0.011
5/27/2021 4:40	1.12	0.57	0.011
5/27/2021 4:35	1.14	0.57	0.011
5/27/2021 4:30	1.16	0.61	0.012
5/27/2021 4:25	0.98	0.45	0.007
5/27/2021 4:20	0.97	0.45	0.007
5/27/2021 4:15	0.97	0.49	0.008
5/27/2021 4:10	0.95	0.49	0.007
5/27/2021 4:05	0.94	0.49	0.007
5/27/2021 4:00	0.96	0.45	0.007
5/27/2021 3:55	0.98	0.43	0.007
5/27/2021 3:50	0.97	0.43	0.007
5/27/2021 3:45	0.96	0.43	0.007
5/27/2021 3:40	0.96	0.43	0.007
5/27/2021 3:35	0.94	0.41	0.006
5/27/2021 3:30	0.94	0.43	0.006
5/27/2021 3:25	0.91	0.42	0.006
5/27/2021 3:20	0.94	0.42	0.006
5/27/2021 3:15	0.92	0.44	0.006
5/27/2021 3:10	0.96	0.52	0.008
5/27/2021 3:05	0.95	0.48	0.007
5/27/2021 3:00	0.99	0.46	0.007
5/27/2021 2:55	1.04	0.61	0.01
5/27/2021 2:50	1.02	0.62	0.01
5/27/2021 2:45	0.88	0.68	0.009

5/27/2021 2:40	0.84	0.59	0.007
5/27/2021 2:35	0.86	0.62	0.008
5/27/2021 2:30	0.86	0.71	0.009
5/27/2021 2:25	1.15	0.65	0.013
5/27/2021 2:20	0.72	0.37	0.004
5/27/2021 2:15	0.75	0.42	0.005
5/27/2021 2:10	0.79	0.43	0.005
5/27/2021 2:05	0.82	0.43	0.005
5/27/2021 2:00	0.75	0.42	0.004
5/27/2021 1:55	0.76	0.49	0.005
5/27/2021 1:50	1.1	0.46	0.009
5/27/2021 1:45	1.07	0	0
5/27/2021 1:40	0.75	0	0
5/27/2021 1:35	0.79	0	0
5/27/2021 1:30	0.82	0	0
5/27/2021 1:25	0.94	0	0
5/27/2021 1:20	0.95	0.32	0.005
5/27/2021 1:15	1.26	0.38	0.009
5/27/2021 1:10	1.35	0.36	0.009
5/27/2021 1:05	0.86	0.38	0.005
5/27/2021 1:00	1.01	0.4	0.007
5/27/2021 0:55	0.81	0.48	0.006
5/27/2021 0:50	1.46	0.36	0.01
5/27/2021 0:45	0.81	0.38	0.004
5/27/2021 0:40	0.79	0.74	0.008
5/27/2021 0:35	0.8	0.57	0.007
5/27/2021 0:30	0.76	0.59	0.006
5/27/2021 0:25	0.76	0.6	0.006
5/27/2021 0:20	0.79	0.59	0.007
5/27/2021 0:15	0.84	0.6	0.008
5/27/2021 0:10	0.86	0.53	0.007
5/27/2021 0:05	0.87	0.5	0.007
5/27/2021 0:00	0.95	0.71	0.011
5/26/2021 23:55	1.03	0.52	0.009
5/26/2021 23:50	0.9	0.77	0.011
5/26/2021 23:45	0.88	0.8	0.011
5/26/2021 23:40	0.87	0.74	0.01
5/26/2021 23:35	0.86	0.67	0.009
5/26/2021 23:30	0.96	0.73	0.011
5/26/2021 23:25	1	0.79	0.013
5/26/2021 23:20	1.01	0.8	0.013
5/26/2021 23:15	1.07	1.08	0.019
5/26/2021 23:10	1.08	0.91	0.016
5/26/2021 23:05	1.13	0.92	0.018

5/26/2021 23:00	1.09	0.99	0.018
5/26/2021 22:55	0.95	0.76	0.011
5/26/2021 22:50	1.13	0.83	0.016
5/26/2021 22:45	1.19	0.99	0.021
5/26/2021 22:40	1.38	1.22	0.031
5/26/2021 22:35	1.04	0.97	0.017
5/26/2021 22:30	1.15	1.04	0.02
5/26/2021 22:25	1.53	1.5	0.045
5/26/2021 22:20	1	0.91	0.015
5/26/2021 22:15	1.01	0.92	0.015
5/26/2021 22:10	1	0.79	0.013
5/26/2021 22:05	1.2	0.99	0.021
5/26/2021 22:00	1.3	1.2	0.028
5/26/2021 21:55	1.28	1.13	0.026
5/26/2021 21:50	1.2	1.08	0.023
5/26/2021 21:45	1.16	1.06	0.021
5/26/2021 21:40	1.03	0.85	0.014
5/26/2021 21:35	1.05	1.03	0.018
5/26/2021 21:30	1.05	1.05	0.018
5/26/2021 21:25	1.05	0.9	0.016
5/26/2021 21:20	1.3	1.24	0.029
5/26/2021 21:15	1.29	1.25	0.029
5/26/2021 21:10	1.08	1	0.018
5/26/2021 21:05	1.11	1	0.019
5/26/2021 21:00	1.08	0.9	0.016
5/26/2021 20:55	1.08	0.91	0.016
5/26/2021 20:50	1.11	0.94	0.018
5/26/2021 20:45	1.1	0.92	0.017
5/26/2021 20:40	1.03	0.82	0.014
5/26/2021 20:35	1.03	0.82	0.014
5/26/2021 20:30	1.28	1.29	0.03
5/26/2021 20:25	0.84	0.78	0.01
5/26/2021 20:20	1.03	0.95	0.016
5/26/2021 20:15	1.07	0.97	0.017
5/26/2021 20:10	1.03	0.96	0.016
5/26/2021 20:05	1.01	0.89	0.015
5/26/2021 20:00	0.93	0.78	0.011
5/26/2021 19:55	1.2	0.94	0.02
5/26/2021 19:50	1.27	1.15	0.026
5/26/2021 19:45	1.34	1.18	0.029
5/26/2021 19:40	1.24	1.11	0.024
5/26/2021 19:35	1.3	1.15	0.027
5/26/2021 19:30	1.31	1.2	0.029
5/26/2021 19:25	1.27	1.07	0.024

5/26/2021 19:20	1.27	1.03	0.023
5/26/2021 19:15	1.3	1.02	0.024
5/26/2021 19:10	1.42	1.18	0.032
5/26/2021 19:05	1.34	1.1	0.027
5/26/2021 19:00	1.34	1.11	0.027
5/26/2021 18:55	1.27	1.08	0.025
5/26/2021 18:50	1.19	1.09	0.023
5/26/2021 18:45	1.18	1.1	0.023
5/26/2021 18:40	1.23	1	0.022
5/26/2021 18:35	1.19	0.95	0.02
5/26/2021 18:30	1.22	0.97	0.021
5/26/2021 18:25	1.38	1.07	0.027
5/26/2021 18:20	1.39	1.08	0.028
5/26/2021 18:15	1.39	1.02	0.027
5/26/2021 18:10	1.37	1.19	0.03
5/26/2021 18:05	1.15	0.99	0.02
5/26/2021 18:00	1.16	0.86	0.017
5/26/2021 17:55	1.26	1.11	0.025
5/26/2021 17:50	1.12	0.94	0.018
5/26/2021 17:45	1.31	0.98	0.024
5/26/2021 17:40	1.34	1.2	0.03
5/26/2021 17:35	1.18	1.04	0.021
5/26/2021 17:30	1.12	1.01	0.019
5/26/2021 17:25	1.24	0.88	0.02
5/26/2021 17:20	1.2	0.75	0.016
5/26/2021 17:15	1.1	0.93	0.017
5/26/2021 17:10	0.92	0.76	0.011
5/26/2021 17:05	1.12	1.01	0.019
5/26/2021 17:00	1.2	0.97	0.02
5/26/2021 16:55	1.21	0.98	0.021
5/26/2021 16:50	1.23	1.05	0.023
5/26/2021 16:45	1.27	1.17	0.027
5/26/2021 16:40	1.27	1.07	0.024
5/26/2021 16:35	1.35	1.18	0.03
5/26/2021 16:30	1.47	1.23	0.035
5/26/2021 16:25	0.98	0.79	0.012
5/26/2021 16:20	0.94	0.7	0.01
5/26/2021 16:15	0.96	0.65	0.01
5/26/2021 16:10	1.03	0.76	0.013
5/26/2021 16:05	1.11	0.97	0.018
5/26/2021 16:00	1.18	1.03	0.021
5/26/2021 15:55	1.15	1.02	0.02
5/26/2021 15:50	1.21	1.01	0.021
5/26/2021 15:45	1.02	0.95	0.016

5/26/2021 15:40	0.98	0.93	0.015
5/26/2021 15:35	0.87	0.57	0.008
5/26/2021 15:30	0.9	0.78	0.011
5/26/2021 15:25	0.95	0.83	0.012
5/26/2021 15:20	0.88	0.71	0.01
5/26/2021 15:15	0.9	0.76	0.011
5/26/2021 15:10	0.82	0.48	0.006
5/26/2021 15:05	1.35	0.48	0.012
5/26/2021 15:00	1.38	0.5	0.013
5/26/2021 14:55	0.9	0.68	0.009
5/26/2021 14:50	1.33	0.59	0.014
5/26/2021 14:45	0.86	0.57	0.007
5/26/2021 14:40	0.86	0.56	0.007
5/26/2021 14:35	0.94	0.76	0.011
5/26/2021 14:30	0.81	0.57	0.007
5/26/2021 14:25	0.89	0.58	0.008
5/26/2021 14:20	1.07	0.86	0.015
5/26/2021 14:15	0.84	0.84	0.011
5/26/2021 14:10	0.8	0.7	0.008
5/26/2021 14:05	0.8	0.78	0.009
5/26/2021 14:00	0.78	0.58	0.007
5/26/2021 13:55	0.89	0.66	0.009
5/26/2021 13:50	0.96	0.75	0.011
5/26/2021 13:45	0.94	0.76	0.011
5/26/2021 13:40	0.99	0.83	0.013
5/26/2021 13:35	0.98	0.79	0.012
5/26/2021 13:30	0.93	0.65	0.009
5/26/2021 13:25	0.86	0.63	0.008
5/26/2021 13:20	0.85	0.65	0.008
5/26/2021 13:15	0.97	0.88	0.014
5/26/2021 13:10	1.02	0.88	0.014
5/26/2021 13:05	1.06	0.89	0.016
5/26/2021 13:00	0.94	0.71	0.01
5/26/2021 12:55	0.96	0.83	0.013
5/26/2021 12:50	1	0.73	0.012
5/26/2021 12:45	1.19	1.12	0.023
5/26/2021 12:40	1.33	1.18	0.029
5/26/2021 12:35	1.32	1.21	0.029
5/26/2021 12:30	1.32	1.16	0.028
5/26/2021 12:25	1.24	1.03	0.023
5/26/2021 12:20	1.23	1.05	0.023
5/26/2021 12:15	1.18	1.12	0.023
5/26/2021 12:10	1.35	1.27	0.032
5/26/2021 12:05	1.42	1.3	0.035

5/26/2021 12:00	1.33	1.24	0.03
5/26/2021 11:55	1.26	1.1	0.025
5/26/2021 11:50	1.24	1.08	0.024
5/26/2021 11:45	1.1	1.01	0.019
5/26/2021 11:40	1.07	0.91	0.016
5/26/2021 11:35	1.22	1.01	0.022
5/26/2021 11:30	1.41	1.12	0.03
5/26/2021 11:25	1.45	1.2	0.033
5/26/2021 11:20	1.6	1.14	0.036
5/26/2021 11:15	1.1	0.94	0.017
5/26/2021 11:10	1.32	0.97	0.024
5/26/2021 11:05	0.96	0.79	0.012
5/26/2021 11:00	1.08	0.81	0.015
5/26/2021 10:55	1.19	0.82	0.017
5/26/2021 10:50	1.39	1.16	0.03
5/26/2021 10:45	1.39	1.24	0.032
5/26/2021 10:40	1	0.74	0.012
5/26/2021 10:35	1.22	1.02	0.022
5/26/2021 10:30	1.24	1.08	0.024
5/26/2021 10:25	1.19	0.92	0.019
5/26/2021 10:20	1.39	1.46	0.038
5/26/2021 10:15	1.45	1.16	0.032
5/26/2021 10:10	1.46	1.24	0.035
5/26/2021 10:05	1.26	0.95	0.022
5/26/2021 10:00	0.98	0.72	0.011
5/26/2021 9:55	0.83	0.52	0.006
5/26/2021 9:50	0.82	0.57	0.007
5/26/2021 9:45	0.87	0.57	0.007
5/26/2021 9:40	0.95	0.79	0.012
5/26/2021 9:35	0.82	0.58	0.007
5/26/2021 9:30	1.07	0.64	0.012
5/26/2021 9:25	1.08	0.78	0.014
5/26/2021 9:20	1.15	1.01	0.02
5/26/2021 9:15	0.9	0.76	0.01
5/26/2021 9:10	0.89	0.71	0.01
5/26/2021 9:05	1.19	0.98	0.02
5/26/2021 9:00	1.3	1.19	0.028
5/26/2021 8:55	1.35	1.22	0.03
5/26/2021 8:50	0.79	0.57	0.007
5/26/2021 8:45	0.87	0.64	0.008
5/26/2021 8:40	0.92	0.72	0.01
5/26/2021 8:35	1.24	0.5	0.011
5/26/2021 8:30	1.51	0.51	0.015
5/26/2021 8:25	0.82	0.58	0.007

5/26/2021 8:20	0.87	0.58	0.008
5/26/2021 8:15	0.82	0.41	0.005
5/26/2021 8:10	0.82	0.41	0.005
5/26/2021 8:05	0.81	0.55	0.007
5/26/2021 8:00	0.84	0.69	0.009
5/26/2021 7:55	0.86	0.66	0.009
5/26/2021 7:50	1.06	0.62	0.011
5/26/2021 7:45	0.92	0.6	0.009
5/26/2021 7:40	1	0.89	0.014
5/26/2021 7:35	1.09	0.91	0.017
5/26/2021 7:30	1.35	1.06	0.026
5/26/2021 7:25	1.29	1.04	0.024
5/26/2021 7:20	0.77	0.69	0.007
5/26/2021 7:15	0.74	0.64	0.007
5/26/2021 7:10	1.3	0.58	0.014
5/26/2021 7:05	0.97	0.5	0.008
5/26/2021 7:00	0.77	0.69	0.008
5/26/2021 6:55	0.9	0.74	0.01
5/26/2021 6:50	0.88	1	0.013
5/26/2021 6:45	0.84	0.65	0.008
5/26/2021 6:40	0.84	0.61	0.008
5/26/2021 6:35	0.84	0.62	0.008
5/26/2021 6:30	0.84	0.37	0.005
5/26/2021 6:25	0.85	0.71	0.009
5/26/2021 6:20	0.84	0.48	0.006
5/26/2021 6:15	0.84	0.49	0.006
5/26/2021 6:10	1.56	0.53	0.016
5/26/2021 6:05	0.81	0.58	0.007
5/26/2021 6:00	0.82	0.43	0.005
5/26/2021 5:55	1.26	0.53	0.012
5/26/2021 5:50	0.78	0.54	0.006
5/26/2021 5:45	0.76	0.53	0.006
5/26/2021 5:40	1.54	0.59	0.018
5/26/2021 5:35	0.86	0.64	0.008
5/26/2021 5:30	0.9	0.74	0.01
5/26/2021 5:25	0.9	0.76	0.011
5/26/2021 5:20	1.36	0.25	0.006
5/26/2021 5:15	1.35	0.25	0.006
5/26/2021 5:10	1.36	0.25	0.006
5/26/2021 5:05	1.42	0.27	0.007
5/26/2021 5:00	1.44	0.36	0.01
5/26/2021 4:55	1.4	0.36	0.01
5/26/2021 4:50	0.76	0.39	0.004
5/26/2021 4:45	1.27	0.32	0.007

5/26/2021 4:40	1.29	0.42	0.01
5/26/2021 4:35	1.51	0.42	0.012
5/26/2021 4:30	1.22	0.49	0.011
5/26/2021 4:25	0.76	0.42	0.005
5/26/2021 4:20	0.76	0.33	0.004
5/26/2021 4:15	1.14	0.25	0.005
5/26/2021 4:10	0.92	0.29	0.004
5/26/2021 4:05	1.29	0.28	0.007
5/26/2021 4:00	0.72	0.28	0.003
5/26/2021 3:55	0.72	0.33	0.003
5/26/2021 3:50	0.97	0.38	0.006
5/26/2021 3:45	1.26	0.37	0.008
5/26/2021 3:40	1.22	0.37	0.008
5/26/2021 3:35	1.21	0.39	0.008
5/26/2021 3:30	0.68	0.51	0.005
5/26/2021 3:25	1.23	0.3	0.007
5/26/2021 3:20	1.23	0	0
5/26/2021 3:15	1.23	0	0
5/26/2021 3:10	1.17	0	0
5/26/2021 3:05	1.07	0	0
5/26/2021 3:00	1.49	0	0
5/26/2021 2:55	1.5	0	0
5/26/2021 2:50	1.11	0.29	0.006
5/26/2021 2:45	0.75	0.48	0.005
5/26/2021 2:40	0.77	0.54	0.006
5/26/2021 2:35	0.76	0.45	0.005
5/26/2021 2:30	0.87	0.52	0.007
5/26/2021 2:25	0.82	0.32	0.004
5/26/2021 2:20	0.83	0.41	0.005
5/26/2021 2:15	0.83	0	0
5/26/2021 2:10	0.81	0.47	0.006
5/26/2021 2:05	0.78	0.34	0.004
5/26/2021 2:00	1.68	0.26	0.009
5/26/2021 1:55	1.28	0.26	0.006
5/26/2021 1:50	1.54	0.28	0.008
5/26/2021 1:45	1.5	0.3	0.009
5/26/2021 1:40	1.55	0.34	0.01
5/26/2021 1:35	1.51	0.42	0.012
5/26/2021 1:30	0.71	0.66	0.006
5/26/2021 1:25	0.69	0.44	0.004
5/26/2021 1:20	0.72	0.35	0.003
5/26/2021 1:15	0.71	0.43	0.004
5/26/2021 1:10	1.08	0.33	0.006
5/26/2021 1:05	1.03	0.34	0.006

5/26/2021 1:00	0.8	0.34	0.004
5/26/2021 0:55	0.85	0.33	0.004
5/26/2021 0:50	0.85	0.45	0.006
5/26/2021 0:45	0.85	0.46	0.006
5/26/2021 0:40	1.24	0.65	0.014
5/26/2021 0:35	0.85	0.68	0.009
5/26/2021 0:30	0.99	0.68	0.011
5/26/2021 0:25	1.15	0.65	0.013
5/26/2021 0:20	1.19	0.63	0.013
5/26/2021 0:15	1.15	0.39	0.008
5/26/2021 0:10	1.11	0.39	0.007
5/26/2021 0:05	2	0.39	0.017
5/26/2021 0:00	1.02	0.72	0.012
5/25/2021 23:55	0.83	0.65	0.008
5/25/2021 23:50	0.84	0.67	0.008
5/25/2021 23:45	0.87	0.66	0.009
5/25/2021 23:40	0.94	0.59	0.009
5/25/2021 23:35	0.92	0.75	0.011
5/25/2021 23:30	0.92	0.34	0.005
5/25/2021 23:25	0.91	0.32	0.004
5/25/2021 23:20	0.88	0.65	0.009
5/25/2021 23:15	0.88	0.53	0.007
5/25/2021 23:10	0.83	0.47	0.006
5/25/2021 23:05	0.86	0.51	0.007
5/25/2021 23:00	0.97	0.51	0.008
5/25/2021 22:55	0.88	0.63	0.008
5/25/2021 22:50	0.88	0.63	0.008
5/25/2021 22:45	0.9	0.71	0.01
5/25/2021 22:40	0.97	0.74	0.011
5/25/2021 22:35	0.94	0.66	0.01
5/25/2021 22:30	1	0.82	0.013
5/25/2021 22:25	0.98	0.87	0.014
5/25/2021 22:20	0.9	0.62	0.009
5/25/2021 22:15	0.95	0.8	0.012
5/25/2021 22:10	1.12	0.96	0.018
5/25/2021 22:05	1.02	0.83	0.014
5/25/2021 22:00	1.05	0.87	0.015
5/25/2021 21:55	1.15	1.14	0.022
5/25/2021 21:50	1.13	0.94	0.018
5/25/2021 21:45	1	0.87	0.014
5/25/2021 21:40	1.04	1.05	0.018
5/25/2021 21:35	1.04	0.85	0.015
5/25/2021 21:30	1.1	0.87	0.016
5/25/2021 21:25	1.01	0.84	0.014

5/25/2021 21:20	1.02	0.99	0.016
5/25/2021 21:15	1.17	0.98	0.02
5/25/2021 21:10	1.12	0.89	0.017
5/25/2021 21:05	1.13	0.86	0.017
5/25/2021 21:00	1.25	1.05	0.023
5/25/2021 20:55	0.97	0.69	0.011
5/25/2021 20:50	1.03	0.73	0.012
5/25/2021 20:45	1.31	0.94	0.022
5/25/2021 20:40	1.64	1.49	0.049
5/25/2021 20:35	0.98	0.75	0.012
5/25/2021 20:30	1.05	0.81	0.014
5/25/2021 20:25	0.9	0.81	0.011
5/25/2021 20:20	1.12	0.96	0.018
5/25/2021 20:15	1.11	0.88	0.017
5/25/2021 20:10	1.09	0.83	0.015
5/25/2021 20:05	0.8	0.62	0.007
5/25/2021 20:00	1.15	0.95	0.019
5/25/2021 19:55	1.21	0.94	0.02
5/25/2021 19:50	1.2	1.06	0.022
5/25/2021 19:45	1.2	1.13	0.024
5/25/2021 19:40	1.14	1.17	0.023
5/25/2021 19:35	0.92	0.63	0.009
5/25/2021 19:30	0.95	0.84	0.013
5/25/2021 19:25	0.82	0.65	0.008
5/25/2021 19:20	1.18	0.93	0.019
5/25/2021 19:15	1.2	0.97	0.02
5/25/2021 19:10	0.99	0.76	0.012
5/25/2021 19:05	0.99	0.75	0.012
5/25/2021 19:00	0.97	0.67	0.01
5/25/2021 18:55	1.17	1	0.02
5/25/2021 18:50	1.17	1.02	0.021
5/25/2021 18:45	1.18	0.99	0.02
5/25/2021 18:40	1.17	1.09	0.022
5/25/2021 18:35	1.12	0.9	0.017
5/25/2021 18:30	1.16	0.88	0.018
5/25/2021 18:25	1.33	0.93	0.023
5/25/2021 18:20	1.06	0.92	0.016
5/25/2021 18:15	1.06	1.04	0.018
5/25/2021 18:10	0.84	0.65	0.008
5/25/2021 18:05	1.17	1.05	0.021
5/25/2021 18:00	1.28	1.06	0.024
5/25/2021 17:55	1.25	1.02	0.023
5/25/2021 17:50	1.22	0.95	0.021
5/25/2021 17:45	1.19	0.94	0.019

5/25/2021 17:40	1.27	0.91	0.021
5/25/2021 17:35	1.08	0.89	0.016
5/25/2021 17:30	0.99	0.81	0.013
5/25/2021 17:25	0.99	0.85	0.014
5/25/2021 17:20	1.02	0.77	0.013
5/25/2021 17:15	1.04	0.79	0.013
5/25/2021 17:10	1.09	0.96	0.018
5/25/2021 17:05	0.9	0.78	0.011
5/25/2021 17:00	0.81	0.49	0.006
5/25/2021 16:55	0.81	0.49	0.006
5/25/2021 16:50	0.84	0.54	0.007
5/25/2021 16:45	0.84	0.67	0.008
5/25/2021 16:40	0.94	0.84	0.012
5/25/2021 16:35	1.04	0.82	0.014
5/25/2021 16:30	1.03	0.73	0.012
5/25/2021 16:25	1.05	0.85	0.015
5/25/2021 16:20	0.94	0.82	0.012
5/25/2021 16:15	0.96	0.87	0.013
5/25/2021 16:10	1.11	0.88	0.016
5/25/2021 16:05	1.18	0.95	0.019
5/25/2021 16:00	1.2	1.04	0.022
5/25/2021 15:55	1.14	1.13	0.022
5/25/2021 15:50	1.11	0.92	0.017
5/25/2021 15:45	1.11	0.88	0.017
5/25/2021 15:40	1.12	0.89	0.017
5/25/2021 15:35	1.13	1.04	0.02
5/25/2021 15:30	1.11	0.92	0.017
5/25/2021 15:25	1.09	0.88	0.016
5/25/2021 15:20	1.1	0.88	0.016
5/25/2021 15:15	1.08	0.76	0.014
5/25/2021 15:10	1.1	0.84	0.016
5/25/2021 15:05	1.08	0.87	0.016
5/25/2021 15:00	1.2	0.97	0.02
5/25/2021 14:55	1.19	1.03	0.021
5/25/2021 14:50	1.2	1.1	0.023
5/25/2021 14:45	1.13	0.8	0.015
5/25/2021 14:40	1.15	0.81	0.016
5/25/2021 14:35	1.12	0.88	0.017
5/25/2021 14:30	1.01	0.54	0.009
5/25/2021 14:25	1	0.53	0.009
5/25/2021 14:20	0.98	0.7	0.011
5/25/2021 14:15	0.96	0.86	0.013
5/25/2021 14:10	1.04	0.78	0.013
5/25/2021 14:05	1.04	0.8	0.014

5/25/2021 14:00	0.94	0.31	0.005
5/25/2021 13:55	0.98	0.73	0.011
5/25/2021 13:50	1.07	0.94	0.017
5/25/2021 13:45	1.04	0.85	0.014
5/25/2021 13:40	0.84	0.66	0.008
5/25/2021 13:35	0.85	0.72	0.009
5/25/2021 13:30	0.93	0.83	0.012
5/25/2021 13:25	0.9	0.86	0.012
5/25/2021 13:20	1.13	0.76	0.015
5/25/2021 13:15	1.05	0.91	0.016
5/25/2021 13:10	1.03	0.86	0.015
5/25/2021 13:05	1.05	0.85	0.015
5/25/2021 13:00	1.08	0.97	0.017
5/25/2021 12:55	1.27	0.99	0.023
5/25/2021 12:50	1.21	0.47	0.01
5/25/2021 12:45	1.21	0.41	0.009
5/25/2021 12:40	1.01	0.62	0.01
5/25/2021 12:35	0.96	0.75	0.012
5/25/2021 12:30	0.94	0.76	0.011
5/25/2021 12:25	0.88	0.71	0.01
5/25/2021 12:20	0.89	0.71	0.01
5/25/2021 12:15	0.98	0.78	0.012
5/25/2021 12:10	1.03	0.82	0.014
5/25/2021 12:05	1.12	0.92	0.018
5/25/2021 12:00	1.21	1.08	0.023
5/25/2021 11:55	1.02	0.8	0.013
5/25/2021 11:50	0.99	0.62	0.01
5/25/2021 11:45	1.06	0.83	0.015
5/25/2021 11:40	1.09	0.41	0.008
5/25/2021 11:35	1.1	0.62	0.011
5/25/2021 11:30	1.06	0.65	0.011
5/25/2021 11:25	1.03	0.47	0.008
5/25/2021 11:20	1.12	0.59	0.011
5/25/2021 11:15	1.13	0.58	0.011
5/25/2021 11:10	1.07	0.98	0.018
5/25/2021 11:05	0.84	0.47	0.006
5/25/2021 11:00	0.83	0.47	0.006
5/25/2021 10:55	0.8	0.66	0.008
5/25/2021 10:50	0.94	0.67	0.01
5/25/2021 10:45	0.95	0.84	0.013
5/25/2021 10:40	0.8	0.6	0.007
5/25/2021 10:35	0.81	0.59	0.007
5/25/2021 10:30	0.8	0.55	0.006
5/25/2021 10:25	0.84	0.8	0.01

5/25/2021 10:20	1.13	0.81	0.016
5/25/2021 10:15	1.13	1	0.019
5/25/2021 10:10	1.13	0.94	0.018
5/25/2021 10:05	0.95	0.58	0.009
5/25/2021 10:00	1.05	0.64	0.011
5/25/2021 9:55	0.99	0.63	0.01
5/25/2021 9:50	1.09	0.41	0.008
5/25/2021 9:45	1.24	1.34	0.029
5/25/2021 9:40	1.03	0.52	0.009
5/25/2021 9:35	1.14	0.53	0.01
5/25/2021 9:30	0.83	0.55	0.007
5/25/2021 9:25	1.3	0.55	0.013
5/25/2021 9:20	0.88	0.7	0.009
5/25/2021 9:15	0.85	0.71	0.009
5/25/2021 9:10	0.93	0.74	0.011
5/25/2021 9:05	0.9	0.55	0.008
5/25/2021 9:00	1.23	0.41	0.009
5/25/2021 8:55	0.86	0.65	0.009
5/25/2021 8:50	0.86	0.69	0.009
5/25/2021 8:45	0.86	0.73	0.009
5/25/2021 8:40	0.97	0.74	0.011
5/25/2021 8:35	0.98	0.76	0.012
5/25/2021 8:30	0.97	0.82	0.013
5/25/2021 8:25	0.93	0.78	0.011
5/25/2021 8:20	0.94	0.83	0.012
5/25/2021 8:15	0.85	0.38	0.005
5/25/2021 8:10	0.87	0.71	0.009
5/25/2021 8:05	1.06	0.77	0.013
5/25/2021 8:00	0.87	0.76	0.01
5/25/2021 7:55	0.83	0.72	0.009
5/25/2021 7:50	0.92	0.77	0.011
5/25/2021 7:45	0.99	0.8	0.013
5/25/2021 7:40	1.06	0.39	0.007
5/25/2021 7:35	1.13	0.46	0.009
5/25/2021 7:30	0.99	0.5	0.008
5/25/2021 7:25	1.49	0.49	0.014
5/25/2021 7:20	1.49	0.51	0.015
5/25/2021 7:15	1.37	0.41	0.011
5/25/2021 7:10	1.36	0.42	0.011
5/25/2021 7:05	1.06	0.64	0.011
5/25/2021 7:00	0.88	0.61	0.008
5/25/2021 6:55	0.85	0.68	0.009
5/25/2021 6:50	1.61	0.57	0.018
5/25/2021 6:45	1.13	0.53	0.01

5/25/2021 6:40	0.93	0.61	0.009
5/25/2021 6:35	0.94	0.64	0.01
5/25/2021 6:30	0.9	0.64	0.009
5/25/2021 6:25	0.93	0.79	0.012
5/25/2021 6:20	0.92	0.52	0.007
5/25/2021 6:15	0.88	0.51	0.007
5/25/2021 6:10	0.88	0.6	0.008
5/25/2021 6:05	0.88	0.61	0.008
5/25/2021 6:00	0.88	0.57	0.008
5/25/2021 5:55	0.8	0.56	0.006
5/25/2021 5:50	0.9	0.51	0.007
5/25/2021 5:45	0.93	0.52	0.008
5/25/2021 5:40	0.93	0.79	0.012
5/25/2021 5:35	0.92	0.34	0.005
5/25/2021 5:30	1.59	0.64	0.02
5/25/2021 5:25	0.82	0.49	0.006
5/25/2021 5:20	0.84	0.5	0.006
5/25/2021 5:15	0.85	0.52	0.007
5/25/2021 5:10	0.84	0.52	0.006
5/25/2021 5:05	0.87	0.52	0.007
5/25/2021 5:00	0.86	0.38	0.005
5/25/2021 4:55	0.82	0.5	0.006
5/25/2021 4:50	1.1	0.95	0.018
5/25/2021 4:45	1.07	0.74	0.013
5/25/2021 4:40	1.09	0.38	0.007
5/25/2021 4:35	1.34	0	0
5/25/2021 4:30	0.69	0	0
5/25/2021 4:25	0.72	0	0
5/25/2021 4:20	0.77	0.31	0.003
5/25/2021 4:15	0.81	0.36	0.004
5/25/2021 4:10	1	0.3	0.005
5/25/2021 4:05	0.83	0.3	0.004
5/25/2021 4:00	1.32	0.65	0.016
5/25/2021 3:55	0.79	0.22	0.003
5/25/2021 3:50	0.8	0.24	0.003
5/25/2021 3:45	0.81	0.25	0.003
5/25/2021 3:40	0.82	0.29	0.004
5/25/2021 3:35	0.83	0.32	0.004
5/25/2021 3:30	0.83	0.32	0.004
5/25/2021 3:25	0.83	0.32	0.004
5/25/2021 3:20	0.84	0.34	0.004
5/25/2021 3:15	0.84	0.26	0.003
5/25/2021 3:10	0.85	0.27	0.004
5/25/2021 3:05	0.85	0.29	0.004

5/25/2021 3:00	0.87	0.34	0.004
5/25/2021 2:55	0.78	0.35	0.004
5/25/2021 2:50	0.78	0.38	0.004
5/25/2021 2:45	0.85	0.48	0.006
5/25/2021 2:40	0.87	0.71	0.009
5/25/2021 2:35	1.24	0	0
5/25/2021 2:30	1.32	0.24	0.006
5/25/2021 2:25	1.18	0.28	0.006
5/25/2021 2:20	1.21	0.38	0.008
5/25/2021 2:15	0.94	0.51	0.008
5/25/2021 2:10	0.79	0.3	0.003
5/25/2021 2:05	0.82	0.27	0.003
5/25/2021 2:00	0.82	0.48	0.006
5/25/2021 1:55	0.8	0.47	0.005
5/25/2021 1:50	0.79	0.55	0.006
5/25/2021 1:45	0.8	0.66	0.008
5/25/2021 1:40	0.84	0.66	0.008
5/25/2021 1:35	0.85	0.58	0.007
5/25/2021 1:30	0.83	0.51	0.006
5/25/2021 1:25	0.79	0.51	0.006
5/25/2021 1:20	0.97	0.63	0.01
5/25/2021 1:15	0.97	0.52	0.008
5/25/2021 1:10	1.08	0.48	0.009
5/25/2021 1:05	1.04	0.45	0.008
5/25/2021 1:00	0.73	0.42	0.004
5/25/2021 0:55	1.46	0.46	0.013
5/25/2021 0:50	1.02	0.43	0.007
5/25/2021 0:45	0.96	0.46	0.007
5/25/2021 0:40	0.86	0	0
5/25/2021 0:35	0.89	0	0
5/25/2021 0:30	0.92	0.28	0.004
5/25/2021 0:25	0.83	0.45	0.006
5/25/2021 0:20	0.91	0.56	0.008
5/25/2021 0:15	0.99	0.38	0.006
5/25/2021 0:10	0.82	0.37	0.004
5/25/2021 0:05	1.47	0.59	0.017
5/25/2021 0:00	0.71	0.51	0.005
5/24/2021 23:55	0.68	0.39	0.004
5/24/2021 23:50	1.58	0.37	0.012
5/24/2021 23:45	0.88	0.39	0.005
5/24/2021 23:40	0.88	0.34	0.005
5/24/2021 23:35	0.86	0.46	0.006
5/24/2021 23:30	0.94	0.48	0.007
5/24/2021 23:25	0.9	0.54	0.007

5/24/2021 23:20	1.08	0.48	0.009
5/24/2021 23:15	0.78	0.5	0.006
5/24/2021 23:10	0.79	0.72	0.008
5/24/2021 23:05	0.81	0.54	0.006
5/24/2021 23:00	0.95	0.74	0.011
5/24/2021 22:55	0.98	0.91	0.014
5/24/2021 22:50	1.44	1.7	0.047
5/24/2021 22:45	1	0.64	0.01
5/24/2021 22:40	1.1	0.84	0.016
5/24/2021 22:35	1.14	0.9	0.018
5/24/2021 22:30	0.84	0.67	0.008
5/24/2021 22:25	0.87	0.53	0.007
5/24/2021 22:20	0.86	0.56	0.007
5/24/2021 22:15	0.97	0.64	0.01
5/24/2021 22:10	1.12	0.92	0.018
5/24/2021 22:05	1.13	0.79	0.015
5/24/2021 22:00	1.19	1.15	0.024
5/24/2021 21:55	1.3	1.04	0.025
5/24/2021 21:50	1.31	1.05	0.025
5/24/2021 21:45	0.99	0.85	0.013
5/24/2021 21:40	1.09	0.81	0.015
5/24/2021 21:35	1.16	1.13	0.023
5/24/2021 21:30	0.9	0.73	0.01
5/24/2021 21:25	0.9	0.75	0.01
5/24/2021 21:20	0.91	0.77	0.011
5/24/2021 21:15	1.17	0.98	0.02
5/24/2021 21:10	1.27	1.13	0.026
5/24/2021 21:05	1.24	0.99	0.022
5/24/2021 21:00	1.12	0.85	0.016
5/24/2021 20:55	1.05	0.85	0.015
5/24/2021 20:50	1.04	0.85	0.015
5/24/2021 20:45	1.07	0.87	0.016
5/24/2021 20:40	1.07	0.86	0.015
5/24/2021 20:35	1.08	0.86	0.016
5/24/2021 20:30	1.05	0.72	0.012
5/24/2021 20:25	1.15	0.75	0.015
5/24/2021 20:20	0.85	0.78	0.01
5/24/2021 20:15	1.04	0.79	0.014
5/24/2021 20:10	1.18	1.07	0.022
5/24/2021 20:05	1.21	1.07	0.023
5/24/2021 20:00	1.23	1.07	0.023
5/24/2021 19:55	1.23	1	0.022
5/24/2021 19:50	0.93	0.78	0.011
5/24/2021 19:45	0.95	0.8	0.012

5/24/2021 19:40	0.92	0.72	0.01
5/24/2021 19:35	0.97	0.72	0.011
5/24/2021 19:30	1.07	1.08	0.019
5/24/2021 19:25	1.04	0.94	0.016
5/24/2021 19:20	1.05	0.95	0.017
5/24/2021 19:15	0.92	0.73	0.01
5/24/2021 19:10	0.89	0.73	0.01
5/24/2021 19:05	0.87	0.6	0.008
5/24/2021 19:00	0.94	0.84	0.012
5/24/2021 18:55	1.17	0.99	0.02
5/24/2021 18:50	1.16	1.01	0.02
5/24/2021 18:45	1.24	0.97	0.021
5/24/2021 18:40	1.25	1.08	0.024
5/24/2021 18:35	1.21	1.1	0.023
5/24/2021 18:30	1.62	1.37	0.044
5/24/2021 18:25	1.03	0.93	0.016
5/24/2021 18:20	1.05	0.94	0.016
5/24/2021 18:15	0.97	0.89	0.014
5/24/2021 18:10	0.92	0.6	0.009
5/24/2021 18:05	0.93	0.55	0.008
5/24/2021 18:00	1.05	0.83	0.014
5/24/2021 17:55	0.98	0.9	0.014
5/24/2021 17:50	1.09	0.94	0.017
5/24/2021 17:45	0.96	0.78	0.012
5/24/2021 17:40	0.95	0.7	0.011
5/24/2021 17:35	1.19	1.04	0.022
5/24/2021 17:30	1.23	1.14	0.025
5/24/2021 17:25	1.18	0.95	0.019
5/24/2021 17:20	1.2	0.94	0.02
5/24/2021 17:15	1.05	0.66	0.011
5/24/2021 17:10	1.02	0.85	0.014
5/24/2021 17:05	0.85	0.51	0.007
5/24/2021 17:00	0.87	0.59	0.008
5/24/2021 16:55	0.94	0.69	0.01
5/24/2021 16:50	0.95	0.7	0.01
5/24/2021 16:45	0.99	0.87	0.014
5/24/2021 16:40	0.96	0.52	0.008
5/24/2021 16:35	0.87	0.58	0.008
5/24/2021 16:30	1.35	0.42	0.01
5/24/2021 16:25	0.8	0.75	0.009
5/24/2021 16:20	1	0.84	0.014
5/24/2021 16:15	1.02	0.87	0.015
5/24/2021 16:10	0.9	0.61	0.008
5/24/2021 16:05	0.97	0.8	0.012

5/24/2021 16:00	0.9	0.58	0.008
5/24/2021 15:55	0.9	0.78	0.011
5/24/2021 15:50	1.65	0.58	0.019
5/24/2021 15:45	0.94	0.61	0.009
5/24/2021 15:40	1.02	0.79	0.013
5/24/2021 15:35	1.16	0.91	0.018
5/24/2021 15:30	1.19	0.93	0.019
5/24/2021 15:25	0.84	0.69	0.009
5/24/2021 15:20	1.1	0.47	0.009
5/24/2021 15:15	1.07	0.51	0.009
5/24/2021 15:10	0.82	0.65	0.008
5/24/2021 15:05	0.9	0.69	0.01
5/24/2021 15:00	0.95	0.67	0.01
5/24/2021 14:55	0.99	0.69	0.011
5/24/2021 14:50	0.98	0.71	0.011
5/24/2021 14:45	0.98	0.81	0.013
5/24/2021 14:40	0.9	0.71	0.01
5/24/2021 14:35	0.95	0.74	0.011
5/24/2021 14:30	0.97	0.79	0.012
5/24/2021 14:25	0.99	0.86	0.014
5/24/2021 14:20	1.1	0.93	0.017
5/24/2021 14:15	0.84	0.61	0.008
5/24/2021 14:10	1.11	0.72	0.014
5/24/2021 14:05	1.18	0.75	0.016
5/24/2021 14:00	0.98	0.84	0.013
5/24/2021 13:55	1.03	0.83	0.014
5/24/2021 13:50	1.1	0.83	0.015
5/24/2021 13:45	0.99	0.68	0.011
5/24/2021 13:40	0.96	0.59	0.009
5/24/2021 13:35	0.95	0.81	0.012
5/24/2021 13:30	0.8	0.68	0.008
5/24/2021 13:25	0.8	0.5	0.006
5/24/2021 13:20	0.84	0.64	0.008
5/24/2021 13:15	0.84	0.69	0.009
5/24/2021 13:10	1.03	0.75	0.013
5/24/2021 13:05	0.99	0.79	0.013
5/24/2021 13:00	0.97	0.73	0.011
5/24/2021 12:55	1.07	0.83	0.015
5/24/2021 12:50	1.3	0.84	0.02
5/24/2021 12:45	0.85	0.79	0.01
5/24/2021 12:40	0.82	0.47	0.006
5/24/2021 12:35	0.81	0.72	0.009
5/24/2021 12:30	0.97	0.83	0.013
5/24/2021 12:25	1.02	0.8	0.013

5/24/2021 12:20	1.12	0.9	0.017
5/24/2021 12:15	1.05	0.85	0.015
5/24/2021 12:10	0.98	0.71	0.011
5/24/2021 12:05	1.04	0.91	0.016
5/24/2021 12:00	1.04	0.94	0.016
5/24/2021 11:55	1.03	0.74	0.012
5/24/2021 11:50	1.08	0.98	0.018
5/24/2021 11:45	1.17	0.99	0.02
5/24/2021 11:40	1.24	0.98	0.022
5/24/2021 11:35	1.25	0.98	0.022
5/24/2021 11:30	1.01	0.76	0.012
5/24/2021 11:25	0.88	0.47	0.006
5/24/2021 11:20	0.9	0.49	0.007
5/24/2021 11:15	0.92	0.73	0.01
5/24/2021 11:10	1.03	0.83	0.014
5/24/2021 11:05	1.05	0.84	0.015
5/24/2021 11:00	1.04	0.39	0.007
5/24/2021 10:55	1.08	0.46	0.008
5/24/2021 10:50	0.97	0.68	0.011
5/24/2021 10:45	0.97	0.71	0.011
5/24/2021 10:40	1	0.53	0.009
5/24/2021 10:35	1.05	0.46	0.008
5/24/2021 10:30	0.88	1.01	0.013
5/24/2021 10:25	0.94	0.74	0.011
5/24/2021 10:20	0.94	0.75	0.011
5/24/2021 10:15	1.14	0.88	0.017
5/24/2021 10:10	1.39	1.28	0.033
5/24/2021 10:05	0.86	0.4	0.005
5/24/2021 10:00	0.86	0.4	0.005
5/24/2021 9:55	0.87	0.44	0.006
5/24/2021 9:50	0.88	0.67	0.009
5/24/2021 9:45	0.94	0.72	0.011
5/24/2021 9:40	0.97	0.6	0.009
5/24/2021 9:35	1.07	0.88	0.016
5/24/2021 9:30	1.02	0.77	0.013
5/24/2021 9:25	1.12	0.89	0.017
5/24/2021 9:20	1.11	0.97	0.018
5/24/2021 9:15	1.12	0.92	0.017
5/24/2021 9:10	1.14	0.77	0.015
5/24/2021 9:05	1.1	0.71	0.013
5/24/2021 9:00	1.11	0.98	0.019
5/24/2021 8:55	1.09	1.02	0.019
5/24/2021 8:50	1.13	0.93	0.018
5/24/2021 8:45	0.91	0.53	0.007

5/24/2021 8:40	0.96	0.76	0.012
5/24/2021 8:35	1.02	0.95	0.016
5/24/2021 8:30	0.91	0.42	0.006
5/24/2021 8:25	0.87	0.69	0.009
5/24/2021 8:20	0.88	0.58	0.008
5/24/2021 8:15	0.85	0.58	0.007
5/24/2021 8:10	0.86	0.65	0.008
5/24/2021 8:05	0.93	0.76	0.011
5/24/2021 8:00	0.92	0.83	0.012
5/24/2021 7:55	1.26	0.67	0.015
5/24/2021 7:50	0.9	0.87	0.012
5/24/2021 7:45	0.96	0.82	0.013
5/24/2021 7:40	0.96	0.55	0.008
5/24/2021 7:35	1.09	0.59	0.011
5/24/2021 7:30	1.18	1.02	0.021
5/24/2021 7:25	1.23	0.39	0.008
5/24/2021 7:20	1.28	0.41	0.009
5/24/2021 7:15	1.22	0.33	0.007
5/24/2021 7:10	0.99	0.29	0.005
5/24/2021 7:05	1.02	0.3	0.005
5/24/2021 7:00	1.12	0.49	0.009
5/24/2021 6:55	1.15	0.36	0.007
5/24/2021 6:50	1.17	0.36	0.007
5/24/2021 6:45	1.18	0.35	0.007
5/24/2021 6:40	1.17	0.34	0.007
5/24/2021 6:35	0.91	0.29	0.004
5/24/2021 6:30	0.88	0.29	0.004
5/24/2021 6:25	0.92	0.32	0.005
5/24/2021 6:20	1.08	0.32	0.006
5/24/2021 6:15	1.09	0.32	0.006
5/24/2021 6:10	1.13	0.34	0.007
5/24/2021 6:05	1.2	0.37	0.008
5/24/2021 6:00	1.34	0.42	0.01
5/24/2021 5:55	1.44	0.68	0.019
5/24/2021 5:50	1.17	0.37	0.008
5/24/2021 5:45	1.16	0.33	0.007
5/24/2021 5:40	1.22	0.59	0.013
5/24/2021 5:35	1	0.25	0.004
5/24/2021 5:30	0.99	0.23	0.004
5/24/2021 5:25	0.99	0.32	0.005
5/24/2021 5:20	1	0.31	0.005
5/24/2021 5:15	1	0.32	0.005
5/24/2021 5:10	0.99	0.25	0.004
5/24/2021 5:05	0.96	0.29	0.004

5/24/2021 5:00	1.19	0.44	0.009
5/24/2021 4:55	1.26	0.52	0.012
5/24/2021 4:50	1.06	0.37	0.007
5/24/2021 4:45	2.44	0.37	0.021
5/24/2021 4:40	2.08	0.4	0.018
5/24/2021 4:35	1.06	0.4	0.007
5/24/2021 4:30	1.03	0.43	0.007
5/24/2021 4:25	1.02	0.35	0.006
5/24/2021 4:20	1.02	0.21	0.003
5/24/2021 4:15	1.02	0	0
5/24/2021 4:10	1.04	0	0
5/24/2021 4:05	1.06	0	0
5/24/2021 4:00	1.1	0	0
5/24/2021 3:55	1.26	0.22	0.005
5/24/2021 3:50	1.24	0.27	0.006
5/24/2021 3:45	0.98	0.33	0.005
5/24/2021 3:40	0.96	0.42	0.006
5/24/2021 3:35	0.98	0.46	0.007
5/24/2021 3:30	1.04	0.23	0.004
5/24/2021 3:25	1.38	0.28	0.007
5/24/2021 3:20	1.15	0.59	0.012
5/24/2021 3:15	1.18	0.62	0.013
5/24/2021 3:10	1.38	0.41	0.011
5/24/2021 3:05	0.79	0.62	0.007
5/24/2021 3:00	0.79	0.31	0.004
5/24/2021 2:55	0.57	0.35	0.002
5/24/2021 2:50	0.56	0.79	0.005
5/24/2021 2:45	1.23	0	0
5/24/2021 2:40	0.57	0	0
5/24/2021 2:35	0.6	0.21	0.002
5/24/2021 2:30	0.59	0	0
5/24/2021 2:25	0.6	0	0
5/24/2021 2:20	0.61	0.24	0.002
5/24/2021 2:15	0.63	0.35	0.003
5/24/2021 2:10	0.8	0.35	0.004
5/24/2021 2:05	1.21	0.26	0.006
5/24/2021 2:00	0.77	0.4	0.004
5/24/2021 1:55	0.84	0.47	0.006
5/24/2021 1:50	0.84	0.54	0.007
5/24/2021 1:45	0.84	0.37	0.005
5/24/2021 1:40	0.87	0.34	0.004
5/24/2021 1:35	0.99	0.28	0.004
5/24/2021 1:30	0.99	0.29	0.005
5/24/2021 1:25	0.71	0.28	0.003

5/24/2021 1:20	0.57	0.2	0.001
5/24/2021 1:15	0.53	0	0
5/24/2021 1:10	0.92	0.29	0.004
5/24/2021 1:05	0.98	0.6	0.009
5/24/2021 1:00	0.98	0.39	0.006
5/24/2021 0:55	0.83	0.39	0.005
5/24/2021 0:50	0.82	0.56	0.007
5/24/2021 0:45	0.81	0.49	0.006
5/24/2021 0:40	0.81	0.72	0.009
5/24/2021 0:35	1.01	0.77	0.013
5/24/2021 0:30	0.98	0.77	0.012
5/24/2021 0:25	1.06	0.96	0.017
5/24/2021 0:20	0.78	0.48	0.005
5/24/2021 0:15	0.8	0.62	0.007
5/24/2021 0:10	0.84	0.67	0.008
5/24/2021 0:05	0.85	0.69	0.009
5/24/2021 0:00	0.85	0.64	0.008
5/23/2021 23:55	0.85	0.65	0.008
5/23/2021 23:50	0.88	0.66	0.009
5/23/2021 23:45	0.88	0.66	0.009
5/23/2021 23:40	0.97	0.97	0.015
5/23/2021 23:35	0.88	0.74	0.01
5/23/2021 23:30	1.16	0.87	0.017
5/23/2021 23:25	1.14	0.71	0.014
5/23/2021 23:20	0.92	0.76	0.011
5/23/2021 23:15	0.92	0.77	0.011
5/23/2021 23:10	0.95	0.72	0.011
5/23/2021 23:05	0.96	0.89	0.014
5/23/2021 23:00	0.95	0.89	0.013
5/23/2021 22:55	0.94	0.73	0.011
5/23/2021 22:50	0.92	0.66	0.009
5/23/2021 22:45	1.01	0.85	0.014
5/23/2021 22:40	1.13	1.09	0.021
5/23/2021 22:35	0.87	0.69	0.009
5/23/2021 22:30	0.78	0.67	0.007
5/23/2021 22:25	1.23	0.88	0.019
5/23/2021 22:20	0.93	0.78	0.011
5/23/2021 22:15	0.81	0.73	0.009
5/23/2021 22:10	0.82	0.54	0.006
5/23/2021 22:05	0.79	0.63	0.007
5/23/2021 22:00	0.81	0.61	0.007
5/23/2021 21:55	0.89	0.82	0.011
5/23/2021 21:50	0.9	0.81	0.011
5/23/2021 21:45	0.83	0.71	0.009

5/23/2021 21:40	0.82	0.71	0.009
5/23/2021 21:35	1.14	0.97	0.019
5/23/2021 21:30	0.91	0.86	0.012
5/23/2021 21:25	1.04	0.97	0.017
5/23/2021 21:20	0.92	0.88	0.012
5/23/2021 21:15	0.89	0.68	0.009
5/23/2021 21:10	0.89	0.8	0.011
5/23/2021 21:05	1.05	0.76	0.013
5/23/2021 21:00	1.28	1.23	0.029
5/23/2021 20:55	1.13	0.9	0.017
5/23/2021 20:50	0.81	0.81	0.01
5/23/2021 20:45	0.86	0.69	0.009
5/23/2021 20:40	0.97	0.82	0.013
5/23/2021 20:35	1.14	0.81	0.016
5/23/2021 20:30	1.07	0.93	0.017
5/23/2021 20:25	1.07	0.74	0.013
5/23/2021 20:20	2.43	0.79	0.045
5/23/2021 20:15	0.94	0.41	0.006
5/23/2021 20:10	0.8	0.41	0.005
5/23/2021 20:05	0.75	0.41	0.004
5/23/2021 20:00	0.85	0.41	0.005
5/23/2021 19:55	0.85	0.42	0.005
5/23/2021 19:50	0.84	0.6	0.008
5/23/2021 19:45	0.88	0.63	0.008
5/23/2021 19:40	0.84	0.64	0.008
5/23/2021 19:35	0.8	0.62	0.007
5/23/2021 19:30	0.82	0.43	0.005
5/23/2021 19:25	0.82	0.67	0.008
5/23/2021 19:20	1.25	0.75	0.017
5/23/2021 19:15	1	0.74	0.012
5/23/2021 19:10	1.01	0.72	0.012
5/23/2021 19:05	1.01	0.8	0.013
5/23/2021 19:00	1.06	0.86	0.015
5/23/2021 18:55	1.01	0.65	0.011
5/23/2021 18:50	1.24	1.09	0.024
5/23/2021 18:45	1.12	0.81	0.015
5/23/2021 18:40	1.14	0.76	0.015
5/23/2021 18:35	1.15	0.84	0.017
5/23/2021 18:30	1.17	1.05	0.021
5/23/2021 18:25	1.51	1.28	0.038
5/23/2021 18:20	1.22	0.37	0.008
5/23/2021 18:15	1.15	0.38	0.008
5/23/2021 18:10	1.06	0.33	0.006
5/23/2021 18:05	1.01	0.32	0.005

5/23/2021 18:00	1.26	0.32	0.007
5/23/2021 17:55	1.33	0.22	0.005
5/23/2021 17:50	1.42	0.45	0.012
5/23/2021 17:45	1.27	0.41	0.009
5/23/2021 17:40	1.29	0.44	0.01
5/23/2021 17:35	1.34	0.43	0.011
5/23/2021 17:30	1.3	0.43	0.01
5/23/2021 17:25	1.3	0.43	0.01
5/23/2021 17:20	1.5	0.44	0.013
5/23/2021 17:15	1.45	0.45	0.013
5/23/2021 17:10	1.77	0.56	0.021
5/23/2021 17:05	1.4	0.42	0.011
5/23/2021 17:00	1.38	0.39	0.01
5/23/2021 16:55	1.57	0.41	0.013
5/23/2021 16:50	1.33	0.44	0.011
5/23/2021 16:45	1.75	0.49	0.018
5/23/2021 16:40	1.38	0.42	0.011
5/23/2021 16:35	1.43	0.41	0.011
5/23/2021 16:30	1.58	0.42	0.013
5/23/2021 16:25	1.59	0.38	0.012
5/23/2021 16:20	1.37	0.43	0.011
5/23/2021 16:15	1.38	0.44	0.011
5/23/2021 16:10	1.46	0.53	0.015
5/23/2021 16:05	1.4	0.39	0.01
5/23/2021 16:00	1.39	0.41	0.011
5/23/2021 15:55	1.31	0.45	0.011
5/23/2021 15:50	1.37	0.43	0.011
5/23/2021 15:45	1.39	0.44	0.011
5/23/2021 15:40	1.52	0.47	0.014
5/23/2021 15:35	1.44	0.46	0.013
5/23/2021 15:30	1.42	0.42	0.011
5/23/2021 15:25	1.03	0.42	0.007
5/23/2021 15:20	1.48	0.48	0.014
5/23/2021 15:15	1.51	0.44	0.013
5/23/2021 15:10	1.46	0.42	0.012
5/23/2021 15:05	1.55	0.42	0.013
5/23/2021 15:00	1.31	0.38	0.009
5/23/2021 14:55	1.22	0.35	0.008
5/23/2021 14:50	1.39	0.38	0.01
5/23/2021 14:45	1.38	0.35	0.009
5/23/2021 14:40	1.39	0.34	0.009
5/23/2021 14:35	1.53	0.44	0.013
5/23/2021 14:30	1.52	0.45	0.013
5/23/2021 14:25	1.58	0.45	0.014

5/23/2021 14:20	1.58	0.29	0.009
5/23/2021 14:15	1.47	0.45	0.013
5/23/2021 14:10	1.54	0.45	0.014
5/23/2021 14:05	1.37	0.45	0.011
5/23/2021 14:00	1.35	0.34	0.009
5/23/2021 13:55	1.61	0.32	0.01
5/23/2021 13:50	1.58	0.33	0.01
5/23/2021 13:45	1.33	0.35	0.008
5/23/2021 13:40	1.31	0.36	0.009
5/23/2021 13:35	1.5	0.39	0.011
5/23/2021 13:30	1.5	0.41	0.012
5/23/2021 13:25	1.52	0.4	0.012
5/23/2021 13:20	1.74	0.45	0.016
5/23/2021 13:15	1.11	0.36	0.007
5/23/2021 13:10	1.49	0.38	0.011
5/23/2021 13:05	1.8	0.48	0.018
5/23/2021 13:00	0.97	0.55	0.009
5/23/2021 12:55	0.96	1.01	0.015
5/23/2021 12:50	1.07	0.84	0.015
5/23/2021 12:45	1.14	1.06	0.021
5/23/2021 12:40	0.91	0.34	0.005
5/23/2021 12:35	1.13	0.98	0.019
5/23/2021 12:30	1.18	0.69	0.014
5/23/2021 12:25	1.21	0.72	0.015
5/23/2021 12:20	0.99	0.75	0.012
5/23/2021 12:15	1.16	0.75	0.015
5/23/2021 12:10	1.19	0.9	0.019
5/23/2021 12:05	1.19	1.13	0.024
5/23/2021 12:00	1.23	1.12	0.024
5/23/2021 11:55	1.22	1.19	0.026
5/23/2021 11:50	1.35	1.17	0.029
5/23/2021 11:45	0.91	0.44	0.006
5/23/2021 11:40	0.94	0.72	0.011
5/23/2021 11:35	1.08	0.85	0.015
5/23/2021 11:30	1.4	1.18	0.031
5/23/2021 11:25	1.24	1	0.022
5/23/2021 11:20	1.24	1	0.022
5/23/2021 11:15	1.16	0.99	0.02
5/23/2021 11:10	1.02	0.88	0.015
5/23/2021 11:05	1.02	0.77	0.013
5/23/2021 11:00	0.98	0.73	0.011
5/23/2021 10:55	1.08	0.84	0.015
5/23/2021 10:50	1.2	1.04	0.022
5/23/2021 10:45	1.52	1.59	0.047

5/23/2021 10:40	1.23	1	0.022
5/23/2021 10:35	1.35	1.06	0.027
5/23/2021 10:30	1.18	1	0.021
5/23/2021 10:25	0.98	0.82	0.013
5/23/2021 10:20	1.17	0.93	0.019
5/23/2021 10:15	1.19	1.25	0.026
5/23/2021 10:10	1.2	1.01	0.021
5/23/2021 10:05	1.19	0.87	0.018
5/23/2021 10:00	1.24	0.78	0.017
5/23/2021 9:55	0.91	0.58	0.008
5/23/2021 9:50	0.91	0.72	0.01
5/23/2021 9:45	0.97	0.69	0.011
5/23/2021 9:40	1.04	0.7	0.012
5/23/2021 9:35	1.18	0.73	0.015
5/23/2021 9:30	1.17	0.89	0.018
5/23/2021 9:25	0.82	0.74	0.009
5/23/2021 9:20	0.89	0.74	0.01
5/23/2021 9:15	0.86	0.78	0.01
5/23/2021 9:10	0.96	0.78	0.012
5/23/2021 9:05	1.06	0.85	0.015
5/23/2021 9:00	1.06	0.88	0.015
5/23/2021 8:55	1	0.87	0.014
5/23/2021 8:50	0.99	0.87	0.014
5/23/2021 8:45	0.95	0.77	0.012
5/23/2021 8:40	0.96	0.8	0.012
5/23/2021 8:35	1.01	0.89	0.015
5/23/2021 8:30	1.07	0.98	0.018
5/23/2021 8:25	1	0.85	0.014
5/23/2021 8:20	1.37	0.51	0.013
5/23/2021 8:15	1.11	0.43	0.008
5/23/2021 8:10	1.32	0.62	0.015
5/23/2021 8:05	1.36	0.64	0.016
5/23/2021 8:00	0.99	0.42	0.007
5/23/2021 7:55	0.93	0.42	0.006
5/23/2021 7:50	0.91	0.41	0.006
5/23/2021 7:45	1.05	0.45	0.008
5/23/2021 7:40	1.11	0.51	0.009
5/23/2021 7:35	1.13	0.44	0.008
5/23/2021 7:30	1.38	0.45	0.012
5/23/2021 7:25	1.07	0.4	0.007
5/23/2021 7:20	1.26	0.6	0.014
5/23/2021 7:15	1.26	0.57	0.013
5/23/2021 7:10	1.23	0.57	0.013
5/23/2021 7:05	0.88	0.41	0.005

5/23/2021 7:00	0.79	0.39	0.004
5/23/2021 6:55	0.79	0.35	0.004
5/23/2021 6:50	0.81	0.35	0.004
5/23/2021 6:45	1.11	0.39	0.007
5/23/2021 6:40	0.83	0.34	0.004
5/23/2021 6:35	0.84	0.28	0.003
5/23/2021 6:30	1.26	0.26	0.006
5/23/2021 6:25	0.89	0.25	0.003
5/23/2021 6:20	1.05	0.26	0.004
5/23/2021 6:15	0.8	0.32	0.004
5/23/2021 6:10	0.79	0.32	0.004
5/23/2021 6:05	0.78	0.32	0.004
5/23/2021 6:00	0.81	0.39	0.005
5/23/2021 5:55	0.81	0.34	0.004
5/23/2021 5:50	0.81	0.4	0.005
5/23/2021 5:45	0.64	0.21	0.002
5/23/2021 5:40	1.15	0.21	0.004
5/23/2021 5:35	0.89	0	0
5/23/2021 5:30	1.42	0.25	0.007
5/23/2021 5:25	1.06	0.22	0.004
5/23/2021 5:20	1.1	0.23	0.004
5/23/2021 5:15	0.56	0	0
5/23/2021 5:10	0.56	0	0
5/23/2021 5:05	0.55	0	0
5/23/2021 5:00	0.55	0	0
5/23/2021 4:55	1.07	0.23	0.004
5/23/2021 4:50	0.57	0	0
5/23/2021 4:45	0.57	0	0
5/23/2021 4:40	0.58	0	0
5/23/2021 4:35	1.17	0.21	0.004
5/23/2021 4:30	0.83	0	0
5/23/2021 4:25	0.73	0.3	0.003
5/23/2021 4:20	0.73	0.33	0.003
5/23/2021 4:15	0.73	0.23	0.002
5/23/2021 4:10	0.57	0.22	0.002
5/23/2021 4:05	1.11	0.24	0.004
5/23/2021 4:00	1.02	0.27	0.004
5/23/2021 3:55	0.87	0.27	0.004
5/23/2021 3:50	0.79	0.28	0.003
5/23/2021 3:45	0.75	0.24	0.003
5/23/2021 3:40	0.81	0.28	0.003
5/23/2021 3:35	0.8	0.29	0.003
5/23/2021 3:30	1.42	0.26	0.007
5/23/2021 3:25	0.77	0.27	0.003

5/23/2021 3:20	0.82	0.28	0.003
5/23/2021 3:15	0.98	0.28	0.004
5/23/2021 3:10	0.74	0.25	0.003
5/23/2021 3:05	1.19	0.25	0.005
5/23/2021 3:00	0.74	0.27	0.003
5/23/2021 2:55	0.79	0.29	0.003
5/23/2021 2:50	0.82	0.29	0.004
5/23/2021 2:45	0.82	0.29	0.003
5/23/2021 2:40	0.82	0.32	0.004
5/23/2021 2:35	0.83	0.39	0.005
5/23/2021 2:30	0.84	0.29	0.004
5/23/2021 2:25	0.96	0.3	0.005
5/23/2021 2:20	0.95	0.27	0.004
5/23/2021 2:15	1.79	0.21	0.008
5/23/2021 2:10	1.42	0.09	0.003
5/23/2021 2:05	0.62	0.31	0.003
5/23/2021 2:00	0.75	0.29	0.003
5/23/2021 1:55	0.85	0.28	0.004
5/23/2021 1:50	0.8	0.31	0.004
5/23/2021 1:45	0.8	0.36	0.004
5/23/2021 1:40	0.8	0.39	0.005
5/23/2021 1:35	0.93	0.42	0.006
5/23/2021 1:30	0.99	0.42	0.007
5/23/2021 1:25	0.99	0.33	0.005
5/23/2021 1:20	0.97	0.33	0.005
5/23/2021 1:15	1.68	0.33	0.011
5/23/2021 1:10	0.96	0.43	0.007
5/23/2021 1:05	0.96	0.45	0.007
5/23/2021 1:00	0.88	0	0
5/23/2021 0:55	1.07	0	0
5/23/2021 0:50	0.82	0	0
5/23/2021 0:45	0.84	0	0
5/23/2021 0:40	0.8	0	0
5/23/2021 0:35	0.81	0.25	0.003
5/23/2021 0:30	0.81	0.22	0.003
5/23/2021 0:25	0.79	0.36	0.004
5/23/2021 0:20	0.98	0.36	0.006
5/23/2021 0:15	1	0.38	0.006
5/23/2021 0:10	1.04	0.44	0.008
5/23/2021 0:05	1.1	0.47	0.009
5/23/2021 0:00	0.83	0.3	0.004
5/22/2021 23:55	0.81	0.64	0.008
5/22/2021 23:50	1.01	0.64	0.01
5/22/2021 23:45	1.01	0.67	0.011

5/22/2021 23:40	1.05	0.49	0.008
5/22/2021 23:35	0.78	0.33	0.004
5/22/2021 23:30	1.28	0.4	0.009
5/22/2021 23:25	1.01	0.45	0.007
5/22/2021 23:20	1	0.52	0.008
5/22/2021 23:15	1.01	0.5	0.008
5/22/2021 23:10	0.99	0.49	0.008
5/22/2021 23:05	0.98	0.75	0.012
5/22/2021 23:00	1.06	0.6	0.011
5/22/2021 22:55	1.14	0.38	0.007
5/22/2021 22:50	1.13	0.39	0.008
5/22/2021 22:45	0.93	0.4	0.006
5/22/2021 22:40	0.88	0.43	0.006
5/22/2021 22:35	0.88	0.44	0.006
5/22/2021 22:30	0.88	0.47	0.006
5/22/2021 22:25	1.35	0.5	0.013
5/22/2021 22:20	0.85	0.43	0.006
5/22/2021 22:15	0.91	0.72	0.01
5/22/2021 22:10	1.18	0.74	0.015
5/22/2021 22:05	1.22	0.67	0.015
5/22/2021 22:00	0.97	0.68	0.011
5/22/2021 21:55	0.97	1.19	0.018
5/22/2021 21:50	1.03	0.65	0.011
5/22/2021 21:45	1.02	0.66	0.011
5/22/2021 21:40	0.98	0.68	0.011
5/22/2021 21:35	0.87	0.68	0.009
5/22/2021 21:30	0.87	0.69	0.009
5/22/2021 21:25	0.87	0.64	0.008
5/22/2021 21:20	1	0.87	0.014
5/22/2021 21:15	1.24	0.89	0.02
5/22/2021 21:10	0.92	0.68	0.01
5/22/2021 21:05	1.07	0.92	0.016
5/22/2021 21:00	1.07	0.98	0.017
5/22/2021 20:55	1.08	1	0.018
5/22/2021 20:50	1.03	0.83	0.014
5/22/2021 20:45	0.99	0.8	0.013
5/22/2021 20:40	1.03	0.82	0.014
5/22/2021 20:35	0.99	0.88	0.014
5/22/2021 20:30	1	0.88	0.014
5/22/2021 20:25	0.9	0.65	0.009
5/22/2021 20:20	0.97	0.81	0.012
5/22/2021 20:15	1.02	0.83	0.014
5/22/2021 20:10	1.03	0.76	0.013
5/22/2021 20:05	1.06	0.93	0.016

5/22/2021 20:00	1.06	0.95	0.017
5/22/2021 19:55	0.96	0.84	0.013
5/22/2021 19:50	1	0.86	0.014
5/22/2021 19:45	1.08	0.9	0.016
5/22/2021 19:40	1.05	0.76	0.013
5/22/2021 19:35	1.09	0.84	0.015
5/22/2021 19:30	1.06	0.91	0.016
5/22/2021 19:25	1.08	0.75	0.013
5/22/2021 19:20	1.12	0.82	0.016
5/22/2021 19:15	1.25	0.86	0.019
5/22/2021 19:10	1.31	0.82	0.02
5/22/2021 19:05	0.92	0.72	0.01
5/22/2021 19:00	0.91	0.72	0.01
5/22/2021 18:55	0.95	0.73	0.011
5/22/2021 18:50	0.96	0.73	0.011
5/22/2021 18:45	0.97	0.83	0.013
5/22/2021 18:40	1.67	0.79	0.027
5/22/2021 18:35	0.83	0.8	0.01
5/22/2021 18:30	0.81	0.69	0.008
5/22/2021 18:25	0.85	0.55	0.007
5/22/2021 18:20	0.89	0.53	0.007
5/22/2021 18:15	0.93	0.72	0.01
5/22/2021 18:10	0.91	0.62	0.009
5/22/2021 18:05	0.96	0.85	0.013
5/22/2021 18:00	1.01	0.97	0.016
5/22/2021 17:55	1.02	0.91	0.015
5/22/2021 17:50	0.91	0.74	0.01
5/22/2021 17:45	0.81	0.67	0.008
5/22/2021 17:40	0.8	0.78	0.009
5/22/2021 17:35	0.89	0.87	0.012
5/22/2021 17:30	0.98	0.91	0.014
5/22/2021 17:25	1.08	0.95	0.017
5/22/2021 17:20	1.09	0.95	0.017
5/22/2021 17:15	1.08	1.13	0.02
5/22/2021 17:10	0.91	0.64	0.009
5/22/2021 17:05	0.84	0.74	0.009
5/22/2021 17:00	0.92	0.74	0.011
5/22/2021 16:55	1.02	0.92	0.015
5/22/2021 16:50	1.03	0.97	0.016
5/22/2021 16:45	1.22	1.17	0.025
5/22/2021 16:40	1.42	1.22	0.033
5/22/2021 16:35	0.83	0.4	0.005
5/22/2021 16:30	0.82	0.65	0.008
5/22/2021 16:25	0.88	0.77	0.01

5/22/2021 16:20	0.86	0.53	0.007
5/22/2021 16:15	0.94	0.71	0.01
5/22/2021 16:10	0.95	0.64	0.01
5/22/2021 16:05	1.15	0.97	0.019
5/22/2021 16:00	1.14	0.9	0.018
5/22/2021 15:55	1.17	0.92	0.019
5/22/2021 15:50	0.99	0.94	0.015
5/22/2021 15:45	1.13	1.05	0.02
5/22/2021 15:40	1.03	0.8	0.013
5/22/2021 15:35	1.01	0.72	0.012
5/22/2021 15:30	1.14	1.02	0.02
5/22/2021 15:25	1.3	1.1	0.026
5/22/2021 15:20	0.73	0.61	0.006
5/22/2021 15:15	1.1	0.76	0.014
5/22/2021 15:10	1	0.56	0.009
5/22/2021 15:05	1.01	0.51	0.008
5/22/2021 15:00	1.05	1.01	0.018
5/22/2021 14:55	1.07	0.8	0.014
5/22/2021 14:50	1.16	1.05	0.021
5/22/2021 14:45	1.17	1.24	0.025
5/22/2021 14:40	1.16	1.18	0.024
5/22/2021 14:35	1.1	0.97	0.018
5/22/2021 14:30	1.15	0.98	0.019
5/22/2021 14:25	1.07	0.84	0.015
5/22/2021 14:20	1.18	1.15	0.023
5/22/2021 14:15	1.12	0.9	0.017
5/22/2021 14:10	1.03	1.02	0.017
5/22/2021 14:05	1.22	0.92	0.02
5/22/2021 14:00	1.26	1.03	0.023
5/22/2021 13:55	1.06	0.9	0.016
5/22/2021 13:50	1.3	0.77	0.018
5/22/2021 13:45	1.1	0.83	0.015
5/22/2021 13:40	1.18	0.96	0.02
5/22/2021 13:35	1.21	0.94	0.02
5/22/2021 13:30	1.16	1.05	0.021
5/22/2021 13:25	0.8	0.65	0.007
5/22/2021 13:20	0.99	0.81	0.013
5/22/2021 13:15	1.15	1.01	0.02
5/22/2021 13:10	1.25	1.06	0.024
5/22/2021 13:05	1.29	1.62	0.038
5/22/2021 13:00	1.11	0.88	0.016
5/22/2021 12:55	1.28	1.08	0.025
5/22/2021 12:50	1.23	1.01	0.022
5/22/2021 12:45	1.12	1.01	0.019

5/22/2021 12:40	0.96	0.64	0.01
5/22/2021 12:35	0.99	0.6	0.01
5/22/2021 12:30	1.11	0.97	0.018
5/22/2021 12:25	1.14	0.96	0.019
5/22/2021 12:20	1.15	1.02	0.02
5/22/2021 12:15	1.02	0.72	0.012
5/22/2021 12:10	1.19	0.9	0.019
5/22/2021 12:05	1.26	0.86	0.019
5/22/2021 12:00	1.25	1.07	0.024
5/22/2021 11:55	1.24	0.97	0.021
5/22/2021 11:50	1.18	0.93	0.019
5/22/2021 11:45	1.22	1.1	0.024
5/22/2021 11:40	1.2	0.97	0.02
5/22/2021 11:35	1.18	0.97	0.02
5/22/2021 11:30	1.17	0.89	0.018
5/22/2021 11:25	1.23	1.03	0.023
5/22/2021 11:20	1.41	1.09	0.029
5/22/2021 11:15	1.25	1.04	0.023
5/22/2021 11:10	1.28	0.97	0.022
5/22/2021 11:05	1.28	1.18	0.027
5/22/2021 11:00	1.25	1.32	0.03
5/22/2021 10:55	1.19	1.01	0.021
5/22/2021 10:50	1.2	0.95	0.02
5/22/2021 10:45	0.89	0.63	0.009
5/22/2021 10:40	1.05	0.81	0.014
5/22/2021 10:35	1.3	1.17	0.027
5/22/2021 10:30	1.22	1.01	0.022
5/22/2021 10:25	1.34	1.04	0.026
5/22/2021 10:20	0.99	0.75	0.012
5/22/2021 10:15	1.25	0.97	0.022
5/22/2021 10:10	1.28	1.09	0.025
5/22/2021 10:05	1.36	1.11	0.028
5/22/2021 10:00	1.1	0.75	0.014
5/22/2021 9:55	1.27	1.31	0.03
5/22/2021 9:50	1.29	1.09	0.026
5/22/2021 9:45	1.28	1.38	0.032
5/22/2021 9:40	1.18	1.36	0.028
5/22/2021 9:35	1.2	1.12	0.024
5/22/2021 9:30	0.89	0.67	0.009
5/22/2021 9:25	0.91	0.67	0.009
5/22/2021 9:20	0.91	0.87	0.012
5/22/2021 9:15	1.11	0.66	0.012
5/22/2021 9:10	1.14	0.66	0.013
5/22/2021 9:05	0.85	0.64	0.008

5/22/2021 9:00	0.85	0.64	0.008
5/22/2021 8:55	0.88	0.75	0.01
5/22/2021 8:50	0.88	0.76	0.01
5/22/2021 8:45	1.24	1.06	0.023
5/22/2021 8:40	1.3	0.94	0.022
5/22/2021 8:35	1.23	0.8	0.018
5/22/2021 8:30	1.26	1.18	0.027
5/22/2021 8:25	0.85	0.77	0.01
5/22/2021 8:20	0.79	0.68	0.008
5/22/2021 8:15	0.78	0.59	0.007
5/22/2021 8:10	0.74	0.46	0.005
5/22/2021 8:05	1.1	0.42	0.008
5/22/2021 8:00	1.14	0.3	0.006
5/22/2021 7:55	1.27	0.39	0.009
5/22/2021 7:50	0.82	0.73	0.009
5/22/2021 7:45	2.38	0.49	0.028
5/22/2021 7:40	1.01	0.66	0.011
5/22/2021 7:35	1.03	0.89	0.015
5/22/2021 7:30	1.05	0.8	0.014
5/22/2021 7:25	1.05	0.85	0.015
5/22/2021 7:20	1.06	0.45	0.008
5/22/2021 7:15	1.72	0.49	0.017
5/22/2021 7:10	1.01	0.44	0.007
5/22/2021 7:05	0.91	0.65	0.009
5/22/2021 7:00	0.9	0.99	0.014
5/22/2021 6:55	1	0.7	0.011
5/22/2021 6:50	0.85	0.38	0.005
5/22/2021 6:45	0.86	0.38	0.005
5/22/2021 6:40	1.16	0.3	0.006
5/22/2021 6:35	0.99	0.43	0.007
5/22/2021 6:30	0.97	0.5	0.008
5/22/2021 6:25	1.1	0.48	0.009
5/22/2021 6:20	1.09	0.26	0.005
5/22/2021 6:15	1.13	0.36	0.007
5/22/2021 6:10	0.81	0.32	0.004
5/22/2021 6:05	0.94	0.33	0.005
5/22/2021 6:00	0.95	0.34	0.005
5/22/2021 5:55	1.1	0.31	0.006
5/22/2021 5:50	1	0	0
5/22/2021 5:45	0.94	0.2	0.003
5/22/2021 5:40	0.82	0.28	0.003
5/22/2021 5:35	0.9	0.32	0.004
5/22/2021 5:30	0.89	0.4	0.005
5/22/2021 5:25	0.87	0.39	0.005

5/22/2021 5:20	0.9	0.3	0.004
5/22/2021 5:15	1.1	0.17	0.003
5/22/2021 5:10	1.13	0.16	0.003
5/22/2021 5:05	1.2	0.39	0.008
5/22/2021 5:00	1.25	0.22	0.005
5/22/2021 4:55	1.95	0.23	0.01
5/22/2021 4:50	1.06	0	0
5/22/2021 4:45	1.06	0	0
5/22/2021 4:40	1.08	0	0
5/22/2021 4:35	1.08	0	0
5/22/2021 4:30	1.08	0	0
5/22/2021 4:25	1.08	0	0
5/22/2021 4:20	1.09	0	0
5/22/2021 4:15	1.1	0	0
5/22/2021 4:10	1.11	0	0
5/22/2021 4:05	1.12	0	0
5/22/2021 4:00	1.14	0	0
5/22/2021 3:55	1.15	0	0
5/22/2021 3:50	1.16	0	0
5/22/2021 3:45	1.16	0	0
5/22/2021 3:40	1.17	0	0
5/22/2021 3:35	1.24	0.24	0.005
5/22/2021 3:30	0.78	0.26	0.003
5/22/2021 3:25	0.78	0.31	0.004
5/22/2021 3:20	1.08	0.33	0.006
5/22/2021 3:15	1.15	0	0
5/22/2021 3:10	1.16	0.06	0.001
5/22/2021 3:05	1.15	0	0
5/22/2021 3:00	1.15	0	0
5/22/2021 2:55	1.15	0.09	0.002
5/22/2021 2:50	1.96	0	0
5/22/2021 2:45	1.96	0	0
5/22/2021 2:40	1.18	0.21	0.004
5/22/2021 2:35	1.15	0	0
5/22/2021 2:30	1.16	0	0
5/22/2021 2:25	1.15	0	0
5/22/2021 2:20	1.14	0	0
5/22/2021 2:15	1.14	0	0
5/22/2021 2:10	1.11	0	0
5/22/2021 2:05	1.08	0.09	0.002
5/22/2021 2:00	1.05	0	0
5/22/2021 1:55	1.01	0.22	0.004
5/22/2021 1:50	1.02	0.22	0.004
5/22/2021 1:45	1.03	0	0

5/22/2021 1:40	1.03	0	0
5/22/2021 1:35	0.91	0.26	0.004
5/22/2021 1:30	0.9	0.35	0.005
5/22/2021 1:25	0.9	0.34	0.005
5/22/2021 1:20	1.12	0.37	0.007
5/22/2021 1:15	1.35	0	0
5/22/2021 1:10	1.17	0	0
5/22/2021 1:05	0.79	0	0
5/22/2021 1:00	0.81	0.28	0.003
5/22/2021 0:55	1.12	0.43	0.008
5/22/2021 0:50	1.05	0.43	0.007
5/22/2021 0:45	1.04	0	0
5/22/2021 0:40	1.04	0.21	0.004
5/22/2021 0:35	1.05	0.37	0.006
5/22/2021 0:30	1.1	0.41	0.008
5/22/2021 0:25	1.04	0.49	0.008
5/22/2021 0:20	0.83	0.58	0.007
5/22/2021 0:15	1.55	0.45	0.014
5/22/2021 0:10	1.46	0.38	0.011
5/22/2021 0:05	0.82	0.6	0.007
5/22/2021 0:00	0.79	0.68	0.008
5/21/2021 23:55	0.84	0.7	0.009
5/21/2021 23:50	0.83	0.7	0.009
5/21/2021 23:45	0.82	0.37	0.004
5/21/2021 23:40	0.78	0.52	0.006
5/21/2021 23:35	0.77	0.53	0.006
5/21/2021 23:30	0.96	0.55	0.008
5/21/2021 23:25	0.82	0.62	0.007
5/21/2021 23:20	0.82	0.68	0.008
5/21/2021 23:15	0.79	0.53	0.006
5/21/2021 23:10	0.81	0.62	0.007
5/21/2021 23:05	0.84	0.62	0.008
5/21/2021 23:00	0.86	0.7	0.009
5/21/2021 22:55	0.86	0.71	0.009
5/21/2021 22:50	0.88	0.74	0.01
5/21/2021 22:45	0.89	0.75	0.01
5/21/2021 22:40	0.88	0.75	0.01
5/21/2021 22:35	0.9	0.72	0.01
5/21/2021 22:30	0.87	0.77	0.01
5/21/2021 22:25	0.84	0.77	0.01
5/21/2021 22:20	1.19	0.41	0.008
5/21/2021 22:15	0.93	0.39	0.006
5/21/2021 22:10	0.87	0.68	0.009
5/21/2021 22:05	0.96	0.81	0.012

5/21/2021 22:00	1.23	0.39	0.009
5/21/2021 21:55	0.8	0.65	0.008
5/21/2021 21:50	0.86	0.65	0.008
5/21/2021 21:45	0.97	0.77	0.012
5/21/2021 21:40	0.77	0.57	0.006
5/21/2021 21:35	0.84	0.78	0.01
5/21/2021 21:30	0.82	0.62	0.007
5/21/2021 21:25	0.88	0.62	0.008
5/21/2021 21:20	0.86	0.59	0.008
5/21/2021 21:15	0.85	0.52	0.007
5/21/2021 21:10	0.86	0.56	0.007
5/21/2021 21:05	0.86	0.42	0.005
5/21/2021 21:00	0.87	0.54	0.007
5/21/2021 20:55	0.86	0.58	0.008
5/21/2021 20:50	0.89	0.5	0.007
5/21/2021 20:45	0.9	0.53	0.007
5/21/2021 20:40	1.08	0.69	0.013
5/21/2021 20:35	0.93	0.67	0.01
5/21/2021 20:30	0.97	0.85	0.013
5/21/2021 20:25	0.97	0.75	0.012
5/21/2021 20:20	0.88	0.61	0.008
5/21/2021 20:15	0.9	0.64	0.009
5/21/2021 20:10	0.82	0.63	0.008
5/21/2021 20:05	0.95	0.66	0.01
5/21/2021 20:00	0.94	0.62	0.009
5/21/2021 19:55	0.96	0.59	0.009
5/21/2021 19:50	0.96	0.78	0.012
5/21/2021 19:45	1.11	0.89	0.017
5/21/2021 19:40	1.09	0.87	0.016
5/21/2021 19:35	1.02	0.88	0.015
5/21/2021 19:30	1.15	0.92	0.018
5/21/2021 19:25	0.96	0.85	0.013
5/21/2021 19:20	0.95	0.72	0.011
5/21/2021 19:15	0.82	0.71	0.009
5/21/2021 19:10	1.18	1.03	0.021
5/21/2021 19:05	1.41	1.08	0.029
5/21/2021 19:00	1.15	0.91	0.018
5/21/2021 18:55	1.13	0.94	0.018
5/21/2021 18:50	1	0.82	0.013
5/21/2021 18:45	1.22	1.03	0.022
5/21/2021 18:40	1.25	1.24	0.028
5/21/2021 18:35	1.13	0.71	0.014
5/21/2021 18:30	1.08	0.95	0.017
5/21/2021 18:25	1.08	0.86	0.016

5/21/2021 18:20	1.23	1.08	0.024
5/21/2021 18:15	1.24	1.16	0.026
5/21/2021 18:10	1.29	1.16	0.027
5/21/2021 18:05	0.92	0.66	0.009
5/21/2021 18:00	1.02	0.79	0.013
5/21/2021 17:55	1.03	0.81	0.014
5/21/2021 17:50	0.94	0.72	0.011
5/21/2021 17:45	0.95	0.71	0.011
5/21/2021 17:40	0.9	0.63	0.009
5/21/2021 17:35	1.1	0.84	0.015
5/21/2021 17:30	1.12	1.09	0.021
5/21/2021 17:25	0.99	0.79	0.012
5/21/2021 17:20	0.92	0.54	0.008
5/21/2021 17:15	0.98	0.73	0.011
5/21/2021 17:10	1.04	0.92	0.016
5/21/2021 17:05	1.22	0.38	0.008
5/21/2021 17:00	1.25	0.36	0.008
5/21/2021 16:55	1.21	0.39	0.008
5/21/2021 16:50	1.09	0.36	0.007
5/21/2021 16:45	1.39	0.44	0.012
5/21/2021 16:40	1.47	0.47	0.013
5/21/2021 16:35	0.89	0.83	0.011
5/21/2021 16:30	1.06	0.97	0.017
5/21/2021 16:25	1.02	0.83	0.014
5/21/2021 16:20	1.37	1.37	0.035
5/21/2021 16:15	1.17	0.82	0.017
5/21/2021 16:10	1.12	0.84	0.016
5/21/2021 16:05	1.13	0.82	0.016
5/21/2021 16:00	1.14	0.59	0.012
5/21/2021 15:55	1.12	0.55	0.01
5/21/2021 15:50	1.15	0.77	0.015
5/21/2021 15:45	0.87	0.59	0.008
5/21/2021 15:40	0.88	0.58	0.008
5/21/2021 15:35	0.89	0.56	0.008
5/21/2021 15:30	0.99	0.77	0.012
5/21/2021 15:25	0.99	0.78	0.013
5/21/2021 15:20	1.15	0.96	0.019
5/21/2021 15:15	1.38	1.07	0.027
5/21/2021 15:10	1.08	0.87	0.016
5/21/2021 15:05	1.12	0.93	0.018
5/21/2021 15:00	1.46	1.02	0.028
5/21/2021 14:55	1.07	0.77	0.014
5/21/2021 14:50	1.05	0.75	0.013
5/21/2021 14:45	1.2	1.04	0.022

5/21/2021 14:40	1.24	1.08	0.024
5/21/2021 14:35	1.04	0.99	0.017
5/21/2021 14:30	1.03	0.76	0.013
5/21/2021 14:25	1.03	0.75	0.013
5/21/2021 14:20	0.81	0.55	0.007
5/21/2021 14:15	0.91	0.73	0.01
5/21/2021 14:10	1.41	0.76	0.02
5/21/2021 14:05	1.45	1.25	0.035
5/21/2021 14:00	1.14	0.45	0.009
5/21/2021 13:55	1.14	0.39	0.008
5/21/2021 13:50	1.36	0.45	0.011
5/21/2021 13:45	1.15	0.47	0.009
5/21/2021 13:40	1.15	0.4	0.008
5/21/2021 13:35	1.14	0.47	0.009
5/21/2021 13:30	1.1	0.37	0.007
5/21/2021 13:25	1.13	0.43	0.008
5/21/2021 13:20	1.17	0.47	0.01
5/21/2021 13:15	1.1	0.79	0.015
5/21/2021 13:10	0.91	0.74	0.01
5/21/2021 13:05	0.9	0.69	0.01
5/21/2021 13:00	0.89	0.75	0.01
5/21/2021 12:55	0.88	0.63	0.008
5/21/2021 12:50	0.88	0.81	0.011
5/21/2021 12:45	0.84	0.47	0.006
5/21/2021 12:40	0.84	0.69	0.009
5/21/2021 12:35	0.86	0.74	0.01
5/21/2021 12:30	0.97	0.77	0.012
5/21/2021 12:25	0.87	0.7	0.009
5/21/2021 12:20	0.87	0.74	0.01
5/21/2021 12:15	0.81	0.62	0.007
5/21/2021 12:10	0.96	0.85	0.013
5/21/2021 12:05	1.03	0.89	0.015
5/21/2021 12:00	0.92	0.79	0.011
5/21/2021 11:55	0.88	0.74	0.01
5/21/2021 11:50	0.96	0.76	0.012
5/21/2021 11:45	0.98	0.83	0.013
5/21/2021 11:40	0.97	0.82	0.013
5/21/2021 11:35	1.03	1.01	0.017
5/21/2021 11:30	1.03	0.93	0.016
5/21/2021 11:25	1.1	0.89	0.017
5/21/2021 11:20	1.2	1.11	0.023
5/21/2021 11:15	1.1	0.93	0.017
5/21/2021 11:10	1.02	0.78	0.013
5/21/2021 11:05	0.96	0.82	0.012

5/21/2021 11:00	1.01	0.97	0.016
5/21/2021 10:55	0.91	0.83	0.012
5/21/2021 10:50	0.96	0.9	0.014
5/21/2021 10:45	1.23	1.05	0.023
5/21/2021 10:40	1.28	1.09	0.025
5/21/2021 10:35	1.28	1.07	0.025
5/21/2021 10:30	1.22	1.07	0.023
5/21/2021 10:25	1.17	1.09	0.022
5/21/2021 10:20	1.12	0.94	0.018
5/21/2021 10:15	1.06	0.92	0.016
5/21/2021 10:10	1.06	0.97	0.017
5/21/2021 10:05	1.09	0.84	0.015
5/21/2021 10:00	1.08	0.85	0.015
5/21/2021 9:55	1.21	0.98	0.021
5/21/2021 9:50	1.07	0.97	0.017
5/21/2021 9:45	1.05	1.04	0.018
5/21/2021 9:40	0.88	0.47	0.006
5/21/2021 9:35	0.94	0.64	0.009
5/21/2021 9:30	0.99	0.84	0.013
5/21/2021 9:25	0.96	0.68	0.01
5/21/2021 9:20	1.01	0.88	0.014
5/21/2021 9:15	1.02	0.87	0.014
5/21/2021 9:10	0.84	0.52	0.006
5/21/2021 9:05	1.05	0.82	0.014
5/21/2021 9:00	0.83	0.6	0.007
5/21/2021 8:55	0.87	0.28	0.004
5/21/2021 8:50	0.91	0.37	0.005
5/21/2021 8:45	0.81	0.41	0.005
5/21/2021 8:40	0.8	0.53	0.006
5/21/2021 8:35	0.84	0.71	0.009
5/21/2021 8:30	1.01	0.92	0.015
5/21/2021 8:25	1	0.88	0.014
5/21/2021 8:20	1.05	0.89	0.015
5/21/2021 8:15	0.99	0.74	0.012
5/21/2021 8:10	0.99	0.71	0.011
5/21/2021 8:05	1.05	0.98	0.017
5/21/2021 8:00	1.04	0.78	0.013
5/21/2021 7:55	1.15	0.42	0.008
5/21/2021 7:50	0.88	0.67	0.009
5/21/2021 7:45	0.86	0.67	0.009
5/21/2021 7:40	0.9	0.71	0.01
5/21/2021 7:35	0.89	0.67	0.009
5/21/2021 7:30	1.01	0.78	0.013
5/21/2021 7:25	1.15	0.97	0.019

5/21/2021 7:20	1.27	0.71	0.016
5/21/2021 7:15	1.19	1.03	0.021
5/21/2021 7:10	1.07	0.87	0.015
5/21/2021 7:05	1.13	0.63	0.012
5/21/2021 7:00	0.85	0.64	0.008
5/21/2021 6:55	0.81	0.56	0.007
5/21/2021 6:50	1.08	1.02	0.018
5/21/2021 6:45	1.53	0.54	0.016
5/21/2021 6:40	1.41	0.5	0.013
5/21/2021 6:35	0.93	0.36	0.005
5/21/2021 6:30	0.92	0.33	0.005
5/21/2021 6:25	0.89	0.51	0.007
5/21/2021 6:20	0.94	0.38	0.006
5/21/2021 6:15	0.82	0.34	0.004
5/21/2021 6:10	0.79	0.33	0.004
5/21/2021 6:05	0.8	0.34	0.004
5/21/2021 6:00	0.85	0.36	0.005
5/21/2021 5:55	0.94	0.37	0.005
5/21/2021 5:50	0.99	0.34	0.005
5/21/2021 5:45	1.16	0.49	0.01
5/21/2021 5:40	0.97	0.39	0.006
5/21/2021 5:35	0.97	0.38	0.006
5/21/2021 5:30	0.98	0.38	0.006
5/21/2021 5:25	0.91	0.37	0.005
5/21/2021 5:20	1.19	0.41	0.009
5/21/2021 5:15	1.08	0.39	0.007
5/21/2021 5:10	0.98	0.69	0.011
5/21/2021 5:05	0.96	0.68	0.01
5/21/2021 5:00	0.9	0.35	0.005
5/21/2021 4:55	0.95	0.35	0.005
5/21/2021 4:50	0.87	0.32	0.004
5/21/2021 4:45	0.86	0.37	0.005
5/21/2021 4:40	1.25	0.4	0.009
5/21/2021 4:35	1.01	0.4	0.007
5/21/2021 4:30	1.08	0.21	0.004
5/21/2021 4:25	1.01	0.42	0.007
5/21/2021 4:20	0.73	0.36	0.004
5/21/2021 4:15	0.79	0.57	0.006
5/21/2021 4:10	0.78	0	0
5/21/2021 4:05	0.78	0	0
5/21/2021 4:00	0.81	0	0
5/21/2021 3:55	1.7	0	0
5/21/2021 3:50	0.92	0	0
5/21/2021 3:45	0.74	0	0

5/21/2021 3:40	0.79	0	0
5/21/2021 3:35	0.86	0	0
5/21/2021 3:30	0.9	0	0
5/21/2021 3:25	0.73	0.22	0.002
5/21/2021 3:20	1.43	0	0
5/21/2021 3:15	1	0	0
5/21/2021 3:10	0.99	0	0
5/21/2021 3:05	1	0	0
5/21/2021 3:00	1.31	0	0
5/21/2021 2:55	1.19	0	0
5/21/2021 2:50	0.91	0	0
5/21/2021 2:45	1.05	0	0
5/21/2021 2:40	1.08	0	0
5/21/2021 2:35	1.09	0.25	0.005
5/21/2021 2:30	0.8	0.29	0.003
5/21/2021 2:25	0.82	0.27	0.003
5/21/2021 2:20	0.81	0.27	0.003
5/21/2021 2:15	0.98	0.09	0.001
5/21/2021 2:10	0.95	0.08	0.001
5/21/2021 2:05	0.76	0.2	0.002
5/21/2021 2:00	1.05	0	0
5/21/2021 1:55	1.04	0	0
5/21/2021 1:50	1.04	0.17	0.003
5/21/2021 1:45	1.05	0	0
5/21/2021 1:40	0.78	0	0
5/21/2021 1:35	0.79	0.26	0.003
5/21/2021 1:30	0.79	0.22	0.003
5/21/2021 1:25	0.78	0	0
5/21/2021 1:20	0.79	0	0
5/21/2021 1:15	1.19	0	0
5/21/2021 1:10	1.2	0	0
5/21/2021 1:05	0.78	0	0
5/21/2021 1:00	0.82	0.25	0.003
5/21/2021 0:55	1.07	0	0
5/21/2021 0:50	0.82	0	0
5/21/2021 0:45	0.83	0	0
5/21/2021 0:40	0.84	0.27	0.003
5/21/2021 0:35	0.86	0.43	0.006
5/21/2021 0:30	0.89	0.47	0.006
5/21/2021 0:25	0.98	0.58	0.009
5/21/2021 0:20	0.99	0.4	0.006
5/21/2021 0:15	1.06	0.31	0.005
5/21/2021 0:10	1.06	0.32	0.006
5/21/2021 0:05	1	0.36	0.006

5/21/2021 0:00	0.83	0.36	0.004
5/20/2021 23:55	0.81	0.36	0.004
5/20/2021 23:50	0.84	0.53	0.007
5/20/2021 23:45	0.86	0.36	0.005
5/20/2021 23:40	0.89	0.63	0.009
5/20/2021 23:35	0.91	0.61	0.009
5/20/2021 23:30	0.94	0.6	0.009
5/20/2021 23:25	0.96	0.92	0.014
5/20/2021 23:20	0.98	0.79	0.012
5/20/2021 23:15	0.94	0.68	0.01
5/20/2021 23:10	0.84	0.66	0.008
5/20/2021 23:05	0.83	0.63	0.008
5/20/2021 23:00	0.91	0.63	0.009
5/20/2021 22:55	0.92	0.75	0.011
5/20/2021 22:50	0.88	0.75	0.01
5/20/2021 22:45	0.84	0.64	0.008
5/20/2021 22:40	0.84	0.64	0.008
5/20/2021 22:35	0.86	0.6	0.008
5/20/2021 22:30	1.02	0.96	0.016
5/20/2021 22:25	1.14	0.92	0.018
5/20/2021 22:20	1.19	0.89	0.018
5/20/2021 22:15	0.96	0.72	0.011
5/20/2021 22:10	1.13	1	0.019
5/20/2021 22:05	1.14	0.96	0.019
5/20/2021 22:00	0.96	0.91	0.014
5/20/2021 21:55	1	0.78	0.013
5/20/2021 21:50	1.06	0.74	0.013
5/20/2021 21:45	1.25	0.67	0.015
5/20/2021 21:40	1.73	0.72	0.026
5/20/2021 21:35	0.95	1	0.015
5/20/2021 21:30	0.88	0.57	0.008
5/20/2021 21:25	0.91	0.76	0.011
5/20/2021 21:20	0.94	0.75	0.011
5/20/2021 21:15	0.96	0.55	0.008
5/20/2021 21:10	1	0.79	0.013
5/20/2021 21:05	1.19	0.95	0.02
5/20/2021 21:00	1.24	1.05	0.023
5/20/2021 20:55	1.12	0.89	0.017
5/20/2021 20:50	1.16	1.12	0.022
5/20/2021 20:45	1.45	1.32	0.036
5/20/2021 20:40	1.45	1.24	0.034
5/20/2021 20:35	0.88	0.66	0.009
5/20/2021 20:30	0.87	0.66	0.009
5/20/2021 20:25	0.96	0.67	0.01

5/20/2021 20:20	0.92	0.73	0.01
5/20/2021 20:15	0.92	0.7	0.01
5/20/2021 20:10	1.03	0.91	0.015
5/20/2021 20:05	1.08	0.88	0.016
5/20/2021 20:00	1.18	1.04	0.021
5/20/2021 19:55	1.23	1.04	0.023
5/20/2021 19:50	0.87	0.78	0.01
5/20/2021 19:45	1.01	0.79	0.013
5/20/2021 19:40	1.1	0.79	0.015
5/20/2021 19:35	1.03	0.84	0.014
5/20/2021 19:30	1.17	0.92	0.019
5/20/2021 19:25	1.19	0.92	0.019
5/20/2021 19:20	1.25	0.91	0.02
5/20/2021 19:15	0.97	0.61	0.009
5/20/2021 19:10	0.92	0.64	0.009
5/20/2021 19:05	0.91	0.41	0.006
5/20/2021 19:00	1.04	0.62	0.01
5/20/2021 18:55	1.06	0.92	0.016
5/20/2021 18:50	0.97	0.88	0.014
5/20/2021 18:45	1.03	1.03	0.017
5/20/2021 18:40	1.14	0.98	0.019
5/20/2021 18:35	1.1	0.98	0.018
5/20/2021 18:30	0.92	0.69	0.01
5/20/2021 18:25	1.14	1.04	0.02
5/20/2021 18:20	1.2	1.04	0.022
5/20/2021 18:15	1.28	0.97	0.022
5/20/2021 18:10	1.29	1.1	0.026
5/20/2021 18:05	1.29	1.09	0.026
5/20/2021 18:00	0.9	0.89	0.012
5/20/2021 17:55	1.13	0.98	0.019
5/20/2021 17:50	1.12	1.03	0.02
5/20/2021 17:45	1.09	0.76	0.014
5/20/2021 17:40	0.81	0.62	0.007
5/20/2021 17:35	0.86	0.7	0.009
5/20/2021 17:30	0.86	0.82	0.011
5/20/2021 17:25	0.97	0.63	0.01
5/20/2021 17:20	0.98	0.77	0.012
5/20/2021 17:15	0.71	0.54	0.005
5/20/2021 17:10	1.32	0.54	0.013
5/20/2021 17:05	0.77	0.48	0.005
5/20/2021 17:00	1.29	0.48	0.011
5/20/2021 16:55	0.86	0.54	0.007
5/20/2021 16:50	0.94	0.92	0.014
5/20/2021 16:45	0.85	0.65	0.008

5/20/2021 16:40	1	0.68	0.011
5/20/2021 16:35	0.87	0.68	0.009
5/20/2021 16:30	0.85	0.67	0.009
5/20/2021 16:25	1.12	0.91	0.017
5/20/2021 16:20	0.88	0.82	0.011
5/20/2021 16:15	0.98	0.85	0.013
5/20/2021 16:10	1.03	0.79	0.013
5/20/2021 16:05	1.16	0.89	0.018
5/20/2021 16:00	1.24	0.83	0.018
5/20/2021 15:55	1.25	1.07	0.024
5/20/2021 15:50	1.28	1.07	0.025
5/20/2021 15:45	1.27	1.09	0.025
5/20/2021 15:40	1.22	1.12	0.024
5/20/2021 15:35	1.2	1.03	0.022
5/20/2021 15:30	1.03	0.85	0.014
5/20/2021 15:25	1.13	0.9	0.017
5/20/2021 15:20	1.04	0.9	0.015
5/20/2021 15:15	1.03	0.73	0.012
5/20/2021 15:10	1.11	0.91	0.017
5/20/2021 15:05	1.11	0.94	0.018
5/20/2021 15:00	1.14	0.99	0.019
5/20/2021 14:55	1.11	0.88	0.016
5/20/2021 14:50	1.07	0.89	0.016
5/20/2021 14:45	1.07	0.92	0.016
5/20/2021 14:40	1.06	0.9	0.016
5/20/2021 14:35	1.08	0.58	0.01
5/20/2021 14:30	1.15	0.42	0.008
5/20/2021 14:25	1.12	0.45	0.009
5/20/2021 14:20	1.12	0.47	0.009
5/20/2021 14:15	1.11	0.48	0.009
5/20/2021 14:10	0.8	0.64	0.007
5/20/2021 14:05	1.53	0.44	0.013
5/20/2021 14:00	0.87	0.59	0.008
5/20/2021 13:55	0.94	0.6	0.009
5/20/2021 13:50	0.9	0.61	0.008
5/20/2021 13:45	1.34	0.37	0.009
5/20/2021 13:40	0.68	0.4	0.004
5/20/2021 13:35	0.84	0.46	0.006
5/20/2021 13:30	1.13	0.42	0.008
5/20/2021 13:25	1.18	0.52	0.011
5/20/2021 13:20	0.84	0.43	0.005
5/20/2021 13:15	0.76	0.54	0.006
5/20/2021 13:10	1.06	0.46	0.008
5/20/2021 13:05	1.72	0.53	0.019

5/20/2021 13:00	0.87	0.7	0.009
5/20/2021 12:55	1.03	0.78	0.013
5/20/2021 12:50	0.99	0.75	0.012
5/20/2021 12:45	1.1	0.98	0.018
5/20/2021 12:40	1.12	0.98	0.019
5/20/2021 12:35	1.39	0.55	0.014
5/20/2021 12:30	0.82	0.63	0.008
5/20/2021 12:25	1.86	0.6	0.024
5/20/2021 12:20	1.73	0.61	0.022
5/20/2021 12:15	0.87	0.57	0.007
5/20/2021 12:10	0.99	0.6	0.009
5/20/2021 12:05	0.99	0.54	0.009
5/20/2021 12:00	1.05	0.59	0.01
5/20/2021 11:55	1.05	0.47	0.008
5/20/2021 11:50	1.06	0.47	0.008
5/20/2021 11:45	1.17	1.03	0.021
5/20/2021 11:40	0.76	0.47	0.005
5/20/2021 11:35	0.77	0.35	0.004
5/20/2021 11:30	0.76	0.35	0.004
5/20/2021 11:25	0.75	0.45	0.005
5/20/2021 11:20	0.95	0.57	0.009
5/20/2021 11:15	0.94	0.75	0.011
5/20/2021 11:10	0.95	0.81	0.012
5/20/2021 11:05	0.93	0.8	0.012
5/20/2021 11:00	0.92	0.81	0.012
5/20/2021 10:55	1.03	1.01	0.017
5/20/2021 10:50	1.22	0.98	0.021
5/20/2021 10:45	1.13	0.88	0.017
5/20/2021 10:40	1.14	0.93	0.018
5/20/2021 10:35	1.09	0.93	0.017
5/20/2021 10:30	1.11	0.93	0.017
5/20/2021 10:25	1.19	0.97	0.02
5/20/2021 10:20	1.24	1.08	0.024
5/20/2021 10:15	1.18	0.84	0.017
5/20/2021 10:10	1.21	0.98	0.021
5/20/2021 10:05	1.21	1.06	0.023
5/20/2021 10:00	1.12	0.89	0.017
5/20/2021 9:55	1.15	0.89	0.018
5/20/2021 9:50	1.2	0.78	0.016
5/20/2021 9:45	0.97	0.74	0.011
5/20/2021 9:40	0.98	0.73	0.011
5/20/2021 9:35	1	0.75	0.012
5/20/2021 9:30	0.99	0.88	0.014
5/20/2021 9:25	0.98	0.8	0.013

5/20/2021 9:20	1.02	0.79	0.013
5/20/2021 9:15	1.02	0.85	0.014
5/20/2021 9:10	1.02	0.92	0.015
5/20/2021 9:05	0.98	0.84	0.013
5/20/2021 9:00	1.02	0.87	0.014
5/20/2021 8:55	1.02	0.79	0.013
5/20/2021 8:50	0.93	0.75	0.011
5/20/2021 8:45	1.03	0.83	0.014
5/20/2021 8:40	1.19	0.95	0.02
5/20/2021 8:35	1.32	0.95	0.023
5/20/2021 8:30	1.47	1.34	0.038
5/20/2021 8:25	1.16	1.05	0.021
5/20/2021 8:20	1.09	0.88	0.016
5/20/2021 8:15	1.09	0.94	0.017
5/20/2021 8:10	0.83	0.64	0.008
5/20/2021 8:05	0.93	0.75	0.011
5/20/2021 8:00	1.02	0.84	0.014
5/20/2021 7:55	1.07	0.84	0.015
5/20/2021 7:50	1.04	0.71	0.012
5/20/2021 7:45	1.32	1.12	0.027
5/20/2021 7:40	1.33	1.12	0.027
5/20/2021 7:35	1.03	0.88	0.015
5/20/2021 7:30	1.03	0.55	0.009
5/20/2021 7:25	0.95	0.51	0.008
5/20/2021 7:20	1.14	0.73	0.014
5/20/2021 7:15	1.61	0.38	0.012
5/20/2021 7:10	1.1	0.35	0.006
5/20/2021 7:05	1.01	0.37	0.006
5/20/2021 7:00	1	0.37	0.006
5/20/2021 6:55	1.03	0.39	0.006
5/20/2021 6:50	1.04	0.36	0.006
5/20/2021 6:45	1.12	0.36	0.007
5/20/2021 6:40	1.18	0.36	0.007
5/20/2021 6:35	1.24	0.36	0.008
5/20/2021 6:30	0.91	0.32	0.004
5/20/2021 6:25	1.18	0.37	0.008
5/20/2021 6:20	1.32	0.44	0.011
5/20/2021 6:15	1.37	0.49	0.012
5/20/2021 6:10	1.56	0.51	0.016
5/20/2021 6:05	1.56	0.4	0.012
5/20/2021 6:00	1.55	0.43	0.013
5/20/2021 5:55	1.53	0.38	0.011
5/20/2021 5:50	1.44	0.42	0.012
5/20/2021 5:45	0.72	0.35	0.004

5/20/2021 5:40	1.36	0.25	0.006
5/20/2021 5:35	0.9	0.35	0.005
5/20/2021 5:30	0.96	0.54	0.008
5/20/2021 5:25	1.29	0.36	0.008
5/20/2021 5:20	0.75	0.36	0.004
5/20/2021 5:15	0.74	0.57	0.006
5/20/2021 5:10	1.53	0.38	0.011
5/20/2021 5:05	1.41	0.33	0.009
5/20/2021 5:00	1.21	0.32	0.007
5/20/2021 4:55	0.94	0.27	0.004
5/20/2021 4:50	0.94	0.27	0.004
5/20/2021 4:45	0.87	0.23	0.003
5/20/2021 4:40	0.98	0.23	0.004
5/20/2021 4:35	0.99	0.24	0.004
5/20/2021 4:30	1.06	0.28	0.005
5/20/2021 4:25	1.11	0.3	0.006
5/20/2021 4:20	1.35	0.3	0.007
5/20/2021 4:15	0.71	0.29	0.003
5/20/2021 4:10	1	0.27	0.004
5/20/2021 4:05	1	0.28	0.005
5/20/2021 4:00	1.11	0.31	0.006
5/20/2021 3:55	1.21	0	0
5/20/2021 3:50	1.19	0	0
5/20/2021 3:45	1.18	0	0
5/20/2021 3:40	1.18	0	0
5/20/2021 3:35	1.21	0	0
5/20/2021 3:30	1.23	0.35	0.008
5/20/2021 3:25	0.81	0.37	0.004
5/20/2021 3:20	0.73	0	0
5/20/2021 3:15	0.6	0.19	0.001
5/20/2021 3:10	0.76	0.2	0.002
5/20/2021 3:05	0.7	0.23	0.002
5/20/2021 3:00	0.81	0.24	0.003
5/20/2021 2:55	0.65	0.2	0.002
5/20/2021 2:50	0.67	0.19	0.002
5/20/2021 2:45	0.7	0.19	0.002
5/20/2021 2:40	0.68	0.19	0.002
5/20/2021 2:35	0.98	0.2	0.003
5/20/2021 2:30	0.85	0.24	0.003
5/20/2021 2:25	0.83	0.21	0.003
5/20/2021 2:20	1.19	0.2	0.004
5/20/2021 2:15	0.91	0	0
5/20/2021 2:10	0.87	0.25	0.003
5/20/2021 2:05	0.86	0.28	0.004

5/20/2021 2:00	0.88	0.3	0.004
5/20/2021 1:55	0.78	0.33	0.004
5/20/2021 1:50	1.48	0.34	0.01
5/20/2021 1:45	0.9	0.27	0.004
5/20/2021 1:40	0.91	0.31	0.004
5/20/2021 1:35	0.91	0.36	0.005
5/20/2021 1:30	0.95	0.22	0.003
5/20/2021 1:25	1.1	0.23	0.004
5/20/2021 1:20	0.87	0.23	0.003
5/20/2021 1:15	0.86	0.25	0.003
5/20/2021 1:10	0.89	0.25	0.003
5/20/2021 1:05	0.9	0.26	0.004
5/20/2021 1:00	0.89	0.28	0.004
5/20/2021 0:55	0.74	0	0
5/20/2021 0:50	0.73	0.19	0.002
5/20/2021 0:45	0.83	0.21	0.003
5/20/2021 0:40	0.87	0.23	0.003
5/20/2021 0:35	0.85	0.25	0.003
5/20/2021 0:30	1	0.26	0.004
5/20/2021 0:25	0.82	0.25	0.003
5/20/2021 0:20	0.8	0.23	0.003
5/20/2021 0:15	0.81	0.23	0.003
5/20/2021 0:10	0.83	0.25	0.003
5/20/2021 0:05	0.85	0.37	0.005
5/20/2021 0:00	0.99	0.3	0.005
5/19/2021 23:55	1.03	0.34	0.006
5/19/2021 23:50	1.15	0.32	0.006
5/19/2021 23:45	0.95	0.42	0.006
5/19/2021 23:40	0.99	0.3	0.005
5/19/2021 23:35	1.01	0.31	0.005
5/19/2021 23:30	1.07	0.3	0.005
5/19/2021 23:25	1.06	0.37	0.006
5/19/2021 23:20	1.03	0.31	0.005
5/19/2021 23:15	1.26	0.36	0.008
5/19/2021 23:10	1.54	0.36	0.011
5/19/2021 23:05	1.59	0.43	0.014
5/19/2021 23:00	1.58	0.44	0.014
5/19/2021 22:55	1.55	0.5	0.015
5/19/2021 22:50	1.56	0.5	0.015
5/19/2021 22:45	0.87	0.51	0.007
5/19/2021 22:40	1.41	0.6	0.016
5/19/2021 22:35	1.43	0.62	0.017
5/19/2021 22:30	0.88	0.47	0.006
5/19/2021 22:25	0.97	0.89	0.014

5/19/2021 22:20	1.05	0.89	0.015
5/19/2021 22:15	1.03	0.81	0.014
5/19/2021 22:10	0.98	0.88	0.014
5/19/2021 22:05	0.94	0.65	0.01
5/19/2021 22:00	0.96	0.7	0.011
5/19/2021 21:55	0.96	0.68	0.01
5/19/2021 21:50	0.93	0.66	0.01
5/19/2021 21:45	1.05	0.76	0.013
5/19/2021 21:40	1.13	0.86	0.017
5/19/2021 21:35	1.14	0.75	0.015
5/19/2021 21:30	0.95	0.77	0.012
5/19/2021 21:25	0.82	0.57	0.007
5/19/2021 21:20	0.81	0.59	0.007
5/19/2021 21:15	0.88	0.73	0.01
5/19/2021 21:10	0.95	0.79	0.012
5/19/2021 21:05	0.98	0.76	0.012
5/19/2021 21:00	0.93	0.73	0.011
5/19/2021 20:55	0.85	0.62	0.008
5/19/2021 20:50	0.82	0.45	0.005
5/19/2021 20:45	0.95	0.82	0.012
5/19/2021 20:40	0.96	0.76	0.012
5/19/2021 20:35	0.88	0.69	0.009
5/19/2021 20:30	1.23	0.41	0.009
5/19/2021 20:25	1.62	0.43	0.014
5/19/2021 20:20	1.1	0.86	0.016
5/19/2021 20:15	1.12	0.96	0.018
5/19/2021 20:10	1.25	0.99	0.022
5/19/2021 20:05	1.21	0.98	0.021
5/19/2021 20:00	1.15	1.1	0.022
5/19/2021 19:55	1.23	0.99	0.021
5/19/2021 19:50	1.28	0.94	0.022
5/19/2021 19:45	1.25	0.88	0.02
5/19/2021 19:40	1.27	0.87	0.02
5/19/2021 19:35	0.87	0.67	0.009
5/19/2021 19:30	0.97	0.92	0.014
5/19/2021 19:25	0.99	0.8	0.013
5/19/2021 19:20	0.99	0.64	0.01
5/19/2021 19:15	1.04	0.81	0.014
5/19/2021 19:10	1.28	1.25	0.029
5/19/2021 19:05	1.36	0.83	0.021
5/19/2021 19:00	1	0.82	0.013
5/19/2021 18:55	0.86	0.65	0.008
5/19/2021 18:50	0.85	0.69	0.009
5/19/2021 18:45	0.87	0.69	0.009

5/19/2021 18:40	0.86	0.7	0.009
5/19/2021 18:35	0.83	0.69	0.008
5/19/2021 18:30	1.2	0.91	0.019
5/19/2021 18:25	1.27	0.92	0.021
5/19/2021 18:20	0.92	0.7	0.01
5/19/2021 18:15	1.09	0.91	0.017
5/19/2021 18:10	1.16	0.88	0.017
5/19/2021 18:05	1.18	0.9	0.018
5/19/2021 18:00	0.98	0.86	0.014
5/19/2021 17:55	1.21	0.84	0.018
5/19/2021 17:50	1.31	1.02	0.025
5/19/2021 17:45	1.36	1.2	0.03
5/19/2021 17:40	0.94	0.63	0.009
5/19/2021 17:35	0.94	0.6	0.009
5/19/2021 17:30	0.95	0.76	0.011
5/19/2021 17:25	1.13	0.95	0.018
5/19/2021 17:20	1.09	0.96	0.018
5/19/2021 17:15	1.09	0.9	0.016
5/19/2021 17:10	1.02	0.56	0.009
5/19/2021 17:05	1.03	0.82	0.014
5/19/2021 17:00	0.89	0.62	0.008
5/19/2021 16:55	0.88	0.63	0.008
5/19/2021 16:50	0.89	0.73	0.01
5/19/2021 16:45	0.84	0.56	0.007
5/19/2021 16:40	1.63	0.54	0.018
5/19/2021 16:35	0.91	0.51	0.007
5/19/2021 16:30	0.95	0.64	0.009
5/19/2021 16:25	0.84	0.64	0.008
5/19/2021 16:20	0.84	0.62	0.008
5/19/2021 16:15	1.06	0.75	0.013
5/19/2021 16:10	0.87	0.62	0.008
5/19/2021 16:05	0.96	0.7	0.011
5/19/2021 16:00	1.12	1	0.019
5/19/2021 15:55	1.24	1.04	0.023
5/19/2021 15:50	1.26	1.01	0.023
5/19/2021 15:45	1.27	0.54	0.012
5/19/2021 15:40	1.69	0.58	0.02
5/19/2021 15:35	1.35	0.53	0.013
5/19/2021 15:30	1.5	0.66	0.019
5/19/2021 15:25	1.15	0.47	0.009
5/19/2021 15:20	1.13	0.49	0.009
5/19/2021 15:15	1.43	0.56	0.015
5/19/2021 15:10	1.54	0.58	0.017
5/19/2021 15:05	1.17	0.86	0.017

5/19/2021 15:00	0.82	0.41	0.005
5/19/2021 14:55	0.67	0.42	0.004
5/19/2021 14:50	0.78	0.54	0.006
5/19/2021 14:45	0.87	0.64	0.008
5/19/2021 14:40	1.06	0.67	0.012
5/19/2021 14:35	1.15	0.98	0.019
5/19/2021 14:30	1.13	0.84	0.016
5/19/2021 14:25	0.98	0.64	0.01
5/19/2021 14:20	1.03	0.64	0.011
5/19/2021 14:15	0.84	0.53	0.007
5/19/2021 14:10	0.83	0.52	0.006
5/19/2021 14:05	0.92	0.74	0.01
5/19/2021 14:00	0.92	0.71	0.01
5/19/2021 13:55	0.82	0.64	0.008
5/19/2021 13:50	0.74	0.65	0.007
5/19/2021 13:45	0.96	0.76	0.012
5/19/2021 13:40	0.95	0.83	0.013
5/19/2021 13:35	0.97	0.8	0.012
5/19/2021 13:30	1.04	0.83	0.014
5/19/2021 13:25	1.06	0.89	0.016
5/19/2021 13:20	1	0.99	0.016
5/19/2021 13:15	0.88	0.73	0.01
5/19/2021 13:10	1.19	0.82	0.017
5/19/2021 13:05	0.92	0.72	0.01
5/19/2021 13:00	0.87	0.64	0.008
5/19/2021 12:55	0.9	0.71	0.01
5/19/2021 12:50	0.83	0.82	0.01
5/19/2021 12:45	1	0.89	0.014
5/19/2021 12:40	1.03	0.94	0.016
5/19/2021 12:35	0.93	0.78	0.011
5/19/2021 12:30	0.85	0.78	0.01
5/19/2021 12:25	0.85	0.76	0.01
5/19/2021 12:20	0.84	0.41	0.005
5/19/2021 12:15	1.43	0.52	0.014
5/19/2021 12:10	0.9	0.7	0.01
5/19/2021 12:05	0.88	0.76	0.01
5/19/2021 12:00	0.92	0.89	0.013
5/19/2021 11:55	0.92	0.73	0.01
5/19/2021 11:50	0.93	0.73	0.011
5/19/2021 11:45	0.98	0.71	0.011
5/19/2021 11:40	0.87	0.61	0.008
5/19/2021 11:35	0.82	0.32	0.004
5/19/2021 11:30	1.05	0.69	0.012
5/19/2021 11:25	1.09	0.6	0.011

5/19/2021 11:20	1.54	0.37	0.011
5/19/2021 11:15	1.52	0.47	0.014
5/19/2021 11:10	1.5	0.39	0.011
5/19/2021 11:05	1.38	0.4	0.01
5/19/2021 11:00	1.4	0.42	0.011
5/19/2021 10:55	1.44	0.41	0.011
5/19/2021 10:50	1.05	0.98	0.017
5/19/2021 10:45	0.82	0.52	0.006
5/19/2021 10:40	0.88	0.57	0.008
5/19/2021 10:35	0.86	0.42	0.005
5/19/2021 10:30	0.95	0.42	0.006
5/19/2021 10:25	0.88	0.54	0.007
5/19/2021 10:20	0.96	0.87	0.013
5/19/2021 10:15	0.97	0.82	0.013
5/19/2021 10:10	0.99	0.44	0.007
5/19/2021 10:05	1.77	0.38	0.014
5/19/2021 10:00	2.05	0.48	0.022
5/19/2021 9:55	1.04	0.56	0.01
5/19/2021 9:50	0.84	0.64	0.008
5/19/2021 9:45	0.83	0.72	0.009
5/19/2021 9:40	0.9	0.71	0.01
5/19/2021 9:35	0.81	0.54	0.006
5/19/2021 9:30	0.88	0.57	0.008
5/19/2021 9:25	0.8	0.52	0.006
5/19/2021 9:20	0.84	0.52	0.006
5/19/2021 9:15	0.84	0.49	0.006
5/19/2021 9:10	0.72	0.48	0.005
5/19/2021 9:05	0.71	0.47	0.005
5/19/2021 9:00	1.63	0.53	0.018
5/19/2021 8:55	0.88	0.55	0.007
5/19/2021 8:50	0.81	0.5	0.006
5/19/2021 8:45	0.82	0.59	0.007
5/19/2021 8:40	0.8	0.46	0.005
5/19/2021 8:35	0.84	0.63	0.008
5/19/2021 8:30	0.85	0.72	0.009
5/19/2021 8:25	0.83	0.72	0.009
5/19/2021 8:20	0.92	0.6	0.009
5/19/2021 8:15	1	0.61	0.01
5/19/2021 8:10	0.84	0.63	0.008
5/19/2021 8:05	0.85	0.66	0.008
5/19/2021 8:00	1.02	0.77	0.013
5/19/2021 7:55	1.13	0.96	0.019
5/19/2021 7:50	0.92	0.67	0.01
5/19/2021 7:45	0.91	0.59	0.008

5/19/2021 7:40	0.81	0.58	0.007
5/19/2021 7:35	0.81	0.57	0.007
5/19/2021 7:30	0.87	0.69	0.009
5/19/2021 7:25	1.11	0.84	0.016
5/19/2021 7:20	1.13	0.35	0.007
5/19/2021 7:15	1.07	0.6	0.011
5/19/2021 7:10	1.08	0.61	0.011
5/19/2021 7:05	0.8	0.37	0.004
5/19/2021 7:00	1.3	0.68	0.016
5/19/2021 6:55	1	0.88	0.014
5/19/2021 6:50	0.75	0.42	0.005
5/19/2021 6:45	1.8	0.43	0.016
5/19/2021 6:40	0.76	0.53	0.006
5/19/2021 6:35	0.78	0.31	0.003
5/19/2021 6:30	0.89	0.47	0.006
5/19/2021 6:25	1.35	0.47	0.012
5/19/2021 6:20	0.83	0.38	0.005
5/19/2021 6:15	0.85	0.52	0.007
5/19/2021 6:10	0.79	0.42	0.005
5/19/2021 6:05	0.78	0.42	0.005
5/19/2021 6:00	0.96	0.38	0.006
5/19/2021 5:55	0.77	0.49	0.005
5/19/2021 5:50	0.84	0.7	0.009
5/19/2021 5:45	0.83	0.35	0.004
5/19/2021 5:40	1.27	0.35	0.008
5/19/2021 5:35	0.83	0.36	0.004
5/19/2021 5:30	0.82	0.37	0.005
5/19/2021 5:25	0.9	0.37	0.005
5/19/2021 5:20	0.87	0.37	0.005
5/19/2021 5:15	1.16	0.45	0.009
5/19/2021 5:10	0.89	0.49	0.007
5/19/2021 5:05	0.96	0.34	0.005
5/19/2021 5:00	1.04	0.4	0.007
5/19/2021 4:55	0.79	0.4	0.005
5/19/2021 4:50	0.78	0.4	0.005
5/19/2021 4:45	0.94	0.34	0.005
5/19/2021 4:40	0.94	0.65	0.01
5/19/2021 4:35	0.98	0.17	0.003
5/19/2021 4:30	0.98	0.27	0.004
5/19/2021 4:25	0.98	0.3	0.005
5/19/2021 4:20	0.98	0.24	0.004
5/19/2021 4:15	0.97	0.35	0.005
5/19/2021 4:10	0.97	0.25	0.004
5/19/2021 4:05	0.82	0.26	0.003

5/19/2021 4:00	0.79	0.32	0.004
5/19/2021 3:55	0.78	0.33	0.004
5/19/2021 3:50	0.76	0.31	0.003
5/19/2021 3:45	0.73	0.3	0.003
5/19/2021 3:40	0.99	0	0
5/19/2021 3:35	0.98	0	0
5/19/2021 3:30	0.99	0	0
5/19/2021 3:25	1	0	0
5/19/2021 3:20	1	0	0
5/19/2021 3:15	1.01	0	0
5/19/2021 3:10	1.01	0.19	0.003
5/19/2021 3:05	1	0	0
5/19/2021 3:00	1.01	0	0
5/19/2021 2:55	1.01	0	0
5/19/2021 2:50	1.01	0	0
5/19/2021 2:45	1.02	0	0
5/19/2021 2:40	1.03	0.57	0.01
5/19/2021 2:35	1.04	0.59	0.01
5/19/2021 2:30	1.05	0.61	0.01
5/19/2021 2:25	1.05	0.61	0.01
5/19/2021 2:20	1.04	0.6	0.01
5/19/2021 2:15	1	0.51	0.008
5/19/2021 2:10	0.88	0.23	0.003
5/19/2021 2:05	0.89	0.35	0.005
5/19/2021 2:00	0.85	0.37	0.005
5/19/2021 1:55	0.65	0.33	0.003
5/19/2021 1:50	0.89	0.15	0.002
5/19/2021 1:45	0.92	0.31	0.004
5/19/2021 1:40	1.27	0.31	0.007
5/19/2021 1:35	0.78	0.28	0.003
5/19/2021 1:30	0.86	0.21	0.003
5/19/2021 1:25	0.89	0.21	0.003
5/19/2021 1:20	0.93	0.23	0.003
5/19/2021 1:15	0.85	0.24	0.003
5/19/2021 1:10	0.76	0.3	0.003
5/19/2021 1:05	0.89	0.29	0.004
5/19/2021 1:00	0.74	0.29	0.003
5/19/2021 0:55	0.86	0.27	0.004
5/19/2021 0:50	0.81	0.26	0.003
5/19/2021 0:45	0.82	0.3	0.004
5/19/2021 0:40	0.78	0.26	0.003
5/19/2021 0:35	0.74	0.26	0.003
5/19/2021 0:30	0.75	0.36	0.004
5/19/2021 0:25	0.76	0.59	0.006

5/19/2021 0:20	0.9	0.59	0.008
5/19/2021 0:15	0.98	0.24	0.004
5/19/2021 0:10	0.96	0.42	0.006
5/19/2021 0:05	0.93	0.45	0.007
5/19/2021 0:00	0.85	0.62	0.008
5/18/2021 23:55	0.85	0.66	0.008
5/18/2021 23:50	0.85	0.8	0.01
5/18/2021 23:45	0.9	0.63	0.009
5/18/2021 23:40	0.82	0.56	0.007
5/18/2021 23:35	0.85	0.57	0.007
5/18/2021 23:30	0.82	0.73	0.009
5/18/2021 23:25	0.83	0.67	0.008
5/18/2021 23:20	0.84	0.8	0.01
5/18/2021 23:15	1.07	1.01	0.018
5/18/2021 23:10	1.09	0.92	0.017
5/18/2021 23:05	1.07	0.85	0.015
5/18/2021 23:00	1.17	1.09	0.022
5/18/2021 22:55	1.09	1.05	0.019
5/18/2021 22:50	1.08	1.07	0.019
5/18/2021 22:45	1.07	0.85	0.015
5/18/2021 22:40	1.01	0.99	0.016
5/18/2021 22:35	1.19	1.02	0.021
5/18/2021 22:30	1.24	1.13	0.025
5/18/2021 22:25	0.95	0.89	0.013
5/18/2021 22:20	0.91	0.7	0.01
5/18/2021 22:15	0.97	0.81	0.013
5/18/2021 22:10	1.24	1.09	0.024
5/18/2021 22:05	0.9	0.9	0.012
5/18/2021 22:00	1.08	0.83	0.015
5/18/2021 21:55	1.12	1.08	0.021
5/18/2021 21:50	1.06	0.87	0.015
5/18/2021 21:45	1.25	1.21	0.027
5/18/2021 21:40	1.28	1.22	0.028
5/18/2021 21:35	1	0.83	0.013
5/18/2021 21:30	0.85	0.68	0.009
5/18/2021 21:25	0.88	0.85	0.011
5/18/2021 21:20	0.92	0.86	0.012
5/18/2021 21:15	1.01	0.8	0.013
5/18/2021 21:10	1.04	0.81	0.014
5/18/2021 21:05	1.09	0.95	0.017
5/18/2021 21:00	1.16	0.93	0.019
5/18/2021 20:55	1.23	0.92	0.02
5/18/2021 20:50	1.29	1.34	0.031
5/18/2021 20:45	1.23	0.98	0.021

5/18/2021 20:40	1.29	0.98	0.023
5/18/2021 20:35	1.3	0.9	0.021
5/18/2021 20:30	1.24	1.1	0.024
5/18/2021 20:25	1.08	1.05	0.019
5/18/2021 20:20	1.19	1.05	0.022
5/18/2021 20:15	0.9	0.77	0.011
5/18/2021 20:10	0.94	0.89	0.013
5/18/2021 20:05	0.95	0.89	0.013
5/18/2021 20:00	0.99	0.9	0.014
5/18/2021 19:55	0.88	0.64	0.009
5/18/2021 19:50	0.93	0.76	0.011
5/18/2021 19:45	0.95	0.88	0.013
5/18/2021 19:40	1.02	0.83	0.014
5/18/2021 19:35	1.03	0.86	0.015
5/18/2021 19:30	1.09	0.9	0.016
5/18/2021 19:25	1.1	0.76	0.014
5/18/2021 19:20	0.91	0.78	0.011
5/18/2021 19:15	1.13	0.91	0.018
5/18/2021 19:10	1.27	0.86	0.02
5/18/2021 19:05	1.38	0.34	0.009
5/18/2021 19:00	1.1	0.9	0.017
5/18/2021 18:55	0.96	0.77	0.012
5/18/2021 18:50	0.9	0.7	0.01
5/18/2021 18:45	0.9	0.68	0.009
5/18/2021 18:40	0.9	0.63	0.009
5/18/2021 18:35	0.94	0.82	0.012
5/18/2021 18:30	0.94	0.68	0.01
5/18/2021 18:25	0.97	0.72	0.011
5/18/2021 18:20	0.98	0.74	0.012
5/18/2021 18:15	0.99	0.83	0.013
5/18/2021 18:10	0.99	0.74	0.012
5/18/2021 18:05	1.01	0.82	0.013
5/18/2021 18:00	1	0.86	0.014
5/18/2021 17:55	1.38	1.23	0.032
5/18/2021 17:50	1.03	0.78	0.013
5/18/2021 17:45	1.24	1.1	0.024
5/18/2021 17:40	1.29	1.24	0.029
5/18/2021 17:35	1.03	0.76	0.013
5/18/2021 17:30	1.18	1.02	0.021
5/18/2021 17:25	1.22	1.06	0.023
5/18/2021 17:20	1.2	1.08	0.023
5/18/2021 17:15	1.2	0.98	0.021
5/18/2021 17:10	1.25	0.98	0.022
5/18/2021 17:05	1.51	2	0.059

5/18/2021 17:00	1.64	0.57	0.019
5/18/2021 16:55	0.97	0.62	0.01
5/18/2021 16:50	0.85	0.66	0.008
5/18/2021 16:45	0.78	0.62	0.007
5/18/2021 16:40	0.78	0.61	0.007
5/18/2021 16:35	1.27	0.61	0.014
5/18/2021 16:30	1.28	0.61	0.014
5/18/2021 16:25	1.28	0.56	0.013
5/18/2021 16:20	1.41	0.81	0.021
5/18/2021 16:15	1.03	0.84	0.014
5/18/2021 16:10	1.02	0.41	0.007
5/18/2021 16:05	1.08	0.5	0.009
5/18/2021 16:00	1.07	0.51	0.009
5/18/2021 15:55	1	0.59	0.01
5/18/2021 15:50	1.01	0.86	0.014
5/18/2021 15:45	1.23	0.9	0.02
5/18/2021 15:40	0.81	0.8	0.01
5/18/2021 15:35	0.86	0.75	0.01
5/18/2021 15:30	0.83	0.92	0.011
5/18/2021 15:25	0.76	0.59	0.006
5/18/2021 15:20	0.8	0.68	0.008
5/18/2021 15:15	0.86	0.96	0.012
5/18/2021 15:10	0.87	0.94	0.012
5/18/2021 15:05	0.77	0.6	0.007
5/18/2021 15:00	0.78	0.82	0.009
5/18/2021 14:55	0.83	0.82	0.01
5/18/2021 14:50	0.82	0.82	0.01
5/18/2021 14:45	0.94	0.85	0.012
5/18/2021 14:40	0.77	0.67	0.007
5/18/2021 14:35	0.77	0.71	0.008
5/18/2021 14:30	0.75	0.52	0.006
5/18/2021 14:25	0.74	0.53	0.005
5/18/2021 14:20	0.76	0.65	0.007
5/18/2021 14:15	0.75	0.51	0.005
5/18/2021 14:10	0.72	0.54	0.005
5/18/2021 14:05	0.71	0.56	0.006
5/18/2021 14:00	0.77	0.44	0.005
5/18/2021 13:55	0.77	0.63	0.007
5/18/2021 13:50	0.78	0.64	0.007
5/18/2021 13:45	0.81	0.67	0.008
5/18/2021 13:40	0.83	0.65	0.008
5/18/2021 13:35	0.88	0.68	0.009
5/18/2021 13:30	0.92	0.81	0.012
5/18/2021 13:25	0.97	0.87	0.013

5/18/2021 13:20	0.97	0.8	0.012
5/18/2021 13:15	0.83	0.77	0.01
5/18/2021 13:10	0.95	0.93	0.014
5/18/2021 13:05	0.87	0.85	0.011
5/18/2021 13:00	0.74	0.52	0.005
5/18/2021 12:55	0.69	0.43	0.004
5/18/2021 12:50	0.79	0.64	0.007
5/18/2021 12:45	0.81	0.73	0.009
5/18/2021 12:40	0.81	0.81	0.01
5/18/2021 12:35	0.77	0.56	0.006
5/18/2021 12:30	0.79	0.56	0.006
5/18/2021 12:25	0.84	0.7	0.009
5/18/2021 12:20	0.77	0.65	0.007
5/18/2021 12:15	0.78	0.62	0.007
5/18/2021 12:10	0.8	0.62	0.007
5/18/2021 12:05	0.8	0.54	0.006
5/18/2021 12:00	0.81	0.78	0.009
5/18/2021 11:55	0.8	0.44	0.005
5/18/2021 11:50	0.83	0.83	0.01
5/18/2021 11:45	0.91	0.68	0.01
5/18/2021 11:40	0.96	0.86	0.013
5/18/2021 11:35	0.88	0.8	0.011
5/18/2021 11:30	1.07	0.94	0.017
5/18/2021 11:25	0.82	0.63	0.008
5/18/2021 11:20	0.84	0.65	0.008
5/18/2021 11:15	0.83	0.55	0.007
5/18/2021 11:10	0.93	0.77	0.011
5/18/2021 11:05	0.92	0.91	0.013
5/18/2021 11:00	0.81	0.61	0.007
5/18/2021 10:55	0.86	0.49	0.006
5/18/2021 10:50	0.91	0.54	0.008
5/18/2021 10:45	0.77	0.49	0.005
5/18/2021 10:40	0.81	0.55	0.006
5/18/2021 10:35	0.86	0.64	0.008
5/18/2021 10:30	0.88	0.81	0.011
5/18/2021 10:25	0.79	0.62	0.007
5/18/2021 10:20	0.85	0.68	0.009
5/18/2021 10:15	0.74	0.53	0.006
5/18/2021 10:10	0.83	0.53	0.006
5/18/2021 10:05	0.88	0.4	0.005
5/18/2021 10:00	0.96	0.45	0.007
5/18/2021 9:55	0.79	0.62	0.007
5/18/2021 9:50	0.79	1.05	0.012
5/18/2021 9:45	0.79	0.71	0.008

5/18/2021 9:40	0.79	0.55	0.006
5/18/2021 9:35	0.78	0.33	0.004
5/18/2021 9:30	0.79	0.31	0.003
5/18/2021 9:25	1.68	0.31	0.01
5/18/2021 9:20	0.88	0.37	0.005
5/18/2021 9:15	0.84	0.49	0.006
5/18/2021 9:10	0.82	0.56	0.007
5/18/2021 9:05	0.81	0.49	0.006
5/18/2021 9:00	0.77	0.47	0.005
5/18/2021 8:55	0.74	0.43	0.004
5/18/2021 8:50	0.74	0.26	0.003
5/18/2021 8:45	1.12	0.47	0.009
5/18/2021 8:40	1.21	0.39	0.008
5/18/2021 8:35	1.08	0.38	0.007
5/18/2021 8:30	1.59	0.32	0.01
5/18/2021 8:25	0.88	0.33	0.004
5/18/2021 8:20	0.97	0.56	0.009
5/18/2021 8:15	1.04	0.47	0.008
5/18/2021 8:10	0.89	0.47	0.006
5/18/2021 8:05	0.83	0.49	0.006
5/18/2021 8:00	0.84	0.66	0.008
5/18/2021 7:55	0.79	0.59	0.007
5/18/2021 7:50	0.8	0.42	0.005
5/18/2021 7:45	1.02	0.71	0.012
5/18/2021 7:40	0.86	0.71	0.009
5/18/2021 7:35	0.83	0.68	0.008
5/18/2021 7:30	0.86	0.75	0.01
5/18/2021 7:25	1.56	0.54	0.017
5/18/2021 7:20	0.82	0.54	0.007
5/18/2021 7:15	0.66	0.47	0.004
5/18/2021 7:10	0.91	0.43	0.006
5/18/2021 7:05	0.83	0.55	0.007
5/18/2021 7:00	0.82	0.74	0.009
5/18/2021 6:55	0.87	0.73	0.01
5/18/2021 6:50	0.94	0.71	0.011
5/18/2021 6:45	0.84	0.65	0.008
5/18/2021 6:40	1.22	0.55	0.012
5/18/2021 6:35	0.86	0.51	0.007
5/18/2021 6:30	0.81	0.56	0.007
5/18/2021 6:25	0.81	1.09	0.013
5/18/2021 6:20	0.83	0.56	0.007
5/18/2021 6:15	0.75	0.54	0.006
5/18/2021 6:10	1.04	0.42	0.007
5/18/2021 6:05	1.04	0.3	0.005

5/18/2021 6:00	1.04	0.37	0.006
5/18/2021 5:55	1.01	0.37	0.006
5/18/2021 5:50	1.02	0.39	0.006
5/18/2021 5:45	1.02	0.38	0.006
5/18/2021 5:40	1.52	0.44	0.013
5/18/2021 5:35	1.03	0.43	0.007
5/18/2021 5:30	1.04	0.43	0.007
5/18/2021 5:25	1.03	0.43	0.007
5/18/2021 5:20	1.04	0.42	0.007
5/18/2021 5:15	1.02	0.46	0.008
5/18/2021 5:10	1.01	0.44	0.007
5/18/2021 5:05	0.98	0.37	0.006
5/18/2021 5:00	0.97	0.38	0.006
5/18/2021 4:55	1.4	0.41	0.011
5/18/2021 4:50	1.17	0.54	0.011
5/18/2021 4:45	1.08	0.59	0.011
5/18/2021 4:40	1.07	0.64	0.011
5/18/2021 4:35	1	0.38	0.006
5/18/2021 4:30	1.02	0.53	0.009
5/18/2021 4:25	1.03	0.39	0.006
5/18/2021 4:20	1.03	0.4	0.007
5/18/2021 4:15	1.02	0.4	0.007
5/18/2021 4:10	1.01	0.39	0.006
5/18/2021 4:05	1	0.39	0.006
5/18/2021 4:00	0.98	0.41	0.006
5/18/2021 3:55	0.99	0.41	0.007
5/18/2021 3:50	1	0.46	0.007
5/18/2021 3:45	0.99	0.41	0.007
5/18/2021 3:40	0.99	0.42	0.007
5/18/2021 3:35	0.99	0.52	0.008
5/18/2021 3:30	1.01	0.51	0.008
5/18/2021 3:25	1.1	0.52	0.01
5/18/2021 3:20	1.09	0.38	0.007
5/18/2021 3:15	1.02	0.42	0.007
5/18/2021 3:10	1.08	0.46	0.008
5/18/2021 3:05	1.08	0.4	0.007
5/18/2021 3:00	1.08	0.41	0.007
5/18/2021 2:55	1.07	0.41	0.007
5/18/2021 2:50	1.05	0.41	0.007
5/18/2021 2:45	1.02	0.42	0.007
5/18/2021 2:40	1.01	0.44	0.007
5/18/2021 2:35	1.02	0.45	0.008
5/18/2021 2:30	1.06	0.5	0.009
5/18/2021 2:25	1.09	0.44	0.008

5/18/2021 2:20	1.02	0.45	0.007
5/18/2021 2:15	1	0.52	0.008
5/18/2021 2:10	1.02	0.45	0.007
5/18/2021 2:05	1.14	0.44	0.009
5/18/2021 2:00	1.04	0.41	0.007
5/18/2021 1:55	1	0.43	0.007
5/18/2021 1:50	0.97	0.45	0.007
5/18/2021 1:45	0.99	0.33	0.005
5/18/2021 1:40	0.99	0.35	0.006
5/18/2021 1:35	0.96	0.32	0.005
5/18/2021 1:30	0.96	0.27	0.004
5/18/2021 1:25	0.98	0.23	0.004
5/18/2021 1:20	1.02	0.34	0.006
5/18/2021 1:15	0.94	0.35	0.005
5/18/2021 1:10	0.95	0.43	0.006
5/18/2021 1:05	0.96	0.34	0.005
5/18/2021 1:00	0.97	0.34	0.005
5/18/2021 0:55	0.96	0.31	0.005
5/18/2021 0:50	0.99	0.39	0.006
5/18/2021 0:45	0.99	0.48	0.008
5/18/2021 0:40	0.95	0.42	0.006
5/18/2021 0:35	0.99	0.45	0.007
5/18/2021 0:30	0.97	0.44	0.007
5/18/2021 0:25	0.93	0.49	0.007
5/18/2021 0:20	1.06	0.39	0.007
5/18/2021 0:15	1.07	0.4	0.007
5/18/2021 0:10	1.02	0.47	0.008
5/18/2021 0:05	0.98	0.48	0.008
5/18/2021 0:00	0.98	0.94	0.015
5/17/2021 23:55	0.92	0.79	0.011
5/17/2021 23:50	0.92	0.8	0.012
5/17/2021 23:45	0.93	0.66	0.01
5/17/2021 23:40	1.22	0.51	0.011
5/17/2021 23:35	1.2	0.46	0.01
5/17/2021 23:30	0.86	0.72	0.009
5/17/2021 23:25	0.8	0.63	0.007
5/17/2021 23:20	0.82	0.66	0.008
5/17/2021 23:15	1.6	0.61	0.019
5/17/2021 23:10	0.81	0.49	0.006
5/17/2021 23:05	0.78	0.51	0.006
5/17/2021 23:00	0.8	0.44	0.005
5/17/2021 22:55	0.8	0.59	0.007
5/17/2021 22:50	0.84	0.43	0.005
5/17/2021 22:45	0.85	0.73	0.009

5/17/2021 22:40	1.07	0.9	0.016
5/17/2021 22:35	1.07	0.92	0.016
5/17/2021 22:30	1.07	0.93	0.017
5/17/2021 22:25	0.96	0.93	0.014
5/17/2021 22:20	0.96	0.73	0.011
5/17/2021 22:15	1.01	0.76	0.012
5/17/2021 22:10	1.04	0.72	0.012
5/17/2021 22:05	1.17	0.96	0.019
5/17/2021 22:00	1.16	1.04	0.021
5/17/2021 21:55	1.09	1.03	0.019
5/17/2021 21:50	1.05	0.78	0.014
5/17/2021 21:45	1.15	0.84	0.017
5/17/2021 21:40	1.09	0.78	0.014
5/17/2021 21:35	1.2	0.98	0.021
5/17/2021 21:30	1.14	0.94	0.018
5/17/2021 21:25	1.38	1.15	0.03
5/17/2021 21:20	0.99	0.92	0.015
5/17/2021 21:15	1.05	0.93	0.016
5/17/2021 21:10	1.07	0.93	0.017
5/17/2021 21:05	1.18	1.04	0.021
5/17/2021 21:00	1.05	0.89	0.015
5/17/2021 20:55	1.05	0.86	0.015
5/17/2021 20:50	1.11	0.9	0.017
5/17/2021 20:45	1.1	0.91	0.017
5/17/2021 20:40	1.04	0.8	0.014
5/17/2021 20:35	1.04	0.85	0.015
5/17/2021 20:30	1.06	0.89	0.016
5/17/2021 20:25	1.02	0.78	0.013
5/17/2021 20:20	1.05	0.86	0.015
5/17/2021 20:15	1.08	0.87	0.016
5/17/2021 20:10	1.08	0.94	0.017
5/17/2021 20:05	1.08	0.94	0.017
5/17/2021 20:00	1.21	0.99	0.021
5/17/2021 19:55	1.2	1.01	0.021
5/17/2021 19:50	1.03	0.87	0.015
5/17/2021 19:45	1.01	0.76	0.012
5/17/2021 19:40	1.01	0.76	0.012
5/17/2021 19:35	0.86	0.59	0.008
5/17/2021 19:30	0.88	0.81	0.011
5/17/2021 19:25	0.86	0.59	0.008
5/17/2021 19:20	0.86	0.73	0.009
5/17/2021 19:15	0.82	0.69	0.008
5/17/2021 19:10	0.96	0.71	0.011
5/17/2021 19:05	1.13	0.96	0.018

5/17/2021 19:00	0.95	0.71	0.011
5/17/2021 18:55	1.12	0.86	0.017
5/17/2021 18:50	1.36	1.22	0.031
5/17/2021 18:45	1.41	1.25	0.033
5/17/2021 18:40	0.97	0.79	0.012
5/17/2021 18:35	1.04	0.87	0.015
5/17/2021 18:30	1.17	1.02	0.021
5/17/2021 18:25	1.36	1.29	0.033
5/17/2021 18:20	1.15	0.99	0.02
5/17/2021 18:15	1	0.94	0.015
5/17/2021 18:10	1.06	0.87	0.015
5/17/2021 18:05	1.03	0.87	0.015
5/17/2021 18:00	1.12	0.95	0.018
5/17/2021 17:55	1.13	0.74	0.014
5/17/2021 17:50	0.97	0.42	0.007
5/17/2021 17:45	1.03	0.65	0.011
5/17/2021 17:40	1.1	0.47	0.009
5/17/2021 17:35	1.13	1.19	0.023
5/17/2021 17:30	0.94	1.07	0.016
5/17/2021 17:25	0.9	0.7	0.01
5/17/2021 17:20	0.93	0.76	0.011
5/17/2021 17:15	0.96	0.84	0.013
5/17/2021 17:10	1.06	0.89	0.016
5/17/2021 17:05	1.25	1.04	0.023
5/17/2021 17:00	1.28	0.82	0.019
5/17/2021 16:55	1.29	0.95	0.022
5/17/2021 16:50	1.3	1.29	0.03
5/17/2021 16:45	1.06	0.93	0.016
5/17/2021 16:40	1.04	0.84	0.014
5/17/2021 16:35	1.05	0.94	0.016
5/17/2021 16:30	0.91	0.71	0.01
5/17/2021 16:25	0.92	0.71	0.01
5/17/2021 16:20	0.89	0.71	0.01
5/17/2021 16:15	1.01	0.86	0.014
5/17/2021 16:10	1.08	1.05	0.019
5/17/2021 16:05	0.92	0.72	0.01
5/17/2021 16:00	0.99	0.84	0.013
5/17/2021 15:55	0.99	0.84	0.013
5/17/2021 15:50	1.06	0.83	0.015
5/17/2021 15:45	1.07	0.96	0.017
5/17/2021 15:40	1.03	0.85	0.014
5/17/2021 15:35	1.11	0.82	0.015
5/17/2021 15:30	1.29	0.87	0.02
5/17/2021 15:25	1.41	0.74	0.02

5/17/2021 15:20	1.46	0.74	0.021
5/17/2021 15:15	1.36	0.74	0.019
5/17/2021 15:10	1.3	0.76	0.018
5/17/2021 15:05	1.06	0.61	0.011
5/17/2021 15:00	1.13	0.48	0.009
5/17/2021 14:55	1.24	0.6	0.013
5/17/2021 14:50	1.3	0.75	0.018
5/17/2021 14:45	1.38	0.78	0.02
5/17/2021 14:40	1.41	0.83	0.022
5/17/2021 14:35	1.14	0.65	0.013
5/17/2021 14:30	1.28	0.67	0.015
5/17/2021 14:25	1.41	0.8	0.021
5/17/2021 14:20	1.25	0.81	0.018
5/17/2021 14:15	1.06	0.78	0.014
5/17/2021 14:10	0.87	0.72	0.01
5/17/2021 14:05	0.93	0.79	0.012
5/17/2021 14:00	1.02	0.79	0.013
5/17/2021 13:55	0.96	0.78	0.012
5/17/2021 13:50	1.02	0.97	0.016
5/17/2021 13:45	1.04	0.98	0.017
5/17/2021 13:40	0.98	0.87	0.014
5/17/2021 13:35	0.96	0.79	0.012
5/17/2021 13:30	0.93	0.81	0.012
5/17/2021 13:25	0.88	0.73	0.01
5/17/2021 13:20	0.86	0.47	0.006
5/17/2021 13:15	1.05	0.98	0.017
5/17/2021 13:10	0.97	0.91	0.014
5/17/2021 13:05	0.93	0.76	0.011
5/17/2021 13:00	0.93	0.76	0.011
5/17/2021 12:55	0.84	0.66	0.008
5/17/2021 12:50	1	0.84	0.014
5/17/2021 12:45	1.01	0.81	0.013
5/17/2021 12:40	1.11	0.81	0.015
5/17/2021 12:35	1.16	0.92	0.018
5/17/2021 12:30	1.33	1.31	0.032
5/17/2021 12:25	1.16	0.7	0.014
5/17/2021 12:20	0.85	0.7	0.009
5/17/2021 12:15	0.87	0.49	0.006
5/17/2021 12:10	0.86	0.71	0.009
5/17/2021 12:05	0.87	0.73	0.01
5/17/2021 12:00	0.96	0.73	0.011
5/17/2021 11:55	1.04	0.74	0.013
5/17/2021 11:50	1.09	0.92	0.017
5/17/2021 11:45	0.99	0.8	0.013

5/17/2021 11:40	1.17	0.91	0.018
5/17/2021 11:35	1.12	0.88	0.017
5/17/2021 11:30	1.35	1.12	0.028
5/17/2021 11:25	1.06	0.98	0.017
5/17/2021 11:20	0.99	0.92	0.015
5/17/2021 11:15	1.19	0.55	0.012
5/17/2021 11:10	1.23	0.71	0.015
5/17/2021 11:05	0.78	0.55	0.006
5/17/2021 11:00	0.82	0.53	0.006
5/17/2021 10:55	0.85	0.54	0.007

18 inch line

DateTime	Depth	Velocity	Flow
M/d/yyyy h:mm:ss tt	**"inches"**	**"feet/sec"**	**"MGD"**
6/3/2021 9:55	1.24	1.94	0.066
6/3/2021 9:50	3.45	1.64	0.247
6/3/2021 9:45	3.53	1.66	0.258
6/3/2021 9:40	3.55	1.65	0.259
6/3/2021 9:35	3.51	1.66	0.256
6/3/2021 9:30	3.56	1.72	0.271
6/3/2021 9:25	3.45	1.61	0.243
6/3/2021 9:20	3.47	1.64	0.249
6/3/2021 9:15	3.49	1.64	0.25
6/3/2021 9:10	3.48	1.66	0.253
6/3/2021 9:05	3.53	1.67	0.261
6/3/2021 9:00	3.5	1.59	0.244
6/3/2021 8:55	3.56	1.63	0.257
6/3/2021 8:50	3.66	1.72	0.282
6/3/2021 8:45	3.71	1.8	0.302
6/3/2021 8:40	3.57	1.65	0.261
6/3/2021 8:35	3.58	1.69	0.268
6/3/2021 8:30	3.58	1.7	0.269
6/3/2021 8:25	3.46	1.62	0.244
6/3/2021 8:20	3.45	1.63	0.245
6/3/2021 8:15	3.45	1.61	0.242
6/3/2021 8:10	3.45	1.79	0.269
6/3/2021 8:05	3.51	1.6	0.247
6/3/2021 8:00	3.51	1.61	0.249
6/3/2021 7:55	3.58	1.66	0.263
6/3/2021 7:50	3.55	1.67	0.263
6/3/2021 7:45	3.42	1.62	0.241
6/3/2021 7:40	3.41	1.62	0.24
6/3/2021 7:35	3.35	1.56	0.225
6/3/2021 7:30	3.27	1.48	0.206
6/3/2021 7:25	3.26	1.52	0.211
6/3/2021 7:20	3.28	1.53	0.214
6/3/2021 7:15	3.26	1.49	0.207
6/3/2021 7:10	3.24	1.53	0.211
6/3/2021 7:05	3.25	1.57	0.217
6/3/2021 7:00	3.2	1.56	0.212
6/3/2021 6:55	3.21	1.58	0.215
6/3/2021 6:50	3.09	1.48	0.19
6/3/2021 6:45	3	1.42	0.175
6/3/2021 6:40	2.97	1.42	0.173
6/3/2021 6:35	2.97	1.29	0.156
6/3/2021 6:30	2.98	1.44	0.175
6/3/2021 6:25	2.9	1.43	0.167
6/3/2021 6:20	2.88	1.4	0.162

6/3/2021 6:15	2.79	1.34	0.149
6/3/2021 6:10	2.75	1.32	0.144
6/3/2021 6:05	2.68	1.24	0.13
6/3/2021 6:00	2.69	1.25	0.131
6/3/2021 5:55	2.65	1.24	0.128
6/3/2021 5:50	2.49	1.13	0.106
6/3/2021 5:45	2.42	1.1	0.099
6/3/2021 5:40	2.42	1.12	0.101
6/3/2021 5:35	2.4	1.11	0.099
6/3/2021 5:30	2.37	1.07	0.094
6/3/2021 5:25	2.37	1.14	0.1
6/3/2021 5:20	2.25	1.09	0.088
6/3/2021 5:15	2.19	1.02	0.079
6/3/2021 5:10	2.17	1	0.077
6/3/2021 5:05	2.19	1.04	0.081
6/3/2021 5:00	2.16	1.01	0.077
6/3/2021 4:55	2.13	0.96	0.072
6/3/2021 4:50	2.11	0.96	0.071
6/3/2021 4:45	2.11	0.98	0.072
6/3/2021 4:40	2.11	0.98	0.072
6/3/2021 4:35	2.09	0.98	0.071
6/3/2021 4:30	2.08	0.99	0.072
6/3/2021 4:25	2.07	0.99	0.071
6/3/2021 4:20	2.06	0.9	0.064
6/3/2021 4:15	2.04	0.88	0.062
6/3/2021 4:10	2.08	1.03	0.074
6/3/2021 4:05	2.01	0.86	0.059
6/3/2021 4:00	2.03	0.92	0.064
6/3/2021 3:55	2.03	0.92	0.064
6/3/2021 3:50	2.01	0.92	0.063
6/3/2021 3:45	1.99	0.93	0.063
6/3/2021 3:40	2	0.92	0.063
6/3/2021 3:35	1.98	0.93	0.062
6/3/2021 3:30	1.98	0.91	0.061
6/3/2021 3:25	1.99	0.91	0.062
6/3/2021 3:20	2.01	0.91	0.062
6/3/2021 3:15	2.02	0.94	0.066
6/3/2021 3:10	2.07	0.95	0.068
6/3/2021 3:05	2.09	0.95	0.069
6/3/2021 3:00	2.06	0.95	0.068
6/3/2021 2:55	2.06	0.96	0.069
6/3/2021 2:50	2.05	0.93	0.066
6/3/2021 2:45	2.08	0.96	0.07
6/3/2021 2:40	2.1	0.97	0.071
6/3/2021 2:35	2.1	0.93	0.068
6/3/2021 2:30	2.11	0.94	0.069
6/3/2021 2:25	2.12	0.93	0.069

6/3/2021 2:20	2.12	0.95	0.071
6/3/2021 2:15	2.13	0.96	0.072
6/3/2021 2:10	2.18	0.99	0.077
6/3/2021 2:05	2.17	0.81	0.063
6/3/2021 2:00	2.17	1.01	0.077
6/3/2021 1:55	2.2	1.01	0.08
6/3/2021 1:50	2.21	1.04	0.082
6/3/2021 1:45	2.23	1.03	0.083
6/3/2021 1:40	2.25	1.03	0.083
6/3/2021 1:35	2.26	1.04	0.084
6/3/2021 1:30	2.24	1.03	0.083
6/3/2021 1:25	2.23	1.03	0.082
6/3/2021 1:20	2.22	1.02	0.081
6/3/2021 1:15	2.22	1.03	0.082
6/3/2021 1:10	2.25	1.03	0.084
6/3/2021 1:05	2.25	1.02	0.083
6/3/2021 1:00	2.29	1.01	0.084
6/3/2021 0:55	2.32	0.99	0.084
6/3/2021 0:50	2.33	0.91	0.078
6/3/2021 0:45	2.42	1.12	0.101
6/3/2021 0:40	2.42	1.11	0.1
6/3/2021 0:35	2.41	1.11	0.1
6/3/2021 0:30	2.39	1.1	0.098
6/3/2021 0:25	2.39	1.11	0.098
6/3/2021 0:20	2.38	1.09	0.096
6/3/2021 0:15	2.45	1.15	0.106
6/3/2021 0:10	2.48	1.13	0.105
6/3/2021 0:05	2.52	1.16	0.111
6/3/2021 0:00	2.54	1.18	0.114
6/2/2021 23:55	2.56	1.18	0.116
6/2/2021 23:50	2.57	1.13	0.111
6/2/2021 23:45	2.59	1.08	0.108
6/2/2021 23:40	2.66	1.25	0.13
6/2/2021 23:35	2.79	1.27	0.141
6/2/2021 23:30	2.82	1.3	0.147
6/2/2021 23:25	2.82	1.31	0.148
6/2/2021 23:20	2.8	1.31	0.146
6/2/2021 23:15	2.8	1.31	0.147
6/2/2021 23:10	2.79	1.33	0.147
6/2/2021 23:05	2.78	1.31	0.144
6/2/2021 23:00	2.78	1.28	0.141
6/2/2021 22:55	2.84	1.29	0.147
6/2/2021 22:50	2.84	1.19	0.135
6/2/2021 22:45	2.93	1.42	0.169
6/2/2021 22:40	2.93	1.42	0.169
6/2/2021 22:35	2.97	1.43	0.174
6/2/2021 22:30	3.05	1.44	0.181

6/2/2021 22:25	3.05	1.43	0.181
6/2/2021 22:20	3.04	1.43	0.18
6/2/2021 22:15	3.06	1.45	0.183
6/2/2021 22:10	3.11	1.47	0.19
6/2/2021 22:05	3.14	1.51	0.198
6/2/2021 22:00	3.15	1.5	0.198
6/2/2021 21:55	3.16	1.49	0.198
6/2/2021 21:50	3.22	1.52	0.208
6/2/2021 21:45	3.24	1.53	0.211
6/2/2021 21:40	3.26	1.54	0.213
6/2/2021 21:35	3.25	1.53	0.212
6/2/2021 21:30	3.3	1.55	0.22
6/2/2021 21:25	3.3	1.54	0.218
6/2/2021 21:20	3.27	1.54	0.215
6/2/2021 21:15	3.41	1.6	0.237
6/2/2021 21:10	3.39	1.57	0.23
6/2/2021 21:05	3.42	1.58	0.236
6/2/2021 21:00	3.51	1.61	0.248
6/2/2021 20:55	3.59	1.64	0.262
6/2/2021 20:50	3.65	1.78	0.29
6/2/2021 20:45	3.34	1.59	0.229
6/2/2021 20:40	3.33	1.57	0.225
6/2/2021 20:35	3.44	1.62	0.243
6/2/2021 20:30	3.52	1.67	0.258
6/2/2021 20:25	3.5	1.71	0.262
6/2/2021 20:20	3.47	1.7	0.258
6/2/2021 20:15	3.41	1.64	0.244
6/2/2021 20:10	3.42	1.62	0.241
6/2/2021 20:05	3.4	1.58	0.233
6/2/2021 20:00	3.47	1.63	0.248
6/2/2021 19:55	3.42	1.62	0.241
6/2/2021 19:50	3.35	1.55	0.224
6/2/2021 19:45	3.37	1.55	0.226
6/2/2021 19:40	3.27	1.53	0.213
6/2/2021 19:35	3.28	1.53	0.215
6/2/2021 19:30	3.31	1.57	0.223
6/2/2021 19:25	3.34	1.57	0.226
6/2/2021 19:20	3.37	1.63	0.238
6/2/2021 19:15	3.35	1.57	0.226
6/2/2021 19:10	3.41	1.59	0.235
6/2/2021 19:05	3.38	1.57	0.23
6/2/2021 19:00	3.34	1.54	0.222
6/2/2021 18:55	3.24	1.52	0.209
6/2/2021 18:50	3.23	1.52	0.208
6/2/2021 18:45	3.22	1.53	0.209
6/2/2021 18:40	3.35	1.54	0.222
6/2/2021 18:35	3.34	1.54	0.222

6/2/2021 18:30	3.34	1.56	0.224
6/2/2021 18:25	3.31	1.56	0.221
6/2/2021 18:20	3.3	1.55	0.219
6/2/2021 18:15	3.39	1.57	0.23
6/2/2021 18:10	3.4	1.61	0.238
6/2/2021 18:05	3.38	1.56	0.228
6/2/2021 18:00	3.37	1.55	0.226
6/2/2021 17:55	3.44	1.65	0.247
6/2/2021 17:50	3.45	1.66	0.25
6/2/2021 17:45	3.27	1.56	0.217
6/2/2021 17:40	3.32	1.58	0.225
6/2/2021 17:35	3.3	1.54	0.218
6/2/2021 17:30	3.29	1.55	0.218
6/2/2021 17:25	3.29	1.58	0.222
6/2/2021 17:20	3.24	1.55	0.213
6/2/2021 17:15	3.25	1.53	0.212
6/2/2021 17:10	3.24	1.53	0.211
6/2/2021 17:05	3.18	1.52	0.204
6/2/2021 17:00	3.21	1.52	0.206
6/2/2021 16:55	3.28	1.54	0.215
6/2/2021 16:50	3.24	1.51	0.208
6/2/2021 16:45	3.22	1.51	0.206
6/2/2021 16:40	3.26	1.54	0.213
6/2/2021 16:35	3.24	1.51	0.208
6/2/2021 16:30	3.25	1.52	0.209
6/2/2021 16:25	3.26	1.53	0.213
6/2/2021 16:20	3.24	1.52	0.209
6/2/2021 16:15	3.27	1.5	0.21
6/2/2021 16:10	3.18	1.49	0.2
6/2/2021 16:05	3.17	1.54	0.205
6/2/2021 16:00	3.14	1.5	0.197
6/2/2021 15:55	3.17	1.49	0.199
6/2/2021 15:50	3.18	1.5	0.201
6/2/2021 15:45	3.17	1.49	0.199
6/2/2021 15:40	3.05	1.48	0.187
6/2/2021 15:35	3	1.42	0.175
6/2/2021 15:30	3.14	1.46	0.192
6/2/2021 15:25	3.15	1.42	0.188
6/2/2021 15:20	3.22	1.52	0.208
6/2/2021 15:15	3.23	1.53	0.209
6/2/2021 15:10	3.17	1.5	0.2
6/2/2021 15:05	3.15	1.51	0.2
6/2/2021 15:00	3.08	1.38	0.177
6/2/2021 14:55	3.15	1.27	0.168
6/2/2021 14:50	3.16	1.5	0.199
6/2/2021 14:45	3.18	1.52	0.203
6/2/2021 14:40	3.18	1.52	0.203

6/2/2021 14:35	3.21	1.52	0.207
6/2/2021 14:30	3.22	1.51	0.206
6/2/2021 14:25	3.18	1.5	0.201
6/2/2021 14:20	3.18	1.49	0.2
6/2/2021 14:15	3.16	1.5	0.199
6/2/2021 14:10	3.15	1.53	0.202
6/2/2021 14:05	3.15	1.51	0.2
6/2/2021 14:00	3.22	1.57	0.214
6/2/2021 13:55	3.2	1.56	0.211
6/2/2021 13:50	3.27	1.55	0.217
6/2/2021 13:45	3.26	1.53	0.213
6/2/2021 13:40	3.35	1.59	0.229
6/2/2021 13:35	3.45	1.62	0.244
6/2/2021 13:30	3.45	1.63	0.246
6/2/2021 13:25	3.49	1.64	0.252
6/2/2021 13:20	3.39	1.61	0.235
6/2/2021 13:15	3.36	1.61	0.234
6/2/2021 13:10	3.36	1.65	0.239
6/2/2021 13:05	3.35	1.57	0.228
6/2/2021 13:00	3.35	1.61	0.233
6/2/2021 12:55	3.28	1.53	0.214
6/2/2021 12:50	3.16	1.42	0.189
6/2/2021 12:45	3.31	1.55	0.22
6/2/2021 12:40	3.38	1.58	0.23
6/2/2021 12:35	3.36	1.57	0.227
6/2/2021 12:30	3.44	1.62	0.243
6/2/2021 12:25	3.53	1.68	0.261
6/2/2021 12:20	3.54	1.66	0.26
6/2/2021 12:15	3.59	1.72	0.274
6/2/2021 12:10	3.71	1.71	0.285
6/2/2021 12:05	3.45	1.65	0.248
6/2/2021 12:00	3.39	1.56	0.229
6/2/2021 11:55	3.35	1.56	0.225
6/2/2021 11:50	3.35	1.53	0.221
6/2/2021 11:45	3.34	1.56	0.225
6/2/2021 11:40	3.39	1.61	0.237
6/2/2021 11:35	3.38	1.59	0.232
6/2/2021 11:30	3.42	1.62	0.241
6/2/2021 11:25	3.42	1.61	0.239
6/2/2021 11:20	3.43	1.61	0.24
6/2/2021 11:15	3.42	1.63	0.243
6/2/2021 11:10	3.51	1.65	0.254
6/2/2021 11:05	3.55	1.66	0.26
6/2/2021 11:00	3.5	1.65	0.254
6/2/2021 10:55	3.55	1.65	0.259
6/2/2021 10:50	3.52	1.62	0.252
6/2/2021 10:45	3.4	1.6	0.235

6/2/2021 10:40	3.43	1.59	0.238
6/2/2021 10:35	3.45	1.59	0.24
6/2/2021 10:30	3.46	1.64	0.247
6/2/2021 10:25	3.34	1.52	0.219
6/2/2021 10:20	3.34	1.51	0.217
6/2/2021 10:15	3.43	1.66	0.247
6/2/2021 10:10	3.43	1.71	0.256
6/2/2021 10:05	3.39	1.56	0.229
6/2/2021 10:00	3.46	1.57	0.237
6/2/2021 9:55	3.45	1.55	0.234
6/2/2021 9:50	3.44	1.55	0.232
6/2/2021 9:45	3.47	1.56	0.238
6/2/2021 9:40	3.51	1.63	0.251
6/2/2021 9:35	3.46	1.6	0.243
6/2/2021 9:30	3.46	1.6	0.242
6/2/2021 9:25	3.48	1.68	0.257
6/2/2021 9:20	3.5	1.69	0.259
6/2/2021 9:15	3.57	1.73	0.273
6/2/2021 9:10	3.48	1.62	0.248
6/2/2021 9:05	3.45	1.57	0.236
6/2/2021 9:00	3.42	1.55	0.23
6/2/2021 8:55	3.43	1.55	0.232
6/2/2021 8:50	3.41	1.59	0.236
6/2/2021 8:45	3.43	1.59	0.238
6/2/2021 8:40	3.48	1.63	0.248
6/2/2021 8:35	3.52	1.66	0.256
6/2/2021 8:30	3.55	1.67	0.262
6/2/2021 8:25	3.56	1.67	0.263
6/2/2021 8:20	3.61	1.69	0.272
6/2/2021 8:15	3.61	1.7	0.273
6/2/2021 8:10	3.6	1.67	0.267
6/2/2021 8:05	3.56	1.66	0.262
6/2/2021 8:00	3.54	1.63	0.254
6/2/2021 7:55	3.47	1.59	0.242
6/2/2021 7:50	3.43	1.51	0.227
6/2/2021 7:45	3.44	1.58	0.238
6/2/2021 7:40	3.41	1.63	0.241
6/2/2021 7:35	3.33	1.52	0.218
6/2/2021 7:30	3.31	1.51	0.215
6/2/2021 7:25	3.3	1.6	0.226
6/2/2021 7:20	3.32	1.6	0.228
6/2/2021 7:15	3.32	1.55	0.221
6/2/2021 7:10	3.32	1.6	0.227
6/2/2021 7:05	3.21	1.53	0.208
6/2/2021 7:00	3.18	1.5	0.201
6/2/2021 6:55	3.19	1.52	0.204
6/2/2021 6:50	3.04	1.47	0.185

6/2/2021 6:45	3.01	1.49	0.184
6/2/2021 6:40	2.97	1.41	0.171
6/2/2021 6:35	2.96	1.4	0.169
6/2/2021 6:30	2.9	1.4	0.165
6/2/2021 6:25	2.89	1.39	0.163
6/2/2021 6:20	2.88	1.38	0.161
6/2/2021 6:15	2.74	1.35	0.146
6/2/2021 6:10	2.64	1.23	0.126
6/2/2021 6:05	2.51	1.16	0.11
6/2/2021 6:00	2.49	1.11	0.105
6/2/2021 5:55	2.5	1.11	0.105
6/2/2021 5:50	2.5	1.13	0.107
6/2/2021 5:45	2.48	1.13	0.105
6/2/2021 5:40	2.41	1.09	0.097
6/2/2021 5:35	2.38	1.09	0.096
6/2/2021 5:30	2.29	1.09	0.09
6/2/2021 5:25	2.27	1.08	0.088
6/2/2021 5:20	2.25	1.07	0.087
6/2/2021 5:15	2.25	1.07	0.087
6/2/2021 5:10	2.22	1.07	0.085
6/2/2021 5:05	2.16	1.04	0.079
6/2/2021 5:00	2.15	1.04	0.079
6/2/2021 4:55	2.09	0.99	0.072
6/2/2021 4:50	2.04	0.97	0.068
6/2/2021 4:45	2	0.93	0.064
6/2/2021 4:40	2	0.91	0.062
6/2/2021 4:35	2	0.93	0.063
6/2/2021 4:30	1.99	0.91	0.062
6/2/2021 4:25	2	0.92	0.063
6/2/2021 4:20	1.99	0.93	0.063
6/2/2021 4:15	1.98	0.91	0.062
6/2/2021 4:10	1.96	0.89	0.059
6/2/2021 4:05	1.96	0.89	0.059
6/2/2021 4:00	1.99	0.9	0.061
6/2/2021 3:55	2.03	0.91	0.063
6/2/2021 3:50	2.03	0.91	0.064
6/2/2021 3:45	2.03	0.91	0.064
6/2/2021 3:40	2.05	0.92	0.065
6/2/2021 3:35	2.09	1	0.073
6/2/2021 3:30	2.05	0.96	0.068
6/2/2021 3:25	1.99	0.9	0.061
6/2/2021 3:20	1.99	0.91	0.061
6/2/2021 3:15	1.98	0.89	0.06
6/2/2021 3:10	1.98	0.89	0.06
6/2/2021 3:05	2	0.89	0.061
6/2/2021 3:00	1.99	0.89	0.061
6/2/2021 2:55	2.01	0.91	0.063

6/2/2021 2:50	2.01	0.92	0.064
6/2/2021 2:45	2	0.92	0.063
6/2/2021 2:40	1.97	0.91	0.061
6/2/2021 2:35	1.98	0.91	0.061
6/2/2021 2:30	1.98	0.92	0.062
6/2/2021 2:25	1.98	0.92	0.062
6/2/2021 2:20	2.01	0.92	0.063
6/2/2021 2:15	2.05	0.92	0.065
6/2/2021 2:10	2.08	0.92	0.067
6/2/2021 2:05	2.09	0.92	0.067
6/2/2021 2:00	2.09	0.94	0.069
6/2/2021 1:55	2.09	0.94	0.069
6/2/2021 1:50	2.09	0.94	0.069
6/2/2021 1:45	2.15	0.96	0.073
6/2/2021 1:40	2.16	0.98	0.075
6/2/2021 1:35	2.22	1.01	0.08
6/2/2021 1:30	2.2	1.01	0.079
6/2/2021 1:25	2.2	0.98	0.077
6/2/2021 1:20	2.23	0.99	0.079
6/2/2021 1:15	2.27	1	0.082
6/2/2021 1:10	2.34	1.1	0.094
6/2/2021 1:05	2.36	1.09	0.095
6/2/2021 1:00	2.45	1.14	0.105
6/2/2021 0:55	2.44	1.14	0.105
6/2/2021 0:50	2.45	1.15	0.106
6/2/2021 0:45	2.38	1.08	0.095
6/2/2021 0:40	2.38	1.08	0.095
6/2/2021 0:35	2.38	1.07	0.094
6/2/2021 0:30	2.38	1.06	0.093
6/2/2021 0:25	2.34	1.08	0.093
6/2/2021 0:20	2.34	1.08	0.093
6/2/2021 0:15	2.37	1.1	0.096
6/2/2021 0:10	2.4	1.1	0.098
6/2/2021 0:05	2.47	1.12	0.104
6/2/2021 0:00	2.53	1.15	0.111
6/1/2021 23:55	2.59	1.16	0.116
6/1/2021 23:50	2.65	1.19	0.122
6/1/2021 23:45	2.75	1.28	0.139
6/1/2021 23:40	2.83	1.34	0.152
6/1/2021 23:35	2.84	1.34	0.152
6/1/2021 23:30	2.84	1.35	0.154
6/1/2021 23:25	2.83	1.36	0.154
6/1/2021 23:20	2.83	1.36	0.154
6/1/2021 23:15	2.86	1.36	0.156
6/1/2021 23:10	2.85	1.35	0.154
6/1/2021 23:05	2.88	1.34	0.156
6/1/2021 23:00	2.95	1.4	0.169

6/1/2021 22:55	2.95	1.4	0.169
6/1/2021 22:50	2.97	1.4	0.17
6/1/2021 22:45	3.02	1.43	0.178
6/1/2021 22:40	3.04	1.44	0.181
6/1/2021 22:35	3.21	1.55	0.211
6/1/2021 22:30	3.21	1.52	0.206
6/1/2021 22:25	3.18	1.48	0.199
6/1/2021 22:20	3.17	1.49	0.199
6/1/2021 22:15	3.17	1.49	0.199
6/1/2021 22:10	3.2	1.5	0.204
6/1/2021 22:05	3.23	1.5	0.206
6/1/2021 22:00	3.24	1.54	0.211
6/1/2021 21:55	3.24	1.54	0.212
6/1/2021 21:50	3.31	1.57	0.223
6/1/2021 21:45	3.37	1.59	0.232
6/1/2021 21:40	3.36	1.57	0.228
6/1/2021 21:35	3.36	1.57	0.227
6/1/2021 21:30	3.36	1.59	0.231
6/1/2021 21:25	3.36	1.59	0.231
6/1/2021 21:20	3.37	1.59	0.232
6/1/2021 21:15	3.37	1.59	0.231
6/1/2021 21:10	3.38	1.58	0.231
6/1/2021 21:05	3.37	1.58	0.23
6/1/2021 21:00	3.37	1.61	0.234
6/1/2021 20:55	3.35	1.61	0.233
6/1/2021 20:50	3.27	1.48	0.206
6/1/2021 20:45	3.34	1.59	0.229
6/1/2021 20:40	3.25	1.56	0.215
6/1/2021 20:35	3.25	1.55	0.215
6/1/2021 20:30	3.28	1.55	0.217
6/1/2021 20:25	3.5	1.62	0.249
6/1/2021 20:20	3.5	1.63	0.25
6/1/2021 20:15	3.47	1.63	0.247
6/1/2021 20:10	3.47	1.62	0.246
6/1/2021 20:05	3.47	1.61	0.245
6/1/2021 20:00	3.33	1.61	0.23
6/1/2021 19:55	3.32	1.57	0.224
6/1/2021 19:50	3.26	1.58	0.219
6/1/2021 19:45	3.26	1.52	0.211
6/1/2021 19:40	3.37	1.55	0.225
6/1/2021 19:35	3.38	1.58	0.23
6/1/2021 19:30	3.39	1.58	0.232
6/1/2021 19:25	3.39	1.57	0.23
6/1/2021 19:20	3.39	1.53	0.226
6/1/2021 19:15	3.5	1.61	0.247
6/1/2021 19:10	3.45	1.61	0.243
6/1/2021 19:05	3.44	1.6	0.239

6/1/2021 19:00	3.44	1.6	0.241
6/1/2021 18:55	3.51	1.63	0.252
6/1/2021 18:50	3.36	1.57	0.228
6/1/2021 18:45	3.4	1.61	0.238
6/1/2021 18:40	3.45	1.63	0.246
6/1/2021 18:35	3.36	1.61	0.234
6/1/2021 18:30	3.32	1.61	0.23
6/1/2021 18:25	3.22	1.49	0.204
6/1/2021 18:20	3.19	1.48	0.2
6/1/2021 18:15	3.22	1.53	0.208
6/1/2021 18:10	3.25	1.53	0.211
6/1/2021 18:05	3.25	1.53	0.211
6/1/2021 18:00	3.29	1.57	0.222
6/1/2021 17:55	3.27	1.55	0.217
6/1/2021 17:50	3.26	1.56	0.216
6/1/2021 17:45	3.23	1.53	0.209
6/1/2021 17:40	3.24	1.55	0.214
6/1/2021 17:35	3.24	1.56	0.214
6/1/2021 17:30	3.21	1.55	0.211
6/1/2021 17:25	3.21	1.55	0.21
6/1/2021 17:20	3.24	1.55	0.213
6/1/2021 17:15	3.38	1.61	0.236
6/1/2021 17:10	3.4	1.66	0.245
6/1/2021 17:05	3.23	1.51	0.207
6/1/2021 17:00	3.27	1.55	0.216
6/1/2021 16:55	3.31	1.56	0.221
6/1/2021 16:50	3.33	1.56	0.224
6/1/2021 16:45	3.36	1.56	0.226
6/1/2021 16:40	3.36	1.55	0.225
6/1/2021 16:35	3.38	1.57	0.229
6/1/2021 16:30	3.38	1.6	0.234
6/1/2021 16:25	3.39	1.62	0.238
6/1/2021 16:20	3.34	1.57	0.226
6/1/2021 16:15	3.33	1.58	0.225
6/1/2021 16:10	3.34	1.59	0.229
6/1/2021 16:05	3.32	1.58	0.225
6/1/2021 16:00	3.24	1.56	0.215
6/1/2021 15:55	3.25	1.52	0.21
6/1/2021 15:50	3.31	1.55	0.22
6/1/2021 15:45	3.31	1.56	0.222
6/1/2021 15:40	3.21	1.56	0.212
6/1/2021 15:35	3.13	1.49	0.195
6/1/2021 15:30	3.13	1.52	0.199
6/1/2021 15:25	3.05	1.45	0.184
6/1/2021 15:20	3.09	1.46	0.188
6/1/2021 15:15	3.09	1.44	0.185
6/1/2021 15:10	3.23	1.55	0.212

6/1/2021 15:05	3.25	1.54	0.213
6/1/2021 15:00	3.22	1.49	0.203
6/1/2021 14:55	3.21	1.5	0.204
6/1/2021 14:50	3.2	1.54	0.208
6/1/2021 14:45	3.25	1.55	0.215
6/1/2021 14:40	3.31	1.57	0.222
6/1/2021 14:35	3.34	1.57	0.226
6/1/2021 14:30	3.34	1.57	0.226
6/1/2021 14:25	3.47	1.58	0.241
6/1/2021 14:20	3.56	1.71	0.269
6/1/2021 14:15	3.54	1.72	0.269
6/1/2021 14:10	3.46	1.57	0.237
6/1/2021 14:05	3.48	1.62	0.247
6/1/2021 14:00	3.49	1.61	0.246
6/1/2021 13:55	3.5	1.62	0.248
6/1/2021 13:50	3.43	1.62	0.242
6/1/2021 13:45	3.3	1.56	0.221
6/1/2021 13:40	3.45	1.63	0.246
6/1/2021 13:35	3.36	1.63	0.236
6/1/2021 13:30	3.32	1.61	0.23
6/1/2021 13:25	3.32	1.6	0.228
6/1/2021 13:20	3.25	1.55	0.215
6/1/2021 13:15	3.23	1.54	0.21
6/1/2021 13:10	3.22	1.53	0.208
6/1/2021 13:05	3.26	1.53	0.212
6/1/2021 13:00	3.3	1.56	0.22
6/1/2021 12:55	3.22	1.54	0.21
6/1/2021 12:50	3.37	1.58	0.23
6/1/2021 12:45	3.39	1.58	0.232
6/1/2021 12:40	3.38	1.59	0.232
6/1/2021 12:35	3.39	1.58	0.232
6/1/2021 12:30	3.28	1.53	0.214
6/1/2021 12:25	3.28	1.53	0.214
6/1/2021 12:20	3.33	1.59	0.227
6/1/2021 12:15	3.38	1.58	0.232
6/1/2021 12:10	3.36	1.58	0.23
6/1/2021 12:05	3.33	1.58	0.226
6/1/2021 12:00	3.34	0.92	0.133
6/1/2021 11:55	3.33	1.6	0.228
6/1/2021 11:50	3.31	1.54	0.219
6/1/2021 11:45	3.34	1.55	0.223
6/1/2021 11:40	3.44	1.58	0.237
6/1/2021 11:35	3.49	1.58	0.242
6/1/2021 11:30	3.57	1.68	0.265
6/1/2021 11:25	3.57	1.69	0.268
6/1/2021 11:20	3.56	1.7	0.268
6/1/2021 11:15	3.63	1.71	0.277

6/1/2021 11:10	3.57	1.62	0.256
6/1/2021 11:05	3.47	1.57	0.239
6/1/2021 11:00	3.47	1.56	0.236
6/1/2021 10:55	3.52	1.63	0.252
6/1/2021 10:50	3.55	1.68	0.264
6/1/2021 10:45	3.54	1.68	0.262
6/1/2021 10:40	3.54	1.67	0.261
6/1/2021 10:35	3.61	1.69	0.272
6/1/2021 10:30	3.61	1.68	0.27
6/1/2021 10:25	3.59	1.64	0.261
6/1/2021 10:20	3.6	1.65	0.264
6/1/2021 10:15	3.6	1.66	0.266
6/1/2021 10:10	3.55	1.65	0.259
6/1/2021 10:05	3.51	1.65	0.255
6/1/2021 10:00	3.5	1.63	0.25
6/1/2021 9:55	3.52	1.63	0.253
6/1/2021 9:50	3.55	1.64	0.257
6/1/2021 9:45	3.54	1.65	0.258
6/1/2021 9:40	3.35	1.58	0.229
6/1/2021 9:35	3.35	1.56	0.226
6/1/2021 9:30	3.28	1.57	0.22
6/1/2021 9:25	3.52	1.65	0.257
6/1/2021 9:20	3.54	1.66	0.259
6/1/2021 9:15	3.55	1.68	0.263
6/1/2021 9:10	3.55	1.67	0.263
6/1/2021 9:05	3.52	1.66	0.256
6/1/2021 9:00	3.55	1.67	0.262
6/1/2021 8:55	3.51	1.7	0.262
6/1/2021 8:50	3.48	1.54	0.234
6/1/2021 8:45	3.53	1.63	0.253
6/1/2021 8:40	3.53	1.66	0.258
6/1/2021 8:35	3.52	1.66	0.258
6/1/2021 8:30	3.52	1.67	0.259
6/1/2021 8:25	3.43	1.63	0.243
6/1/2021 8:20	3.53	1.63	0.255
6/1/2021 8:15	3.49	1.61	0.247
6/1/2021 8:10	3.37	1.48	0.216
6/1/2021 8:05	3.42	1.6	0.238
6/1/2021 8:00	3.43	1.59	0.238
6/1/2021 7:55	3.51	1.61	0.248
6/1/2021 7:50	3.5	1.61	0.246
6/1/2021 7:45	3.49	1.58	0.242
6/1/2021 7:40	3.54	1.63	0.255
6/1/2021 7:35	3.39	1.55	0.228
6/1/2021 7:30	3.31	1.54	0.218
6/1/2021 7:25	3.32	1.54	0.218
6/1/2021 7:20	3.26	1.52	0.211

6/1/2021 7:15	3.24	1.5	0.207
6/1/2021 7:10	3.27	1.51	0.21
6/1/2021 7:05	3.23	1.51	0.206
6/1/2021 7:00	3.22	1.51	0.207
6/1/2021 6:55	3.15	1.54	0.203
6/1/2021 6:50	3.01	1.41	0.175
6/1/2021 6:45	3.03	1.45	0.181
6/1/2021 6:40	2.9	1.38	0.161
6/1/2021 6:35	2.9	1.39	0.164
6/1/2021 6:30	2.86	1.37	0.157
6/1/2021 6:25	2.85	1.37	0.157
6/1/2021 6:20	2.74	1.31	0.141
6/1/2021 6:15	2.69	1.31	0.138
6/1/2021 6:10	2.66	1.29	0.134
6/1/2021 6:05	2.66	1.33	0.138
6/1/2021 6:00	2.59	1.26	0.126
6/1/2021 5:55	2.57	1.25	0.123
6/1/2021 5:50	2.43	1.15	0.104
6/1/2021 5:45	2.37	1.13	0.099
6/1/2021 5:40	2.32	1.09	0.092
6/1/2021 5:35	2.27	1.06	0.087
6/1/2021 5:30	2.27	1.07	0.088
6/1/2021 5:25	2.29	1.08	0.09
6/1/2021 5:20	2.29	1.11	0.092
6/1/2021 5:15	2.25	1.08	0.087
6/1/2021 5:10	2.24	1.02	0.082
6/1/2021 5:05	2.16	0.96	0.074
6/1/2021 5:00	2.14	0.98	0.073
6/1/2021 4:55	2.08	0.96	0.069
6/1/2021 4:50	2.08	0.95	0.069
6/1/2021 4:45	2.08	0.9	0.065
6/1/2021 4:40	2.08	0.91	0.066
6/1/2021 4:35	2.08	0.97	0.07
6/1/2021 4:30	2.09	0.97	0.071
6/1/2021 4:25	2.08	0.95	0.069
6/1/2021 4:20	2.06	0.92	0.066
6/1/2021 4:15	2.05	0.88	0.062
6/1/2021 4:10	2.05	0.94	0.067
6/1/2021 4:05	2.06	0.95	0.068
6/1/2021 4:00	2.09	0.97	0.071
6/1/2021 3:55	2.14	1.01	0.076
6/1/2021 3:50	2.21	1.01	0.08
6/1/2021 3:45	2.2	0.98	0.078
6/1/2021 3:40	2.13	0.96	0.072
6/1/2021 3:35	2.11	0.95	0.071
6/1/2021 3:30	2.14	1.01	0.077
6/1/2021 3:25	2.08	0.97	0.07

6/1/2021 3:20	2.08	0.96	0.069
6/1/2021 3:15	2.08	0.96	0.07
6/1/2021 3:10	2.1	0.97	0.071
6/1/2021 3:05	2.05	0.97	0.068
6/1/2021 3:00	2.05	0.96	0.069
6/1/2021 2:55	2.05	0.96	0.068
6/1/2021 2:50	2.02	0.96	0.067
6/1/2021 2:45	2.03	0.98	0.069
6/1/2021 2:40	2.01	0.98	0.067
6/1/2021 2:35	2.03	0.9	0.063
6/1/2021 2:30	2.06	0.91	0.065
6/1/2021 2:25	2.08	0.93	0.067
6/1/2021 2:20	2.09	0.95	0.069
6/1/2021 2:15	2.07	0.95	0.068
6/1/2021 2:10	2.07	0.92	0.066
6/1/2021 2:05	2.07	0.91	0.065
6/1/2021 2:00	2.07	0.9	0.065
6/1/2021 1:55	2.09	0.92	0.067
6/1/2021 1:50	2.09	0.84	0.062
6/1/2021 1:45	2.1	0.97	0.071
6/1/2021 1:40	2.12	1	0.074
6/1/2021 1:35	2.19	1	0.078
6/1/2021 1:30	2.22	1.06	0.085
6/1/2021 1:25	2.23	1.05	0.084
6/1/2021 1:20	2.25	1.05	0.085
6/1/2021 1:15	2.27	1.05	0.086
6/1/2021 1:10	2.27	1	0.082
6/1/2021 1:05	2.29	0.86	0.071
6/1/2021 1:00	2.31	1.05	0.089
6/1/2021 0:55	2.33	1.06	0.091
6/1/2021 0:50	2.4	1.11	0.099
6/1/2021 0:45	2.43	1.11	0.101
6/1/2021 0:40	2.43	1.09	0.099
6/1/2021 0:35	2.43	1.08	0.098
6/1/2021 0:30	2.44	1.08	0.099
6/1/2021 0:25	2.47	1.08	0.101
6/1/2021 0:20	2.51	1.08	0.102
6/1/2021 0:15	2.53	1.16	0.112
6/1/2021 0:10	2.55	1.18	0.115
6/1/2021 0:05	2.56	1.18	0.115
6/1/2021 0:00	2.58	1.18	0.116
5/31/2021 23:55	2.61	1.18	0.119
5/31/2021 23:50	2.71	1.26	0.134
5/31/2021 23:45	2.76	1.29	0.141
5/31/2021 23:40	2.75	1.27	0.139
5/31/2021 23:35	2.77	1.28	0.141
5/31/2021 23:30	2.8	1.32	0.147

5/31/2021 23:25	2.82	1.34	0.15
5/31/2021 23:20	2.8	1.32	0.147
5/31/2021 23:15	2.86	1.37	0.157
5/31/2021 23:10	2.84	1.34	0.152
5/31/2021 23:05	2.84	1.35	0.153
5/31/2021 23:00	2.9	1.39	0.162
5/31/2021 22:55	2.89	1.35	0.157
5/31/2021 22:50	2.89	1.33	0.155
5/31/2021 22:45	2.96	1.42	0.171
5/31/2021 22:40	3.03	1.44	0.18
5/31/2021 22:35	3.03	1.44	0.179
5/31/2021 22:30	3.05	1.48	0.186
5/31/2021 22:25	3.14	1.5	0.198
5/31/2021 22:20	3.17	1.54	0.205
5/31/2021 22:15	3.19	1.6	0.215
5/31/2021 22:10	3.14	1.51	0.198
5/31/2021 22:05	3.05	1.44	0.181
5/31/2021 22:00	3.12	1.43	0.187
5/31/2021 21:55	3.07	1.41	0.179
5/31/2021 21:50	3.27	1.52	0.212
5/31/2021 21:45	3.36	1.56	0.225
5/31/2021 21:40	3.38	1.58	0.23
5/31/2021 21:35	3.37	1.55	0.225
5/31/2021 21:30	3.37	1.54	0.223
5/31/2021 21:25	3.36	1.47	0.214
5/31/2021 21:20	3.37	1.62	0.235
5/31/2021 21:15	3.19	1.51	0.203
5/31/2021 21:10	3.18	1.5	0.202
5/31/2021 21:05	3.22	1.54	0.21
5/31/2021 21:00	3.32	1.58	0.225
5/31/2021 20:55	3.32	1.54	0.219
5/31/2021 20:50	3.32	1.53	0.218
5/31/2021 20:45	3.42	1.55	0.23
5/31/2021 20:40	3.39	1.61	0.237
5/31/2021 20:35	3.48	1.62	0.247
5/31/2021 20:30	3.32	1.58	0.225
5/31/2021 20:25	3.31	1.53	0.217
5/31/2021 20:20	3.34	1.53	0.22
5/31/2021 20:15	3.29	1.54	0.217
5/31/2021 20:10	3.37	1.6	0.233
5/31/2021 20:05	3.37	1.59	0.231
5/31/2021 20:00	3.36	1.57	0.227
5/31/2021 19:55	3.32	1.54	0.219
5/31/2021 19:50	3.33	1.53	0.219
5/31/2021 19:45	3.34	1.59	0.229
5/31/2021 19:40	3.24	1.54	0.213
5/31/2021 19:35	3.25	1.55	0.215

5/31/2021 19:30	3.26	1.56	0.216
5/31/2021 19:25	3.26	1.55	0.215
5/31/2021 19:20	3.31	1.57	0.222
5/31/2021 19:15	3.35	1.56	0.225
5/31/2021 19:10	3.32	1.56	0.222
5/31/2021 19:05	3.35	1.55	0.224
5/31/2021 19:00	3.35	1.53	0.221
5/31/2021 18:55	3.38	1.53	0.224
5/31/2021 18:50	3.38	1.63	0.239
5/31/2021 18:45	3.33	1.55	0.221
5/31/2021 18:40	3.25	1.54	0.213
5/31/2021 18:35	3.27	1.54	0.215
5/31/2021 18:30	3.16	1.49	0.199
5/31/2021 18:25	3.17	1.5	0.2
5/31/2021 18:20	3.13	1.5	0.197
5/31/2021 18:15	3.14	1.5	0.198
5/31/2021 18:10	3.21	1.51	0.205
5/31/2021 18:05	3.25	1.52	0.21
5/31/2021 18:00	3.29	1.55	0.218
5/31/2021 17:55	3.33	1.56	0.223
5/31/2021 17:50	3.3	1.57	0.221
5/31/2021 17:45	3.32	1.58	0.224
5/31/2021 17:40	3.26	1.54	0.214
5/31/2021 17:35	3.3	1.54	0.218
5/31/2021 17:30	3.39	1.58	0.232
5/31/2021 17:25	3.29	1.57	0.222
5/31/2021 17:20	3.24	1.57	0.216
5/31/2021 17:15	3.19	1.5	0.203
5/31/2021 17:10	3.26	1.55	0.214
5/31/2021 17:05	3.27	1.56	0.217
5/31/2021 17:00	3.25	1.56	0.215
5/31/2021 16:55	3.29	1.57	0.221
5/31/2021 16:50	3.29	1.58	0.222
5/31/2021 16:45	3.23	1.52	0.208
5/31/2021 16:40	3.25	1.55	0.214
5/31/2021 16:35	3.27	1.57	0.219
5/31/2021 16:30	3.24	1.46	0.201
5/31/2021 16:25	3.25	1.5	0.206
5/31/2021 16:20	3.19	1.48	0.199
5/31/2021 16:15	3.16	1.48	0.196
5/31/2021 16:10	3.12	1.43	0.187
5/31/2021 16:05	3.16	1.51	0.201
5/31/2021 16:00	3.21	1.51	0.206
5/31/2021 15:55	3.21	1.52	0.206
5/31/2021 15:50	3.22	1.52	0.208
5/31/2021 15:45	3.29	1.54	0.217
5/31/2021 15:40	3.26	1.49	0.207

5/31/2021 15:35	3.2	1.46	0.198
5/31/2021 15:30	3.39	1.59	0.233
5/31/2021 15:25	3.39	1.58	0.232
5/31/2021 15:20	3.35	1.58	0.228
5/31/2021 15:15	3.35	1.55	0.224
5/31/2021 15:10	3.4	1.56	0.23
5/31/2021 15:05	3.4	1.61	0.238
5/31/2021 15:00	3.42	1.63	0.243
5/31/2021 14:55	3.42	1.6	0.238
5/31/2021 14:50	3.32	1.57	0.224
5/31/2021 14:45	3.36	1.59	0.23
5/31/2021 14:40	3.38	1.58	0.231
5/31/2021 14:35	3.36	1.55	0.225
5/31/2021 14:30	3.34	1.54	0.221
5/31/2021 14:25	3.47	1.6	0.243
5/31/2021 14:20	3.49	1.63	0.249
5/31/2021 14:15	3.52	1.64	0.254
5/31/2021 14:10	3.48	1.61	0.246
5/31/2021 14:05	3.43	1.58	0.236
5/31/2021 14:00	3.46	1.58	0.239
5/31/2021 13:55	3.5	1.65	0.253
5/31/2021 13:50	3.57	1.7	0.269
5/31/2021 13:45	3.63	1.71	0.277
5/31/2021 13:40	3.55	1.67	0.263
5/31/2021 13:35	3.57	1.65	0.26
5/31/2021 13:30	3.56	1.62	0.255
5/31/2021 13:25	3.5	1.62	0.25
5/31/2021 13:20	3.49	1.61	0.246
5/31/2021 13:15	3.48	1.61	0.245
5/31/2021 13:10	3.51	1.58	0.244
5/31/2021 13:05	3.55	1.64	0.257
5/31/2021 13:00	3.56	1.64	0.258
5/31/2021 12:55	3.52	1.62	0.25
5/31/2021 12:50	3.54	1.63	0.254
5/31/2021 12:45	3.54	1.62	0.254
5/31/2021 12:40	3.54	1.69	0.263
5/31/2021 12:35	3.51	1.63	0.25
5/31/2021 12:30	3.48	1.57	0.239
5/31/2021 12:25	3.48	1.54	0.234
5/31/2021 12:20	3.55	1.58	0.248
5/31/2021 12:15	3.69	1.64	0.272
5/31/2021 12:10	3.76	1.72	0.293
5/31/2021 12:05	3.77	1.72	0.295
5/31/2021 12:00	3.81	1.72	0.299
5/31/2021 11:55	3.7	1.7	0.282
5/31/2021 11:50	3.72	1.7	0.285
5/31/2021 11:45	3.77	1.71	0.292

5/31/2021 11:40	3.91	1.85	0.333
5/31/2021 11:35	3.73	1.7	0.286
5/31/2021 11:30	3.69	1.69	0.28
5/31/2021 11:25	3.86	1.76	0.311
5/31/2021 11:20	3.88	1.82	0.324
5/31/2021 11:15	3.83	1.68	0.294
5/31/2021 11:10	3.78	1.66	0.284
5/31/2021 11:05	3.81	1.63	0.283
5/31/2021 11:00	3.84	1.74	0.306
5/31/2021 10:55	3.82	1.75	0.304
5/31/2021 10:50	3.68	1.68	0.277
5/31/2021 10:45	3.72	1.66	0.279
5/31/2021 10:40	3.83	1.77	0.31
5/31/2021 10:35	3.69	1.71	0.283
5/31/2021 10:30	3.63	1.73	0.28
5/31/2021 10:25	3.62	1.69	0.273
5/31/2021 10:20	3.63	1.65	0.267
5/31/2021 10:15	3.65	1.67	0.273
5/31/2021 10:10	3.78	1.7	0.291
5/31/2021 10:05	3.78	1.69	0.291
5/31/2021 10:00	3.68	1.67	0.275
5/31/2021 9:55	3.65	1.66	0.272
5/31/2021 9:50	3.61	1.67	0.268
5/31/2021 9:45	3.57	1.66	0.263
5/31/2021 9:40	3.6	1.65	0.264
5/31/2021 9:35	3.57	1.63	0.257
5/31/2021 9:30	3.52	1.64	0.255
5/31/2021 9:25	3.49	1.64	0.251
5/31/2021 9:20	3.43	1.56	0.233
5/31/2021 9:15	3.43	1.57	0.235
5/31/2021 9:10	3.52	1.59	0.246
5/31/2021 9:05	3.43	1.61	0.241
5/31/2021 9:00	3.38	1.59	0.232
5/31/2021 8:55	3.36	1.57	0.228
5/31/2021 8:50	3.36	1.53	0.222
5/31/2021 8:45	3.36	1.58	0.23
5/31/2021 8:40	3.24	1.53	0.211
5/31/2021 8:35	3.26	1.53	0.213
5/31/2021 8:30	3.2	1.52	0.206
5/31/2021 8:25	3.27	1.52	0.212
5/31/2021 8:20	3.12	1.46	0.191
5/31/2021 8:15	3.03	1.44	0.18
5/31/2021 8:10	3.04	1.44	0.181
5/31/2021 8:05	3.04	1.45	0.183
5/31/2021 8:00	2.95	1.37	0.165
5/31/2021 7:55	3.02	1.44	0.179
5/31/2021 7:50	3.04	1.41	0.177

5/31/2021 7:45	3	1.39	0.171
5/31/2021 7:40	2.92	1.38	0.164
5/31/2021 7:35	2.91	1.38	0.163
5/31/2021 7:30	2.71	1.26	0.134
5/31/2021 7:25	2.79	1.3	0.144
5/31/2021 7:20	2.81	1.3	0.145
5/31/2021 7:15	2.65	1.23	0.127
5/31/2021 7:10	2.64	1.21	0.125
5/31/2021 7:05	2.65	1.21	0.125
5/31/2021 7:00	2.67	1.23	0.128
5/31/2021 6:55	2.63	1.1	0.113
5/31/2021 6:50	2.62	1.25	0.126
5/31/2021 6:45	2.39	1.12	0.099
5/31/2021 6:40	2.37	1.1	0.096
5/31/2021 6:35	2.4	1.1	0.098
5/31/2021 6:30	2.37	1.07	0.094
5/31/2021 6:25	2.29	1.07	0.089
5/31/2021 6:20	2.31	1.07	0.091
5/31/2021 6:15	2.31	1.08	0.091
5/31/2021 6:10	2.29	1.08	0.09
5/31/2021 6:05	2.33	1.09	0.093
5/31/2021 6:00	2.36	1.15	0.1
5/31/2021 5:55	2.12	0.78	0.058
5/31/2021 5:50	2.08	0.71	0.051
5/31/2021 5:45	2.05	0.74	0.052
5/31/2021 5:40	2.01	0.62	0.043
5/31/2021 5:35	2	0.5	0.034
5/31/2021 5:30	2.03	0.92	0.064
5/31/2021 5:25	2.08	0.95	0.069
5/31/2021 5:20	2.12	1.01	0.075
5/31/2021 5:15	2.14	1.04	0.078
5/31/2021 5:10	2.13	1.03	0.077
5/31/2021 5:05	2.03	0.93	0.065
5/31/2021 5:00	1.98	0.93	0.063
5/31/2021 4:55	1.97	0.9	0.06
5/31/2021 4:50	1.98	0.88	0.059
5/31/2021 4:45	1.96	0.88	0.058
5/31/2021 4:40	1.96	0.89	0.059
5/31/2021 4:35	1.94	0.88	0.058
5/31/2021 4:30	1.92	0.85	0.055
5/31/2021 4:25	1.92	0.85	0.054
5/31/2021 4:20	1.92	0.85	0.055
5/31/2021 4:15	1.9	0.85	0.054
5/31/2021 4:10	1.9	0.85	0.054
5/31/2021 4:05	1.9	0.85	0.054
5/31/2021 4:00	1.91	0.85	0.055
5/31/2021 3:55	1.92	0.86	0.055

5/31/2021 3:50	1.91	0.85	0.054
5/31/2021 3:45	1.92	0.84	0.054
5/31/2021 3:40	1.94	0.84	0.054
5/31/2021 3:35	1.95	0.84	0.056
5/31/2021 3:30	1.97	0.89	0.059
5/31/2021 3:25	1.96	0.87	0.057
5/31/2021 3:20	1.96	0.87	0.058
5/31/2021 3:15	1.96	0.86	0.057
5/31/2021 3:10	1.97	0.89	0.06
5/31/2021 3:05	1.98	0.89	0.06
5/31/2021 3:00	1.98	0.89	0.06
5/31/2021 2:55	1.98	0.9	0.06
5/31/2021 2:50	1.98	0.89	0.06
5/31/2021 2:45	1.99	0.89	0.061
5/31/2021 2:40	2	0.9	0.062
5/31/2021 2:35	2.02	0.91	0.063
5/31/2021 2:30	2.01	0.91	0.063
5/31/2021 2:25	2.02	0.91	0.063
5/31/2021 2:20	2.02	0.9	0.063
5/31/2021 2:15	2.06	0.92	0.066
5/31/2021 2:10	2.06	0.92	0.065
5/31/2021 2:05	2.08	0.91	0.066
5/31/2021 2:00	2.09	0.92	0.067
5/31/2021 1:55	2.11	0.93	0.069
5/31/2021 1:50	2.14	0.94	0.071
5/31/2021 1:45	2.17	0.98	0.075
5/31/2021 1:40	2.18	1.01	0.078
5/31/2021 1:35	2.21	1.03	0.081
5/31/2021 1:30	2.2	1.03	0.081
5/31/2021 1:25	2.2	1.03	0.081
5/31/2021 1:20	2.23	1.06	0.085
5/31/2021 1:15	2.27	1.05	0.086
5/31/2021 1:10	2.29	1.07	0.089
5/31/2021 1:05	2.39	1.08	0.096
5/31/2021 1:00	2.4	1.08	0.096
5/31/2021 0:55	2.39	1.09	0.096
5/31/2021 0:50	2.4	1.09	0.098
5/31/2021 0:45	2.41	1.11	0.1
5/31/2021 0:40	2.42	1.09	0.098
5/31/2021 0:35	2.44	1.1	0.1
5/31/2021 0:30	2.46	1.1	0.102
5/31/2021 0:25	2.47	1.09	0.102
5/31/2021 0:20	2.51	1.1	0.104
5/31/2021 0:15	2.61	1.33	0.134
5/31/2021 0:10	2.52	1.14	0.11
5/31/2021 0:05	2.6	1.18	0.119
5/31/2021 0:00	2.61	1.18	0.119

5/30/2021 23:55	2.65	0.85	0.088
5/30/2021 23:50	2.77	1.34	0.147
5/30/2021 23:45	2.78	1.34	0.148
5/30/2021 23:40	2.8	1.35	0.15
5/30/2021 23:35	2.8	1.31	0.146
5/30/2021 23:30	2.79	1.21	0.134
5/30/2021 23:25	2.82	1.31	0.147
5/30/2021 23:20	2.9	1.43	0.168
5/30/2021 23:15	2.84	1.34	0.153
5/30/2021 23:10	2.9	1.37	0.16
5/30/2021 23:05	2.91	1.38	0.163
5/30/2021 23:00	2.93	1.4	0.166
5/30/2021 22:55	2.94	1.42	0.17
5/30/2021 22:50	2.95	1.42	0.17
5/30/2021 22:45	2.99	1.42	0.174
5/30/2021 22:40	2.97	1.42	0.173
5/30/2021 22:35	2.95	1.39	0.167
5/30/2021 22:30	3.03	1.41	0.177
5/30/2021 22:25	3.08	1.41	0.18
5/30/2021 22:20	3.07	1.45	0.185
5/30/2021 22:15	2.99	1.37	0.168
5/30/2021 22:10	3	1.37	0.169
5/30/2021 22:05	3.08	1.47	0.189
5/30/2021 22:00	3.18	1.51	0.202
5/30/2021 21:55	3.16	1.51	0.2
5/30/2021 21:50	3.11	1.49	0.193
5/30/2021 21:45	3.1	1.45	0.187
5/30/2021 21:40	3.1	1.46	0.188
5/30/2021 21:35	3.18	1.52	0.204
5/30/2021 21:30	3.18	1.52	0.205
5/30/2021 21:25	3.3	1.54	0.218
5/30/2021 21:20	3.29	1.54	0.216
5/30/2021 21:15	3.3	1.55	0.219
5/30/2021 21:10	3.41	1.58	0.234
5/30/2021 21:05	3.35	1.52	0.22
5/30/2021 21:00	3.34	1.53	0.22
5/30/2021 20:55	3.35	1.56	0.225
5/30/2021 20:50	3.37	1.56	0.228
5/30/2021 20:45	3.37	1.56	0.227
5/30/2021 20:40	3.39	1.59	0.233
5/30/2021 20:35	3.4	1.56	0.23
5/30/2021 20:30	3.4	1.6	0.236
5/30/2021 20:25	3.23	1.5	0.206
5/30/2021 20:20	3.25	1.52	0.21
5/30/2021 20:15	3.23	1.53	0.21
5/30/2021 20:10	3.26	1.54	0.214
5/30/2021 20:05	3.23	1.52	0.207

5/30/2021 20:00	3.14	1.51	0.198
5/30/2021 19:55	3.15	1.51	0.199
5/30/2021 19:50	3.27	1.54	0.215
5/30/2021 19:45	3.29	1.58	0.223
5/30/2021 19:40	3.21	1.27	0.173
5/30/2021 19:35	3.19	1.49	0.201
5/30/2021 19:30	3.25	1.51	0.209
5/30/2021 19:25	3.31	1.55	0.22
5/30/2021 19:20	3.23	1.5	0.205
5/30/2021 19:15	3.24	1.49	0.205
5/30/2021 19:10	3.25	1.55	0.215
5/30/2021 19:05	3.35	1.55	0.225
5/30/2021 19:00	3.36	1.55	0.225
5/30/2021 18:55	3.4	1.6	0.236
5/30/2021 18:50	3.4	1.59	0.234
5/30/2021 18:45	3.41	1.61	0.238
5/30/2021 18:40	3.37	1.58	0.23
5/30/2021 18:35	3.34	1.52	0.219
5/30/2021 18:30	3.45	1.64	0.248
5/30/2021 18:25	3.42	1.59	0.236
5/30/2021 18:20	3.43	1.6	0.239
5/30/2021 18:15	3.43	1.59	0.238
5/30/2021 18:10	3.35	1.53	0.221
5/30/2021 18:05	3.21	1.53	0.208
5/30/2021 18:00	3.24	1.55	0.213
5/30/2021 17:55	3.19	1.55	0.208
5/30/2021 17:50	3.11	1.49	0.193
5/30/2021 17:45	3.14	1.49	0.196
5/30/2021 17:40	3.25	1.52	0.209
5/30/2021 17:35	3.23	1.51	0.207
5/30/2021 17:30	3.23	1.51	0.206
5/30/2021 17:25	3.24	1.51	0.207
5/30/2021 17:20	3.24	1.51	0.208
5/30/2021 17:15	3.2	1.47	0.199
5/30/2021 17:10	3.11	1.47	0.19
5/30/2021 17:05	3.19	1.5	0.201
5/30/2021 17:00	3.25	1.54	0.212
5/30/2021 16:55	3.26	1.54	0.213
5/30/2021 16:50	3.28	1.53	0.215
5/30/2021 16:45	3.23	1.5	0.206
5/30/2021 16:40	3.25	1.53	0.212
5/30/2021 16:35	3.24	1.49	0.206
5/30/2021 16:30	3.2	1.48	0.2
5/30/2021 16:25	3.27	1.57	0.219
5/30/2021 16:20	3.32	1.6	0.228
5/30/2021 16:15	3.32	1.6	0.228
5/30/2021 16:10	3.33	1.6	0.229

5/30/2021 16:05	3.37	1.61	0.233
5/30/2021 16:00	3.38	1.62	0.237
5/30/2021 15:55	3.19	1.51	0.202
5/30/2021 15:50	3.18	1.48	0.198
5/30/2021 15:45	3.2	1.49	0.201
5/30/2021 15:40	3.26	1.54	0.214
5/30/2021 15:35	3.16	1.54	0.205
5/30/2021 15:30	3.17	1.52	0.203
5/30/2021 15:25	3.24	1.53	0.21
5/30/2021 15:20	3.28	1.56	0.218
5/30/2021 15:15	3.21	1.54	0.208
5/30/2021 15:10	3.2	1.51	0.205
5/30/2021 15:05	3.2	1.53	0.207
5/30/2021 15:00	3.32	1.57	0.224
5/30/2021 14:55	3.26	1.57	0.218
5/30/2021 14:50	3.34	1.59	0.229
5/30/2021 14:45	3.34	1.59	0.229
5/30/2021 14:40	3.3	1.62	0.228
5/30/2021 14:35	3.18	1.04	0.139
5/30/2021 14:30	3.18	1.01	0.135
5/30/2021 14:25	3.31	1.6	0.227
5/30/2021 14:20	3.28	1.49	0.208
5/30/2021 14:15	3.24	1.52	0.209
5/30/2021 14:10	3.23	1.52	0.209
5/30/2021 14:05	3.29	1.53	0.214
5/30/2021 14:00	3.29	1.52	0.215
5/30/2021 13:55	3.27	1.49	0.208
5/30/2021 13:50	3.25	1.49	0.205
5/30/2021 13:45	3.45	1.58	0.237
5/30/2021 13:40	3.47	1.56	0.237
5/30/2021 13:35	3.58	1.68	0.266
5/30/2021 13:30	3.58	1.61	0.255
5/30/2021 13:25	3.61	1.66	0.268
5/30/2021 13:20	3.54	1.63	0.254
5/30/2021 13:15	3.45	1.6	0.241
5/30/2021 13:10	3.43	1.65	0.247
5/30/2021 13:05	3.5	1.66	0.256
5/30/2021 13:00	3.47	1.65	0.25
5/30/2021 12:55	3.5	1.66	0.255
5/30/2021 12:50	3.46	1.64	0.248
5/30/2021 12:45	3.53	1.65	0.256
5/30/2021 12:40	3.51	1.66	0.256
5/30/2021 12:35	3.5	1.67	0.257
5/30/2021 12:30	3.53	1.69	0.263
5/30/2021 12:25	3.45	1.62	0.244
5/30/2021 12:20	3.5	1.63	0.251
5/30/2021 12:15	3.48	1.63	0.249

5/30/2021 12:10	3.48	1.63	0.249
5/30/2021 12:05	3.64	1.71	0.277
5/30/2021 12:00	3.65	1.66	0.271
5/30/2021 11:55	3.61	1.67	0.268
5/30/2021 11:50	3.63	1.67	0.271
5/30/2021 11:45	3.64	1.72	0.28
5/30/2021 11:40	3.62	1.67	0.268
5/30/2021 11:35	3.62	1.66	0.268
5/30/2021 11:30	3.61	1.64	0.264
5/30/2021 11:25	3.65	1.65	0.27
5/30/2021 11:20	3.66	1.63	0.268
5/30/2021 11:15	3.66	1.67	0.273
5/30/2021 11:10	3.65	1.63	0.267
5/30/2021 11:05	3.66	1.59	0.261
5/30/2021 11:00	3.67	1.64	0.27
5/30/2021 10:55	3.7	1.64	0.274
5/30/2021 10:50	3.64	1.63	0.266
5/30/2021 10:45	3.62	1.63	0.263
5/30/2021 10:40	3.62	1.59	0.258
5/30/2021 10:35	3.71	1.6	0.267
5/30/2021 10:30	3.73	1.54	0.26
5/30/2021 10:25	3.77	1.73	0.296
5/30/2021 10:20	3.81	1.79	0.31
5/30/2021 10:15	3.8	1.7	0.293
5/30/2021 10:10	3.75	1.68	0.285
5/30/2021 10:05	3.74	1.71	0.288
5/30/2021 10:00	3.72	1.6	0.268
5/30/2021 9:55	3.71	1.66	0.278
5/30/2021 9:50	3.79	1.73	0.299
5/30/2021 9:45	3.8	1.73	0.299
5/30/2021 9:40	3.78	1.73	0.297
5/30/2021 9:35	3.77	1.73	0.296
5/30/2021 9:30	3.59	1.71	0.274
5/30/2021 9:25	3.58	1.64	0.26
5/30/2021 9:20	3.61	1.62	0.261
5/30/2021 9:15	3.62	1.61	0.26
5/30/2021 9:10	3.63	1.63	0.263
5/30/2021 9:05	3.68	1.59	0.262
5/30/2021 9:00	3.65	1.52	0.248
5/30/2021 8:55	3.69	1.75	0.29
5/30/2021 8:50	3.52	1.57	0.243
5/30/2021 8:45	3.39	1.55	0.227
5/30/2021 8:40	3.24	1.53	0.21
5/30/2021 8:35	3.12	1.44	0.188
5/30/2021 8:30	3.19	1.49	0.2
5/30/2021 8:25	3.18	1.48	0.198
5/30/2021 8:20	3.09	1.5	0.192

5/30/2021 8:15	3.06	1.5	0.191
5/30/2021 8:10	3.04	1.5	0.189
5/30/2021 8:05	3	1.4	0.172
5/30/2021 8:00	2.99	1.4	0.172
5/30/2021 7:55	2.99	1.38	0.169
5/30/2021 7:50	2.89	1.38	0.161
5/30/2021 7:45	2.8	1.28	0.143
5/30/2021 7:40	2.8	1.32	0.147
5/30/2021 7:35	2.82	1.32	0.149
5/30/2021 7:30	2.84	1.39	0.158
5/30/2021 7:25	2.69	1.27	0.133
5/30/2021 7:20	2.66	1.28	0.133
5/30/2021 7:15	2.64	1.24	0.126
5/30/2021 7:10	2.65	1.23	0.127
5/30/2021 7:05	2.61	1.2	0.122
5/30/2021 7:00	2.61	1.21	0.121
5/30/2021 6:55	2.62	1.21	0.122
5/30/2021 6:50	2.67	1.28	0.133
5/30/2021 6:45	2.63	1.24	0.126
5/30/2021 6:40	2.61	1.24	0.125
5/30/2021 6:35	2.44	1.09	0.1
5/30/2021 6:30	2.47	1.11	0.103
5/30/2021 6:25	2.48	1.11	0.103
5/30/2021 6:20	2.36	1.14	0.099
5/30/2021 6:15	2.33	1.09	0.093
5/30/2021 6:10	2.31	1.08	0.091
5/30/2021 6:05	2.31	1.11	0.094
5/30/2021 6:00	2.33	1.12	0.095
5/30/2021 5:55	2.1	0.66	0.049
5/30/2021 5:50	2.13	0.99	0.074
5/30/2021 5:45	2.11	0.91	0.067
5/30/2021 5:40	2.12	0.75	0.056
5/30/2021 5:35	2.14	1	0.076
5/30/2021 5:30	2.15	1	0.075
5/30/2021 5:25	2.07	0.96	0.069
5/30/2021 5:20	2.06	0.95	0.068
5/30/2021 5:15	2.01	0.94	0.065
5/30/2021 5:10	2.02	0.95	0.066
5/30/2021 5:05	1.98	0.82	0.055
5/30/2021 5:00	1.99	0.74	0.05
5/30/2021 4:55	2.01	0.92	0.064
5/30/2021 4:50	2.03	0.91	0.064
5/30/2021 4:45	2.07	0.91	0.065
5/30/2021 4:40	2.09	0.99	0.072
5/30/2021 4:35	2.09	1	0.073
5/30/2021 4:30	2.09	1	0.073
5/30/2021 4:25	2.04	0.94	0.066

5/30/2021 4:20	2.05	0.94	0.067
5/30/2021 4:15	2.03	0.93	0.065
5/30/2021 4:10	2.03	0.9	0.062
5/30/2021 4:05	2.04	0.84	0.059
5/30/2021 4:00	2.03	0.82	0.057
5/30/2021 3:55	2.01	0.97	0.067
5/30/2021 3:50	1.97	0.88	0.059
5/30/2021 3:45	1.97	0.88	0.059
5/30/2021 3:40	2	0.89	0.061
5/30/2021 3:35	2.01	0.89	0.062
5/30/2021 3:30	2.04	0.97	0.068
5/30/2021 3:25	2.03	0.97	0.068
5/30/2021 3:20	2.02	1.07	0.075
5/30/2021 3:15	2.03	0.9	0.063
5/30/2021 3:10	2.03	0.9	0.063
5/30/2021 3:05	2.03	0.91	0.064
5/30/2021 3:00	2.07	0.92	0.066
5/30/2021 2:55	2.09	0.92	0.067
5/30/2021 2:50	2.09	0.9	0.065
5/30/2021 2:45	2.13	0.92	0.069
5/30/2021 2:40	2.15	0.97	0.073
5/30/2021 2:35	2.15	0.97	0.074
5/30/2021 2:30	2.14	0.93	0.07
5/30/2021 2:25	2.17	1	0.077
5/30/2021 2:20	2.16	1.02	0.079
5/30/2021 2:15	2.15	1.01	0.076
5/30/2021 2:10	2.14	0.99	0.075
5/30/2021 2:05	2.17	1.01	0.078
5/30/2021 2:00	2.14	0.99	0.075
5/30/2021 1:55	2.14	0.98	0.074
5/30/2021 1:50	2.15	0.99	0.075
5/30/2021 1:45	2.19	1.01	0.078
5/30/2021 1:40	2.22	1.03	0.082
5/30/2021 1:35	2.15	0.99	0.075
5/30/2021 1:30	2.2	1.02	0.08
5/30/2021 1:25	2.22	1.04	0.083
5/30/2021 1:20	2.22	1.05	0.084
5/30/2021 1:15	2.24	1.08	0.087
5/30/2021 1:10	2.21	0.92	0.073
5/30/2021 1:05	2.23	1.06	0.085
5/30/2021 1:00	2.25	1.05	0.086
5/30/2021 0:55	2.27	1.05	0.086
5/30/2021 0:50	2.32	1.07	0.091
5/30/2021 0:45	2.33	1.08	0.092
5/30/2021 0:40	2.4	1.13	0.101
5/30/2021 0:35	2.42	1.14	0.103
5/30/2021 0:30	2.45	1.13	0.104

5/30/2021 0:25	2.46	1.14	0.105
5/30/2021 0:20	2.49	1.14	0.108
5/30/2021 0:15	2.53	1.18	0.114
5/30/2021 0:10	2.55	1.18	0.114
5/30/2021 0:05	2.59	1.19	0.118
5/30/2021 0:00	2.59	1.19	0.119
5/29/2021 23:55	2.59	1.16	0.116
5/29/2021 23:50	2.6	1.1	0.11
5/29/2021 23:45	2.67	1.17	0.121
5/29/2021 23:40	2.74	1.24	0.134
5/29/2021 23:35	2.74	1.23	0.133
5/29/2021 23:30	2.77	1.3	0.143
5/29/2021 23:25	2.72	1.24	0.133
5/29/2021 23:20	2.83	1.34	0.151
5/29/2021 23:15	2.88	1.37	0.158
5/29/2021 23:10	2.89	1.35	0.158
5/29/2021 23:05	2.93	1.33	0.158
5/29/2021 23:00	2.89	1.3	0.151
5/29/2021 22:55	3.06	1.41	0.179
5/29/2021 22:50	3	1.4	0.173
5/29/2021 22:45	2.94	1.39	0.166
5/29/2021 22:40	2.92	1.36	0.161
5/29/2021 22:35	2.95	1.4	0.168
5/29/2021 22:30	2.92	1.38	0.163
5/29/2021 22:25	2.92	1.38	0.164
5/29/2021 22:20	2.92	1.4	0.166
5/29/2021 22:15	2.89	1.36	0.159
5/29/2021 22:10	2.95	1.37	0.164
5/29/2021 22:05	3.07	1.43	0.181
5/29/2021 22:00	3.18	1.49	0.2
5/29/2021 21:55	3.22	1.52	0.207
5/29/2021 21:50	3.24	1.55	0.212
5/29/2021 21:45	3.16	1.49	0.199
5/29/2021 21:40	3.16	1.07	0.142
5/29/2021 21:35	3.15	1.49	0.197
5/29/2021 21:30	3.23	1.5	0.206
5/29/2021 21:25	3.28	1.49	0.209
5/29/2021 21:20	3.23	1.52	0.207
5/29/2021 21:15	3.25	1.53	0.21
5/29/2021 21:10	3.24	1.53	0.21
5/29/2021 21:05	3.18	1.52	0.203
5/29/2021 21:00	3.17	1.49	0.198
5/29/2021 20:55	3.25	1.52	0.211
5/29/2021 20:50	3.23	1.51	0.207
5/29/2021 20:45	3.19	1.49	0.2
5/29/2021 20:40	3.24	1.47	0.202
5/29/2021 20:35	3.22	1.51	0.206

5/29/2021 20:30	3.06	1.44	0.183
5/29/2021 20:25	3.06	1.44	0.182
5/29/2021 20:20	3.18	1.5	0.201
5/29/2021 20:15	3.16	1.51	0.2
5/29/2021 20:10	3.18	1.52	0.204
5/29/2021 20:05	3.24	1.53	0.211
5/29/2021 20:00	3.24	1.54	0.212
5/29/2021 19:55	3.24	1.54	0.213
5/29/2021 19:50	3.25	1.53	0.212
5/29/2021 19:45	3.16	1.47	0.196
5/29/2021 19:40	3.16	1.45	0.193
5/29/2021 19:35	3.19	1.45	0.195
5/29/2021 19:30	3.21	1.53	0.208
5/29/2021 19:25	3.28	1.56	0.219
5/29/2021 19:20	3.31	1.55	0.221
5/29/2021 19:15	3.26	1.52	0.211
5/29/2021 19:10	3.25	1.51	0.208
5/29/2021 19:05	3.26	1.52	0.211
5/29/2021 19:00	3.21	1.52	0.206
5/29/2021 18:55	3.19	1.5	0.202
5/29/2021 18:50	3.25	1.52	0.209
5/29/2021 18:45	3.26	1.53	0.212
5/29/2021 18:40	3.25	1.53	0.212
5/29/2021 18:35	3.25	1.53	0.212
5/29/2021 18:30	3.19	1.5	0.202
5/29/2021 18:25	3.16	1.45	0.193
5/29/2021 18:20	3.28	1.53	0.214
5/29/2021 18:15	3.28	1.55	0.217
5/29/2021 18:10	3.24	1.54	0.211
5/29/2021 18:05	3.21	1.53	0.208
5/29/2021 18:00	3.21	1.51	0.206
5/29/2021 17:55	3.3	1.5	0.212
5/29/2021 17:50	3.22	1.49	0.203
5/29/2021 17:45	3.35	1.55	0.224
5/29/2021 17:40	3.32	1.55	0.221
5/29/2021 17:35	3.33	1.55	0.222
5/29/2021 17:30	3.32	1.54	0.22
5/29/2021 17:25	3.33	1.56	0.223
5/29/2021 17:20	3.3	1.55	0.22
5/29/2021 17:15	3.3	1.54	0.217
5/29/2021 17:10	3.29	1.53	0.216
5/29/2021 17:05	3.24	1.48	0.203
5/29/2021 17:00	3.39	1.59	0.233
5/29/2021 16:55	3.41	1.68	0.249
5/29/2021 16:50	3.4	1.56	0.23
5/29/2021 16:45	3.26	1.53	0.213
5/29/2021 16:40	3.24	1.65	0.227

5/29/2021 16:35	3.22	1.59	0.217
5/29/2021 16:30	3.23	1.51	0.206
5/29/2021 16:25	3.35	1.57	0.227
5/29/2021 16:20	3.42	1.61	0.238
5/29/2021 16:15	3.34	1.57	0.226
5/29/2021 16:10	3.25	1.52	0.21
5/29/2021 16:05	3.26	1.54	0.214
5/29/2021 16:00	3.27	1.55	0.216
5/29/2021 15:55	3.26	1.54	0.213
5/29/2021 15:50	3.26	1.54	0.213
5/29/2021 15:45	3.27	1.54	0.214
5/29/2021 15:40	3.27	1.54	0.215
5/29/2021 15:35	3.28	1.54	0.216
5/29/2021 15:30	3.28	1.54	0.216
5/29/2021 15:25	3.27	1.53	0.214
5/29/2021 15:20	3.33	1.56	0.224
5/29/2021 15:15	3.35	1.64	0.236
5/29/2021 15:10	3.34	1.61	0.232
5/29/2021 15:05	3.33	1.59	0.228
5/29/2021 15:00	3.31	1.6	0.226
5/29/2021 14:55	3.31	1.57	0.223
5/29/2021 14:50	3.3	1.57	0.221
5/29/2021 14:45	3.39	1.59	0.234
5/29/2021 14:40	3.35	1.57	0.226
5/29/2021 14:35	3.36	1.57	0.227
5/29/2021 14:30	3.38	1.58	0.231
5/29/2021 14:25	3.38	1.58	0.231
5/29/2021 14:20	3.37	1.58	0.23
5/29/2021 14:15	3.44	1.59	0.238
5/29/2021 14:10	3.51	1.64	0.253
5/29/2021 14:05	3.54	1.67	0.261
5/29/2021 14:00	3.52	1.67	0.259
5/29/2021 13:55	3.53	1.65	0.257
5/29/2021 13:50	3.52	1.63	0.253
5/29/2021 13:45	3.43	1.53	0.229
5/29/2021 13:40	3.45	1.58	0.237
5/29/2021 13:35	3.47	1.58	0.24
5/29/2021 13:30	3.41	1.6	0.238
5/29/2021 13:25	3.31	1.58	0.224
5/29/2021 13:20	3.39	1.63	0.239
5/29/2021 13:15	3.36	1.59	0.23
5/29/2021 13:10	3.37	1.6	0.233
5/29/2021 13:05	3.48	1.64	0.251
5/29/2021 13:00	3.41	1.61	0.238
5/29/2021 12:55	3.42	1.58	0.235
5/29/2021 12:50	3.43	1.59	0.237
5/29/2021 12:45	3.43	1.6	0.239

5/29/2021 12:40	3.51	1.62	0.25
5/29/2021 12:35	3.51	1.62	0.251
5/29/2021 12:30	3.45	1.58	0.238
5/29/2021 12:25	3.48	1.63	0.249
5/29/2021 12:20	3.7	1.7	0.284
5/29/2021 12:15	3.69	1.71	0.283
5/29/2021 12:10	3.59	1.68	0.267
5/29/2021 12:05	3.58	1.68	0.267
5/29/2021 12:00	3.59	1.68	0.267
5/29/2021 11:55	3.57	1.65	0.261
5/29/2021 11:50	3.6	1.7	0.271
5/29/2021 11:45	3.56	1.65	0.259
5/29/2021 11:40	3.56	1.64	0.259
5/29/2021 11:35	3.62	1.72	0.277
5/29/2021 11:30	3.61	1.7	0.272
5/29/2021 11:25	3.71	1.77	0.296
5/29/2021 11:20	3.68	1.78	0.294
5/29/2021 11:15	3.57	1.68	0.266
5/29/2021 11:10	3.51	1.63	0.252
5/29/2021 11:05	3.64	1.66	0.27
5/29/2021 11:00	3.59	1.66	0.264
5/29/2021 10:55	3.63	1.79	0.29
5/29/2021 10:50	3.66	1.71	0.28
5/29/2021 10:45	3.62	1.64	0.265
5/29/2021 10:40	3.68	1.7	0.281
5/29/2021 10:35	3.68	1.71	0.284
5/29/2021 10:30	3.8	1.79	0.308
5/29/2021 10:25	3.76	1.72	0.294
5/29/2021 10:20	3.73	1.73	0.291
5/29/2021 10:15	3.73	1.69	0.285
5/29/2021 10:10	3.79	1.74	0.299
5/29/2021 10:05	3.72	1.71	0.287
5/29/2021 10:00	3.65	1.67	0.273
5/29/2021 9:55	3.69	1.66	0.275
5/29/2021 9:50	3.69	1.68	0.277
5/29/2021 9:45	3.69	1.73	0.287
5/29/2021 9:40	3.7	1.74	0.29
5/29/2021 9:35	3.71	1.75	0.291
5/29/2021 9:30	3.6	1.73	0.277
5/29/2021 9:25	3.57	1.64	0.259
5/29/2021 9:20	3.53	1.64	0.255
5/29/2021 9:15	3.5	1.6	0.247
5/29/2021 9:10	3.51	1.63	0.251
5/29/2021 9:05	3.48	1.62	0.246
5/29/2021 9:00	3.47	1.6	0.243
5/29/2021 8:55	3.46	1.59	0.24
5/29/2021 8:50	3.46	1.6	0.242

5/29/2021 8:45	3.33	1.53	0.22
5/29/2021 8:40	3.33	1.53	0.22
5/29/2021 8:35	3.38	1.54	0.225
5/29/2021 8:30	3.34	1.54	0.222
5/29/2021 8:25	3.32	1.54	0.22
5/29/2021 8:20	3.24	1.49	0.205
5/29/2021 8:15	3.27	1.51	0.211
5/29/2021 8:10	3.23	1.48	0.203
5/29/2021 8:05	3.23	1.52	0.209
5/29/2021 8:00	3.12	1.52	0.198
5/29/2021 7:55	3.04	1.39	0.175
5/29/2021 7:50	3.03	1.41	0.176
5/29/2021 7:45	2.94	1.39	0.166
5/29/2021 7:40	2.93	1.4	0.167
5/29/2021 7:35	2.93	1.41	0.167
5/29/2021 7:30	2.96	1.43	0.173
5/29/2021 7:25	2.83	1.34	0.152
5/29/2021 7:20	2.83	1.35	0.153
5/29/2021 7:15	2.84	1.42	0.161
5/29/2021 7:10	2.68	1.2	0.126
5/29/2021 7:05	2.67	1.27	0.132
5/29/2021 7:00	2.65	1.27	0.13
5/29/2021 6:55	2.59	1.06	0.106
5/29/2021 6:50	2.58	1.2	0.119
5/29/2021 6:45	2.6	1.22	0.122
5/29/2021 6:40	2.61	1.24	0.125
5/29/2021 6:35	2.58	1.24	0.122
5/29/2021 6:30	2.53	1.21	0.117
5/29/2021 6:25	2.47	1.2	0.112
5/29/2021 6:20	2.43	1.18	0.107
5/29/2021 6:15	2.43	1.18	0.107
5/29/2021 6:10	2.35	1.12	0.097
5/29/2021 6:05	2.27	1.07	0.088
5/29/2021 6:00	2.23	1.05	0.084
5/29/2021 5:55	2.22	1.04	0.083
5/29/2021 5:50	2.2	1	0.079
5/29/2021 5:45	2.19	1.05	0.082
5/29/2021 5:40	2.19	1.06	0.083
5/29/2021 5:35	2.15	1.05	0.08
5/29/2021 5:30	2.12	1.04	0.078
5/29/2021 5:25	2.1	0.92	0.068
5/29/2021 5:20	2.1	0.96	0.071
5/29/2021 5:15	2.1	0.96	0.071
5/29/2021 5:10	2.09	0.93	0.068
5/29/2021 5:05	2.09	0.96	0.07
5/29/2021 5:00	2.07	0.95	0.069
5/29/2021 4:55	2.07	0.98	0.071

5/29/2021 4:50	2.07	0.93	0.066
5/29/2021 4:45	2.07	0.93	0.067
5/29/2021 4:40	2.07	0.92	0.066
5/29/2021 4:35	2.07	0.92	0.066
5/29/2021 4:30	2.09	0.99	0.072
5/29/2021 4:25	2.08	0.99	0.072
5/29/2021 4:20	2.06	0.97	0.069
5/29/2021 4:15	2.06	0.75	0.054
5/29/2021 4:10	2.08	0.95	0.068
5/29/2021 4:05	2.09	0.95	0.069
5/29/2021 4:00	2.08	0.95	0.068
5/29/2021 3:55	2.08	0.95	0.069
5/29/2021 3:50	2.04	0.91	0.064
5/29/2021 3:45	2.04	0.92	0.065
5/29/2021 3:40	2.08	0.95	0.068
5/29/2021 3:35	2.09	0.96	0.07
5/29/2021 3:30	2.06	0.92	0.065
5/29/2021 3:25	2.06	0.85	0.06
5/29/2021 3:20	2.11	0.99	0.073
5/29/2021 3:15	2.1	0.99	0.073
5/29/2021 3:10	2.1	0.99	0.072
5/29/2021 3:05	2.08	0.95	0.069
5/29/2021 3:00	2.09	0.95	0.069
5/29/2021 2:55	2.09	0.97	0.071
5/29/2021 2:50	2.1	0.99	0.073
5/29/2021 2:45	2.09	0.99	0.072
5/29/2021 2:40	2.08	0.98	0.071
5/29/2021 2:35	2.04	0.91	0.064
5/29/2021 2:30	2.04	0.91	0.064
5/29/2021 2:25	2.05	0.93	0.066
5/29/2021 2:20	2.07	0.95	0.068
5/29/2021 2:15	2.09	1.01	0.074
5/29/2021 2:10	2.13	1.04	0.078
5/29/2021 2:05	2.2	1.03	0.08
5/29/2021 2:00	2.2	1.03	0.081
5/29/2021 1:55	2.21	1.05	0.083
5/29/2021 1:50	2.14	0.99	0.074
5/29/2021 1:45	2.15	0.98	0.075
5/29/2021 1:40	2.15	0.98	0.074
5/29/2021 1:35	2.18	0.99	0.076
5/29/2021 1:30	2.17	0.99	0.077
5/29/2021 1:25	2.19	0.99	0.077
5/29/2021 1:20	2.23	1.05	0.084
5/29/2021 1:15	2.22	1.05	0.084
5/29/2021 1:10	2.22	1.04	0.082
5/29/2021 1:05	2.22	1.04	0.083
5/29/2021 1:00	2.29	1.07	0.089

5/29/2021 0:55	2.31	1.07	0.09
5/29/2021 0:50	2.33	1.06	0.09
5/29/2021 0:45	2.37	1.11	0.097
5/29/2021 0:40	2.41	1.12	0.101
5/29/2021 0:35	2.52	1.15	0.11
5/29/2021 0:30	2.54	1.19	0.115
5/29/2021 0:25	2.57	1.2	0.118
5/29/2021 0:20	2.55	1.19	0.116
5/29/2021 0:15	2.55	1.19	0.116
5/29/2021 0:10	2.51	1.13	0.107
5/29/2021 0:05	2.5	1.12	0.105
5/29/2021 0:00	2.5	1.09	0.103
5/28/2021 23:55	2.57	1.18	0.116
5/28/2021 23:50	2.69	1.26	0.132
5/28/2021 23:45	2.69	1.24	0.13
5/28/2021 23:40	2.72	1.24	0.133
5/28/2021 23:35	2.7	1.24	0.132
5/28/2021 23:30	2.79	1.28	0.142
5/28/2021 23:25	2.83	1.3	0.147
5/28/2021 23:20	2.78	1.3	0.143
5/28/2021 23:15	2.78	1.3	0.143
5/28/2021 23:10	2.77	1.28	0.14
5/28/2021 23:05	2.89	1.36	0.159
5/28/2021 23:00	2.88	1.36	0.159
5/28/2021 22:55	2.99	1.41	0.174
5/28/2021 22:50	3.03	1.44	0.18
5/28/2021 22:45	3.12	1.47	0.192
5/28/2021 22:40	3.14	1.47	0.194
5/28/2021 22:35	3.17	1.46	0.195
5/28/2021 22:30	3.2	1.43	0.194
5/28/2021 22:25	3.24	1.45	0.199
5/28/2021 22:20	3.1	1.45	0.187
5/28/2021 22:15	3.13	1.45	0.19
5/28/2021 22:10	3.09	1.43	0.183
5/28/2021 22:05	3.09	1.38	0.178
5/28/2021 22:00	3.16	1.52	0.201
5/28/2021 21:55	3.14	1.47	0.194
5/28/2021 21:50	3.15	1.48	0.195
5/28/2021 21:45	3.16	1.48	0.196
5/28/2021 21:40	3.13	1.49	0.194
5/28/2021 21:35	3.03	1.49	0.186
5/28/2021 21:30	3	1.41	0.174
5/28/2021 21:25	2.99	1.41	0.173
5/28/2021 21:20	3.01	1.44	0.178
5/28/2021 21:15	3.06	1.47	0.186
5/28/2021 21:10	3.02	1.41	0.175
5/28/2021 21:05	3.05	1.4	0.177

5/28/2021 21:00	3.09	1.38	0.177
5/28/2021 20:55	3.13	1.41	0.184
5/28/2021 20:50	3.26	1.53	0.212
5/28/2021 20:45	3.25	1.52	0.21
5/28/2021 20:40	3.24	1.52	0.209
5/28/2021 20:35	3.23	1.5	0.205
5/28/2021 20:30	3.24	1.5	0.207
5/28/2021 20:25	3.21	1.49	0.202
5/28/2021 20:20	3.24	1.48	0.204
5/28/2021 20:15	3.24	1.5	0.207
5/28/2021 20:10	3.26	1.52	0.211
5/28/2021 20:05	3.25	1.5	0.207
5/28/2021 20:00	3.26	1.5	0.207
5/28/2021 19:55	3.29	1.52	0.214
5/28/2021 19:50	3.3	1.54	0.218
5/28/2021 19:45	3.23	1.43	0.196
5/28/2021 19:40	3.24	1.41	0.194
5/28/2021 19:35	3.25	1.53	0.211
5/28/2021 19:30	3.29	1.53	0.215
5/28/2021 19:25	3.33	1.58	0.227
5/28/2021 19:20	3.32	1.59	0.227
5/28/2021 19:15	3.33	1.56	0.222
5/28/2021 19:10	3.2	1.52	0.205
5/28/2021 19:05	3.18	1.5	0.201
5/28/2021 19:00	3.27	1.54	0.215
5/28/2021 18:55	3.25	1.52	0.21
5/28/2021 18:50	3.25	1.53	0.211
5/28/2021 18:45	3.26	1.53	0.213
5/28/2021 18:40	3.25	1.54	0.213
5/28/2021 18:35	3.25	1.54	0.213
5/28/2021 18:30	3.25	1.52	0.21
5/28/2021 18:25	3.25	1.53	0.211
5/28/2021 18:20	3.25	1.51	0.208
5/28/2021 18:15	3.24	1.5	0.206
5/28/2021 18:10	3.24	1.53	0.211
5/28/2021 18:05	3.26	1.53	0.212
5/28/2021 18:00	3.33	1.55	0.222
5/28/2021 17:55	3.17	1.49	0.199
5/28/2021 17:50	3.15	1.49	0.197
5/28/2021 17:45	3.14	1.44	0.19
5/28/2021 17:40	3.15	1.45	0.191
5/28/2021 17:35	3.18	1.44	0.192
5/28/2021 17:30	3.23	1.44	0.197
5/28/2021 17:25	3.24	1.45	0.199
5/28/2021 17:20	3.26	1.51	0.21
5/28/2021 17:15	3.3	1.55	0.219
5/28/2021 17:10	3.29	1.52	0.214

5/28/2021 17:05	3.28	1.52	0.213
5/28/2021 17:00	3.31	1.54	0.219
5/28/2021 16:55	3.31	1.55	0.22
5/28/2021 16:50	3.34	1.56	0.224
5/28/2021 16:45	3.31	1.55	0.22
5/28/2021 16:40	3.33	1.54	0.221
5/28/2021 16:35	3.38	1.55	0.226
5/28/2021 16:30	3.39	1.56	0.229
5/28/2021 16:25	3.39	1.58	0.231
5/28/2021 16:20	3.34	1.57	0.226
5/28/2021 16:15	3.32	1.6	0.228
5/28/2021 16:10	3.31	1.6	0.227
5/28/2021 16:05	3.28	1.55	0.217
5/28/2021 16:00	3.2	1.54	0.208
5/28/2021 15:55	3.2	1.54	0.208
5/28/2021 15:50	3.19	1.52	0.205
5/28/2021 15:45	3.18	1.52	0.204
5/28/2021 15:40	3.2	1.51	0.204
5/28/2021 15:35	3.18	1.49	0.199
5/28/2021 15:30	3.07	1.49	0.19
5/28/2021 15:25	2.94	1.36	0.163
5/28/2021 15:20	2.95	1.39	0.167
5/28/2021 15:15	3.13	1.46	0.191
5/28/2021 15:10	3.18	1.49	0.199
5/28/2021 15:05	3.19	1.49	0.2
5/28/2021 15:00	3.14	1.44	0.19
5/28/2021 14:55	3.29	0.87	0.123
5/28/2021 14:50	3.15	0.84	0.111
5/28/2021 14:45	3.3	0.84	0.119
5/28/2021 14:40	3.33	0.82	0.117
5/28/2021 14:35	3.33	0.76	0.109
5/28/2021 14:30	3.36	1.51	0.219
5/28/2021 14:25	3.34	1.47	0.211
5/28/2021 14:20	3.23	1.52	0.208
5/28/2021 14:15	3.26	1.56	0.217
5/28/2021 14:10	3.22	1.48	0.202
5/28/2021 14:05	3.32	1.55	0.221
5/28/2021 14:00	3.48	1.54	0.234
5/28/2021 13:55	3.61	1.71	0.275
5/28/2021 13:50	3.58	1.68	0.266
5/28/2021 13:45	3.53	1.66	0.258
5/28/2021 13:40	3.22	1.5	0.205
5/28/2021 13:35	3.27	1.55	0.217
5/28/2021 13:30	3.27	1.39	0.194
5/28/2021 13:25	3.36	1.58	0.229
5/28/2021 13:20	3.21	1.48	0.2
5/28/2021 13:15	3.2	1.48	0.199

5/28/2021 13:10	3.19	1.49	0.2
5/28/2021 13:05	3.13	1.49	0.194
5/28/2021 13:00	3.26	1.49	0.207
5/28/2021 12:55	3.31	1.51	0.215
5/28/2021 12:50	3.36	1.53	0.222
5/28/2021 12:45	3.35	1.55	0.224
5/28/2021 12:40	3.46	1.56	0.236
5/28/2021 12:35	3.46	1.53	0.231
5/28/2021 12:30	3.44	1.61	0.241
5/28/2021 12:25	3.53	1.66	0.259
5/28/2021 12:20	3.53	1.65	0.256
5/28/2021 12:15	3.56	1.65	0.261
5/28/2021 12:10	3.44	1.59	0.238
5/28/2021 12:05	3.5	1.62	0.249
5/28/2021 12:00	3.51	1.62	0.25
5/28/2021 11:55	3.45	1.62	0.244
5/28/2021 11:50	3.43	1.62	0.242
5/28/2021 11:45	3.4	1.61	0.237
5/28/2021 11:40	3.5	1.64	0.252
5/28/2021 11:35	3.5	1.64	0.253
5/28/2021 11:30	3.42	1.58	0.235
5/28/2021 11:25	3.43	1.58	0.236
5/28/2021 11:20	3.46	1.63	0.247
5/28/2021 11:15	3.45	1.6	0.242
5/28/2021 11:10	3.44	1.6	0.24
5/28/2021 11:05	3.43	1.57	0.235
5/28/2021 11:00	3.42	1.57	0.234
5/28/2021 10:55	3.43	1.58	0.236
5/28/2021 10:50	3.43	1.57	0.235
5/28/2021 10:45	3.46	1.6	0.241
5/28/2021 10:40	3.43	1.6	0.239
5/28/2021 10:35	3.42	1.6	0.238
5/28/2021 10:30	3.38	1.56	0.229
5/28/2021 10:25	3.41	1.54	0.228
5/28/2021 10:20	3.57	1.67	0.265
5/28/2021 10:15	3.56	1.61	0.254
5/28/2021 10:10	3.53	1.6	0.249
5/28/2021 10:05	3.54	1.68	0.262
5/28/2021 10:00	3.55	1.73	0.271
5/28/2021 9:55	3.42	1.59	0.236
5/28/2021 9:50	3.51	1.63	0.251
5/28/2021 9:45	3.56	1.64	0.257
5/28/2021 9:40	3.56	1.65	0.26
5/28/2021 9:35	3.56	1.65	0.259
5/28/2021 9:30	3.49	1.6	0.246
5/28/2021 9:25	3.47	1.6	0.243
5/28/2021 9:20	3.5	1.64	0.252

5/28/2021 9:15	3.48	1.66	0.252
5/28/2021 9:10	3.47	1.6	0.244
5/28/2021 9:05	3.57	1.61	0.255
5/28/2021 9:00	3.56	1.57	0.248
5/28/2021 8:55	3.59	1.66	0.264
5/28/2021 8:50	3.58	1.65	0.263
5/28/2021 8:45	3.6	1.64	0.263
5/28/2021 8:40	3.59	1.64	0.261
5/28/2021 8:35	3.52	1.62	0.25
5/28/2021 8:30	3.6	1.65	0.263
5/28/2021 8:25	3.63	1.64	0.266
5/28/2021 8:20	3.41	1.61	0.239
5/28/2021 8:15	3.41	1.57	0.232
5/28/2021 8:10	3.35	1.53	0.22
5/28/2021 8:05	3.34	1.52	0.218
5/28/2021 8:00	3.38	1.53	0.224
5/28/2021 7:55	3.37	1.54	0.224
5/28/2021 7:50	3.37	1.54	0.223
5/28/2021 7:45	3.31	1.5	0.213
5/28/2021 7:40	3.32	1.52	0.216
5/28/2021 7:35	3.33	1.51	0.216
5/28/2021 7:30	3.35	1.52	0.219
5/28/2021 7:25	3.33	1.52	0.217
5/28/2021 7:20	3.26	1.48	0.206
5/28/2021 7:15	3.27	1.49	0.207
5/28/2021 7:10	3.27	1.53	0.214
5/28/2021 7:05	3.27	1.54	0.214
5/28/2021 7:00	3.24	1.53	0.21
5/28/2021 6:55	3.16	1.49	0.198
5/28/2021 6:50	3.09	1.45	0.186
5/28/2021 6:45	3.08	1.43	0.183
5/28/2021 6:40	3.09	1.44	0.185
5/28/2021 6:35	3.01	1.41	0.174
5/28/2021 6:30	2.9	1.37	0.161
5/28/2021 6:25	2.83	1.34	0.151
5/28/2021 6:20	2.77	1.32	0.145
5/28/2021 6:15	2.71	1.3	0.138
5/28/2021 6:10	2.62	1.24	0.126
5/28/2021 6:05	2.6	1.2	0.12
5/28/2021 6:00	2.6	1.22	0.123
5/28/2021 5:55	2.53	1.2	0.115
5/28/2021 5:50	2.53	1.19	0.115
5/28/2021 5:45	2.51	1.19	0.113
5/28/2021 5:40	2.4	1.17	0.104
5/28/2021 5:35	2.22	1.06	0.085
5/28/2021 5:30	2.2	1.06	0.084
5/28/2021 5:25	2.17	1.06	0.082

5/28/2021 5:20	2.12	0.9	0.067
5/28/2021 5:15	2.14	0.93	0.071
5/28/2021 5:10	2.14	0.98	0.074
5/28/2021 5:05	2.14	0.99	0.075
5/28/2021 5:00	2.14	0.99	0.074
5/28/2021 4:55	2.13	0.99	0.074
5/28/2021 4:50	2.11	0.97	0.072
5/28/2021 4:45	2.14	0.97	0.073
5/28/2021 4:40	2.14	0.96	0.072
5/28/2021 4:35	2.15	1.01	0.077
5/28/2021 4:30	2.16	1.03	0.079
5/28/2021 4:25	2.18	1.03	0.08
5/28/2021 4:20	2.17	1.04	0.08
5/28/2021 4:15	2.17	1.03	0.079
5/28/2021 4:10	2.12	1	0.074
5/28/2021 4:05	2.11	1	0.074
5/28/2021 4:00	2.11	0.98	0.072
5/28/2021 3:55	2.11	0.97	0.072
5/28/2021 3:50	2.06	0.94	0.067
5/28/2021 3:45	2.06	0.94	0.067
5/28/2021 3:40	2.05	0.92	0.065
5/28/2021 3:35	2.05	0.9	0.064
5/28/2021 3:30	2.05	0.94	0.066
5/28/2021 3:25	2.05	0.94	0.067
5/28/2021 3:20	2.02	0.9	0.063
5/28/2021 3:15	1.99	0.88	0.06
5/28/2021 3:10	1.99	0.71	0.048
5/28/2021 3:05	2.01	0.56	0.039
5/28/2021 3:00	2.05	0.92	0.065
5/28/2021 2:55	2.06	0.92	0.066
5/28/2021 2:50	2.07	0.95	0.068
5/28/2021 2:45	2.07	0.92	0.066
5/28/2021 2:40	2.06	0.91	0.065
5/28/2021 2:35	2.08	0.91	0.066
5/28/2021 2:30	2.12	0.99	0.074
5/28/2021 2:25	2.17	1.01	0.078
5/28/2021 2:20	2.09	0.94	0.069
5/28/2021 2:15	2.09	0.95	0.069
5/28/2021 2:10	2.12	0.98	0.073
5/28/2021 2:05	2.14	1	0.075
5/28/2021 2:00	2.14	0.99	0.074
5/28/2021 1:55	2.14	0.99	0.075
5/28/2021 1:50	2.18	1.03	0.08
5/28/2021 1:45	2.16	0.99	0.075
5/28/2021 1:40	2.16	0.98	0.075
5/28/2021 1:35	2.14	0.96	0.072
5/28/2021 1:30	2.13	0.96	0.072

5/28/2021 1:25	2.14	0.98	0.074
5/28/2021 1:20	2.15	0.99	0.075
5/28/2021 1:15	2.17	0.98	0.076
5/28/2021 1:10	2.21	1.01	0.08
5/28/2021 1:05	2.28	1.01	0.084
5/28/2021 1:00	2.31	0.95	0.08
5/28/2021 0:55	2.34	0.9	0.077
5/28/2021 0:50	2.33	0.89	0.077
5/28/2021 0:45	2.34	0.82	0.071
5/28/2021 0:40	2.35	0.87	0.075
5/28/2021 0:35	2.42	1.11	0.1
5/28/2021 0:30	2.43	1.13	0.103
5/28/2021 0:25	2.47	1.14	0.106
5/28/2021 0:20	2.5	1.14	0.107
5/28/2021 0:15	2.55	1.2	0.117
5/28/2021 0:10	2.55	1.15	0.112
5/28/2021 0:05	2.57	1.16	0.114
5/28/2021 0:00	2.6	1.22	0.122
5/27/2021 23:55	2.62	1.22	0.123
5/27/2021 23:50	2.66	1.24	0.128
5/27/2021 23:45	2.65	1.06	0.11
5/27/2021 23:40	2.66	1.14	0.118
5/27/2021 23:35	2.77	1.04	0.115
5/27/2021 23:30	2.82	1.25	0.141
5/27/2021 23:25	2.84	1.29	0.147
5/27/2021 23:20	2.89	1.29	0.151
5/27/2021 23:15	2.9	1.35	0.159
5/27/2021 23:10	2.84	1.31	0.15
5/27/2021 23:05	2.85	1.33	0.152
5/27/2021 23:00	2.87	1.32	0.153
5/27/2021 22:55	2.93	1.32	0.157
5/27/2021 22:50	2.98	1.38	0.169
5/27/2021 22:45	3.05	1.43	0.18
5/27/2021 22:40	3.09	1.44	0.186
5/27/2021 22:35	3.11	1.46	0.189
5/27/2021 22:30	3.03	1.3	0.162
5/27/2021 22:25	3.05	1.51	0.191
5/27/2021 22:20	3.2	1.54	0.208
5/27/2021 22:15	3.2	1.55	0.21
5/27/2021 22:10	3.19	1.52	0.204
5/27/2021 22:05	3.32	1.56	0.222
5/27/2021 22:00	3.33	1.56	0.223
5/27/2021 21:55	3.33	1.57	0.225
5/27/2021 21:50	3.29	1.54	0.216
5/27/2021 21:45	3.36	1.57	0.227
5/27/2021 21:40	3.36	1.56	0.227
5/27/2021 21:35	3.43	1.56	0.233

5/27/2021 21:30	3.47	1.66	0.253
5/27/2021 21:25	3.28	1.5	0.21
5/27/2021 21:20	3.42	1.6	0.237
5/27/2021 21:15	3.45	1.65	0.248
5/27/2021 21:10	3.46	1.66	0.25
5/27/2021 21:05	3.49	1.68	0.258
5/27/2021 21:00	3.49	1.64	0.251
5/27/2021 20:55	3.49	1.64	0.251
5/27/2021 20:50	3.49	1.64	0.25
5/27/2021 20:45	3.42	1.59	0.237
5/27/2021 20:40	3.45	1.61	0.242
5/27/2021 20:35	3.45	1.6	0.242
5/27/2021 20:30	3.47	1.59	0.242
5/27/2021 20:25	3.55	1.58	0.248
5/27/2021 20:20	3.58	1.69	0.269
5/27/2021 20:15	3.61	1.73	0.279
5/27/2021 20:10	3.42	1.59	0.236
5/27/2021 20:05	3.39	1.55	0.228
5/27/2021 20:00	3.28	1.54	0.215
5/27/2021 19:55	3.28	1.54	0.216
5/27/2021 19:50	3.25	1.52	0.209
5/27/2021 19:45	3.24	1.52	0.209
5/27/2021 19:40	3.23	1.52	0.209
5/27/2021 19:35	3.26	1.54	0.214
5/27/2021 19:30	3.21	1.53	0.208
5/27/2021 19:25	3.22	1.52	0.208
5/27/2021 19:20	3.32	1.55	0.221
5/27/2021 19:15	3.32	1.56	0.222
5/27/2021 19:10	3.34	1.57	0.225
5/27/2021 19:05	3.32	1.56	0.223
5/27/2021 19:00	3.33	1.55	0.222
5/27/2021 18:55	3.37	1.56	0.227
5/27/2021 18:50	3.39	1.57	0.231
5/27/2021 18:45	3.25	1.54	0.212
5/27/2021 18:40	3.24	1.54	0.212
5/27/2021 18:35	3.3	1.57	0.222
5/27/2021 18:30	3.28	1.58	0.221
5/27/2021 18:25	3.26	1.57	0.218
5/27/2021 18:20	3.27	1.58	0.22
5/27/2021 18:15	3.26	1.58	0.219
5/27/2021 18:10	3.26	1.58	0.22
5/27/2021 18:05	3.23	1.36	0.187
5/27/2021 18:00	3.23	1.51	0.206
5/27/2021 17:55	3.26	1.56	0.217
5/27/2021 17:50	3.27	1.53	0.214
5/27/2021 17:45	3.27	1.54	0.215
5/27/2021 17:40	3.28	1.53	0.214

5/27/2021 17:35	3.2	1.52	0.205
5/27/2021 17:30	3.19	1.48	0.198
5/27/2021 17:25	3.2	1.47	0.2
5/27/2021 17:20	3.21	1.47	0.199
5/27/2021 17:15	3.27	1.48	0.207
5/27/2021 17:10	3.29	1.55	0.218
5/27/2021 17:05	3.31	1.55	0.22
5/27/2021 17:00	3.32	1.56	0.222
5/27/2021 16:55	3.35	1.57	0.226
5/27/2021 16:50	3.35	1.55	0.223
5/27/2021 16:45	3.38	1.56	0.229
5/27/2021 16:40	3.44	1.55	0.233
5/27/2021 16:35	3.42	1.62	0.241
5/27/2021 16:30	3.41	1.61	0.239
5/27/2021 16:25	3.42	1.61	0.239
5/27/2021 16:20	3.45	1.61	0.243
5/27/2021 16:15	3.43	1.57	0.234
5/27/2021 16:10	3.44	1.53	0.229
5/27/2021 16:05	3.27	1.41	0.197
5/27/2021 16:00	3.26	1.55	0.215
5/27/2021 15:55	3.25	1.54	0.214
5/27/2021 15:50	3.13	1.49	0.195
5/27/2021 15:45	3.22	1.49	0.203
5/27/2021 15:40	3.27	1.56	0.217
5/27/2021 15:35	3.29	1.52	0.214
5/27/2021 15:30	3.29	1.53	0.214
5/27/2021 15:25	3.35	1.57	0.227
5/27/2021 15:20	3.26	1.54	0.213
5/27/2021 15:15	3.24	1.51	0.207
5/27/2021 15:10	3.26	1.5	0.208
5/27/2021 15:05	3.21	1.5	0.203
5/27/2021 15:00	3.22	1.49	0.203
5/27/2021 14:55	3.18	1.49	0.2
5/27/2021 14:50	3.18	1.47	0.197
5/27/2021 14:45	3.23	1.53	0.209
5/27/2021 14:40	3.21	1.52	0.205
5/27/2021 14:35	3.23	1.46	0.199
5/27/2021 14:30	3.23	1.49	0.203
5/27/2021 14:25	3.32	1.57	0.224
5/27/2021 14:20	3.35	1.56	0.225
5/27/2021 14:15	3.38	1.58	0.231
5/27/2021 14:10	3.3	1.54	0.217
5/27/2021 14:05	3.36	1.54	0.223
5/27/2021 14:00	3.36	1.53	0.222
5/27/2021 13:55	3.49	1.62	0.248
5/27/2021 13:50	3.53	1.64	0.255
5/27/2021 13:45	3.55	1.65	0.258

5/27/2021 13:40	3.6	1.66	0.267
5/27/2021 13:35	3.62	1.67	0.269
5/27/2021 13:30	3.5	1.59	0.245
5/27/2021 13:25	3.5	1.59	0.244
5/27/2021 13:20	3.5	1.55	0.238
5/27/2021 13:15	3.51	1.57	0.243
5/27/2021 13:10	3.45	1.57	0.237
5/27/2021 13:05	3.28	1.55	0.217
5/27/2021 13:00	3.3	1.55	0.219
5/27/2021 12:55	3.26	1.54	0.214
5/27/2021 12:50	3.25	1.57	0.217
5/27/2021 12:45	3.23	1.46	0.2
5/27/2021 12:40	3.32	1.54	0.22
5/27/2021 12:35	3.46	1.68	0.254
5/27/2021 12:30	3.37	1.43	0.209
5/27/2021 12:25	3.42	1.59	0.236
5/27/2021 12:20	3.46	1.63	0.246
5/27/2021 12:15	3.49	1.64	0.251
5/27/2021 12:10	3.47	1.63	0.248
5/27/2021 12:05	3.47	1.64	0.248
5/27/2021 12:00	3.51	1.63	0.252
5/27/2021 11:55	3.49	1.62	0.247
5/27/2021 11:50	3.49	1.62	0.248
5/27/2021 11:45	3.47	1.62	0.245
5/27/2021 11:40	3.44	1.56	0.235
5/27/2021 11:35	3.42	1.55	0.23
5/27/2021 11:30	3.37	1.53	0.223
5/27/2021 11:25	3.42	1.6	0.238
5/27/2021 11:20	3.4	1.61	0.237
5/27/2021 11:15	3.37	1.63	0.238
5/27/2021 11:10	3.36	1.51	0.219
5/27/2021 11:05	3.36	1.53	0.222
5/27/2021 11:00	3.34	1.5	0.216
5/27/2021 10:55	3.4	1.58	0.233
5/27/2021 10:50	3.42	1.6	0.238
5/27/2021 10:45	3.47	1.61	0.244
5/27/2021 10:40	3.48	1.6	0.244
5/27/2021 10:35	3.49	1.62	0.248
5/27/2021 10:30	3.49	1.61	0.246
5/27/2021 10:25	3.52	1.62	0.251
5/27/2021 10:20	3.57	1.65	0.26
5/27/2021 10:15	3.44	1.56	0.234
5/27/2021 10:10	3.45	1.59	0.239
5/27/2021 10:05	3.42	1.57	0.234
5/27/2021 10:00	3.44	1.6	0.24
5/27/2021 9:55	3.43	1.56	0.234
5/27/2021 9:50	3.42	1.48	0.22

5/27/2021 9:45	3.51	1.56	0.24
5/27/2021 9:40	3.49	1.66	0.254
5/27/2021 9:35	3.46	1.52	0.23
5/27/2021 9:30	3.54	1.63	0.256
5/27/2021 9:25	3.55	1.63	0.256
5/27/2021 9:20	3.53	1.63	0.254
5/27/2021 9:15	3.56	1.62	0.254
5/27/2021 9:10	3.57	1.66	0.262
5/27/2021 9:05	3.55	1.65	0.26
5/27/2021 9:00	3.59	1.67	0.266
5/27/2021 8:55	3.62	1.66	0.268
5/27/2021 8:50	3.61	1.67	0.268
5/27/2021 8:45	3.61	1.68	0.27
5/27/2021 8:40	3.61	1.68	0.27
5/27/2021 8:35	3.6	1.69	0.271
5/27/2021 8:30	3.63	1.69	0.273
5/27/2021 8:25	3.7	1.7	0.282
5/27/2021 8:20	3.63	1.68	0.272
5/27/2021 8:15	3.62	1.72	0.277
5/27/2021 8:10	3.57	1.77	0.28
5/27/2021 8:05	3.43	1.59	0.237
5/27/2021 8:00	3.39	1.56	0.229
5/27/2021 7:55	3.4	1.63	0.24
5/27/2021 7:50	3.38	1.57	0.23
5/27/2021 7:45	3.41	1.57	0.233
5/27/2021 7:40	3.46	1.58	0.239
5/27/2021 7:35	3.46	1.59	0.24
5/27/2021 7:30	3.5	1.61	0.247
5/27/2021 7:25	3.42	1.62	0.242
5/27/2021 7:20	3.48	1.63	0.248
5/27/2021 7:15	3.47	1.63	0.247
5/27/2021 7:10	3.47	1.61	0.244
5/27/2021 7:05	3.47	1.59	0.242
5/27/2021 7:00	3.47	1.61	0.244
5/27/2021 6:55	3.47	1.57	0.239
5/27/2021 6:50	3.18	1.47	0.197
5/27/2021 6:45	3.17	1.46	0.195
5/27/2021 6:40	3.18	1.48	0.198
5/27/2021 6:35	3.02	1.45	0.181
5/27/2021 6:30	2.93	1.43	0.171
5/27/2021 6:25	2.85	1.36	0.156
5/27/2021 6:20	2.83	1.32	0.149
5/27/2021 6:15	2.83	1.39	0.157
5/27/2021 6:10	2.77	1.29	0.141
5/27/2021 6:05	2.77	1.28	0.14
5/27/2021 6:00	2.78	1.28	0.141
5/27/2021 5:55	2.57	1.25	0.123

5/27/2021 5:50	2.55	1.15	0.112
5/27/2021 5:45	2.55	1.14	0.111
5/27/2021 5:40	2.42	1.13	0.102
5/27/2021 5:35	2.4	1.12	0.1
5/27/2021 5:30	2.41	1.11	0.099
5/27/2021 5:25	2.42	1.14	0.103
5/27/2021 5:20	2.47	1.19	0.11
5/27/2021 5:15	2.33	1.09	0.093
5/27/2021 5:10	2.29	1.08	0.089
5/27/2021 5:05	2.28	1.07	0.089
5/27/2021 5:00	2.22	1.01	0.08
5/27/2021 4:55	2.22	1	0.08
5/27/2021 4:50	2.25	1.04	0.084
5/27/2021 4:45	2.17	1.03	0.08
5/27/2021 4:40	2.15	1	0.076
5/27/2021 4:35	2.14	0.98	0.074
5/27/2021 4:30	2.16	0.98	0.075
5/27/2021 4:25	2.16	0.97	0.074
5/27/2021 4:20	2.17	0.97	0.074
5/27/2021 4:15	2.12	1	0.075
5/27/2021 4:10	2.1	0.94	0.069
5/27/2021 4:05	2.12	0.96	0.071
5/27/2021 4:00	2.14	0.97	0.073
5/27/2021 3:55	2.14	0.98	0.074
5/27/2021 3:50	2.16	0.99	0.075
5/27/2021 3:45	2.14	1.01	0.076
5/27/2021 3:40	2.13	0.99	0.074
5/27/2021 3:35	2.13	0.98	0.074
5/27/2021 3:30	2.13	1.01	0.075
5/27/2021 3:25	2.12	0.99	0.073
5/27/2021 3:20	2.13	0.99	0.074
5/27/2021 3:15	2.15	1.02	0.077
5/27/2021 3:10	2.14	1	0.076
5/27/2021 3:05	2.14	0.98	0.074
5/27/2021 3:00	2.13	0.97	0.072
5/27/2021 2:55	2.12	0.97	0.072
5/27/2021 2:50	2.13	0.99	0.074
5/27/2021 2:45	2.11	0.98	0.072
5/27/2021 2:40	2.08	0.94	0.068
5/27/2021 2:35	2.09	0.95	0.069
5/27/2021 2:30	2.11	0.96	0.071
5/27/2021 2:25	2.13	1	0.075
5/27/2021 2:20	2.15	1.01	0.076
5/27/2021 2:15	2.17	1.01	0.077
5/27/2021 2:10	2.17	1	0.077
5/27/2021 2:05	2.19	1.01	0.079
5/27/2021 2:00	2.2	1	0.079

5/27/2021 1:55	2.24	1	0.081
5/27/2021 1:50	2.27	1.03	0.084
5/27/2021 1:45	2.3	1.02	0.085
5/27/2021 1:40	2.31	1.09	0.092
5/27/2021 1:35	2.33	1.09	0.093
5/27/2021 1:30	2.32	1.08	0.092
5/27/2021 1:25	2.34	1.12	0.096
5/27/2021 1:20	2.35	0.85	0.074
5/27/2021 1:15	2.38	0.94	0.083
5/27/2021 1:10	2.44	0.96	0.088
5/27/2021 1:05	2.45	1.13	0.103
5/27/2021 1:00	2.45	1.15	0.106
5/27/2021 0:55	2.46	1.16	0.107
5/27/2021 0:50	2.45	1.15	0.105
5/27/2021 0:45	2.46	1.15	0.107
5/27/2021 0:40	2.5	1.17	0.111
5/27/2021 0:35	2.53	1.17	0.113
5/27/2021 0:30	2.53	1.17	0.112
5/27/2021 0:25	2.53	1.16	0.111
5/27/2021 0:20	2.6	1.22	0.123
5/27/2021 0:15	2.62	1.23	0.124
5/27/2021 0:10	2.63	1.25	0.128
5/27/2021 0:05	2.66	1.26	0.131
5/27/2021 0:00	2.66	1.25	0.129
5/26/2021 23:55	2.66	1.24	0.128
5/26/2021 23:50	2.66	1.24	0.128
5/26/2021 23:45	2.67	1.26	0.131
5/26/2021 23:40	2.67	1.25	0.13
5/26/2021 23:35	2.77	1.3	0.143
5/26/2021 23:30	2.83	1.38	0.157
5/26/2021 23:25	2.83	1.32	0.15
5/26/2021 23:20	2.84	1.33	0.151
5/26/2021 23:15	2.83	1.33	0.151
5/26/2021 23:10	2.87	1.36	0.157
5/26/2021 23:05	2.92	1.41	0.167
5/26/2021 23:00	2.96	1.43	0.172
5/26/2021 22:55	2.97	1.42	0.173
5/26/2021 22:50	3.09	1.45	0.186
5/26/2021 22:45	3.17	1.46	0.195
5/26/2021 22:40	3.12	1.45	0.189
5/26/2021 22:35	3.11	1.45	0.189
5/26/2021 22:30	3.09	1.41	0.181
5/26/2021 22:25	3.09	1.41	0.181
5/26/2021 22:20	3.09	1.46	0.187
5/26/2021 22:15	3.08	1.43	0.183
5/26/2021 22:10	3.2	1.44	0.195
5/26/2021 22:05	3.23	1.55	0.212

5/26/2021 22:00	3.24	1.52	0.208
5/26/2021 21:55	3.35	1.59	0.229
5/26/2021 21:50	3.41	1.59	0.235
5/26/2021 21:45	3.43	1.59	0.238
5/26/2021 21:40	3.43	1.6	0.239
5/26/2021 21:35	3.49	1.65	0.253
5/26/2021 21:30	3.54	1.67	0.262
5/26/2021 21:25	3.46	1.6	0.241
5/26/2021 21:20	3.49	1.63	0.249
5/26/2021 21:15	3.37	1.59	0.231
5/26/2021 21:10	3.37	1.59	0.231
5/26/2021 21:05	3.34	1.58	0.228
5/26/2021 21:00	3.31	1.56	0.221
5/26/2021 20:55	3.29	1.61	0.226
5/26/2021 20:50	3.38	1.61	0.235
5/26/2021 20:45	3.46	1.6	0.242
5/26/2021 20:40	3.49	1.6	0.245
5/26/2021 20:35	3.52	1.65	0.256
5/26/2021 20:30	3.51	1.65	0.254
5/26/2021 20:25	3.45	1.57	0.237
5/26/2021 20:20	3.43	1.56	0.234
5/26/2021 20:15	3.45	1.57	0.236
5/26/2021 20:10	3.51	1.62	0.251
5/26/2021 20:05	3.52	1.63	0.252
5/26/2021 20:00	3.43	1.6	0.238
5/26/2021 19:55	3.33	1.56	0.223
5/26/2021 19:50	3.3	1.55	0.218
5/26/2021 19:45	3.37	1.56	0.227
5/26/2021 19:40	3.37	1.55	0.225
5/26/2021 19:35	3.34	1.57	0.225
5/26/2021 19:30	3.44	1.59	0.239
5/26/2021 19:25	3.49	1.6	0.245
5/26/2021 19:20	3.47	1.6	0.243
5/26/2021 19:15	3.45	1.6	0.241
5/26/2021 19:10	3.38	1.59	0.232
5/26/2021 19:05	3.4	1.59	0.234
5/26/2021 19:00	3.42	1.6	0.237
5/26/2021 18:55	3.43	1.59	0.238
5/26/2021 18:50	3.37	1.59	0.232
5/26/2021 18:45	3.47	1.61	0.244
5/26/2021 18:40	3.48	1.63	0.248
5/26/2021 18:35	3.48	1.65	0.252
5/26/2021 18:30	3.46	1.64	0.247
5/26/2021 18:25	3.35	1.57	0.228
5/26/2021 18:20	3.36	1.57	0.227
5/26/2021 18:15	3.37	1.57	0.228
5/26/2021 18:10	3.4	1.59	0.235

5/26/2021 18:05	3.34	1.58	0.227
5/26/2021 18:00	3.4	1.6	0.237
5/26/2021 17:55	3.27	1.54	0.215
5/26/2021 17:50	3.21	1.51	0.205
5/26/2021 17:45	3.21	1.49	0.203
5/26/2021 17:40	3.23	1.5	0.206
5/26/2021 17:35	3.22	1.51	0.206
5/26/2021 17:30	3.2	1.51	0.203
5/26/2021 17:25	3.2	1.5	0.203
5/26/2021 17:20	3.2	1.47	0.199
5/26/2021 17:15	3.21	1.5	0.203
5/26/2021 17:10	3.18	1.46	0.196
5/26/2021 17:05	3.17	1.44	0.192
5/26/2021 17:00	3.28	1.51	0.21
5/26/2021 16:55	3.23	1.49	0.203
5/26/2021 16:50	3.22	1.53	0.209
5/26/2021 16:45	3.16	1.47	0.195
5/26/2021 16:40	3.15	1.43	0.189
5/26/2021 16:35	3.18	1.38	0.185
5/26/2021 16:30	3.18	0.91	0.121
5/26/2021 16:25	3.18	0.88	0.117
5/26/2021 16:20	3.25	1.51	0.209
5/26/2021 16:15	3.25	1.54	0.213
5/26/2021 16:10	3.24	1.54	0.212
5/26/2021 16:05	3.22	1.53	0.208
5/26/2021 16:00	3.22	1.53	0.209
5/26/2021 15:55	3.16	1.49	0.199
5/26/2021 15:50	3.16	1.5	0.199
5/26/2021 15:45	3.16	1.5	0.198
5/26/2021 15:40	3.24	1.51	0.208
5/26/2021 15:35	3.29	1.55	0.217
5/26/2021 15:30	3.29	1.53	0.216
5/26/2021 15:25	3.13	1.48	0.194
5/26/2021 15:20	3.12	1.46	0.19
5/26/2021 15:15	3.18	1.45	0.195
5/26/2021 15:10	3.22	1.51	0.207
5/26/2021 15:05	3.14	1.49	0.197
5/26/2021 15:00	3.14	1.48	0.195
5/26/2021 14:55	3.16	1.5	0.2
5/26/2021 14:50	3.19	1.5	0.202
5/26/2021 14:45	3.24	1.58	0.218
5/26/2021 14:40	3.22	1.52	0.207
5/26/2021 14:35	3.24	1.52	0.209
5/26/2021 14:30	3.29	1.52	0.213
5/26/2021 14:25	3.28	1.5	0.21
5/26/2021 14:20	3.19	1.49	0.201
5/26/2021 14:15	3.19	1.49	0.201

5/26/2021 14:10	3.23	1.52	0.209
5/26/2021 14:05	3.31	1.55	0.219
5/26/2021 14:00	3.31	1.54	0.219
5/26/2021 13:55	3.35	1.51	0.219
5/26/2021 13:50	3.41	1.55	0.23
5/26/2021 13:45	3.42	1.55	0.231
5/26/2021 13:40	3.42	1.58	0.235
5/26/2021 13:35	3.46	1.56	0.235
5/26/2021 13:30	3.5	1.59	0.245
5/26/2021 13:25	3.46	1.6	0.241
5/26/2021 13:20	3.43	1.59	0.236
5/26/2021 13:15	3.57	1.63	0.257
5/26/2021 13:10	3.61	1.63	0.262
5/26/2021 13:05	3.56	1.66	0.262
5/26/2021 13:00	3.5	1.65	0.254
5/26/2021 12:55	3.53	1.68	0.262
5/26/2021 12:50	3.49	1.52	0.233
5/26/2021 12:45	3.52	1.67	0.258
5/26/2021 12:40	3.4	1.59	0.235
5/26/2021 12:35	3.4	1.53	0.226
5/26/2021 12:30	3.45	1.6	0.241
5/26/2021 12:25	3.45	1.62	0.244
5/26/2021 12:20	3.46	1.63	0.246
5/26/2021 12:15	3.48	1.64	0.25
5/26/2021 12:10	3.44	1.64	0.245
5/26/2021 12:05	3.44	1.64	0.247
5/26/2021 12:00	3.4	1.63	0.242
5/26/2021 11:55	3.39	1.61	0.236
5/26/2021 11:50	3.36	1.6	0.233
5/26/2021 11:45	3.41	1.6	0.237
5/26/2021 11:40	3.42	1.61	0.24
5/26/2021 11:35	3.42	1.56	0.232
5/26/2021 11:30	3.4	1.6	0.236
5/26/2021 11:25	3.45	1.6	0.241
5/26/2021 11:20	3.55	1.65	0.259
5/26/2021 11:15	3.56	1.65	0.259
5/26/2021 11:10	3.52	1.62	0.251
5/26/2021 11:05	3.49	1.59	0.244
5/26/2021 11:00	3.45	1.56	0.236
5/26/2021 10:55	3.47	1.63	0.247
5/26/2021 10:50	3.47	1.64	0.248
5/26/2021 10:45	3.53	1.64	0.255
5/26/2021 10:40	3.51	1.64	0.254
5/26/2021 10:35	3.51	1.64	0.252
5/26/2021 10:30	3.53	1.64	0.255
5/26/2021 10:25	3.52	1.57	0.244
5/26/2021 10:20	3.52	1.6	0.248

5/26/2021 10:15	3.59	1.62	0.257
5/26/2021 10:10	3.59	1.63	0.26
5/26/2021 10:05	3.66	1.69	0.276
5/26/2021 10:00	3.63	1.68	0.273
5/26/2021 9:55	3.6	1.68	0.269
5/26/2021 9:50	3.63	1.68	0.273
5/26/2021 9:45	3.63	1.69	0.273
5/26/2021 9:40	3.63	1.68	0.272
5/26/2021 9:35	3.6	1.69	0.27
5/26/2021 9:30	3.6	1.72	0.275
5/26/2021 9:25	3.63	1.76	0.285
5/26/2021 9:20	3.64	1.65	0.268
5/26/2021 9:15	3.65	1.74	0.285
5/26/2021 9:10	3.46	1.6	0.241
5/26/2021 9:05	3.4	1.62	0.238
5/26/2021 9:00	3.41	1.64	0.243
5/26/2021 8:55	3.39	1.59	0.233
5/26/2021 8:50	3.3	1.57	0.221
5/26/2021 8:45	3.36	1.6	0.231
5/26/2021 8:40	3.49	1.64	0.251
5/26/2021 8:35	3.44	1.63	0.245
5/26/2021 8:30	3.32	1.56	0.222
5/26/2021 8:25	3.34	1.6	0.23
5/26/2021 8:20	3.4	1.61	0.237
5/26/2021 8:15	3.39	1.65	0.243
5/26/2021 8:10	3.33	1.56	0.224
5/26/2021 8:05	3.31	1.53	0.218
5/26/2021 8:00	3.46	1.64	0.247
5/26/2021 7:55	3.46	1.65	0.249
5/26/2021 7:50	3.51	1.66	0.256
5/26/2021 7:45	3.42	1.57	0.233
5/26/2021 7:40	3.35	1.56	0.226
5/26/2021 7:35	3.34	1.54	0.222
5/26/2021 7:30	3.34	1.54	0.222
5/26/2021 7:25	3.24	1.51	0.209
5/26/2021 7:20	3.22	1.48	0.202
5/26/2021 7:15	3.25	1.46	0.202
5/26/2021 7:10	3.31	1.55	0.221
5/26/2021 7:05	3.26	1.52	0.211
5/26/2021 7:00	3.25	1.54	0.213
5/26/2021 6:55	3.25	1.5	0.207
5/26/2021 6:50	3.25	1.52	0.21
5/26/2021 6:45	3.1	1.55	0.201
5/26/2021 6:40	2.95	1.42	0.17
5/26/2021 6:35	2.85	1.4	0.161
5/26/2021 6:30	2.82	1.32	0.149
5/26/2021 6:25	2.8	1.3	0.145

5/26/2021 6:20	2.79	1.29	0.143
5/26/2021 6:15	2.68	1.27	0.133
5/26/2021 6:10	2.62	1.27	0.128
5/26/2021 6:05	2.6	1.29	0.129
5/26/2021 6:00	2.54	1.18	0.113
5/26/2021 5:55	2.51	1.19	0.113
5/26/2021 5:50	2.52	1.19	0.114
5/26/2021 5:45	2.49	1.16	0.109
5/26/2021 5:40	2.48	1.16	0.109
5/26/2021 5:35	2.35	1.14	0.099
5/26/2021 5:30	2.33	1.13	0.097
5/26/2021 5:25	2.37	1.13	0.099
5/26/2021 5:20	2.33	1.08	0.092
5/26/2021 5:15	2.21	1.05	0.083
5/26/2021 5:10	2.16	1	0.077
5/26/2021 5:05	2.18	1	0.077
5/26/2021 5:00	2.18	1.04	0.081
5/26/2021 4:55	2.13	1.02	0.076
5/26/2021 4:50	2.1	0.98	0.072
5/26/2021 4:45	2.08	0.97	0.07
5/26/2021 4:40	2.08	0.97	0.07
5/26/2021 4:35	2.07	0.97	0.07
5/26/2021 4:30	2.05	0.7	0.05
5/26/2021 4:25	2.02	0.7	0.049
5/26/2021 4:20	1.99	0.68	0.046
5/26/2021 4:15	2	0.73	0.05
5/26/2021 4:10	2	0.73	0.05
5/26/2021 4:05	2	0.66	0.046
5/26/2021 4:00	2	0.67	0.046
5/26/2021 3:55	1.99	0.7	0.048
5/26/2021 3:50	1.97	0.77	0.051
5/26/2021 3:45	1.96	0.83	0.055
5/26/2021 3:40	1.97	0.89	0.06
5/26/2021 3:35	1.96	0.87	0.058
5/26/2021 3:30	1.96	0.87	0.058
5/26/2021 3:25	1.98	0.86	0.058
5/26/2021 3:20	1.98	0.88	0.06
5/26/2021 3:15	2.02	0.9	0.063
5/26/2021 3:10	2.06	0.93	0.066
5/26/2021 3:05	2.09	0.94	0.068
5/26/2021 3:00	2.09	0.96	0.07
5/26/2021 2:55	2.1	0.99	0.073
5/26/2021 2:50	2.06	0.95	0.068
5/26/2021 2:45	2.05	0.95	0.067
5/26/2021 2:40	2.03	0.94	0.066
5/26/2021 2:35	2.01	0.91	0.062
5/26/2021 2:30	2.01	0.9	0.062

5/26/2021 2:25	2	0.89	0.061
5/26/2021 2:20	2.01	0.91	0.062
5/26/2021 2:15	2.02	0.9	0.063
5/26/2021 2:10	2.06	0.94	0.067
5/26/2021 2:05	2.06	0.93	0.066
5/26/2021 2:00	2.09	0.94	0.069
5/26/2021 1:55	2.09	1.01	0.073
5/26/2021 1:50	2.04	0.87	0.061
5/26/2021 1:45	2.07	0.93	0.067
5/26/2021 1:40	2.07	0.9	0.065
5/26/2021 1:35	2.08	0.91	0.066
5/26/2021 1:30	2.09	0.87	0.063
5/26/2021 1:25	2.15	0.95	0.073
5/26/2021 1:20	2.17	0.98	0.075
5/26/2021 1:15	2.22	1.05	0.084
5/26/2021 1:10	2.28	1.09	0.09
5/26/2021 1:05	2.29	1.1	0.092
5/26/2021 1:00	2.29	1.07	0.089
5/26/2021 0:55	2.36	1.09	0.095
5/26/2021 0:50	2.37	1.09	0.095
5/26/2021 0:45	2.38	1.1	0.097
5/26/2021 0:40	2.42	1.11	0.1
5/26/2021 0:35	2.47	1.16	0.108
5/26/2021 0:30	2.47	1.16	0.107
5/26/2021 0:25	2.5	1.16	0.11
5/26/2021 0:20	2.55	1.17	0.114
5/26/2021 0:15	2.59	1.19	0.118
5/26/2021 0:10	2.58	1.15	0.114
5/26/2021 0:05	2.57	1.12	0.11
5/26/2021 0:00	2.66	1.1	0.114
5/25/2021 23:55	2.68	1.15	0.12
5/25/2021 23:50	2.62	1.13	0.115
5/25/2021 23:45	2.57	1.13	0.111
5/25/2021 23:40	2.55	1.06	0.103
5/25/2021 23:35	2.55	1.05	0.103
5/25/2021 23:30	2.56	1.05	0.103
5/25/2021 23:25	2.58	1.06	0.105
5/25/2021 23:20	2.58	1.07	0.106
5/25/2021 23:15	2.59	1.07	0.106
5/25/2021 23:10	2.67	1.21	0.126
5/25/2021 23:05	2.89	1.35	0.158
5/25/2021 23:00	2.87	1.29	0.149
5/25/2021 22:55	2.96	1.42	0.171
5/25/2021 22:50	3.01	1.45	0.179
5/25/2021 22:45	3.07	1.46	0.185
5/25/2021 22:40	3.12	1.49	0.194
5/25/2021 22:35	3.1	1.49	0.193

5/25/2021 22:30	3.13	1.5	0.196
5/25/2021 22:25	3.1	1.49	0.192
5/25/2021 22:20	3.07	1.45	0.186
5/25/2021 22:15	3.09	1.43	0.183
5/25/2021 22:10	3.05	1.42	0.179
5/25/2021 22:05	3.09	1.41	0.182
5/25/2021 22:00	3.12	1.51	0.197
5/25/2021 21:55	3.21	1.53	0.208
5/25/2021 21:50	3.23	1.54	0.211
5/25/2021 21:45	3.23	1.54	0.211
5/25/2021 21:40	3.23	1.55	0.212
5/25/2021 21:35	3.35	1.59	0.23
5/25/2021 21:30	3.35	1.59	0.23
5/25/2021 21:25	3.3	1.56	0.22
5/25/2021 21:20	3.3	1.6	0.226
5/25/2021 21:15	3.26	1.56	0.217
5/25/2021 21:10	3.26	1.56	0.216
5/25/2021 21:05	3.22	1.55	0.212
5/25/2021 21:00	3.27	1.57	0.219
5/25/2021 20:55	3.26	1.56	0.216
5/25/2021 20:50	3.43	1.58	0.237
5/25/2021 20:45	3.44	1.6	0.239
5/25/2021 20:40	3.49	1.74	0.267
5/25/2021 20:35	3.3	1.56	0.221
5/25/2021 20:30	3.32	1.57	0.225
5/25/2021 20:25	3.33	1.59	0.228
5/25/2021 20:20	3.34	1.6	0.23
5/25/2021 20:15	3.42	1.61	0.239
5/25/2021 20:10	3.42	1.53	0.227
5/25/2021 20:05	3.43	1.63	0.244
5/25/2021 20:00	3.42	1.65	0.245
5/25/2021 19:55	3.38	1.6	0.233
5/25/2021 19:50	3.32	1.59	0.227
5/25/2021 19:45	3.28	1.58	0.221
5/25/2021 19:40	3.38	1.62	0.237
5/25/2021 19:35	3.33	1.59	0.227
5/25/2021 19:30	3.27	1.56	0.218
5/25/2021 19:25	3.25	1.56	0.216
5/25/2021 19:20	3.26	1.57	0.218
5/25/2021 19:15	3.33	1.6	0.228
5/25/2021 19:10	3.33	1.58	0.226
5/25/2021 19:05	3.33	1.61	0.23
5/25/2021 19:00	3.31	1.56	0.221
5/25/2021 18:55	3.3	1.55	0.218
5/25/2021 18:50	3.3	1.61	0.228
5/25/2021 18:45	3.23	1.56	0.214
5/25/2021 18:40	3.19	1.6	0.216

5/25/2021 18:35	3.16	1.48	0.196
5/25/2021 18:30	3.17	1.47	0.195
5/25/2021 18:25	3.16	1.53	0.204
5/25/2021 18:20	3.18	1.51	0.202
5/25/2021 18:15	3.27	1.54	0.214
5/25/2021 18:10	3.29	1.54	0.217
5/25/2021 18:05	3.24	1.54	0.212
5/25/2021 18:00	3.32	1.57	0.223
5/25/2021 17:55	3.31	1.59	0.225
5/25/2021 17:50	3.25	1.56	0.216
5/25/2021 17:45	3.25	1.53	0.211
5/25/2021 17:40	3.15	1.5	0.198
5/25/2021 17:35	3.16	1.5	0.199
5/25/2021 17:30	3.15	1.43	0.189
5/25/2021 17:25	3.16	1.56	0.206
5/25/2021 17:20	3	1.45	0.179
5/25/2021 17:15	3.11	1.47	0.19
5/25/2021 17:10	3.14	1.49	0.196
5/25/2021 17:05	3.17	1.53	0.203
5/25/2021 17:00	3.21	1.53	0.207
5/25/2021 16:55	3.24	1.57	0.215
5/25/2021 16:50	3.21	1.54	0.209
5/25/2021 16:45	3.21	1.55	0.21
5/25/2021 16:40	3.15	1.49	0.196
5/25/2021 16:35	3.15	1.51	0.199
5/25/2021 16:30	3.15	1.51	0.199
5/25/2021 16:25	3.14	1.51	0.198
5/25/2021 16:20	3.13	1.51	0.198
5/25/2021 16:15	3.19	1.52	0.205
5/25/2021 16:10	3.12	1.52	0.198
5/25/2021 16:05	3.11	1.45	0.188
5/25/2021 16:00	3.14	1.46	0.192
5/25/2021 15:55	3.16	1.5	0.199
5/25/2021 15:50	3.17	1.5	0.201
5/25/2021 15:45	3.18	1.53	0.205
5/25/2021 15:40	3.15	1.52	0.201
5/25/2021 15:35	3.14	1.51	0.199
5/25/2021 15:30	3.11	1.48	0.192
5/25/2021 15:25	3.04	1.47	0.184
5/25/2021 15:20	3.05	1.48	0.186
5/25/2021 15:15	3.05	1.48	0.187
5/25/2021 15:10	3.08	1.51	0.193
5/25/2021 15:05	3.09	1.52	0.195
5/25/2021 15:00	3.02	1.41	0.176
5/25/2021 14:55	3.02	1.43	0.178
5/25/2021 14:50	3.02	1.41	0.175
5/25/2021 14:45	3.09	1.46	0.188

5/25/2021 14:40	3.15	1.5	0.198
5/25/2021 14:35	3.11	1.48	0.192
5/25/2021 14:30	3.12	1.44	0.188
5/25/2021 14:25	3.12	1.45	0.189
5/25/2021 14:20	3.12	1.47	0.192
5/25/2021 14:15	3.24	1.54	0.212
5/25/2021 14:10	3.31	1.57	0.223
5/25/2021 14:05	3.31	1.58	0.224
5/25/2021 14:00	3.31	1.61	0.228
5/25/2021 13:55	3.3	1.57	0.221
5/25/2021 13:50	3.26	1.56	0.217
5/25/2021 13:45	3.24	1.53	0.211
5/25/2021 13:40	3.13	1.49	0.195
5/25/2021 13:35	3.13	1.47	0.193
5/25/2021 13:30	3.11	1.45	0.188
5/25/2021 13:25	3.14	1.44	0.19
5/25/2021 13:20	3.17	1.43	0.191
5/25/2021 13:15	3.3	1.55	0.219
5/25/2021 13:10	3.31	1.58	0.224
5/25/2021 13:05	3.31	1.57	0.222
5/25/2021 13:00	3.33	1.59	0.228
5/25/2021 12:55	3.33	1.59	0.229
5/25/2021 12:50	3.36	1.6	0.231
5/25/2021 12:45	3.35	1.59	0.229
5/25/2021 12:40	3.27	1.56	0.218
5/25/2021 12:35	3.26	1.57	0.218
5/25/2021 12:30	3.3	1.57	0.221
5/25/2021 12:25	3.32	1.57	0.224
5/25/2021 12:20	3.32	1.58	0.225
5/25/2021 12:15	3.36	1.58	0.23
5/25/2021 12:10	3.33	1.59	0.227
5/25/2021 12:05	3.3	1.57	0.221
5/25/2021 12:00	3.31	1.53	0.216
5/25/2021 11:55	3.3	1.52	0.215
5/25/2021 11:50	3.25	1.44	0.199
5/25/2021 11:45	3.31	1.56	0.222
5/25/2021 11:40	3.33	1.51	0.216
5/25/2021 11:35	3.32	1.5	0.214
5/25/2021 11:30	3.34	1.23	0.176
5/25/2021 11:25	3.19	1.17	0.158
5/25/2021 11:20	3.19	1.51	0.203
5/25/2021 11:15	3.23	1.53	0.21
5/25/2021 11:10	3.23	1.53	0.21
5/25/2021 11:05	3.28	1.54	0.215
5/25/2021 11:00	3.26	1.53	0.212
5/25/2021 10:55	3.26	1.53	0.212
5/25/2021 10:50	3.34	1.58	0.228

5/25/2021 10:45	3.5	1.6	0.246
5/25/2021 10:40	3.51	1.6	0.248
5/25/2021 10:35	3.53	1.64	0.254
5/25/2021 10:30	3.51	1.66	0.256
5/25/2021 10:25	3.54	1.62	0.254
5/25/2021 10:20	3.54	1.65	0.258
5/25/2021 10:15	3.54	1.62	0.252
5/25/2021 10:10	3.53	1.62	0.251
5/25/2021 10:05	3.53	1.64	0.255
5/25/2021 10:00	3.44	1.64	0.246
5/25/2021 9:55	3.46	1.62	0.245
5/25/2021 9:50	3.41	1.61	0.238
5/25/2021 9:45	3.42	1.62	0.241
5/25/2021 9:40	3.34	1.48	0.213
5/25/2021 9:35	3.37	1.52	0.221
5/25/2021 9:30	3.37	1.51	0.221
5/25/2021 9:25	3.38	1.52	0.223
5/25/2021 9:20	3.37	1.52	0.221
5/25/2021 9:15	3.4	1.62	0.238
5/25/2021 9:10	3.4	1.6	0.236
5/25/2021 9:05	3.43	1.61	0.24
5/25/2021 9:00	3.43	1.63	0.243
5/25/2021 8:55	3.41	1.6	0.237
5/25/2021 8:50	3.41	1.58	0.234
5/25/2021 8:45	3.42	1.57	0.233
5/25/2021 8:40	3.47	1.59	0.241
5/25/2021 8:35	3.46	1.56	0.237
5/25/2021 8:30	3.56	1.63	0.257
5/25/2021 8:25	3.58	1.63	0.26
5/25/2021 8:20	3.54	1.6	0.251
5/25/2021 8:15	3.5	1.58	0.243
5/25/2021 8:10	3.43	1.53	0.229
5/25/2021 8:05	3.39	1.5	0.22
5/25/2021 8:00	3.36	1.6	0.232
5/25/2021 7:55	3.36	1.6	0.233
5/25/2021 7:50	3.36	1.59	0.23
5/25/2021 7:45	3.37	1.58	0.23
5/25/2021 7:40	3.36	1.57	0.228
5/25/2021 7:35	3.35	1.55	0.223
5/25/2021 7:30	3.3	1.54	0.218
5/25/2021 7:25	3.24	1.52	0.209
5/25/2021 7:20	3.19	1.51	0.203
5/25/2021 7:15	3.16	1.49	0.198
5/25/2021 7:10	3.13	1.44	0.188
5/25/2021 7:05	3.16	1.47	0.195
5/25/2021 7:00	3.16	1.47	0.195
5/25/2021 6:55	3.15	1.49	0.197

5/25/2021 6:50	3.13	1.46	0.19
5/25/2021 6:45	3.05	1.47	0.185
5/25/2021 6:40	2.95	1.41	0.169
5/25/2021 6:35	2.98	1.43	0.174
5/25/2021 6:30	2.99	1.42	0.174
5/25/2021 6:25	2.89	1.4	0.163
5/25/2021 6:20	2.82	1.35	0.152
5/25/2021 6:15	2.82	1.35	0.152
5/25/2021 6:10	2.72	1.33	0.141
5/25/2021 6:05	2.65	1.27	0.13
5/25/2021 6:00	2.64	1.24	0.127
5/25/2021 5:55	2.48	1.22	0.114
5/25/2021 5:50	2.44	1.14	0.104
5/25/2021 5:45	2.3	1.07	0.09
5/25/2021 5:40	2.32	1.11	0.094
5/25/2021 5:35	2.31	1.13	0.095
5/25/2021 5:30	2.14	0.8	0.061
5/25/2021 5:25	2.14	0.96	0.073
5/25/2021 5:20	2.19	1.04	0.081
5/25/2021 5:15	2.23	1.06	0.085
5/25/2021 5:10	2.22	1.08	0.086
5/25/2021 5:05	2.06	0.95	0.068
5/25/2021 5:00	2.04	0.95	0.067
5/25/2021 4:55	2.01	0.93	0.064
5/25/2021 4:50	2	0.88	0.06
5/25/2021 4:45	1.97	0.87	0.058
5/25/2021 4:40	1.97	0.87	0.058
5/25/2021 4:35	1.99	0.89	0.06
5/25/2021 4:30	2.02	0.89	0.062
5/25/2021 4:25	2	0.92	0.063
5/25/2021 4:20	1.97	0.92	0.062
5/25/2021 4:15	1.99	0.93	0.063
5/25/2021 4:10	1.94	0.87	0.057
5/25/2021 4:05	1.94	0.86	0.056
5/25/2021 4:00	1.96	0.88	0.058
5/25/2021 3:55	1.96	0.87	0.058
5/25/2021 3:50	1.93	0.85	0.055
5/25/2021 3:45	1.91	0.83	0.053
5/25/2021 3:40	1.92	0.83	0.054
5/25/2021 3:35	1.87	0.84	0.052
5/25/2021 3:30	1.86	0.82	0.05
5/25/2021 3:25	1.86	0.8	0.049
5/25/2021 3:20	1.89	0.82	0.052
5/25/2021 3:15	1.92	0.83	0.054
5/25/2021 3:10	1.94	0.83	0.054
5/25/2021 3:05	1.97	0.87	0.058
5/25/2021 3:00	1.98	0.87	0.059

5/25/2021 2:55	2.01	0.92	0.063
5/25/2021 2:50	2.03	0.93	0.065
5/25/2021 2:45	1.99	0.88	0.06
5/25/2021 2:40	1.99	0.88	0.06
5/25/2021 2:35	2.06	0.91	0.065
5/25/2021 2:30	2.09	0.9	0.066
5/25/2021 2:25	2.11	0.96	0.071
5/25/2021 2:20	2.1	0.95	0.07
5/25/2021 2:15	2.09	0.95	0.069
5/25/2021 2:10	2.1	0.97	0.072
5/25/2021 2:05	2.1	0.97	0.071
5/25/2021 2:00	2.12	0.97	0.072
5/25/2021 1:55	2.14	0.99	0.075
5/25/2021 1:50	2.16	0.99	0.076
5/25/2021 1:45	2.15	0.98	0.074
5/25/2021 1:40	2.18	1.02	0.08
5/25/2021 1:35	2.17	0.98	0.076
5/25/2021 1:30	2.18	0.99	0.076
5/25/2021 1:25	2.18	0.99	0.077
5/25/2021 1:20	2.18	0.99	0.077
5/25/2021 1:15	2.19	1	0.078
5/25/2021 1:10	2.2	1.09	0.086
5/25/2021 1:05	2.2	1.04	0.082
5/25/2021 1:00	2.21	1.04	0.082
5/25/2021 0:55	2.21	1.06	0.084
5/25/2021 0:50	2.19	1.02	0.08
5/25/2021 0:45	2.26	1.05	0.086
5/25/2021 0:40	2.34	1.09	0.093
5/25/2021 0:35	2.38	1.1	0.097
5/25/2021 0:30	2.38	1.1	0.097
5/25/2021 0:25	2.41	1.12	0.101
5/25/2021 0:20	2.4	1.11	0.099
5/25/2021 0:15	2.4	1.11	0.099
5/25/2021 0:10	2.4	1.12	0.1
5/25/2021 0:05	2.4	1.11	0.099
5/25/2021 0:00	2.39	1.11	0.098
5/24/2021 23:55	2.46	1.13	0.104
5/24/2021 23:50	2.56	1.18	0.115
5/24/2021 23:45	2.58	1.19	0.118
5/24/2021 23:40	2.67	1.26	0.132
5/24/2021 23:35	2.81	1.34	0.15
5/24/2021 23:30	2.82	1.36	0.153
5/24/2021 23:25	2.84	1.37	0.156
5/24/2021 23:20	2.84	1.37	0.156
5/24/2021 23:15	2.85	1.37	0.156
5/24/2021 23:10	2.87	1.37	0.158
5/24/2021 23:05	2.87	1.37	0.158

5/24/2021 23:00	2.88	1.39	0.161
5/24/2021 22:55	2.88	1.39	0.161
5/24/2021 22:50	2.86	1.37	0.158
5/24/2021 22:45	2.86	1.37	0.157
5/24/2021 22:40	2.9	1.39	0.162
5/24/2021 22:35	2.93	1.38	0.165
5/24/2021 22:30	3.06	1.49	0.188
5/24/2021 22:25	3.05	1.47	0.185
5/24/2021 22:20	3.05	1.47	0.185
5/24/2021 22:15	3.09	1.49	0.191
5/24/2021 22:10	3.06	1.49	0.189
5/24/2021 22:05	3.1	1.5	0.194
5/24/2021 22:00	3.11	1.5	0.194
5/24/2021 21:55	3.15	1.52	0.202
5/24/2021 21:50	3.15	1.49	0.196
5/24/2021 21:45	3.17	1.5	0.2
5/24/2021 21:40	3.23	1.51	0.206
5/24/2021 21:35	3.24	1.52	0.209
5/24/2021 21:30	3.28	1.6	0.224
5/24/2021 21:25	3.3	1.61	0.228
5/24/2021 21:20	3.22	1.53	0.21
5/24/2021 21:15	3.24	1.53	0.211
5/24/2021 21:10	3.22	1.5	0.204
5/24/2021 21:05	3.38	1.58	0.231
5/24/2021 21:00	3.43	1.58	0.236
5/24/2021 20:55	3.45	1.65	0.247
5/24/2021 20:50	3.45	1.63	0.245
5/24/2021 20:45	3.49	1.65	0.252
5/24/2021 20:40	3.5	1.65	0.253
5/24/2021 20:35	3.47	1.6	0.242
5/24/2021 20:30	3.47	1.61	0.244
5/24/2021 20:25	3.51	1.61	0.249
5/24/2021 20:20	3.52	1.64	0.254
5/24/2021 20:15	3.58	1.64	0.26
5/24/2021 20:10	3.32	1.6	0.229
5/24/2021 20:05	3.31	1.6	0.228
5/24/2021 20:00	3.29	1.59	0.224
5/24/2021 19:55	3.33	1.6	0.229
5/24/2021 19:50	3.33	1.6	0.229
5/24/2021 19:45	3.24	1.6	0.22
5/24/2021 19:40	3.24	1.53	0.21
5/24/2021 19:35	3.23	1.53	0.21
5/24/2021 19:30	3.21	1.53	0.208
5/24/2021 19:25	3.16	1.51	0.201
5/24/2021 19:20	3.31	1.57	0.223
5/24/2021 19:15	3.39	1.56	0.229
5/24/2021 19:10	3.39	1.65	0.243

5/24/2021 19:05	3.25	1.55	0.214
5/24/2021 19:00	3.26	1.51	0.209
5/24/2021 18:55	3.23	1.53	0.209
5/24/2021 18:50	3.28	1.58	0.221
5/24/2021 18:45	3.27	1.58	0.22
5/24/2021 18:40	3.24	1.53	0.211
5/24/2021 18:35	3.25	1.58	0.218
5/24/2021 18:30	3.24	1.57	0.216
5/24/2021 18:25	3.36	1.65	0.239
5/24/2021 18:20	3.28	1.57	0.219
5/24/2021 18:15	3.28	1.58	0.221
5/24/2021 18:10	3.28	1.58	0.221
5/24/2021 18:05	3.28	1.58	0.221
5/24/2021 18:00	3.31	1.57	0.223
5/24/2021 17:55	3.32	1.57	0.224
5/24/2021 17:50	3.3	1.57	0.222
5/24/2021 17:45	3.29	1.57	0.22
5/24/2021 17:40	3.23	1.54	0.211
5/24/2021 17:35	3.16	1.49	0.198
5/24/2021 17:30	3.16	1.48	0.197
5/24/2021 17:25	3.19	1.5	0.202
5/24/2021 17:20	3.16	1.5	0.199
5/24/2021 17:15	3.18	1.51	0.203
5/24/2021 17:10	3.08	1.44	0.184
5/24/2021 17:05	3.12	1.49	0.194
5/24/2021 17:00	3.12	1.49	0.194
5/24/2021 16:55	3.17	1.49	0.199
5/24/2021 16:50	3.16	1.48	0.196
5/24/2021 16:45	3.17	1.47	0.196
5/24/2021 16:40	3.19	1.53	0.206
5/24/2021 16:35	3.16	1.51	0.2
5/24/2021 16:30	3.18	1.51	0.202
5/24/2021 16:25	3.2	1.54	0.208
5/24/2021 16:20	3.24	1.53	0.211
5/24/2021 16:15	3.27	1.58	0.221
5/24/2021 16:10	3.23	1.59	0.218
5/24/2021 16:05	3.23	1.58	0.216
5/24/2021 16:00	3.21	1.51	0.205
5/24/2021 15:55	3.19	1.49	0.201
5/24/2021 15:50	3.16	1.51	0.201
5/24/2021 15:45	3.2	1.51	0.204
5/24/2021 15:40	3.02	1.43	0.177
5/24/2021 15:35	2.96	1.39	0.168
5/24/2021 15:30	3.14	1.49	0.196
5/24/2021 15:25	3.13	1.44	0.189
5/24/2021 15:20	3.3	1.55	0.219
5/24/2021 15:15	3.32	1.55	0.221

5/24/2021 15:10	3.31	1.53	0.218
5/24/2021 15:05	3.32	1.53	0.219
5/24/2021 15:00	3.28	1.52	0.213
5/24/2021 14:55	3.31	1.57	0.222
5/24/2021 14:50	3.34	1.58	0.228
5/24/2021 14:45	3.36	1.61	0.233
5/24/2021 14:40	3.42	1.61	0.239
5/24/2021 14:35	3.39	1.59	0.234
5/24/2021 14:30	3.44	1.6	0.24
5/24/2021 14:25	3.43	1.6	0.239
5/24/2021 14:20	3.49	1.59	0.243
5/24/2021 14:15	3.6	1.68	0.269
5/24/2021 14:10	3.56	1.69	0.266
5/24/2021 14:05	3.69	1.71	0.283
5/24/2021 14:00	3.69	1.69	0.28
5/24/2021 13:55	3.61	1.69	0.271
5/24/2021 13:50	3.6	1.68	0.269
5/24/2021 13:45	3.59	1.7	0.27
5/24/2021 13:40	3.57	1.59	0.251
5/24/2021 13:35	3.62	1.69	0.272
5/24/2021 13:30	3.7	1.72	0.286
5/24/2021 13:25	3.7	1.8	0.3
5/24/2021 13:20	3.66	1.81	0.296
5/24/2021 13:15	3.58	1.65	0.262
5/24/2021 13:10	3.53	1.64	0.256
5/24/2021 13:05	3.54	1.66	0.26
5/24/2021 13:00	3.5	1.67	0.256
5/24/2021 12:55	3.61	1.68	0.27
5/24/2021 12:50	3.65	1.69	0.276
5/24/2021 12:45	3.76	1.69	0.287
5/24/2021 12:40	3.48	1.62	0.247
5/24/2021 12:35	3.4	1.62	0.239
5/24/2021 12:30	3.43	1.63	0.244
5/24/2021 12:25	3.5	1.66	0.255
5/24/2021 12:20	3.41	1.56	0.23
5/24/2021 12:15	3.47	1.65	0.251
5/24/2021 12:10	3.52	1.7	0.264
5/24/2021 12:05	3.51	1.61	0.248
5/24/2021 12:00	3.62	1.66	0.268
5/24/2021 11:55	3.62	1.66	0.268
5/24/2021 11:50	3.6	1.66	0.266
5/24/2021 11:45	3.62	1.68	0.272
5/24/2021 11:40	3.59	1.62	0.257
5/24/2021 11:35	3.56	1.62	0.255
5/24/2021 11:30	3.56	1.55	0.245
5/24/2021 11:25	3.57	1.71	0.27
5/24/2021 11:20	3.48	1.64	0.249

5/24/2021 11:15	3.53	1.64	0.255
5/24/2021 11:10	3.54	1.63	0.254
5/24/2021 11:05	3.46	1.57	0.237
5/24/2021 11:00	3.46	1.57	0.238
5/24/2021 10:55	3.49	1.54	0.235
5/24/2021 10:50	3.52	1.64	0.254
5/24/2021 10:45	3.5	1.66	0.256
5/24/2021 10:40	3.47	1.66	0.253
5/24/2021 10:35	3.47	1.66	0.251
5/24/2021 10:30	3.46	1.6	0.241
5/24/2021 10:25	3.44	1.59	0.239
5/24/2021 10:20	3.45	1.57	0.236
5/24/2021 10:15	3.47	1.63	0.247
5/24/2021 10:10	3.47	1.62	0.246
5/24/2021 10:05	3.47	1.53	0.233
5/24/2021 10:00	3.49	1.65	0.254
5/24/2021 9:55	3.56	1.67	0.263
5/24/2021 9:50	3.55	1.67	0.262
5/24/2021 9:45	3.62	1.71	0.276
5/24/2021 9:40	3.57	1.65	0.262
5/24/2021 9:35	3.62	1.66	0.267
5/24/2021 9:30	3.62	1.65	0.266
5/24/2021 9:25	3.6	1.65	0.263
5/24/2021 9:20	3.68	1.69	0.279
5/24/2021 9:15	3.69	1.71	0.283
5/24/2021 9:10	3.67	1.69	0.279
5/24/2021 9:05	3.6	1.68	0.27
5/24/2021 9:00	3.59	1.66	0.265
5/24/2021 8:55	3.62	1.66	0.268
5/24/2021 8:50	3.58	1.66	0.264
5/24/2021 8:45	3.57	1.66	0.263
5/24/2021 8:40	3.55	1.65	0.258
5/24/2021 8:35	3.5	1.61	0.248
5/24/2021 8:30	3.51	1.63	0.252
5/24/2021 8:25	3.52	1.65	0.256
5/24/2021 8:20	3.49	1.61	0.246
5/24/2021 8:15	3.49	1.63	0.25
5/24/2021 8:10	3.48	1.57	0.24
5/24/2021 8:05	3.5	1.55	0.237
5/24/2021 8:00	3.64	1.72	0.279
5/24/2021 7:55	3.58	1.69	0.268
5/24/2021 7:50	3.54	1.62	0.253
5/24/2021 7:45	3.59	1.65	0.263
5/24/2021 7:40	3.59	1.66	0.265
5/24/2021 7:35	3.51	1.66	0.257
5/24/2021 7:30	3.44	1.56	0.234
5/24/2021 7:25	3.42	1.63	0.243

5/24/2021 7:20	3.32	1.56	0.222
5/24/2021 7:15	3.31	1.56	0.221
5/24/2021 7:10	3.31	1.56	0.221
5/24/2021 7:05	3.32	1.55	0.222
5/24/2021 7:00	3.33	1.55	0.221
5/24/2021 6:55	3.3	1.54	0.218
5/24/2021 6:50	3.19	1.52	0.204
5/24/2021 6:45	3.14	1.49	0.196
5/24/2021 6:40	3.19	1.49	0.2
5/24/2021 6:35	3.08	1.49	0.19
5/24/2021 6:30	3.02	1.42	0.176
5/24/2021 6:25	2.91	1.42	0.167
5/24/2021 6:20	2.9	1.42	0.167
5/24/2021 6:15	2.82	1.42	0.16
5/24/2021 6:10	2.67	1.23	0.129
5/24/2021 6:05	2.63	1.23	0.125
5/24/2021 6:00	2.58	1.23	0.121
5/24/2021 5:55	2.55	1.2	0.117
5/24/2021 5:50	2.47	1.16	0.108
5/24/2021 5:45	2.46	1.15	0.107
5/24/2021 5:40	2.39	1.13	0.1
5/24/2021 5:35	2.31	0.96	0.081
5/24/2021 5:30	2.29	1.08	0.09
5/24/2021 5:25	2.23	1.06	0.084
5/24/2021 5:20	2.21	1.03	0.082
5/24/2021 5:15	2.17	1.03	0.079
5/24/2021 5:10	2.19	1.04	0.081
5/24/2021 5:05	2.19	0.99	0.077
5/24/2021 5:00	2.18	1.03	0.08
5/24/2021 4:55	2.16	1.01	0.077
5/24/2021 4:50	2.2	1.02	0.08
5/24/2021 4:45	2.13	0.94	0.07
5/24/2021 4:40	2.1	0.94	0.069
5/24/2021 4:35	2.1	0.91	0.067
5/24/2021 4:30	2.13	0.91	0.068
5/24/2021 4:25	2.15	0.92	0.07
5/24/2021 4:20	2.02	0.83	0.057
5/24/2021 4:15	1.99	0.8	0.054
5/24/2021 4:10	1.99	0.8	0.054
5/24/2021 4:05	2.01	0.82	0.056
5/24/2021 4:00	2.01	0.79	0.054
5/24/2021 3:55	2.02	0.81	0.056
5/24/2021 3:50	2.01	0.77	0.053
5/24/2021 3:45	2.03	0.93	0.065
5/24/2021 3:40	2.05	0.95	0.068
5/24/2021 3:35	2.02	0.93	0.064
5/24/2021 3:30	2.03	0.92	0.064

5/24/2021 3:25	2.05	0.97	0.069
5/24/2021 3:20	2.05	0.96	0.069
5/24/2021 3:15	2.08	0.97	0.07
5/24/2021 3:10	2.08	0.97	0.07
5/24/2021 3:05	2.08	0.96	0.069
5/24/2021 3:00	2.07	0.94	0.068
5/24/2021 2:55	2.05	0.93	0.066
5/24/2021 2:50	2.05	0.93	0.066
5/24/2021 2:45	2.07	0.94	0.068
5/24/2021 2:40	2.13	0.99	0.074
5/24/2021 2:35	2.13	0.97	0.073
5/24/2021 2:30	2.12	0.97	0.072
5/24/2021 2:25	2.14	0.99	0.074
5/24/2021 2:20	2.15	0.99	0.075
5/24/2021 2:15	2.16	1.01	0.077
5/24/2021 2:10	2.12	0.97	0.072
5/24/2021 2:05	2.12	1	0.075
5/24/2021 2:00	2.08	0.96	0.07
5/24/2021 1:55	2.12	0.97	0.072
5/24/2021 1:50	2.15	0.97	0.074
5/24/2021 1:45	2.18	0.99	0.077
5/24/2021 1:40	2.2	0.98	0.077
5/24/2021 1:35	2.22	1.01	0.08
5/24/2021 1:30	2.22	1	0.079
5/24/2021 1:25	2.23	1	0.08
5/24/2021 1:20	2.25	1.01	0.082
5/24/2021 1:15	2.27	1.02	0.084
5/24/2021 1:10	2.28	1.05	0.087
5/24/2021 1:05	2.35	1.08	0.093
5/24/2021 1:00	2.36	1.09	0.095
5/24/2021 0:55	2.42	1.13	0.102
5/24/2021 0:50	2.43	1.09	0.099
5/24/2021 0:45	2.41	1.09	0.098
5/24/2021 0:40	2.41	1.09	0.097
5/24/2021 0:35	2.42	1.11	0.1
5/24/2021 0:30	2.41	1.09	0.098
5/24/2021 0:25	2.45	1.11	0.102
5/24/2021 0:20	2.49	1.12	0.105
5/24/2021 0:15	2.54	1.18	0.114
5/24/2021 0:10	2.64	1.22	0.126
5/24/2021 0:05	2.71	1.26	0.134
5/24/2021 0:00	2.78	1.34	0.148
5/23/2021 23:55	2.66	1.25	0.13
5/23/2021 23:50	2.71	1.27	0.135
5/23/2021 23:45	2.7	1.25	0.132
5/23/2021 23:40	2.75	1.25	0.136
5/23/2021 23:35	2.79	1.25	0.138

5/23/2021 23:30	2.72	1.25	0.133
5/23/2021 23:25	2.79	1.25	0.138
5/23/2021 23:20	2.8	1.22	0.137
5/23/2021 23:15	2.8	1.29	0.144
5/23/2021 23:10	2.83	1.29	0.146
5/23/2021 23:05	2.89	1.36	0.159
5/23/2021 23:00	2.95	1.36	0.164
5/23/2021 22:55	2.97	1.34	0.163
5/23/2021 22:50	2.97	1.21	0.147
5/23/2021 22:45	3.16	1.49	0.198
5/23/2021 22:40	3.2	1.56	0.211
5/23/2021 22:35	3.07	1.48	0.188
5/23/2021 22:30	3.1	1.5	0.194
5/23/2021 22:25	3.11	1.51	0.196
5/23/2021 22:20	3.09	1.52	0.194
5/23/2021 22:15	3.04	1.45	0.182
5/23/2021 22:10	3.14	1.51	0.199
5/23/2021 22:05	3.14	1.49	0.196
5/23/2021 22:00	3.17	1.5	0.2
5/23/2021 21:55	3.24	1.51	0.208
5/23/2021 21:50	3.24	1.52	0.21
5/23/2021 21:45	3.26	1.54	0.213
5/23/2021 21:40	3.27	1.54	0.215
5/23/2021 21:35	3.28	1.53	0.214
5/23/2021 21:30	3.32	1.53	0.219
5/23/2021 21:25	3.44	1.6	0.239
5/23/2021 21:20	3.46	1.59	0.24
5/23/2021 21:15	3.31	1.56	0.221
5/23/2021 21:10	3.4	1.64	0.241
5/23/2021 21:05	3.39	1.64	0.24
5/23/2021 21:00	3.63	1.69	0.273
5/23/2021 20:55	3.45	1.59	0.239
5/23/2021 20:50	3.45	1.55	0.233
5/23/2021 20:45	3.44	1.66	0.249
5/23/2021 20:40	3.39	1.63	0.24
5/23/2021 20:35	3.36	1.59	0.231
5/23/2021 20:30	3.37	1.67	0.244
5/23/2021 20:25	3.37	1.67	0.244
5/23/2021 20:20	3.29	1.6	0.224
5/23/2021 20:15	3.22	1.56	0.212
5/23/2021 20:10	3.22	1.54	0.21
5/23/2021 20:05	3.28	1.55	0.216
5/23/2021 20:00	3.28	1.53	0.214
5/23/2021 19:55	3.28	1.52	0.214
5/23/2021 19:50	3.29	1.51	0.213
5/23/2021 19:45	3.29	1.51	0.213
5/23/2021 19:40	3.3	1.01	0.143

5/23/2021 19:35	3.3	1.6	0.226
5/23/2021 19:30	3.34	1.61	0.231
5/23/2021 19:25	3.33	1.6	0.229
5/23/2021 19:20	3.32	1.6	0.228
5/23/2021 19:15	3.26	1.57	0.219
5/23/2021 19:10	3.35	1.57	0.227
5/23/2021 19:05	3.38	1.6	0.233
5/23/2021 19:00	3.34	1.59	0.229
5/23/2021 18:55	3.31	1.58	0.224
5/23/2021 18:50	3.33	1.58	0.226
5/23/2021 18:45	3.33	1.56	0.224
5/23/2021 18:40	3.33	1.57	0.225
5/23/2021 18:35	3.27	1.54	0.214
5/23/2021 18:30	3.3	1.59	0.225
5/23/2021 18:25	3.34	1.61	0.231
5/23/2021 18:20	3.29	1.58	0.222
5/23/2021 18:15	3.25	1.54	0.214
5/23/2021 18:10	3.23	1.52	0.208
5/23/2021 18:05	3.22	1.52	0.207
5/23/2021 18:00	3.23	1.51	0.206
5/23/2021 17:55	3.28	1.54	0.216
5/23/2021 17:50	3.29	1.54	0.217
5/23/2021 17:45	3.3	1.54	0.217
5/23/2021 17:40	3.31	1.54	0.219
5/23/2021 17:35	3.23	1.57	0.216
5/23/2021 17:30	3.24	1.6	0.22
5/23/2021 17:25	3.23	1.55	0.212
5/23/2021 17:20	3.18	1.49	0.2
5/23/2021 17:15	3.15	1.48	0.196
5/23/2021 17:10	3.19	1.49	0.201
5/23/2021 17:05	3.17	1.49	0.199
5/23/2021 17:00	3.18	1.5	0.2
5/23/2021 16:55	3.25	1.5	0.206
5/23/2021 16:50	3.32	1.57	0.224
5/23/2021 16:45	3.38	1.6	0.234
5/23/2021 16:40	3.28	1.58	0.221
5/23/2021 16:35	3.24	1.54	0.213
5/23/2021 16:30	3.24	1.52	0.21
5/23/2021 16:25	3.31	1.54	0.218
5/23/2021 16:20	3.3	1.53	0.216
5/23/2021 16:15	3.32	1.54	0.219
5/23/2021 16:10	3.33	1.52	0.217
5/23/2021 16:05	3.35	1.48	0.214
5/23/2021 16:00	3.43	1.58	0.235
5/23/2021 15:55	3.34	1.57	0.225
5/23/2021 15:50	3.33	1.56	0.224
5/23/2021 15:45	3.34	1.56	0.224

5/23/2021 15:40	3.34	1.59	0.228
5/23/2021 15:35	3.32	1.55	0.22
5/23/2021 15:30	3.28	1.53	0.215
5/23/2021 15:25	3.2	1.48	0.201
5/23/2021 15:20	3.18	1.48	0.198
5/23/2021 15:15	3.11	1.38	0.179
5/23/2021 15:10	3.16	1.42	0.188
5/23/2021 15:05	3.23	1.5	0.206
5/23/2021 15:00	3.32	1.52	0.217
5/23/2021 14:55	3.33	1.51	0.216
5/23/2021 14:50	3.27	1.49	0.208
5/23/2021 14:45	3.19	1.45	0.195
5/23/2021 14:40	3.14	1.41	0.185
5/23/2021 14:35	3.12	1.37	0.179
5/23/2021 14:30	3.2	1.42	0.192
5/23/2021 14:25	3.25	1.43	0.198
5/23/2021 14:20	3.36	1.43	0.208
5/23/2021 14:15	3.34	1.44	0.207
5/23/2021 14:10	3.38	1.58	0.231
5/23/2021 14:05	3.43	1.62	0.241
5/23/2021 14:00	3.41	1.62	0.24
5/23/2021 13:55	3.5	1.62	0.25
5/23/2021 13:50	3.54	1.62	0.253
5/23/2021 13:45	3.25	1.52	0.21
5/23/2021 13:40	3.32	1.56	0.222
5/23/2021 13:35	3.31	1.52	0.216
5/23/2021 13:30	3.31	1.51	0.214
5/23/2021 13:25	3.38	1.49	0.219
5/23/2021 13:20	3.36	1.58	0.229
5/23/2021 13:15	3.32	1.56	0.222
5/23/2021 13:10	3.33	1.58	0.226
5/23/2021 13:05	3.35	1.58	0.228
5/23/2021 13:00	3.3	1.57	0.222
5/23/2021 12:55	3.32	1.57	0.224
5/23/2021 12:50	3.34	1.57	0.225
5/23/2021 12:45	3.38	1.61	0.235
5/23/2021 12:40	3.44	1.64	0.246
5/23/2021 12:35	3.71	1.71	0.286
5/23/2021 12:30	3.71	1.71	0.287
5/23/2021 12:25	3.69	1.73	0.287
5/23/2021 12:20	3.66	1.72	0.283
5/23/2021 12:15	3.64	1.74	0.282
5/23/2021 12:10	3.54	1.62	0.253
5/23/2021 12:05	3.47	1.6	0.243
5/23/2021 12:00	3.55	1.65	0.258
5/23/2021 11:55	3.56	1.67	0.264
5/23/2021 11:50	3.54	1.6	0.25

5/23/2021 11:45	3.55	1.7	0.267
5/23/2021 11:40	3.62	1.71	0.276
5/23/2021 11:35	3.65	1.68	0.275
5/23/2021 11:30	3.68	1.69	0.278
5/23/2021 11:25	3.7	1.76	0.293
5/23/2021 11:20	3.67	1.69	0.279
5/23/2021 11:15	3.68	1.71	0.283
5/23/2021 11:10	3.7	1.67	0.278
5/23/2021 11:05	3.71	1.69	0.281
5/23/2021 11:00	3.63	1.67	0.27
5/23/2021 10:55	3.61	1.63	0.262
5/23/2021 10:50	3.72	1.73	0.291
5/23/2021 10:45	3.64	1.73	0.281
5/23/2021 10:40	3.61	1.63	0.262
5/23/2021 10:35	3.78	1.71	0.293
5/23/2021 10:30	3.79	1.75	0.302
5/23/2021 10:25	3.83	1.76	0.307
5/23/2021 10:20	3.84	1.76	0.31
5/23/2021 10:15	3.82	1.75	0.305
5/23/2021 10:10	3.69	1.67	0.278
5/23/2021 10:05	3.65	1.67	0.273
5/23/2021 10:00	3.69	1.7	0.281
5/23/2021 9:55	3.7	1.71	0.285
5/23/2021 9:50	3.71	1.72	0.288
5/23/2021 9:45	3.7	1.71	0.285
5/23/2021 9:40	3.72	1.73	0.29
5/23/2021 9:35	3.73	1.72	0.288
5/23/2021 9:30	3.67	1.7	0.28
5/23/2021 9:25	3.67	1.7	0.28
5/23/2021 9:20	3.62	1.65	0.266
5/23/2021 9:15	3.65	1.66	0.27
5/23/2021 9:10	3.63	1.64	0.265
5/23/2021 9:05	3.56	1.62	0.256
5/23/2021 9:00	3.56	1.63	0.257
5/23/2021 8:55	3.56	1.62	0.255
5/23/2021 8:50	3.53	1.59	0.248
5/23/2021 8:45	3.48	1.61	0.245
5/23/2021 8:40	3.49	1.62	0.248
5/23/2021 8:35	3.38	1.57	0.23
5/23/2021 8:30	3.38	1.56	0.227
5/23/2021 8:25	3.36	1.55	0.224
5/23/2021 8:20	3.32	1.54	0.22
5/23/2021 8:15	3.25	1.52	0.211
5/23/2021 8:10	3.25	1.52	0.21
5/23/2021 8:05	3.14	1.5	0.197
5/23/2021 8:00	3.13	1.48	0.193
5/23/2021 7:55	3.15	1.48	0.196

5/23/2021 7:50	3.13	1.39	0.182
5/23/2021 7:45	3.09	1.3	0.167
5/23/2021 7:40	3.06	1.44	0.182
5/23/2021 7:35	2.98	1.42	0.174
5/23/2021 7:30	2.95	1.42	0.171
5/23/2021 7:25	2.93	1.37	0.163
5/23/2021 7:20	2.92	1.37	0.162
5/23/2021 7:15	2.91	1.39	0.163
5/23/2021 7:10	2.83	1.34	0.152
5/23/2021 7:05	2.8	1.34	0.15
5/23/2021 7:00	2.75	1.29	0.141
5/23/2021 6:55	2.7	1.32	0.14
5/23/2021 6:50	2.67	1.32	0.137
5/23/2021 6:45	2.61	1.31	0.132
5/23/2021 6:40	2.59	1.32	0.132
5/23/2021 6:35	2.49	1.17	0.11
5/23/2021 6:30	2.46	1.16	0.107
5/23/2021 6:25	2.49	1.28	0.12
5/23/2021 6:20	2.36	1.12	0.097
5/23/2021 6:15	2.32	1.06	0.091
5/23/2021 6:10	2.23	1.02	0.082
5/23/2021 6:05	2.22	1.04	0.083
5/23/2021 6:00	2.2	1.04	0.082
5/23/2021 5:55	2.21	1.03	0.082
5/23/2021 5:50	2.2	1.03	0.081
5/23/2021 5:45	2.2	1.02	0.08
5/23/2021 5:40	2.16	1.01	0.077
5/23/2021 5:35	2.15	1	0.076
5/23/2021 5:30	2.15	1.03	0.079
5/23/2021 5:25	2.07	0.97	0.07
5/23/2021 5:20	2.07	0.97	0.07
5/23/2021 5:15	2.07	0.99	0.072
5/23/2021 5:10	2.12	0.99	0.073
5/23/2021 5:05	2.13	1.03	0.077
5/23/2021 5:00	2.07	0.99	0.071
5/23/2021 4:55	2.07	0.96	0.069
5/23/2021 4:50	2.07	0.95	0.068
5/23/2021 4:45	2.09	0.98	0.071
5/23/2021 4:40	2.1	0.98	0.072
5/23/2021 4:35	2.1	0.99	0.073
5/23/2021 4:30	2.1	1	0.073
5/23/2021 4:25	2.1	1	0.073
5/23/2021 4:20	2.07	0.95	0.068
5/23/2021 4:15	2.03	0.94	0.066
5/23/2021 4:10	2.02	0.92	0.064
5/23/2021 4:05	2.02	0.84	0.058
5/23/2021 4:00	2.02	0.84	0.058

5/23/2021 3:55	2.02	0.86	0.06
5/23/2021 3:50	2.01	0.86	0.059
5/23/2021 3:45	2.03	0.87	0.061
5/23/2021 3:40	2.02	0.88	0.061
5/23/2021 3:35	2.02	0.9	0.062
5/23/2021 3:30	2.02	0.92	0.063
5/23/2021 3:25	2.03	0.93	0.065
5/23/2021 3:20	2.05	0.94	0.066
5/23/2021 3:15	2.08	0.95	0.069
5/23/2021 3:10	2.09	0.97	0.071
5/23/2021 3:05	2.09	0.97	0.071
5/23/2021 3:00	2.11	0.96	0.071
5/23/2021 2:55	2.14	0.97	0.073
5/23/2021 2:50	2.13	0.99	0.074
5/23/2021 2:45	2.12	0.96	0.071
5/23/2021 2:40	2.08	0.92	0.066
5/23/2021 2:35	2.11	0.98	0.073
5/23/2021 2:30	2.15	1.03	0.079
5/23/2021 2:25	2.17	1.05	0.081
5/23/2021 2:20	2.17	0.96	0.074
5/23/2021 2:15	2.2	1.03	0.081
5/23/2021 2:10	2.22	1.06	0.084
5/23/2021 2:05	2.2	1.06	0.083
5/23/2021 2:00	2.2	1.03	0.081
5/23/2021 1:55	2.21	1.03	0.082
5/23/2021 1:50	2.25	1.07	0.086
5/23/2021 1:45	2.25	1.05	0.085
5/23/2021 1:40	2.23	1.04	0.084
5/23/2021 1:35	2.24	1.05	0.085
5/23/2021 1:30	2.26	1.05	0.086
5/23/2021 1:25	2.28	1.06	0.088
5/23/2021 1:20	2.32	1.07	0.09
5/23/2021 1:15	2.32	1.08	0.092
5/23/2021 1:10	2.3	1.08	0.09
5/23/2021 1:05	2.3	1.08	0.091
5/23/2021 1:00	2.3	1.09	0.091
5/23/2021 0:55	2.31	1.09	0.092
5/23/2021 0:50	2.3	1.14	0.096
5/23/2021 0:45	2.26	1.04	0.085
5/23/2021 0:40	2.27	1.04	0.085
5/23/2021 0:35	2.28	1.04	0.086
5/23/2021 0:30	2.31	1.15	0.097
5/23/2021 0:25	2.29	1.06	0.088
5/23/2021 0:20	2.31	1.04	0.088
5/23/2021 0:15	2.39	1.05	0.093
5/23/2021 0:10	2.48	1.15	0.107
5/23/2021 0:05	2.48	1.15	0.107

5/23/2021 0:00	2.52	1.15	0.11
5/22/2021 23:55	2.53	1.14	0.109
5/22/2021 23:50	2.58	1.16	0.115
5/22/2021 23:45	2.69	1.24	0.131
5/22/2021 23:40	2.73	1.3	0.14
5/22/2021 23:35	2.77	1.32	0.145
5/22/2021 23:30	2.74	1.32	0.143
5/22/2021 23:25	2.72	1.24	0.133
5/22/2021 23:20	2.83	1.34	0.152
5/22/2021 23:15	2.83	1.34	0.152
5/22/2021 23:10	2.95	1.4	0.168
5/22/2021 23:05	3	1.44	0.178
5/22/2021 23:00	3.07	1.47	0.188
5/22/2021 22:55	3.08	1.51	0.193
5/22/2021 22:50	2.96	1.45	0.175
5/22/2021 22:45	2.86	1.36	0.157
5/22/2021 22:40	2.86	1.37	0.157
5/22/2021 22:35	2.93	1.43	0.17
5/22/2021 22:30	2.93	1.44	0.172
5/22/2021 22:25	2.92	1.45	0.171
5/22/2021 22:20	2.92	1.33	0.158
5/22/2021 22:15	3.1	1.39	0.179
5/22/2021 22:10	3.09	1.39	0.179
5/22/2021 22:05	3.07	1.37	0.174
5/22/2021 22:00	3.15	1.42	0.188
5/22/2021 21:55	3.16	1.42	0.188
5/22/2021 21:50	3.22	1.58	0.215
5/22/2021 21:45	3.15	1.53	0.202
5/22/2021 21:40	3.14	1.51	0.198
5/22/2021 21:35	3.12	1.47	0.192
5/22/2021 21:30	3.1	1.51	0.195
5/22/2021 21:25	3.16	1.51	0.201
5/22/2021 21:20	3.17	1.54	0.206
5/22/2021 21:15	3.24	1.57	0.215
5/22/2021 21:10	3.21	1.51	0.205
5/22/2021 21:05	3.24	1.54	0.212
5/22/2021 21:00	3.23	1.52	0.208
5/22/2021 20:55	3.28	1.54	0.215
5/22/2021 20:50	3.37	1.64	0.24
5/22/2021 20:45	3.22	1.53	0.209
5/22/2021 20:40	3.19	1.46	0.196
5/22/2021 20:35	3.21	1.5	0.204
5/22/2021 20:30	3.13	1.5	0.196
5/22/2021 20:25	3.15	1.49	0.197
5/22/2021 20:20	3.13	1.48	0.193
5/22/2021 20:15	3.17	1.51	0.2
5/22/2021 20:10	3.16	1.49	0.199

5/22/2021 20:05	3.18	1.48	0.198
5/22/2021 20:00	3.19	1.53	0.206
5/22/2021 19:55	3.11	1.49	0.194
5/22/2021 19:50	3.15	1.5	0.198
5/22/2021 19:45	3.18	1.51	0.202
5/22/2021 19:40	3.26	1.57	0.218
5/22/2021 19:35	3.29	1.59	0.223
5/22/2021 19:30	3.34	1.62	0.232
5/22/2021 19:25	3.32	1.61	0.23
5/22/2021 19:20	3.22	1.53	0.209
5/22/2021 19:15	3.26	1.54	0.215
5/22/2021 19:10	3.19	1.53	0.207
5/22/2021 19:05	3.09	1.47	0.189
5/22/2021 19:00	3.11	1.48	0.192
5/22/2021 18:55	3.1	1.48	0.192
5/22/2021 18:50	3.09	1.48	0.19
5/22/2021 18:45	3.12	1.5	0.195
5/22/2021 18:40	3.23	1.55	0.213
5/22/2021 18:35	3.21	1.55	0.21
5/22/2021 18:30	3.17	1.55	0.206
5/22/2021 18:25	3.17	1.55	0.207
5/22/2021 18:20	3.16	1.53	0.202
5/22/2021 18:15	3.16	1.54	0.204
5/22/2021 18:10	3.19	1.56	0.209
5/22/2021 18:05	3.16	1.49	0.198
5/22/2021 18:00	3.14	1.49	0.197
5/22/2021 17:55	3.15	1.51	0.2
5/22/2021 17:50	3.15	1.48	0.196
5/22/2021 17:45	3.17	1.48	0.198
5/22/2021 17:40	3.17	1.48	0.197
5/22/2021 17:35	3.15	1.44	0.191
5/22/2021 17:30	3.16	1.49	0.198
5/22/2021 17:25	3.17	1.48	0.198
5/22/2021 17:20	3.16	1.48	0.197
5/22/2021 17:15	3.11	1.44	0.187
5/22/2021 17:10	3.07	1.31	0.167
5/22/2021 17:05	3.08	1.31	0.168
5/22/2021 17:00	3.08	1.32	0.169
5/22/2021 16:55	3.07	1.24	0.158
5/22/2021 16:50	3.09	1.29	0.165
5/22/2021 16:45	3.08	1.24	0.159
5/22/2021 16:40	3.13	1.24	0.163
5/22/2021 16:35	3.15	1.21	0.159
5/22/2021 16:30	3.13	1.21	0.158
5/22/2021 16:25	3.16	1.21	0.161
5/22/2021 16:20	3.17	1.28	0.171
5/22/2021 16:15	3.24	1.55	0.214

5/22/2021 16:10	3.23	1.5	0.206
5/22/2021 16:05	3.25	1.56	0.215
5/22/2021 16:00	3.24	1.56	0.214
5/22/2021 15:55	3.23	1.56	0.213
5/22/2021 15:50	3.22	1.57	0.215
5/22/2021 15:45	3.22	1.57	0.214
5/22/2021 15:40	3.15	1.52	0.2
5/22/2021 15:35	3.23	1.53	0.21
5/22/2021 15:30	3.22	1.51	0.206
5/22/2021 15:25	3.23	1.53	0.21
5/22/2021 15:20	3.27	1.55	0.217
5/22/2021 15:15	3.33	1.55	0.223
5/22/2021 15:10	3.34	1.58	0.226
5/22/2021 15:05	3.38	1.63	0.238
5/22/2021 15:00	3.37	1.61	0.233
5/22/2021 14:55	3.37	1.61	0.234
5/22/2021 14:50	3.34	1.6	0.23
5/22/2021 14:45	3.37	1.61	0.234
5/22/2021 14:40	3.37	1.61	0.235
5/22/2021 14:35	3.36	1.56	0.227
5/22/2021 14:30	3.11	1.47	0.192
5/22/2021 14:25	3.15	1.48	0.196
5/22/2021 14:20	3.27	1.56	0.217
5/22/2021 14:15	3.24	1.53	0.21
5/22/2021 14:10	3.23	1.51	0.207
5/22/2021 14:05	3.28	1.57	0.22
5/22/2021 14:00	3.34	1.57	0.225
5/22/2021 13:55	3.36	1.6	0.232
5/22/2021 13:50	3.38	1.6	0.234
5/22/2021 13:45	3.39	1.6	0.236
5/22/2021 13:40	3.46	1.62	0.245
5/22/2021 13:35	3.51	1.64	0.253
5/22/2021 13:30	3.52	1.64	0.254
5/22/2021 13:25	3.54	1.68	0.263
5/22/2021 13:20	3.52	1.65	0.256
5/22/2021 13:15	3.43	1.6	0.238
5/22/2021 13:10	3.45	1.64	0.246
5/22/2021 13:05	3.45	1.64	0.247
5/22/2021 13:00	3.46	1.62	0.245
5/22/2021 12:55	3.54	1.64	0.257
5/22/2021 12:50	3.56	1.65	0.259
5/22/2021 12:45	3.58	1.65	0.261
5/22/2021 12:40	3.57	1.67	0.263
5/22/2021 12:35	3.57	1.68	0.265
5/22/2021 12:30	3.57	1.68	0.266
5/22/2021 12:25	3.56	1.68	0.264
5/22/2021 12:20	3.53	1.65	0.257

5/22/2021 12:15	3.5	1.65	0.254
5/22/2021 12:10	3.49	1.6	0.245
5/22/2021 12:05	3.52	1.58	0.245
5/22/2021 12:00	3.53	1.63	0.253
5/22/2021 11:55	3.52	1.62	0.25
5/22/2021 11:50	3.51	1.62	0.25
5/22/2021 11:45	3.67	1.67	0.275
5/22/2021 11:40	3.74	1.67	0.283
5/22/2021 11:35	3.74	1.66	0.28
5/22/2021 11:30	3.74	1.68	0.284
5/22/2021 11:25	3.71	1.67	0.279
5/22/2021 11:20	3.63	1.64	0.266
5/22/2021 11:15	3.65	1.7	0.277
5/22/2021 11:10	3.71	1.69	0.282
5/22/2021 11:05	3.69	1.68	0.279
5/22/2021 11:00	3.69	1.65	0.273
5/22/2021 10:55	3.81	1.69	0.293
5/22/2021 10:50	3.76	1.67	0.285
5/22/2021 10:45	3.85	1.77	0.312
5/22/2021 10:40	3.81	1.8	0.311
5/22/2021 10:35	3.79	1.67	0.288
5/22/2021 10:30	3.84	1.7	0.299
5/22/2021 10:25	3.82	1.73	0.301
5/22/2021 10:20	3.61	1.62	0.261
5/22/2021 10:15	3.79	1.63	0.28
5/22/2021 10:10	3.92	1.63	0.295
5/22/2021 10:05	3.94	1.71	0.313
5/22/2021 10:00	3.68	1.58	0.26
5/22/2021 9:55	3.56	1.56	0.246
5/22/2021 9:50	3.45	1.61	0.243
5/22/2021 9:45	3.41	1.6	0.237
5/22/2021 9:40	3.54	1.61	0.251
5/22/2021 9:35	3.64	1.64	0.266
5/22/2021 9:30	3.64	1.66	0.27
5/22/2021 9:25	3.59	1.66	0.264
5/22/2021 9:20	3.54	1.65	0.257
5/22/2021 9:15	3.54	1.65	0.259
5/22/2021 9:10	3.67	1.67	0.274
5/22/2021 9:05	3.65	1.67	0.272
5/22/2021 9:00	3.65	1.67	0.272
5/22/2021 8:55	3.67	1.67	0.275
5/22/2021 8:50	3.63	1.65	0.268
5/22/2021 8:45	3.62	1.65	0.266
5/22/2021 8:40	3.57	1.64	0.26
5/22/2021 8:35	3.59	1.66	0.264
5/22/2021 8:30	3.54	1.63	0.255
5/22/2021 8:25	3.56	1.58	0.249

5/22/2021 8:20	3.44	1.55	0.233
5/22/2021 8:15	3.34	1.55	0.223
5/22/2021 8:10	3.35	1.55	0.223
5/22/2021 8:05	3.34	1.54	0.22
5/22/2021 8:00	3.29	1.53	0.215
5/22/2021 7:55	3.2	1.53	0.207
5/22/2021 7:50	3.16	1.47	0.195
5/22/2021 7:45	3.24	1.48	0.204
5/22/2021 7:40	3.26	1.46	0.203
5/22/2021 7:35	2.99	1.45	0.178
5/22/2021 7:30	3.01	1.45	0.18
5/22/2021 7:25	3.05	1.46	0.184
5/22/2021 7:20	3.07	1.46	0.186
5/22/2021 7:15	3.14	1.52	0.2
5/22/2021 7:10	2.76	1.25	0.137
5/22/2021 7:05	2.7	1.31	0.139
5/22/2021 7:00	2.64	1.29	0.132
5/22/2021 6:55	2.63	1.29	0.131
5/22/2021 6:50	2.62	1.27	0.129
5/22/2021 6:45	2.6	1.28	0.129
5/22/2021 6:40	2.55	1.17	0.114
5/22/2021 6:35	2.56	1.2	0.117
5/22/2021 6:30	2.57	1.18	0.117
5/22/2021 6:25	2.58	1.31	0.129
5/22/2021 6:20	2.48	0.96	0.09
5/22/2021 6:15	2.44	1.15	0.104
5/22/2021 6:10	2.34	1.08	0.093
5/22/2021 6:05	2.3	1.05	0.088
5/22/2021 6:00	2.35	1.15	0.1
5/22/2021 5:55	2.26	1.06	0.086
5/22/2021 5:50	2.22	1.05	0.084
5/22/2021 5:45	2.18	1.06	0.082
5/22/2021 5:40	2.18	1.05	0.081
5/22/2021 5:35	2.17	1.04	0.08
5/22/2021 5:30	2.17	1.04	0.08
5/22/2021 5:25	2.05	0.81	0.058
5/22/2021 5:20	2	0.68	0.046
5/22/2021 5:15	2.01	0.68	0.047
5/22/2021 5:10	2	0.66	0.045
5/22/2021 5:05	2.01	0.65	0.044
5/22/2021 5:00	2.11	1.01	0.074
5/22/2021 4:55	2.06	0.97	0.069
5/22/2021 4:50	2.03	0.96	0.067
5/22/2021 4:45	2.05	0.95	0.068
5/22/2021 4:40	2.06	0.97	0.069
5/22/2021 4:35	2.05	0.97	0.069
5/22/2021 4:30	2.05	0.97	0.069

5/22/2021 4:25	2	0.93	0.064
5/22/2021 4:20	2.01	0.94	0.065
5/22/2021 4:15	2.02	0.93	0.065
5/22/2021 4:10	2.02	0.92	0.064
5/22/2021 4:05	2.01	0.9	0.062
5/22/2021 4:00	2.01	0.88	0.061
5/22/2021 3:55	2.04	0.91	0.064
5/22/2021 3:50	2.05	0.94	0.067
5/22/2021 3:45	2.1	0.94	0.069
5/22/2021 3:40	2.12	0.97	0.073
5/22/2021 3:35	2.12	1	0.074
5/22/2021 3:30	2.12	1	0.074
5/22/2021 3:25	2.11	0.99	0.073
5/22/2021 3:20	2.09	0.97	0.071
5/22/2021 3:15	2.06	0.94	0.067
5/22/2021 3:10	2.05	0.93	0.066
5/22/2021 3:05	2.06	0.93	0.066
5/22/2021 3:00	2.09	0.96	0.07
5/22/2021 2:55	2.1	0.94	0.069
5/22/2021 2:50	2.1	0.94	0.069
5/22/2021 2:45	2.09	0.95	0.069
5/22/2021 2:40	2.09	0.99	0.072
5/22/2021 2:35	2.09	0.99	0.072
5/22/2021 2:30	2.11	0.99	0.073
5/22/2021 2:25	2.12	0.99	0.074
5/22/2021 2:20	2.13	1.03	0.077
5/22/2021 2:15	2.13	1.03	0.077
5/22/2021 2:10	2.12	0.95	0.071
5/22/2021 2:05	2.18	1.05	0.081
5/22/2021 2:00	2.18	1.06	0.082
5/22/2021 1:55	2.18	1.06	0.082
5/22/2021 1:50	2.18	1.06	0.082
5/22/2021 1:45	2.16	1	0.076
5/22/2021 1:40	2.15	0.98	0.074
5/22/2021 1:35	2.19	0.99	0.077
5/22/2021 1:30	2.24	1.03	0.083
5/22/2021 1:25	2.24	1.01	0.081
5/22/2021 1:20	2.23	1.05	0.084
5/22/2021 1:15	2.23	1.04	0.084
5/22/2021 1:10	2.26	1.06	0.087
5/22/2021 1:05	2.33	1.09	0.093
5/22/2021 1:00	2.37	1.13	0.099
5/22/2021 0:55	2.38	1.13	0.1
5/22/2021 0:50	2.4	1.14	0.102
5/22/2021 0:45	2.4	1.13	0.101
5/22/2021 0:40	2.41	1.14	0.102
5/22/2021 0:35	2.4	1.1	0.098

5/22/2021 0:30	2.45	1.16	0.107
5/22/2021 0:25	2.49	1.17	0.111
5/22/2021 0:20	2.48	1.17	0.109
5/22/2021 0:15	2.49	1.18	0.111
5/22/2021 0:10	2.58	1.21	0.12
5/22/2021 0:05	2.58	1.21	0.12
5/22/2021 0:00	2.58	1.21	0.12
5/21/2021 23:55	2.65	1.23	0.126
5/21/2021 23:50	2.73	1.31	0.141
5/21/2021 23:45	2.72	1.32	0.141
5/21/2021 23:40	2.73	1.32	0.142
5/21/2021 23:35	2.73	1.32	0.141
5/21/2021 23:30	2.74	1.33	0.144
5/21/2021 23:25	2.74	1.33	0.143
5/21/2021 23:20	2.87	1.37	0.159
5/21/2021 23:15	2.88	1.37	0.159
5/21/2021 23:10	2.94	1.41	0.169
5/21/2021 23:05	2.92	1.4	0.166
5/21/2021 23:00	2.93	1.4	0.167
5/21/2021 22:55	2.95	1.4	0.168
5/21/2021 22:50	3.01	1.47	0.182
5/21/2021 22:45	3	1.45	0.178
5/21/2021 22:40	3.01	1.46	0.18
5/21/2021 22:35	3.06	1.5	0.19
5/21/2021 22:30	3.01	1.45	0.179
5/21/2021 22:25	3	1.43	0.177
5/21/2021 22:20	3.07	1.45	0.185
5/21/2021 22:15	3.07	1.45	0.185
5/21/2021 22:10	3.13	1.54	0.202
5/21/2021 22:05	3.12	1.5	0.196
5/21/2021 22:00	3.09	1.5	0.192
5/21/2021 21:55	3.14	1.5	0.197
5/21/2021 21:50	3.14	1.5	0.197
5/21/2021 21:45	3.17	1.48	0.198
5/21/2021 21:40	3.19	1.49	0.201
5/21/2021 21:35	3.21	1.48	0.201
5/21/2021 21:30	3.19	1.5	0.201
5/21/2021 21:25	3.19	1.49	0.2
5/21/2021 21:20	3.19	1.43	0.192
5/21/2021 21:15	3.25	1.52	0.21
5/21/2021 21:10	3.2	1.5	0.202
5/21/2021 21:05	3.22	1.5	0.205
5/21/2021 21:00	3.2	1.5	0.203
5/21/2021 20:55	3.17	1.5	0.2
5/21/2021 20:50	3.17	1.49	0.198
5/21/2021 20:45	3.17	1.47	0.196
5/21/2021 20:40	3.18	1.45	0.195

5/21/2021 20:35	3.18	1.52	0.203
5/21/2021 20:30	3.19	1.51	0.203
5/21/2021 20:25	3.27	1.52	0.212
5/21/2021 20:20	3.21	1.45	0.197
5/21/2021 20:15	3.21	1.52	0.207
5/21/2021 20:10	3.21	1.52	0.207
5/21/2021 20:05	3.24	1.56	0.214
5/21/2021 20:00	3.29	1.56	0.22
5/21/2021 19:55	3.32	1.56	0.222
5/21/2021 19:50	3.3	1.61	0.228
5/21/2021 19:45	3.27	1.58	0.22
5/21/2021 19:40	3.26	1.57	0.219
5/21/2021 19:35	3.24	1.56	0.215
5/21/2021 19:30	3.27	1.56	0.217
5/21/2021 19:25	3.29	1.58	0.221
5/21/2021 19:20	3.26	1.52	0.211
5/21/2021 19:15	3.21	1.43	0.195
5/21/2021 19:10	3.15	1.51	0.199
5/21/2021 19:05	3.13	1.49	0.195
5/21/2021 19:00	3.33	1.55	0.222
5/21/2021 18:55	3.46	1.62	0.246
5/21/2021 18:50	3.46	1.64	0.248
5/21/2021 18:45	3.3	1.57	0.222
5/21/2021 18:40	3.33	1.57	0.225
5/21/2021 18:35	3.37	1.57	0.229
5/21/2021 18:30	3.36	1.58	0.229
5/21/2021 18:25	3.15	1.51	0.199
5/21/2021 18:20	3.09	1.46	0.188
5/21/2021 18:15	3.07	1.47	0.187
5/21/2021 18:10	3.18	1.52	0.204
5/21/2021 18:05	3.19	1.54	0.207
5/21/2021 18:00	3.25	1.56	0.215
5/21/2021 17:55	3.24	1.56	0.215
5/21/2021 17:50	3.19	1.55	0.208
5/21/2021 17:45	3.09	1.52	0.195
5/21/2021 17:40	3.08	1.5	0.192
5/21/2021 17:35	3.04	1.49	0.187
5/21/2021 17:30	3.02	1.43	0.178
5/21/2021 17:25	3.09	1.46	0.188
5/21/2021 17:20	3.08	1.48	0.189
5/21/2021 17:15	3.08	1.44	0.185
5/21/2021 17:10	3.04	1.46	0.184
5/21/2021 17:05	3.05	1.46	0.184
5/21/2021 17:00	3.11	1.48	0.192
5/21/2021 16:55	3.11	1.43	0.185
5/21/2021 16:50	3.2	1.51	0.204
5/21/2021 16:45	3.22	1.5	0.205

5/21/2021 16:40	3.28	1.55	0.217
5/21/2021 16:35	3.29	1.57	0.22
5/21/2021 16:30	3.3	1.59	0.224
5/21/2021 16:25	3.31	1.61	0.228
5/21/2021 16:20	3.2	1.53	0.208
5/21/2021 16:15	3.11	1.51	0.196
5/21/2021 16:10	3.1	1.49	0.193
5/21/2021 16:05	3.08	1.49	0.191
5/21/2021 16:00	3.03	1.46	0.182
5/21/2021 15:55	3.03	1.44	0.179
5/21/2021 15:50	3.18	1.53	0.206
5/21/2021 15:45	3.17	1.54	0.205
5/21/2021 15:40	3.21	1.58	0.215
5/21/2021 15:35	3.16	1.62	0.214
5/21/2021 15:30	3.12	1.42	0.186
5/21/2021 15:25	3.11	1.41	0.183
5/21/2021 15:20	3.22	1.57	0.214
5/21/2021 15:15	3.19	1.45	0.196
5/21/2021 15:10	3.21	1.24	0.168
5/21/2021 15:05	3.1	1.51	0.195
5/21/2021 15:00	3.16	1.51	0.201
5/21/2021 14:55	3.16	1.51	0.201
5/21/2021 14:50	3.22	1.55	0.211
5/21/2021 14:45	3.18	1.54	0.207
5/21/2021 14:40	3.18	1.53	0.205
5/21/2021 14:35	3.18	1.55	0.207
5/21/2021 14:30	3.18	1.5	0.202
5/21/2021 14:25	3.21	1.51	0.204
5/21/2021 14:20	3.29	1.52	0.214
5/21/2021 14:15	3.2	1.41	0.191
5/21/2021 14:10	3.25	1.53	0.212
5/21/2021 14:05	3.24	1.55	0.213
5/21/2021 14:00	3.24	1.55	0.214
5/21/2021 13:55	3.25	1.61	0.222
5/21/2021 13:50	3.17	1.53	0.204
5/21/2021 13:45	3.2	1.53	0.206
5/21/2021 13:40	3.2	1.55	0.21
5/21/2021 13:35	3.18	1.53	0.205
5/21/2021 13:30	3.25	1.57	0.217
5/21/2021 13:25	3.3	1.57	0.222
5/21/2021 13:20	3.36	1.59	0.231
5/21/2021 13:15	3.36	1.59	0.231
5/21/2021 13:10	3.37	1.6	0.233
5/21/2021 13:05	3.37	1.58	0.23
5/21/2021 13:00	3.44	1.59	0.239
5/21/2021 12:55	3.56	1.64	0.258
5/21/2021 12:50	3.69	1.67	0.276

5/21/2021 12:45	3.67	1.67	0.274
5/21/2021 12:40	3.57	1.66	0.263
5/21/2021 12:35	3.52	1.58	0.244
5/21/2021 12:30	3.44	1.57	0.236
5/21/2021 12:25	3.54	1.66	0.26
5/21/2021 12:20	3.54	1.66	0.259
5/21/2021 12:15	3.63	1.66	0.268
5/21/2021 12:10	3.57	1.65	0.261
5/21/2021 12:05	3.56	1.64	0.257
5/21/2021 12:00	3.56	1.6	0.252
5/21/2021 11:55	3.6	1.6	0.256
5/21/2021 11:50	3.47	1.59	0.242
5/21/2021 11:45	3.42	1.59	0.236
5/21/2021 11:40	3.43	1.59	0.238
5/21/2021 11:35	3.5	1.63	0.251
5/21/2021 11:30	3.54	1.63	0.255
5/21/2021 11:25	3.55	1.64	0.256
5/21/2021 11:20	3.7	1.72	0.285
5/21/2021 11:15	3.72	1.73	0.29
5/21/2021 11:10	3.66	1.65	0.27
5/21/2021 11:05	3.66	1.62	0.266
5/21/2021 11:00	3.72	1.68	0.282
5/21/2021 10:55	3.5	1.64	0.253
5/21/2021 10:50	3.54	1.64	0.257
5/21/2021 10:45	3.56	1.67	0.264
5/21/2021 10:40	3.53	1.66	0.258
5/21/2021 10:35	3.55	1.66	0.261
5/21/2021 10:30	3.55	1.66	0.261
5/21/2021 10:25	3.49	1.61	0.247
5/21/2021 10:20	3.5	1.61	0.248
5/21/2021 10:15	3.5	1.61	0.249
5/21/2021 10:10	3.48	1.63	0.248
5/21/2021 10:05	3.48	1.62	0.247
5/21/2021 10:00	3.48	1.62	0.247
5/21/2021 9:55	3.48	1.64	0.249
5/21/2021 9:50	3.55	1.65	0.259
5/21/2021 9:45	3.55	1.64	0.257
5/21/2021 9:40	3.54	1.63	0.254
5/21/2021 9:35	3.54	1.62	0.253
5/21/2021 9:30	3.46	1.58	0.239
5/21/2021 9:25	3.48	1.57	0.24
5/21/2021 9:20	3.49	1.58	0.241
5/21/2021 9:15	3.49	1.53	0.234
5/21/2021 9:10	3.56	1.51	0.237
5/21/2021 9:05	3.59	1.67	0.266
5/21/2021 9:00	3.61	1.72	0.276
5/21/2021 8:55	3.72	1.72	0.287

5/21/2021 8:50	3.69	1.72	0.285
5/21/2021 8:45	3.67	1.65	0.271
5/21/2021 8:40	3.57	1.65	0.261
5/21/2021 8:35	3.52	1.64	0.254
5/21/2021 8:30	3.52	1.65	0.255
5/21/2021 8:25	3.43	1.54	0.231
5/21/2021 8:20	3.43	1.58	0.236
5/21/2021 8:15	3.44	1.58	0.237
5/21/2021 8:10	3.45	1.58	0.238
5/21/2021 8:05	3.5	1.57	0.242
5/21/2021 8:00	3.54	1.62	0.254
5/21/2021 7:55	3.53	1.63	0.254
5/21/2021 7:50	3.53	1.63	0.254
5/21/2021 7:45	3.49	1.61	0.246
5/21/2021 7:40	3.44	1.58	0.236
5/21/2021 7:35	3.43	1.55	0.231
5/21/2021 7:30	3.37	1.54	0.224
5/21/2021 7:25	3.37	1.56	0.227
5/21/2021 7:20	3.41	1.55	0.231
5/21/2021 7:15	3.48	1.58	0.241
5/21/2021 7:10	3.53	1.57	0.244
5/21/2021 7:05	3.56	1.61	0.254
5/21/2021 7:00	3.63	1.63	0.264
5/21/2021 6:55	3.27	1.59	0.222
5/21/2021 6:50	3.21	1.62	0.22
5/21/2021 6:45	3.02	1.31	0.163
5/21/2021 6:40	2.93	1.31	0.156
5/21/2021 6:35	2.93	1.29	0.154
5/21/2021 6:30	2.9	1.45	0.171
5/21/2021 6:25	2.77	1	0.109
5/21/2021 6:20	2.69	0.84	0.088
5/21/2021 6:15	2.57	0.79	0.077
5/21/2021 6:10	2.56	0.71	0.07
5/21/2021 6:05	2.56	0.7	0.068
5/21/2021 6:00	2.53	0.93	0.089
5/21/2021 5:55	2.55	0.83	0.081
5/21/2021 5:50	2.49	0.84	0.079
5/21/2021 5:45	2.45	0.85	0.078
5/21/2021 5:40	2.41	0.87	0.078
5/21/2021 5:35	2.33	0.63	0.054
5/21/2021 5:30	2.33	0.61	0.052
5/21/2021 5:25	2.33	0.61	0.052
5/21/2021 5:20	2.23	0.6	0.048
5/21/2021 5:15	2.25	0.61	0.049
5/21/2021 5:10	2.19	0.62	0.049
5/21/2021 5:05	2.18	0.77	0.059
5/21/2021 5:00	2.18	0.57	0.044

5/21/2021 4:55	2.17	0.68	0.052
5/21/2021 4:50	2.16	0.59	0.045
5/21/2021 4:45	2.16	0.56	0.042
5/21/2021 4:40	2.14	0.49	0.037
5/21/2021 4:35	2.13	0.48	0.036
5/21/2021 4:30	2	0.68	0.046
5/21/2021 4:25	1.99	0.54	0.037
5/21/2021 4:20	2.01	0.53	0.037
5/21/2021 4:15	2.03	0.55	0.038
5/21/2021 4:10	1.97	0.51	0.034
5/21/2021 4:05	1.98	0.53	0.035
5/21/2021 4:00	1.98	0.42	0.028
5/21/2021 3:55	1.97	0.61	0.04
5/21/2021 3:50	1.96	0.88	0.059
5/21/2021 3:45	1.97	0.89	0.059
5/21/2021 3:40	2	0.91	0.062
5/21/2021 3:35	2.01	0.92	0.064
5/21/2021 3:30	1.99	0.92	0.062
5/21/2021 3:25	1.99	0.81	0.055
5/21/2021 3:20	1.98	0.75	0.05
5/21/2021 3:15	2.01	0.78	0.054
5/21/2021 3:10	2.01	0.8	0.055
5/21/2021 3:05	2.03	0.8	0.055
5/21/2021 3:00	2.05	0.81	0.057
5/21/2021 2:55	2.06	0.83	0.059
5/21/2021 2:50	2.03	0.78	0.054
5/21/2021 2:45	2.02	0.8	0.055
5/21/2021 2:40	2.04	0.8	0.056
5/21/2021 2:35	2.05	0.8	0.056
5/21/2021 2:30	2.07	0.79	0.057
5/21/2021 2:25	2.09	0.87	0.063
5/21/2021 2:20	2.08	0.86	0.063
5/21/2021 2:15	2.09	0.9	0.066
5/21/2021 2:10	2.1	0.86	0.063
5/21/2021 2:05	2.1	0.86	0.063
5/21/2021 2:00	2.11	0.86	0.064
5/21/2021 1:55	2.14	0.88	0.067
5/21/2021 1:50	2.15	0.99	0.075
5/21/2021 1:45	2.14	0.97	0.073
5/21/2021 1:40	2.17	1.02	0.079
5/21/2021 1:35	2.19	1.05	0.082
5/21/2021 1:30	2.19	1.02	0.079
5/21/2021 1:25	2.19	1.01	0.079
5/21/2021 1:20	2.23	1.04	0.083
5/21/2021 1:15	2.24	1.05	0.084
5/21/2021 1:10	2.24	1.04	0.084
5/21/2021 1:05	2.25	1.05	0.085

5/21/2021 1:00	2.26	1.05	0.086
5/21/2021 0:55	2.27	1.06	0.087
5/21/2021 0:50	2.26	1.05	0.086
5/21/2021 0:45	2.29	1.06	0.089
5/21/2021 0:40	2.3	1.06	0.089
5/21/2021 0:35	2.42	1.12	0.1
5/21/2021 0:30	2.41	1.1	0.099
5/21/2021 0:25	2.46	1.15	0.106
5/21/2021 0:20	2.48	1.15	0.108
5/21/2021 0:15	2.49	1.15	0.108
5/21/2021 0:10	2.56	1.23	0.121
5/21/2021 0:05	2.6	1.27	0.128
5/21/2021 0:00	2.67	1.29	0.134
5/20/2021 23:55	2.66	1.28	0.133
5/20/2021 23:50	2.67	1.28	0.134
5/20/2021 23:45	2.74	1.3	0.141
5/20/2021 23:40	2.8	1.36	0.151
5/20/2021 23:35	2.8	1.37	0.152
5/20/2021 23:30	2.87	1.4	0.162
5/20/2021 23:25	2.9	1.4	0.165
5/20/2021 23:20	2.95	1.41	0.169
5/20/2021 23:15	3.02	1.46	0.182
5/20/2021 23:10	3.03	1.48	0.184
5/20/2021 23:05	3.02	1.46	0.182
5/20/2021 23:00	2.95	1.41	0.169
5/20/2021 22:55	2.98	1.4	0.171
5/20/2021 22:50	2.99	1.41	0.173
5/20/2021 22:45	3.06	1.49	0.189
5/20/2021 22:40	3.05	1.49	0.188
5/20/2021 22:35	3	1.45	0.179
5/20/2021 22:30	3.03	1.45	0.181
5/20/2021 22:25	3.03	1.46	0.182
5/20/2021 22:20	3.05	1.44	0.181
5/20/2021 22:15	3.1	1.46	0.188
5/20/2021 22:10	3.11	1.49	0.193
5/20/2021 22:05	3.05	1.4	0.176
5/20/2021 22:00	3.04	1.38	0.174
5/20/2021 21:55	3.15	1.53	0.203
5/20/2021 21:50	3.23	1.56	0.213
5/20/2021 21:45	3.23	1.54	0.211
5/20/2021 21:40	3.3	1.57	0.222
5/20/2021 21:35	3.3	1.56	0.221
5/20/2021 21:30	3.3	1.55	0.219
5/20/2021 21:25	3.31	1.54	0.219
5/20/2021 21:20	3.42	1.53	0.227
5/20/2021 21:15	3.44	1.53	0.229
5/20/2021 21:10	3.5	1.59	0.244

5/20/2021 21:05	3.5	1.66	0.256
5/20/2021 21:00	3.49	1.59	0.242
5/20/2021 20:55	3.53	1.6	0.248
5/20/2021 20:50	3.36	1.6	0.233
5/20/2021 20:45	3.32	1.59	0.226
5/20/2021 20:40	3.33	1.6	0.23
5/20/2021 20:35	3.32	1.61	0.23
5/20/2021 20:30	3.37	1.64	0.238
5/20/2021 20:25	3.37	1.6	0.233
5/20/2021 20:20	3.39	1.61	0.236
5/20/2021 20:15	3.38	1.61	0.236
5/20/2021 20:10	3.33	1.56	0.224
5/20/2021 20:05	3.28	1.53	0.215
5/20/2021 20:00	3.29	1.48	0.207
5/20/2021 19:55	3.3	1.59	0.225
5/20/2021 19:50	3.29	1.61	0.227
5/20/2021 19:45	3.31	1.61	0.228
5/20/2021 19:40	3.29	1.61	0.226
5/20/2021 19:35	3.26	1.51	0.209
5/20/2021 19:30	3.27	1.61	0.225
5/20/2021 19:25	3.25	1.58	0.218
5/20/2021 19:20	3.22	1.06	0.144
5/20/2021 19:15	3.22	1.52	0.207
5/20/2021 19:10	3.24	1.51	0.208
5/20/2021 19:05	3.24	1.5	0.207
5/20/2021 19:00	3.29	1.56	0.219
5/20/2021 18:55	3.3	1.58	0.222
5/20/2021 18:50	3.31	1.58	0.224
5/20/2021 18:45	3.34	1.57	0.225
5/20/2021 18:40	3.34	1.58	0.227
5/20/2021 18:35	3.35	1.64	0.236
5/20/2021 18:30	3.31	1.57	0.222
5/20/2021 18:25	3.38	1.58	0.23
5/20/2021 18:20	3.38	1.57	0.23
5/20/2021 18:15	3.38	1.59	0.233
5/20/2021 18:10	3.35	1.57	0.227
5/20/2021 18:05	3.34	1.57	0.226
5/20/2021 18:00	3.26	1.57	0.218
5/20/2021 17:55	3.26	1.57	0.218
5/20/2021 17:50	3.25	1.59	0.22
5/20/2021 17:45	3.25	1.57	0.217
5/20/2021 17:40	3.15	1.55	0.204
5/20/2021 17:35	3.12	1.54	0.201
5/20/2021 17:30	3.12	1.54	0.201
5/20/2021 17:25	2.99	1.44	0.176
5/20/2021 17:20	2.99	1.43	0.175
5/20/2021 17:15	3.09	1.51	0.195

5/20/2021 17:10	3.05	1.47	0.186
5/20/2021 17:05	3.07	1.47	0.187
5/20/2021 17:00	3.1	1.46	0.189
5/20/2021 16:55	3.11	1.46	0.189
5/20/2021 16:50	3.12	1.45	0.189
5/20/2021 16:45	3.13	1.5	0.196
5/20/2021 16:40	3.16	1.5	0.199
5/20/2021 16:35	3.17	1.53	0.205
5/20/2021 16:30	3.17	1.5	0.201
5/20/2021 16:25	3.18	1.49	0.2
5/20/2021 16:20	3.23	1.51	0.207
5/20/2021 16:15	3.39	1.6	0.234
5/20/2021 16:10	3.38	1.62	0.237
5/20/2021 16:05	3.24	1.58	0.217
5/20/2021 16:00	3.21	1.51	0.206
5/20/2021 15:55	3.21	1.51	0.205
5/20/2021 15:50	3.22	1.53	0.209
5/20/2021 15:45	3.22	1.54	0.209
5/20/2021 15:40	3.25	1.54	0.214
5/20/2021 15:35	3.28	1.57	0.22
5/20/2021 15:30	3.25	1.56	0.216
5/20/2021 15:25	3.24	1.53	0.211
5/20/2021 15:20	3.25	1.52	0.21
5/20/2021 15:15	3.09	1.52	0.196
5/20/2021 15:10	3.02	1.45	0.181
5/20/2021 15:05	3.13	1.56	0.204
5/20/2021 15:00	3.13	1.56	0.205
5/20/2021 14:55	3.13	1.57	0.205
5/20/2021 14:50	3.12	1.48	0.192
5/20/2021 14:45	3.16	1.5	0.2
5/20/2021 14:40	3.19	1.51	0.203
5/20/2021 14:35	3.27	1.51	0.211
5/20/2021 14:30	3.27	1.52	0.211
5/20/2021 14:25	3.29	1.55	0.218
5/20/2021 14:20	3.25	1.55	0.215
5/20/2021 14:15	3.24	1.55	0.213
5/20/2021 14:10	3.32	1.55	0.221
5/20/2021 14:05	3.41	1.59	0.235
5/20/2021 14:00	3.45	1.61	0.243
5/20/2021 13:55	3.67	1.69	0.278
5/20/2021 13:50	3.7	1.69	0.281
5/20/2021 13:45	3.73	1.77	0.298
5/20/2021 13:40	3.36	1.58	0.228
5/20/2021 13:35	3.3	1.55	0.219
5/20/2021 13:30	3.19	1.52	0.205
5/20/2021 13:25	3.09	1.43	0.184
5/20/2021 13:20	3.2	1.42	0.192

5/20/2021 13:15	3.42	1.63	0.242
5/20/2021 13:10	3.53	1.64	0.255
5/20/2021 13:05	3.52	1.65	0.256
5/20/2021 13:00	3.53	1.67	0.26
5/20/2021 12:55	3.52	1.67	0.259
5/20/2021 12:50	3.53	1.68	0.26
5/20/2021 12:45	3.49	1.69	0.26
5/20/2021 12:40	3.45	1.59	0.239
5/20/2021 12:35	3.39	1.55	0.228
5/20/2021 12:30	3.28	1.57	0.22
5/20/2021 12:25	3.22	1.54	0.21
5/20/2021 12:20	3.21	1.53	0.208
5/20/2021 12:15	3.2	1.46	0.198
5/20/2021 12:10	3.37	1.59	0.232
5/20/2021 12:05	3.37	1.59	0.231
5/20/2021 12:00	3.41	1.58	0.233
5/20/2021 11:55	3.5	1.57	0.24
5/20/2021 11:50	3.52	1.54	0.239
5/20/2021 11:45	3.47	1.59	0.242
5/20/2021 11:40	3.51	1.59	0.246
5/20/2021 11:35	3.5	1.59	0.244
5/20/2021 11:30	3.51	1.56	0.241
5/20/2021 11:25	3.5	1.58	0.244
5/20/2021 11:20	3.53	1.63	0.253
5/20/2021 11:15	3.51	1.62	0.25
5/20/2021 11:10	3.5	1.63	0.252
5/20/2021 11:05	3.5	1.59	0.244
5/20/2021 11:00	3.59	1.54	0.245
5/20/2021 10:55	3.52	1.64	0.254
5/20/2021 10:50	3.4	1.62	0.239
5/20/2021 10:45	3.35	1.56	0.226
5/20/2021 10:40	3.31	1.55	0.22
5/20/2021 10:35	3.38	1.58	0.232
5/20/2021 10:30	3.39	1.57	0.23
5/20/2021 10:25	3.41	1.55	0.229
5/20/2021 10:20	3.47	1.59	0.242
5/20/2021 10:15	3.52	1.56	0.243
5/20/2021 10:10	3.66	1.62	0.266
5/20/2021 10:05	3.67	1.66	0.273
5/20/2021 10:00	3.7	1.67	0.278
5/20/2021 9:55	3.67	1.65	0.271
5/20/2021 9:50	3.51	1.6	0.247
5/20/2021 9:45	3.51	1.59	0.246
5/20/2021 9:40	3.53	1.6	0.249
5/20/2021 9:35	3.47	1.57	0.238
5/20/2021 9:30	3.45	1.57	0.237
5/20/2021 9:25	3.43	1.56	0.233

5/20/2021 9:20	3.34	1.57	0.225
5/20/2021 9:15	3.37	1.58	0.23
5/20/2021 9:10	3.36	1.58	0.229
5/20/2021 9:05	3.44	1.63	0.244
5/20/2021 9:00	3.5	1.63	0.25
5/20/2021 8:55	3.51	1.64	0.253
5/20/2021 8:50	3.54	1.64	0.256
5/20/2021 8:45	3.51	1.63	0.252
5/20/2021 8:40	3.48	1.63	0.249
5/20/2021 8:35	3.44	1.61	0.243
5/20/2021 8:30	3.45	1.61	0.242
5/20/2021 8:25	3.45	1.61	0.243
5/20/2021 8:20	3.63	1.61	0.26
5/20/2021 8:15	3.65	1.64	0.268
5/20/2021 8:10	3.64	1.64	0.267
5/20/2021 8:05	3.62	1.63	0.263
5/20/2021 8:00	3.62	1.63	0.264
5/20/2021 7:55	3.62	1.62	0.262
5/20/2021 7:50	3.63	1.62	0.261
5/20/2021 7:45	3.44	1.57	0.235
5/20/2021 7:40	3.44	1.6	0.24
5/20/2021 7:35	3.44	1.64	0.246
5/20/2021 7:30	3.36	1.42	0.206
5/20/2021 7:25	3.33	1.58	0.227
5/20/2021 7:20	3.34	1.59	0.228
5/20/2021 7:15	3.3	1.52	0.214
5/20/2021 7:10	3.29	1.55	0.217
5/20/2021 7:05	3.31	1.55	0.221
5/20/2021 7:00	3.32	1.55	0.221
5/20/2021 6:55	3.26	1.56	0.217
5/20/2021 6:50	3.25	1.57	0.216
5/20/2021 6:45	3.13	1.5	0.196
5/20/2021 6:40	3.11	1.43	0.186
5/20/2021 6:35	3.14	1.47	0.192
5/20/2021 6:30	3.16	1.48	0.196
5/20/2021 6:25	2.93	1.42	0.169
5/20/2021 6:20	2.78	1.36	0.15
5/20/2021 6:15	2.69	1.31	0.138
5/20/2021 6:10	2.68	1.31	0.136
5/20/2021 6:05	2.65	1.34	0.138
5/20/2021 6:00	2.6	1.2	0.12
5/20/2021 5:55	2.52	1.18	0.114
5/20/2021 5:50	2.37	1.12	0.099
5/20/2021 5:45	2.37	1.12	0.098
5/20/2021 5:40	2.37	1.12	0.098
5/20/2021 5:35	2.37	1.12	0.098
5/20/2021 5:30	2.37	1.12	0.098

5/20/2021 5:25	2.28	1.06	0.088
5/20/2021 5:20	2.25	1.06	0.086
5/20/2021 5:15	2.25	1.04	0.084
5/20/2021 5:10	2.21	1.04	0.082
5/20/2021 5:05	2.15	1.01	0.077
5/20/2021 5:00	2.13	1	0.075
5/20/2021 4:55	2.13	1	0.075
5/20/2021 4:50	2.11	0.99	0.073
5/20/2021 4:45	2.1	0.98	0.072
5/20/2021 4:40	2.04	0.93	0.066
5/20/2021 4:35	2.04	0.92	0.065
5/20/2021 4:30	2.04	0.89	0.062
5/20/2021 4:25	2.04	0.93	0.065
5/20/2021 4:20	1.99	0.91	0.062
5/20/2021 4:15	1.98	0.9	0.06
5/20/2021 4:10	1.99	0.91	0.062
5/20/2021 4:05	2	0.86	0.059
5/20/2021 4:00	2	0.86	0.059
5/20/2021 3:55	2.01	0.85	0.059
5/20/2021 3:50	2.06	0.98	0.07
5/20/2021 3:45	2.06	0.98	0.07
5/20/2021 3:40	2.03	0.87	0.061
5/20/2021 3:35	2.02	0.87	0.061
5/20/2021 3:30	2.07	0.94	0.068
5/20/2021 3:25	2.1	0.99	0.073
5/20/2021 3:20	2.1	0.99	0.073
5/20/2021 3:15	2	0.91	0.062
5/20/2021 3:10	2	0.92	0.063
5/20/2021 3:05	2	0.93	0.063
5/20/2021 3:00	2.03	0.94	0.065
5/20/2021 2:55	2.04	0.93	0.065
5/20/2021 2:50	2.05	0.94	0.067
5/20/2021 2:45	2.06	0.95	0.068
5/20/2021 2:40	2.07	0.95	0.068
5/20/2021 2:35	2.05	0.94	0.066
5/20/2021 2:30	2.07	0.97	0.07
5/20/2021 2:25	2.07	0.95	0.068
5/20/2021 2:20	2.07	0.97	0.069
5/20/2021 2:15	2.1	0.97	0.071
5/20/2021 2:10	2.11	0.97	0.072
5/20/2021 2:05	2.08	0.94	0.068
5/20/2021 2:00	2.08	0.94	0.068
5/20/2021 1:55	2.08	0.94	0.068
5/20/2021 1:50	2.11	0.96	0.071
5/20/2021 1:45	2.15	0.97	0.073
5/20/2021 1:40	2.18	0.97	0.075
5/20/2021 1:35	2.18	1.03	0.08

5/20/2021 1:30	2.17	0.99	0.076
5/20/2021 1:25	2.17	1	0.077
5/20/2021 1:20	2.17	0.99	0.077
5/20/2021 1:15	2.18	0.99	0.077
5/20/2021 1:10	2.23	0.98	0.079
5/20/2021 1:05	2.3	0.94	0.079
5/20/2021 1:00	2.31	0.99	0.083
5/20/2021 0:55	2.35	1.1	0.095
5/20/2021 0:50	2.4	1.12	0.1
5/20/2021 0:45	2.42	1.12	0.1
5/20/2021 0:40	2.41	1.12	0.1
5/20/2021 0:35	2.44	1.14	0.104
5/20/2021 0:30	2.41	1.14	0.103
5/20/2021 0:25	2.43	1.14	0.103
5/20/2021 0:20	2.44	1.18	0.107
5/20/2021 0:15	2.44	1.14	0.104
5/20/2021 0:10	2.43	1.12	0.102
5/20/2021 0:05	2.46	1.13	0.104
5/20/2021 0:00	2.47	1.13	0.105
5/19/2021 23:55	2.49	1.13	0.106
5/19/2021 23:50	2.59	1.22	0.121
5/19/2021 23:45	2.69	1.24	0.13
5/19/2021 23:40	2.73	1.26	0.136
5/19/2021 23:35	2.73	1.27	0.136
5/19/2021 23:30	2.73	1.27	0.136
5/19/2021 23:25	2.78	1.27	0.14
5/19/2021 23:20	2.72	1.21	0.129
5/19/2021 23:15	2.73	1.21	0.13
5/19/2021 23:10	2.79	1.22	0.135
5/19/2021 23:05	2.84	1.25	0.142
5/19/2021 23:00	2.81	1.25	0.14
5/19/2021 22:55	2.81	1.25	0.14
5/19/2021 22:50	2.82	1.23	0.138
5/19/2021 22:45	2.86	1.23	0.141
5/19/2021 22:40	2.88	1.25	0.145
5/19/2021 22:35	2.88	1.21	0.14
5/19/2021 22:30	2.96	1.29	0.155
5/19/2021 22:25	3.03	1.37	0.171
5/19/2021 22:20	3.04	1.39	0.175
5/19/2021 22:15	3.04	1.4	0.176
5/19/2021 22:10	3.07	1.51	0.192
5/19/2021 22:05	3.08	1.52	0.194
5/19/2021 22:00	3.07	1.52	0.193
5/19/2021 21:55	3.06	1.53	0.194
5/19/2021 21:50	3.01	1.49	0.184
5/19/2021 21:45	3.31	1.57	0.223
5/19/2021 21:40	3.4	1.6	0.235

5/19/2021 21:35	3.45	1.62	0.243
5/19/2021 21:30	3.44	1.64	0.246
5/19/2021 21:25	3.49	1.65	0.253
5/19/2021 21:20	3.47	1.64	0.25
5/19/2021 21:15	3.44	1.65	0.248
5/19/2021 21:10	3.43	1.64	0.244
5/19/2021 21:05	3.41	1.59	0.236
5/19/2021 21:00	3.4	1.6	0.236
5/19/2021 20:55	3.4	1.61	0.238
5/19/2021 20:50	3.42	1.61	0.239
5/19/2021 20:45	3.43	1.6	0.239
5/19/2021 20:40	3.38	1.59	0.233
5/19/2021 20:35	3.42	1.61	0.24
5/19/2021 20:30	3.43	1.63	0.243
5/19/2021 20:25	3.43	1.61	0.241
5/19/2021 20:20	3.44	1.61	0.242
5/19/2021 20:15	3.44	1.59	0.239
5/19/2021 20:10	3.37	1.59	0.232
5/19/2021 20:05	3.34	1.57	0.225
5/19/2021 20:00	3.45	1.61	0.242
5/19/2021 19:55	3.45	1.6	0.241
5/19/2021 19:50	3.4	1.6	0.236
5/19/2021 19:45	3.41	1.6	0.237
5/19/2021 19:40	3.41	1.6	0.238
5/19/2021 19:35	3.39	1.58	0.232
5/19/2021 19:30	3.41	1.55	0.23
5/19/2021 19:25	3.36	1.58	0.23
5/19/2021 19:20	3.35	1.59	0.229
5/19/2021 19:15	3.35	1.6	0.23
5/19/2021 19:10	3.42	1.59	0.237
5/19/2021 19:05	3.42	1.61	0.24
5/19/2021 19:00	3.35	1.59	0.23
5/19/2021 18:55	3.47	1.59	0.242
5/19/2021 18:50	3.52	1.62	0.25
5/19/2021 18:45	3.5	1.61	0.246
5/19/2021 18:40	3.37	1.62	0.235
5/19/2021 18:35	3.36	1.58	0.229
5/19/2021 18:30	3.33	1.55	0.222
5/19/2021 18:25	3.35	1.61	0.233
5/19/2021 18:20	3.35	1.59	0.23
5/19/2021 18:15	3.36	1.6	0.231
5/19/2021 18:10	3.35	1.59	0.23
5/19/2021 18:05	3.27	1.56	0.217
5/19/2021 18:00	3.22	1.56	0.212
5/19/2021 17:55	3.18	1.55	0.207
5/19/2021 17:50	3.23	1.57	0.215
5/19/2021 17:45	3.27	1.59	0.221

5/19/2021 17:40	3.36	1.6	0.232
5/19/2021 17:35	3.37	1.61	0.234
5/19/2021 17:30	3.19	1.56	0.21
5/19/2021 17:25	3.26	1.58	0.219
5/19/2021 17:20	3.26	1.58	0.219
5/19/2021 17:15	3.25	1.55	0.214
5/19/2021 17:10	3.34	1.15	0.165
5/19/2021 17:05	3.35	1.6	0.231
5/19/2021 17:00	3.32	1.59	0.227
5/19/2021 16:55	3.33	1.59	0.227
5/19/2021 16:50	3.34	1.6	0.229
5/19/2021 16:45	3.35	1.6	0.23
5/19/2021 16:40	3.3	1.56	0.22
5/19/2021 16:35	3.31	1.56	0.221
5/19/2021 16:30	3.29	1.57	0.221
5/19/2021 16:25	3.3	1.57	0.222
5/19/2021 16:20	3.23	1.57	0.216
5/19/2021 16:15	3.24	1.54	0.212
5/19/2021 16:10	3.28	1.55	0.217
5/19/2021 16:05	3.3	1.55	0.219
5/19/2021 16:00	3.27	1.53	0.214
5/19/2021 15:55	3.27	1.53	0.214
5/19/2021 15:50	3.28	1.61	0.226
5/19/2021 15:45	3.27	1.53	0.214
5/19/2021 15:40	3.26	1.52	0.212
5/19/2021 15:35	3.27	1.52	0.212
5/19/2021 15:30	3.17	1.51	0.202
5/19/2021 15:25	3.18	1.52	0.204
5/19/2021 15:20	3.18	1.52	0.204
5/19/2021 15:15	3.21	1.55	0.21
5/19/2021 15:10	3.23	1.55	0.212
5/19/2021 15:05	3.23	1.54	0.211
5/19/2021 15:00	3.21	1.52	0.207
5/19/2021 14:55	3.2	1.51	0.204
5/19/2021 14:50	3.23	1.55	0.212
5/19/2021 14:45	3.2	1.51	0.204
5/19/2021 14:40	3.22	1.53	0.209
5/19/2021 14:35	3.25	1.54	0.214
5/19/2021 14:30	3.25	1.53	0.212
5/19/2021 14:25	3.47	1.54	0.234
5/19/2021 14:20	3.49	1.62	0.249
5/19/2021 14:15	3.43	1.63	0.244
5/19/2021 14:10	3.37	1.6	0.232
5/19/2021 14:05	3.37	1.57	0.228
5/19/2021 14:00	3.37	1.56	0.227
5/19/2021 13:55	3.61	1.64	0.264
5/19/2021 13:50	3.68	1.66	0.275

5/19/2021 13:45	3.68	1.68	0.277
5/19/2021 13:40	3.57	1.64	0.26
5/19/2021 13:35	3.55	1.58	0.248
5/19/2021 13:30	3.32	1.56	0.222
5/19/2021 13:25	3.33	1.56	0.223
5/19/2021 13:20	3.34	1.57	0.226
5/19/2021 13:15	3.35	1.57	0.227
5/19/2021 13:10	3.45	1.59	0.239
5/19/2021 13:05	3.46	1.61	0.243
5/19/2021 13:00	3.46	1.6	0.241
5/19/2021 12:55	3.46	1.6	0.241
5/19/2021 12:50	3.47	1.59	0.241
5/19/2021 12:45	3.39	1.54	0.226
5/19/2021 12:40	3.38	1.58	0.231
5/19/2021 12:35	3.36	1.6	0.232
5/19/2021 12:30	3.63	1.65	0.268
5/19/2021 12:25	3.54	1.64	0.257
5/19/2021 12:20	3.56	1.61	0.254
5/19/2021 12:15	3.56	1.62	0.256
5/19/2021 12:10	3.56	1.63	0.257
5/19/2021 12:05	3.56	1.63	0.257
5/19/2021 12:00	3.59	1.64	0.261
5/19/2021 11:55	3.51	1.54	0.237
5/19/2021 11:50	3.47	1.54	0.234
5/19/2021 11:45	3.58	1.63	0.258
5/19/2021 11:40	3.65	1.62	0.264
5/19/2021 11:35	3.74	1.68	0.285
5/19/2021 11:30	3.59	1.64	0.262
5/19/2021 11:25	3.39	1.58	0.232
5/19/2021 11:20	3.4	1.58	0.233
5/19/2021 11:15	3.46	1.57	0.238
5/19/2021 11:10	3.46	1.53	0.232
5/19/2021 11:05	3.54	1.63	0.254
5/19/2021 11:00	3.54	1.64	0.256
5/19/2021 10:55	3.55	1.65	0.259
5/19/2021 10:50	3.57	1.61	0.255
5/19/2021 10:45	3.54	1.6	0.25
5/19/2021 10:40	3.57	1.63	0.259
5/19/2021 10:35	3.47	1.59	0.24
5/19/2021 10:30	3.35	1.57	0.226
5/19/2021 10:25	3.32	1.57	0.224
5/19/2021 10:20	3.46	1.58	0.239
5/19/2021 10:15	3.52	1.58	0.245
5/19/2021 10:10	3.5	1.58	0.243
5/19/2021 10:05	3.46	1.6	0.242
5/19/2021 10:00	3.53	1.61	0.251
5/19/2021 9:55	3.57	1.61	0.254

5/19/2021 9:50	3.53	1.58	0.246
5/19/2021 9:45	3.49	1.58	0.242
5/19/2021 9:40	3.39	1.57	0.231
5/19/2021 9:35	3.39	1.57	0.231
5/19/2021 9:30	3.39	1.57	0.23
5/19/2021 9:25	3.44	1.58	0.238
5/19/2021 9:20	3.44	1.57	0.235
5/19/2021 9:15	3.44	1.57	0.236
5/19/2021 9:10	3.38	1.57	0.229
5/19/2021 9:05	3.38	1.4	0.205
5/19/2021 9:00	3.35	1.54	0.223
5/19/2021 8:55	3.37	1.53	0.223
5/19/2021 8:50	3.39	1.56	0.229
5/19/2021 8:45	3.37	1.56	0.227
5/19/2021 8:40	3.42	1.5	0.223
5/19/2021 8:35	3.42	1.58	0.235
5/19/2021 8:30	3.47	1.59	0.241
5/19/2021 8:25	3.5	1.6	0.246
5/19/2021 8:20	3.68	1.72	0.283
5/19/2021 8:15	3.64	1.68	0.273
5/19/2021 8:10	3.54	1.57	0.244
5/19/2021 8:05	3.51	1.58	0.244
5/19/2021 8:00	3.43	1.55	0.231
5/19/2021 7:55	3.45	1.56	0.236
5/19/2021 7:50	3.53	1.6	0.249
5/19/2021 7:45	3.52	1.57	0.244
5/19/2021 7:40	3.45	1.58	0.238
5/19/2021 7:35	3.36	1.57	0.228
5/19/2021 7:30	3.37	1.56	0.227
5/19/2021 7:25	3.36	1.51	0.218
5/19/2021 7:20	3.31	1.51	0.215
5/19/2021 7:15	3.23	1.51	0.206
5/19/2021 7:10	3.24	1.5	0.207
5/19/2021 7:05	3.38	1.57	0.23
5/19/2021 7:00	3.39	1.56	0.229
5/19/2021 6:55	3.32	1.54	0.219
5/19/2021 6:50	3.09	1.46	0.188
5/19/2021 6:45	3.09	1.46	0.187
5/19/2021 6:40	3	1.44	0.177
5/19/2021 6:35	3	1.48	0.183
5/19/2021 6:30	2.98	1.44	0.175
5/19/2021 6:25	2.87	1.39	0.161
5/19/2021 6:20	2.86	1.41	0.161
5/19/2021 6:15	2.72	1.28	0.137
5/19/2021 6:10	2.7	1.26	0.133
5/19/2021 6:05	2.65	1.26	0.13
5/19/2021 6:00	2.61	1.23	0.123

5/19/2021 5:55	2.61	1.28	0.129
5/19/2021 5:50	2.52	1.22	0.117
5/19/2021 5:45	2.36	1.16	0.101
5/19/2021 5:40	2.34	1.14	0.098
5/19/2021 5:35	2.3	1.11	0.094
5/19/2021 5:30	2.3	1.11	0.093
5/19/2021 5:25	2.32	1.11	0.094
5/19/2021 5:20	2.29	1.09	0.091
5/19/2021 5:15	2.29	1.06	0.089
5/19/2021 5:10	2.27	1.06	0.087
5/19/2021 5:05	2.23	1.05	0.084
5/19/2021 5:00	2.21	1.04	0.082
5/19/2021 4:55	2.2	1.02	0.08
5/19/2021 4:50	2.2	1.01	0.079
5/19/2021 4:45	2.17	0.99	0.076
5/19/2021 4:40	2.13	0.97	0.072
5/19/2021 4:35	2.11	0.95	0.07
5/19/2021 4:30	2.11	0.93	0.069
5/19/2021 4:25	2.12	0.95	0.07
5/19/2021 4:20	2.15	0.95	0.072
5/19/2021 4:15	2.12	0.92	0.068
5/19/2021 4:10	2.12	0.92	0.068
5/19/2021 4:05	2.04	0.91	0.064
5/19/2021 4:00	2.04	0.85	0.06
5/19/2021 3:55	2.04	0.85	0.059
5/19/2021 3:50	2.05	0.85	0.06
5/19/2021 3:45	2.06	0.85	0.061
5/19/2021 3:40	2.06	0.88	0.062
5/19/2021 3:35	2.1	0.93	0.069
5/19/2021 3:30	2.11	0.96	0.07
5/19/2021 3:25	2.13	1.01	0.076
5/19/2021 3:20	2.13	1	0.075
5/19/2021 3:15	2.06	0.91	0.065
5/19/2021 3:10	2.08	0.93	0.067
5/19/2021 3:05	2.1	0.97	0.072
5/19/2021 3:00	2.09	0.98	0.072
5/19/2021 2:55	2.08	0.98	0.071
5/19/2021 2:50	2.12	0.99	0.074
5/19/2021 2:45	2.13	1	0.075
5/19/2021 2:40	2.12	0.97	0.072
5/19/2021 2:35	2.18	1.05	0.081
5/19/2021 2:30	2.2	1.05	0.083
5/19/2021 2:25	2.2	1.06	0.083
5/19/2021 2:20	2.21	1.05	0.083
5/19/2021 2:15	2.18	1.03	0.08
5/19/2021 2:10	2.18	1.07	0.082
5/19/2021 2:05	2.19	1.03	0.08

5/19/2021 2:00	2.18	1	0.078
5/19/2021 1:55	2.15	1	0.076
5/19/2021 1:50	2.18	1.03	0.08
5/19/2021 1:45	2.19	1.02	0.08
5/19/2021 1:40	2.19	1.02	0.08
5/19/2021 1:35	2.22	1.03	0.082
5/19/2021 1:30	2.24	1.04	0.084
5/19/2021 1:25	2.25	1.06	0.086
5/19/2021 1:20	2.24	1.06	0.085
5/19/2021 1:15	2.22	1.05	0.084
5/19/2021 1:10	2.23	1.05	0.084
5/19/2021 1:05	2.23	1.05	0.084
5/19/2021 1:00	2.28	1.05	0.087
5/19/2021 0:55	2.33	1.07	0.091
5/19/2021 0:50	2.42	1.13	0.102
5/19/2021 0:45	2.45	1.12	0.103
5/19/2021 0:40	2.47	1.12	0.104
5/19/2021 0:35	2.4	0.93	0.083
5/19/2021 0:30	2.46	1.02	0.094
5/19/2021 0:25	2.47	0.97	0.09
5/19/2021 0:20	2.47	0.97	0.09
5/19/2021 0:15	2.56	1.08	0.105
5/19/2021 0:10	2.59	1.15	0.114
5/19/2021 0:05	2.6	1.23	0.123
5/19/2021 0:00	2.63	1.23	0.125
5/18/2021 23:55	2.69	1.24	0.131
5/18/2021 23:50	2.73	1.34	0.143
5/18/2021 23:45	2.7	1.33	0.141
5/18/2021 23:40	2.81	1.38	0.155
5/18/2021 23:35	2.84	1.38	0.157
5/18/2021 23:30	2.86	1.37	0.157
5/18/2021 23:25	2.88	1.38	0.161
5/18/2021 23:20	2.88	1.37	0.16
5/18/2021 23:15	2.95	1.41	0.169
5/18/2021 23:10	3	1.44	0.178
5/18/2021 23:05	3.02	1.45	0.181
5/18/2021 23:00	3.05	1.45	0.183
5/18/2021 22:55	3.07	1.44	0.183
5/18/2021 22:50	3.08	1.46	0.186
5/18/2021 22:45	3.05	1.4	0.177
5/18/2021 22:40	3.06	1.44	0.183
5/18/2021 22:35	3.14	1.49	0.196
5/18/2021 22:30	3.25	1.54	0.213
5/18/2021 22:25	3.21	1.52	0.207
5/18/2021 22:20	3.23	1.52	0.209
5/18/2021 22:15	3.24	1.54	0.211
5/18/2021 22:10	3.25	1.53	0.211

5/18/2021 22:05	3.25	1.41	0.195
5/18/2021 22:00	3.27	1.37	0.191
5/18/2021 21:55	3.24	1.21	0.167
5/18/2021 21:50	3.25	1.55	0.215
5/18/2021 21:45	3.32	1.58	0.225
5/18/2021 21:40	3.32	1.54	0.219
5/18/2021 21:35	3.35	1.53	0.22
5/18/2021 21:30	3.37	1.57	0.229
5/18/2021 21:25	3.38	1.57	0.23
5/18/2021 21:20	3.36	1.58	0.229
5/18/2021 21:15	3.34	1.59	0.229
5/18/2021 21:10	3.27	1.57	0.219
5/18/2021 21:05	3.27	1.57	0.219
5/18/2021 21:00	3.28	1.55	0.217
5/18/2021 20:55	3.27	1.49	0.208
5/18/2021 20:50	3.42	1.58	0.234
5/18/2021 20:45	3.44	1.58	0.238
5/18/2021 20:40	3.44	1.62	0.242
5/18/2021 20:35	3.39	1.59	0.233
5/18/2021 20:30	3.44	1.6	0.24
5/18/2021 20:25	3.49	1.65	0.253
5/18/2021 20:20	3.66	1.68	0.275
5/18/2021 20:15	3.44	1.58	0.238
5/18/2021 20:10	3.39	1.52	0.223
5/18/2021 20:05	3.39	1.54	0.227
5/18/2021 20:00	3.36	1.55	0.226
5/18/2021 19:55	3.4	1.56	0.23
5/18/2021 19:50	3.34	1.54	0.222
5/18/2021 19:45	3.35	1.53	0.222
5/18/2021 19:40	3.39	1.63	0.24
5/18/2021 19:35	3.39	1.58	0.233
5/18/2021 19:30	3.4	1.59	0.234
5/18/2021 19:25	3.39	1.03	0.151
5/18/2021 19:20	3.45	1.06	0.159
5/18/2021 19:15	3.38	1.57	0.229
5/18/2021 19:10	3.29	1.53	0.215
5/18/2021 19:05	3.29	1.53	0.216
5/18/2021 19:00	3.29	1.54	0.217
5/18/2021 18:55	3.23	1.53	0.21
5/18/2021 18:50	3.3	1.53	0.216
5/18/2021 18:45	3.32	1.53	0.219
5/18/2021 18:40	3.37	1.56	0.227
5/18/2021 18:35	3.36	1.56	0.226
5/18/2021 18:30	3.35	1.56	0.225
5/18/2021 18:25	3.36	1.55	0.224
5/18/2021 18:20	3.35	1.55	0.224
5/18/2021 18:15	3.35	1.55	0.224

5/18/2021 18:10	3.37	1.58	0.23
5/18/2021 18:05	3.47	1.61	0.244
5/18/2021 18:00	3.39	1.59	0.233
5/18/2021 17:55	3.31	1.55	0.22
5/18/2021 17:50	3.32	1.55	0.221
5/18/2021 17:45	3.36	1.61	0.234
5/18/2021 17:40	3.3	1.55	0.219
5/18/2021 17:35	3.3	1.51	0.214
5/18/2021 17:30	3.36	1.58	0.229
5/18/2021 17:25	3.35	1.6	0.23
5/18/2021 17:20	3.3	1.54	0.218
5/18/2021 17:15	3.25	1.52	0.211
5/18/2021 17:10	3.24	1.49	0.206
5/18/2021 17:05	3.31	1.55	0.22
5/18/2021 17:00	3.34	1.58	0.226
5/18/2021 16:55	3.38	1.57	0.23
5/18/2021 16:50	3.28	1.57	0.22
5/18/2021 16:45	3.28	1.56	0.218
5/18/2021 16:40	3.24	1.54	0.213
5/18/2021 16:35	3.23	1.55	0.211
5/18/2021 16:30	3.21	1.53	0.208
5/18/2021 16:25	3.13	1.5	0.197
5/18/2021 16:20	3.25	1.51	0.209
5/18/2021 16:15	3.33	1.55	0.222
5/18/2021 16:10	3.38	1.59	0.232
5/18/2021 16:05	3.38	1.59	0.232
5/18/2021 16:00	3.38	1.6	0.233
5/18/2021 15:55	3.43	1.6	0.239
5/18/2021 15:50	3.41	1.6	0.237
5/18/2021 15:45	3.31	1.55	0.22
5/18/2021 15:40	3.32	1.56	0.222
5/18/2021 15:35	3.32	1.56	0.222
5/18/2021 15:30	3.31	1.53	0.217
5/18/2021 15:25	3.16	1.52	0.202
5/18/2021 15:20	3.11	1.5	0.195
5/18/2021 15:15	3.14	1.5	0.198
5/18/2021 15:10	3.1	1.49	0.192
5/18/2021 15:05	3.14	1.52	0.2
5/18/2021 15:00	3.14	1.48	0.195
5/18/2021 14:55	3.15	1.47	0.195
5/18/2021 14:50	3.19	1.49	0.2
5/18/2021 14:45	3.24	1.49	0.206
5/18/2021 14:40	3.27	1.5	0.209
5/18/2021 14:35	3.36	1.49	0.217
5/18/2021 14:30	3.38	1.5	0.22
5/18/2021 14:25	3.38	1.49	0.218
5/18/2021 14:20	3.46	1.63	0.246

5/18/2021 14:15	3.47	1.64	0.249
5/18/2021 14:10	3.4	1.55	0.229
5/18/2021 14:05	3.49	1.56	0.238
5/18/2021 14:00	3.55	1.62	0.255
5/18/2021 13:55	3.54	1.63	0.254
5/18/2021 13:50	3.58	1.63	0.259
5/18/2021 13:45	3.54	1.62	0.253
5/18/2021 13:40	3.58	1.66	0.263
5/18/2021 13:35	3.63	1.85	0.299
5/18/2021 13:30	3.64	1.65	0.268
5/18/2021 13:25	3.62	1.66	0.267
5/18/2021 13:20	3.47	1.4	0.214
5/18/2021 13:15	3.4	1.54	0.228
5/18/2021 13:10	3.31	1.53	0.218
5/18/2021 13:05	3.31	1.44	0.205
5/18/2021 13:00	3.32	1.55	0.221
5/18/2021 12:55	3.36	1.56	0.227
5/18/2021 12:50	3.34	1.51	0.217
5/18/2021 12:45	3.34	1.51	0.217
5/18/2021 12:40	3.3	1.5	0.211
5/18/2021 12:35	3.28	1.49	0.208
5/18/2021 12:30	3.28	1.52	0.213
5/18/2021 12:25	3.28	1.52	0.213
5/18/2021 12:20	3.31	1.51	0.214
5/18/2021 12:15	3.36	1.54	0.224
5/18/2021 12:10	3.42	1.59	0.237
5/18/2021 12:05	3.42	1.57	0.234
5/18/2021 12:00	3.41	1.55	0.23
5/18/2021 11:55	3.43	1.58	0.235
5/18/2021 11:50	3.43	1.58	0.235
5/18/2021 11:45	3.54	1.58	0.247
5/18/2021 11:40	3.49	1.58	0.241
5/18/2021 11:35	3.52	1.62	0.251
5/18/2021 11:30	3.47	1.6	0.242
5/18/2021 11:25	3.39	1.55	0.228
5/18/2021 11:20	3.38	1.53	0.223
5/18/2021 11:15	3.37	1.52	0.221
5/18/2021 11:10	3.37	1.51	0.22
5/18/2021 11:05	3.37	1.49	0.218
5/18/2021 11:00	3.42	1.49	0.222
5/18/2021 10:55	3.43	1.56	0.233
5/18/2021 10:50	3.5	1.62	0.248
5/18/2021 10:45	3.5	1.61	0.248
5/18/2021 10:40	3.54	1.61	0.251
5/18/2021 10:35	3.53	1.6	0.249
5/18/2021 10:30	3.55	1.65	0.258
5/18/2021 10:25	3.55	1.66	0.26

5/18/2021 10:20	1.77	1.53	0.087
5/18/2021 10:15	3.48	1.52	0.231
5/18/2021 10:10	3.43	1.5	0.224
5/18/2021 10:05	3.45	1.5	0.225
5/18/2021 10:00	3.46	1.45	0.22
5/18/2021 9:55	3.5	1.5	0.23
5/18/2021 9:50	3.49	1.62	0.248
5/18/2021 9:45	3.44	1.57	0.235
5/18/2021 9:40	3.39	1.55	0.227
5/18/2021 9:35	3.42	1.56	0.231
5/18/2021 9:30	3.41	1.54	0.228
5/18/2021 9:25	3.42	1.53	0.228
5/18/2021 9:20	3.41	1.53	0.226
5/18/2021 9:15	3.37	1.53	0.223
5/18/2021 9:10	3.38	1.54	0.225
5/18/2021 9:05	3.52	1.61	0.249
5/18/2021 9:00	3.62	1.64	0.264
5/18/2021 8:55	3.49	1.6	0.246
5/18/2021 8:50	3.5	1.62	0.248
5/18/2021 8:45	3.41	1.54	0.227
5/18/2021 8:40	3.42	1.54	0.23
5/18/2021 8:35	3.42	1.55	0.231
5/18/2021 8:30	3.43	1.55	0.232
5/18/2021 8:25	3.36	1.5	0.217
5/18/2021 8:20	3.42	1.49	0.222
5/18/2021 8:15	3.46	1.55	0.235
5/18/2021 8:10	3.45	1.53	0.231
5/18/2021 8:05	3.46	1.53	0.231
5/18/2021 8:00	3.41	1.54	0.228
5/18/2021 7:55	3.38	1.53	0.224
5/18/2021 7:50	3.52	1.55	0.24
5/18/2021 7:45	3.42	1.52	0.227
5/18/2021 7:40	3.43	1.53	0.228
5/18/2021 7:35	3.42	1.53	0.228
5/18/2021 7:30	3.43	1.55	0.232
5/18/2021 7:25	3.41	1.55	0.23
5/18/2021 7:20	3.3	1.49	0.211
5/18/2021 7:15	3.29	1.5	0.21
5/18/2021 7:10	3.37	1.5	0.218
5/18/2021 7:05	3.4	1.54	0.227
5/18/2021 7:00	3.36	1.54	0.223
5/18/2021 6:55	3.37	1.56	0.227
5/18/2021 6:50	3.36	1.55	0.225
5/18/2021 6:45	3.36	1.55	0.224
5/18/2021 6:40	3.11	1.48	0.192
5/18/2021 6:35	3.11	1.47	0.191
5/18/2021 6:30	3.07	1.47	0.188

5/18/2021 6:25	2.96	1.41	0.17
5/18/2021 6:20	2.92	1.41	0.167
5/18/2021 6:15	2.88	1.4	0.162
5/18/2021 6:10	2.75	1.3	0.142
5/18/2021 6:05	2.75	1.3	0.142
5/18/2021 6:00	2.74	1.29	0.14
5/18/2021 5:55	2.74	1.29	0.14
5/18/2021 5:50	2.75	1.3	0.142
5/18/2021 5:45	2.69	1.27	0.133
5/18/2021 5:40	2.56	1.21	0.119
5/18/2021 5:35	2.49	1.17	0.11
5/18/2021 5:30	2.43	1.13	0.103
5/18/2021 5:25	2.42	1.1	0.099
5/18/2021 5:20	2.41	0.96	0.086
5/18/2021 5:15	2.44	0.98	0.09
5/18/2021 5:10	2.45	0.99	0.091
5/18/2021 5:05	2.37	0.97	0.085
5/18/2021 5:00	2.33	1.1	0.094
5/18/2021 4:55	2.28	1.08	0.09
5/18/2021 4:50	2.28	1.08	0.089
5/18/2021 4:45	2.26	1.06	0.087
5/18/2021 4:40	2.27	1.01	0.084
5/18/2021 4:35	2.27	0.76	0.063
5/18/2021 4:30	2.27	1.08	0.089
5/18/2021 4:25	2.2	1.04	0.081
5/18/2021 4:20	2.18	1.02	0.079
5/18/2021 4:15	2.18	1.01	0.078
5/18/2021 4:10	2.18	1.02	0.08
5/18/2021 4:05	2.2	1.06	0.083
5/18/2021 4:00	2.18	1.01	0.079
5/18/2021 3:55	2.17	1.01	0.078
5/18/2021 3:50	2.17	0.99	0.076
5/18/2021 3:45	2.2	1.01	0.08
5/18/2021 3:40	2.23	1.02	0.082
5/18/2021 3:35	2.24	1.06	0.086
5/18/2021 3:30	2.26	1.06	0.087
5/18/2021 3:25	2.24	1.06	0.085
5/18/2021 3:20	2.13	0.96	0.072
5/18/2021 3:15	2.13	0.94	0.071
5/18/2021 3:10	2.13	0.93	0.07
5/18/2021 3:05	2.14	0.89	0.067
5/18/2021 3:00	2.15	0.89	0.067
5/18/2021 2:55	2.17	0.86	0.066
5/18/2021 2:50	2.19	0.81	0.063
5/18/2021 2:45	2.2	1.05	0.083
5/18/2021 2:40	2.18	1.02	0.079
5/18/2021 2:35	2.18	1.01	0.078

5/18/2021 2:30	2.17	1.01	0.078
5/18/2021 2:25	2.18	1.01	0.078
5/18/2021 2:20	2.13	0.97	0.073
5/18/2021 2:15	2.13	0.91	0.068
5/18/2021 2:10	2.14	0.87	0.066
5/18/2021 2:05	2.17	0.99	0.076
5/18/2021 2:00	2.19	1.03	0.08
5/18/2021 1:55	2.19	1.02	0.08
5/18/2021 1:50	2.2	1.02	0.08
5/18/2021 1:45	2.24	1.04	0.084
5/18/2021 1:40	2.21	1.01	0.08
5/18/2021 1:35	2.23	1.01	0.081
5/18/2021 1:30	2.28	1.02	0.085
5/18/2021 1:25	2.31	1.08	0.091
5/18/2021 1:20	2.33	1.09	0.094
5/18/2021 1:15	2.37	1.11	0.097
5/18/2021 1:10	2.4	1.11	0.099
5/18/2021 1:05	2.41	1.1	0.099
5/18/2021 1:00	2.39	1.1	0.097
5/18/2021 0:55	2.41	1.12	0.1
5/18/2021 0:50	2.45	1.15	0.105
5/18/2021 0:45	2.45	1.11	0.102
5/18/2021 0:40	2.51	1.2	0.115
5/18/2021 0:35	2.43	1.11	0.101
5/18/2021 0:30	2.46	1.11	0.102
5/18/2021 0:25	2.5	1.12	0.106
5/18/2021 0:20	2.57	1.18	0.116
5/18/2021 0:15	2.57	1.18	0.116
5/18/2021 0:10	2.57	1.16	0.113
5/18/2021 0:05	2.59	1.13	0.112
5/18/2021 0:00	2.65	1.13	0.116
5/17/2021 23:55	2.69	1.27	0.133
5/17/2021 23:50	2.74	1.32	0.142
5/17/2021 23:45	2.76	1.31	0.144
5/17/2021 23:40	2.79	1.34	0.149
5/17/2021 23:35	2.82	1.34	0.151
5/17/2021 23:30	2.83	1.33	0.15
5/17/2021 23:25	2.84	1.33	0.151
5/17/2021 23:20	2.84	1.34	0.152
5/17/2021 23:15	2.84	1.32	0.15
5/17/2021 23:10	2.89	1.33	0.155
5/17/2021 23:05	2.92	1.4	0.166
5/17/2021 23:00	3.03	1.43	0.178
5/17/2021 22:55	3	1.43	0.176
5/17/2021 22:50	3.01	1.42	0.176
5/17/2021 22:45	3.03	1.43	0.178
5/17/2021 22:40	3.04	1.42	0.179

5/17/2021 22:35	3.08	1.45	0.186
5/17/2021 22:30	3.13	1.48	0.194
5/17/2021 22:25	3.14	1.47	0.194
5/17/2021 22:20	3.14	1.48	0.194
5/17/2021 22:15	3.13	1.48	0.194
5/17/2021 22:10	3.14	1.48	0.195
5/17/2021 22:05	3.17	1.45	0.193
5/17/2021 22:00	3.22	1.48	0.201
5/17/2021 21:55	3.31	1.54	0.219
5/17/2021 21:50	3.33	1.55	0.222
5/17/2021 21:45	3.39	1.58	0.232
5/17/2021 21:40	3.25	1.5	0.207
5/17/2021 21:35	3.32	1.49	0.213
5/17/2021 21:30	3.35	1.53	0.221
5/17/2021 21:25	3.32	1.5	0.213
5/17/2021 21:20	3.37	1.51	0.219
5/17/2021 21:15	3.36	1.48	0.214
5/17/2021 21:10	3.36	1.59	0.23
5/17/2021 21:05	3.32	1.53	0.218
5/17/2021 21:00	3.33	1.55	0.222
5/17/2021 20:55	3.36	1.62	0.234
5/17/2021 20:50	3.37	1.65	0.241
5/17/2021 20:45	3.3	1.5	0.212
5/17/2021 20:40	3.27	1.43	0.2
5/17/2021 20:35	3.36	1.51	0.219
5/17/2021 20:30	3.39	1.53	0.225
5/17/2021 20:25	3.4	1.56	0.229
5/17/2021 20:20	3.39	1.55	0.228
5/17/2021 20:15	3.25	1.44	0.2
5/17/2021 20:10	3.33	1.58	0.225
5/17/2021 20:05	3.37	1.56	0.226
5/17/2021 20:00	3.37	1.57	0.228
5/17/2021 19:55	3.37	1.57	0.229
5/17/2021 19:50	3.38	1.56	0.228
5/17/2021 19:45	3.35	1.58	0.228
5/17/2021 19:40	3.4	1.57	0.233
5/17/2021 19:35	3.42	1.59	0.236
5/17/2021 19:30	3.42	1.58	0.235
5/17/2021 19:25	3.42	1.58	0.235
5/17/2021 19:20	3.41	1.59	0.236
5/17/2021 19:15	3.3	1.5	0.213
5/17/2021 19:10	3.46	1.52	0.231
5/17/2021 19:05	3.44	1.62	0.242
5/17/2021 19:00	3.44	1.59	0.238
5/17/2021 18:55	3.47	1.62	0.246
5/17/2021 18:50	3.46	1.6	0.241
5/17/2021 18:45	3.49	1.61	0.246

5/17/2021 18:40	3.46	1.61	0.243
5/17/2021 18:35	3.47	1.65	0.25
5/17/2021 18:30	3.33	1.42	0.204
5/17/2021 18:25	3.34	1.54	0.222
5/17/2021 18:20	3.33	1.53	0.219
5/17/2021 18:15	3.35	1.55	0.223
5/17/2021 18:10	3.35	1.55	0.224
5/17/2021 18:05	3.35	1.54	0.223
5/17/2021 18:00	3.35	1.54	0.222
5/17/2021 17:55	3.35	1.55	0.223
5/17/2021 17:50	3.3	1.52	0.215
5/17/2021 17:45	3.26	1.48	0.206
5/17/2021 17:40	3.15	1.44	0.19
5/17/2021 17:35	3.23	1.53	0.209
5/17/2021 17:30	3.19	1.52	0.205
5/17/2021 17:25	3.28	1.53	0.215
5/17/2021 17:20	3.31	1.52	0.216
5/17/2021 17:15	3.22	1.51	0.205
5/17/2021 17:10	3.19	1.44	0.194
5/17/2021 17:05	3.19	1.46	0.197
5/17/2021 17:00	3.23	1.51	0.207
5/17/2021 16:55	3.19	1.5	0.203
5/17/2021 16:50	3.17	1.47	0.196
5/17/2021 16:45	3.17	1.5	0.2
5/17/2021 16:40	3.17	1.51	0.201
5/17/2021 16:35	3.25	1.55	0.214
5/17/2021 16:30	3.25	1.5	0.207
5/17/2021 16:25	3.23	1.52	0.208
5/17/2021 16:20	3.24	1.53	0.21
5/17/2021 16:15	3.25	1.52	0.21
5/17/2021 16:10	3.24	1.52	0.209
5/17/2021 16:05	3.27	1.53	0.213
5/17/2021 16:00	3.26	1.53	0.213
5/17/2021 15:55	3.35	1.54	0.222
5/17/2021 15:50	3.35	1.51	0.218
5/17/2021 15:45	3.36	1.55	0.225
5/17/2021 15:40	3.35	1.52	0.22
5/17/2021 15:35	3.37	1.58	0.231
5/17/2021 15:30	3.39	1.55	0.227
5/17/2021 15:25	3.27	1.52	0.212
5/17/2021 15:20	3.3	1.52	0.215
5/17/2021 15:15	3.32	1.53	0.218
5/17/2021 15:10	3.17	1.47	0.196
5/17/2021 15:05	3.24	1.5	0.206
5/17/2021 15:00	3.24	1.5	0.207
5/17/2021 14:55	3.24	1.45	0.199
5/17/2021 14:50	3.19	1.45	0.196

5/17/2021 14:45	3.28	1.46	0.204
5/17/2021 14:40	3.3	1.5	0.212
5/17/2021 14:35	3.29	1.51	0.212
5/17/2021 14:30	3.29	1.53	0.215
5/17/2021 14:25	3.3	1.51	0.214
5/17/2021 14:20	3.49	1.53	0.235
5/17/2021 14:15	3.52	1.57	0.243
5/17/2021 14:10	3.56	1.67	0.264
5/17/2021 14:05	3.55	1.69	0.264
5/17/2021 14:00	3.48	1.56	0.239
5/17/2021 13:55	3.52	1.6	0.248
5/17/2021 13:50	3.29	1.51	0.212
5/17/2021 13:45	3.28	1.5	0.21
5/17/2021 13:40	3.29	1.55	0.219
5/17/2021 13:35	3.29	1.55	0.217
5/17/2021 13:30	3.28	1.52	0.214
5/17/2021 13:25	3.29	1.5	0.211
5/17/2021 13:20	3.29	1.49	0.211
5/17/2021 13:15	3.25	1.5	0.207
5/17/2021 13:10	3.47	1.48	0.225
5/17/2021 13:05	3.53	1.57	0.244
5/17/2021 13:00	3.62	1.6	0.259