APPENDICES

DRAFT INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

EUCLID AVENUE RECYCLED WATER SYSTEM PROJECT

Prepared for:
Ontario Municipal Utilities Company

CITY OF
ONTARIO
SOUTHERN CALIFORNIA

Prepared by:

ARDURRA

JUNE 6, 2025

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FOR

EUCLID AVENUE RECYCLED WATER SYSTEM PROJECT

PREPARED FOR:

Ontario Municipal Utilities Company
1425 S. Bon View Avenue
Ontario, CA 91761
909-395-2676

PREPARED BY:

ARDURRA GROUP
3737 Bristol Street Suite 250
Newport Beach, CA 92660
949-482-0028

JUNE 6, 2025

APPENDICES

APPENDIX A

Air Quality and Greenhouse Gas Impact Study/Energy
Ganddini Group Inc., December 16, 2024

transportation ▪ noise ▪ air quality | **GANDDINI GROUP**

TECHNICAL MEMORANDUM

TO: Lori Trottier | ARDURRA GROUP, INC.

FROM: Katie Wilson | GANDDINI GROUP, INC.

DATE: December 16, 2024

SUBJECT: Euclid Avenue Recycled Water System Project Air Quality, Greenhouse Gas, & Energy Technical Memorandum
GGI Project No. 19702

Ganddini Group, Inc. is pleased to provide this air quality, greenhouse gas, and energy technical memorandum for the proposed Euclid Avenue Recycled Water System Project.

The Project is located in the City of Ontario, San Bernadino County, California. The proposed project includes Segment 1 Euclid Avenue between E Holt Boulevard to 4th Street (~5,350 linear feet); Segment 2 F Street between the east side of Euclid Avenue to Vine Street (~1,530 linear feet), Vine Street between F Street and Flora Street (~200 linear feet), and Flora Street between Vine Street and the northwestern corner of James Bryant Dog Park (~1,310 linear feet); Segment 3 B Street between Euclid Avenue and W Lemon Street (~2,395 linear feet); Segment 4 C Street between Euclid Avenue and west of Lemon Avenue (~110 linear feet); Segment 5 E Street between Euclid Avenue and unnamed alley to east of Euclid Avenue (~303 linear feet); and Segment 6 Riverside Drive between Euclid Avenue and Baker Avenue and E Riverside Drive intersection (~11,295 linear feet). A project location map is provided on Figure 1. A glossary is provided in Appendix A to assist the reader with technical terms related to air quality analysis.

PROJECT DESCRIPTION

The proposed project will construct approximately 20,400 linear feet of City-owned and operated recycled water mains from connections at nearby Inland Empire Utilities Agency (IEUA) recycled water mains; install approximately 300 linear feet of lateral connections; and convert approximately 2,000 linear feet of existing potable water mains for distribution of recycled water within city limits. Proposed improvements will be completed using open trench construction methods and will involve approximately 63,400 square feet of disturbance and approximately 384,400 cubic feet of earthwork. The Project involves primarily underground infrastructure improvements and ancillary appurtenances above ground surface within landscaped areas, such as valves. At connection points with existing irrigation systems, Project implementation will remove portions of existing landscaping and paved surfaces. Upon completion of construction, existing surfaces will be restored to pre project conditions at connection points and along the new and converted recycled water mains.

At the north end of the Project, plans show a point of connection at the IEUA recycled water main within the intersection of Euclid Avenue and 4th Street. A new recycled water main will be constructed in the northbound lane of Euclid Avenue, adjacent to the Euclid Avenue median, between 4th Street and E. Holt Boulevard; new mains will also be constructed within portions of E. E Street, W. F Street, W. Flora Street and N. Vine Avenue. The Project will convert existing potable water mains located in E. C Street, E. B Street, and N. Lemon Avenue to recycled water. The Project will install laterals from the new and converted recycled water mains to existing irrigation systems for the Euclid Avenue center median, James R. Bryant Park, the Civic Center complex (City Hall/Seniors' Center), and Town Square Park (amphitheater/recreation center).

On the south end of the Project, plans show a point of connection with the existing City of Ontario recycled water system located within Riverside Drive, east of Baker Avenue. A new recycled water main will be constructed in the eastbound lanes of Riverside Drive between Euclid Avenue and just east of Baker Avenue. The project will install laterals from the new recycled water main to existing irrigation systems for Centennial Park, a portion of landscaped parkway along E. Riverside Drive west of Bon View Avenue, and a portion of the landscaped median on Euclid Avenue between E. Riverside Drive and E Walnut Street. Project components are summarized in Table 1 and the site plan for the proposed northern and southern portions of the project are provided on Figure 2 and Figure 3 respectively.

The Project is anticipated to be operational for a minimum of 50 years from completion of construction. The City will operate and manage the Project in a similar manner to existing conditions since the Project will install new laterals to existing irrigation along the Euclid Avenue Center median, James Bryant Park, the Civic Center, Town Square Park, Centennial Park, and the parkway along E. Riverside Drive. Therefore, City of Ontario does not anticipate additional staffing needs for long-term operation and maintenance of the Proposed Project. Monthly worker trips over the lifetime of the Proposed Project will be required to conduct routine inspections and ensure proper long-term maintenance.

Table 2 shows the SCAQMD Air Quality Significance Thresholds.

SENSITIVE RECEPTORS IN PROJECT VICINITY

Those who are sensitive to air pollution include children, the elderly, and persons with preexisting respiratory or cardiovascular illness. For purposes of CEQA, the SCAQMD considers a sensitive receptor to be a location where a sensitive individual could remain for 24 hours, such as residences, hospitals, or convalescent facilities (South Coast Air Quality Management District 2008). Commercial and industrial facilities are not included in the definition because employees do not typically remain on-site for 24 hours. Furthermore, as stated in the SCAQMD's Guidance Document for Addressing Air Quality Issues in General Plans (2005), the following land uses are considered to be areas where sensitive receptors are typically located: schools, playgrounds, childcare centers, long-term health care facilities, rehabilitation centers, convalescent centers, hospitals, retirement homes, and residences.

The nearest sensitive receptors to the project site include: the existing residential uses located adjacent or near to the proposed project alignment along Euclid Avenue; E Street; F Street; Vine Street; Flora Street; C Street; and Riverside Drive. In addition, other than nearby residential receptors, sensitive receptors near Segment 1 also include Chaffey High School and Vina Danks Middle School, located approximately 0.1 miles from the portion of the project alignment along 4th Street, Champions at Euclid Elementary, the American Inn, and the Central Language Academy, located approximately 0.1 miles from project alignment along Euclid Avenue, the St. George School, located approximately 0.2 miles from project alignment along Euclid Avenue, and the San Antonion School, located approximately 0.2 miles from project alignment along Euclid Avenue and near Segment 6 also include Levi Dickey High School, approximately 0.12 miles from project alignment along Riverside Drive, Woodcrest Junior High School and Liberty Elementary School, located approximately 0.4 miles from project alignment along Riverside Drive, Heavenly Care Daycare and Preschool School, located approximately 0.1 miles from project alignment along Riverside Drive, and Sunrise Children Center, located approximately 0.35 miles from project alignment along Riverside Drive. Other air quality sensitive land uses are located further from the project site and would experience lower impacts.

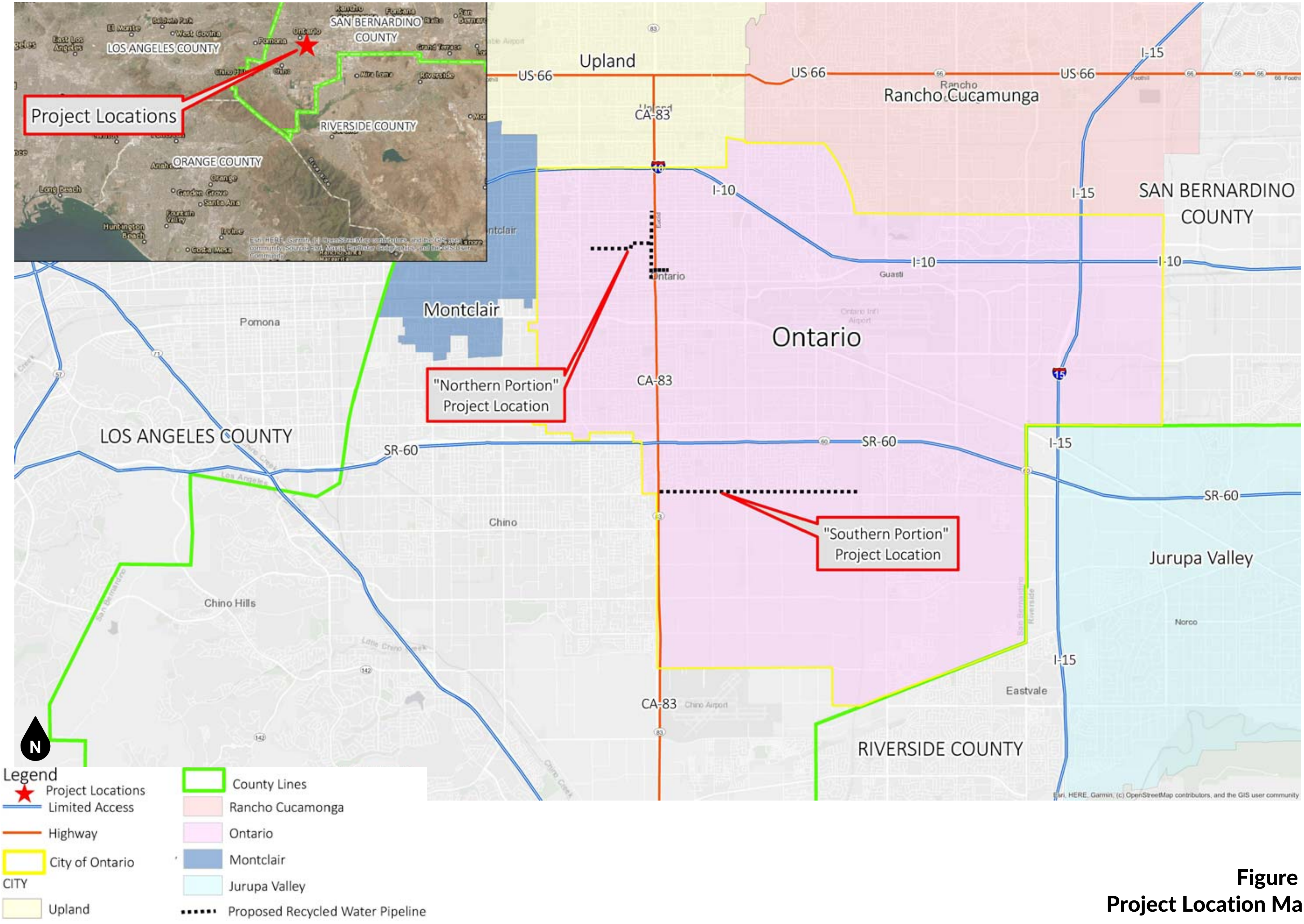


Figure 1
Project Location Map

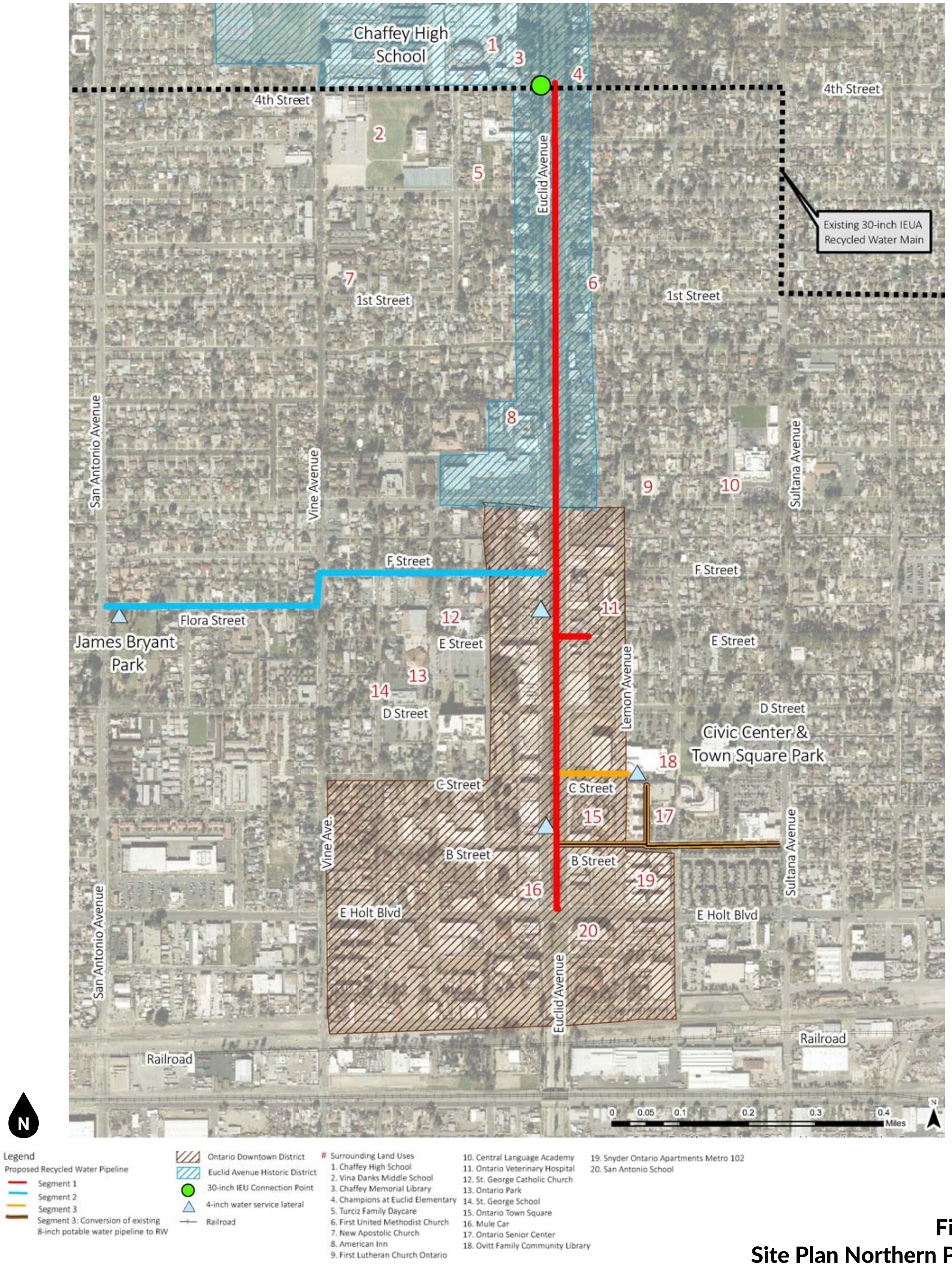
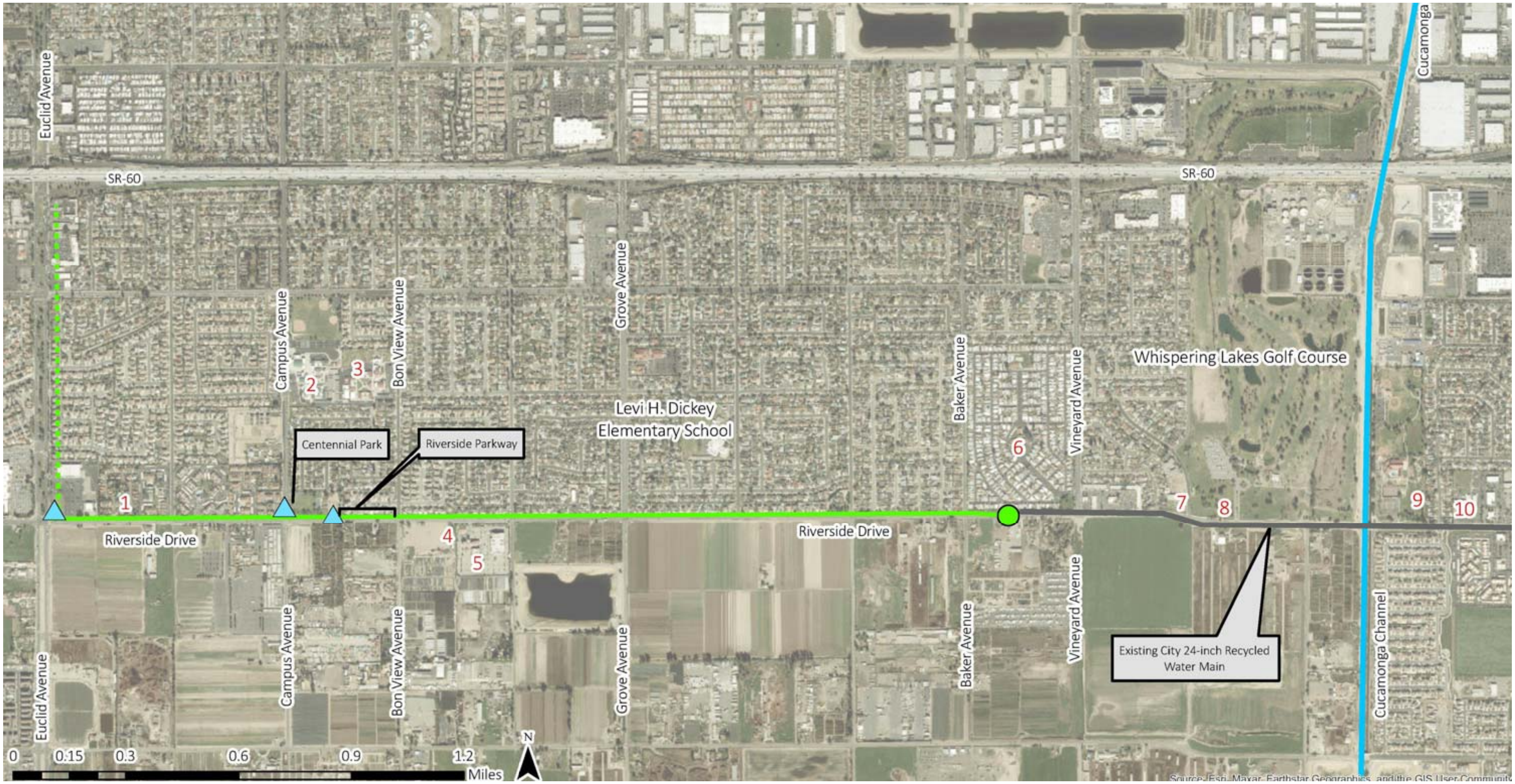


Figure 2
Site Plan Northern Portion



Legend

▬ Existing City 24-inch Recycled Water Pipeline

▬ SR-60

▬ Segment 4: Proposed Recycled Water Pipeline

▪▪▪ Segment 4: Conversion of Existing Irrigation System to RW

● Connection Point to Existing City RW Pipeline

▲ Recycled Water Lateral

▬ Cucamonga Channel

Surrounding Land Uses
1. Harris Place Apartments
2. Woodcrest Junior High School
3. Liberty Elementary School
4. Heavenly Care Daycare and Preschool
5. Banal Na Pag Aral
6. Country Meadows Mobile Home Park
7. Sunrise Children Center
8. Dog Park
9. Westwind Community Center
10. Live Oak Preschool

Figure 3
Site Plan Southern Portion

Table 1 (1 of 2)
Project Components

Segment No.	Proposed Structure	Public ROW and Direction of Pipeline Construction	Pipe Size and Length	Area of Temporary Disturbance
Northern Portion				
1	New Recycled Water Main	**Public ROW:** Northbound lane of Euclid Avenue adjacent to the median (City right-of-way; mixed-use corridor)	**Size:** 12” diameter	**Open Trenching:** 30-inches wide x 72-inches deep for ~5,300 linear feet
		Direction: North from Holt Blvd to 4th Street; connection existing 30” IEUA pipeline at 4th Street	**Length:** ~ 5,300 linear feet	**Construction Area:** Full width 24-feet
	Recycled Water Lateral to Existing Irrigation System for Euclid Avenue	**Public ROW:** Euclid Avenue (City right-of-way; mixed-use corridor) center median between B Street and C Street	**Three Lateral Pipes Size:** 4” diameter connection to existing irrigation system	**Open Trenching:** 2 ft wide x 2 ft deep for ~ 20 linear feet
			Length: ~20 linear feet	
		Public ROW: Euclid Avenue (City right-of-way; mixed-use corridor) center median between C Street and D Street	**Pipe Size:** 4” diameter Existing irrigation system	**Open Trenching:** 2 ft wide x 2 ft deep for ~15 linear feet
			Length: ~15 linear feet	
		Public ROW: Euclid Avenue (City right-of-way; mixed-use corridor) center median between F Street and E Street	**Pipe Size:** 4” diameter Existing irrigation system	
			Length: ~15 linear feet	
	Tree Removals (8 trees) -	**Public right-of-way:** Euclid Avenue (City right-of-way; mixed-use corridor) center median between E Granada Ct and E G Street	-	**Tree Removals:** 8 trees
2	New Recycled Water Main	**Public ROW:** Eastbound lane of W. F Street (Collector Street)	**Size:** 8” diameter	**Open Trenching:** 26-inches wide x 68-inch deep
		Direction: West from Euclid Avenue to Vine Avenue	**Length:** ~1,530 linear feet	**Construction Area:** Full width 24-feet
	New Recycled Water Main	**Public ROW:** Northbound lane of N. Vine Avenue (Collector Street)	**Size:** 8” diameter	**Open Trenching:** 26-inches wide x 68-inch deep
		Direction: South from F Street to Flora Street	**Length:** ~200 linear feet	**Construction Area:** Full width 24-feet
	New Recycled Water Main	**Public ROW:** Westbound lane Flora Street (Collector Street)	**Size:** 8” diameter	**Open Trenching:** 26-inches wide x 68-inch deep
		Direction: East from Vine Street to James Bryant Park	**Length:** ~1,290 linear feet	**Construction Area:** Full width 24-feet
	Recycled Water Lateral to Existing Irrigation at James R. Bryant Park	James R. Bryant Park	**Pipe Size:** 2” Diameter connection to existing irrigation system	**Trenching:** 2 ft wide x 2 ft deep
			Length: ~20 linear feet	
	Tree Removals (1) - 212	**Public right-of-way:** westbound lane Flora Street (Collector Street) across from James R. Bryant Park	-	**Tree:** 1 (Tree 212)

Table 1 (2 of 2)
Project Components

Segment No.	Proposed Structure	Public ROW and Direction of Pipeline Construction	Pipe Size and Length	Area of Temporary Disturbance
3	Recycled Water Lateral to Civic Center	**Public ROW:** C Street City Civic Center buildings (City Hall/ Senior Center)	**Size:** 4" diameter connection to Existing irrigation system	**Open Trenching:** 2 ft wide x 2 ft deep
		Town Square Park	**Pipe Size:** 4" diameter connection to existing irrigation system	**Open Trenching:** 2 ft wide x 2 ft deep
		Public right-of-way: Westbound lane of B Street Ontario City Hall (Police & Fire Department)	**Pipe Size:** 4" diameter connection to existing irrigation system	**Open Trenching:** 2 ft wide x 2 ft deep
	Recycled Water Lateral	**Public ROW:** B Street	**Pipe Size:** 8" diameter	**Open Trenching:** 26-inches wide x 68-inch deep for ~55 feet
		Direction: East of Euclid Avenue and west of Lemon Avenue	**Length:** ~55 linear feet	**Construction Area:** Full width 24-feet
	Convert existing 8-inch potable water pipeline to recycled water	Civic Center area along B Street and Lemon Avenue	**Size:** 8" diameter	**Excavation:** 10 ft wide by 10 ft deep
			Length: ~2,340 linear feet	
4	New Recycled Water Main	**Public ROW:** Eastbound lane of C Street	**Size:** 8" diameter	**Open Trenching:** 26-inches wide x 68-inch deep for ~110 feet
		Direction: East of Euclid Avenue to connection with existing 8" RW main	**Length:** ~110 linear feet	**Construction Area:** Full width 24-feet
5	New Recycled Water Main	**Public right-of-way:** Eastbound lane of East E Street (City right-of-way)	**Size:** 8" diameter	**Open Trenching:** 2 ft wide x 2 ft deep for ~ 303 LF
		Direction: East from Euclid Avenue to an unnamed alleyway.	**Length:** 303 linear feet	
			Above-ground appurtenances: air valve and blow off valve located within the landscaped area of off E. E Street.	
Southern Portion				
6	New Recycled Water Main	**Public right-of-way:** eastbound and center lanes of E. Riverside Drive (6-lane Minor Arterial)	**Size:** 24" diameter	**Open Trenching:** 42-inches wide x 84-inch deep for ~11,130 LF
		Direction: West from between Baker Avenue and Vineyard Avenue (channel) to Euclid Avenue	**Length:** ~11,130 linear feet	**Construction Area:** Full width 24-feet
	Recycled Water Main	Euclid Avenue center median between SR-60 and E. Riverside Drive	Existing irrigation system **Size:** 8" diameter	**Open Trenching:** 2 ft wide x 2 ft deep for ~100 LF
			Length: ~100 linear feet	
	Recycled Water Lateral to Existing Irrigation at Riverside Pkwy	Parkway along E. Riverside Drive west of Bon View Avenue	Existing irrigation system **Size:** 2" diameter	**Excavation:** 10 ft wide by 10 ft deep
			Length:~ 40 LF	
	Recycled Water Lateral to Existing Irrigation at Centennial Park	Centennial Park	Existing irrigation system **Size:** 2" diameter	**Excavation:** 10 ft wide by 10 ft deep
			Length: ~ 25 linear feet	

Table 2
SCAQMD Air Quality Significance Thresholds

Mass Daily Thresholds[1]

Pollutant	Construction (lbs/day)	Operation (lbs/day)
NOx	100	55
VOC	75	55
PM10	150	150
PM2.5	55	55
SOx	150	150
CO	550	550
Lead	3	3

Toxic Air Contaminants (TACs), Odor and GHG Thresholds

TACs (including carginogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic & Acute Hazard Index > 1.0 (project increment)
Odor	Project creates an odor nuisance pursuant to South Coast AQMD Rule 402
GHG	10,000 MT/yr CO2e for industrial facilities

Ambient Air Quality Standards for Criteria Pollutants[2]

NO_2	South Coast AQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards:
1-hour average	0.18 ppm (state)
annual arithmetic mean	0.03 ppm (state) & 0.0534 ppm (federal)
PM10	
24-hour average	10.4 µg/m^3 (construction)[3] & 2.5 µg/m^3 (operation)
annual average	1.0 µg/m^3
PM2.5	
24-hour average	10.4 µg/m^3 (construction)[3] & 2.5 µg/m^3 (operation)
SO_2	
1-hour average	0.25 ppm (state) & 0.075 ppm (federal – 99th percentile)
24-hour average	0.04 ppm (state)
Sulfate	
24-hour average	25 µg/m^3 (state)
CO	South Coast AQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards:
1-hour average	20 ppm (state) & 35 ppm (federal)
8-hour average	9 ppm (state/federal)
Lead	
30-day average	1.5 µg/m^3 (state)
Rolling 3-month average	0.15 µg/m^3 (federal)

Notes:

Source: http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook

(1) Source: South Coast AQMD CEQA Handbook (South Coast AQMD, 1993)

(2) Ambient air quality thresholds for criteria pollutants based on South Coast AQMD Rule 1303, Table A-2 unless otherwise stated.

(3) Ambient air quality threshold based on South Coast AQMD Rule 403.

SHORT-TERM AIR QUALITY IMPACTS

An analysis of the potential short-term air quality impacts due to regional air quality and local air quality impacts with the construction of the proposed project is provided. As described above, Construction activities include the construction of approximately 20,400 linear feet of recycled water mains; approximately 300 linear feet of lateral connections; and the conversion of approximately 2,000 linear feet of existing potable water mains. Proposed improvements will be completed using open trench construction methods and will involve approximately 63,400 square feet of disturbance and approximately 384,400 cubic feet of earthwork.. Temporary areas of disturbance from trenching are anticipated to be approximately 30-inches wide by 72-inches deep for 12-inch diameter pipeline (along approximately 5,300 linear feet); 26-inches wide x 68-inch deep for 8-inch diameter pipeline (along approximately 3,185 linear feet); and 42-inches wide x 84-inch deep for 24-inch pipeline (along approximately 11,130 linear feet); and 2 feet wide by 2 feet deep for laterals (approximately 15-20 feet long). Per the project applicant, construction equipment is to include: two (2) scrapers, one (1) tractors/ loaders/ backhoes, two (2) off-highway trucks, two (2) plate compactors, two (2) excavators, two (2) other material handling equipment, two (2) paving equipment, two (2) other construction equipment, four (4) pumps, two (2) skid steer loaders, two (2) surfacing equipment, two (2) rubber tired dozers, and two (2) cranes. Based on these details and as construction is not anticipated to be phased, to provide a conservative scenario, the entirety of the project has been analyzed as occurring in one construction phase with all proposed equipment in operation simultaneously. Construction is anticipated to begin no sooner than Winter 2025 and being completed by Winter 2026, taking approximately eleven months to complete. It was estimated that the project would include approximately 143,646 cubic feet export (~5,320 cubic yards) and approximately 105,565 cubic feet export (~3,910 cubic yards) import. CalEEMod output is shown in Appendix B.

Construction-Related Regional Air Quality Impacts

The maximum summer or winter criteria pollutant emissions from the proposed project’s construction-related criteria pollutant emissions are shown below in Table 3. Table 3 shows that none of the project's emissions will exceed regional thresholds. Therefore, a less than significant regional air quality impact would occur from construction of the proposed project.

Construction-Related Local Air Quality Impacts

Construction-related air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the South Coast Air Basin. The proposed project has been analyzed for the potential local air quality impacts created from: construction-related fugitive dust and diesel emissions; from toxic air contaminants; and from construction-related odor impacts.

The emission thresholds were calculated based on the Southwest San Bernardino Valley, source receptor area (SRA) 33 and a disturbance value of 3.5 acres per day (see Table 4).[1] According to LST Methodology, any receptor located closer than 25 meters (82 feet) shall be based on the 25-meter thresholds. The nearest sensitive receptors are the existing residential uses located adjacent to the proposed project alignment along Euclid Avenue; F Street; Vine Street; Flora Street; B Street; C Street; E Street; and Riverside Drive; therefore, the SCAQMD Look-up Tables for 25 meters was used. As shown in Table 5, none of the analyzed criteria pollutants would exceed the calculated local emissions thresholds at the nearest sensitive receptors. Therefore, the project is considered to be less than significant.

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[1] The 3.5 acre threshold was interpolated from the 2 acre and 5 acre SCAMQD LST Thresholds.

Table 3
Construction-Related Regional Pollutant Emissions

Activity	Pollutant Emissions (tons/year)					
	ROG	NOx	CO	SO_2	PM10	PM2.5
Maximum Daily Emissions[1]	7.34	65.30	66.40	0.16	6.97	4.33
SCAQMD Thresholds	75	100	550	150	150	55
Exceeds Thresholds?	No	No	No	No	No	No

Notes:

Source: CalEEMod Version 2022.1.1.29

(1) Includes both on-site and off-site emissions. On-site site preparation PM-10 and PM-2.5 emissions show compliance with SCAQMD Rule 403 for fugitive dust.

Table 4
Maximum Number of Acres Disturbed Per Day

Activity	Equipment	Number	Acres/8hr-day	Total Acres
Site Preparation	Rubber Tired Dozers	2	0.5	1
	Scrapers	2	1	2
	Crawler Tractors[1]	1	0.5	0.5
Total for phase		-	-	3.5

Notes:

Source: South Coast AQMD, Fact Sheet for Applying CalEEMod to Localized Significance Thresholds, 2011b.

(1) Tractor/loader/backhoe is a suitable surrogate for a crawler tractor per SCAQMD staff.

Table 5
Local Construction Emissions at the Nearest Receptors

Activity[1]	On-Site Pollutant Emissions (pounds/day)			
	NOx	CO	PM10	PM2.5
Site Preparation	64.90	64.70	6.60	4.24
SCAQMD Thresholds[2]	220	1,713	11	7
Exceeds Threshold?	No	No	No	No

Source: Calculated from CalEEMod and SCAQMD's Mass Rate Look-up Tables for 3.5 acres at a distance of 25 meters in SRA 33 Southwest Valley. The 3.5 acre threshold was interpolated based on the 2 acre and 5 acre thresholds.

Notes:

1. The project will disturb up to a maximum of 3.5 acres a day (see Table 4).
2. The nearest sensitive receptors to the project include the existing residential uses located adjacent or near to the proposed project alignment along Euclid Avenue; F Street; E Street; Vine Street; Flora Street; C Street; and Riverside Drive; therefore, the 25 meter threshold was used.

GREENHOUSE GAS IMPACTS

As stated previously, the City will operate and manage the project similar to existing conditions since the project will install new laterals to existing irrigation along the Euclid Avenue Center median, James Bryant Park, the Civic Center, Town Square Park, Centennial Park, and the parkway along E. Riverside Drive. Therefore, the City of Ontario does not anticipate additional staffing needs for long-term operation and maintenance of the proposed project. However, monthly worker trips over the lifetime of the proposed project will be required to conduct routine inspections and ensure proper long-term maintenance. Therefore, as project operational emissions would be negligible and sourced from a minimal number of vehicle trips associated with project maintenance, no operational analysis was warranted.

Greenhouse Gas Emissions

Construction-related GHG emissions were included in the analysis and were based on a 30-year amortization rate as recommended in the SCAQMD GHG Working Group meeting on November 19, 2009. The proposed project's construction related GHG emissions have been calculated with the CalEEMod model based on the parameters detailed above. A summary of the results is shown below in Table 6 and CalEEMod model run for the proposed project is provided in Appendix B.

The data provided in Table 6 shows that construction of the project would generate a total of 61.13 $MTCO_2e$ per year. At a level of 61.13 $MTCO_2e$ per year (amortized over 30 years). The project's emissions do not exceed the SCAQMD draft GHG emissions threshold of 3,000 $MTCO_2e$ per year for all land uses; therefore, the impacts from GHGs are considered to be less than significant.

Greenhouse Gas Plan Consistency

The proposed project could have the potential to conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases. The applicable plan for the proposed project is the City of Ontario Community Climate Action Plan (CCAP). Therefore, the project has been compared to the goals of the City of Ontario CCAP.

Consistency with City of Ontario CCAP

The 2022 Ontario CCAP, adopted unanimously by the City Council on August 16, 2022, is the strategic plan for how the City of Ontario will reduce greenhouse gas emissions and foster a sustainable community through 2050 and beyond. It is an update to Ontario's 2014 CCAP and accounts for recent statewide climate change legislation and targets, most notably Senate Bill (SB) 32, which provides statewide targets to reduce GHG emissions to 40 percent below 1990 levels by 2030. The city adopted the 2022 CCAP with citywide GHG emission reduction targets of 40 percent below 1990 levels of emissions by 2030 and 80 percent below 1990 levels of emissions by 2050. Ontario's targets are consistent with State laws in effect at the time of the adoption, including SB 32, and ensure that the city is providing GHG reductions locally that will complement State and international efforts of stabilizing climate change. In addition, the Ontario Community Climate Action Plan Greenhouse Gas Emissions Screening Tables (March 2023) provides guidance on how to analyze project level greenhouse gas emissions and determine the significance of those emissions during the discretionary review of proposed development projects in the City of Ontario. The analysis, methodology, and significance determination (thresholds) presented in the screening tables are based on the 2022 CCAP.

The proposed project is the installation of approximately 20,400 linear feet of City-owned and operated recycled water mains; approximately 300 linear feet of lateral connections; and the conversion of approximately 2,000 linear feet of existing potable water mains for distribution of recycled water within city limits. The only operational emissions would be negligible from a minimal number of worker trips to conduct routine inspections and ensure proper long-term maintenance. Therefore, the proposed project does not fall under the project type and size thresholds identified in the CCAP Screening Tables. Furthermore, the project's calculated GHG emissions are only 61.13 $MTCO_2e$ per year. Therefore, the proposed project would not conflict with the City of Ontario CCAP.

SB-32

As stated previously, the SCAQMD's tier 3 thresholds used Executive Order S-3-05 goal as the basis for deriving the screening level. The California Governor issued Executive Order S-3-05, GHG Emission, in June 2005, which established the following reduction targets:

- 2010: Reduce greenhouse gas emissions to 2000 levels
- 2020: Reduce greenhouse gas emissions to 1990 levels
- 2050: Reduce greenhouse gas emissions to 80 percent below 1990 levels.

In 2006, the California State Legislature adopted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires CARB, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020 through an enforceable statewide emission cap which was phased in starting in 2012.

Therefore, as the project's emissions meet the threshold for compliance with Executive Order S-3-05, the project's emissions also comply with the goals of AB 32 and the City of Ontario's CCAP. Additionally, as the project meets the current interim emissions targets/thresholds established by SCAQMD, the project would also be on track to meet the reduction target of 40 percent below 1990 levels by 2030 mandated by SB-32. Furthermore, the majority of the post 2020 reductions in GHG emissions are addressed via regulatory requirements at the State level and the project will be required to comply with these regulations as they come into effect.

At a level of 61.13 $MTCO_2e$ per year (amortized over 30 years), the project's GHG emissions do not exceed the SCAQMD draft threshold of 3,000 $MTCO_2e$ per year and is in compliance with the goals of the City of Ontario's CCAP, AB-32 and SB-32.

Table 6
Project-Related Greenhouse Gas Emissions

Category	Greenhouse Gas Emissions (Metric Tons/Year)					
	Bio-CO2	NonBio-CO_2	CO_2	CH_4	N_2O	CO_2e
Construction[1,2]	0.00	60.90	60.90	0.00	0.00	61.13
Total Emissions	0.00	60.90	60.90	0.00	0.00	61.13
SCAQMD Draft Screening Threshold						3,000
Exceeds Threshold?						No

Notes:

Source: CalEEMod Version 2022.1.1.29

(1) Construction GHG emissions CO2e based on a 30-year amortization rate.

(2) The proposed project is the installation of a new water pipeline. Therefore, operation of the proposed project includes only a minimal number of monthly worker trips in order to conduct routine inspections and ensure proper long-term maintenance. As operational emissions are anticipated to be negligble and only from monthly maintenance vehilce trips, only construction related GHG emissions have been included in this analysis.

PROJECT ENERGY DEMANDS AND ENERGY EFFICIENCY MEASURES

Construction Energy Demands

Construction is anticipated to occur between Winter 2025 and Winter 2026 and be completed in one phase. Staging of construction vehicles and equipment will occur inside existing public right-of-way along various locations of the project alignment or on adjacent parcels and will depend on the portion of the alignment under construction. The approximately 11-month schedule is relatively short, and the estimated area of disturbance during project construction is approximately 1.46 acres.[2]

Construction Equipment Electricity Usage Estimates

The project's electrical service will be provided by SCE. The focus within this section is the energy implications of the construction process, specifically the power cost from on-site electricity consumption during construction of the proposed project. Based on the 2021 National Construction Estimator, Richard Pray (2021)[3], the typical power cost per 1,000 square feet of building construction per month is estimated to be $2.37. The Project includes construction of approximately 20,400 linear feet of recycled water mains; approximately 300 linear feet of lateral connections; and the conversion of approximately 2,000 linear feet of existing potable water mains. Therefore, the project does not include the construction of any buildings.

Construction Equipment Fuel Estimates

Fuel consumed by construction equipment would be the primary energy resource expended over the course of project construction. Fuel consumed by construction equipment was evaluated with the following assumptions:

- Construction schedule of 11 months
- All construction equipment was assumed to run on diesel fuel.
- Typical daily use of 8 hours.
- Aggregate fuel consumption rate for all equipment was estimated at 18.5 hp-hr/gallon (from CARB's 2017 Emissions Factors Tables and fuel consumption rate factors as shown in Table D-21 of the Moyer Guidelines: (https://www.arb.ca.gov/msprog/moyer/guidelines/2017gl/2017_gl_appendix_d.pdf).
- Diesel fuel would be the responsibility of the equipment operators/contractors and would be sources within the region.
- Project construction represents a "single-event" for diesel fuel demand and would not require on-going or permanent commitment of diesel fuel resources during long term operation.

Using the CalEEMod data input for the air quality and greenhouse gas analyses, the project's construction phase would consume electricity and fossil fuels as a single energy demand, that is, once construction is completed their use would cease. CARB's 2017 Emissions Factors Tables show that on average aggregate fuel consumption (gasoline and diesel fuel) would be approximately 18.5 hp-hr-gal. Table 7 shows the results of the analysis of construction equipment.

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[2] Per project description, the temporary areas of disturbance from trenching are anticipated to be approximately 30-inches wide by 72-inches deep for 12-inch diameter pipeline (along approximately 5,300 linear feet); 26-inches wide x 68-inch deep for 8-inch diameter pipeline (along approximately 3,185 linear feet); and 42-inches wide x 84-inch deep for 24-inch pipeline (along approximately 11,130 linear feet); and 2 feet wide by 2 feet deep for laterals (approximately 15-20 feet long). The calculated total disturbance area provided in the project description is approximately 63,400 square feet (~1.46 acres).As a result, approximately 1.46 acres of temporary disturbance is anticipated during Project construction.

[3] Pray, Richard. 2021 National Construction Estimator. Carlsbad: Craftsman Book Company, 2021.

As presented in Table 7, project construction activities would consume an estimated 186,342 gallons of diesel fuel. As stated previously, project construction would represent a "single-event" diesel fuel demand and would not require on-going or permanent commitment of diesel fuel resources for this purpose.

Construction Worker Fuel Estimates

It is assumed that construction worker trips are from light duty autos (LDA), light duty truck 1 (LDT1), and light duty truck 2 (LDT2) at a mix of 25 percent/50 percent/25 percent, respectively, along area roadways.[4] With respect to estimated VMT, the construction worker trips would generate an estimated 102,912 VMT. Data regarding project related construction worker trips were based on CalEEMod 2022.1.1.29 model defaults.

Vehicle fuel efficiencies for construction workers were estimated in the air quality and greenhouse gas analyses using information generated using CARB's 2021 EMFAC model. An aggregate fuel efficiency of 26.585 miles per gallon (mpg) was used to calculate vehicle miles traveled for construction worker trips. Table 8 shows that an estimated 3,871 gallons of fuel would be consumed for construction worker trips.

Construction Vendor/Hauling Fuel Estimates

Tables 9 and 10 show the estimated fuel consumption for vendor and hauling during building construction and architectural coating. With respect to estimated VMT, the vendor and hauling trips would generate an estimated 17,294 VMT. Data regarding project related construction worker trips were based on CalEEMod 2022.1.1.29 model defaults.

For the architectural coatings it is assumed that the contractors would be responsible for bringing coatings and equipment with them in their light duty vehicles. Therefore, vendors delivering construction material or hauling debris from the site during project construction would use medium to heavy duty vehicles with an average fuel consumption of 7.87 mpg for medium heavy-duty trucks and 6.15 mpg for heavy heavy-duty trucks (see Appendix B for details). [5] Tables 9 and 10 show that an estimated 2,732 gallons of fuel would be consumed for vendor and hauling trips.

Construction Energy Efficiency/Conservation Measures

Construction equipment used over the approximately eleven-month construction phase would conform to CARB regulations and California emissions standards and is evidence of related fuel efficiencies. There are no unusual project characteristics or construction processes that would require the use of equipment that would be more energy intensive than is used for comparable activities; or equipment that would not conform to current emissions standards (and related fuel efficiencies). Equipment employed in the construction of the project would therefore not result in inefficient wasteful, or unnecessary consumption of fuel.

The project would utilize construction contractors which practice compliance with applicable CARB regulation regarding retrofitting, repowering, or replacement of diesel off-road construction equipment. Additionally, CARB has adopted the Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel particulate matter and other Toxic Air Contaminants. Compliance with these measures would result in a more efficient use of construction-related energy and would minimize or

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[4] CalEEMod User's Guide Appendix C (April 2022) states that construction work trips are made by a fleet consisting of 25 percent light-duty auto (or passenger car), 50 percent light-duty truck type 1 (LDT1), and 25 percent light duty truck type 2 (LDT2).

[5] CalEEMod User's Guide Appendix C (April 2022) states that vendor trips are made by a fleet consisting of 50 percent medium trucks (MHDT) and 50 percent heavy trucks (HHDT) and that hauling and onsite truck trips are made by a fleet consisting of 100 percent HHDT.

eliminate wasteful or unnecessary consumption of energy. Idling restrictions and the use of newer engines and equipment would result in less fuel combustion and energy consumption.

Additionally, as required by California Code of Regulations Title 13, Motor Vehicles, section 2449(d)(3) Idling, limits idling times of construction vehicles to no more than five minutes, thereby minimizing or eliminating unnecessary and wasteful consumption of fuel due to unproductive idling of construction equipment. Enforcement of idling limitations is realized through periodic site inspections conducted by City building officials, and/or in response to citizen complaints.

Therefore, as the project's construction is required to comply with CARB regulations and does not include the need of construction processes that would require the use of equipment that is more energy efficient, the proposed project annual construction related fuel consumption would not be considered significant.

Renewable Energy and Energy Efficiency Plan Consistency

Regarding federal transportation regulations, the project site is located in an already developed area and includes minimal operational vehicle trips per day. Access to/from the project site is from existing roads. These roads are already in place so the project would not interfere with, nor otherwise obstruct intermodal transportation plans or projects that may be proposed pursuant to the ISTEA.

Regarding Pavley (AB 1493) regulations, an individual project does not have the ability to comply or conflict with these regulations because they are intended for agencies and their adoption of procedures and protocols for reporting and certifying GHG emission reductions from mobile sources. The vehicles associated with the proposed project would be required to comply with federal and state fuel efficiency standards; however, as stated previously the project requires a minimal number of vehicle trips during operation.

Regarding the State’s Renewable Energy Portfolio Standards, as applicable, the project would be required to meet or exceed the energy standards established in the California Green Building Standards Code, Title 24, Part 11 (CALGreen). CALGreen Standards require that new buildings reduce water consumption, employ building commissioning to increase building system efficiencies, divert construction waste from landfills, and install low pollutant-emitting finish materials. As this is a construction project, only construction waste regulations would apply.

As stated above, the project would be anticipated to be consistent with the measures identified in the City of Ontario CCAP.

Energy Conclusions

As supported by the preceding analyses, project construction would not result in the inefficient, wasteful or unnecessary consumption of energy. The proposed project does not include any unusual project characteristics or construction processes that would require the use of equipment that would be more energy intensive than is used for comparable activities and is a water supply infrastructure project that is not proposing any additional features that would require a larger energy demand than other projects of similar scale and configuration. The energy demands of the project are anticipated to be accommodated within the context of available resources and energy delivery systems. The project would therefore not cause or result in the need for additional energy producing or transmission facilities. The project would not engage in wasteful or inefficient uses of energy and aims to achieve energy conservations goals within the State of California. Notwithstanding, the project proposes a water supply infrastructure project and will not have any long-term effects on an energy provider’s future energy development or future energy conservation strategies.

Table 7
Construction Equipment Fuel Consumption Estimates

Phase[1]	Number of Days	Offroad Equipment Type[2]	Amount	Usage Hours	Horse Power	Load Factor	HP hrs/day	Total Fuel Consumption (gal diesel fuel)[3]
Site Preparation	240	Rubber Tired Dozers	2	8	367	0.40	2,349	30,471
	240	Tractors/Loaders/Backhoes	1	8	84	0.37	249	3,226
	240	Scrapers	2	8	423	0.48	3,249	42,145
	240	Off-Highway Trucks	2	8	376	0.38	2,286	29,657
	240	Plate Compactors	2	8	8	0.43	55	714
	240	Excavators	2	8	36	0.38	219	2,840
	240	Other Material Handling Equipment	2	8	93	0.40	595	7,722
	240	Paving Equipment	2	8	89	0.36	513	6,650
	240	Other Construction Equipment	2	8	82	0.42	551	7,149
	240	Pumps	4	8	11	0.74	260	3,379
	240	Skid Steer Loaders	2	8	71	0.37	420	5,453
	240	Surfacing Equipment	2	8	399	0.30	1,915	24,846
	240	Cranes	2	8	367	0.29	1,703	22,091
CONSTRUCTION FUEL DEMAND (gallons of diesel fuel)								186,342

Notes:

(1) Construction of the proposed project is not anticipated to be phased. Therefore, to provide a conservative scenario, the entirety of the project has been analyzed as occurring in one construction phase with all proposed equipment in operation simultaneously.

(2) Per project applicant, equipment to include: two (2) scrapers, one (1) tractors/ loaders/ backhoes, two (2) off-highway trucks, two (2) plate compactors, two (2) excavators, two (2) other material handling equipment, two (2) paving equipment, two (2) other construction equipment, four (4) pumps, two (2) skid steer loaders, two (2) surfacing equipment, two (2) rubber tiered dozers, and two (2) cranes.

(3) Using Carl Moyer Guidelines Table D-21 Fuel consumption rate factors (bhp-hr/gal) for engines less than 750 hp.
(Source: https://www.arb.ca.gov/msprog/moyer/guidelines/2017gl/2017_gl_appendix_d.pdf)

Table 8
Construction Worker Fuel Consumption Estimates

Phase	Number of Days	Worker Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Site Preparation	240	32	13.4	102,912	26.585	3,871
Total Construction Worker Fuel Consumption						3,871

Notes:

(1) Assumptions for the worker trip length and vehicle miles traveled are consistent with CalEEMod 2022.1.1.29 defaults.

(2) Per CalEEMod User's Guide Appendix C (April 2022), CalEEMod assumes that construction work trips are made by a fleet consisting of 25 percent light-duty auto (or passenger car), 50 percent light-duty truck type 1 (LDT1), and 25 percent light duty truck type 2 (LDT2).

Table 9
Construction Vendor Fuel Consumption Estimates (MHD & HHD Trucks)

Phase	Number of Days	Vendor Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Site Preparation	240	2	8.33	3,998	7.01	570
Total Construction Vendor Fuel Consumption						570

Notes:

(1) Assumptions for the vendor trip length and vehicle miles traveled are consistent with CalEEMod 2022.1.1.29 defaults.

(2) Per CalEEMod User's Guide Appendix C (April 2022), CalEEMod assumes vendor trips are made by a fleet consisting of 50 percent medium trucks (MHDT) and 50 percent heavy trucks (HHDT).

Table 10
Construction Hauling Fuel Consumption Estimates (HHD Trucks)

Phase	Number of Days	Hauling Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Site Preparation	240	2.77	20	13,296	6.15	2,162
Total Construction Hauling Fuel Consumption						2,162

Notes:

(1) Assumptions for the hauling trip length and vehicle miles traveled are consistent with CalEEMod 2022.1.1.29 defaults.

CONCLUSIONS

It has been a pleasure to assist you on this project. Should you have any questions or if we can be of further assistance, please do not hesitate to call at (714) 795-3100.

Respectfully submitted,
GANDDINI GROUP, INC.

Katie Wilson

Katie Wilson, M.S.
Senior Air Quality Analyst

APPENDIX A

GLOSSARY

AQMP	Air Quality Management Plan
BACT	Best Available Control Technologies
CAAQS	California Ambient Air Quality Standards
CalEPA	California Environmental Protection Agency
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCAR	California Climate Action Registry
CEQA	California Environmental Quality Act
CFCs	Chlorofluorocarbons
CH_4	Methane
CNG	Compressed natural gas
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DPM	Diesel particulate matter
EPA	U.S. Environmental Protection Agency
GHG	Greenhouse gas
GWP	Global warming potential
HIDPM	Hazard Index Diesel Particulate Matter
HFCs	Hydrofluorocarbons
IPCC	International Panel on Climate Change
LCFS	Low Carbon Fuel Standard
LST	Localized Significant Thresholds
$MTCO_2e$	Metric tons of carbon dioxide equivalent
$MMTCO_2e$	Million metric tons of carbon dioxide equivalent
MPO	Metropolitan Planning Organization
NAAQS	National Ambient Air Quality Standards
NOx	Nitrogen Oxides
NO_2	Nitrogen dioxide
N_2O	Nitrous oxide
O_3	Ozone
OPR	Governor’s Office of Planning and Research
PFCs	Perfluorocarbons
PM	Particle matter
PM10	Particles that are less than 10 micrometers in diameter
PM2.5	Particles that are less than 2.5 micrometers in diameter
PMI	Point of maximum impact
PPM	Parts per million
PPB	Parts per billion
RTIP	Regional Transportation Improvement Plan
RTP	Regional Transportation Plan
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SF_6	Sulfur hexafluoride
SIP	State Implementation Plan
SOx	Sulfur Oxides
TAC	Toxic air contaminants
VOC	Volatile organic compounds

APPENDIX B

PROJECT CONSTRUCTION CALEEMOD DETAILED REPORT AND EMFAC DATA

19702 UT1072 Downtown Recycled Water Pipeline - CONSTRUCTION ANALYSIS ONLY v2 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	19702 UT1072 Downtown Recycled Water Pipeline - CONSTRUCTION ANALYSIS ONLY v2
Construction Start Date	12/1/2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.80
Precipitation (days)	20.8
Location	34.070791359340106, -117.65101527522793
County	San Bernardino-South Coast
City	Ontario
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5242
EDFZ	10
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

Other Asphalt Surfaces	1.46	Acre	1.46	0.00	0.00	0.00	—	Project includes construction of approximately 20,400 linear feet of recycled water mains; approximately 300 linear feet of lateral connections; and the conversion of approximately 2,000 linear feet of existing potable water mains. Per project description, the temporary areas of disturbance from trenching are anticipated to be approximately 30-inches wide by 72-inches deep for 12-inch diameter pipeline (along approximately 5,300 linear feet); 26-inches wide x 68-inch deep for 8-inch diameter pipeline (along approximately 3,185 linear feet); and 42-inches wide x 84-inch deep for 24-inch pipeline (along approximately 11,130 linear feet); and 2 feet wide by 2 feet deep for laterals (approximately 15-20 feet long) with a total calculated

								disturbance area of approximately 63,400 square feet (~1.46 acres).approximately 30-inches wide by 72-inches deep for 12-inch diameter pipeline (along approximately 5,450 linear feet); 26-inches wide x 68-inch deep for 8-inch diameter pipeline (along approximately 3,000 linear feet); and 42-inches wide x 84-inch deep for 24-inch pipeline (along approximately 15,400 linear feet); and 2 feet wide by 2 feet deep for laterals (approximately 15-20 feet long). As a result, approximately 11.81.46 acres of temporary disturbance is anticipated during Project construction.

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	8.41	7.06	60.5	65.3	0.16	2.43	4.33	6.75	2.23	1.90	4.13	—	17,370	17,370	0.72	0.19	1.61	17,445
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	8.74	7.34	65.3	66.4	0.16	2.64	4.33	6.97	2.43	1.90	4.33	—	17,347	17,347	0.72	0.19	0.05	17,421
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.35	4.49	38.5	41.3	0.10	1.54	2.75	4.29	1.42	1.21	2.63	—	11,033	11,033	0.45	0.12	0.44	11,080
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.98	0.82	7.03	7.54	0.02	0.28	0.50	0.78	0.26	0.22	0.48	—	1,827	1,827	0.07	0.02	0.07	1,834

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	8.41	7.06	60.5	65.3	0.16	2.43	4.33	6.75	2.23	1.90	4.13	—	17,370	17,370	0.72	0.19	1.61	17,445
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	8.74	7.34	65.3	66.4	0.16	2.64	4.33	6.97	2.43	1.90	4.33	—	17,347	17,347	0.72	0.19	0.05	17,421
2026	8.40	7.06	60.5	64.9	0.16	2.43	4.33	6.75	2.23	1.90	4.13	—	17,344	17,344	0.71	0.19	0.04	17,417

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.19	0.16	1.41	1.43	< 0.005	0.06	0.09	0.15	0.05	0.04	0.09	—	374	374	0.02	< 0.005	0.02	375
2026	5.35	4.49	38.5	41.3	0.10	1.54	2.75	4.29	1.42	1.21	2.63	—	11,033	11,033	0.45	0.12	0.44	11,080
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.03	0.03	0.26	0.26	< 0.005	0.01	0.02	0.03	0.01	0.01	0.02	—	61.8	61.8	< 0.005	< 0.005	< 0.005	62.1
2026	0.98	0.82	7.03	7.54	0.02	0.28	0.50	0.78	0.26	0.22	0.48	—	1,827	1,827	0.07	0.02	0.07	1,834

3. Construction Emissions Details

3.1. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	8.50	7.13	64.9	64.7	0.16	2.64	—	2.64	2.43	—	2.43	—	16,804	16,804	0.68	0.14	—	16,862
Dust From Material Movement	—	—	—	—	—	—	3.96	3.96	—	1.81	1.81	—	—	—	—	—	—	—
Architectural Coatings	0.07	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	0.15	1.40	1.39	< 0.005	0.06	—	0.06	0.05	—	0.05	—	362	362	0.01	< 0.005	—	363
Dust From Material Movement	—	—	—	—	—	—	0.09	0.09	—	0.04	0.04	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.25	0.25	< 0.005	0.01	—	0.01	0.01	—	0.01	—	59.9	59.9	< 0.005	< 0.005	—	60.1
Dust From Material Movement	—	—	—	—	—	—	0.02	0.02	—	0.01	0.01	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.14	0.13	0.12	1.45	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	301	301	0.02	0.01	0.03	305
Vendor	0.01	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	50.8	50.8	< 0.005	0.01	< 0.005	53.2
Hauling	0.02	< 0.005	0.24	0.13	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	192	192	0.02	0.03	0.01	202
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.56	6.56	< 0.005	< 0.005	0.01	6.66
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.09	1.09	< 0.005	< 0.005	< 0.005	1.15
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.13	4.13	< 0.005	< 0.005	< 0.005	4.34
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.09	1.09	< 0.005	< 0.005	< 0.005	1.10
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.18	0.18	< 0.005	< 0.005	< 0.005	0.19
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.68	0.68	< 0.005	< 0.005	< 0.005	0.72

3.3. Site Preparation (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	8.17	6.86	60.2	63.4	0.16	2.42	—	2.42	2.23	—	2.23	—	16,811	16,811	0.68	0.14	—	16,869
Dust From Material Movement	—	—	—	—	—	—	3.96	3.96	—	1.81	1.81	—	—	—	—	—	—	—
Architectural Coatings	0.07	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	8.17	6.86	60.2	63.4	0.16	2.42	—	2.42	2.23	—	2.23	—	16,811	16,811	0.68	0.14	—	16,869
Dust From Material Movement	—	—	—	—	—	—	3.96	3.96	—	1.81	1.81	—	—	—	—	—	—	—
Architectural Coatings	0.07	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.20	4.36	38.3	40.3	0.10	1.54	—	1.54	1.42	—	1.42	—	10,692	10,692	0.43	0.09	—	10,729
Dust From Material Movement	—	—	—	—	—	—	2.52	2.52	—	1.15	1.15	—	—	—	—	—	—	—
Architectural Coatings	0.04	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.95	0.80	6.98	7.36	0.02	0.28	—	0.28	0.26	—	0.26	—	1,770	1,770	0.07	0.01	—	1,776
Dust From Material Movement	—	—	—	—	—	—	0.46	0.46	—	0.21	0.21	—	—	—	—	—	—	—
Architectural Coatings	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.13	0.10	1.73	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	321	321	0.02	0.01	1.09	326
Vendor	0.01	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	49.9	49.9	< 0.005	0.01	0.13	52.5
Hauling	0.02	< 0.005	0.22	0.13	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	188	188	0.02	0.03	0.38	198
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.12	0.11	1.34	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	295	295	0.01	0.01	0.03	298
Vendor	0.01	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	50.0	50.0	< 0.005	0.01	< 0.005	52.4
Hauling	0.02	< 0.005	0.23	0.13	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	188	188	0.02	0.03	0.01	198
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.07	0.89	0.00	0.00	0.19	0.19	0.00	0.04	0.04	—	190	190	< 0.005	0.01	0.30	193
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	31.8	31.8	< 0.005	< 0.005	0.04	33.3
Hauling	0.01	< 0.005	0.15	0.08	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	120	120	0.01	0.02	0.11	126
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.01	0.01	0.16	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	31.4	31.4	< 0.005	< 0.005	0.05	31.9
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.26	5.26	< 0.005	< 0.005	0.01	5.52

Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	19.8	19.8	< 0.005	< 0.005	0.02	20.8

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	12/21/2025	11/21/2026	5.00	240	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Site Preparation	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Site Preparation	Off-Highway Trucks	Diesel	Average	2.00	8.00	376	0.38
Site Preparation	Plate Compactors	Diesel	Average	2.00	8.00	8.00	0.43
Site Preparation	Excavators	Diesel	Average	2.00	8.00	36.0	0.38

Site Preparation	Other Material Handling Equipment	Diesel	Average	2.00	8.00	93.0	0.40
Site Preparation	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Site Preparation	Other Construction Equipment	Diesel	Average	2.00	8.00	82.0	0.42
Site Preparation	Pumps	Diesel	Average	4.00	8.00	11.0	0.74
Site Preparation	Skid Steer Loaders	Diesel	Average	2.00	8.00	71.0	0.37
Site Preparation	Surfacing Equipment	Diesel	Average	2.00	8.00	399	0.30
Site Preparation	Cranes	Diesel	Average	2.00	8.00	367	0.29

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	32.0	13.4	LDA,LDT1,LDT2
Site Preparation	Vendor	2.00	8.33	HHDT,MHDT
Site Preparation	Hauling	2.77	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Site Preparation	0.00	0.00	0.00	0.00	3,553

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	3,910	5,320	720	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Asphalt Surfaces	1.46	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	532	0.03	< 0.005
2026	0.00	532	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	19.6	annual days of extreme heat
Extreme Precipitation	6.05	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A

Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	84.6
AQ-PM	97.3
AQ-DPM	97.5
Drinking Water	93.3
Lead Risk Housing	73.0
Pesticides	1.66
Toxic Releases	62.1
Traffic	34.7
Effect Indicators	—
CleanUp Sites	69.8
Groundwater	59.6
Haz Waste Facilities/Generators	94.1
Impaired Water Bodies	0.00
Solid Waste	91.0

Sensitive Population	—
Asthma	59.0
Cardio-vascular	72.0
Low Birth Weights	43.2
Socioeconomic Factor Indicators	—
Education	79.6
Housing	87.2
Linguistic	70.9
Poverty	90.5
Unemployment	3.21

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	30.82253304
Employed	25.70255357
Median HI	3.990760939
Education	—
Bachelor's or higher	36.23764917
High school enrollment	100
Preschool enrollment	64.31412806
Transportation	—
Auto Access	8.494803028
Active commuting	13.85859104
Social	—
2-parent households	45.13024509
Voting	31.9645836

Neighborhood	—
Alcohol availability	13.5249583
Park access	81.35506224
Retail density	86.15424099
Supermarket access	88.28435776
Tree canopy	58.14192224
Housing	—
Homeownership	3.849608623
Housing habitability	26.02335429
Low-inc homeowner severe housing cost burden	58.46272296
Low-inc renter severe housing cost burden	22.2764019
Uncrowded housing	40.97266778
Health Outcomes	—
Insured adults	6.685486975
Arthritis	41.4
Asthma ER Admissions	36.3
High Blood Pressure	56.0
Cancer (excluding skin)	55.0
Asthma	19.7
Coronary Heart Disease	43.7
Chronic Obstructive Pulmonary Disease	29.1
Diagnosed Diabetes	36.9
Life Expectancy at Birth	18.9
Cognitively Disabled	64.4
Physically Disabled	5.0
Heart Attack ER Admissions	25.3
Mental Health Not Good	27.8
Chronic Kidney Disease	35.4

Obesity	33.9
Pedestrian Injuries	90.6
Physical Health Not Good	30.9
Stroke	34.3
Health Risk Behaviors	—
Binge Drinking	41.7
Current Smoker	29.7
No Leisure Time for Physical Activity	36.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	10.6
Elderly	30.4
English Speaking	14.1
Foreign-born	61.3
Outdoor Workers	85.0
Climate Change Adaptive Capacity	—
Impervious Surface Cover	50.9
Traffic Density	31.4
Traffic Access	87.4
Other Indices	—
Hardship	78.4
Other Decision Support	—
2016 Voting	42.5

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	90.0

Healthy Places Index Score for Project Location (b)	17.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Construction anticipated to begin Winter 2025 and be completed by Winter 2026, taking ~11 months to complete. Therefore, assumed a start date of late December 2025 ending late November 2026. As stated in Project Description, project is not anticipated to be phased & contractor will lay ~60 to 80 linear feet of pipeline per day.
Construction: Off-Road Equipment	Per project description equipment to include: two (2) scrapers, one (1) tractors/ loaders/ backhoes, two (2) off-highway trucks, two (2) plate compactors, two (2) excavators, two (2) other material handling equipment, two (2) paving equipment, two (2) other construction equipment, four (4) pumps, two (2) skid steer loaders, two (2) surfacing equipment, two (2) rubber tired dozers, and two (2) cranes. Project to include ~143,646 cubic feet export (~5,320 CY) and ~105,565 cubic feet export (~3,910 CY) import.
Construction: Trips and VMT	Per Project Description, up to 16 construction workers working per day, which results in ~32 one-way trips per day. To be conservative, 2 vendor trips added to account for water trucks.
Construction: Architectural Coatings	Traffic coating would occur in roadway where pipeline is being installed. Per the project description, the pipeline includes 5,300 LF x 2.5 ft wide, 3,185 LF x 2.2 ft wide, 11,130 LF x 3.5 ft wide for a total of ~59,212 sf in roadway ROW. Per CalEEMod User's Guide (2022) Appendix C Section 4.8, CalEEMod assumes ~6% of parking lot areas will be coated. Therefore, ~3,553 sf assumed for potential coating for roadway areas.

Source: EMFAC2021 (v1.0.1) Emissions Inventory
Region Type: Air Basin
Region: South Coast
Calendar Year: 2024
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Trips	Energy Consumption	Fuel Consumption	Fuel Consumption	Total Fuel Consumption	Total VMT	Total VMT	Miles Per Gallon	Vehicle Class
South Coast	2024	HHDT	Aggregate	Aggregate	Gasoline	64.44258918	1289.367324	0	1.014953313	1014.953313	2024777.341	4089.563798	12241163.02	**6.05**	**HHDT**
South Coast	2024	HHDT	Aggregate	Aggregate	Diesel	92441.35478	1412165.896	0	1913.394963	1913394.963		11547992.76			
South Coast	2024	HHDT	Aggregate	Aggregate	Electricity	291.6455699	3957.931048	53675.68637	0	0		29968.60823			
South Coast	2024	HHDT	Aggregate	Aggregate	Natural Gas	10239.41118	65591.6649	0	110.3674239	110367.4239		659112.0885			
South Coast	2024	LDA	Aggregate	Aggregate	Gasoline	5306414.643	24694249.92	0	7344.088111	7344088.111	7477826.02	213709568	234427100.1	**31.35**	**LDA**
South Coast	2024	LDA	Aggregate	Aggregate	Diesel	14576.24539	60769.87324	0	10.8801639	10880.1639		447477.6987			
South Coast	2024	LDA	Aggregate	Aggregate	Electricity	278128.8376	1389682.584	5111363.117	0	0		13239042.59			
South Coast	2024	LDA	Aggregate	Aggregate	Plug-in Hybrid	148523.7719	614145.7966	1077276.451	122.8577446	122857.7446		7031011.891			
South Coast	2024	LDT1	Aggregate	Aggregate	Gasoline	490973.66	2160511.155	0	732.0519082	732051.9082	732790.8073	17788975.08	17880208.77	**24.40**	**LDT1**
South Coast	2024	LDT1	Aggregate	Aggregate	Diesel	178.9755587	511.7069897	0	0.143610092	143.6100917		3350.970633			
South Coast	2024	LDT1	Aggregate	Aggregate	Electricity	1222.38175	5792.038269	19502.00434	0	0		50512.52673			
South Coast	2024	LDT1	Aggregate	Aggregate	Plug-in Hybrid	719.1459798	2973.668627	6252.19918	0.595288961	595.288961		37370.18633			
South Coast	2024	LDT2	Aggregate	Aggregate	Gasoline	2478766.891	11657788.42	0	4349.789244	4349789.244	4378677.328	102696789.3	104694804	**23.91**	**LDT2**
South Coast	2024	LDT2	Aggregate	Aggregate	Diesel	8144.015434	39238.54602	0	11.30594953	11305.94953		354089.2658			
South Coast	2024	LDT2	Aggregate	Aggregate	Electricity	16093.72479	82313.84321	227422.9885	0	0		589052.7755			
South Coast	2024	LDT2	Aggregate	Aggregate	Plug-in Hybrid	21096.29549	87233.18184	170348.4264	17.58213479	17582.13479		1054872.659			
South Coast	2024	LHDT1	Aggregate	Aggregate	Gasoline	200171.2476	2982253.334	0	578.7247685	578724.7685	792458.1109	7891021.12	12336952.39	**15.57**	**LHDT1**
South Coast	2024	LHDT1	Aggregate	Aggregate	Diesel	103884.7559	1306739.542	0	213.7333424	213733.3424		4387648.579			
South Coast	2024	LHDT1	Aggregate	Aggregate	Electricity	772.5188678	10791.59936	32624.15974	0	0		58282.68619			
South Coast	2024	LHDT2	Aggregate	Aggregate	Gasoline	31062.46526	462784.4493	0	96.72139231	96721.39231	208303.4828	1155378.828	3095264.249	**14.86**	**LHDT2**
South Coast	2024	LHDT2	Aggregate	Aggregate	Diesel	45926.82058	577701.627	0	111.5820905	111582.0905		1925592.444			
South Coast	2024	LHDT2	Aggregate	Aggregate	Electricity	199.9520404	2646.759351	8006.869611	0	0		14292.97674			
South Coast	2024	MCY	Aggregate	Aggregate	Gasoline	242059.9929	484119.9858	0	37.44895514	37448.95514	37448.95514	1554780.429	1554780.429	**41.52**	**MCY**
South Coast	2024	MDV	Aggregate	Aggregate	Gasoline	1571312.1	7270009.961	0	3162.700535	3162700.535	3206338.183	60817091.34	62832018.9	**19.60**	**MDV**
South Coast	2024	MDV	Aggregate	Aggregate	Diesel	19826.89781	93051.64962	0	33.54860069	33548.60069		786624.2122			
South Coast	2024	MDV	Aggregate	Aggregate	Electricity	17569.44798	89870.84023	248334.7848	0	0		643216.8322			
South Coast	2024	MDV	Aggregate	Aggregate	Plug-in Hybrid	12690.57185	52475.51459	92596.30611	10.08904803	10089.04803		585086.5214			
South Coast	2024	MH	Aggregate	Aggregate	Gasoline	29244.94397	2925.664195	0	57.51222476	57512.22476	68984.14797	279544.6577	395398.9997	**5.73**	**MH**
South Coast	2024	MH	Aggregate	Aggregate	Diesel	11703.55798	1170.355798	0	11.47192321	11471.92321		115854.342			
South Coast	2024	MHDT	Aggregate	Aggregate	Gasoline	24845.17438	497102.249	0	256.9342026	256934.2026	812250.5213	1326417.556	6295601.951	**7.75**	**MHDT**
South Coast	2024	MHDT	Aggregate	Aggregate	Diesel	114693.757	1409921.86	0	546.7152883	546715.2883		4878223.739			
South Coast	2024	MHDT	Aggregate	Aggregate	Electricity	355.3876422	4781.870526	20310.12518	0	0		19393.49808			
South Coast	2024	MHDT	Aggregate	Aggregate	Natural Gas	1491.278079	13281.28453	0	8.601030453	8601.030453		71567.15805			
South Coast	2024	OBUS	Aggregate	Aggregate	Gasoline	5296.379398	105969.959	0	41.44060197	41440.60197	78066.51924	209991.62	473651.4166	**6.07**	**OBUS**
South Coast	2024	OBUS	Aggregate	Aggregate	Diesel	2997.3176	37996.11149	0	33.30106375	33301.06375		233646.4445			
South Coast	2024	OBUS	Aggregate	Aggregate	Electricity	11.86106715	237.3162316	941.3362619	0	0		895.192351			
South Coast	2024	OBUS	Aggregate	Aggregate	Natural Gas	480.7769521	4278.914873	0	3.324853528	3324.853528		29118.15975			
South Coast	2024	SBUS	Aggregate	Aggregate	Gasoline	2763.091965	11052.36786	0	13.6568139	13656.8139	40972.05843	121721.653	266076.6289	**6.49**	**SBUS**
South Coast	2024	SBUS	Aggregate	Aggregate	Diesel	3283.370627	47543.20668	0	9.104107226	9104.107226		66807.29386			
South Coast	2024	SBUS	Aggregate	Aggregate	Electricity	21.89425828	248.8609268	740.8107178	0	0		640.6727128			
South Coast	2024	SBUS	Aggregate	Aggregate	Natural Gas	3093.465789	44793.38463	0	18.21113731	18211.13731		76907.00926			
South Coast	2024	UBUS	Aggregate	Aggregate	Gasoline	894.3284655	3577.313862	0	13.89822542	13898.22542	201736.9577	96953.45183	696232.1909	**3.45**	**UBUS**
South Coast	2024	UBUS	Aggregate	Aggregate	Diesel	14.32857314	57.31429256	0	0.259550733	259.5507326		1721.679298			
South Coast	2024	UBUS	Aggregate	Aggregate	Electricity	109.3235246	437.2940985	19519.17282	0	0		9364.629999			
South Coast	2024	UBUS	Aggregate	Aggregate	Natural Gas	4918.59249	19674.36996	0	187.5791815	187579.1815		588192.4297			

APPENDIX B

Biological Resources Assessment

ELMT Consulting, March 18, 2024

ELMT CONSULTING

March 18, 2024

ARDURRA
Contact: *Lori Trottier*
3737 Birch Street
Newport Beach, California 92660

SUBJECT: **Biological Resources Assessment for the Proposed UT1072 Euclid Recycled Water Pipeline Project in the City of Ontario, San Bernardino County, California**

Introduction

This report contains the findings of ELMT Consulting's (ELMT) biological resources assessment for the proposed UT1072 Euclid Recycled Water Pipeline project in the City of Ontario, San Bernardino County, California. The assessment was conducted by biologist Rachael A. Lyons on January 19 and February 1, 2024, to document baseline conditions and assess the potential for special-status[1] plant and wildlife species to occur within the project site that could pose a constraint to implementation of the proposed project. Special attention was given to the suitability of the project site to support special-status plant and wildlife species identified by the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB), and other electronic databases as potentially occurring in the general vicinity of the project site.

Project Location

The project site is generally located south of Interstate 10, west of Interstate 15, north of State Route 91, and east of State Route 71 in the City of Ontario, San Bernardino County, California. The site is depicted on the Ontario and Guasti quadrangles of the United States Geological Survey's (USGS) 7.5-minute map series within Section 19 of Township 1 South, Range 7 West; Section 00 of Township 2 South, Range 7 West; and Section 3 of Township 2 South, Range 7 West. The proposed project is broken up into 2 areas, Northern and Southern. These areas are further described below:

Northern Area

- **Segment 1**: Euclid Avenue between E Holt Blvd to 4th Street (~5,450 linear feet);
- **Segment 2**: F Street between the east side of Euclid Avenue to Vine Street (~2,000 linear feet), Vine Street between F Street and Flora Street (~400 linear feet), Flora Street between Vine Street and northwestern corner of James Bryant Park (~400 linear feet);
- **Segment 3**: C Street between Euclid Avenue and west of Lemon Street (~500 linear feet);

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[1] As used in this report, "special-status" refers to plant and wildlife species that are federally and State listed, proposed, or candidates; plant species that have been designated with a California Native Plant Society Rare Plant Rank; wildlife species that are designated by the CDFW as fully protected, species of special concern, or watch list species; and specially protected natural vegetation communities as designated by the CDFW.

Southern Area

- **Segment 4**: Riverside Drive between Euclid Avenue and Cucamonga Creek (~16,000 linear feet).

Refer to Exhibits 1-3 in Attachment A.

Project Description

The Proposed Project will construct approximately 24,630 linear feet of City-owned and operated recycled water mains from connections at nearby Inland Empire Utilities Agency (IEUA) recycled water mains. The Project is proposed within public rights-of-way for Euclid Avenue; F Street; Vine Street; Flora Street; C Street; and Riverside Drive. These street segments are collectively referred to as the "Project Alignment". The Project has distinct northern and southern portions. The Northern Portion of the Project is located within the City of Ontario's downtown district along Euclid Avenue and includes portions of F Street, Vine Street, C Street and Flora Street. The northern portion of the Project will be connected to an existing IEUA 30-inch recycled water main at 4th street and Euclid Avenue which serves as a mixed-used transportation corridor and CALTRANS Right-of-way. The Northern Portion of the Project includes F Street, Vine Street, and Flora Street, which are two- lane collector streets; and C Street, a local roadway. The Northern Portion is surrounded by residential, mixed-use, and public facilities. The Southern Portion of the Project (near Old Model Colony) consists of Riverside Drive, a 6-lane minor arterial and is surrounded by residential, commercial, and open spaces, reference *Table 2: Surrounding Adjacent Land Uses at Pipeline Segments*. Project components are summarized as follows:

Table 1: Project Components

Segment No.	Proposed Structure	Public ROW + Direction of Pipeline Construction	Pipe Size & Length	Lat/Long; Elevation	Area of Temporary Disturbance
1	New Recycled Water Main	**Public ROW**: Euclid Avenue (CALTRANS ROW; mixed-use corridor) **Direction**: North from Holt Blvd to 4th Street; connection existing 30" IEUA pipeline at 4th Street	**Size**: 12" diameter **Length**: ~ 5,450 linear feet	Beginning of Proposed Segment: Longitude 34.063327/ Latitude -117.65095; ~1,000 ft AMSL End of Proposed Segment: Longitude 34.077882/ Latitude -117.651218; ~990 ft AMSL	**Open Trenching:** 30-inches wide x 72-inches deep for ~5,450 linear feet **Construction Area:** Full width 24-feet
	Recycled Water Lateral	**Public ROW**: Euclid Avenue (CALTRANS ROW; mixed-use corridor) center median between G Street and C Street	Existing irrigation system **Size**: 4" diameter	Longitude 34.065176/ Latitude -117.65046; ~1,023 ft AMSL	**Trenching:** 2 ft wide x 4 ft deep
		Public ROW: Euclid Avenue (CALTRANS ROW; mixed-use corridor) center median between C Street and Holt Boulevard	Existing irrigation system **Size**: 4" diameter	Longitude 34.068881/ Latitude -117.650951; ~1,020 ft AMSL	**Trenching:** 2 ft wide x 4 ft deep
2	New Recycled Water Main	**Public ROW**: F Street (Collector Street) **Direction**: West from Euclid Avenue to Vine Street	**Size:** 8" diameter **Length**: ~2,000 linear feet	Beginning of Proposed Segment: Longitude 34.069430/ Latitude -117.650860; ~1,010 ft AMSL **End of Proposed Segment**: Longitude 34.068799/	**Open Trenching:** 26-inches wide x 68-inch deep for ~2,800 feet **Construction Area:** Full width 24-feet
	New Recycled Water Main	**Public ROW**: Vine Street (Collector Street) **Direction**: South from F Street to Flora Street	**Size:** 8" diameter **Length**: ~400 linear feet		

Segment No.	Proposed Structure	Public ROW + Direction of Pipeline Construction	Pipe Size & Length	Lat/Long; Elevation	Area of Temporary Disturbance
	New Recycled Water Main	**Public ROW**: Flora Street (Collector Street) **Direction**: East from Vine Street to James Bryant Park	**Size:** 8" diameter **Length**: ~400 linear feet	Latitude -117.660188; 1,023 ft AMSL	
	Recycled Water Lateral	James Bryant Park	**Pipe Size:** Existing irrigation system **Length**: NA	Longitude 34.068610/ Latitude -117.660107; ~1,023 ft AMSL	**Trenching:** 2 ft wide x 4 ft deep
3	New Recycled Water Main	**Public ROW**: C Street **Direction**: East from Euclid Avenue and west of Lemon Street	**Size**: 8' diameter **Length**: ~500 linear feet	**Beginning of Proposed Segment**: Longitude 34.069430/ Latitude -117.650860	**Open Trenching:** 26-inches wide x 68-inch deep for ~500 feet **Construction Area:** Full width 24-feet
	Recycled Water Lateral	City Civic Center buildings and Town Square Park	Existing irrigation system **Size:** 4" diameter	Longitude 34.065822/ Latitude -117.649520; 990 ft AMSL	**Trenching:** 2 ft wide x 4 ft deep
	Convert existing 8-inch potable water pipeline to recycled water	Civic Center area along B Street and Lemon Street	**Size**: 8" diameter **Length**:	Longitude 34.065822/ Latitude -117.649520; 990 ft AMSL	**Trenching:** 2 ft wide x 4 ft deep
4	New Recycled Water Main	**Public ROW**: Riverside Drive (6-lane Minor Arterial) Direction: West from Cucamonga Creek (channel) to Euclid Avenue	**Size:** 24" diameter **Length:** ~16,000 linear feet	Beginning of Proposed Segment: Longitude 34.019221/ Latitude -117.599588; 1,000 ft AMSL **End of Proposed Segment**: Longitude 34.019379/ Latitude -117.650869; ~774 ft AMSL	**Open Trenching:** 42-inches wide x 84-inch deep for ~16,000 feet **Construction Area:** Full width 24-feet
	Recycled Water Lateral	Euclid Avenue center median between SR-60 and Riverside Avenue	Existing irrigation system **Size**: 4" diameter	Longitude 34.019353/ Latitude -117.650736	**Trenching:** 2 ft wide x 4 ft deep

Notes: 1) LF= Linear Feet
2) Average dimensions of trenching are 6-feet wide by 8-feet deep.
3) AMSL= Above Mean Sea Level

Construction activities include the construction of approximately 24,630 linear feet of new recycled water pipeline and transmission mains. The entire alignment will be buried underground using open trench construction and potholing prior to Project construction to avoid direct impacts to existing utilities and structures. Temporary areas of disturbance from trenching are anticipated to be approximately 30-inches wide x 72-inches deep for 12-inch diameter pipeline (along approximately 5,450 linear feet); 26-inches wide x 68-inch deep for 8-inch diameter pipeline (along approximately 3,300 linear feet); and 42-inches wide x 84-inch deep for 24-inch pipeline (along approximately 16,000 linear feet). As a result, approximately 11.8 acres of temporary disturbance is anticipated during Project construction. Refer to Attachment B, *Site Plan*.

Methodology

A literature review and records search were conducted to determine which special-status biological resources have the potential to occur on or within the general vicinity of the project site. In addition to the literature review, a general habitat assessment or field investigation of the project site was conducted to document existing conditions and assess the potential for special-status biological resources to occur within the project site.

Literature Review

Prior to conducting the field investigation, a literature review and records search was conducted for special-status biological resources potentially occurring on or within the vicinity of the project site. Previously recorded occurrences of special-status plant and wildlife species and their proximity to the project site were determined through a query of the CDFW's QuickView Tool in the Biogeographic Information and Observation System (BIOS), CNDDB Rarefind 5, the California Native Plant Society's (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants of California, Calflora Database, compendia of special-status species published by CDFW, and the United States Fish and Wildlife Service (USFWS) species listings.

All available reports, survey results, and literature detailing the biological resources previously observed on or within the vicinity of the project site was reviewed to understand existing site conditions and note the extent of any disturbances that have occurred within the project site that would otherwise limit the distribution of special-status biological resources. Standard field guides and texts were reviewed for specific habitat requirements of special-status and non-special-status biological resources, as well as the following resources:

- Google Earth Pro historic aerial imagery (1985-2023);
- United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS), Soil Survey[2];
- USFWS Critical Habitat designations for Threatened and Endangered Species; and
- USFWS Endangered Species Profiles.

The literature review provided a baseline from which to inventory the biological resources potentially occurring within the project site. The CNDDB database was used, in conjunction with ArcGIS software, to locate the nearest recorded occurrences of special-status species and determine the distance from the project site.

Field Investigation

Following the literature review, biologist Rachael A. Lyons inventoried and evaluated the condition of the habitat within the project on January 19 and February 1, 2024. Plant communities and land cover types identified on aerial photographs during the literature review were verified by walking meandering transects throughout the project site. In addition, aerial photography was reviewed prior to the site investigation to locate potential natural corridors and linkages that may support the movement of wildlife through the area. These areas identified on aerial photography were then walked during the field investigation.

Soil Series Assessment

On-site and adjoining soils were researched prior to the field investigation using the USDA NRCS Soil

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[2] A soil series is defined as a group of soils with similar profiles developed from similar parent materials under comparable climatic and vegetation conditions. These profiles include major horizons with similar thickness, arrangement, and other important characteristics, which may promote favorable conditions for certain biological resources.

Survey for San Bernardino County, California. In addition, a review of the local geological conditions and historical aerial photographs was conducted to assess the ecological changes that the project site has undergone.

Plant Communities

Plant communities were mapped using 7.5-minute USGS topographic base maps and aerial photography. The plant communities were classified in accordance with Sawyer, Keeler-Wolf and Evens (2009), delineated on an aerial photograph, and then digitized into GIS Arcview. The Arcview application was used to compute the area of each plant community and/or land cover type in acres.

Plants

Common plant species observed during the field investigation were identified by visual characteristics and morphology in the field and recorded in a field notebook. Unusual and less-familiar plants were photographed in the field and identified in the laboratory using taxonomic guides. Taxonomic nomenclature used in this study follows the 2012 Jepson Manual (Hickman 2012). In this report, scientific names are provided immediately following common names of plant species (first reference only).

Wildlife

Wildlife species detected during the field investigation by sight, calls, tracks, scat, or other sign were recorded during surveys in a field notebook. Field guides used to assist with identification of wildlife species during the survey included The Sibley Field Guide to the Birds of Western North America (Sibley 2003), A Field Guide to Western Reptiles and Amphibians (Stebbins 2003), and A Field Guide to Mammals of North America (Reid 2006). Although common names of wildlife species are well standardized, scientific names are provided immediately following common names in this report (first reference only).

Jurisdictional Drainages and Wetlands

Aerial photography was reviewed prior to conducting a field investigation in order to locate and inspect any potential natural drainage features, ponded areas, or water bodies that may fall under the jurisdiction of the United States Army Corps of Engineers (Corps), Regional Water Quality Control Board (Regional Board), or CDFW. In general, surface drainage features indicated as blue-line streams on USGS maps that are observed or expected to exhibit evidence of flow are considered potential riparian/riverine habitat and are also subject to state and federal regulatory jurisdiction. In addition, ELMT reviewed jurisdictional waters information through examining historical aerial photographs to gain an understanding of the impact of land-use on natural drainage patterns in the area. The USFWS National Wetland Inventory (NWI) and Environmental Protection Agency (EPA) Water Program "My Waters" data layers were also reviewed to determine whether any hydrologic features and wetland areas have been documented on or within the vicinity of the project site.

Existing Site Conditions

The project site is entirely developed and void of any natural plant communities. Vegetation present within the project site is restricted to ornamental plant species installed within the center median of Euclid Avenue and the road verges of all side streets associated with the proposed project. Land in the vicinity of the site has historically been used for agricultural, commercial, and residential development. Disturbances present within the boundaries of the project site include onsite and surrounding development, heavy vehicular traffic, and illegal dumping.

Topography and Soils

On-site elevation ranges from approximately 771 to 1,094 feet above mean sea level and generally slopes from north to south. On-site topography relatively flat due to grading and paving which occurs throughout the entirety of the project site. Soils on-site have been mechanically disturbed and heavily compacted from decades of anthropogenic disturbance (i.e., grading, paving, and onsite and surrounding development). No undisturbed soils occur onsite.

Vegetation

Due to historic and existing land uses, no native plant communities or natural communities of special concern were observed on or adjacent to the project site. The site supports one (1) land-cover type that would be classified developed (refer to Exhibit 3, *Vegetation*, in Attachment A). The majority of the site supports developed land that has been subjected to high levels of anthropogenic disturbance from historic and ongoing on-site land uses. Refer to Attachment C, *Site Photographs*, for representative site photographs. No native plant communities will be impacted from implementation of the proposed project.

Developed land within the project site includes paved roadways and walkways, and ornamental green strips associated with center medians and verges. Plant species observed within the developed areas of the project site include Peruvian pepper (*Schinus molle*), rose (*Rosa* spp.), lantana (*Lantana* sp.), southern magnolia (*Magnolia grandiflora*), London plane tree (*Planatus acerifolia*), and jacaranda (*Jacaranda mimosifolia*).

Additionally, certain areas of the project occur adjacent to active and fallow agricultural fields. These areas are disturbed, but provide marginal habitat for primary successional, weedy, and invasive plant species. Plant species observed in the disturbed areas include curly dock (*Rumex crispus*), ripgut brome (*Bromus diandrus*), horseweed (*Erigeron canadensis*), telegraph weed (*Heterotheca grandiflora*), prairie sunflower (*Helianthus petiolaris*), and pigweed (*Amaranthus* sp.).

Wildlife

Plant communities provide foraging habitat, nesting/denning sites, and shelter from adverse weather or predation. This section provides a discussion of those wildlife species that were observed or are expected to occur within the project site. The discussion is to be used a general reference and is limited by the season, time of day, and weather conditions in which the field investigation was conducted. Wildlife detections were based on calls, songs, scat, tracks, burrows, and direct observation. The project site provides limited habitat for wildlife species except those adapted to a high degree of anthropogenic disturbances and development.

Fish

No fish or hydrogeomorphic features (e.g., creeks, ponds, lakes, reservoirs) with frequent sources of water that would support populations of fish were observed on or within the vicinity of the project site. Therefore, no fish are expected to occur and are presumed absent from the project site.

Amphibians

No amphibians or hydrogeomorphic features (e.g., creeks, ponds, lakes, reservoirs) with frequent sources of water that would support populations of amphibians were observed on or within the vicinity of the project site. Therefore, no amphibians are expected to occur and are presumed absent from the project site.

Reptiles

The project site provides minimal foraging and cover habitat for reptile species adapted to a high degree of anthropogenic disturbance. The only reptile species observed during the field investigation was western fence lizard (*Sceloporus occidentalis*). Common reptilian species adapted to a high degree of human disturbance that could potentially occur on-site include and great basin fence lizard (*Sceloporus occidentalis longipes*) and San Diego alligator lizard (*Elgaria multicarinata webbii*).

Birds

The project site and surrounding urban environment provide suitable foraging and nesting habitat for avian species adapted to a high degree of anthropogenic disturbance. Avian species observed during the field investigation include rock pigeon (*Columba liva*), house finch (*Haemorhous mexicanus*), mourning dove (*Zenaida macroura*), house sparrow (*Passer domesticus*), and American crow (*Corvus brachyrhynchos*).

Mammals

The southern boundary of the project site and adjacent areas provides limited foraging and cover habitat for a mammalian species adapted to a high degree of anthropogenic disturbance. No mammalian species were observed onsite during the field investigation Common mammalian species adapted to a high degree of human disturbance that could potentially occur on-site include opossum (*Didelphis virginiana*), coyote (*Canis latrans*), and fox squirrel (*Sciurus niger*).

Nesting Birds

No active nests or birds displaying nesting behavior were observed during the field survey, which was conducted during the breeding season. Although subjected to routine disturbance, vegetation along the southern boundary and ornamental vegetation surrounding the site has the potential to provide suitable nesting habitat for year-round and seasonal avian residents, as well as migrating songbirds that could occur in the area that area adapted to urban environments. No raptors are expected to nest on-site due to lack of suitable nesting opportunities.

Nesting birds are protected pursuant to the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code (Sections 3503, 3503.5, 3511, and 3513 prohibit the take, possession, or destruction of birds, their nests or eggs). If construction occurs between February 1st and August 31st, a pre-construction clearance survey for nesting birds should be conducted within three (3) days of the start of any vegetation removal or ground disturbing activities to ensure that no nesting birds will be disturbed during construction.

Migratory Corridors and Linkages

Habitat linkages provide connections between larger habitat areas that are separated by development. Wildlife corridors are similar to linkages but provide specific opportunities for animals to disperse or migrate between areas. A corridor can be defined as a linear landscape feature of sufficient width to allow animal movement between two comparatively undisturbed habitat fragments. Adequate cover is essential for a corridor to function as a wildlife movement area. It is possible for a habitat corridor to be adequate for one species yet still inadequate for others. Wildlife corridors are features that allow for the dispersal, seasonal migration, breeding, and foraging of a variety of wildlife species. Additionally, open space can provide a buffer against both human disturbance and natural fluctuations in resources.

According to the San Bernardino County General Plan, the project site has not been identified as occurring within a Wildlife Corridor or Linkage. As designated by the San Bernardino County General Plan Open Space Element, the nearest major corridor or linkage documented in the vicinity of the project lies approximately 4.51 miles to the southwest in association with Chino Hills State Park.

The proposed project will be confined to existing areas that have been heavily disturbed and are isolated from regional wildlife corridors and linkages. In addition, there are no riparian corridors, creeks, or useful patches of steppingstone habitat (natural areas) within or connecting the site to a recognized wildlife corridor or linkage. As such, implementation of the proposed project is not expected to impact wildlife movement opportunities. Therefore, impacts to wildlife corridors or linkages are not expected to occur.

Jurisdictional Areas

There are three key agencies that regulate activities within inland streams, wetlands, and riparian areas in California. The Corps Regulatory Branch regulates discharge of dredge or fill materials into "waters of the United States" pursuant to Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. Of the State agencies, the CDFW regulates alterations to streambed and bank under Fish and Wildlife Code Sections 1600 et seq., and the Regional Board regulates discharges into surface waters pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act.

The project site does not support any discernible drainage courses, inundated areas, wetland features, or hydric soils that would be considered jurisdictional by the Corps, Regional Board, or CDFW. A query of the NWI database found no potential blueline streams, riverine, or other aquatic resources within the project site. Therefore, project activities will not result in impacts to Corps, Regional Board, or CDFW jurisdictional areas and regulatory approvals will not be required. The proposed project will be limited to developed and disturbed road right-of-way.

Special-Status Biological Resources

The CNDDB Rarefind 5 and the CNPS Electronic Inventory of Rare and Endangered Vascular Plants of California were queried for reported locations of special-status plant and wildlife species as well as special-status natural plant communities within the Ontario and Guasti USGS 7.5-minute quadrangles. The habitat assessment evaluated the conditions of the habitat(s) within the boundaries of the project site to determine if the existing plant communities, at the time of the survey, have the potential to provide suitable habitat(s) for special-status plant and wildlife species.

The literature search identified twenty (20) special-status plant species, fifty-seven (57) special-status wildlife species, and one (1) special-status plant communities as having potential to occur within the San Bernardino South USGS 7.5-minute quadrangle. Special-status plant and wildlife species were evaluated for their potential to occur within the project site based on habitat requirements, availability, and quality of suitable habitat, and known distributions. Species determined to have the potential to occur within the general vicinity of the project site is presented in Attachment D*: Potentially Occurring Special-Status Biological Resources*.

Special-Status Plants

According to the CNDDB and CNPS, twenty (20) special-status plant species have been recorded in the Ontario and Guasti quadrangles (refer to Attachment D). No special-status plant species were observed on-site during the habitat assessment. The project site has been subject to anthropogenic disturbances from on-site and surrounding development. These disturbances have eliminated the suitability of the habitat to support special-status plant species known to occur in the general vicinity of the project site. Based on habitat requirements for specific special-status plant species and the availability and quality of habitats needed by each species, it was determined that the project site does not provide suitable habitat for any special-status plant species known to occur in the area and all are presumed to be absent from the project site. No focused surveys are recommended.

Special-Status Wildlife

According to the CNDDB, fifty-seven (57) special-status wildlife species have been reported in the Ontario and Guasti quadrangles (refer to Attachment D). No special-status wildlife species were observed during the field investigation. The project site largely supports undeveloped land that has been subject to a variety of anthropogenic disturbances and is surrounded by existing industrial development. These disturbances have eliminated the natural plant communities that once occurred on-site which has reduced potential foraging and nesting/denning opportunities for wildlife species.

Based on habitat requirements for specific species and the availability and quality of onsite habitats, it was determined that the proposed project site has a low potential to support foraging habitat for Cooper's hawk (*Accipiter cooperii*), California horned lark (*Eremophila alpestris actia*), California gull (*Larus californicus*), and American bumblebee (*Bombus pensylvanicus*). It was further determined that the project site does not provide suitable habitat for any additonal special-status wildlife species known to occur in the area and all are presumed to be absent from the proposed project site.

None of the aforementioned special-status wildlife species are federally or state listed as endangered or threatened. Cooper's hawk and sharp-shinned hawk are not expected to nest on-site due to the lack of suitable nesting opportunities for Cooper's hawk and the site occurring outside the geographic nesting range for sharp-shinned hawk. In order to ensure impacts to the aforementioned species do not occur from implementation of the proposed project, a pre-construction nesting bird clearance survey shall be conducted prior to ground disturbance. With implementation of the pre-construction nesting bird clearance survey, impacts to the Costa's hummingbird will be less than significant and no mitigation will be required.

Special-Status Plant Communities

According to the CNDDB, one (1) special-status plant community has been reported in the Ontario and Guasti USGS 7.5-minute quadrangles: Riversidean Alluvial Fan Sage Scrub. Based on the results of the field investigation this plant community does not occur within or adjacent to the project site. Therefore, no special-status plant communities will be impacted from project implementation.

Critical Habitat

Under the federal Endangered Species Act, “Critical Habitat” is designated at the time of listing of a species or within one year of listing. Critical Habitat refers to specific areas within the geographical range of a species at the time it is listed that include the physical or biological features that are essential to the survival and eventual recovery of that species. Maintenance of these physical and biological features requires special management considerations or protection, regardless of whether individuals or the species are present or not. All federal agencies are required to consult with the USFWS regarding activities they authorize, fund, or permit which may affect a federally listed species or its designated Critical Habitat. The purpose of the consultation is to ensure that projects will not jeopardize the continued existence of the listed species or adversely modify or destroy its designated Critical Habitat. The designation of Critical Habitat does not affect private landowners, unless a project they are proposing is on federal lands, uses federal funds, or requires federal authorization or permits (e.g., funding from the Federal Highways Administration or a Clean Water Act Permit from the United States Army Corps of Engineers). If a there is a federal nexus, then the federal agency that is responsible for providing the funding or permit would consult with the USFWS.

The project site is not located with federally designated Critical Habitat. The nearest designated Critical Habitat is located approximately 4.6 miles to the southeast for least Bell’s vireo (*Vireo bellii pusillus*). Therefore, the loss or adverse modification of Critical Habitat from site development will not occur and consultation with the USFWS for impacts to Critical Habitat will not be required for implementation of the proposed project.

Conclusion

Based literature review and field survey, and existing site conditions discussed in this report, implementation of the project will have no significant impacts on federally or State listed species known to occur in the general vicinity of the project site. Additionally, the project will have no effect on designated Critical Habitat, since there is no federal nexus, or regional wildlife corridors/linkage because none exists within the area. No jurisdictional drainage and/or wetland features were observed on the project site during the field investigation. No further surveys are recommended. With completion of the recommendations provided below, no impacts to year-round, seasonal, or special-status avian residents or special-status species will occur from implementation of the proposed project.

Recommendations

Migratory Bird Treaty Act and Fish and Game Code

Nesting birds are protected pursuant to the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code (Sections 3503, 3503.5, 3511, and 3513 prohibit the take, possession, or destruction of birds, their nests or eggs). In order to protect migratory bird species, a nesting bird clearance survey should be conducted prior to any ground disturbance or vegetation removal activities that may disrupt the birds during the nesting season.

If construction occurs between February 1st and August 31st, a pre-construction clearance survey for nesting birds should be conducted within three (3) days of the start of any vegetation removal or ground disturbing activities to ensure that no nesting birds will be disturbed during construction. The biologist conducting the clearance survey should document a negative survey with a brief letter report indicating that no impacts to active avian nests will occur. If an active avian nest is discovered during the pre-construction clearance survey, construction activities should stay outside of a no-disturbance buffer. The size of the no-disturbance buffer will be determined by the wildlife biologist and will depend on the level of noise and/or surrounding anthropogenic disturbances, line of sight between the nest and the construction activity, type and duration of construction activity, ambient noise, species habituation, and topographical barriers. These factors will be evaluated on a case-by-case basis when developing buffer distances. Limits of construction to avoid an active nest will be established in the field with flagging, fencing, or other appropriate barriers; and construction personnel will be instructed on the sensitivity of nest areas. A biological monitor should be present to delineate the boundaries of the buffer area and to monitor the active nest to ensure that nesting behavior is not adversely affected by the construction activity. Once the young have fledged and left the nest, or the nest otherwise becomes inactive under natural conditions, construction activities within the buffer area can occur.

Please do not hesitate to contact Tom McGill at (951) 285-6014 or tmcgill@elmtconsulting.com or Travis McGill at (909) 816-1646 or travismcgill@elmtconsulting.com should you have any questions this report.

Sincerely,

Thomas J. McGill, Ph.D.
Managing Director

Travis J. McGill
Director

Attachments:

A. *Project Exhibits*
B. *Site Plan*
C. *Site Photographs*
D. *Potentially Occurring Special-Status Biological Resources*
E. *Regulations*

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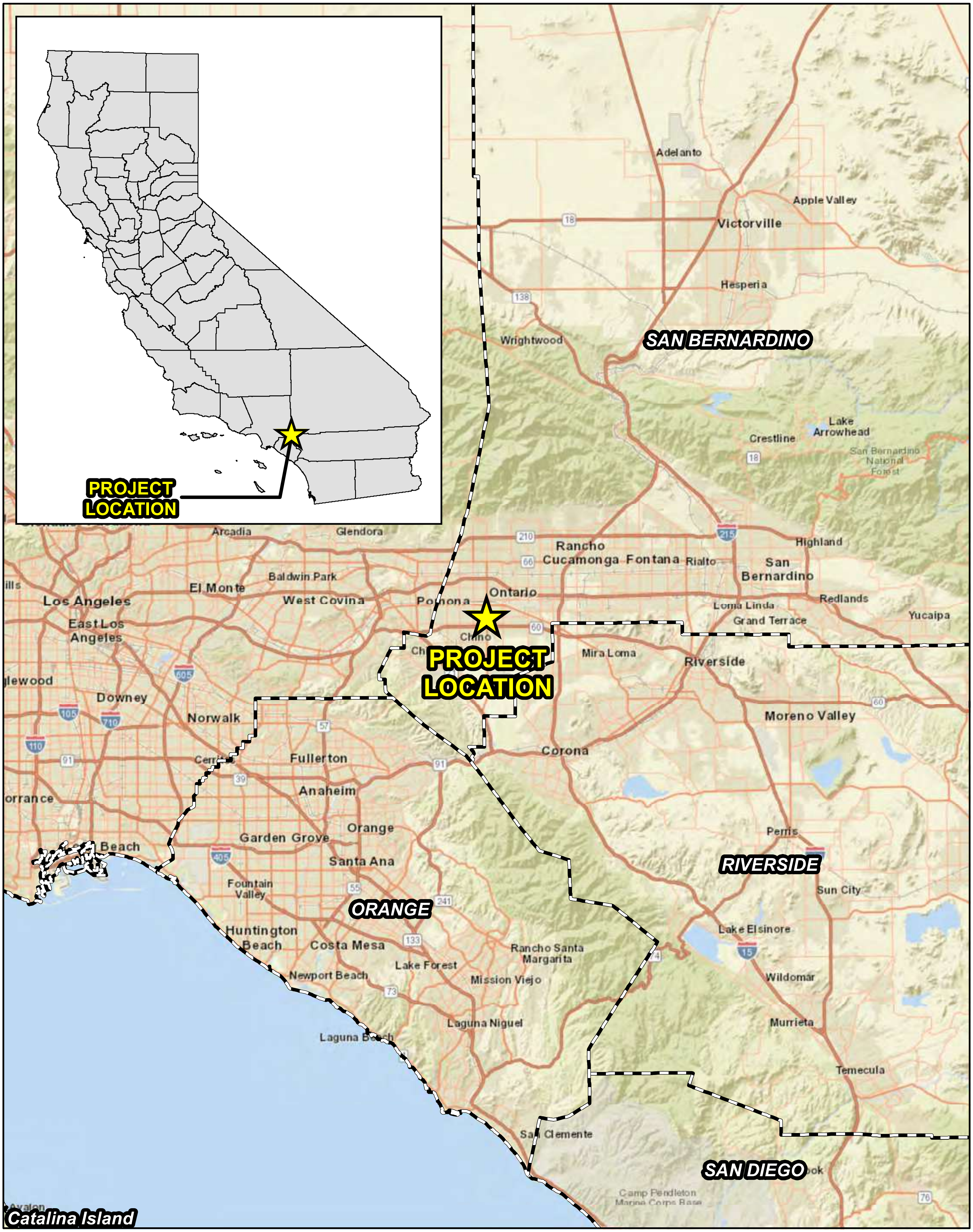
Attachment A

Project Exhibits

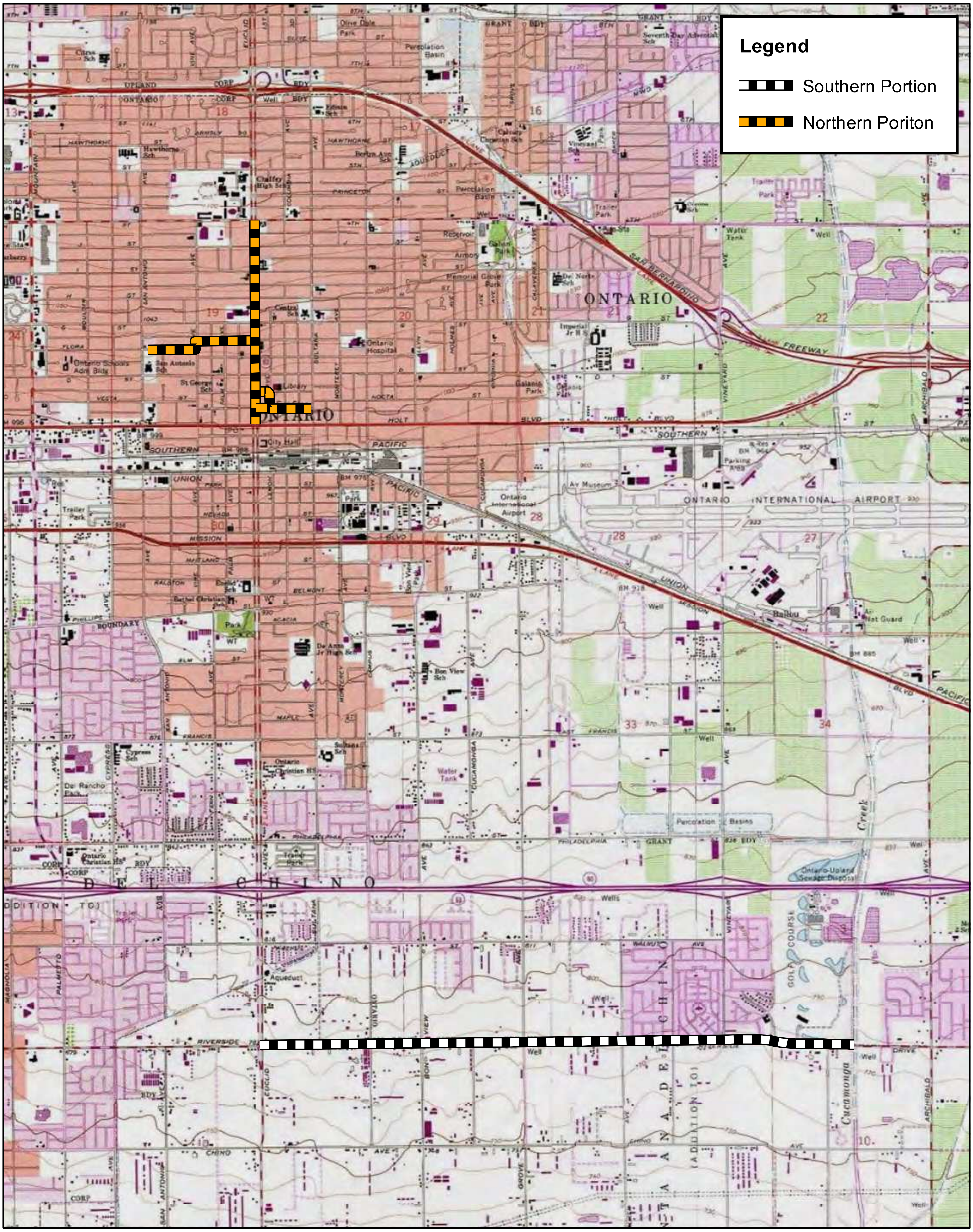


Source: World Street Map, San Bernardino County

BIOLOGICAL RESOURCES ASSESSMENT

Regional Vicinity

Exhibit 1

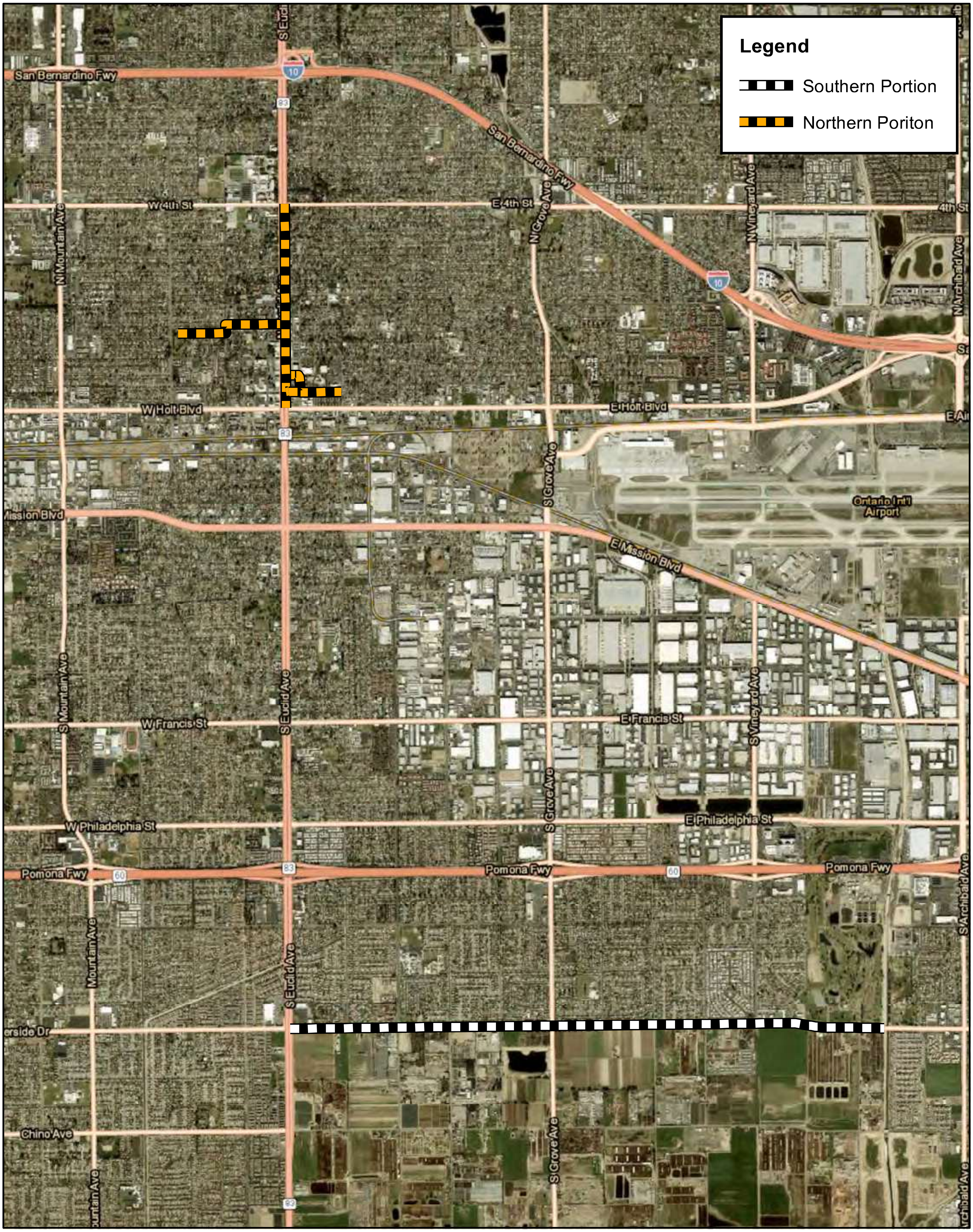


Source: USA Topographic Map, San Bernardino County

BIOLOGICAL RESOURCES ASSESSMENT

Site Vicinity

Exhibit 2



Source: ESRI Aerial Imagery, San Bernardino County

BIOLOGICAL RESOURCES ASSESSMENT

Project Site

Exhibit 3

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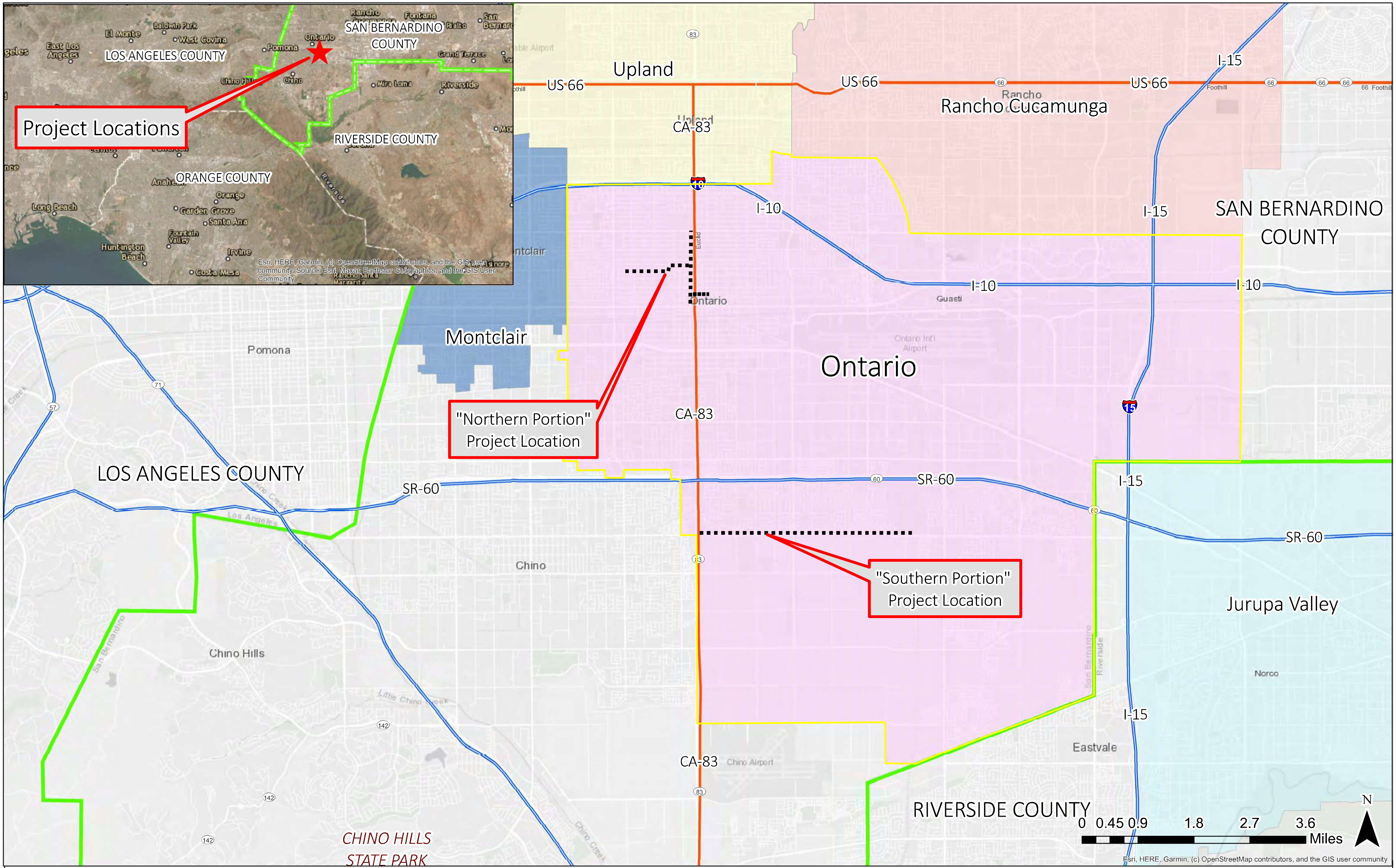
Attachment B

Site Plan



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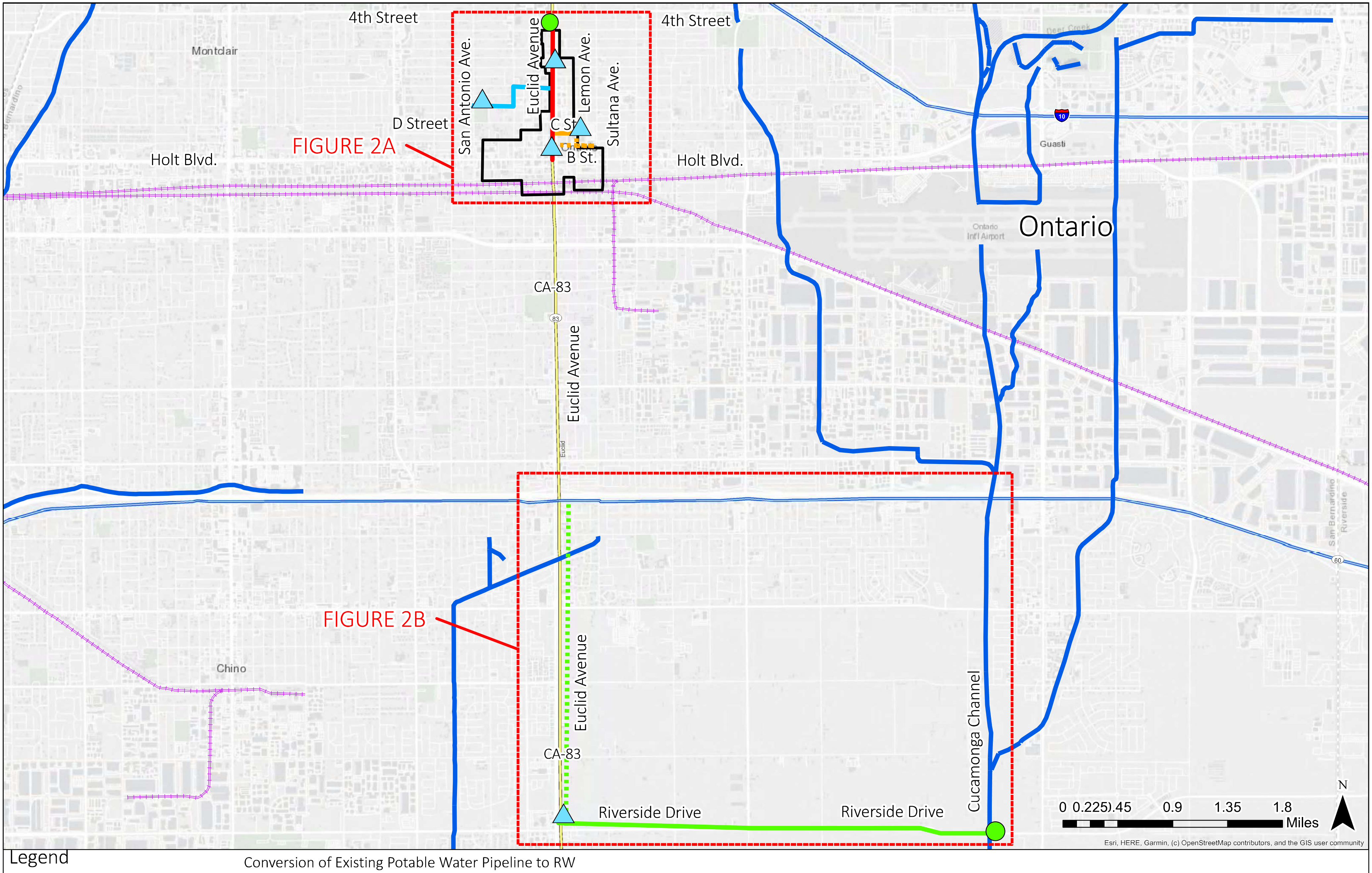
UT1702 Recycled Water Pipeline Project

Figure 1. Regional Location Map

ARDURRA



Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

Legend

- USA Railroads
- Highway
- CalTrans Right-of-Way

Proposed Recycled Water Pipeline

- Segment 1
- Segment 2
- Segment 3
- Segment 4

Conversion of Existing Potable Water Pipeline to RW

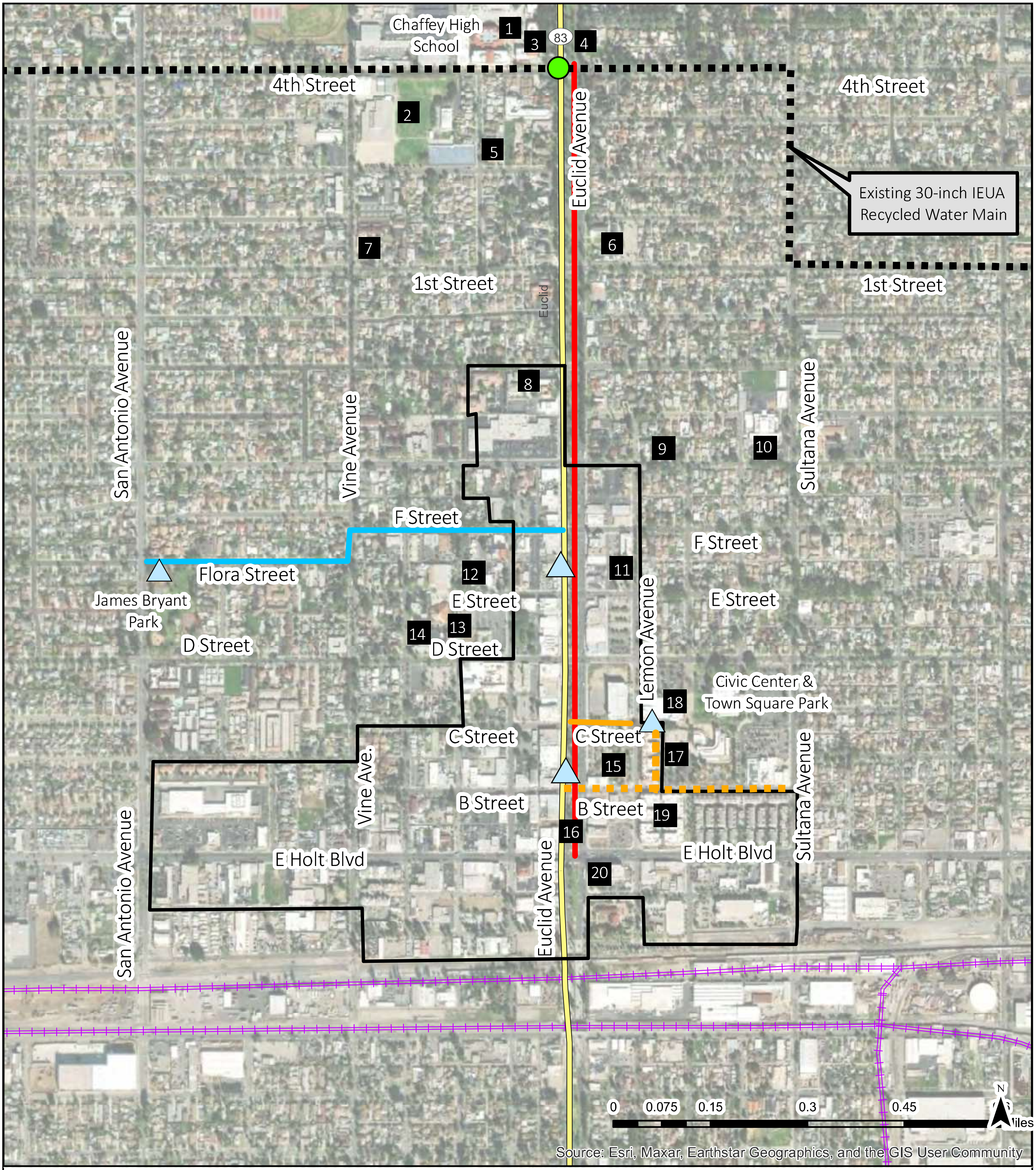
- Segment 3
- Segment 4
- Figure 2A & 2B Local Vicinity Maps
- Ontario Downtown District
- △ Recycled Water Laterals
- ● IEUA Connection Point
- Hydrologic Flowlines

Ontario Municipal Utilities Company

UT1702 Recycled Water Pipeline Project

Figure 2. Local Vicinity Key Map

ARDURRA



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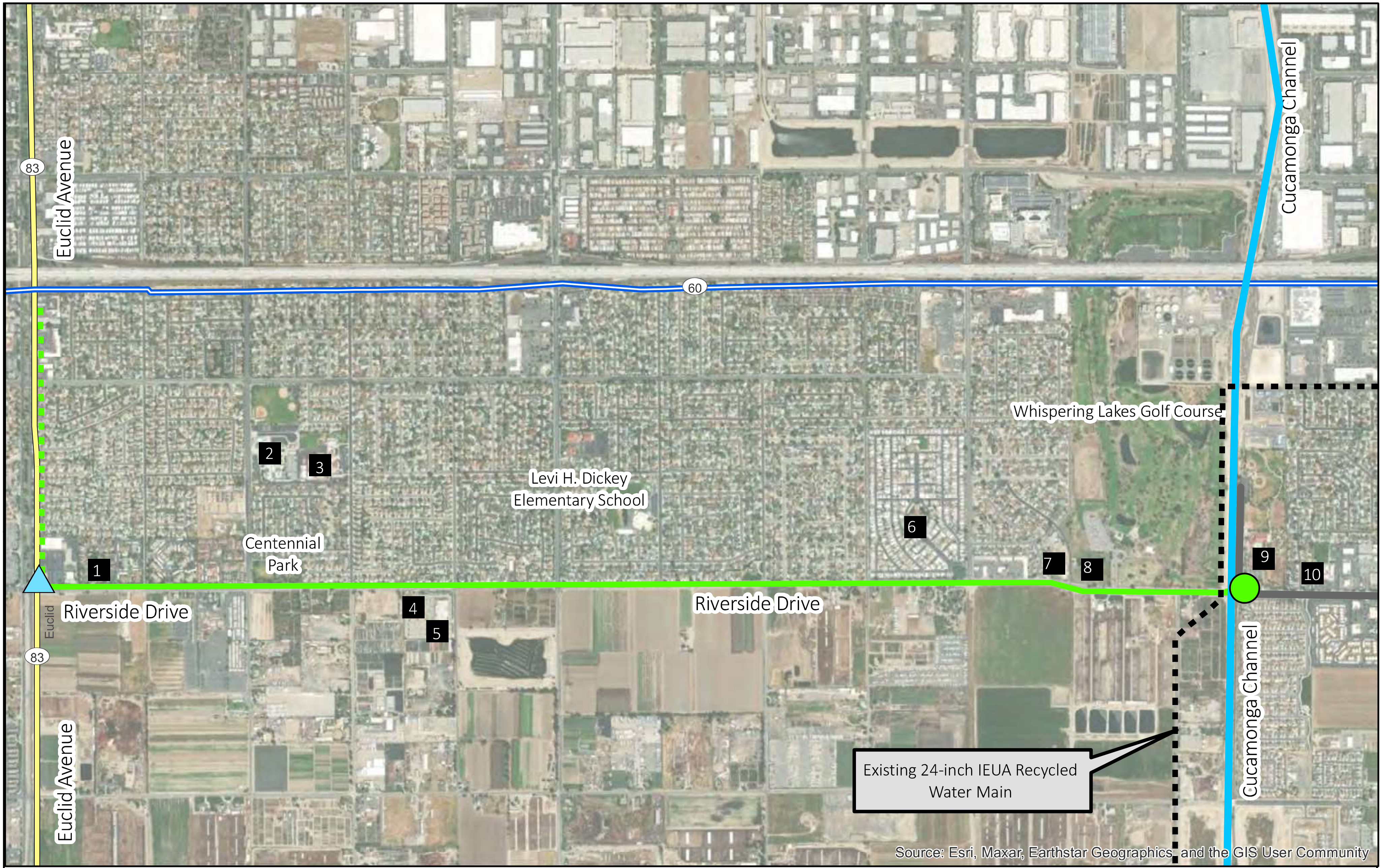
UT1702 Recycled Water Pipeline Project

Figure 2A. Northern Portion Local Vicinity Map

ARDURRA



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Legend

- ▬ Existing City 24-inch Recycled Water Pipeline
- ═ Highway
- ═ CalTrans Right-of-Way
- ┼┼┼ Railroad Track
- ▬ Segment 4: Proposed Recycled Water Pipeline
- ▪▪▪ Segment 4: Conversion of Existing Irrigation System to RW
- ● Connection Point to Existing City RW Pipeline
- ■ Sensitive Receptors, number corresponds with Table 2 within IS/MND
- ▪▪▪ 24-inch IEUA Recycled Water Main
- ▬ Cucamonga Channel
- ▲ Recycled Water Lateral

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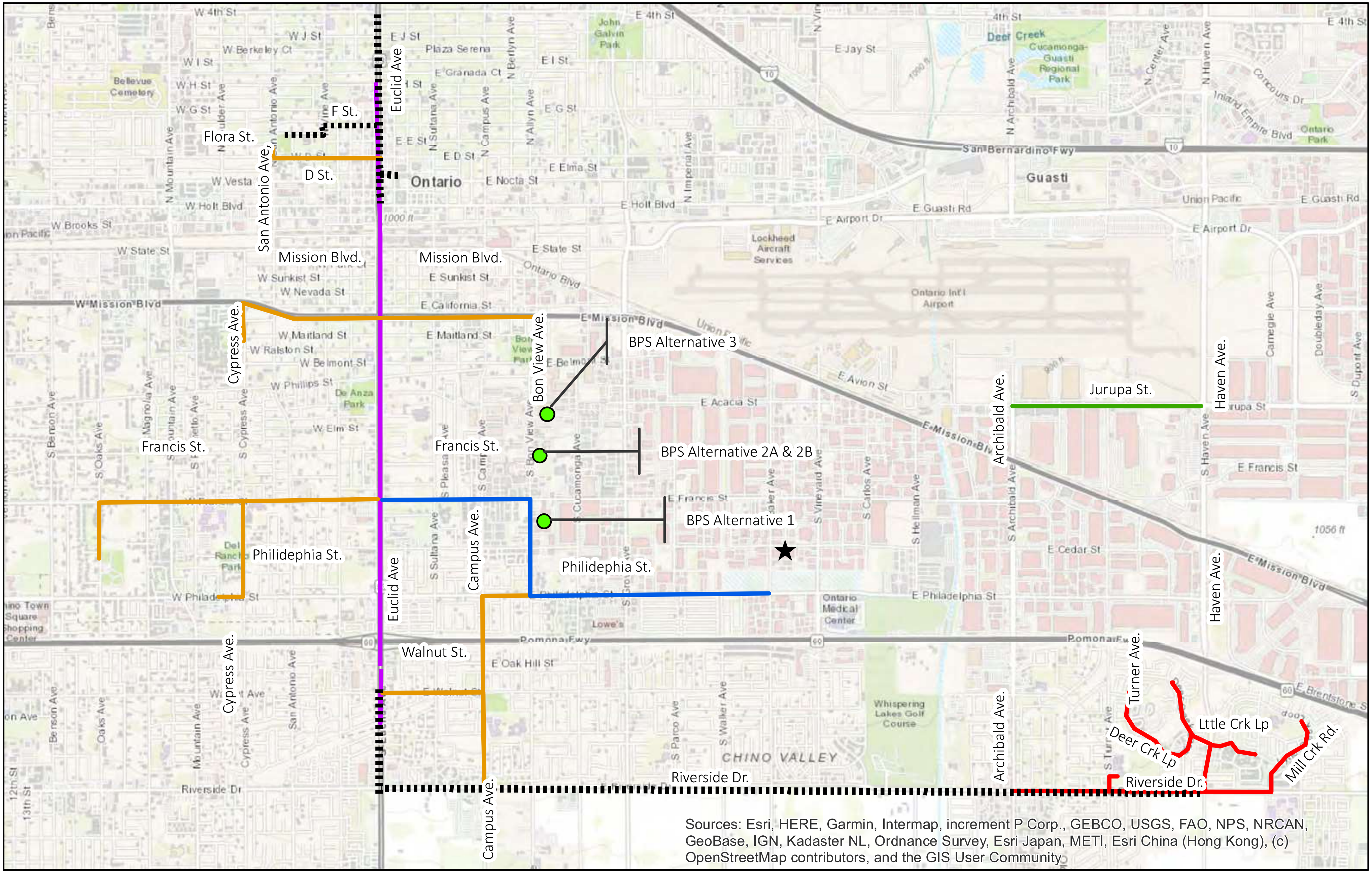
UT1702 Recycled Water Pipeline Project

Figure 2B. Southern Portion Local Vicinity Map

ARDURRA



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Legend

Previously Proposed Recycled Water Distribution:

- Euclid Ave. Alignment- Phase I &IIA
- Euclid Ave. Alignment- Phase IIB
- ● Booster Pump Station Alternatives- Phase IIC
- Riverside Dr. Alignment
- Jurupa Street Alignment
- Euclid Ave. Alignment- Phase IIIA & IIIB
- ★ IEUA Connection

▪▪▪▪▪ Proposed Recycled Water Pipeline

UT1702 Recycled Water Pipeline Project

Ontario Municipal Utilities Company

Figure 9. Recycled Water Distribution Project Phases and Components

ARDURRA

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Attachment C

Site Photographs

Photograph 1: From the intersection of Euclid Avenue and East Riverside Drive, looking east toward E Riverside Drive and a portion of the proposed project site.

Photograph 2: From the intersection of Euclid Avenue and East Riverside Drive, looking north toward Euclid Avenue.

Photograph 3: From the intersection of East Riverside Drive and South Sultana Avenue, looking east through a proposed area of the project site on East Riverside Drive.

Photograph 4: From the intersection of East Riverside Drive and South Sultana Avenue, looking west through a proposed area of the project site on East Riverside Drive.

Photograph 5: From the intersection of Campus Avenue and East Riverside Drive, looking east along East Riverside Drive through an area of the proposed project site.

Photograph 6: From the intersection of Campus Avenue and East Riverside Drive, looking west along East Riverside Drive through an area of the proposed project site.

Photograph 7: From the intersection of Bon View Avenue and East Riverside Drive, looking west along East Riverside Drive through an area of the proposed project site.

Photograph 8: From the intersection of Bon View Avenue and East Riverside Drive, looking east along East Riverside Drive through an area of the proposed project site.

Photograph 9: From the intersection of Grove Avenue and East Riverside Drive, looking east along East Riverside Drive through an area of the proposed project site.

Photograph 10: From the intersection of Grove Avenue and East Riverside Drive, looking west along East Riverside Drive through an area of the proposed project site.

Photograph 11: From the intersection of Walker Avenue and East Riverside Drive, looking west along East Riverside Drive through an area of the proposed project site.

Photograph 12: From the intersection of Walker Avenue and East Riverside Drive, looking east along East Riverside Drive through an area of the proposed project site.

Photograph 13: From the intersection of Baker Avenue and East Riverside Drive, looking east along East Riverside Drive through an area of the proposed project site.

Photograph 14: From the intersection of Baker Avenue and East Riverside Drive, looking west along East Riverside Drive through an area of the proposed project site.

Photograph 15: From the intersection of Vineyard Avenue and East Riverside Drive, looking west along East Riverside Drive through an area of the proposed project site.

Photograph 16: From the intersection of Vineyard Avenue and East Riverside Drive, looking west along East Riverside Drive through an area of the proposed project site.

Photograph 17: From East Riverside Drive, looking north through Cucamonga Channel which lies along the eastern boundary of a portion of the proposed project site.

Photograph 18: From East Riverside Drive, looking south through Cucamonga Channel.

Photograph 19: From the intersection of Euclid Avenue and Holt Boulevard, looking north through a portion of the proposed project site.

Photograph 20: From the intersection of B Street and Euclid Avenue, looking north through a portion of the proposed project site.

Photograph 21: From the intersection of C Street and Euclid Avenue, looking west toward West C Street.

Photograph 22: From the intersection of C Street and Euclid Avenue, looking east toward East C Street.

Photograph 23: From East C Street looking east at a roundabout that occurs on a portion of the proposed project site.

Photograph 24: From East C Street, looking west toward Euclid Avenue through an area of the proposed project site.

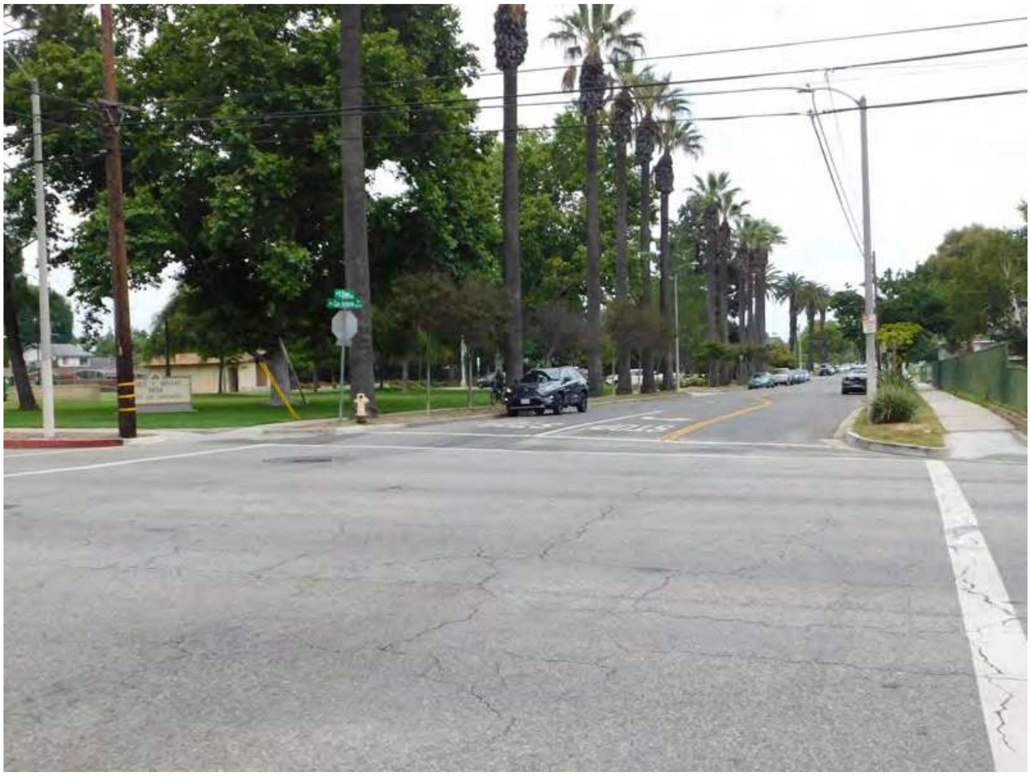
Photograph 25: From the intersection of D Street and Euclid Avenue, looking west toward West D Street, through an area of the proposed project site.

Photograph 26: From the intersection of West D Street and Laurel Avenue, looking west along West D Street through an area of the proposed project site.

Photograph 27: From the intersection of West D Street and Palm Avenue, looking west along West D Street and an area of the proposed project site.

Photograph 28: From the intersection of West D Street and Fern Avenue, looking west along West D Street and an area of the proposed project site.

Photograph 29: From the intersection of West D Street and Vine Avenue, looking west along West D Street and an area of the proposed project site.



Photograph 30: From the intersection of West D Street and San Antonio Avenue, looking east toward an area of the proposed project site.

Photograph 31: From the intersection of Euclid Avenue and E Street, looking north along Euclid Avenue and an area of the proposed project site.

Photograph 32: From the intersection of Euclid Avenue and E Street, looking south along northbound Euclid Avenue and an area of the proposed project site.

Photograph 33: From the intersection of Euclid Avenue and I Street, looking north along Euclid Avenue and an area of the proposed project site.

Photograph 34: From the intersection of Euclid Avenue and I Street, looking south along northbound Euclid Avenue through an area of the proposed project site.

Photograph 35: From the intersection of Euclid Avenue and 4th Street, looking south along northbound Euclid Avenue through an area of the proposed project site.

Photograph 36: From the intersection of Euclid Avenue and 4th Street, looking north through an area of the proposed project site.

Photograph 37: From the intersection of Euclid Avenue and 4th Street, looking west through an area of the proposed project site.

Attachment D

Potentially Occurring Special-Status Biological Resources

Table D-1: Potentially Occurring Special-Status Biological Resources

Scientific Name Common Name	Status	Habitat	Observed On-site	Potential to Occur
SPECIAL-STATUS WILDLIFE SPECIES				
Accipiter cooperii Cooper's hawk	Fed: None CA: WL	Generally found in forested areas up to 3,000 feet in elevation, especially near edges and rivers. Prefers hardwood stands and mature forests but can be found in urban and suburban areas where there are tall trees for nesting. Common in open areas during nesting season.	No	**Low** Limited foraging habitat is present within and surrounding the project site. No suitable nesting opportunities are present.
Agelaius tricolor tricolored blackbird	Fed: None CA: SSC/CE	Highly colonial yearlong resident of California that frequents emergent wetlands, croplands, grassy fields, flooded land and along edges of ponds. Usually nests near fresh water, preferably in emergent wetland with tall, dense cattails (*Typha sp.*) or tules (*Schoenoplectus sp.*), but also in thickets of willow (*Salix sp.*), blackberry (*Rubus sp.*), and tall herbs.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Aimophila ruficeps canescens southern California rufous-crowned sparrow	Fed: None CA: WL	Typically found between 3,000 and 6,000 feet in elevation. Breed in sparsely vegetated shrublands on hillsides and canyons. Prefers coastal sage scrub dominated by California sagebrush (*Artemisia californica*) but can also be found breeding in coastal bluff scrub, low-growing serpentine chaparral, and along the edges of tall chaparral habitats.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Anniella stebbinsi southern California legless lizard	Fed: None CA: SSC	Mostly found in coastal sand dunes and a variety of interior habitats, including sandy washes and alluvial fans. They live mostly underground, burrowing in the loose sandy soils.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Antrozous pallidus pallid bat	Fed: None CA: SSC	Locally common species of low elevation in California. Occurs in grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests. Most common in open, dry habitats with rocky areas for roosting.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Ardea alba great egret	Fed: None CA: None	Yearlong resident throughout California, except for the high mountains and deserts. Feeds and rests in fresh, and saline emergent wetlands, along the margins of estuaries, lakes, and slow-moving streams, on mudflats and salt ponds, and in irrigated croplands and pastures.	Yes	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Ardea herodias great blue heron	Fed: None CA: None	Fairly common all year throughout most of California, in shallow estuaries and fresh and saline emergent wetlands. Less common along riverine and rocky marine shores, in croplands, pastures, and in mountains about foothills.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Arizona elegans occidentalis California glossy snake	Fed: None CA: SSC	Inhabits arid scrub, rocky washes, grassland, and chaparral. Appears in microhabitats of open areas and areas with soil loose enough for easy burrowing.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.

Scientific Name Common Name	Status	Habitat	Observed On-site	Potential to Occur
Artemisiospiza belli belli Bell's sage sparrow	Fed: None CA: WL	Occurs in chaparral dominated by fairly dense stands of chamise. Also found in coastal sage scrub in south of range.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Aspidoscelis tigris stejnegeri coastal whiptail	Fed: None CA: SSC	Found in a variety of ecosystems, primarily hot and dry open areas with sparse foliage - chaparral, woodland, and riparian areas.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Athene cunicularia burrowing owl	Fed: None CA: SSC	Primarily a grassland species, but it persists and even thrives in some landscapes highly altered by human activity. Occurs in open, annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. The overriding characteristics of suitable habitat appear to be burrows for roosting and nesting and relatively short vegetation with only sparse shrubs and taller vegetation.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Bassariscus astutus octavus southern California ringtail	Fed: None CA: None	Prefers rocky outcroppings, canyons, or talus slopes. Found generally in semi-arid country, deserts, chaparral, oak woodlands, pinyon pine woodlands, juniper woodlands and montane conifer forests.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Bombus crotchii Crotch bumble bee	Fed: None CA: None	Exclusive to coastal California east towards the Sierra-Cascade Crest; less common in western Nevada. Prefers milkweeds and is commonly associated with dusty maidens, lupines, medics, phacelias, sages, and buckwheats.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Bombus pensylvanicus American bumble bee	Fed: None CA: None	Prefers farmlands, meadows, grasslands, and open fields. Nests below grass or underground. Feeds on pollen of a wide variety of flowering plants including vetches, clovers, goldenrods, and many crop species.	No	**Low** Marginal habitat adjacent to an area of the project site. However, routine disturbance likely precludes establishment of species.
Buteo swainsoni Swainson's hawk	Fed: None CA: **THR**	Typical habitat is open desert, grassland, or cropland containing scattered, large trees or small groves. Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah in the Central Valley. Forages in adjacent grassland or suitable grain or alfalfa fields or livestock pastures.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Calypte costae Costa's hummingbird	Fed: None CA: None	Desert and semi-desert, arid brushy foothills and chaparral. A desert hummingbird that breeds in the Sonoran and Mojave Deserts. Departs desert heat moving into chaparral, scrub, and woodland habitats.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Campylorhynchus brunneicapillus sandiegensis coastal cactus wren	Fed: None CA: SSC	Found in a variety of low dry habitats. Most common in desert areas with thorny shrubs and cactus, especially where cholla cactus are common. Also found in mesquite brush and coastal chaparral where cactus are common.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Chaetodipus fallax fallax northwestern San Diego pocket mouse	Fed: None CA: SSC	Occurs in desert and coastal habitats in southern California, Mexico, and northern Baja California, from sea level to at least 1,400 meters above msl. Found in a variety of temperate habitats ranging from chaparral and grasslands to scrub forests and deserts. Requires low growing vegetation or rocky outcroppings, as well as sandy soils for burrowing.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Circus hudsonius northern harrier	Fed: None CA: SSC	Found in marshes, fields, and prairies, as well as other kinds of open terrain. Can be found in both wet and dry habitats where there is good ground cover. Often nests in marshes, but sometimes nests in dry, open fields.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Diadophis punctatus modestus San Bernardino ringneck snake	Fed: None CA: None	Common in open, relatively rocky areas within valley-foothill, mixed chaparral, and annual grass habitats.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Diplectrona californica California diplectronan caddisfly	Fed: None CA: None	Found only in San Bernardino County. Generally found in streams, both cool and warm lakes, marshes, and ponds.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Dipodomys merriami parvus San Bernardino kangaroo rat	Fed: **END** CA: CE/SSC	Primarily found in Riversidian alluvial fan sage scrub and sandy loam soils, alluvial fans and flood plains, and along washes with nearby sage scrub. May occur at lower densities in Riversidian upland sage scrub, chaparral and grassland in uplands and tributaries in proximity to Riversidian alluvial fan sage scrub habitats. Tend to avoid rocky substrates and prefer sandy loam substrates for digging of shallow burrows.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Dipodomys simulans Dulzura kangaroo rat	Fed: None CA: None	Relatively common in chaparral, coastal sage scrub, Riversidean alluvial fan sage scrub, and peninsular juniper woodland habitats.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Dipodomys stephensi Stephens' kangaroo rat	Fed: **END** CA: **THR**	Occur in arid and semi-arid habitats with some grass or brush. Prefer open habitats with less than 50% protective cover. Require soft, well-drained substrate for building burrows and are typically found in areas with sandy soil.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Egretta thula snowy egret	Fed: None CA: None	Widespread in California along shores of coastal estuaries, fresh and saline emergent wetlands, ponds, slow-moving rivers, irrigation ditches, and wet fields. In southern California, common yearlong in the Imperial Valley and along the Colorado River.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Elanus leucurus white-tailed kite	Fed: None CA: None	Occurs in low elevation, open grasslands, savannah-like habitats, agricultural areas, wetlands, and oak woodlands. Uses trees with dense canopies for cover.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.

Scientific Name Common Name	Status	Habitat	Observed On-site	Potential to Occur
Emys marmorata western pond turtle	Fed: None CA: SSC	Habitat range extends from the Puget Sound lowlands in Washington to Baja, California. Found in calm areas of permanent and intermittent waters of rivers, creeks, small lakes, ponds, marshes, irrigation ditches, and reservoirs.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Eremophila alpestris actia California horned lark	Fed: None CA: None	Generally found in shortgrass prairies, grasslands, disturbed fields, or similar habitat types along the coast or in deserts. Trees are shrubs are usually scarce or absent. Generally rare in montane, coniferous, or chaparral habitats. Forms large flocks outside of the breeding season.	No	**Low** Suitable foraging habitat adjacent to project site. Routine disturbance precludes species from nesting in the area.
Eumops perotis californicus western mastiff bat	Fed: None CA: SSC	Primarily a cliff-dwelling species, roost generally under exfoliating rock slabs. Roosts are generally high above the ground, usually allowing a clear vertical drop of at least three meters below the entrance for flight. In California, it is most frequently encountered in broad open areas. Its foraging habitat includes dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, and agricultural areas.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Falco columbarius merlin	Fed: None CA: WL	Nest in forested openings, edges, and along rivers across northern North America. Found in open forests, grasslands, and especially coastal areas with flocks of small songbirds or shorebirds.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Falco mexicanus prairie falcon	Fed: None CA: WL	Commonly occur in arid and semiarid shrubland and grassland community types. Also occasionally found in open parklands within coniferous forests. During the breeding season, they are found commonly in foothills and mountains which provide cliffs and escarpments suitable for nest sites.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Falco peregrinus anatum American peregrine falcon	Fed: DL CA: DL	Uncommon winter resident of the inland region of southern California. Active nesting sites are known along the coast north of Santa Barbara, in the Sierra Nevada, and in other mountains of northern California. Breeds mostly in woodland, forest, and coastal habitats. Riparian areas and coastal and inland wetlands are important habitats yearlong, especially in nonbreeding seasons.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Gonidea angulata western ridged mussel	Fed: None CA: None	Inhabits the bottoms of cold creeks, rivers, and lakes from low to mid-elevations. Substrates vary from gravel to firm mud, and includes some sand, silt, or clay.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.

Scientific Name Common Name	Status	Habitat	Observed On-site	Potential to Occur
Icteria virens yellow-breasted chat	Fed: None CA: SSC	Primarily found in tall, dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush with well-developed understories. Nesting areas are associated with streams, swampy ground, and the borders of small ponds. Breeding habitat must be dense to provide shade and concealment. It winters south the Central America.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Lanius ludovicianus loggerhead shrike	Fed: None CA: SSC	Often found in broken woodlands, shrublands, and other habitats. Prefers open country with scattered perches for hunting and fairly dense brush for nesting.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Larus californicus California gull	Fed: None CA: WL	Generally found in any open area where foraging is possible including dump sites, scrublands, pastures, orchards, meadows, and farms. Winters along Pacific Coast mostly in marine areas such as mudflats estuaries, deltas, and beaches.	No	**Low** Marginal foraging habitat adjacent to the project site. No suitable nesting habitat present within or surrounding project site.
Lasiurus xanthinus western yellow bat	Fed: None CA: SSC	Roosts in palm trees in foothill riparian, desert wash, and palm oasis habitats with access to water for foraging.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Laterallus jamaicensis coturniculus California black rail	Fed: None CA: **THR**/FP	Shallow marshes, and wet meadows; in winter, drier fresh-water and brackish marshes, as well as dense, deep grass.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Lepus californicus bennettii San Diego black-tailed jackrabbit	Fed: None CA: None	Found in diverse habitats, but primarily is found in arid regions supporting shortgrass habitats. Openness of open scrub habitat is preferred over dense chaparral.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Neolara alba white cuckoo bee	Fed: None CA: None	Found in dry, sandy areas (particularly deserts) in the American southwest near the host plants for *Perdita* bee species, of which it is a nest parasite.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Neotoma lepida intermedia San Diego desert woodrat	Fed: None CA: SSC	Occurs in coastal scrub communities between San Luis Obispo and San Diego Counties. Prefers moderate to dense canopies, and especially rocky outcrops.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Nycticorax nycticorax black-crowned night heron	Fed: None CA: None	Fairly common, yearlong resident in lowlands and foothills throughout most of California, including the Salton Sea and Colorado River areas, and very common locally in large nesting colonies. Feeds along the margins of lacustrine, large riverine, and fresh and saline emergent habitats and rarely, on kelp beds in marine sub tidal habitats. Nests and roosts in dense-foliaged trees and dense emergent wetlands.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Nyctinomops macrotis big free-tailed bat	Fed: None CA: SSC	Found in rugged and rocky terrain in arid landscapes. Located in desert shrub, woodland, and evergreen forest communities. Primarily associated with lowlands below 5,900 feet in the southwestern U.S. Roosts in crevices of high cliff faces.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Perognathus longimembris brevinasus Los Angeles pocket mouse	Fed: None CA: SSC	Resides in lower elevation grasslands and coastal sage scrub communities in and around the Los Angeles Basin. Prefers open ground with fine sandy soils. May not dig extensive burrows, but instead will seek refuge under weeds and dead leaves instead.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Phrynosoma blainvillii coast horned lizard	Fed: None CA: SSC	Found in a wide variety of vegetation types including coastal sage scrub, annual grassland, chaparral, oak woodland, riparian woodland and coniferous forest. In inland areas, this species is restricted to areas with pockets of open microhabitat, created by disturbance (i.e. fire, floods, roads, grazing, fire breaks). The key elements of such habitats are loose, fine soils with a high sand fraction; an abundance of native ants or other insects; and open areas with limited overstory for basking and low, but relatively dense shrubs for refuge.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Polioptila californica californica coastal California gnatcatcher	Fed: **THR** CA: SSC	Obligate resident of sage scrub habitats that are dominated by California sagebrush. This species generally occurs below 750 feet elevation in coastal regions and below 1,500 feet inland. It prefers habitat with more low-growing vegetation.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Rhaphiomidas terminatus abdominalis Delhi Sands flower-loving fly	Fed: **END** CA: None	DSF habitat is limited to areas that include Delhi fine sand, an aeolian (wind-deposited) soil type. The highest density of DSF have been found in habitat that includes a variety of plants including California buckwheat, California croton, deerweed, and telegraph weed.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Salvadora hexalepis virgultea coast patch-nosed snake	Fed: None CA: SSC	Inhabits semi-arid brushy areas and chaparral in canyons, rocky hillsides, and plains. Requires friable soils for burrowing.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.

Scientific Name Common Name	Status	Habitat	Observed On-site	Potential to Occur
Setophaga petechia yellow warbler	Fed: None CA: SSC	Nests over all of California except the Central Valley, the Mojave Desert region, and high altitudes and the eastern side of the Sierra Nevada. Winters along the Colorado River and in parts of Imperial and Riverside Counties. Nests in riparian areas dominated by willows, cottonwoods, sycamores, or alders or in mature chaparral. May also use oaks, conifers, and urban areas near stream courses.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Spea hammondii western spadefoot	Fed: None CA: SSC	Prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washed, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Rainpools which do not contain bullfrogs, fish, or crayfish are necessary for breeding.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Spinus lawrencei Lawrence's goldfinch	Fed: None CA: None	Typical habitats include valley foothill hardwood, valley foothill hardwood-conifer, and, in southern California, desert riparian, palm oasis, pinyon-juniper, and lower montane habitats. Nearby herbaceous habitats often used for feeding. Open woodlands, chaparral, and weedy fields. Closely associated with oaks. Nests in open oak or other arid woodland and chaparral near water.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Spizella breweri Brewer's sparrow	Fed: None CA: None	Live in shrublands year-round. Most often found in sagebrush shrublands with short vegetation in spring and summer. May also occur in openings in pinyon-juniper woodlands or in other mountain shrub communities. Typically nest in taller, denser shrubs with less bare ground. Common in desert shrublands dominated by saltbush shrubs and creosote.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Taricha torosa Coast Range newt	Fed: None CA: SSC	Resides in coastal areas. Found near small ponds, creeks, and seeps in woodlands and chaparral.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Thamnophis hammondii two-striped gartersnake	Fed: None CA: SSC	Occurs in or near permanent fresh water, often along streams with rocky beds and riparian growth up to 7,000 feet in elevation.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
***Thamnophis sirtalis* pop. 1** south coast gartersnake	Fed: None CA: SSC	Utilizes a variety of habitats including forests, mixed woodlands, grassland, chaparral, and farmlands. Often found near ponds, marshes, or streams.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Vireo bellii pusillus least Bell's vireo	Fed: **END** CA: **END**	Primarily occupy Riverine riparian habitat that typically feature dense cover within 1 -2 meters of the ground and a dense, stratified canopy. Typically it is associated with southern willow scrub, cottonwood-willow forest, mule fat scrub, sycamore alluvial woodlands, coast live oak riparian forest, arroyo willow riparian forest, or mesquite in desert localities. It uses habitat which is limited to the immediate vicinity of water courses, 2,000 feet elevation in the interior.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Xanthocephalus xanthocephalus yellow-headed blackbird	Fed: None CA: SSC	Uncommon yearlong resident of southern California throughout freshwater emergent wetlands, and moist, open areas along agricultural areas, and mudflats of lacustrine habitats. Prefers to nest in dense wetland vegetation characterized by cattails, tules, or other similar plant species along the border of lakes and ponds.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
SPECIAL-STATUS PLANT SPECIES				
Berberis nevinii Nevin's barberry	Fed: **END** CA: **END** CN 1B.1 PS:	Occurs on steep, north-facing slopes or in low-grade sandy washes in chaparral, cismontane woodland, coastal scrub, and riparian scrub. Found at elevations ranging from 951 to 5,167 feet. Blooming period is from March to June.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Calochortus catalinae Catalina mariposa-lily	Fed: None CA None CN 4.2 PS:	Grows in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland habitats. Found at elevations ranging from 49 to 2,297 feet. Blooming period is from March to June.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Calochortus plummerae Plummer's mariposa-lily	Fed: None CA None CN 4.2 PS:	Prefers openings in chaparral, foothill woodland, coastal sage scrub, valley and foothill grasslands, cismontane woodland, lower montane coniferous forest and yellow pine forest. Often found on dry, rocky slopes and soils and brushy areas. Can be very common after a fire. From 328 to 5,577 feet in elevation. Blooming period is from May to July.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Calystegia felix lucky morning glory	Fed: None CA: None CN 1B.1 PS:	Grows within meadows and seeps (sometimes alkaline) and riparian scrub (alluvial) habitats. Found at elevations ranging from 100 to 705 feet. Blooming period is from March to September.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Chorizanthe parryi* var. *parryi Parry's spineflower	Fed: None CA: None CN 1B.1 PS:	Occurs on sandy and/or rocky soils in chaparral, coastal sage scrub, and sandy openings within alluvial washes and margins. Found at elevations ranging from 951 to 3,773 feet. Blooming period is from April to June.	No	**Presumed Absent** There is no suitable habitat present within the project site.
Cladium californicum California saw-grass	Fed: None CA: None CN 2B.2 PS:	Found in meadows and seeps, marshes and alkaline swamps or freshwater habitats. Found at elevations ranging from 197 to 5,249 feet. Blooming period is from June to September.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.

Scientific Name Common Name	Status		Habitat	Observed On-site	Potential to Occur
Deinandra paniculate paniculate tarplant	Fed: CA CN PS:	None None 4.2	Typically found in vernally mesic, sometimes sandy soils in coastal scrub, valley and foothill grasslands, and vernal pools. Found at elevations ranging from 80 to 3,085 feet. Blooming period is from April to November.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Dodecahema leptoceras slender-horned spineflower	Fed: CA: CN PS:	**END** **END** 1B.1	Chaparral, coastal scrub (alluvial fan sage scrub). Flood deposited terraces and washes. Found at elevations ranging from 1,181 to 2,690 feet. Blooming period is from April to June.	No	**Presumed Absent** There is no suitable habitat present within the project site. The project site occurs outside of the known elevation range for this species.
Horkelia cuneata* var. *puberula mesa horkelia	Fed: CA: CN PS:	None None 1B.1	Occurs on sandy or gravelly soils in chaparral, woodlands, and coastal scrub plant communities. Found at elevations ranging from 230 to 2,657 feet. Blooming period is from February to September.	No	**Presumed Absent** There is no suitable habitat present within the project site.
Juglans californica southern California black walnut	Fed: CA CN PS:	None None 4.2	Found in chaparral, cismontane woodland, coastal scrub, and riparian woodland habitats. Found at elevations ranging from 164 to 2,953 feet. Blooming period is from March to August.	No	**Presumed Absent** There is no suitable habitat present within the project site.
Juncus acutus ssp. leopoldii southwestern spiny rush	Fed: CA CN PS:	None None 4.2	Found in coastal dunes (mesic), meadows and seeps (alkaline seeps), and marshes and swamps (coastal salt). Found at elevations ranging from 0 to 3,115 feet. Blooming period is from May to July.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Lepidium virginicum* var. *robinsonii Robinson's pepper-grass	Fed: CA: CN PS:	None None 4.3	Dry soils on chaparral and coastal sage scrub. Found at elevations ranging from 3 to 2,904 feet. Blooming period is from January to July.	No	**Presumed Absent** There is no suitable habitat present within the project site.
Muhlenbergia californica California muhly	Fed: CA: CN PS:	None None 4.3	Found in mesic, seeps, and streambanks within chaparral, coastal scrub, lower montane coniferous forest, and meadows and seeps. Found at elevations ranging from 328 to 6,562 feet. Blooming period is from June to September.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Muhlenbergia utilis aparejo grass	Fed: CA: CN PS:	None None 2B.2	Grows in wet habitats, including riverbanks and meadows, sometimes alkaline soils. Found at elevations ranging from 80 to 7,630 feet. Blooming period is from October to March.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Navarretia prostrata prostrate vernal pool navarretia	Fed: CA: CN PS:	None None 1B.2	Found in mesic soils in coastal scrub, meadows and seeps, valley and foothill grasslands (alkaline), and vernal pools. Found at elevations ranging from 65 to 2,100 feet. Blooming period is from April to July.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Phacelia stellaris Brand's star phacelia	Fed: None CA: None CN PS: 1B.1	Native to coastal sage scrub and beach dunes on the coast of California and Baja California, where it is known from only a few occurrences.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Pseudognaphalium leucocephalum white rabbit-tobacco	Fed: None CA: None CN PS: 2B.2	Grows in sandy, gravelly soils within chaparral, cismontane woodland, coastal scrub, and riparian woodland habitats. Found at elevations ranging from 0 to 6,890 feet. Blooming period is from July to December.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
Sidalcea neomexicana Salt Spring checkerbloom	Fed: None CA: None CN PS: 2B.2	Habitat includes chaparral, coastal scrub, lower montane coniferous forest, plays, and mojavean desert scrub. Found at elevations ranging from 49 to 5,020 feet. Blooming period is from March to June.	No	**Presumed Absent** There is no suitable habitat present within the project site.
Symphyotrichum defoliatum San Bernardino aster	Fed: None CA: None CN PS: 1B.2	Grows in cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, valley and foothill grassland (vernally mesic). Can be found growing near ditches, streams, and springs within these habitats. Found at elevations ranging from 7 to 6,693 feet. Blooming period is from July to November.	No	**Presumed Absent** There is no suitable habitat present within the project site.
Thysanocarpus rigidus rigid fringepod	Fed: None CA: None CN PS: 1B.2	Occurs along rocky ridges, slopes and washes in woodland and chaparral plant communities. From 1,969 to 7,218 feet in elevation. Blooming period is from February to May.	No	**Presumed Absent** There is no suitable habitat present within or adjacent to the project site.
SPECIAL-STATUS PLANT COMMUNITIES				
Riversidian Alluvial Fan Sage Scrub	CDFW Sensitive Habitat	Occur within broad washes of sandy alluvial drainages that carry rainfall runoff sporadically in winter and spring, but remain relatively dry through the remainder of the year. Is restricted to drainages and floodplains with very sandy substrates that have a dearth of decomposed plant material. These areas do not develop into riparian woodland or scrub due to the limited water resources and scouring by occasional floods.	No	**Absent**

U.S. Fish and Wildlife Service (USFWS) - Federal
END- Federal Endangered
THR- Federal Threatened
Candidate END – Under Review

California Department of Fish and Wildlife (CDFW) - California
END- California Endangered
CSC- California Species of Concern
WL- Watch List
FP- California Fully Protected

California Native Plant Society (CNPS)
California Rare Plant Rank
1A- Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere
1B- Plants Rare, Threatened, or Endangered in California and Elsewhere
2B- Plants Rare, Threatened, or Endangered in California, but More Common Elsewhere
4- Plants of Limited Distribution – A Watch List

Threat Ranks
0.1- Seriously threatened in California
0.2- Moderately threatened in California
0.3- Not very threatened in California

Attachment E

Regulations

Special status species are native species that have been afforded special legal or management protection because of concern for their continued existence. There are several categories of protection at both federal and state levels, depending on the magnitude of threat to continued existence and existing knowledge of population levels.

Federal Regulations

Endangered Species Act of 1973

Federally listed threatened and endangered species and their habitats are protected under provisions of the Federal Endangered Species Act (ESA). Section 9 of the ESA prohibits "take" of threatened or endangered species. "Take" under the ESA is defined as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any of the specifically enumerated conduct." The presence of any federally threatened or endangered species that are in a project area generally imposes severe constraints on development, particularly if development would result in "take" of the species or its habitat. Under the regulations of the ESA, the United States Fish and Wildlife Service (USFWS) may authorize "take" when it is incidental to, but not the purpose of, an otherwise lawful act.

Critical Habitat is designated for the survival and recovery of species listed as threatened or endangered under the ESA. Critical Habitat includes those areas occupied by the species, in which are found physical and biological features that are essential to the conservation of an ESA listed species and which may require special management considerations or protection. Critical Habitat may also include unoccupied habitat if it is determined that the unoccupied habitat is essential for the conservation of the species.

Whenever federal agencies authorize, fund, or carry out actions that may adversely modify or destroy Critical Habitat, they must consult with USFWS under Section 7 of the ESA. The designation of Critical Habitat does not affect private landowners, unless a project they are proposing uses federal funds, or requires federal authorization or permits (e.g., funding from the Federal Highway Administration or a permit from the U.S. Army Corps of Engineers (Corps)).

If USFWS determines that Critical Habitat will be adversely modified or destroyed from a proposed action, the USFWS will develop reasonable and prudent alternatives in cooperation with the federal institution to ensure the purpose of the proposed action can be achieved without loss of Critical Habitat. If the action is not likely to adversely modify or destroy Critical Habitat, USFWS will include a statement in its biological opinion concerning any incidental take that may be authorized and specify terms and conditions to ensure the agency is in compliance with the opinion.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 U.S. Government Code [USC] 703) makes it unlawful to pursue, capture, kill, possess, or attempt to do the same to any migratory bird or part, nest, or egg of any such bird listed in wildlife protection treaties between the United States, Great Britain, Mexico, Japan, and the countries of the former Soviet Union, and authorizes the U.S. Secretary of the Interior to protect and regulate the taking of migratory birds. It establishes seasons and bag limits for hunted species and protects migratory birds, their occupied nests, and their eggs (16 USC 703; 50 CFR 10, 21).

The MBTA covers the taking of any nests or eggs of migratory birds, except as allowed by permit pursuant to 50 CFR, Part 21. Disturbances causing nest abandonment and/or loss of reproductive effort (i.e., killing or abandonment of eggs or young) may also be considered "take." This regulation seeks to protect migratory birds and active nests.

In 1972, the MBTA was amended to include protection for migratory birds of prey (e.g., raptors). Six families of raptors occurring in North America were included in the amendment: Accipitridae (kites, hawks, and eagles); Cathartidae (New World vultures); Falconidae (falcons and caracaras); Pandionidae (ospreys); Strigidae (typical owls); and Tytonidae (barn owls). The provisions of the 1972 amendment to the MBTA protects all species and subspecies of the families listed above. The MBTA protects over 800 species including geese, ducks, shorebirds, raptors, songbirds and many relatively common species.

State Regulations

California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA) provides for the protection of the environment within the State of California by establishing State policy to prevent significant, avoidable damage to the environment through the use of alternatives or mitigation measures for projects. It applies to actions directly undertaken, financed, or permitted by State lead agencies. If a project is determined to be subject to CEQA, the lead agency will be required to conduct an Initial Study (IS); if the IS determines that the project may have significant impacts on the environment, the lead agency will subsequently be required to write an Environmental Impact Report (EIR). A finding of non-significant effects will require either a Negative Declaration or a Mitigated Negative Declaration instead of an EIR. Section 15380 of the CEQA Guidelines independently defines "endangered" and "rare" species separately from the definitions of the California Endangered Species Act (CESA). Under CEQA, "endangered" species of plants or animals are defined as those whose survival and reproduction in the wild are in immediate jeopardy, while "rare" species are defined as those who are in such low numbers that they could become endangered if their environment worsens.

California Endangered Species Act (CESA)

In addition to federal laws, the state of California implements the CESA which is enforced by CDFW. The CESA program maintains a separate listing of species beyond the FESA, although the provisions of each act are similar.

State-listed threatened and endangered species are protected under provisions of the CESA. Activities that may result in "take" of individuals (defined in CESA as; "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill") are regulated by CDFW. Habitat degradation or modification is not included in the definition of "take" under CESA. Nonetheless, CDFW has interpreted "take" to include the destruction of nesting, denning, or foraging habitat necessary to maintain a viable breeding population of protected species.

The State of California considers an endangered species as one whose prospects of survival and reproduction are in immediate jeopardy. A threatened species is considered as one present in such small numbers throughout its range that it is likely to become an endangered species in the near future in the absence of special protection or management. A rare species is one that is considered present in such small numbers throughout its range that it may become endangered if its present environment worsens. State threatened and endangered species are fully protected against take, as defined above.

The CDFW has also produced a species of special concern list to serve as a species watch list. Species on this list are either of limited distribution or their habitats have been reduced substantially, such that a threat to their populations may be imminent. Species of special concern may receive special attention during environmental review, but they do not have formal statutory protection. At the federal level, USFWS also uses the label species of concern, as an informal term that refers to species which might be in need of concentrated conservation actions. As the Species of Concern designated by USFWS do not receive formal legal protection, the use of the term does not necessarily ensure that the species will be proposed for listing as a threatened or endangered species.

Fish and Game Code

Fish and Game Code Sections 3503, 3503.5, 3511, and 3513 are applicable to natural resource management. For example, Section 3503 of the Code makes it unlawful to destroy any birds’ nest or any birds’ eggs that are protected under the MBTA. Further, any birds in the orders Falconiformes or Strigiformes (Birds of Prey, such as hawks, eagles, and owls) are protected under Section 3503.5 of the Fish and Game Code which makes it unlawful to take, possess, or destroy their nest or eggs. A consultation with CDFW may be required prior to the removal of any bird of prey nest that may occur on a project site. Section 3511 of the Fish and Game Code lists fully protected bird species, where the CDFW is unable to authorize the issuance of permits or licenses to take these species. Pertinent species that are State fully protected by the State include golden eagle (*Aquila chrysaetos*) and white-tailed kite (*Elanus leucurus*). Section 3513 of the Fish and Game Code makes it unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

Native Plant Protection Act

Sections 1900–1913 of the Fish and Game Code were developed to preserve, protect, and enhance Rare and Endangered plants in the state of California. The act requires all state agencies to use their authority to carry out programs to conserve Endangered and Rare native plants. Provisions of the Native Plant Protection Act prohibit the taking of listed plants from the wild and require notification of the CDFW at least ten days in advance of any change in land use which would adversely impact listed plants. This allows the CDFW to salvage listed plant species that would otherwise be destroyed.

California Native Plant Society Rare and Endangered Plant Species

Vascular plants listed as rare or endangered by the CNPS, but which have no designated status under FESA or CESA are defined as follows:

California Rare Plant Rank

1A- Plants Presumed Extirpated in California and either Rare or Extinct Elsewhere

1B- Plants Rare, Threatened, or Endangered in California and Elsewhere

2A- Plants Presumed Extirpated in California, But More Common 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 Ranks

.1- Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)

.2- Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)

.3- Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known).

There are three key agencies that regulate activities within inland streams, wetlands, and riparian areas in California. The Corps Regulatory Branch regulates activities pursuant to Section 404 of the Federal Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. Of the State agencies, the CDFG regulates activities under the Fish and Game Code Section 1600-1616, and the Regional Board regulates activities pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act.

Federal Regulations

Section 404 of the Clean Water Act

Since 1972, the Corps and U.S. Environmental Protection Agency (EPA) have jointly regulated the filling of "waters of the U.S.," including wetlands, pursuant to Section 404 of the Clean Water Act (CWA). The Corps has regulatory authority over the discharge of dredged or fill material into the waters of the United States under Section 404 of the CWA. The Corps and EPA define "fill material" to include any "material placed in waters of the United States where the material has the effect of: (i) replacing any portion of a water of the United States with dry land; or (ii) changing the bottom elevation of any portion of the waters of the United States." Examples include, but are not limited to, sand, rock, clay, construction debris, wood chips, and "materials used to create any structure or infrastructure in the waters of the United States." In order to further define the scope of waters protected under the CWA, the Corps and EPA published the Clean Water Rule on June 29, 2015. Pursuant to the Clean Water Rule, the term "*waters of the United States*" is defined as follows:

(i) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide.

(ii) All interstate waters, including interstate wetlands[1].

(iii) The territorial seas.

(iv) All impoundments of waters otherwise defined as waters of the United States under the definition.

(v) All tributaries[2] of waters identified in paragraphs (i) through (iii) mentioned above.

(vi) All waters adjacent[3] to a water identified in paragraphs (i) through (v) mentioned above, including wetlands, ponds, lakes, oxbows, impoundments, and similar waters.

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[1] The term *wetlands* means those areas that are inundated or saturated by surface or groundwater 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.

[2] The terms *tributary* and *tributaries* each mean a water that contributes flow, either directly or through another water (including an impoundment identified in paragraph (iv) mentioned above), to a water identified in paragraphs (i) through (iii) mentioned above, that is characterized by the presence of the physical indicators of a bed and banks and an ordinary high water mark.

[3] The term *adjacent* means bordering, contiguous, or neighboring a water identified in paragraphs (i) through (v) mentioned above, including waters separated by constructed dikes or barriers, natural river berms, beach dunes, and the like.

(vii) All prairie potholes, Carolina bays and Delmarva bays, Pocosins, western vernals pools, Texas coastal prairie wetlands, where they are determined, on a case-specific basis, to have a significant nexus to a water identified in paragraphs (i) through (iii) meantioned above.

(viii) All waters located within the 100-year floodplain of a water identified in paragraphs (i) through (iii) mentioned above and all waters located within 4,000 feet of the high tide line or ordinary high water mark of a water identified in paragraphs (i) through (v) mentioned above, where they are determined on a case-specific basis to have a significant nexus to a waters identified in paragraphs (i) through (iii) mentioned above.

The following features are not defined as "waters of the United States" even when they meet the terms of paragraphs (iv) through (viii) mentioned above:

(i) Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act.

(ii) Prior converted cropland.

(iii) The following ditches:

  (A) Ditches with ephemeral flow that are not a relocated tributary or excavated in a tributary.
  (B) Ditches with intermittent flow that are not a relocated tributary, excavated in a tributary, or drain wetlands.
  (C) Ditches that do not flow, either directly or through another water, into a water of the United States as identified in paragraphs (i) through (iii) of the previous section.

(iv) The following features:

  (A) Artificially irrigated areas that would revert to dry land should application of water to that area cease;
  (B) Artificial, constructed lakes and ponds created in dry land such as farm and stock watering ponds, irrigation ponds, settling basins, fields flooded for rice growing, log cleaning ponds, or cooling ponds;
  (C) Artificial reflecting pools or swimming pools created in dry land;
  (D) Small ornamental waters created in dry land;
  (E) Water-filled depressions created in dry land incidental to mining or construction activity, including pits excavated for obtaining fill, sand, or gravel that fill with water;
  (F) Erosional features, including gullies, rills, and other ephemeral features that do not meet the definition of a tributary, non-wetland swales, and lawfully constructed grassed waterways; and
  (G) Puddles.

(v) Groundwater, including groundwater drained through subsurface drainage systems.

(vi) Stormwater control features constructed to convey, treat, or store stormwater that are created in dry land.

(vii) Wastewater recycling structures constructed in dry land; detention and retention basins built for wastewater recycling; groundwater recharge basins; percolation ponds built for wastewater recycling; and water distributary structures built for wastewater recycling.

Section 401 of the Clean Water Act

Pursuant to Section 401 of the CWA, any applicant for a federal license or permit to conduct any activity which may result in any discharge to waters of the United States must provide certification from the State or Indian tribe in which the discharge originates. This certification provides for the protection of the physical, chemical, and biological integrity of waters, addresses impacts to water quality that may result from issuance of federal permits, and helps insure that federal actions will not violate water quality standards of the State or Indian tribe. In California, there are nine Regional Water Quality Control Boards (Regional Board) that issue or deny certification for discharges to waters of the United States and waters of the State, including wetlands, within their geographical jurisdiction. The State Water Resources Control Board assumed this responsibility when a project has the potential to result in the discharge to waters within multiple Regional Boards.

State Regulations

Fish and Game Code

Fish and Game Code Sections 1600 et. seq. establishes a fee-based process to ensure that projects conducted in and around lakes, rivers, or streams do not adversely impact fish and wildlife resources, or, when adverse impacts cannot be avoided, ensures that adequate mitigation and/or compensation is provided.

Fish and Game Code Section 1602 requires any person, state, or local governmental agency or public utility to notify the CDFW before beginning any activity that will do one or more of the following:

(1) substantially obstruct or divert the natural flow of a river, stream, or lake;
(2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or
(3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake.

Fish and Game Code Section 1602 applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the State. CDFW's regulatory authority extends to include riparian habitat (including wetlands) supported by a river, stream, or lake regardless of the presence or absence of hydric soils and saturated soil conditions. Generally, the CDFW takes jurisdiction to the top of bank of the stream or to the outer limit of the adjacent riparian vegetation (outer drip line), whichever is greater. Notification is generally required for any project that will take place in or in the vicinity of a river, stream, lake, or their tributaries. This includes rivers or streams that flow at least periodically or permanently through a bed or channel with banks that support fish or other aquatic life and watercourses having a surface or subsurface flow that support or have supported riparian vegetation. A Section 1602 Streambed Alteration Agreement would be required if impacts to identified CDFW jurisdictional areas occur.

Porter Cologne Act

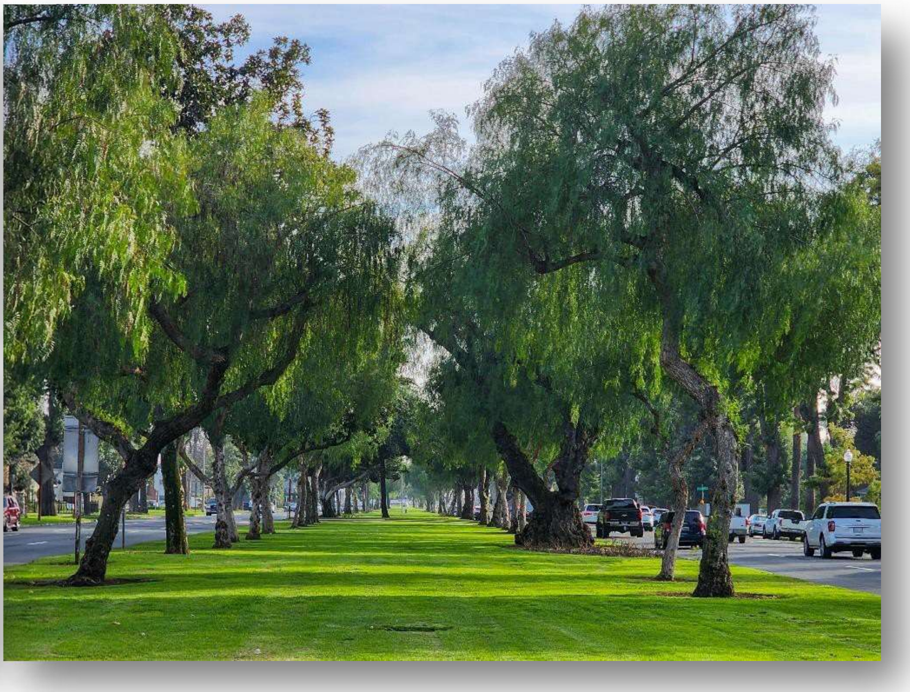
The California *Porter-Cologne Water Quality Control Act* gives the State very broad authority to regulate waters of the State, which are defined as any surface water or groundwater, including saline waters. The Porter-Cologne Act has become an important tool in the post SWANCC and Rapanos regulatory environment, with respect to the state's authority over isolated and insignificant waters. Generally, any person proposing to discharge waste into a water body that could affect its water quality must file a Report of Waste Discharge in the event that there is no Section 404/401 nexus. Although "waste" is partially defined as any waste substance associated with human habitation, the Regional Board also interprets this to include fill discharged into water bodies.

APPENDIX C

Tree Survey and Arborist Report
CalPacific, March 22 Updated December 27, 2024

Tree Survey and Arborist Report

in Support of the Euclid Avenue Recycled Water Distribution System Project In the City of Ontario, California



Prepared for: **ELMT Consulting**
Contact: Travis McGill, Director/Biologist
2201 N. Grand Avenue #10098 | Santa Ana, CA 92711

Prepared by: **CalPacific Sciences**
George J Wirtes, MS, RCA #738
ISA Certified and ASCA Registered Consulting Arborist

Report Date: March 22,
Updated December 27, 2024

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SECTION 1: EXECUTIVE SUMMARY

This arborist survey has been performed at the request of ELMT Consulting for a proposed Euclid Avenue Recycled Water Distribution System Project in the City of Ontario, California. The project includes the installation of recycled water mains beneath City streets and connecting them to existing infrastructure.

The subject trees were tagged with an aluminum tag, containing a unique number. As part of this survey, details of each tree were recorded, documenting their species, stature, health, local environment as well as conditions in which they occur. The primary goal of this assessment was to provide an insight on protecting the City's trees during the implementation of the project. In all, 729 trees were assessed onsite involving 41 distinct species. The most prominent tree species surveyed included, silk oak (*Grevillea robusta)*, western sycamore (*Platanus racemosa*), and Peruvian pepper (*Schinus molle*). In addition, 379 trees onsite qualify as Heritage trees (see Section 2.6.1 below).

In all, 566 trees were found to be in fair to excellent health. The remaining 163 trees show signs of disease/decline, lack adequate vigor, or show poor growth form/branch attachment posing an elevated risk of failure, thereby necessitating consideration for removal. In addition, ten (10) trees were noted as posing an immediate hazard requiring urgent attention due to the failure risk they pose to nearby vehicular and pedestrian traffic. In many cases, poor trimming practices (such as flush cuts or topping) accelerated the tree's decline. Finally, many of the silk oak trees along the Euclid Avenue corridor contain canopies that obscured observation of structural defects; these trees are heritage trees, but at the same time, are senescent and known for their weak wood strength (UFEI 2024), so careful follow up maintenance is recommended.

The City of Ontario's Development and Municipal Codes (Section 2.6 below) outline provisions and guidelines for City tree removal, installation, preservation, and maintenance within the City, specific to development and improvements. All trees that are removed as part of a project require approval and must be replaced in accordance with the City's Development and Municipal Codes (see Section 2.6 below), or as approved by the Planning Director. In addition, the Planning Department has an approved list of tree species that must be considered, however with heritage trees, a like-kind species must be considered.

During the installation of the project, the tree protection zones (also referred to as root protection zones) must be identified and avoided to the greatest extent possible. If encroachment is unavoidable, tunneling must be considered to avoid adverse impacts (see Section 4.3.2 below). The project design must implement this approach to the greatest extent feasible.

SECTION 2: BACKGROUND

2.1 - Project Location and Description

The Proposed Project will construct approximately 20,400 linear feet (LF) of City-owned and operated recycled water mains, install approximately 300 LF of lateral connections, and will convert approximately 2,000 LF of existing potable water mains for distribution of recycled water within city limits. Proposed improvements will be completed using open trench construction methods and will involve approximately 63,400 square feet of disturbance and approximately 384,400 cubic feet of earthwork. The Project involves primarily underground infrastructure improvements and ancillary appurtenances above ground surface within landscaped areas, such as valves. At connection points with existing irrigation systems, Project implementation will remove portions of existing landscaping and paved surfaces. Upon completion of construction, existing surfaces will be restored to pre project conditions at connection points and along the new and converted recycled water mains.

At the north end of the Project, plans show a point of connection at the IEUA recycled water main within the intersection of Euclid Avenue and 4th Street. A new recycled water main will be constructed in the northbound lane of Euclid Avenue, adjacent to the Euclid Avenue median, between 4th Street and E. Holt Boulevard; new mains will also be constructed within portions of E. E Street, W. F Street, W. Flora Street and N. Vine Avenue. The Project will convert existing potable water mains located in E. C Street, E. B Street, and N. Lemon Avenue to recycled water. The Project will install laterals from the new and converted recycled water mains to existing irrigation systems for the Euclid Avenue center median, James R. Bryant Park, the Civic Center complex (City Hall/Seniors' Center), and Town Square Park (amphitheater/recreation center).

On the south end of the Project, plans show a point of connection with the existing City of Ontario recycled water system located within Riverside Drive, east of Baker Avenue. A new recycled water main will be constructed in the eastbound lanes of Riverside Drive between Euclid Avenue and just east of Baker Avenue. The project will install laterals from the new recycled water main to existing irrigation systems for Centennial Park, a portion of landscaped parkway along E. Riverside Drive west of Bon View Avenue, and a portion of the landscaped median on Euclid Avenue between E. Riverside Drive and E Walnut Street.

2.2 - Site and Vicinity Characteristics

The elevation of the northern alignment ranges from approximately 1,010 to 1,090 feet above mean sea level (amsl) and slopes gently to the south. The elevation of the southern alignment is at approximately 780 feet amsl. The geological basement rock is described as young alluvial fan deposits from the Holocene to Late Pleistocene (approx. 0.012 MYA) periods. The soil within the project area is described by the Natural Resource Conservation Service as alluvium, derived from granite and include the series Delhi fine sand, Hilmar loamy fine sand, and Tujunga loamy fine sand. For the vicinity, the Sunset Zone is 18, and the USDA Hardiness zone is 9b.

The alignments will be routed beneath existing paved streets, and the adjacent areas are mostly landscaped with parkways, sidewalks, parks, residential lots livestock pastures, and unpaved road shoulders.

Figure 1a. This is a view to the east at a stand of trees with their canopies over-hanging Riverside Ave.

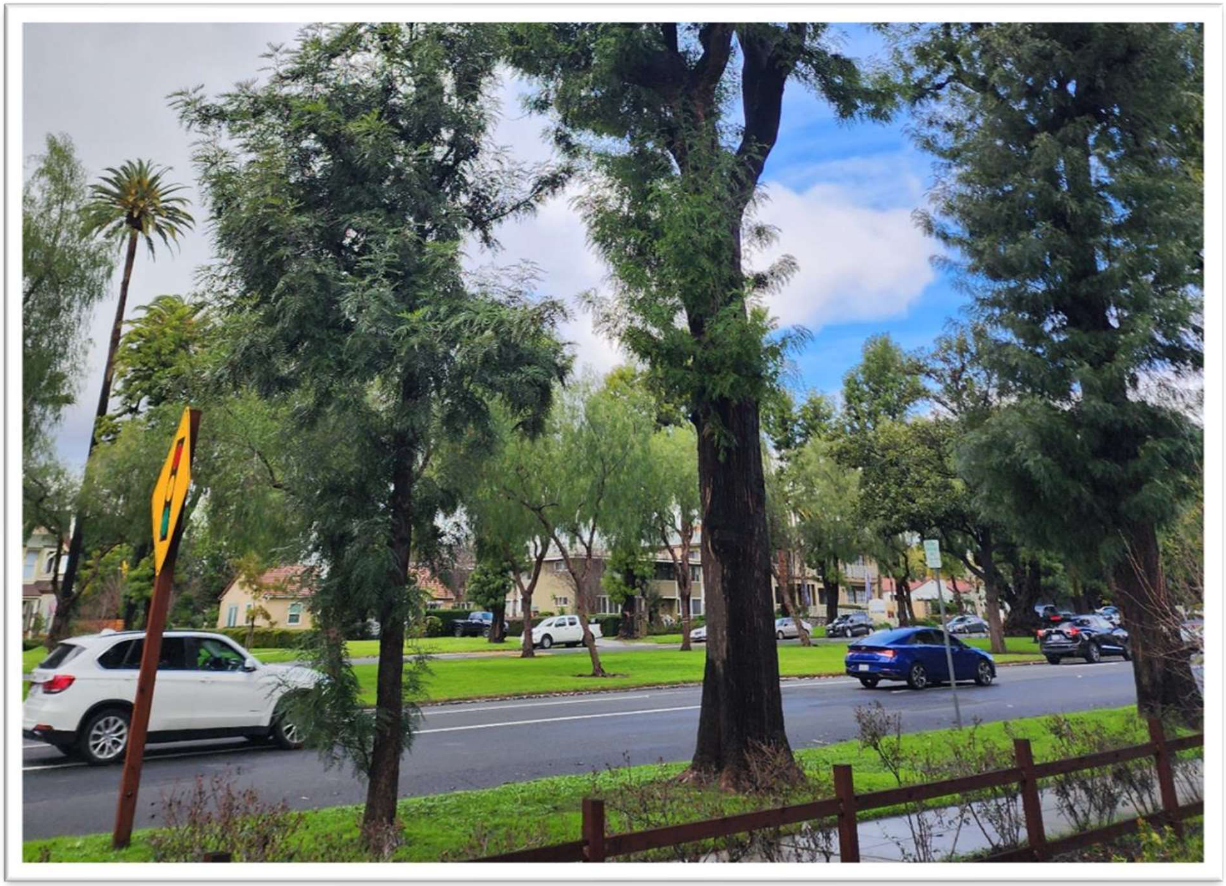


Figure 1b. This is a view to the northwest across Euclid Ave. showing heritage trees' proximity to the traffic corridor.

2.2.1 - Urban Forest

California is a unique setting having its own floristic province while supporting a robust population of both, people and endemic floral species. Typically, the term urban forest refers to all trees within a densely populated area; this includes trees within cities located in parks, streetways, easements, private property etc. within a community or urban forest. In this capacity, trees provide many benefits, as they help to reduce air and water pollution, alter heating and cooling costs, reduce storm runoff, increase real estate values, provide habitat for plants and animals, and increase the quality of life for the community.

Implementing trees of various size, shape, and species serve many vital functions to the community and wildlife, contributing to spatial complexity, species richness as well as abundance. Many municipalities promote approved tree lists comprised of hardy species that thrive and reduce the threat of failure in harsh environments. Integrating carefully selected native species can also serve the community well, and enriches the experience, promoting an environment better suited to the resident avian and butterfly population.

The project site is a very small component of the urban forest that makes up the inland community in Southern California. Within the site, there is a moderate diversity of tree species at 41 with the top three species represented composing 39.5% of the total tree population present. The subject trees are diverse in stature with variation in tree height and tree scaffolding. Seventy-four (or 15.6%) of the trees are California natives.

2.3 - Assignment and Scope of Survey

CalPacific Sciences (CPS) was assigned to conduct a tree survey and health assessment of all trees within the project area. The primary goal of the study was to accumulate information on the trees potentially impacted by the routing of the water mains so significant adverse impacts could be avoided. The survey performed identified the various tree species immediately adjacent to the project. A health assessment was performed, cataloging the health and stature parameters of each tree within the street ROW (included NB Euclid Ave. only). This included, but was not limited to; recording total diameter at breast height (DBH), canopy spread, tree height, apparent disease/decay, other signs of potential hazard, and pest damage. A limited risk assessment was also conducted keeping public safety in mind. All documentation in this report is in compliance with standards and requirements published by the International Society of Arboriculture (ISA). This report includes recommendations and mitigation measures meant to satisfy all applicable ordinances and permit guidelines.

2.4 - Survey Method and Health Assessment

Prior to the field survey, the City of Ontario's website was accessed to review specific tree protection guidelines. An aerial photograph was used as a visual guide during the assessment. A handheld Global Positioning System (GPS) device (Garmin GPSMAP66sr) and GPS-enabled smartphone (Samsung S22 Ultra) with digitized project boundaries were used to identify the location of each subject tree. The GPS data was exported into ArcMap GIS for periodic illustration over aerial photographs.

Unless otherwise dictated by the local regulation, trees with a DBH of ≥5 inches were included in this assessment. The crown-width was estimated by pacing or with a laser measuring device (Bosch), and the height of each subject tree was visually estimated using a tangent height gauge. These data were recorded on field sheets, and associated aluminum numeric tags were affixed to trees on the north side at BH for later reference.

Tree status (relative condition, stature, and health) was conducted by ISA certified and ASCA registered consulting arborist and biologist, George Wirtes from ground level with the aid of binoculars. As indicated earlier, no invasive procedures were performed. Visual characteristics were recorded on field sheets, and twig/leaf samples as well as digital photographs were taken as needed to assure accurate identification. Overall health and general appearance of each tree was numerically rated (Health/General Appearance Rating - 1-Good, 2-Fair, 3-Poor, 4-Decline/dead) based on the conditions. Tree stature was also assessed in relation to the tree species shape (lean, scaffolding, offset canopy mass, etc.) with the rating as follows: 1-Good, 2-Fair, 3-Poor, 4-hazardous. Other conditions were also considered such as fence lines, utilities, competing canopies, grade cuts/slope, etc.

2.5 - Hazard Risk Assessment

The International Society of Arboriculture (ISA) recommends a Hazard Assessment be included with arborist reports. Such an assessment is an important component of any report and is critical if trees are to be located near public areas such as parks, walkways, residences, and buildings. This tree assessment includes a *Level 2 Basic Risk Assessment* as defined by ISA Best Management Practices. This type of assessment is limited to evaluating trees and obvious signs of defects such as:

- Dead or broken structures
- Cracks
- Weakly attached branches and co-dominant stems
- Missing or decayed wood
- Unusual tree architecture or distribution
- Obvious loss of root support

A risk rating is assigned to each tree based on its defects, aesthetics, apparent health, location and the nearby targets (people or property). In this context, risk refers to consequences and likelihood of failure and impacting a target (person or property). As defined by ISA The ratings are defined below:

1. *Low* - Low-risk category applies when consequences are negligible, and likelihood is unlikely, or consequences are minor, and likelihood is somewhat likely.

2. *Moderate* - Moderate risk situations are those for which consequences are minor and likelihood is very likely or likely or likelihood is somewhat likely, and the consequences are significant or severe.

3. *High* - High-risk situations are those for which consequences are significant and likelihood is very likely or likely or Consequences are severe, and likelihood is likely.

4. *Extreme* - The extreme risk category applies in situations in which failure is imminent and there is a high likelihood of impacting the target and the consequence of the failure is severe. The tree risk assessor should recommend that mitigation measures be taken as soon as possible.

It is impossible to maintain a tree free of risk. A tree is considered hazardous when it has a structural defect that predisposes it to failure, and it is located near a target.

- A target is person or property that may sustain potential injury or property damage if a tree or a portion of a tree fails.
- Target areas include sidewalks, walkways, roads, vehicles, structures, playgrounds, or any other area where people are likely to gather.
- Structurally sound and healthy trees may also be hazardous if they interfere with utilities, roadways, walkways, and sidewalks, or if they obstruct motorist vision.
- Common hazards include dead and diseased trees, dead branches including bark, stubs from topping cuts, broken branches (hangers), multiple leaders, tight-angled crotches, and an unbalanced crown. Evaluation of risk is as follows: 1-Good, 2-Fair, 3-Poses risk, and 4-Hazardous.

2.6 - Local Tree Regulation (Ontario Municipal Code (OMC) and Development Codes)

Section 10-2 (Chapter 2) of the Ontario Municipal Code (Code) addresses tree protection, maintenance, and replacement policies for trees (mostly publicly owned) within the City (see Section 2.6.3 below). Tree mitigation pertaining to new development within the City is mostly described within its Development Code (see below). *The City also protects trees adjacent to construction requiring the guidelines contained in Appendix B to be adhered to. The following provisions are found within the Code.*

2.6.1 - Heritage Tree Preservation (Ontario Dev. Code 6.05.020 C)

As indicated within the City's Development Code, the term "Heritage Tree" means a tree designated for preservation pursuant to Section 4.02.060 (Historic Preservation—Historic Landmark and District Designations, and Architectural Conservation Areas), as a tree of historic or cultural significance, or a tree of importance to the community due to any one of the following factors:

a) It is one of the largest or oldest trees of the species located in the City with a trunk diameter of 18 inches or greater at DBH; or
b) It has historical significance due to an association with an historic building, site, street, person, or event; or
c) It is a defining landmark or significant outstanding feature of a neighborhood or district, or typical of early Ontario landscapes, including:
    - *Cinnamomum camphora* (Camphor Tree),
    - *Cedrus deodara* (Deodar Cedar),
    - *Platanus acerifolia* (London plane),
    - *Quercus suber* (Cork Oak),
    - *Quercus ilex* (Holly Oak), or
    - *Schinus molle* (California Pepper); or
d) It is a Native Tree. The term "Native Tree" means any one of the following California native tree species, which has a trunk diameter of more than 8 inches, measured DBH, including:
    - *Platanus racemosa* (California Sycamore),
    - *Pinus torreyana* (Torrey Pine),
    - *Quercus agrifolia* (Coast Live Oak),
    - *Quercus engelmannii* (Engelmann Oak),
    - *Quercus lobata* (Valley Oak), or
    - *Umbellularia californica* (California Bay).

2.6.2 - Heritage Tree Replacement (Ontario Dev. Code 6.05.020 J)

Healthy Heritage Trees that are approved for removal shall be replaced with new trees and shall be shown on required Landscape and Irrigation Construction Documentation Plans. *Replacement trees shall have a total trunk diameter (caliper) equal to the tree(s) removed, or as deemed appropriate by the Approving Authority based on the lot size and available planting space.* Replacement trees shall be in addition to the quantity of trees required by the Planning Department for landscaping (see Section 6.05.035 (Landscape Development Standards) for required trees).

2.6.3 - Parkway Trees Removal Permits (OMC Section 10-2.06)

No person shall remove or relocate any parkway tree (parkway shall mean that portion of any public street right-of-way between the right-of-way boundary line and the curb line) without prior authorization from the Public Works Agency of the City. A parkway tree may be removed by the City for any of the following reasons:

(a) Visual hazard. Obstructing sight distance necessary for the safe operation of vehicles at street intersections, or obscuring in an otherwise incurable manner any traffic or railroad crossing signal or other safety device.
(b) Safety hazard. Any condition deemed to be an immediate hazard to life or property which cannot otherwise be corrected.
(c) Condition. Dead, decayed, or diseased beyond correction.
(d) Unauthorized. Planted without a permit, improper location or variety, or prohibited type.
(e) Where the removal is necessary to reasonably utilize solar collectors, and:
    - Thirty (30) days prior to installation of the solar collectors, the City was notified in writing of the intent to install such collectors;
    - The solar collectors, where possible, are located so that no street tree removal is required; and
    - The removal of such tree or trees will not be detrimental to the general public.

The City has particular requirements as to the size, shape, and species for the planting of parkway trees that can be found within the Code (Chapter 2, Section 10-2.07).

2.7 - Limitations and Exceptions of Assessment

This assessment was performed on trees with a minimum DBH of 5-inches or greater, unless otherwise specified in the City's Municipal Code. The survey was conducted in a manner that draws upon past education, acquired knowledge, training, experience, and research. It was performed to the greatest extent feasible, and although the information gathered reduces risk of tree failure/decline, it does not fully remove risk.

California has a Mediterranean climate, and the costal environment provides excellent growing conditions for many floral species from all over the world. Trees mostly flower and fruit in the spring and fall months revealing characteristics that aid in their identification. Trees may not exhibit such features due to factors related to their health, vigor, reproduction strategy, etc. There is a potential (albeit small) for a tree species to be misidentified. Drawing clues from the leaves (shape and position), bark, tree morphology, and any other structures (inflorescence, fruit, etc.), every effort was made to provide a conclusive species name to the greatest degree possible.

As described in the Survey Methodology in Section 2.4 above, tree location was recorded using a Garmin GPSMAP 66sr; this device is known to have an error of up to 3 meters. No invasive diagnostic testing was performed during this assessment. The survey associated with this arborist report was *visual only* in nature and did not include soil sampling, root excavation, trunk coring/drilling or any other invasive procedure. The determinations of damage due to pest infestation and decay were made solely on outward appearance and inspection of the tree structures. Not all tree defects may be readily visible from the ground or apparent at the time of the survey, especially during rain events when the wood is wet. This is especially important when considering the trees within the Euclid Avenue Corridor. Many of the trees are senescent, Heritage trees with robust canopies limiting viewing of the upper tree structure.

Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Internal or heartwood decay can be present and significant while showing little outward indication of wood rot internally. Epiphytic growth can also obscure defects on the stem and in the canopy of a tree. Trees are living organisms subject to attack by disease, insects, fungi and other forces of nature. Many aspects of tree health and environmental conditions are often not detectable (internal decay, poor root anchoring, etc.). Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time.

Considering the extensive nature of this task and the numerous trees involved, the objective was to evaluate the overall health, stature, and potential risks of the trees related to the proposed project. It is beyond the scope of this assignment to document every detail or recommend a solution for each condition presented by any individual tree, and further evaluation may be necessary. Another key objective was to determine if each tree could contribute to the project beyond a one-year timeframe without posing a significant hazard or experiencing substantial decline. Trees that are in decline, pose a hazard, or exhibit poor aesthetics may be recommended for removal. Ultimately, it is up to the decision-makers to accept or reject recommendations presented below.

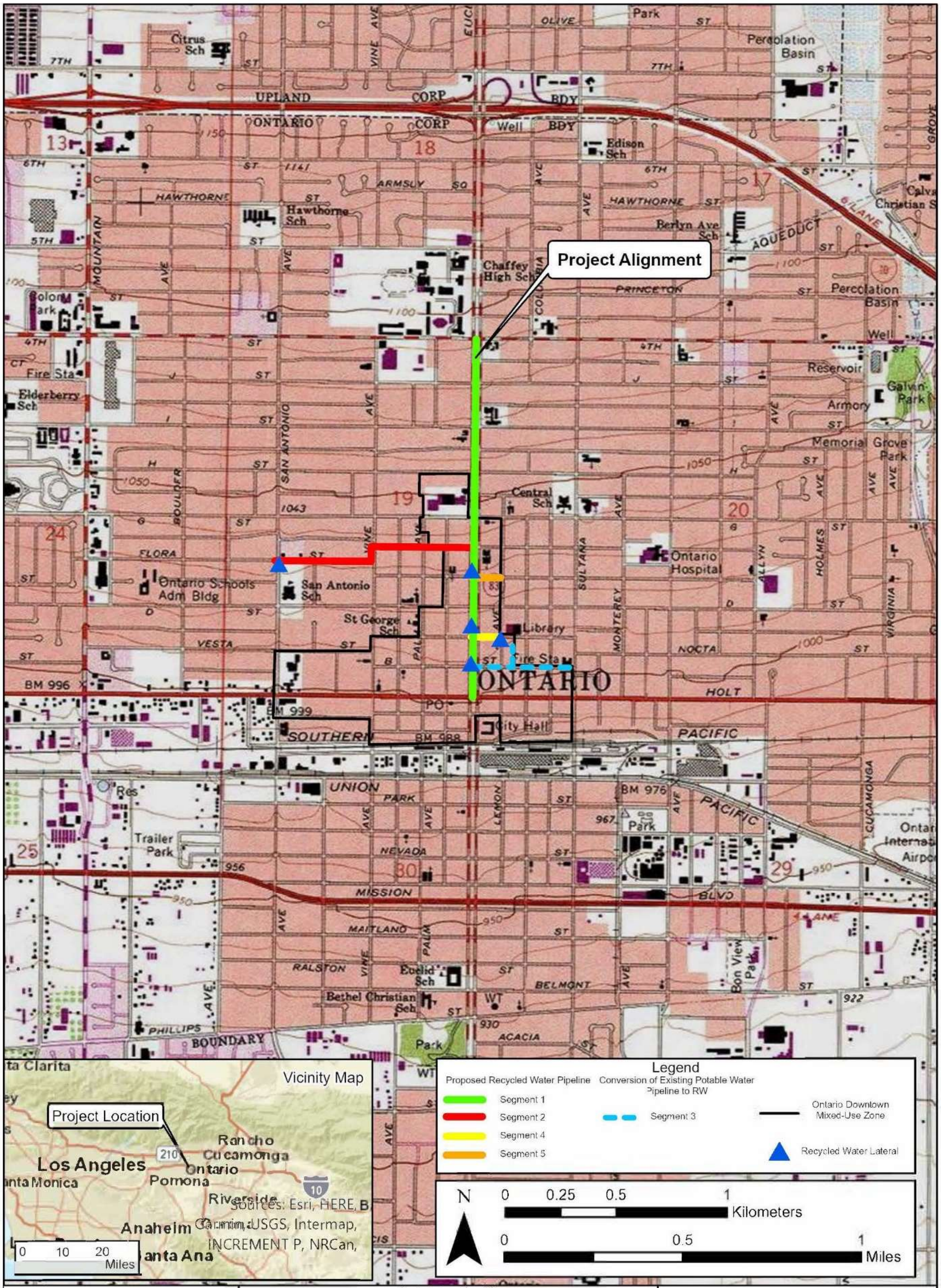
Given the location of the trees with frequent targets, bias was given to limiting injury, property damage, and risk exposure within the proposed development moving forward. The statements made in this report do not consider the effects of climate/wind extremes, vandalism, or accident (whether physical, chemical, or fire). In addition, this area is known to have periodic, high velocity Santa Ana winds from transient high-pressure ridges. CPSC cannot, therefore, accept any liability in connection with these factors, or where prescribed work is not carried out in a correct and professional manner in accordance with current ISA good practice.

The authority of this report ceases at any stated time limit within it, after one year from the date of the survey (if none stated), when any site conditions change, or after pruning (or other activity) not prescribed in this report.

The conclusions contained herein rely on documentation readily available and further review of local law and communication with the City's planning department are recommended. In addition, consulting arborist are *not* risk managers nor responsible for tree removal or preservation. They make recommendations based on several factors, including (but not limited to) tree health and public safety. Clients may choose to accept or disregard the recommendations contained within this report; or seek additional advice. ***To live near trees is to accept some degree of risk. The only way to eliminate all risk is to remove all trees onsite***.

SECTION 3: SUBJECT TREES AND OBSERVATIONS

During the site survey, specific measurements and parameters of all trees onsite were recorded on tree assessment worksheets; these data have been transferred into the table in Appendix A at the end of this document. In all, 709 trees were assessed in the vicinity of the two alignments or routes (see Figure 2a and 2b below).

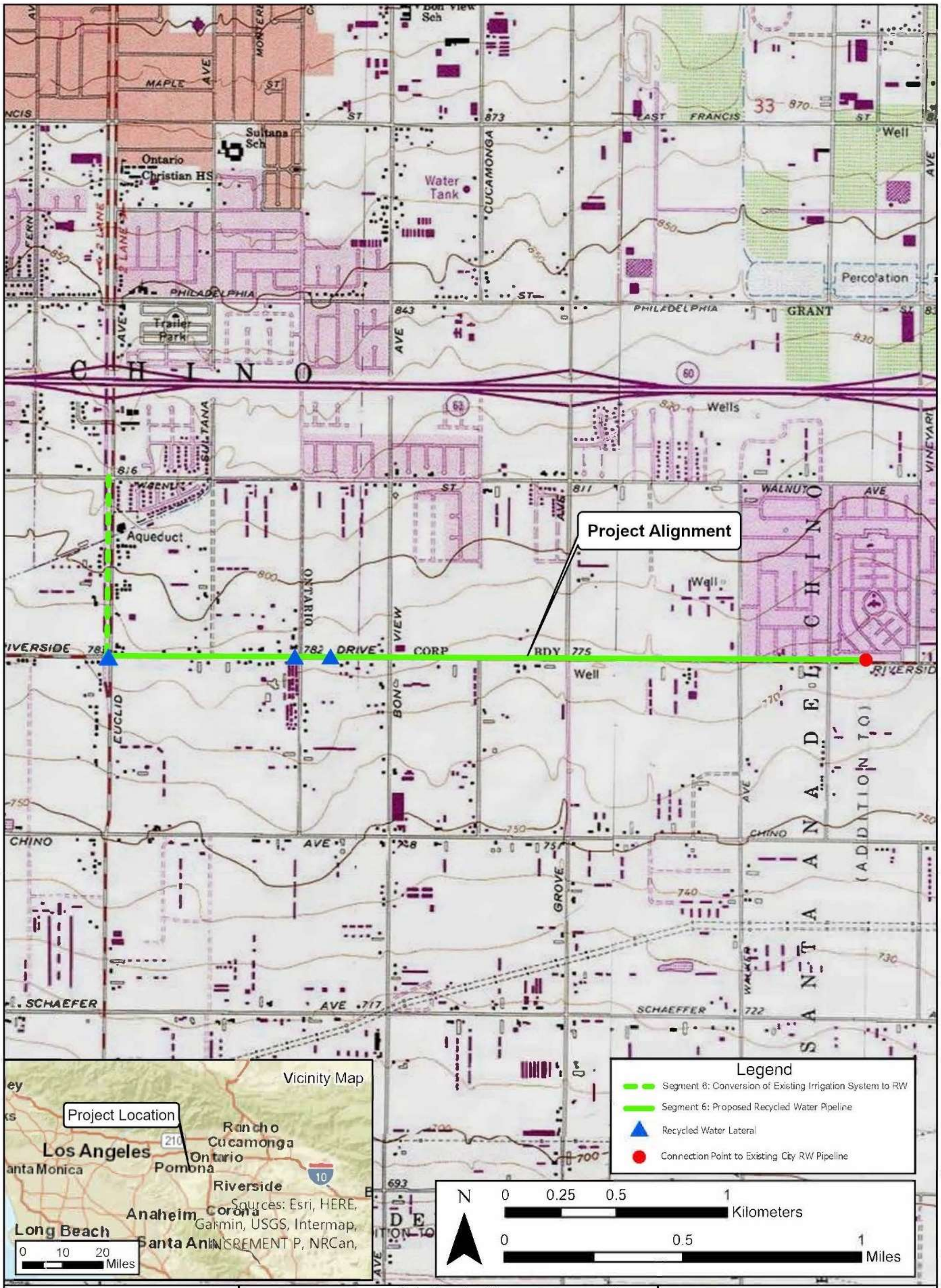


Project Location Site
Ontario Recycled Water Distribution Project

Figure 1

Ardurra

Reference: ESRI; USGS Quad: Ontario (1981), California



Project Location Site
Ontario Recycled Water Distribution Project

Figure 2

Reference: ESRI; USGS Quad: Ontario (1981), Guasti (1981), California

Ardurra

3.1 Tree Protection Zone (TPZ) and Critical Root Zone (CRZ)

A tree's Critical Root Zone includes the area in which the significant structural roots, critical to the tree's structural integrity, are located. A TPZ is meant to protect the tree's limbs, trunk and roots from construction damage by discouraging the storage of materials beneath the tree's canopy, accidental releases of chemicals, and the accidental breakage or damage of tree structures. The TPZ (also referred to as Root Protection Zone (RPZ) in Appendix B) should extend at least one foot from the face of the trunk for each inch in trunk diameter (measured at a height of 4.5 feet), with a minimum of a 2-foot TPZ for small trees. The TPZ should be extended to 1.5 feet per inches DBH for sensitive or overmature trees. Figures 3 a-e show the TPZ for all surveyed trees near the Northern Alignment, and Figures 4 a-d show the TPZ and tree species for the Southern alignment. *Note: The TPZ/RPZ is displayed at one and a half foot per inch DBH in the figures below, but this may be adjusted for younger, healthier trees.*

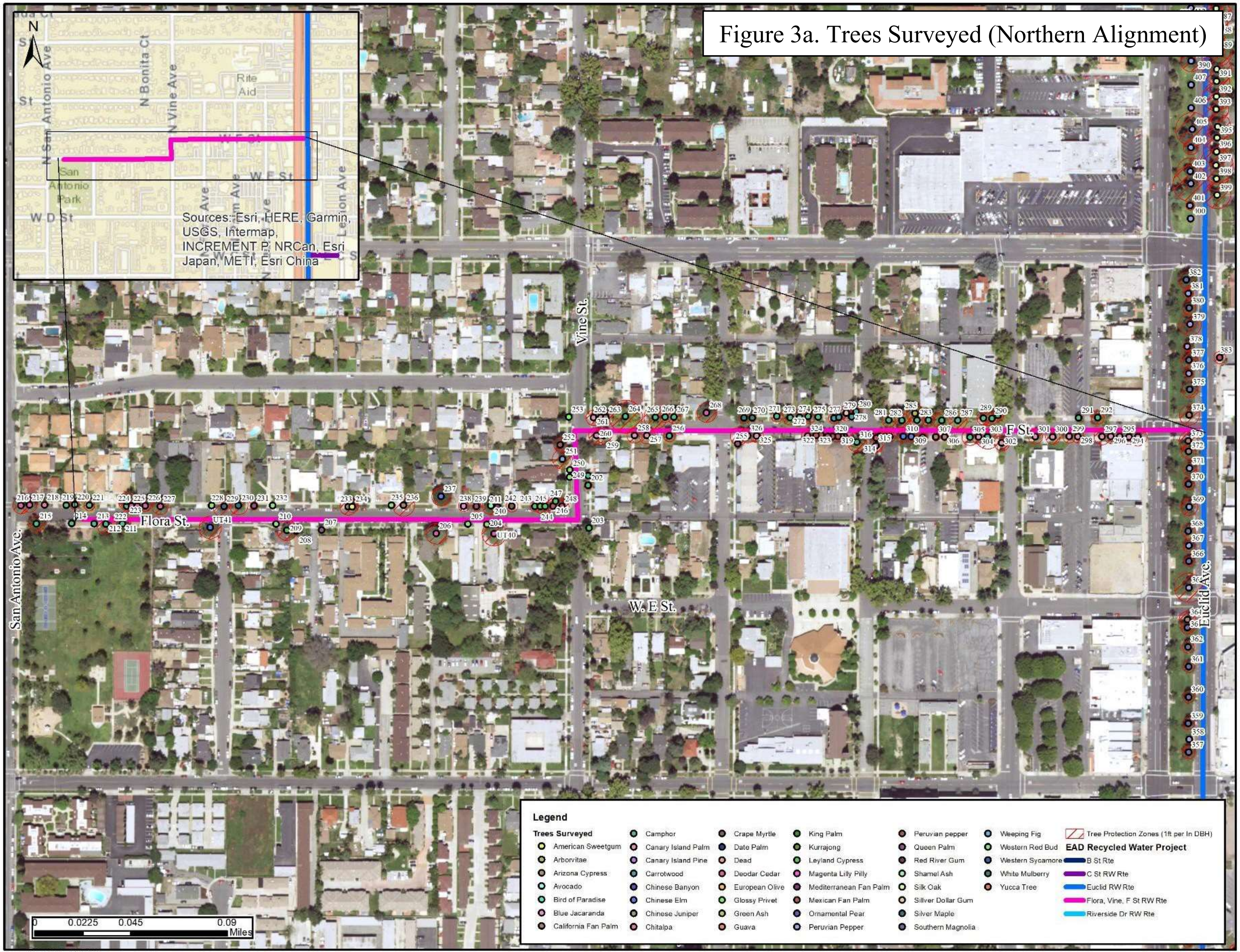


Figure 3a. Trees Surveyed (Northern Alignment)

Source: USGS, ESRI and NAIP 2024

Figure 3b. Trees Surveyed (Northern Alignment)

Source: ESRI and Google Maps, 2024

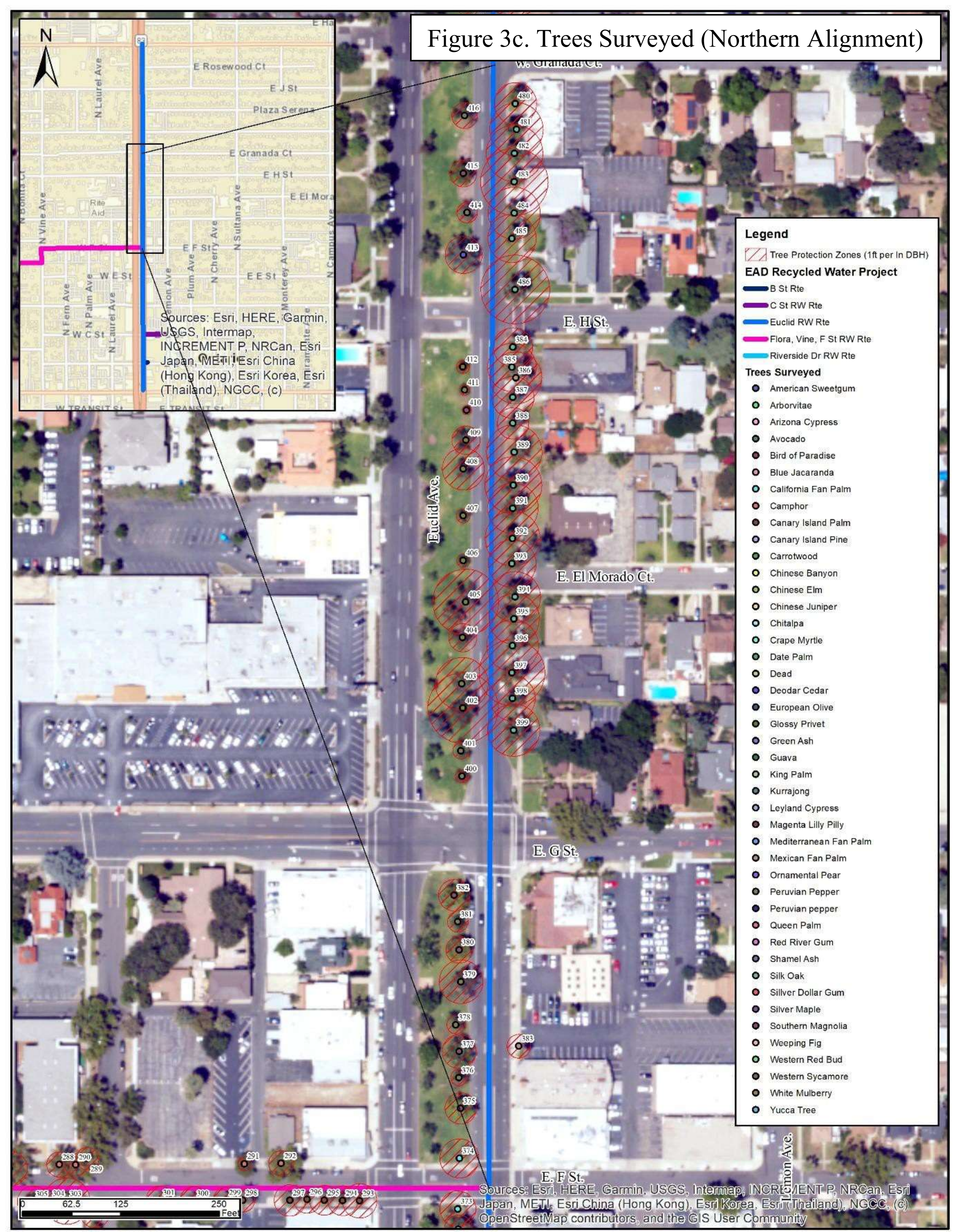


Figure 3c. Trees Surveyed (Northern Alignment)

Source: USGS, ESRI and NAIP 2024

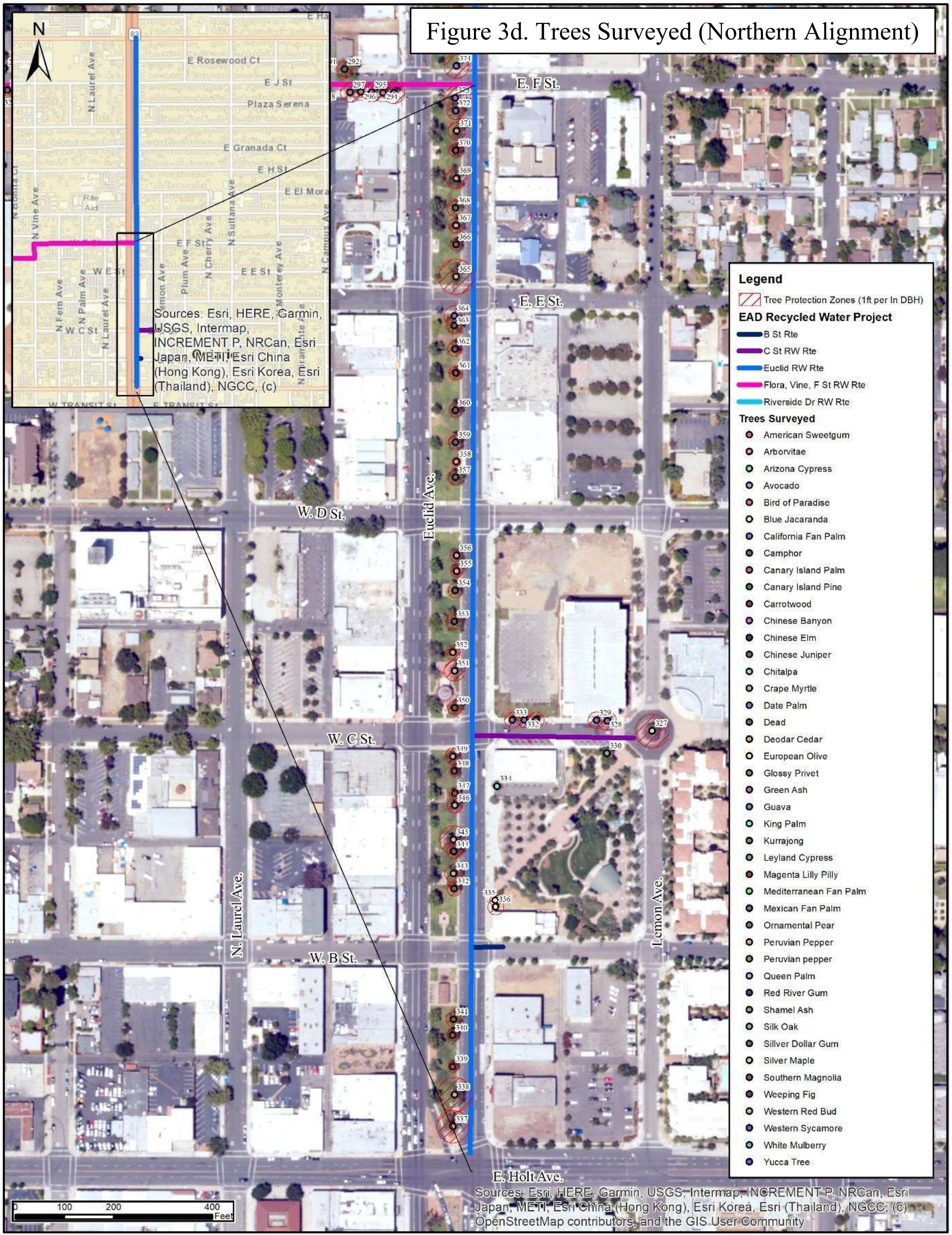


Figure 3d. Trees Surveyed (Northern Alignment)

Source: USGS, ESRI and NAIP 2024

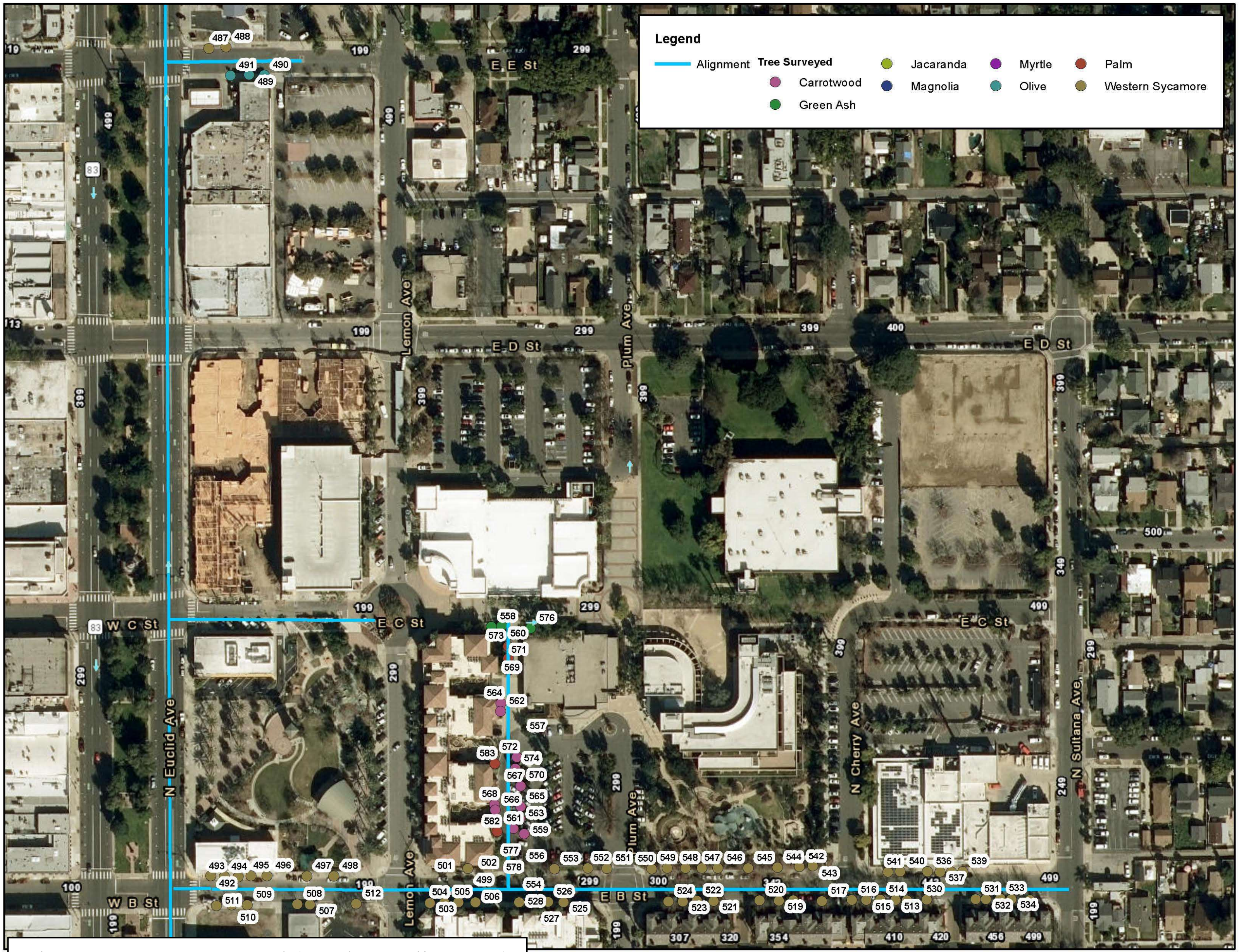


Figure 3e. Trees Surveyed (Northern Alignment)

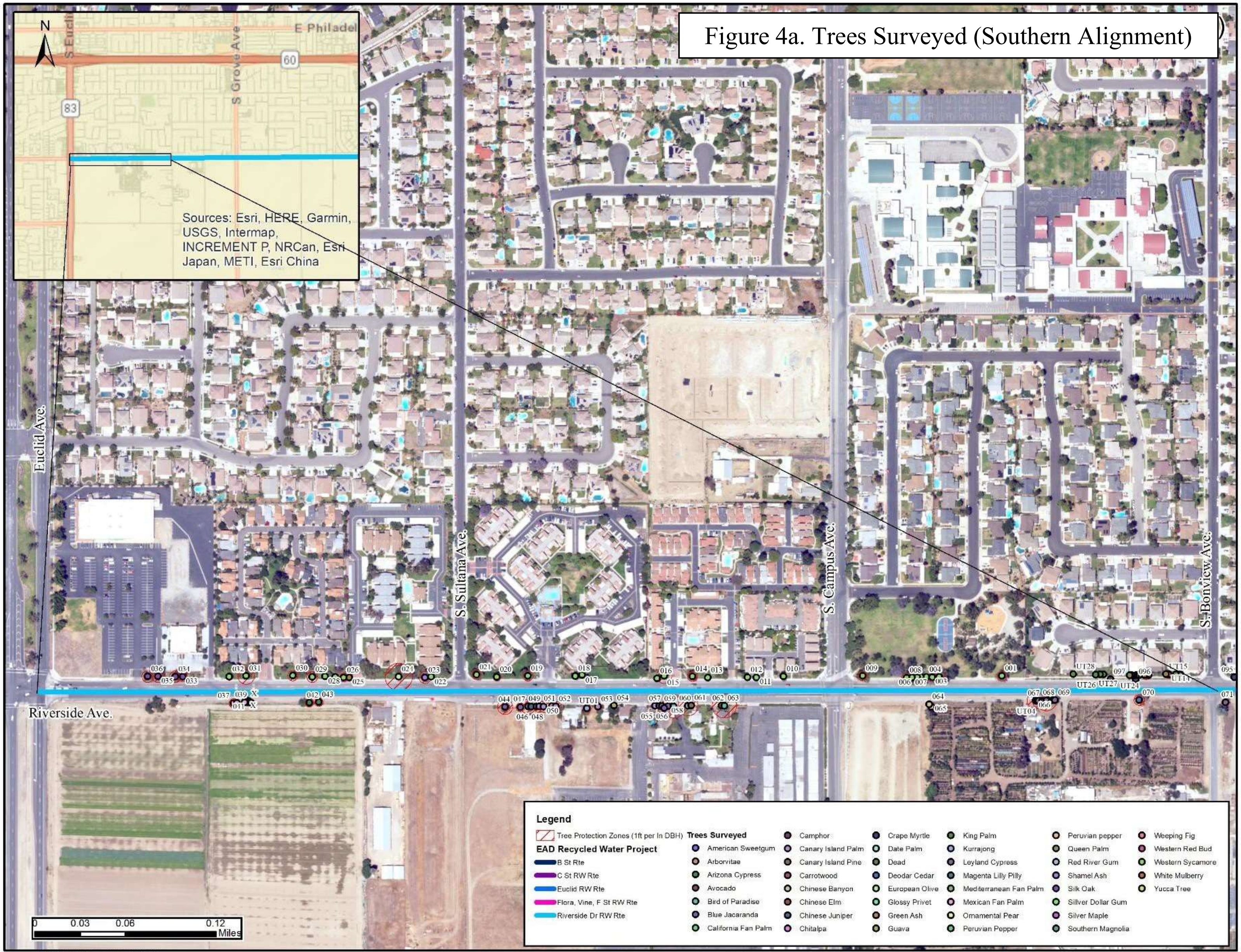


Figure 4a. Trees Surveyed (Southern Alignment)

Source: USGS, ESRI and NAIP 2023

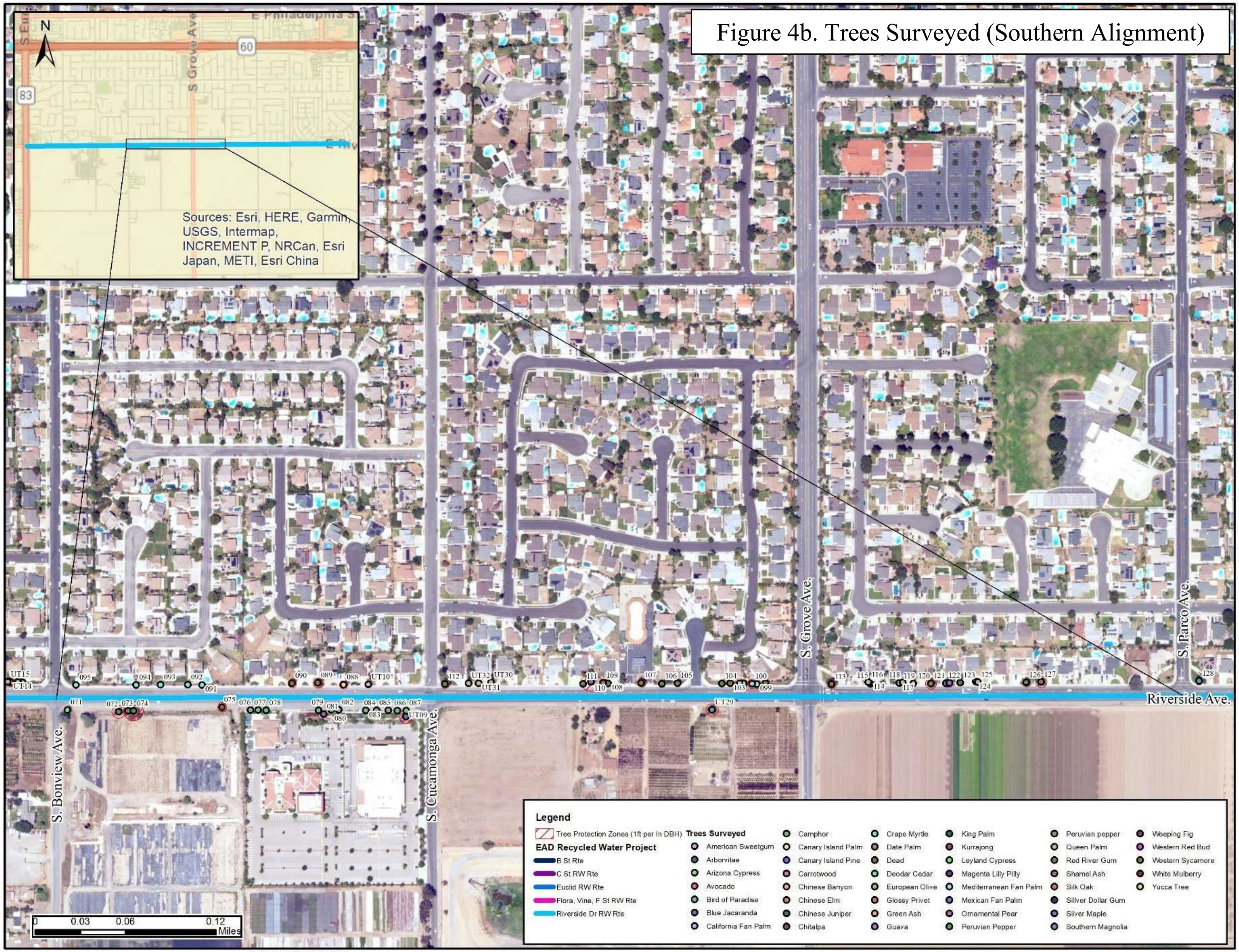
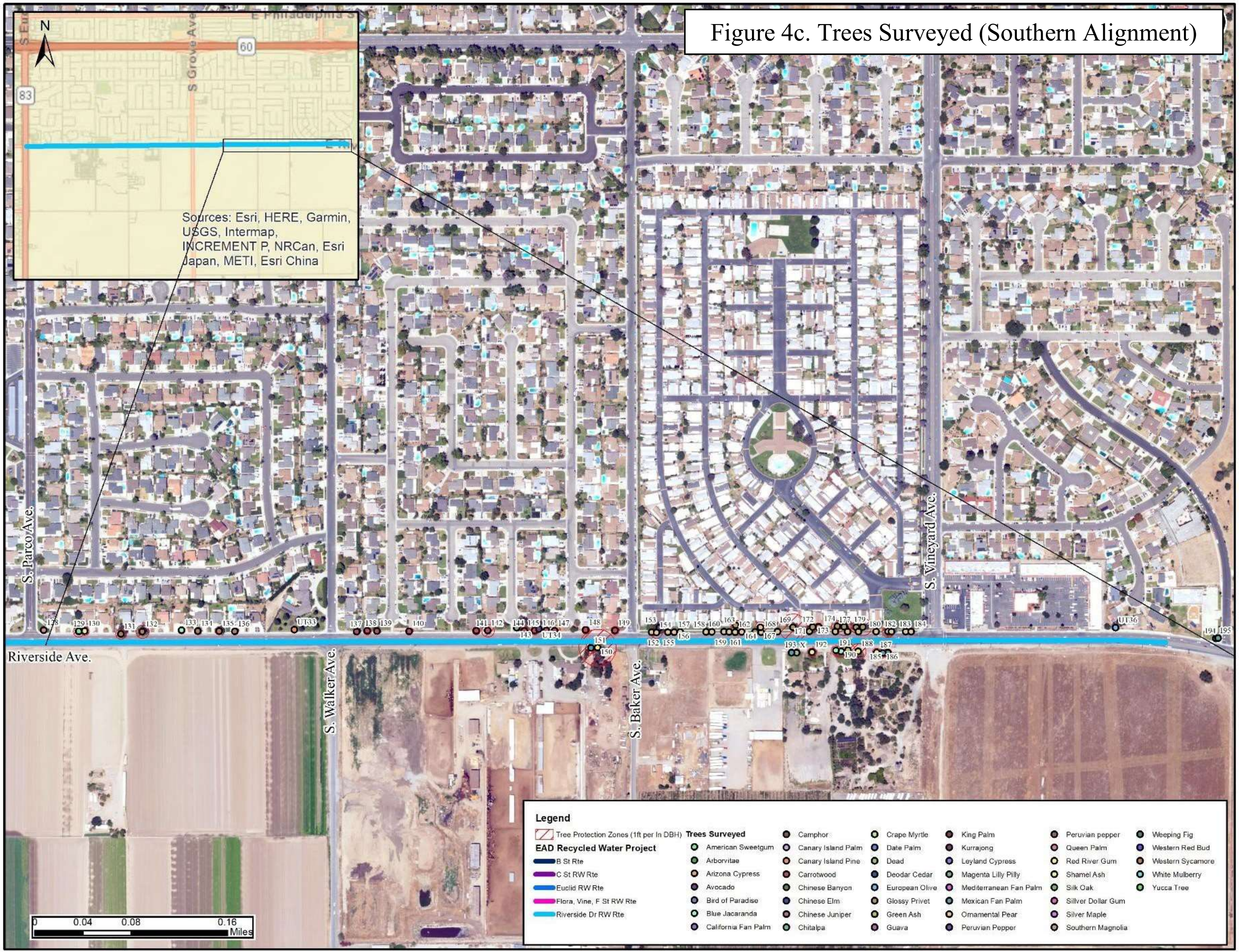


Figure 4b. Trees Surveyed (Southern Alignment)

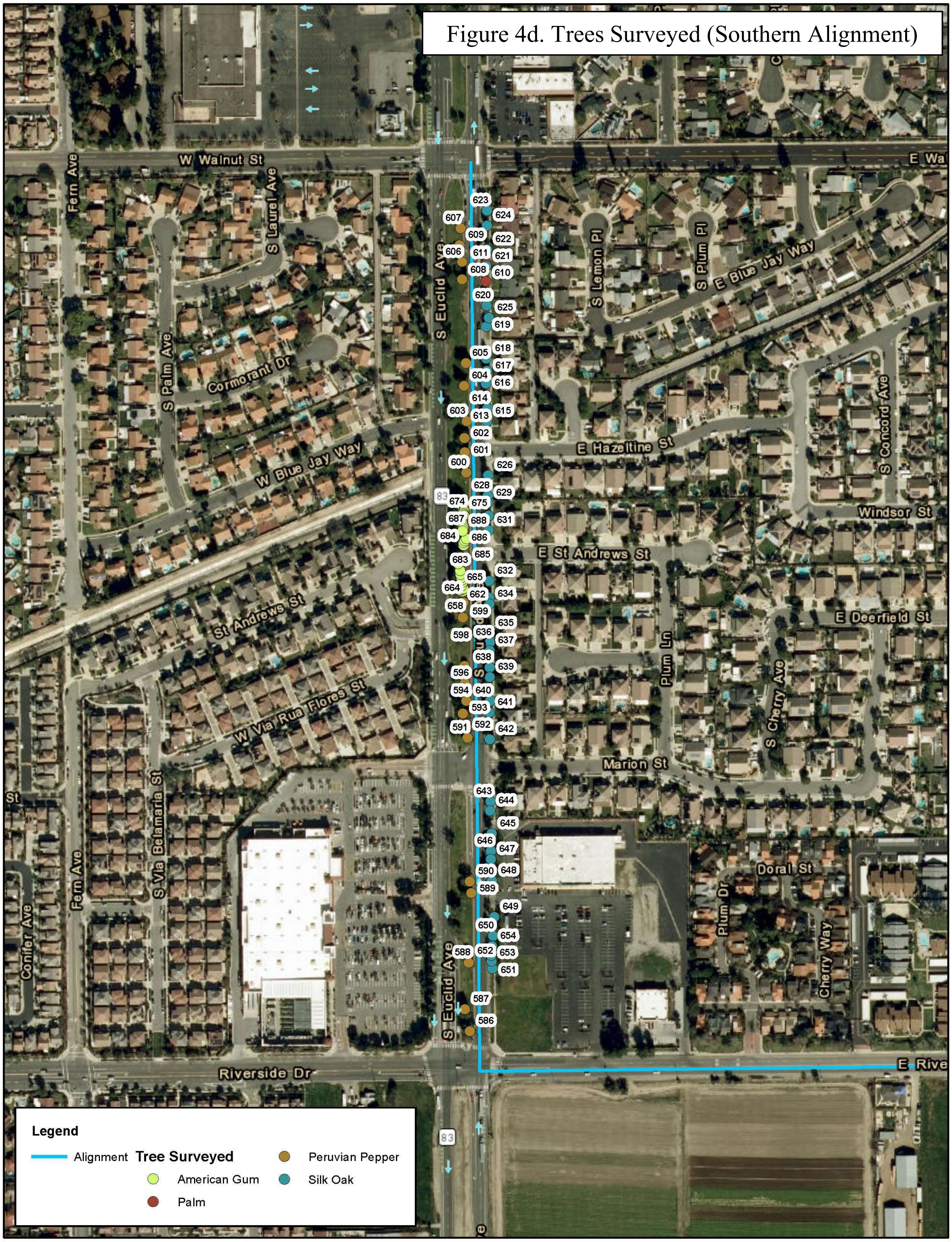
Source: USGS, ESRI and NAIP 2023

Figure 4c. Trees Surveyed (Southern Alignment)



Source: USGS, ESRI and NAIP 2023

Figure 4d. Trees Surveyed (Southern Alignment)



3.2 – Species Assessment

During the survey, tree assessments were conducted according to general ISA and City requirements; GPS waypoints were recorded, as were specific details of each tree. A tree species characterization for each of the 43 species observed onsite is described in detail in Table 2 below (as well as the count), and a comprehensive table of each specimen's characteristics is provided in Appendix A of this report. In addition, notable comments have been added as needed relevant to the species (if necessary).

Table 2. Tree Species Characterization

Species	Characteristics	Qty
African Fern Pine *Afrocarpus falcatus*	The African fern pine is from the *Podocarpaceae* (podocarp) family. Its native range is from eastern south Africa, Swaziland, Mozambique, to Zimbabwe. Its SelecTree water use rating is medium. It grows best in sunset zones: 8 - 9, 14 - 24, h1, h2 as well as USDA zones: 9, 10, 11. It tolerates partial shade to full sun. It can grow in soil textures of loam, sand or clay with a soil pH of acidic to acidic. Its foliage type is evergreen, and it can attain a maximum tree height of 65 feet. Its growth rate is approximately 12-36 in/year. Its branch strength is medium, and its root damage potential is low.	1
American Sweetgum *Liquidambar styraciflua*	This species is from the witch-hazel family (*Hamamelidaceae*) and is native to eastern united states. Its habit is erect or spreading and requires ample growing space. It has a conical shape with deciduous foliage. Height: 80 feet. Width: 40 feet. Growth Rate: 24 to 36 Inches per Season. Longevity Greater than 150 years. This tree grows in full sun to partial shade. It tolerates wet to dry soil with clay, loam or sand texture. This species is susceptible to aphids, caterpillars, scales and spider mites, *Anthracnose*, chlorosis and sooty mold. Its branch strength rated as medium, and its root damage potential rated as high.	36
Arbor Vitae *Thuja occidentalis*	This species is native to northeastern north America and is typically used as a hedge. It needs ample moisture and is an evergreen tree or shrub from the family *Cupressaceae*, or conifer family. Its SelecTree water use is rated as medium. The preferred sunset zone for this species includes zones 1 - 9, 15 - 17, 21 – 24, with USDA zones: 2, 3, 4, 5, 6, 7. It tolerates sun exposure from partial shade to full sun. This species prefers soil texture of loam or sand or clay with a soil pH of very acidic to slightly alkaline. It can attain a maximum tree height of 60 feet with a canopy width of 10-15 feet. Its growth rate is approximately 12-24 in/year. It has separate male and female reproductive parts on the same tree (monoecious). Its bark can be red or brown, and is exfoliating and furrowed. Its branch strength: strong root damage potential is rated as moderate it is deer resistant. It can be susceptible to armillaria, phytophthora, root rot and leaf miner, spider mites.	1
Arizona Cypress *Hesperocyparis arizonica*	The Arizona cypress (*Hesperocyparis arizonica*), a member of the *Cupressaceae* (cypress) family, is native to Arizona. This medium-sized evergreen tree thrives in arid conditions and is well-suited for regions with dry climates. Its adaptability, unique appearance, and ability to withstand challenging environments make it a sought-after choice for xeriscape gardens and landscapes. The Arizona cypress typically reaches a maximum height of 40 feet, with a canopy width spanning 20 feet. Its growth rate varies from approximately 12 to 36 inches per year. This hardy tree is well-suited for Sunset zones 7 to 24 and USDA zones 7, 8, and 9. It can grow in both loam and sandy soils, with a soil pH ranging from alkaline to alkaline. The branches exhibit medium strength, and the root damage potential is low. However, it is important to note that the Arizona	2

	cypress is susceptible to leaf blight. This resilient native tree adds beauty and character to landscapes while requiring minimal water usage.	
Avocado Tree *Persea americana*	This species is native to South Central Mexico, has evergreen foliage, and is from the *Lauraceae* (laurel family), There are many commercial varieties available of this species. They are generally resistant to oak root fungus. Cross pollination increases fruit crop. Height: 30-40 feet. Width: 25-35 feet. Its growth Rate is up to 36 Inches per Season. Longevity 50 to 150 years. Sunset Zones 16 - 17 and 19 - 24. USDA Hardiness Zones 9 - 11. It prefers exposure to full sun with moist, but well-drained soil composed of loam or sand texture that is slightly acidic to slightly alkaline soil pH. Its branch Strength Rated as medium and root damage potential is rated as high.	1
Giant Bird of Paradise *Strelitzia nicolai*	This large monocotyledon is from the *Strelitziaceae* (bird of paradise) family with a native range of eastern south Africa. Its SelecTree water use rating is medium. It thrives in sunset zones: 22 – 24 as well as USDA zones: 9, 10, 11. It grows in partial shade to full sun with a soil texture of loam or sand with a soil pH slightly acidic to slightly alkaline. Its salt spray tolerance is high. Its growth habit is vase-like. Its foliage type is evergreen and it can attain a maximum tree height of 30 feet with a canopy width of 15 feet. Its growth rate is approximately 24 in per year. Its leaf arrangement and form: alternate, simple. It has a leaf/leaflet shape of ovate. Its branch strength is rated as medium, and its root damage potential is rated as low. It is resistant to Texas root rot. This species can aggressively sprout from rhizomal structures.	3
Blue Jacaranda *Jacaranda mimosifolia*	This tree is from the *Bignoniaceae* (bignonias or trumpet vine) family and is a beautiful, flowering tree from the seasonally dry tropics of South America. This species is native to northwestern Argentina and Bolivia. It has a spreading with a high canopy. Its growth habit is oval, rounded, umbrella or vase shape and has deciduous to partially deciduous foliage. It grows to a heigh of 40 - 50 feet. Width: 20 - 30 feet. Its growth Rate: 24 Inches per Season with a longevity 40 to 150 years. Sunset Zones 12 - 13 and 15 - 24; H1, H2. USDA Hardiness Zones 9 - 11. It prefers Exposure of Full Sun. It tolerates moist soil composed of loam or sand texture that is composed of Loam or Sand Texture that is Slightly Acidic to Neutral Soil pH. The shading capacity rated as moderately low in leaf. It is susceptible to aphids, *Phytophthora* and root rot. Its branch strength rated as weak, and its root damage potential rated as low.	23
California Fan Palm * *Washingtonia filifera*	This Palm species is native to California and northern Mexico. It is a member of the palm family *Areacaceae*. It requires Apple growing space attaining Heights of 50 to 70 feet tall and a width of 10 to 20 feet wide. It can grow up to 36 inches per year and live up to 150 years. Sunset Zones 8, 9, 10 and 11 - 24; H1, H2. USDA Hardiness Zones 9 - 11. It prefers exposure to full sun to partial shade and tolerates moist to dry soil composed of loam or sand texture. It is a drought tolerant species that can in endure soils that are slightly acidic to highly alkaline in soil pH. Resistant to Texas Root Rot. Susceptible to Armillaria. Its branch strength is rated as medium strong, and its root damage potential is rated as moderate.	15
Camphor Tree (H) *Cinnamomum camphora*	The camphor tree is from the *Lauraceae* (laurel family), and its growth habit is typically erect or spreading and requires ample growing space. It is rounded or umbrella shaped, and can be very large. It has evergreen foliage. With a growth rate of approximately 24 inches per year, this tree can grow to a height of 50 - 65 feet with a canopy width of 50 - 60 feet. It can live as long as 50 to 150 years or more. It thrives in sunset zones 8, 9 and 12 – 24 as well as USDA hardiness zones 9 - 11. It prefers sun exposure of full sun to partial shade and can tolerate moist soil consisting of clay, loam or sand texture that is slightly acidic to highly alkaline soil pH. It is susceptible to anthracnose, armillaria, phytophthora, root rot and verticillium. Its branch strength is rated as strong, and the root damage potential for this tree is rated as high.	45

This tree species is one of the most abundant species within the project area. It is identified as a Heritage tree by the City due to its association with the early establishment of the City. For inclusion as a protected tree, it must have a DBH > 8-inces		
Canary Island Palm** *Phoenix canariensis*	This palm has evergreen foliage and has a feather palm shape. It is a species of flowering plant in the palm family *Aceraceae*, and is native to the Canary Islands. This species is one of the most common palms planted in California as it is heat tolerant and hearty. The Cal-IPC classifies this plant as having a limited invasive potential. The typical stature of this species is erect and requires ample growing space. Height: 50 - 60 feet. Width: 40 feet. Growth rate: 12 to 24 inches per year. This species can live for 50 to 150 years. Sunset zones 8, 9 and 12 - 24; h1, h2. USDA hardiness zones 9 - 11. This tree tolerate exposure to full sun. It prefers moist to dry soil composed of loam or sand texture. It can tolerate slightly acidic to highly alkaline soil pH. It is susceptible to Texas root rot, but this tree is susceptible to fusarium and root rot. Its branch strength rated as strong, and its root damage potential rated as moderate.	23
Canary Island Pine** *Pinus canariensis*	Native to Canary Islands of Spain in the Atlantic Ocean, the Canary Island pine is a species of gymnosperm in the conifer family *Pinaceae*. It is a large, evergreen tree columnar or conical in shape. Height: 50 - 80 feet. Width: 20 - 35 feet. Its growth Rate is 36 Inches per Year and its longevity is 50 to 150 years. The flowers of this tree are Inconspicuous. It is also monoecious having separate male and female flowers on the same tree. Its cones are brown growing as large as 3 inches. It thrives best in Sunset Zones 8, 9, and 12 – 24 and USDA Hardiness Zones 9 - 10. It tolerates exposure Full Sun to Partial Shade in Moist to Dry Soil. It is a drought tolerant tree. It can grow in loam or sand texture soil with highly acidic to highly alkaline soil pH. It is a subtropical pine and does not tolerate low temperatures or hard frost. It is resistant to verticillium. Susceptible to aphids, beetle borers and spider mites, armillaria, phytophthora, root rot, sooty mold and pitch canker. Its root damage potential rated as moderate and branch strength rated as medium. This tree attracts birds and squirrels and is resistant to oak root fungus.	5
Carrotwood *Cupaniopsis anacardioides*	This species is from the *Sapindaceae* (soapberry) family is native to Australia and tolerates hot and dry winds. Some mature trees produce marble size fruits, which drop and can be a nuisance, some never fruit. Its growth habit is erect or spreading with a low canopy. Has evergreen foliage. Shading Capacity Rated as Moderate in Leaf. It reaches a height to 40 feet and a Width of 30 feet. Its growth rate is typically 12 to 24 Inches per Season and can live 50 to 150 years. It prefers moist soil clay, loam or sand type soil that is comprised of Clay, Loam or Sand Texture with a Slightly Acidic to Highly Alkaline Soil pH. Its branch strength is rated as medium weak. Its Root damage potential is rated as moderate.	28
Chinese Juniper *Juniperus chinensis*	This species is native to northeast Asia grows in China, Mongolia, Japan, Korea and the southeast of Russia. This tree is utility friendly tree and has irregular, twisted branches and fragrant leaves. It also has evergreen foliage. Trees may be referred to as male or female (dioecious), and it is part of the family, *Cupressaceae.* Height: 10 - 15 feet. Width: 6 - 10 feet. This tree has a growth rate of 24 inches per year and can live 40 to 150 years. The Sunset Zones includes zones 1 – 24, and the USDA Hardiness Zones ranges 5 - 11. It tolerates exposure from Full Sun to Partial Shade. It also tolerates moist to Dry Soil consisting of Clay, Loam or Sand Texture. Highly Acidic to Highly Alkaline Soil pH. It is resistant to Texas root rot. Susceptible to beetle borers and spider mites, armillaria, root rot and rust. Its branch strength rated as medium strong and its root damage potential rated as low. Desirable wildlife plant and attracts birds.	3
Chitalpa *Chitalpa tashkentensis*	This hybrid tree is from the *Bignoniaceae* (bignonias or trumpet vine) family and is a beautiful, flowering tree. Chitalpa is an intergeneric cross between *Catalpa bignonioides* and *Chilopsis linearis*. It blooms best in full sun, when it receives	2

	moderate moisture. It becomes taller in half shade. Its SelecTree water use rating is low. It grows in Sunset zones 3 – 24. It prefers soil composed of loam or sand that is slightly alkaline to very acidic. Its maximum tree height: 35 feet with a canopy width of 30 feet. It grows up to 36 in/year. Its branch strength is medium weak and its root damage potential is low. It is susceptible to root rot, *Verticillium* and aphids.	
Crape Myrtle *Lagerstroemia indica*	The Crape Myrtle tree is native to China and is a commonly used single or multi-trunk tree. Is from the *Lythraceae* (loosestrife family). It is commonly used as in the urban setting in Southern California for its flowering, foliage, and bark features. Erect or Spreading with a Low Canopy. Has Deciduous foliage. Height: 25 feet. Width: 25 feet. Growth Rate: 24 Inches per Year. Longevity 50 to 150 years. This tree prefers full sun with soil is moist to dry and composed of clay, loam or sand texture. Branch strength rated as medium. Root damage potential rated as low. Susceptible to aphids, powdery mildew and sooty mold. This species is drought tolerant.	16
Date Palm *Phoenix dactylifera*	With origins from the middle east, northern Africa, and southern Asia; this tree is a source of edible dates having many cultivars. It is a member of the palm family, *Areacaceae,* and it needs high temperatures to fruit. Its SelecTree water use rating is low. It thrives in sunset zones 8 - 9, 11 – 24. It prefers sun exposure of partial shade to full sun with a soil texture of loam or sand with a soil pH that is slightly acidic to very alkaline. Its maximum tree height is 100 feet with a canopy width of 20-40 feet. Its growth rate is approximately 12-36 in/year. Its branch strength is strong, and its root damage potential is moderate. This tree is susceptible to Texas root rot.	6
Deodar Cedar *Cedrus deodara*	This tree species *Pinaceae* (Pine) family is native to Eastern Afghanistan, Northern Pakistan, and North-central India. It has a conical shape and a spreading form requiring ample space. It is an Evergreen with a height of 40 to 60 feet, and a width of 20 to 30 feet growing approximately 36 inches per year. Its longevity is approximately 150 years. Sunset Zones 3 - 10 and 14 – 24, USDA Hardiness Zones 7 - 9. It prefers full sun to partial shade in moist to dry soil and is considered drought tolerant. It tolerates clay loam or sand texture the soil that is either highly acidic too highly alkaline in soil ph. Its branch strength is rated as medium and is writ damage potential is rated as moderate. It is resistant to *Verticillium*. Susceptible to beetle borers, *Armillaria, Phytophthora*, root rot and sooty mold.	12
European olive ** *Olea europaea*	This species is from the *Oleaceae* (olive) family drought tolerant and does well in heat. It tolerates moderate short-term dryness. Multi-trunk specimens can be trimmed-up to expose the attractive gray trunks. Cal-IPC (California invasive plant council) classifies the invasiveness of this plant as limited. Erect or spreading with a low canopy. Rounded, Umbrella or Vase Shape. Has Evergreen foliage. Height: 25 - 30 feet. Width: 25 - 30 feet. Growth Rate: 12 to 24 Inches per Season. This species' longevity is greater than 150 years. It tolerates exposure full sun to partial shade and moist to dry soil. Clay, loam or sand texture. Susceptible to scales, anthracnose, oak root rot, phytophthora, root rot, sooty mold and verticillium. Its branch strength is rated as strong. Its root damage potential is rated as moderate.	7
Green Ash *Fraxinus pennsylvanica*	The green ash tree is deciduous and is the most widely distributed of all the American ashes. This tree from the *Oleaceae* (olive) family is typically associated with moist bottom-land or and stream banks; it is adapted to climatic extremes and has been widely planted in the plains states and Canada. The SelecTree water use rating is medium. It thrives in sunset zones 1 – 6 as well as	7

	USDA zones 4, 5, 6, 7, 8, 9. It tolerates sun exposure from partial shade to full sun with a soil texture of loam, sand or clay. It also tolerates soil pH of very acidic to slightly alkaline and has a medium tolerance of salt spray. Its growth rate is ~24 in per year, and this tree can attain a maximum tree height 50-70 feet with a canopy width of 35-50 feet. The leaf arrangement and form for this tree is opposite, pinnately compound. Its branch strength is medium strong, and its root damage potential is moderate This tree is susceptible to anthracnose, root rot, rust, sooty mold and beetle borers, scales, and white fly.	
Glossy Privet *Ligustrum lucidum*	The glossy privet tree is a member of the olive family *Oleaceae* and typically grows in USDA Hardiness zones 8-10. This small, tree species is evergreen, produces poisonous berries, and is considered invasive by the CA Invasive Plant Counsel. This species is ornamental, tolerates full sun, and has an Asian origin. Height: 35 - 50 feet. Growth Rate: 36 Inches per Year. Longevity 50 to 150 years. Exposure Full Sun to Partial Shade. Moist to Dry Soil. Drought tolerant. Clay, Loam or Sand Texture. Branch Strength Rated as Medium. Root Damage Potential Rated as Moderate. Susceptible to aphids and leaf miner, oak root rot, phytophthora, root rot, sooty mold and verticillium. It tolerates drought, and tolerates a wide pH range. It can live as long as 150 years and attracts wildlife.	11
Guava *Psidium guajava*	This weedy plant is from the *Myrtaceae* (myrtle) family and grows edible fruit. These small fruit trees, which are widely cultivated in tropical and subtropical regions worldwide, are naturalized in wet areas throughout the islands. Its native range is Mexico to northern south America. The SelecTree water use rating is medium. It grows in sunset zones 23 - 24, h1, h2 as well as USDA zones: 9 – 11. It tolerates sun exposure of partial shade to full sun and a soil texture of loam to sand with a soil pH. of neutral to slightly alkaline. Maximum tree height: 25 feet Canopy width: 20-25 feet Growth rate: ~24 in/year Its branch strength is rated as medium, and its root damage potential is low. This tree is deer resistant and attracts birds	1
Indian Laurel Fig *Ficus microcarpa*	This evergreen tree species is from the mulberry family *Moraceae* and is native from the Malaysian peninsula to Borneo. It is a common street tree in California and is valued for its massive canopies with dark green foliage that stands in contrast with its light gray bark. Height: 25 - 35 feet. Width: 35 - 40 feet. Growth rate: 24 inches per year. Longevity 50 to 150 years. Sunset zones 9, 13 and 16 - 24; USDA hardiness zones 9 - 12. Exposure full sun to partial shade. This tree thrives in moist soil composed of loam or sand texture. It thrives in slightly acidic to highly alkaline soil pH. Its branch strength rated as weak and root damage potential is rated as moderate. Susceptible to thrip.	2
King Palm *Archontophoenix cunninghamiana*	This attractive palm tree is native to the wet subtropic region of Australia and has attractive purple flowers. It has ever-green foliage and its evergreen leaf arrangement is pinnately compound. This tree grows to a maximum tree height of about 70 feet with a canopy width of 10-15 feet. Its growth rate is approximately 24 inches per year. It's planting area is 5' to 10'. Its UFEI SelecTree Water Use Rating is medium. It grows in Sunset zones 21 – 24 and USDA zones 10, 11. The king palm tolerates sun exposure of partial shade to full sun. It can grow in soil texture of Loam or sand with a soil pH of very acidic to very alkaline. Its branch strength is rated as Medium, and its root damage potential is rated as moderate. This monocot tree is deer resistant and it attracts birds. It is susceptible to Phytophthora, Root Rot and Invasive Shot Hole Borer.	4
Bottle Tree (Kurrajong) *Brachychiton populneus*	This tree species is drought tolerant and is from the *Malvaceae* (mallow) family. It is a medium size tree native to Australia and found in a variety of semi-arid habitats. The SelecTree water use rating is Medium. The preferred Sunset zones	2

	include 12 – 24, and USDA zones are 8 – 11. It tolerates Full-sun exposure and Soil textures from Loam to Sand with a Soil pH of Slightly Acidic to Very Alkaline. This tree can reach a maximum height of 50 feet with a canopy width of up to 30 feet. Its growth rate is approximately 24 inches per year. Its branch strength is rated as medium weak, and its root damage potential is rated as moderate. It is susceptible to root rot and invasive shot hole borer disease, but is resistant to *Armillaria*.	
Leyland Cypress *Hesperotropsis leylandii*	The Leyland Cypress, a towering member of the *Cupressaceae* family, is a fast-growing conifer commonly used as a dense screen or hedge. This unremarkable yet ubiquitous tree results from a hybridization between the Monterey cypress (*Hesperocyparis macrocarpa*) and the yellow cedar (*Callitropsis nootkatensis*). It thrives in USDA zones 6 to 9, with a low water use rating and moderate. Maximum tree height: 50 feet. Canopy width: 15-25 feet. Growth rate: ~36 in/year. It has a susceptibility to needle blight, root rot, and caterpillars. Its branch strength ranges from weak to medium, making it a versatile choice for landscaping. The Leyland cypress adapts well to various soil textures, including loam, sand, and clay, and can be found across sunset zones 3 to 24.	17
Magenta Lilli Pilli (Brush Cherry) *Syzygium australe*	This small tree is from the myrtle family (*Myrtaceae)*. It is drought tolerant and is known to attract pollinators and birds. The main pest of brush cherry is the lillypilly psyllid (*Trioza eugeniae*), which causes unsightly pitting of the foliage. This pest is native to Australia but has made its way into certain areas of the western and southern United States. It is commonly cultivated in eastern Australia and elsewhere. It grows to a height of 15-20 feet, 10 – 30 feet wide, and can tolerate full sun to partial shade. It has evergreen foliage and can tolerate mildly acidic to alkaline soils. Its growth habit is rounded and it prefers moist to dry clay, loam or sand textured soil.	1
Mediterranean Fan Palm *Chamaerops humilis*	The Mediterranean fan palm (*Chamaerops humilis*) belongs to the flowering plant species in the palm family, *Arecaceae*. It is indigenous to the Western Mediterranean region. This hardy palm tree has several notable characteristics: it has a low water use rating, making it a water-efficient choice. It thrives in Sunset zones 4 to 24 and is well-suited for USDA zone 8. The Mediterranean fan palm can grow in various soil textures, including loam, sand, or clay, with a pH range from slightly alkaline to very acidic. Typically reaching a maximum height of 15 feet, it boasts a canopy width spanning 10 to 15 feet. Its growth rate is approximately 12 inches per year, and it has strong branches and low root damage potential. Additionally, this palm tree is resistant to Texas Root Rot. Overall, it adds a touch of Mediterranean charm to landscapes while requiring minimal water and maintenance	1
Mexican Fan Palm ** *Washingtonia robusta*	This species tolerates drought conditions. Cal-IPC (California Invasive Plant Council) classifies the invasiveness of this plant as moderate. It is from the *Arecaceae* (palm) family and is native to Northwestern Mexico, Sonora, and Baja California. Erect and requires ample growing space. It has a fan Palm Shape with evergreen foliage. Height: 80 - 100 feet. Width: 10 - 15 feet. Growth Rate: 36 - 127 inches per Season. This species grows well in Sunset Zones: 8 - 24, H1, H2 and USDA zones: 9 – 11. Longevity 50 to 150 years. It tolerates full sun to partial shade with wet to dry loam or sand textured soil. It is susceptible to beetle borers. Its branch strength is rated as medium strong and root damage potential is rated as moderate.	29
Ornamental (Callery) Pear *Pyrus calleryana*	This species is from the *Rosaceae* (rose) family and is native to China. It is resistant to fireblight. It has a fragrant flower and an erect or spreading low or high canopy with an oval or rounded shape. Its SelecTree Water Use Rating is Medium. It thrives in Sunset zones 2 - 9, 14 – 21 as well as USDA zones: 5, 6, 7, 8. It tolerates sun exposure of Full Sun and a soil texture of loam, sand or clay with a pH of very acidic to very alkaline. It has deciduous foliage and grows to a height of 50 feet and a width of 50 feet. Its growth rate is 24 inches per season. Its longevity is 50 to 150 years.	21

	It tolerates exposure full sun with moist to dry soil and clay, loam or sand texture. Its branch strength is rated as medium and its root damage potential rated as moderate.	
Peruvian Pepper ** (H) *Schinus molle*	This large tree species is part of the *Anacardiaceae* (cashew) family. It tolerates saline soil and smog. Susceptible to Texas root rot, especially in desert. Cal-IPC (California Invasive Plant Council) classifies the invasiveness of this plant as limited. It is native to Northern South America and has Evergreen foliage. Height: 25 - 50 feet. Width: 25 - 40 feet. Growth Rate: 36 Inches per Season. Longevity 50 to 150 years. This species tolerates full sun and it prefers partial shade and moist to dry soil. It is drought tolerant and can be planted in clay, loam or sand textured soils. Susceptible to aphids, psyllid, scales and thrip, phytophthora, root rot, sooty mold and verticillium. Its branch strength is rated as medium weak and root damage potential is rated as high.	95
The Peruvian peppers, located along the Euclid Ave. corridor, are often in close proximity of the lanes of traffic. Many of these trees are senescent with large cavities and areas of decay posing an elevated risk of failure to pedestrians and vehicular traffic. In addition, some of them were planted in remembrance of people or events. This tree species is highlighted in the City's Municipal Code as a Heritage tree species. For inclusion as a protected tree, it must have a DBH > 8-inces.		
Queen Palm *Syagrus romanzoffiana*	This monocot tree species from the family *Arecaceae*. The queen palm (also known as Cocos palm), is a palm native to South America. This species has evergreen foliage and grows to a height of 50 feet and a width of 20 - 30 feet. It can grow 24 or more inches per year. The longevity of this species is 50 to 150 years. Leaves are referred to as fronds and remain green throughout the year. Sunset zones 12, 13, 15 - 17 and 19 - 24; H1, H2. USDA hardiness zones 10 - 11. This tree prefers full sun and well-drained soil composed of clay, loam or sand texture. This species is tolerant to salinity lending itself to good seaside tolerance near the coast. This species is resistant to Texas root rot. Susceptible to scales and spider mites, butt rot, armillaria and root rot.	40
Red River Gum ** *Eucalyptus camaldulensis*	This species is native to Australia and is a member of the myrtle (*Myrtaceae*) family. Its bark and twigs can be a litter problem. Cal-IPC (California invasive plant council) classifies the invasiveness of this plant as limited. Its growth habit is erect or spreading and requires ample growing space. This species has evergreen foliage. Its SelecTree water use rating is low. It grows best in Sunset zones 5 - 6, 8 – 24 as well as USDA zones: 9, 10. Height: 45 - 150 feet. Width: 45 - 105 feet. Growth Rate: 36 or More Inches per Season. Longevity 50 to 150 years. Exposure Full Sun to Partial Shade. This species prefers wet to dry soil and is drought tolerant. It prefers clay, loam or sand textured soil. It is susceptible to beetle borers, oak root rot and root rot. Its branch strength rated as medium and root damage potential rated as moderate.	6
Shamel Ash *Fraxinus uhdei*	This large tree species is in the *Fraxinus* family and is used widely in Southern California. It is native to Mexico, and had a growth habit that is erect or spreading and requires ample growing space. Oval Shape. Has Evergreen to Partly Deciduous foliage. Height: 80 feet. Width: 60 feet. Growth Rate: 36 or More Inches per Season. Longevity 50 to 150 years. SelecTree Water Use Rating: Medium. It grows in Sunset zones 9, 12 – 24 and USDA zones 8, - 10. It tolerates exposure full sun to partial shade and moist to dry soil. It tolerates clay, loam or sand texture. Susceptible to aphids, scales and white fly, fusarium, root rot, sooty mold and verticillium. Its branch strength is rated as medium weak and root damage potential is rated as high. This species is resistant to oak root fungus and is susceptible to Texas root rot	6
Silk Oak Tree (H) *Grevillea robusta*	This evergreen tree is native to eastern Australia. It is from the protea family, *Proteaceae*. Its timber was widely used for doors, windows, and musical instruments. This species is a fast-growing, spring blooming tree and reproduces vigorously in moist climates. The SelecTree Water Use Rating is Low.	93

	It grows in Sunset Zones 8 - 9, 12 - 24, h1, h2 as well as USDA zones: 8 – 10. It prefers full sun with soil comprised of loam or sand or clay and a pH that is slightly alkaline to very acidic. Its soil salinity tolerance is coastal moderate. Maximum tree height: 70 feet Growth rate: ~36 in/year The flower of this tree is perfect (male and female reproductive parts in each flower). Its branch strength is weak, and its root damage potential moderate. Parts of this plant can be an irritant. This tree is deer resistant and it attracts bees, birds. It is susceptible to *Phytophthora*, root rot and scales.	
Most of these trees are planted along the Euclid Avenue corridor and are adjacent to frequent vehicular and pedestrian traffic. These trees are generally well maintained, but many of them are at risk of failure due cavities and cankers. In addition, this species is known to for its weak wood strength (UFEI 2024). It is recommended that each tree be closely inspected using a lift to inspect the canopy. Its foliage is often dense, obscuring defects from visual inspection from the ground.		
Silver Dollar Gum *Eucalyptus polyanthemos*	This species is native to Southeastern Australia and is from the *Myrtaceae* (myrtle) family. Its growth habit is erect or spreading and requires ample growing space. It typically has an oval Shape with evergreen foliage. Height: 30 - 75 feet. Width: 15 - 45 feet. Growth Rate: 36 or More Inches per Season. Longevity 50 to 150 years. It tolerates exposure to full sun to partial shade and wet to dry soil. It is drought tolerant and tolerates clay, loam or sand texture. Susceptible to beetle borers, oak root rot and root rot. Its branch strength rated as medium and its root damage potential rated as moderate.	1
Silver Maple *Acer saccharinum*	Native to Eastern North America, the silver maple tree belongs to the *Sapindaceae* (soapberry) family. It thrives in a variety of soil textures, including loam, sand, and clay. The SelecTree Water Use Rating for this species is Medium. It adapts well to USDA zones 4 to 9 and is found across sunset zones 1 to 9, 12, and 14 to 24. Maximum tree height: 100 feet. Canopy width: 50 feet Growth rate: ~36 in/year. Its branch strength ranges from weak to medium, while its root damage potential is high. Notably, it exhibits susceptibility to several diseases and pests, including Armillaria, Root Rot, Sooty Mold, Verticillium Wilt, Aphids, Beetle Borers, and Scales.	2
Southern Magnolia *Magnolia grandiflora*	Magnolia grandiflora is a member of the *Magnoliaceae* (magnolia) family and is a medium to large evergreen tree. It has fragrant Flower. Native to Southeastern United States, endemic to the lowland subtropical forests on the Gulf and south Atlantic coastal plain. Has Evergreen foliage. Height: 60 - 80 feet. Width: 50 - 60 feet. Growth Rate: 24 Inches per Year. Longevity Greater than 150 years. Sunset Zones 4 - 12 and 14 - 24; H1, H2. USDA Hardiness Zones 7 - 9. Can tolerate exposure full sun to partial shade. Moist soil comprised of loam or sand texture. Susceptible to aphids, scales and spider mites, root rot and verticillium. Its branch strength is rated as medium, and its root damage potential rated as high.	37
Tree Yucca *Yucca filifera*	This large monocotyledon is from the *Agavaceae* (yucca) family with a native range of Southeastern United States. This hardy yucca species is notable for its adaptability to arid and semi-arid environments, making it a common choice for landscaping in regions with dry climates. Tree yuccas resilience, unique appearance, and ability to thrive in challenging conditions make it a sought-after addition to xeriscape gardens and landscapes. Its SelecTree Water Use Rating is Very low. It has a maximum tree height of 25 feet with a canopy width of 6-10 feet. Its growth rate is approximately 24 in/year. It thrives in Sunset Zones 7 - 9, 12 – 24 and USDA zones: 7, 8, 9, 10. Its preferred soil texture is loam or sand with a soil pH of very alkaline to very acidic. Its branch strength is medium, and its root damage potential is Low	1
Western Redbud* *Cercis occidentalis*	The western redbud tree is from the family *Fabaceae* (pea) and is a small deciduous tree or shrub. It is native to California and is typically found in the in	9

	riparian areas within foothills and mountain. This native tree is a commonly used ornamental tree. It is usually sold as a multi-trunk shrub, rather than a single stem tree, but can be trained into either configuration where it is effective as a flowering accent. It tolerates dry conditions, but exhibits more vigorous, lush growth with regular deep watering. Then SelecTree water use rating is medium. It grows in sunset zones 2 – 24 and USDA zones 7 – 9. It prefers a sun exposure of partial shade to full sun with a soil texture of loam, sand, or clay with a pH of very acidic to very alkaline. This tree's maximum tree height is about 20 feet with a canopy spread of 10-20 feet. Its growth rate is 24-36 in per year. Its branch strength is rated as medium, and its root damage potential is rated as low. This tree is susceptible to crown rot, phytophthora, root rot and caterpillars, scales. It is resistant *Armillaria*.	
Western Sycamore * (H) *Platanus racemosa*	This species is from the *Platanaceae* (plane tree) family and is a riparian, California native tree that tolerates extreme heat and wind. Its form is erect or spreading and requires ample growing space. Its form is oval, rounded or umbrella shape. It has deciduous foliage. Height: 30 - 80 feet. Width: 20 - 50 feet. Growth Rate: 36 Inches per Season. Longevity Greater than 150 years. This species prefers exposure of full sun to partial shade with moist to dry soil. It tolerates clay, loam or sand textured soil. It is susceptible to leaf miner, scales and spider mites, anthracnose, oak root rot, phytophthora, mistletoe, *Apignomonia venata* and root rot. Its branch strength is rated as medium and its root damage potential is rated as moderate.	112
The western sycamore (also referred to as California sycamore is a native species and is highlighted in the City's Municipal Code as a Heritage tree species. For inclusion as a protected tree, it must have a DBH ≥ 8-inces.		
White Mulberry *Morus alba*	This species is from the mulberry family *Moraceae* and is native to China and has a Spreading with an oval, rounded or umbrella shaped high canopy. It has deciduous foliage. Height: 30 - 50 feet. Width: 30 - 50 feet. Growth Rate: 36 or More Inches per Season. Longevity 50 to 150 years. Exposure Full Sun to Partial Shade. Moist to Dry Soil. Clay, Loam or Sand Texture. It is susceptible to beetle borers, caterpillars, spider mites and white fly, chlorosis, crown rot, fusarium, oak root rot, leaf blight, phytophthora and root rot. Its branch strength rated as weak. Its root damage potential rated as high.	2
** California native tree species* *** Cal-IPC (California Invasive Plant Council) invasive tree species* *H – Heritage Tree*		

Source: UFEI 2024

3.3 - Observations

During the field survey, observations were documented pertaining to disease, inappropriate trimming, structural defects, and other notable instances. Many of the significant observations are noted in the plates below.

3.3.1 - Canopy Crowding and Poor Location or Growth Form

Plants and trees compete for available resources such as light, water and nutrients. Strategies employed by each individual plant take place above and below the soil. If adequate spacing is not permitted, it can also lead to offset canopies/above ground biomass, poor uptake of nutrients, stressed trees with lack of vigor and canopy dieback among many other conditions. Overcrowded plants must compete with each other for soil nutrients, which can result in increased fertilizer needs. Soil contains a finite amount of nitrogen and other necessary plant nutrients. The more plants there are in a small space, the more quickly these nutrients are used up.

Plate 3. This is a view of a tree with a lean (#013).

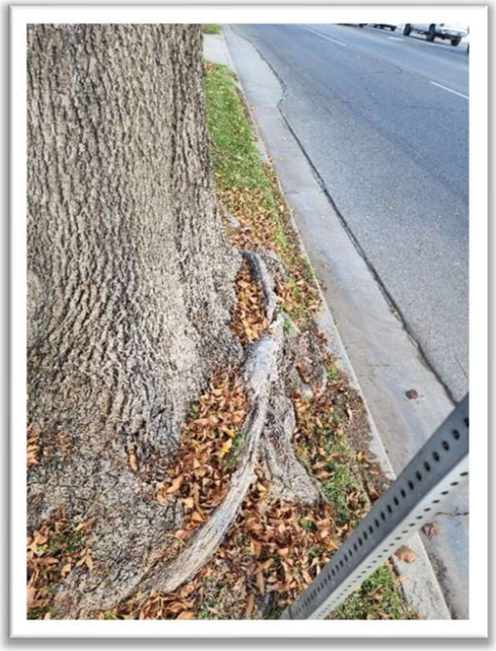


Plate 4. This is a view of girdling roots (#181).

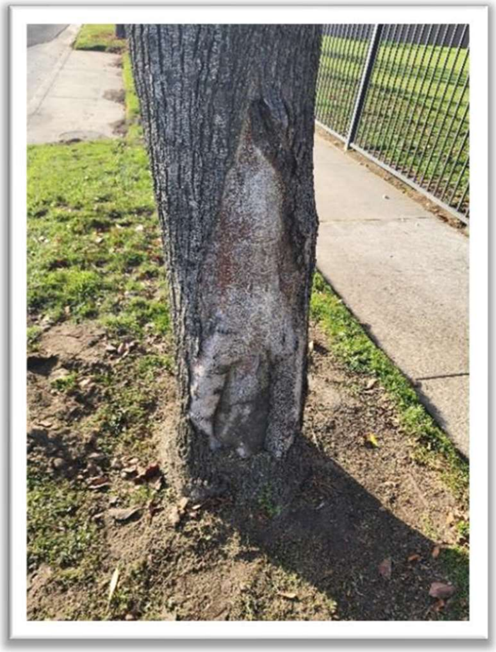


Plate 5. This is a view a large canker on the slower stem of a tree (#183).

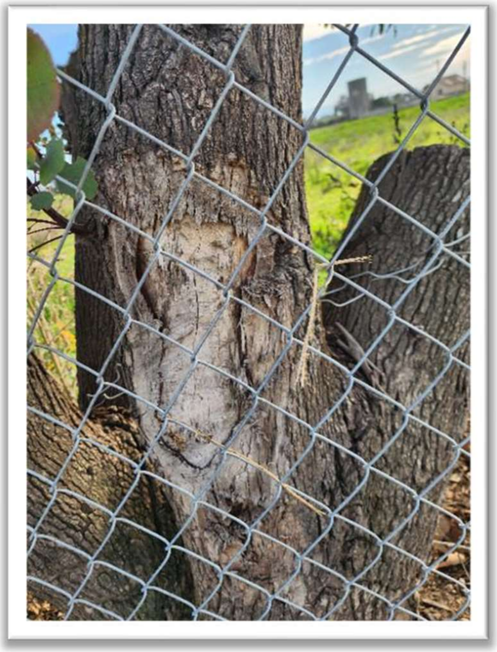


Plate 6. This is a view a mechanical wound from a fence (#072).

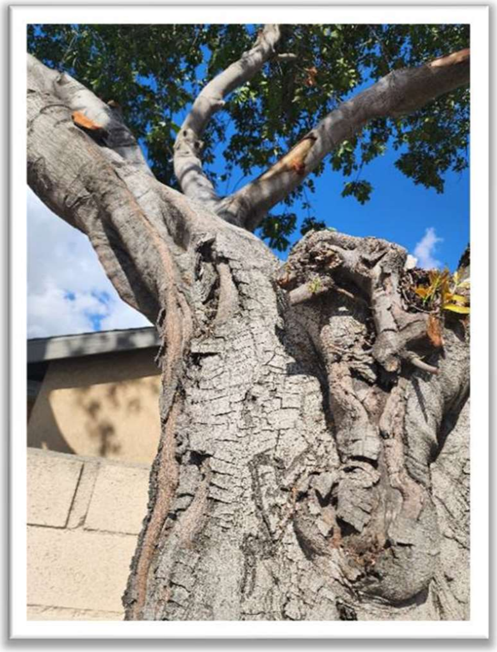


Plate 7. This is a view of diseased and callus growth tissue on the stem of a tree (#136).

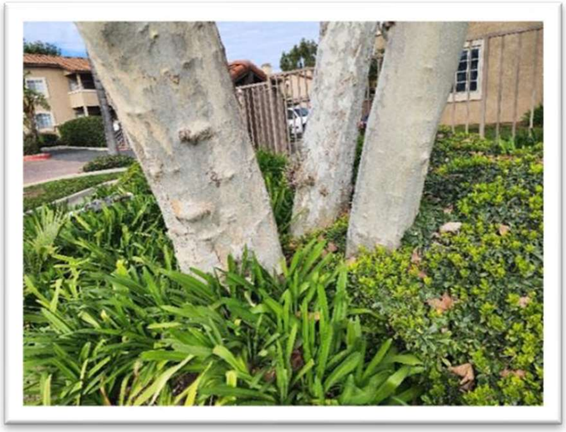


Plate 8. This is a view a multi-stemmed tree (#014).

3.3.2 - Inadequate Maintenance

Trees need periodic maintenance and regular irrigation; this is especially important as trees become established and flourish. Poor pruning practices can promote infection and potential tree failure.

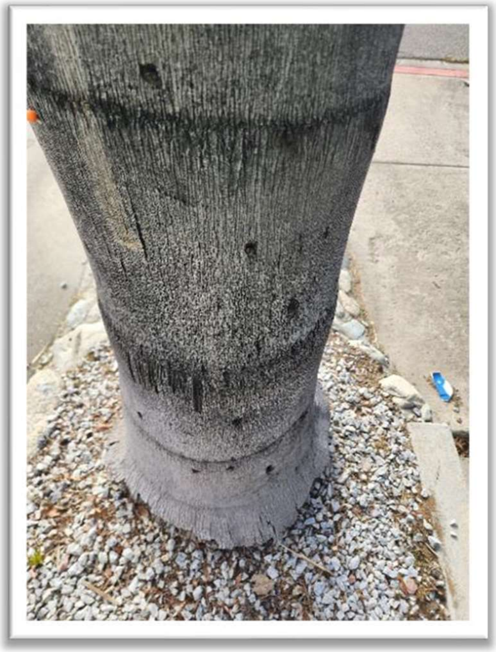


Plate 9. This is view of climbing spike damage on the periderm of a tree (#025).

Plate 10. This is a view of decayed tissue within an unclosed branch cut (#026).

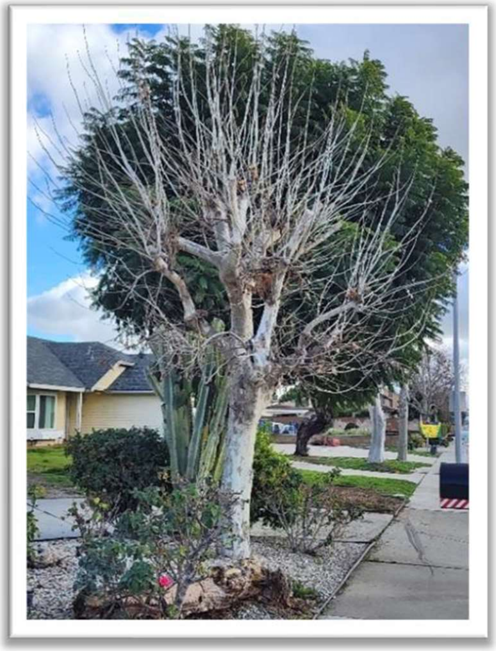


Plate 11. This is a view of water sprouting on a topped tree (#111).

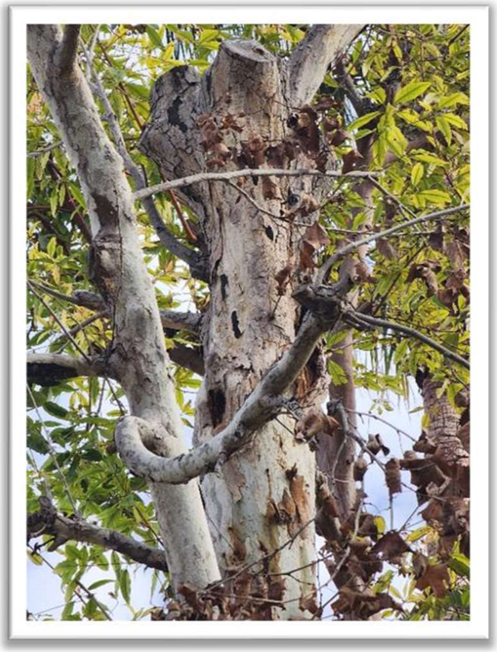


Plate 12. This is a view of a diseased, topped stem (#014).

Plate 13. This is a view of maturing water sprouting branches with weak attachment (#044).

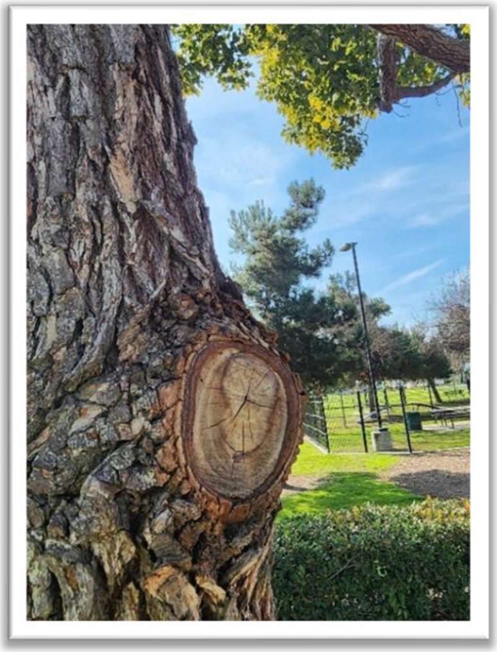


Plate 14. This is a view of a poorly trimmed tree where the branch collar has been removed (#213).

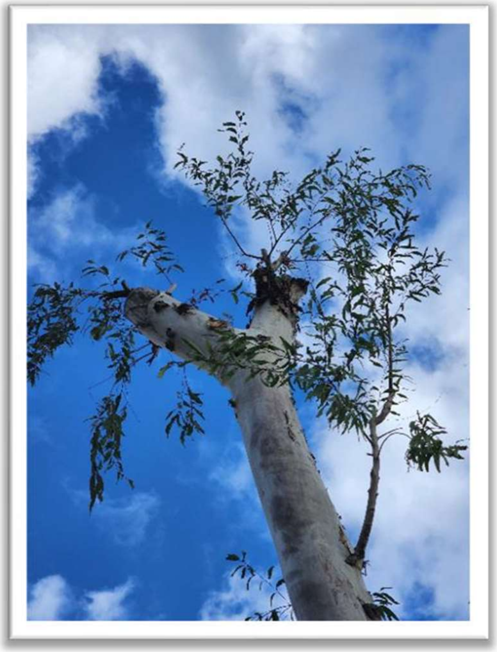


Plate 15. This is a view of a severely topped tree with most of the canopy removed (#109).

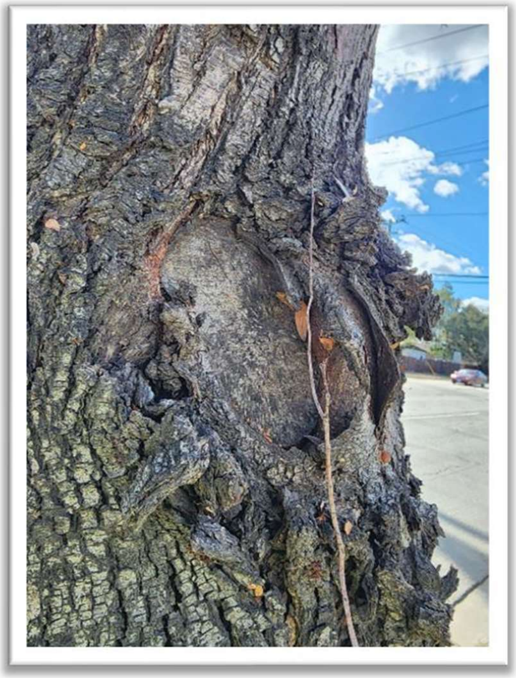


Plate 16. This is a view of a flush cut prune (#152).

Plate 17. This is a view of a tree with weed wacker damage (#284).

Plate 18. This is a view of a cavity from an unclosed flush cut prune (#129).

3.3.3 - Pests and Disease

Bacterial, fungal, and pest infestations can lead to a tree's decline and pose potential risk due to failure. Additionally, conditions may also spread to neighboring trees. Senescent trees have a lower capacity to tolerate these attacks and can eventually succumb to the infestation if measures are not taken.

Plate 19. This is a view of an unclosed branch cut on a tree (#016).

Plate 20. This is a view of decayed wood within the tissue of an unclosed branch cut (#019).

Plate 21. This is a another view of decayed wood with indication of termites within an unclosed branch cut (#028).

Plate 22. This is a view of a bore hole (#030).

Plate 23. This is a view of evidence of herbivory within the foliage of a tree (#376).

Plate 24. This is a view of decayed tissue (cankers) on the upper stem of a tree (#169).

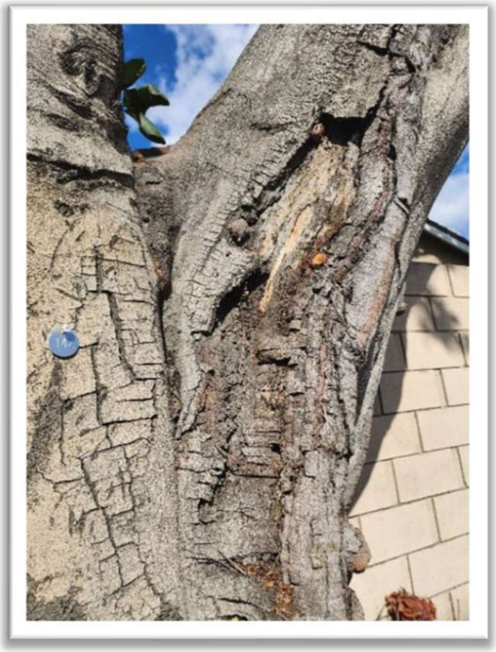


Plate 25. This is a view of a large canker on the branch of a tree (#141).

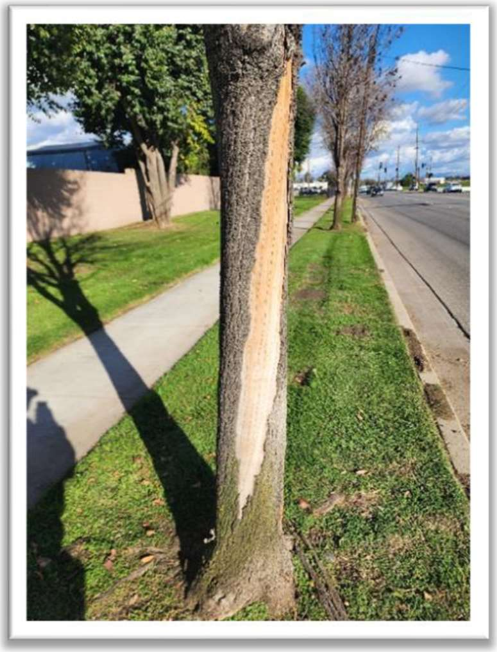


Plate 26. This is a view of a large canker on the stem of a tree (#173).

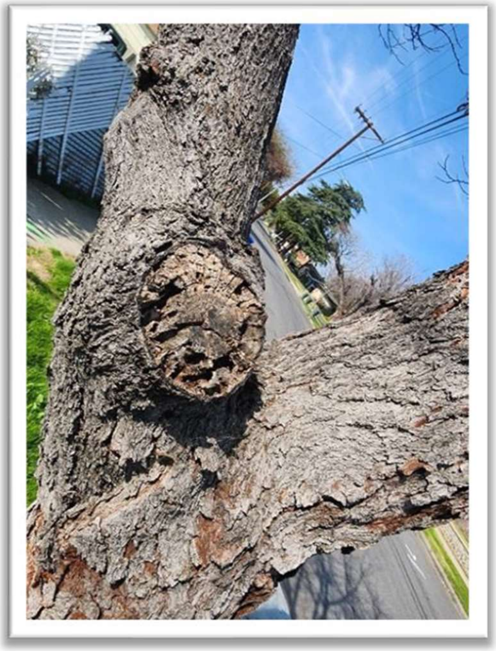


Plate 27. This is a view of a flush cut prune with indication of termites (#210).

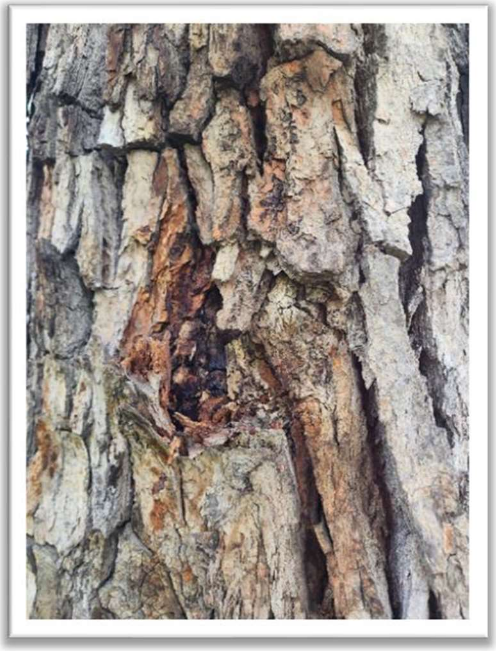


Plate 28. This is a view of a canker with exudation on the syem of a tree (#216).

Plate 29. This is a view of a fungal fruiting structure on the flare of a tree (#365).

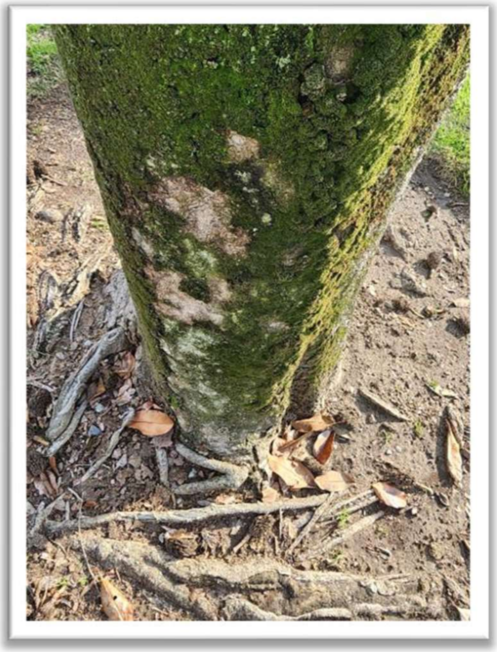


Plate 30. This is a view of epiphytic moss on the stem of a tree (#440).

3.3.4 - Potential or Imminent Hazard

Because of localized conditions, several trees within the site pose a significant threat of failure. These trees may show signs of stem cracking, significant lean, or serious decay. Trees showing indication for immediate removal include the following individuals:

Tree No.	Species	Tree Recommendation
212	Camphor	Removal Immediately
337	Peruvian Pepper	Consider Removal Immediately
338	Peruvian Pepper	Consider Removal Immediately
365	Peruvian Pepper	Consider Removal Immediately
379	Peruvian Pepper	Consider Removal Immediately
402	Peruvian Pepper	Consider Removal Immediately
403	Peruvian Pepper	Consider Removal Immediately
405	Peruvian Pepper	Consider Removal Immediately
408	Peruvian Pepper	Consider Removal Immediately
482	Silk Oak	Consider Removal Immediately

SECTION 4: DISCUSSION AND RECOMMENDATIONS

4.1 - Conclusion

The primary goal of this assessment was to provide an insight on protecting the City's trees during the implementation of the project. As previously indicated, 729 trees were assessed onsite involving 41 distinct species. The most prominent tree species surveyed included, silk oak (*Grevillea robusta)*, western sycamore (*Platanus racemosa*), and Peruvian pepper (*Schinus molle*). In addition, 379 trees onsite qualify as Heritage trees (see Section 2.6.1 below).

In all, 566 trees were found to be in fair to excellent health. The remaining 163 trees show signs of disease/decline, lack adequate vigor, or show poor growth form/branch attachment posing an elevated risk of failure, thereby necessitating consideration for removal. In addition, ten trees were noted as posing an immediate hazard requiring urgent attention due to the failure risk they pose to nearby vehicular and pedestrian traffic. In many cases, poor trimming practices (such as flush cuts or topping) accelerated the tree's decline. Finally, many of the silk oak trees along the Euclid Avenue corridor contain canopies that obscured observation of structural defects; these trees are heritage trees, but at the same time, are senescent and known for their weak wood strength (UFEI 2024), so careful follow up maintenance is recommended.

4.2 - Discussion

This project covers a large group of trees, both publicly and privately maintained. In addition, many of the trees are senescent and were trimmed inappropriately in their past. Flush cut pruning is known to damage a trees ability to form callus wood and compartmentalize a wound; this practice was once acceptable, but is now known to hinder a tree's ability to heal and can accelerate decline. In addition, topped trees with large branch cuts typically respond by "water sprouting", sending adventitious budding out along the boundary of the cut in many directions leading to poor branch attachment. All these factors have culminated into conditions necessitating additional pruning for safety and even requiring total tree removal to address potential failure. In addition, many trees were also planted inappropriately beneath power or utility lines. Wires were noted as running through canopies presenting a risk.

As indicated earlier, it is advisable for the construction crew to refrain from working within the CRZ to the extent feasible. A TPZ/RPZ should be established and clearly marked for all heritage trees. If it is not feasible to operate outside of the TPZ and CRZ, an arborist or biological monitor should be consulted to assess the situation and explore methods that will minimize adverse impact to the nearby tree. Minimally invasive hydraulic excavation is a technique that may be employed under the appropriate conditions.

4.3 - Recommendations

As indicated earlier, the primary goal of this report was to assess the trees within the route of a proposed recycled water main alignment. The recommendations listed below are measures to protect adjacent trees and are a supplement to what the City already requires (see Appendix B below). Additional measures are also listed to protect the community.

4.3.1 - Declining Trees with Elevated Risk

There were 163 trees that have been determined to be in decline, have a poor prognosis/location, possess a significant risk of failure, or have substantial defects to where they pose a liability or present a condition worthy of removal. Many of these trees are located on private property. It is recommended in these cases that the trees denoted in Appendix A as, "Consider Removal" be evaluated on a case-by-case basis to address the condition of the tree, determine if treatment, pruning or bracing may be an option to mitigate risk of failure. In several cases, the tree is simply in significant decline or possesses poor aesthetics and replacement is a better option; these are recommendations and the managers of the City's urban forest may prioritize, delay, accept or reject them based on factors such as the tree location, existing hazard, perceived level of risk tolerance, budgetary concerns, etc. It is further recommended that a tree trimming service (such as Asplundh or WCA) employing an ISA certified/ASCA consulting arborist and possessing a forestry bucket truck and crew address these compromised trees to determine if treatment may be a viable option to removal. *Note: Ten trees were noted as posing an immediate hazard requiring urgent attention due to the failure risk they pose to nearby vehicular and pedestrian traffic.*

It is recommended that mitigation for heritage trees removal be replacement at a ratio of 2:1. Non-status trees may be mitigated at a 1:1 ratio with quality, locally-grown nursery stock comprised of a mix of 24-in boxed and 15-gallon specimens. In addition, the Planning Department has an approved list of tree species that must be considered, however with heritage trees, a like-kind species must be considered. All recommended parameters are at the discretion of the Planning Director.

In addition, it is recommended that residents be notified if their trees have been preliminarily assessed as being in poor condition (health, stature, location, risk, etc.). An example of such a notification follows:

> *Resident:*
> *As part of our efforts to improve the existing utilities in your area, a certified arborist has evaluated the trees in the vicinity of your property. You may have noticed a small aluminum tag affixed to several trees on or near your property. Your tree has been determined to possess a condition (poor health, stature, location, etc.) that warrants additional evaluation. It is highly recommended that you consider asking a local arborist certified by the International Society of Arboriculture (ISA) to evaluate your tree. Please consider accessing the ISA website at https://www.isa-arbor.com.*

4.3.2 - Tree Protection Measures During Construction

For any trees preserved, building or grading near them requires that they are protected and relatively healthy at the start of the project. ANSI A300, Part 8 (see Section 4.3.3 below) addresses tree root protection and key elements relative to construction activity are provided below.

Younger, more vital trees are more tolerant of changes in their surroundings. Environmental changes and other adverse conditions diminish older trees' strength and vigor and can lead to further decline. Senescent trees have a lower tolerance for root damage and other stress factors, such as:

- Soil compaction
- Lack of water or changes in the site hydrology
- Change of grade in the root zone
- Physical damage to tree roots and structure
- Dumping of potentially toxic construction wastes
- Lack of pest control and other care
- Dust
- Human error

The City has published guidelines for tree protection during construction; these guidelines are provided in Appendix B below and must be observed during construction. The following additional recommendations are meant to supplement Appendix B, but not substitute nor replace the provisions. Implementation of these items are at the discretion of City Planning.

Fencing Parameters

In areas where feasible, the following measures are recommended to protect the trees.

1. Protective fencing should be placed at the outer edge of the Protected Root Zone (also referred to as Tree Protection Zone).
2. Protective fencing must be erected so that it is visible and structurally sound enough to deter construction equipment, foot traffic, and the storing of equipment under tree canopies.
3. Signs should be posted on the fencing around trees notifying contractors of the fines for dumping. Oil from construction equipment, cement, concrete washout, acid washes, paint, and solvents are toxic to tree roots.

Strategic Pruning

Many trees in the appendix are noted to have poor health or structural issues. Strategic pruning may be required to limit hazardous conditions to the utility crew or homeowner; this is at the discretion of the project arborist or supervisor. All pruning should be performed by an ISA Certified Arborist or ASCA Consulting Arborist. *The project arborist's assessments at the time of construction trumps the recommendation of the arborist of this report as conditions may change and additional concerns may surface.*

Tunneling

Water main installation must be performed by tunneling if within the tree's root crown once roots greater than one-inch are encountered (Fite, 2016). The following parameters are recommended when working within the TPZ or Protected Root Zone.

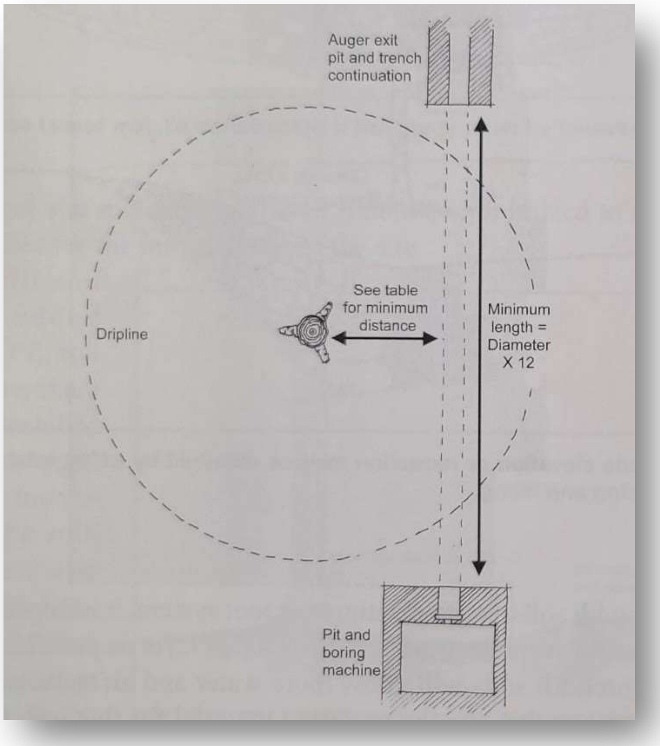
The root crowns of trees generally exist within the top two to three feet of soil. Given the number of Heritage trees within the project area, tunneling for utilities are generally recommended at a depth of *three-foot or greater below grade.* It is imperative that structural roots (typically roots with a diameter of > 4 inches) as well as any residual taproot (depending on species) be preserved and undamaged within the Critical Root Zone (CRZ), this is the area immediately adjacent to the trunk where roots essential for tree health and stability are located. *Tunneling within the CRZ must be avoided.* Table 3 and Figure 5 below show the recommended placement of entrance and exit pits (according to ISA BMPs) for a tunneling auger and machinery near the TPZ. Avoid any trenching within the TPZ plus four radial feet. Any trenching in the vicinity of a tree should be performed radially via hydro/AirSpade excavation (see below). To avoid or lessen impacts of tree loss, the project design must implement this approach.

Table 3. Recommended Tree Face - Auger Distance

Tree Diameter (DBH) *Inches*	Minimum Offset Distance from Trunk Face *Feet*	Minimum length of Bore Hole *Inches*
2	1	2
3	2	3
5	5	5
10	8	10
15	12	15
20	15	20

Source: Managing Trees During Construction, Second Edition – Best Management Practices, Fite et al, 2016.

Figure 5. This is a conceptual diagram identifying the placement of the entry and exit pits relative to a tree's dripline (taken from Fite et al. 2016). Refer to Table 2 above for the minimum offset distance from the tree face.



Hydro/AirSpade Excavation

If it is not possible to operate outside of the TPZ and tunneling is not a feasible alternative, at the direction of the City, an arborist or biological monitor must be consulted to assess the conditions and explore methods that will result in minimal adverse impact to the nearby tree. Minimally invasive hydro/AirSpade excavation is a technique that may be employed under certified arborist/biologist supervision to strategically and carefully remove soil within the root zone without significantly damaging the root tissue. This technique uses high pressure air or water to clear a pathway for utilities routed within the root zone, but it must be used by a carefully trained and proficient crew.

Root and Limb Pruning

1. Prune any limbs or tree structures that would compromise the safety of workers under the tree during construction activity; this should be done at the discretion of the project supervisor and upon approval of the homeowner.
2. Avoid cutting any structural roots within the CRZ or those > 4 inches in diameter
3. If needed, use guy wires and other effective bracing methods to secure.
4. Expose roots for trimming with hand tools or an air spade. Do not use large construction machinery such as a backhoe or excavator.
5. Hand-prune all necessary root structures < 2 inches with sharp loppers or hand pruners. A pruning saw or other similar tool can be used for larger roots. Disinfect the pruners and other cutting tools between trees to avoid disease contamination. Isopropyl alcohol (70%) is an effective solution to clean the tools. The further the roots can be cut from the tree, the better it is.

6. Back fill to assure stability of each tree leaving bracing in place (at the discretion of the supervising arborist).

4.3.3 - Trees Preserved and Future Maintenance

An ongoing maintenance and monitoring program recommended on at a regular frequency with pruning according to ISA standards (ANSI A300) to ensure public safety, maximize tree health, and minimize liability due to potential tree failure. Tree maintenance and care should be administered with special attention given to ANSI A300 (Tree Care Standards), Part 1 (Pruning Standards), Part 2 (Soil Management), Part 3 (Standard Practices), Part 5 (Management of Trees and Shrubs during site Planning, Site Development, and Construction), and Part 8 (Root Management).

4.3.4 - Migratory Bird Treaty Act

Pursuant to the Migratory Bird Treaty Act (MBTA) and CDFG Code, removal of any trees, shrubs, or any other potential nesting habitat should be conducted outside the avian nesting season. The nesting season generally extends from early February through August, but can vary slightly from year to year based upon seasonal weather conditions.

SECTION 5: QUALIFICATIONS OF ARBORIST

Mr. Wirtes is a Certified Arborist (CH-08084) with the International Society of Arboriculture (ISA) and a Registered Consulting Arborist (#738) with the American Society of Consulting Arborists. Mr. Wirtes was ISA certified in November of 2005 and has conducted numerous tree assessments for residential properties that involve oak and other tree species. Most notably, Mr. Wirtes has created an oak regeneration plan for a 2.3-acre project site in Ventura County as mitigation within a specific plan development as well as a Joshua tree preservation plan in the City of Palmdale, CA. He has performed numerous tree surveys is Riverside, San Bernardino, and Los Angeles Counties on sites with as many as 970 trees. Mr. Wirtes' education includes a Bachelor of Science in Biology and a Master of Science in Environmental Science from California State University at Fullerton.

I certify that the details stated herein this report are true and accurate:

George J Wirtes

George Wirtes, MS, RCA #738
ISA Certified Arborist, CH-08084

SECTION 6: REFERENCES

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Appendix A - Tree Species Observed

Note - This tree survey and the details recorded below are meant to characterize the trees within the property. The assessment is not exhaustive, but is a balance between the competing forces of in-depth description and cost effectiveness. The goal was to accumulate enough data to make a judgment as to what role, if any, the existing trees may have in the proposed project.

Tree Tag #	Species	DBH (inches)							Height (feet)	Heritage	Canopy Width (feet) (north on top)	Canopy Cover (sq ft)	Health	Structure	Risk	Recommendation	Conclusion
		1st Stem	2nd Stem	3rd Stem	4th Stem	5th Stem	6th Stem	Total									
1	Western Sycamore	17						17	63	1	22 28 20 26	1809	1-2	1-2	2		Preserve
Good form and vigor, near utilities, minor structural root decay, in a park																	
2	Western Sycamore	21						21	63	1	28 28 26 20	2042	1-2	1-2	2		Preserve
Good form and vigor, utility lines present																	
3	Western Sycamore	16						16	56	1	16 14 14 27	989	2	2	2-3		Consider Removal
Good form and vigor, black mold, lean 10-15 deg., decreased canopy growth, multiple decayed structural roots on S side																	
4	Western Sycamore	11.5						11.5	55	1	17 11 9 22	683	2	2	2		Preserve
Good form and vigor, some decayed structural roots noted																	
5	Western Sycamore	14.5						14.5	56	1	20 14 12 18	804	2	2	2		Preserve
Good form and vigor, decay at structural roots																	
6	Western Sycamore	16						16	61	1	21 17 10 18	855	2	2	2		Preserve
Good form and vigor, decay at structural roots																	
7	Western Sycamore	13						13	55	1	20 16 7 18	730	2	2	2		Preserves
Good form and vigor, decay at structural roots																	
8	Western Sycamore	17						17	66	1	23 32 11 12	1194	2	2	2		Preserve
Good form and vigor, decay at structural roots, Utilities running through canopy, minor deadwood noted																	
9	Western Sycamore	16.5						16.5	65	1	20 29 17 18	1385	1-2	2	2		Preserve
Ant colony present, good form and vigor																	
10	Western Sycamore	7						7	41		4 6 8 14	201	1-2	1-2	1-2		Preserve
Minor lean, good form and vigor																	
11	Western Sycamore	7						7	31		8 9 7 10	227	2	2	2		Preserve
Minor competing canopy, Deadwood noted in canopy																	
12	Western Sycamore	8						8	31	1	7 12 9 10	283	3	2-3	2-3		Consider Removal
Diseased stem and flare																	

13	Western Sycamore	11						11	39	1	3	7	11	15	254	2-3	2-3	2-3	Trim Deadwood and reevaluate.	Preserve
30 to 40-degree lean to SE. Increased amount of deadwood.																				
14	Western Sycamore	17						17	48	1	22	28	20	26	1809	2	3	3	Brace and trim to reduce risk and reevaluate.	Preserve
Multi stem. Minor upper canopy deadwood. Diseased top of a primary stem.																				
15	Western Sycamore	7	11	9				27	41	1	8	10	18	12	452	2-3	3	3	Trim to rebalance canopy and reevaluate.	Preserve
Multi stem.																				
16	Western Sycamore	11						11	36	1	6	10	13	15	380	1-2	1-2	1-2		Preserve
Good form and vigor. Tree leans over sidewalk.																				
17	Western Sycamore	10.5						10.5	33	1	6	9	8	10	214	2	2	2	Weed wacker guard	Preserve
Good form and vigor. Weed Wacker damage. Unclosed branch cut.																				
18	Western Sycamore	11.5						11.5	36	1	13	12	17	12	572	2	2	2	Weed wacker guard	Preserve
Some upper Canopy Deadwood noted weed Wacker damage.																				
19	Western Sycamore	17.5						17.5	61	1	16	21	21	22	1256	3	2-3	3		Consider Removal
Large and deep decayed branch cut, codominant stems, decayed upper stem noted																				
20	Western Sycamore	13.5						13.5	43	1	12	12	18	15	638	2-3	2-3	2-3	Trim to reduce risk of failure	Preserve
Decayed branch cut, increased risk																				
21	Western Sycamore	16.5						16.5	66	1	20	25	21	25	1625	2	2	2		Preserve
Good form and vigor, large specimen																				
22	Western Sycamore	9						9	38	1	6	6	8	12	201	2-3	2-3	2-3		Preserve
Decreased canopy, decline, some upper canopy deadwood																				
23	Shamel Ash	21						21	36		9	10	13	12	380	3	3	2-3		Consider Removal
Topped, multiple areas of decay, decreased aesthetics, decreased canopy growth																				
24	European Olive	10	13	14	11			48	35		11	14	15	14	572	3	2-3	3		Consider Removal
Damaged stems, multi-stem specimen, increased risk and liability																				
25	Queen Palm	11						11	50		10	9	10	11	314	1-2	1-2	1-2		Preserve
Good form and vigor, trimmed using climbing spikes																				
26	Western Sycamore	15						15	28	1	6	7	6	8	143	3	2-3	3		Consider Removal
Substantial decay at branch cut, decreased vigor																				
27	Western Sycamore	9						9	32	1	8	10	10		330	3	3	3-4		Consider Removal
Decline, large decayed branch cut, increased failure risk																				

											13						
28	Western Sycamore	9						9	24	1	9 11 9 11	314	3	3	3		Consider Removal
Diseased, termites, failure risk																	
29	Western Sycamore	19.5						19.5	31	1	10 14 14 13	510	3	3	3		Consider Removal
Infested with termites/borers, decline, codominant stem																	
30	Western Sycamore	9	9					18	34	1	15 14 14 14	638	3	2-3	2-3		Consider Removal
Diseased, codominant stems																	
31	Western Sycamore	12	10	7.5				29.5	47	1	14 20 18 20	1017	3	3	3		Consider Removal
Diseased limbs, codominant stems, increased liability																	
32	Western Sycamore	12.5						12.5	30	1	11 7 17 13	452	2-3	2-3	2-3	Trim deadwood	Preserve
Some diseased wood noted, good bud growth																	
33	Silk Oak	16.5						16.5	58		14 19 10 19	754	2	2	3	Trim to reduce hazard and re-evaluate	Preserve
Good form and vigor, growing above grade																	
34	Silk Oak	20.5						20.5	62		21 18 17 20	1134	2	2	3	Trim to reduce hazard and re-evaluate	Preserve
Good form and vigor, growing above grade																	
35	Silk Oak	21.5						21.5	78		19 12 21 14	855	2	2	3	Trim to reduce hazard and re-evaluate	Preserve
Good form and vigor, growing above grade																	
36	Silk Oak	21						21	60		19 19 14 16	907	2	2	3		Consider Removal
Good form and vigor, growing above grade, failed limb, increased failure risk																	
37	Mexican Fan Palm	16						16	23		5 7 6 7	123	1-2	1-2	3		Consider Removal
Good form and vigor, poor location…under utility line																	
38	Mexican Fan Palm	12						12	15		6 7 6 8	143	1-2	1-2	3		Consider Removal
Good form and vigor, poor location…under utility line																	
39	Mexican Fan Palm	11.5						11.5	29		7 9 8 9	214	1-2	1-2	3		Consider Removal
Good form and vigor, poor location…under utility line																	
40	Mexican Fan Palm	8						8	15		4 6 5 5	79	1-2	1-2	3		Consider Removal
Good form and vigor, poor location…under utility line																	
41	Peruvian Pepper	9						9	28	1	2 5 12 3	95	2	3	3		Consider Removal
Poor form and vigor, poor location…under utility line																	
42	Arizona Cypress	15						15	19		8 10 4 10	201	3	3	3		Consider Removal
Increased stem decay																	

43	Arizona Cypress	15						15	32		11 11 9 12	363	2	2	3	Trim for safety or Consider Removal	Consider Removal
Beneath utilities, good form and vigor, interferes with utilities																	
44	Blue Jacaranda	13	13.5					26.5	42		17 16 18 19	962	2-3	2-3	2-3	Trim for safety or Consider Removal	Preserve
Formerly topped, good vigor, water sprouting, utilities routed through canopy																	
45	Blue Jacaranda	15						15	36		14 14 14 15	638	2-3	2-3	2-3		Preserve
Formerly topped, good vigor, water sprouting, utilities routed through canopy																	
46	Blue Jacaranda	14	12					26	45		15 13 18 16	754	2-3	3	3	trim/brace and re-evaluate	Preserve
Codominant stems, utilities routed through crown																	
47	Hollywood Juniper	6.5						6.5	14		4 5 7 7	104	1-2	1-2	1-2		Preserve
Good form and vigor																	
48	Hollywood Juniper	13.5						13.5	15		11 5 12 9	269	1-2	1-2	1-2		Preserve
Good form and vigor																	
49	Date Palm	21						21	37		13 12 12 11	452	1-2	1-2	3		Consider Removal
Beneath utilities, poor location																	
50	Date Palm	20						20	38		13 10 12 10	397	1-2	1-2	3		Consider Removal
Beneath utilities, poor location																	
51	Date Palm	22						22	37		13 13 12 11	471	1-2	1-2	3		Consider Removal
Beneath utilities, poor location																	
52	Date Palm	18.5						18.5	38		14 12 14 11	510	1-2	1-2	3		Consider Removal
Beneath utilities, poor location																	
UT1	Kurrajong	14						14	34		9 8 8 10	240	1-2	1-2	2-3		Preserve
Good form and vigor																	
53	Canary Island Pine	13						13	46		8 7 5 9	165	2-3	2-3	3	Heavily prune for safety to keep	Consider Removal
Increased lower canopy growth, interferes with utility lines																	
54	Guava	5						5	13		8 10 9 9	254	1-2	1-2	1-2		Preserve
Good form and vigor																	
55	Canary Island Pine	10.5						10.5	27		7 6 5 7	123	2-3	2-3	3		Consider Removal
Poor form with decreased canopy growth, beneath utility lines																	
56	Blue Jacaranda	12						12	29		11 10 9 10	314	2	2	2		Preserve
Topped, fair vigor																	
57	Blue Jacaranda	12						12	28		7 8 6 8	165	2	2	2		Preserve
Topped, fair vigor																	

UT2	Blue Jacaranda	22						22	29		9	12	11	12	380	2	2	2		Preserve
Topped, fair vigor																				
58	Blue Jacaranda	12	13					25	28		8	6	8	10	201	2	2	2		Preserve
Topped, fair vigor																				
59	Bird of Paradise	7	7	6.5	6	6.5	8	41	16		6	6	6	6	113	1-2	2	2		Preserve
Good form and vigor, multi-stemmed																				
60	Bird of Paradise	4	6	4.5	5.5	7	4.5 | 3.5	35	19		7	8	5	8	154	1-2	2	2		Preserve
Good form and vigor, multi-stemmed																				
61	Canary Island Pine	12						12	27		6	5	6	7	113	2	2	3		Consider Removal
Topped, poorly pruned, beneath utility lines																				
62	Canary Island Pine	8.5						8.5	26		6	5	6	5	95	2	2	2		Consider Removal
Topped, poorly pruned, beneath utility lines																				
63	Bird of Paradise	5	6	8	6	7	4.5 | 6	42.5	24		6	9	8	10	214	1-2	2	2		Preserve
Good form and vigor																				
64	Chinese Banyon	3.5	4.5					8	28		11	14	14	15	572	2-3	3	2		Consider Removal
Poor form, good vigor, beneath utilities, outgrew a 24-in box																				
65	Chinese Banyon	4.5	4					8.5	25		10	8	7	9	227	2-3	3	2		Preserve
Poor form, good vigor, out grew a 24-in box																				
66	Leyland Cypress	5	11	4	10			30	34		10	16	9	17	531	2	2	3		Consider Removal
Interferes with utilities																				
UT3	Leyland Cypress	9						9	33		6	8	9	13	254	2-3	2-3	3		Consider Removal
Interferes with utilities, competing canopies																				
UT4	Leyland Cypress	10.5						10.5	33		13	7	7	11	283	2-3	2-3	3		Consider Removal
Interferes with utilities, competing canopies																				
67	Leyland Cypress	11	8	9				28	34		15	8	7	12	346	2-3	2-3	3		Consider Removal
Interferes with utilities, competing canopies																				
UT5	Leyland Cypress	8						8	33		13	9	9	14	397	2-3	2-3	2		Consider Removal
Interferes with utilities, competing canopies																				
UT6	Leyland Cypress	12						12	34		13	11	10	10	380	2-3	2-3	3		Consider Removal
Interferes with utilities, competing canopies																				
UT7	Leyland Cypress	10	14	12				36	31		11	9	8		283	2-3	2-3	3		Consider Removal
Interferes with utilities, competing canopies																				

														10						
UT8	Leyland Cypress	8						8	28		8	8	6	12	227	2-3	2-3	3		Consider Removal
Interferes with utilities, competing canopies																				
68	Leyland Cypress	8						8	28		11	11	5	10	269	2-3	2-3	3		Consider Removal
Interferes with utilities, competing canopies																				
69	Leyland Cypress	9.5						9.5	33		9	8	19	5	330	2-3	2-3	3		Consider Removal
Interferes with utilities, competing canopies																				
70	Deodar Cedar	19						19	62	1	22	30	18	25	1771	2-3	3	3		Consider Removal
Poorly trimmed, near utility																				
71	Leyland Cypress	12						12	31		13	17	11	13	572	2	2	3		Consider Removal
Utility through canopy																				
72	Red River Gum	7	8	8				23	24		10	12	8	9	298	3	3	2-3		Consider Removal
Topped, decreased aesthetics, trunk damage, utility lines through canopy																				
73	Red River Gum	10						10	29		6	8	7	6	143	3	3	3		Consider Removal
Topped, decreased aesthetics, utility lines through canopy, lean, decayed branch cuts																				
74	Red River Gum	14	20					34	30		9	18	26	16	934	2-3	2-3	3		Consider Removal
Topped, utility lines through canopy, decreased aesthetics																				
75	Kurrajong	8.5	7.5					16	24		9	7	6	7	165	2	2-3	2-3		Preserve
Codominant stems, good vigor																				
76	Camphor	7						7	15		5	5	6	4	79	1-2	1-2	1-2		Consider Removal
Good form and vigor, poor location, problematic in the future																				
77	Camphor	5						5	16		6	4	5	4	71	1-2	1-2	1-2	Weed wacker guard	Consider Removal
Good form and vigor, poor location, weed wacker damage, problematic in the future																				
78	Camphor	6.5						6.5	16		5	6	5	4	79	1-2	1-2	1-2		Consider Removal
Good form and vigor, poor location, problematic in the future																				
79	Camphor	8						8	17	1	6	5	6	5	95	1-2	1-2	3		Consider Removal
Good form and vigor, poor location, problematic in the future																				
80	Camphor	10						10	24	1	9	6	7	6	154	1-2	1-2	3		Consider Removal
Good form and vigor, poor location, problematic in the future																				
81	Blue Jacaranda	13						13	30		11	11	10		380	2	2-3	2-3	Trim to avoid utilities and re-evaluate	Preserve
Good form and vigor, topped																				

											12						
UT9	Blue Jacaranda	14	10					24	30		12 13 11 12	452	1-2	2	2		Preserve
Good form and vigor																	
82	Camphor	8						8	18	1	6 5 4 6	87	1-2	1-2	3		Consider Removal
Poor location, good form and vigor																	
83	Camphor	7						7	21		7 5 8 6	133	1-2	1-2	3		Consider Removal
Poor location, good form and vigor																	
84	Camphor	6						6	22		5 5 4 4	64	1-2	1-2	3		Consider Removal
Poor location, good form and vigor																	
85	Camphor	7						7	24		6 6 7 5	113	1-2	1-2	3		Consider Removal
Poor location, good form and vigor																	
86	Camphor	6						6	21		5 4 6 5	79	1-2	1-2	3		Consider Removal
Poor location, good form and vigor																	
87	Camphor	6.5						6.5	22		7 5 7 5	113	1-2	1-2	3		Consider Removal
Poor location, good form and vigor																	
UT10	Queen Palm	8						8	33		7 5 7 7	133	1-2	1-2	1-2		Preserve
Good form and vigor, obscured by bougainvillea																	
88	Tree Yucca	9.5	5					14.5	21		4 6 3 6	71	1-2	1-2	1-2		Preserve
Good form and vigor, codominant stem																	
89	Western Sycamore	17						17	41	1	15 15 13 14	638	2	2	2		Preserve
Good form and vigor																	
90	Western Sycamore	15						15	36	1	15 13 14 11	551	2-3	2	2		Preserve
Unclosed branch cuts, fair vigor																	
91	Crape Myrtle	6						6	20		7 8 9 8	201	2-3	2	2		Preserve
Fair form and poor vigor																	
92	Crape Myrtle	6.5						6.5	22		8 8 12 10	283	2-3	2	2		Preserve
Fair form and vigor																	
93	Crape Myrtle	5						5	21		7 8 6 7	154	2-3	2	2		Preserve
Fair form and vigor																	
94	Crape Myrtle	5.5						5.5	18		7 8 8 10	214	2-3	2	2		Preserve
Fair form and vigor																	
95	Crape Myrtle	6						6	19		9 9 11 9	283	2-3	2	2		Preserve
Fair form and vigor																	

UT12	Queen Palm	13						13	32		6 8 6 9	165	1-2	1-2	1-2		Preserve
Good form and vigor																	
UT13	Queen Palm	13						13	44		7 8 8 9	201	1-2	1-2	1-2		Preserve
Good form and vigor																	
UT14	Queen Palm	14						14	45		8 6 6 12	201	1-2	1-2	1-2		Preserve
Good form and vigor																	
UT15	Queen Palm	12						12	46		5 5 6 9	123	1-2	1-2	1-2		Preserve
Good form and vigor																	
UT16	Queen Palm	12						12	31		7 5 10 10	201	1-2	1-2	1-2		Preserve
Good form and vigor																	
UT17	Queen Palm	15						15	31		6 9 3 10	154	1-2	1-2	1-2		Preserve
Good form and vigor																	
UT18	Queen Palm	8						8	37		10 6 10 12	283	1-2	1-2	1-2		Preserve
Good form and vigor																	
UT19	Queen Palm	8						8	28		6 3 6 11	133	1-2	1-2	1-2		Preserve
Good form and vigor																	
UT20	Queen Palm	10						10	29		6 4 3 10	104	2	1-2	1-2		Preserve
Good form and vigor																	
UT21	Queen Palm	12						12	29		7 5 4 8	113	1-2	1-2	1-2		Preserve
Good form and vigor																	
UT22	Queen Palm	10						10	35		8 5 5 10	154	1-2	1-2	1-2		Preserve
Good form and vigor																	
UT23	Queen Palm	10						10	34		6 4 6 8	113	1-2	1-2	1-2		Preserve
Good form and vigor																	
UT24	Queen Palm	8						8	23		6 7 3 7	104	1-2	1-2	1-2		Preserve
Good form and vigor																	
96	Crape Myrtle	6						6	22		6 10 8 7	189	2-3	2	2		Consider Removal
Fair to poor health and vigor, extensive weed wacker damage																	
97	Crape Myrtle	5						5	21		5 8 6 6	123	2	2	2		Preserve
Weed wacker damage																	
UT25	King Palm	9						9	26		7 6 6 9	154	1-2	1-2	1-2		Preserve
Good form and vigor																	
UT26	King Palm	8						8	25		7 7 8 9	189	1-2	1-2	1-2		Preserve
Good form and vigor																	
UT27	King Palm	8						8	26		8 7 6 8	165	1-2	1-2	1-2		Preserve
Good form and vigor																	
UT28	King Palm	8						8	31		9 5 6	165	1-2	1-2	1-2		Preserve
Good form and vigor																	

											9						
UT29	Southern Magnolia	22						22	40		18 18 15 20	989	2-3	2	2		Preserve
Moderate retrenchment, fair vigor																	
98	Western Sycamore	12						12	39	1	12 11 10 10	363	1-2	1-2	1-2		Preserve
Good form and vigor																	
99	Crape Myrtle	3	4.5	5	3			15.5	27		10 10 11 12	363	1-2	2	2		Preserve
Good form and vigor, multi-stemmed																	
100	Crape Myrtle	3	3	3.5	3.5	3		16	28		10 12 9 12	363	2	2	2		Preserve
Multi-stemmed, flush cuts noted, unclosed branch cuts and termites, good form and vigor																	
101	Crape Myrtle	4	4.5	6				14.5	28		12 10 13 10	397	1-2	2	2		Preserve
Stem removed, good vigor																	
102	Crape Myrtle	4	4	4.5	5			17.5	26		12 10 8 11	330	1-2	1-2	1-2		Preserve
Multi-stem, good form and vigor																	
103	Western Sycamore	9.5						9.5	32	1	11 9 13 11	380	1-2	1-2	1-2		Preserve
Good form and vigor, epiphytic vine growth																	
104	Western Sycamore	8.5						8.5	32	1	11 8 13 12	380	1-2	1-2	1-2		Preserve
Good form and vigor																	
105	Western Sycamore	9.5						9.5	38	1	11 12 12 14	471	1-2	1-2	1-2		Preserve
Good form and vigor, in planter																	
106	Western Sycamore	9						9	35	1	12 10 11 12	397	1-2	1-2	1-2		Preserve
Unclosed branch cut, good form and vigor																	
107	Western Sycamore	13						13	34	1	12 12 10 10	380	2	3	2	Monitor	Preserve
Topped, poorly trimmed, most of canopy removed																	
108	Western Sycamore	11						11	20	1	7 7 7 7	154	2	3	2		Preserve
Topped, poorly trimmed, most of canopy removed																	
109	Red River Gum	15						15	31		4 8 3 6	87	2	3	2		Consider Removal
Topped, poorly trimmed, most of canopy removed, poor aesthetics, decay at branch cut																	
110	Blue Jacaranda	18	16.5					34.5	41		17 12 13 17	683	2	3	3		Preserve
Good form and vigor, topped																	
111	Western Sycamore	11.5						11.5	22	1	7 7 6 6	133	3	3	3		Consider Removal
Topped, diseased, water sprouting																	
UT30	Queen Palm	11						11	41		10	254	1-2	1-2	1-2		Preserve

Good form and vigor											6 8 12						
UT31	Queen Palm	10						10	39		12 10 11 15	452	1-2	1-2	1-2		Preserve
Good form and vigor																	
UT32	Queen Palm	11						11	48		10 10 10 14	380	1-2	1-2	1-2		Preserve
Good form and vigor																	
112	Western Sycamore	13						13	52	1	16 19 20 16	989	1-2	1-2	1-2		Preserve
Good form and vigor																	
113	Western Sycamore	14						14	51	1	16 25 16 16	1046	2	2	2		Preserve
Good form and vigor																	
114	Queen Palm	11						11	40		8 6 12 9	240	1-2	2	1-2		Preserve
Good form and vigor, competing canopy, climbing spike damage																	
115	Queen Palm	8						8	40		7 7 6 6	133	1-2	2	1-2		Preserve
Good form and vigor, competing canopy, climbing spike damage																	
116	Queen Palm	11						11	35		10 7 7 12	254	1-2	2	1-2		Preserve
Good form and vigor, competing canopy, climbing spike damage																	
117	Queen Palm	9.5						9.5	33		12 7 11 11	330	1-2	2	1-2		Preserve
Good form and vigor, competing canopy																	
118	Queen Palm	9.5						9.5	30		12 11 12 10	397	1-2	2	1-2		Preserve
Good form and vigor, competing canopy																	
119	Queen Palm	8.5						8.5	23		6 6 7 7	133	1-2	1-2	1-2		Preserve
Good form and vigor, competing canopy																	
120	Western Sycamore	19						19	44	1	17 13 18 17	829	2-3	2-3	3	Trim diseased limbs	Preserve
Trim to reduce risk, salvageable, decayed limbs																	
121	Western Sycamore	13						13	43	1	16 12 14 16	660	2	2	2		Preserve
Good to fair form and vigor																	
122	Mexican Fan Palm	14.5						14.5	75		9 8 11 11	298	1-2	1-2	1-2		Preserve
Good form and vigor																	
123	Chinese Juniper	10						10	20		12 8 10 8	283	1-2	1-2	1-2		Preserve
Good form and vigor																	
124	Queen Palm	10						10	39		12 13 11 13	471	1-2	1-2	1-2		Preserve
Good form and vigor																	
125	Queen Palm	9.5						9.5	39		10 11 10 13	380	1-2	1-2	1-2		Preserve
Good form and vigor																	
126	Western Sycamore	12.5						12.5	49	1	18	1017	2-3	2	2		Preserve

Good form and vigor, extensive decay on limb to SE											18 20 16						
127	Western Sycamore	20						20	52	1	17 18 19 9	779	1-2	2	1-2		Preserve
Large canker at unclosed branch cut																	
128	Southern Magnolia	8						8	37		10 10 11 11	346	2-3	2-3	3		Consider Removal
Large stem/flare canker																	
129	American Sweetgum	24						24	53		11 10 14 14	471	3	3	3-4		Consider Removal
Extensive decay at branch cut, vigor fair, increased risk																	
130	Shamel Ash	19						19	39		16 17 17 19	934	3	2-3	3		Consider Removal
Increased risk of failure, termites, lean																	
131	Western Sycamore	23						23	78	1	29 30 28 29	2641	1-2	1-2	2		Preserve
Good form and vigor																	
132	Western Sycamore	29						29	75	1	22 31 26 22	2002	2-3	2	3		Preserve
Large decayed branch cut, increased risk of failure																	
133	Blue Jacaranda	15.5						15.5	51		17 18 23 17	1104	2-3	3	3	Trim eastern portion of canopy for safety	Preserve
Formerly topped, mature water sprouting branches																	
134	Western Sycamore	15						15	47	1	15 14 18 13	707	2	2	2		Preserve
Good form and vigor																	
135	Western Sycamore	16						16	45	1	16 23 22 14	1104	2	2	2		Preserve
Good form and vigor																	
136	Western Sycamore	14.5						14.5	43	1	16 18 16 12	754	2-3	2-3	2-3		Preserve
Formerly topped, some decay																	
UT33	Canary Island Pine	15						15	53		12 11 10 12	397	2	2	2		Preserve
Good form and vigor																	
137	Carrotwood	12.5						12.5	48		14 17 16 13	707	2-3	2-3	2-3		Preserve
Senescent																	
138	Carrotwood	17						17	47		15 21 17 15	907	3	2	3-4		Consider Removal
Decline, large cankers																	
139	Carrotwood	14.5						14.5	41		16 22 12 13	779	2-3	2-3	3		Consider Removal
Senescent, flush cuts, small areas of decay, consider removal																	
140	Carrotwood	16						16	41		12	683	3	3	3		Consider Removal

Increased failure risk, senescent											17 15 15						
141	Carrotwood	17						17	33		13 16 10 13	531	3	3	3		Consider Removal
Increased failure risk, senescent, stem cavity																	
142	Carrotwood	28						28	44		15 13 17 15	707	3	3	3-4		Consider Removal
Increased failure risk, senescent, large canker, flush cuts, unclosed branch cuts, unstable limb to SW																	
143	Magenta Lilly Pilly	8.5						8.5	30		6 7 6 11	177	2	2	2		Preserve
Competing canopy and lean																	
144	Carrotwood	10	11					21	36		10 14 10 13	434	3	2-3	3		Consider Removal
Extensive cankers, increased risk, senescent, termites																	
145	Carrotwood	18						18	47		16 16 14 14	707	3	2-3	3		Consider Removal
Embedded rocks in flare, senescent																	
UT34	Avocado	6						6	26		7 8 6 9	177	2-3	2-3	2-3	Re-evaluate and prune for safety to preserve	Preserve
Lean to SW, competing canopy																	
146	Carrotwood	13						13	31		10 15 4 6	240	3	3	3		Consider Removal
Senescent, large canker on limb																	
147	Carrotwood	8	6	12.5				26.5	42		16 12 15 19	754	3	3	3		Consider Removal
Failed branch, increased risk, senescent, codominant stems																	
148	Carrotwood	17						17	45		18 18 12 12	707	3	2-3	3-4		Consider Removal
Risk to target																	
149	Carrotwood	9	9.5					18.5	31		10 14 14 9	434	3	2-3	3		Consider Removal
Codominant stems, senescent, large canker on stem																	
150	Red River Gum	16.5	13	6.5	3	15	13.5 | 18.5	82	47		19 22 45 32	2733	2-3	3-4	3		Consider Removal
Multi-stemmed, poor crotch formation, increased risk/liability, utilities through canopy																	
151	Mexican Fan Palm	25						25	48		9 8 8 7	201	2	2	3-4		Consider Removal
Growing into power lines, increased risk																	
152	Ornamental Pear	9						9	35		9 11 9 14	363	2	2	3		Consider Removal
Lean, utilities running through canopy																	
153	Chinese Elm	8.5						8.5	34		7 16 10 14	434	2	2	3		Consider Removal
Utilities running through canopy																	
154	Ornamental Pear	12.5	13					25.5	52		19	1194	2	2-3	3		Preserve

Codominant stems, good union formation, good vigor												20	20	19						
155	Ornamental Pear	9						9	36		9	14	7	14	380	2-3	2-3	3		Consider Removal
Good vigor/bud growth, utilities running through canopy																				
156	Ornamental Pear	9.5						9.5	40		14	13	13	14	572	2-3	2-3	3		Consider Removal
Good vigor, flush cuts noted, utilities running through canopy																				
157	Ornamental Pear	9						9	39		8	10	10	11	298	2-3	2-3	3		Consider Removal
Good vigor, flush cuts noted, utilities running through canopy																				
158	Ornamental Pear	12.5						12.5	44		16	17	15	10	660	2-3	2-3	3	Prune and re-evaluate to reduce risk	Preserve
Good vigor, flush cuts noted, utilities running through canopy																				
159	Ornamental Pear	9						9	32		11	10	7	9	269	2-3	2-3	3	Prune and re-evaluate to reduce risk to keep	Consider Removal
Poor flare development, increased failure risk																				
160	Ornamental Pear	9.5						9.5	36		11	18	9	11	471	2-3	2-3	3		Consider Removal
Utilities running through canopy																				
161	Ornamental Pear	10						10	39		13	16	10	13	531	2-3	2-3	3		Consider Removal
Poor flare, utilities running through canopy																				
162	Ornamental Pear	9						9	41		11	11	10	11	363	2-3	2-3	3		Consider Removal
Utilities running through canopy																				
163	Glossy Privet	8	18	6.5				32.5	45		10	11	12	14	434	2-3	3	3	Brace, prune and re-evaluate to keep	Consider Removal
Good form and vigor, codominant stems																				
UT35	Glossy Privet	13						13	41		10	9	7	9	240	2	2	2		Preserve
Good form and vigor																				
164	Ornamental Pear	10						10	41		12	14	15	11	531	2-3	2	2-3	Weed wacker guard	Preserve
Fair form and vigor, significant weed-wacker damage, unclosed branch cuts																				
165	Glossy Privet	10						10	41		14	15	13	13	594	2	2-3	2-3		Consider Removal
Good form and vigor, utility lines through canopy																				
166	Ornamental Pear	9						9	41		9	16	12	12	471	3	2-3	3		Consider Removal
Canker at flare, increased liability																				
167	Ornamental Pear	15	10					25	39		8	11	9	11	298	3	3	2-3		Preserve
Two removed limbs, decreased aesthetics																				
168	Ornamental Pear	10						10	36		13	13	13	13	531	2-3	2-3	2-3		Consider Removal
Removed stem, lean, utilities through canopy																				

169	Glossy Privet	10.5	9	9.5	10	6.5	8 | 7	60.5	38		12 14 14 17	638	2-3	2-3	3		Consider Removal
Failed branch, unclosed branch, poor prognosis																	
170	Green Ash	25						25	74		18 21 18 20	1164	3	2-3	3	Re-evaluate	Consider Removal
Codominant stem, decayed stem																	
171	Glossy Privet	10.5						10.5	41		11 8 11 11	330	3	2-3	2-3		Consider Removal
Large canker																	
172	Glossy Privet	7	11.5					18.5	36		10 10 11 14	397	3	2-3	3		Consider Removal
Codominant stems, decayed stem																	
173	Ornamental Pear	9						9	35		10 13 11 11	397	3	2-3	3		Preserve
Large canker																	
174	Glossy Privet	8	9.5	9.5				27	39		11 10 11 10	346	2-3	2-3	2-3		Preserve
Codominant stems, union fair																	
175	Glossy Privet	8.5	12	8	8.5			37	40		10 13 11 8	346	3	2-3	2-3	Prune and brace for safety and re-evaluate to keep	Preserve
Included bark, brace for safety, diseased stem, water sprouting																	
176	Ornamental Pear	8.5						8.5	33		7 8 10 8	214	2-3	2-3	3		Preserve
Utilities running through canopy																	
177	Glossy Privet	5.5	7	12.5				25	34		9 8 8 9	227	3	3	2-3		Consider Removal
Poor canopy development, topped, decreased aesthetics																	
178	Ornamental Pear	8.5						8.5	36		9 14 9 9	330	2-3	2-3	2-3		Preserve
Good form and vigor, utilities running through canopy																	
179	Glossy Privet	13	10	7.5	7.5			38	37		12 12 15 13	531	2-3	2-3	3		Preserve
Codominant stems, union is fair																	
180	Ornamental Pear	5						5	20		7 5 6 6	113	2	2	2		Preserve
Good form and vigor																	
181	Green Ash	25.5						25.5	73		22 24 23 22	1625	2-3	2-3	3	Re-evaluate and prune for safety	Preserve
Reaction wood growth, large specimen, increased liability																	
182	Ornamental Pear	8.5						8.5	43		8 10 12 10	314	2-3	2-3	3		Consider Removal
Good form and vigor, utilities running through canopy																	
183	Ornamental Pear	10						10	44		12 16 10 15	551	3	2-3	3		Consider Removal
Good form and vigor, utilities running through canopy, large stem canker																	
184	Ornamental Pear	10.5						10.5	44		14 13 15 17	683	2-3	2-3	2-3		Consider Removal
Good form and vigor, utilities running through canopy																	

185	Mexican Fan Palm	17.5						17.5	45		7 6 9 8	177	1-2	2	2		Preserve
Good form and vigor																	
186	Mexican Fan Palm	20						20	32		7 8 8 7	177	1-2	2	2		Preserve
Good form and vigor																	
187	Shamel Ash	8	6.5	2	3			19.5	27		10 11 11 10	346	2	3	2-3		Consider Removal
Poor canopy development, good to fair health, growing through fence																	
188	Red River Gum	10.5	14	10				34.5	26		12 19 18 14	779	3	3	3		Consider Removal
Topped, embedded through fence																	
189	Green Ash	13.5	16.5					30	34		14 14 11 16	594	2-3	3	3		Consider Removal
Codominant stems with included bark, topped, decreased aesthetics																	
190	Blue Jacaranda	7.5	9	10.5				27	43		17 14 11 18	707	2-3	3	3		Consider Removal
Embedded in fence, multi-stemmed, poor form																	
191	Blue Jacaranda	12	9					21	42		10 23 8 26	881	2-3	3	3	Prune and re-evaluate for safety	Preserve
Poor form																	
192	Shamel Ash	19						19	34		16 16 15 12	683	3	3	2-3		Consider Removal
Topped with water sprouting, embedded fence																	
193	Mexican Fan Palm	13						13	18		5 5 5 5	79	2	2	2		Preserve
Good health and vigor																	
UT36	European Olive	Unknown						0	26		8 20 20 26	1075	3	3	3		Preserve
Competing canopy, not able to view entire tree to completely evaluate																	
194	Mexican Fan Palm	11						11	58		9 8 4 8	165	2-3	2-3	2-3		Preserve
Fair to poor canopy development																	
195	Mexican Fan Palm	11.5						11.5	59		8 8 11 9	254	2-3	2-3	2-3		Preserve
Fair to poor canopy development																	
201	Camphor	8						8	32	1	11 10 9 9	298	1-2	1-2	1-2		Preserve
Good form and vigor																	
202	Camphor	9.5						9.5	37	1	13 11 13 13	491	1-2	1-2	1-2		Preserve
Good form and vigor																	
203	Leyland Cypress	19						19	61		14 14 10 10	452	2	2	2		Preserve
Good form and vigor, some dieback, braided bark																	
204	Western Red Bud	9						9	34		11 15 7	330	2-3	2	2-3		Preserve
Deciduous, poor flare, utilities above																	

											8						
205	Western Red Bud	7.5						7.5	35		9 12 10 10	330	1-2	2	2-3		Preserve
Goof form and vigor, deciduous, utilities above																	
206	Deodar Cedar	26						26	43	1	18 19 18 20	1104	3	3	3		Consider Removal
Topped, shared structural roots, decreased aesthetics, increased liability																	
207	Queen Palm	7						7	21		6 5 7 7	123	1-2	1-2	1-2		Preserve
Good form and vigor																	
208	Queen Palm	9						9	43		11 10 13 10	380	1-2	1-2	1-2		Preserve
Good form and vigor																	
209	Leyland Cypress	25						25	33		13 13 7 16	471	3	2-3	3		Consider Removal
Topped, utilities through canopy, decreased aesthetics																	
210	Western Red Bud	6.5						6.5	21		8 9 10 8	240	2-3	2-3	3		Consider Removal
Lean, poor flare formation, distressed, termites, flush cut																	
211	Camphor	21						21	42	1	25 18 21 21	1418	2-3	2-3	3		Preserve
Indication of termites noted on limbs																	
212	Camphor	24						24	39	1	19 20 10 12	730	3	3	3-4	Remove immediately	Remove immediately
Hazardous, failed limb with cavity and decay																	
213	Camphor	6						6	28		10 9 10 8	269	1-2	1-2	1-2		Preserve
Good form and vigor																	
214	Camphor	7						7	33		11 10 10 9	314	1-2	1-2	1-2		Preserve
Good form and vigor, small failed branch cut, flush cuts																	
215	Camphor	19.5						19.5	37	1	17 21 22 18	1194	2	2	2		Preserve
Utility lines through canopy, good vigor, minor dieback, topped limbs																	
216	Deodar Cedar	20						20	76	1	20 28 14 29	1625	2-3	2-3	2-3		Preserve
Utility lines through canopy, large specimen, good form and vigor, well-maintained																	
217	Deodar Cedar	18						18	75	1	15 17 21 20	1046	2	2	2		Preserve
Good form and vigor, large specimen																	
218	Chitalpa	7						7	26		11 10 9 9	298	2	2	2		Preserve
Deciduous, flush cuts noted																	
219	Camphor	7.5						7.5	20	1	6 8 6 7	143	3	2-3	3		Consider Removal
Failed branch, canker at flare, poor prognosis, flush cuts																	
220	Camphor	12						12	36	1	14 14 15 16	683	2	2	2		Preserve
Good form and vigor, minor upper canopy deadwood																	
221	Camphor	13						13	43	1	20 22 22 20	1385	2	2	2		Preserve
Unclosed branch cut, good form and vigor, minor upper canopy deadwood																	

222	Camphor	12						12	45	1	8	21	4	13	415	2-3	2-3	2-3		Preserve
Competing canopy, decreased crown development, lean																				
223	Green Ash	21						21	57		25	29	14	25	1697	3	2-3	3		Consider Removal
Topped, large stem canker, flare canker, increased liability																				
224	Deodar Cedar	15						15	69	1	13	23	12	32	1256	2-3	2-3	2-3		Preserve
Competing canopy, lean																				
225	Deodar Cedar	16.5						16.5	70	1	18	15	15	29	1164	2-3	2-3	2-3		Preserve
Nest, flush cuts, competing canopies																				
226	Deodar Cedar	14						14	72	1	19	12	17	21	934	2	2	2-3		Preserve
Competing canopy, flush cut																				
227	Deodar Cedar	20.5						20.5	70	1	21	19	31	34	2164	2	2-3	2-3	Re-evaluate	Preserve
Reaction wood over hardscape, good form and vigor, will eventually damage sidewalk and curb																				
228	Western Red Bud	7						7	24		9	11	1	14	240	2	2	2		Preserve
Fair vigor																				
229	Silver Maple	28						28	37		29	19	20	28	1809	3	3	3		Consider Removal
Flare damage/canker, increased liability, possible termite frass, senescent																				
230	Silver Maple	23						23	37		17	16	21	18	1017	3	3	3		Consider Removal
Shelf fungus, senescent																				
231	Queen Palm	10						10	47		6	17	6	23	531	3	3	3	Treat and re-evaluate	Consider Removal
Spike damage, lean, fungal damage, black sooty mold, good vigor																				
232	Western Red Bud	5						5	23		8	11	3	8	177	3	2-3	3		Consider Removal
Steep decline, termites/borers noted																				
233	California Fan Palm	21						21	44		11	13	11	10	397	2-3	2	2	Trim branches and re-evaluate	Preserve
Competing canopy, good form and vigor, some sooty mold noted																				
234	American Sweetgum	14.5						14.5	47		12	12	15	17	615	2-3	2-3	2-3		Preserve
Dieback, fair vigor																				
235	Western Red Bud	8						8	24		7	7	10	8	201	2-3	3-4	2-3		Consider Removal
Mature epicormic sprouters, unclosed branch cuts																				
236	California Fan Palm	27						27	44		12	11	14	13	491	2	2	2	Trim to reduce risk and re-evaluate	Preserve
Good form and vigor, some leaf spots																				
237	Chinese Elm	23						23	52		29	20	21	31	2002	2-3	2-3	2-3		Preserve
Senescent, reduced vigor																				

238	Blue Jacaranda	13						13	40		14 18 19 21	1017	3	2-3	2-3		Consider Removal
Decreased canopy development decline, upper canopy deadwood, consider replacing																	
239	Queen Palm	11						11	43		8 12 16 13	471	2-3	2-3	2-3		Preserve
Good form and vigor, climbing spike damage, degraded periderm																	
240	Shamel Ash	22						22	62		20 26 29 30	2164	2	2	2-3	Trim to reduce risk and re-evaluate	Preserve
Good form and vigor, large specimen																	
241	Mediterranean Fan Palm	5.5						5.5	11		4 4 4 4	50	1-2	1-2	1-2		Preserve
Good form and vigor																	
242	Crape Myrtle	3.5	4	4.5	2.5			14.5	20		6 5 7 8	133	2-3	2	2	Trim and treat	Preserve
Mild to moderate dieback, large canker on limb																	
243	Leyland Cypress	12.5						12.5			10 10 6 14	314	2-3	2-3	2-3		Preserve
Reduced crown, over pruned																	
244	Leyland Cypress	16						16	51		9 14 11 17	510	2-3	2-3	3	Re-evaluate for failure risk	Consider Removal
Lean with possible root crown lift																	
245	Leyland Cypress	10.5						10.5	36		7 9 4 7	143	2-3	3	2-3		Preserve
Lean, unbalanced crown																	
246	Mexican Fan Palm	18.5						18.5	60		8 10 9 8	240	2	2	2		Preserve
Good form and vigor																	
247	Leyland Cypress	19						19	60		15 17 14 13	683	3	3	3		Consider Removal
Increased risk to target, severe retrenchment																	
248	Mexican Fan Palm	17						17	61		12 11 11 13	434	2	2	2		Preserve
Good form and vigor																	
249	Western Red Bud	5.5						5.5	24		7 9 10 9	240	2	2	2		Preserve
Good form and vigor																	
250	Western Red Bud	5.5						5.5	24		12 11 10 10	363	2	2	2	Trim and treat to keep	Preserve
Good form and vigor, possible termites and frass noted																	
251	Weeping Fig	4.5	4	12.5	4			25	36		13 12 15 13	551	2	2	2		Preserve
Good form and vigor, multi-stemmed																	
252	Peruvian Pepper	16.5						16.5	47		17 21 19 17	1075	2-3	2-3	3	Remove strand of lights and trim to reduce risk	Preserve
Lights strung around stem, lean																	
253	Glossy Privet	5.5						5.5	27		7 7 8 15	269	2	2	2		Preserve
Good form and vigor																	

254	Canary Island Palm	22						22	64		11	13	11	12	434	2	2	2		Preserve
Good form and vigor																				
255	Queen Palm	8.5						8.5	36		11	10	11	11	363	1-2	1-2	1-2		Preserve
Good form and vigor																				
256	Camphor	14.5						14.5	43	1	22	19	29	22	1661	2	2	2		Preserve
Good form and vigor, minor upper canopy deadwood																				
257	Canary Island Palm	20						20	50		14	13	14	14	594	2	2	2		Preserve
Good form and vigor																				
258	Canary Island Palm	19						19	50		14	14	13	12	551	2	2	2		Preserve
Good form and vigor																				
259	Canary Island Palm	19						19	49		11	10	14	12	434	2	2	2		Preserve
Good form and vigor																				
260	Canary Island Palm	20						20	50		10	11	10	10	330	2	2	2		Preserve
Good form and vigor																				
261	Canary Island Palm	19						19	53	1	14	13	13	14	572	2	2	2		Preserve
Good form and vigor																				
262	Canary Island Palm	18						18	53	1	14	13	12	14	551	2	2	2		Preserve
Good form and vigor																				
263	California Fan Palm	19						19	55	1	8	8	10	10	254	2-3	2-3	2-3	Treat and re-evaluate	Preserve
Multiple cavities, decreased canopy development																				
264	Camphor	41						41	59	1	31	32	33	30	3116	3	2-3	3	Re-evaluate for failure risk to keep	Preserve
Large specimen, senescent, evaluate for risk, small cankers																				
265	Camphor	29						29	52	1	21	20	16	29	1451	2-3	2-3	3	Re-evaluate for failure risk to keep	Consider Removal
Structural roots cut for sidewalk, increased risk of failure																				
266	Camphor	14						14	51	1	18	11	10	12	510	2-3	2-3	3	Re-evaluate for failure risk to keep	Consider Removal
Failed branch wound, decayed structural roots, increased liability																				
267	Camphor	16.5						16.5	54	1	26	8	32	26	1661	2-3	2-3	3	Trim to mitigate risk of failure	Preserve
Few structural roots cut																				
268	Deodar Cedar	24						24	76	1	23	32	30	30	2595	2	2	2	Trim deadwood	Preserve
Good form and vigor																				
269	White Mulberry	14						14	37		17	10	18	18	779	2-3	2	2		Preserve
Decline, some deadwood noted																				

270	White Mulberry	9						9	36		18 8 18 10	572	2-3	2	2	Re-evaluate and trim to keep	Consider Removal
Flush cuts, decayed branch cuts, poor prognosis																	
271	Camphor	14.5						14.5	54	1	18 10 17 27	1017	2-3	3	2-3		Preserve
Fair form and good vigor																	
272	Camphor	18						18	52	1	22 19 19 23	1352	2	2	2-3		Preserve
Competing canopy, good vigor, topped limb, minor upper canopy deadwood.																	
273	Camphor	17.5						17.5	46	1	28 16 18 32	1734	2-3	2-3	2-3		Preserve
Some topped branches noted																	
274	Camphor	17						17	45	1	20 13 16 21	962	2-3	2-3	2-3		Preserve
Some topped branches noted, good vigor, unclosed branch cut																	
275	Camphor	6.5						6.5	30		9 4 12 12	269	2	2	2-3		Preserve
Minor upper canopy deadwood, small failed branches																	
276	Carrotwood	14						14	52		15 21 8 18	754	2	2	2		Preserve
Good form and vigor																	
277	Carrotwood	8.5						8.5	33		10 11 12 12	397	3	2-3	3		Consider Removal
Unclosed branch cut with decay at mid-stem, increased liability, competing canopy																	
278	Carrotwood	7						7	31		11 14 11 12	452	2-3	2-3	2-3	Trim to improve scaffolding	Preserve
Unclosed flush branch cuts, poor scaffolding																	
279	Silver Dollar Gum	19						19	57	1	24 31 11 18	1385	2-3	2-3	3	Brace and re-evaluate	Preserve
Poor crotch development with included bark, good vigor																	
280	Carrotwood	10.5						10.5	44		12 13 16 22	779	2-3	2	2-3		Preserve
Good form and vigor, some upper canopy deadwood																	
281	Camphor	17						17	66	1	28 23 21 30	2042	2-3	2-3	2-3	Trim for safety	Preserve
Large specimen, some upper canopy deadwood and unclosed branch cuts																	
282	Camphor	18						18	67	1	27 25 25 27	2123	2	2-3	2-3		Preserve
Good form and vigor																	
283	Camphor	18						18	40	1	18 6 17 13	572	2-3	2-3	2-3		Preserve
Competing canopy, fair form and vigor																	
284	Camphor	15						15	42	1	25 18 20 21	1385	2	2	2	Weed wacker guard	Preserve
Competing canopy, good form and vigor																	
285	Arborvitae	3.5	4.5	2.5	2.5	3	6	22	27	1	10 9 9 11	298	2	2	2		Preserve
Multi-stemmed, goo form and vigor																	
286	Camphor	22						22	67	1	40 20 40 442	57651	2-3	2-3	2-3		Preserve
Good form and vigor, some decay at old branch cuts																	
287	Camphor	22.5						22.5	66	1	25 23 30 35	2506	2-3	2-3	2-3		Preserve
Fair form and vigor, some upper canopy deadwood																	

288	Camphor	16						16	58	1	17	27	27	30	2002	2-3	2-3	2-3		Preserve
Good form and vigor, some upper canopy deadwood																				
289	Camphor	14.5						14.5	46	1	19	9	20	21	934	2-3	2-3	2-3		Preserve
Large unclosed branch cut; little decay noted																				
290	Camphor	14						14	48	1	18	17	28	20	1352	2-3	2	2-3		Preserve
Good form and vigor																				
291	Camphor	9						9	36	1	17	15	14	18	804	2-3	2	2		Preserve
Good to fair form and vigor, some upper canopy deadwood																				
292	Camphor	16						16	53	1	17	21	30	22	1590	2-3	2	2-3		Preserve
Good form and vigor, some upper canopy deadwood																				
293	Canary Island Palm	22						22	54	1	15	12	15	10	531	2-3	2	2		Preserve
Fair form and reduced vigor																				
294	Canary Island Palm	19						19	53	1	13	12	11	10	415	2	2	2		Preserve
Good form and vigor																				
295	Canary Island Palm	19						19	55	1	13	13	14	9	471	2	2	2		Preserve
Good form and vigor																				
296	Canary Island Palm	17.5						17.5	55		13	14	13	10	491	2	2	2		Preserve
Good form and vigor																				
297	Canary Island Palm	20						20	55	1	12	15	14	9	491	2	2	2		Preserve
Good form and vigor																				
298	Canary Island Palm	15						15	59		17	15	19	18	934	2	2	2		Preserve
Good form and vigor																				
299	Canary Island Palm	16						16	58		13	15	14	13	594	2	2	2		Preserve
Good form and vigor																				
300	Canary Island Palm	18						18	54	1	15	15	14	18	754	2	2	2		Preserve
Good form and vigor																				
301	Canary Island Palm	18						18	57	1	13	15	17	16	730	2	2	2		Preserve
Good form and vigor																				
302	Canary Island Palm	19						19	43	1	12	12	15	11	491	2	2	2		Preserve
Good form and vigor																				
303	Camphor	7.5	8	14				29.5	39	1	12	11	15		491	3	2-3	3		Consider Removal
Decay at flare, increased liability or failure risk																				

														12						
304	Canary Island Palm	17						17	45		14	12	13	11	491	2	2	2		Preserve
Good form and vigor																				
305	Camphor	10	10					20	40	1	11	13	11	10	397	3	2-3	3-4	Trim for safety and re-evaluate to keep	Consider Removal
Failure risk																				
306	California Fan Palm	9.5						9.5	17		6	5	7	6	113	2-3	2	2		Preserve
Good form and vigor, s small cankers																				
307	California Fan Palm	10						10	19		6	7	6	7	133	1-2	2	2		Preserve
Good form and vigor																				
308	California Fan Palm	11						11	20		8	6	7	7	154	1-2	2	2		Preserve
Good form and vigor																				
309	Chinese Elm	13						13	54		29	16	32	25	2042	2-3	2-3	2-3		Preserve
Reduced canopy vigor																				
310	Chinese Elm	16						16	60		30	21	29	25	2164	2-3	2-3	2-3		Preserve
Fair form and vigor																				
311	Mexican Fan Palm	13						13	86		12	10	11	7	314	2	2	2		Preserve
Good form and vigor																				
312	Mexican Fan Palm	12						12	86		11	11	5	7	227	2	2	2		Preserve
Good form and vigor																				
313	Mexican Fan Palm	13						13	87		10	12	6	10	283	2	2	2		Preserve
Good form and vigor																				
314	Mexican Fan Palm	11.5						11.5	87		7	10	5	11	214	2	2	2		Preserve
Good form and vigor																				
315	Deodar Cedar	16.5						16.5	70	1	19	23	18	17	1164	2	2	2		Preserve
Good form and vigor																				
316	Camphor	24						24	56	1	30	26	24	19	1923	2-3	2-3	2-3		Preserve
Minor upper canopy deadwood																				
317	Mexican Fan Palm	10						10	77		8	10	8	10	254	2	2	2		Preserve
Good form and vigor																				
318	Mexican Fan Palm	12						12	82		13	10	7	9	298	2	2	2		Preserve

319	Mexican Fan Palm	10.5						10.5	74		12 10 12 10	380	2	2	2		Preserve
Good form and vigor																	
320	Mexican Fan Palm	10						10	78		7 11 8 7	214	2	2	2		Preserve
Good form and vigor																	
321	Mexican Fan Palm	9.5						9.5	71		10 10 12 7	298	2	2	2		Preserve
Good form and vigor																	
322	Mexican Fan Palm	10						10	76		10 9 10 10	298	2	2	2		Preserve
Good form and vigor																	
323	Mexican Fan Palm	10.5						10.5	75		11 11 8 11	330	2	2	2		Preserve
Good form and vigor																	
324	Canary Island Palm	15.5						15.5	59		16 15 15 10	615	2	2	2		Preserve
Good form and vigor, dead epiphytic vine on stem																	
325	Canary Island Palm	16.5						16.5	55		13 12 15 10	491	2	2	2		Preserve
Good form and vigor																	
326	Canary Island Palm	17						17	56		16 16 13 11	615	2	2	2		Preserve
Good form and vigor																	
UT40	Deodar Cedar	30						30	60	1	19 26 25 30	1963	2	2	2-3		Preserve
Good form and vigor, minor interference with utilities																	
UT41	Chinese Elm	28						28	45	1	17 28 23 20	0	3	3	3		Consider Removal
Decline and hazardous, topped with water sprouting. Multiple cavities																	
327	Blue Jacaranda	6.5	6.5	7	8	6.5		34.5	34	1	19 18 19 22	1194	2	2-3	2-3		Preserve
Multi-stemmed, good vigor																	
328	California Fan Palm	19						19	37	1	7 10 9 11	269	1-2	1-2	1-2		Preserve
Good form and vigor																	
329	California Fan Palm	17						17	38		8 10 8 10	254	1-2	1-2	1-2		Preserve
Good form and vigor																	
330	African Fern Pine	7.5						7.5	34		11 11 10 10	346	1-2	1-2	1-2		Preserve
Good form and vigor																	
331	California Fan Palm	16.5						16.5	35		6 8 8 7	165	1-2	1-2	1-2		Preserve
Good form and vigor																	

332	California Fan Palm	15						15	34		6 8 8 7	165	1-2	1-2	1-2		Preserve
Good form and vigor																	
333	California Fan Palm	16.5						16.5	34		5 7 7 7	133	1-2	1-2	1-2		Preserve
Good form and vigor																	
334	Chitalpa	6						6	21		7 14 9 10	314	2	2	2		Preserve
Good form and vigor																	
335	European Olive	3.5	5	2.5				11	22		7 6 6 7	133	1-2	2	2		Preserve
Codominant stems, good vigor																	
336	European Olive	5	4	2	2	3		16	23		8 7 6 5	133	1-2	2	2		Preserve
Codominant stems, good vigor, broken branch																	
337	Peruvian Pepper	33						33	62	1	29 25 16 23	1697	3	2-3	3	Remove immediately	Consider Removal Immediately
Heritage plaque, increased failure/liability, large cavity, constant traffic																	
338	Peruvian Pepper	35						35	55	1	18 17 18 30	1352	3	2-3	3	Remove immediately	Consider Removal Immediately
Increased failure/liability, large cavity, constant traffic																	
339	Southern Magnolia	10.5						10.5	41		14 12 10 15	510	2	2	2-3		Preserve
Good form and vigor, increased traffic nearby																	
340	Southern Magnolia	11						11	49		17 17 10 14	660	2	2	2		Preserve
Good form and vigor																	
341	Southern Magnolia	15.5						15.5	50		18 19 19 18	1075	2	2	2		Preserve
Good form and vigor, moss, decayed underside of limb																	
342	Southern Magnolia	15						15	44		11 14 12 15	531	2-3	2-3	2-3		Preserve
Decayed flush cuts																	
343	Peruvian Pepper	18						18	56	1	17 22 16 16	989	3	2-3	3		Consider Removal
Decayed topside of limb, increased liability, cavity																	
344	Southern Magnolia	15						15	45		11 17 15 18	730	2-3	2	2-3		Preserve
Some branch cut wound decay, minor upper canopy deadwood																	
345	Peruvian Pepper	29						29	59	1	21 34 14 19	1520	3	2-3	3-4		Consider Removal
Hollowed stem, increased liability, failed branch																	
346	Peruvian Pepper	15.5						15.5	56	1	18 18 17 8	730	2-3	2-3	3		Consider Removal
Improperly trimmed, increased liability, ripped branch cut, decay at flare on S side of tree, northern lean																	
347	Southern Magnolia	11.5						11.5	43		15 16 14	660	2-3	2-3	2-3		Preserve
Minor upper canopy deadwood, minor lean																	

											13						
348	Southern Magnolia	10.5						10.5	38		18 14 12 14	660	2-3	2-3	2-3		Preserve
Good form and vigor, flush cuts noted																	
349	Peruvian Pepper	17						17	44	1	18 22 15 14	934	2	2	2		Preserve
Good form and vigor																	
350	Southern Magnolia	14.5						14.5	49		18 18 17 18	989	2	2	2		Preserve
Good form and vigor																	
351	Peruvian Pepper	21						21	48	1	28 17 11 15	989	2-3	2	3	Re-evaluate for deadwood in root crown to keep	Consider Removal
Fungus at flare, flush cuts noted, next to band stand (target)																	
352	Peruvian Pepper	15						15	49	1	22 21 15 13	989	2-3	2-3	3		Consider Removal
Fungal spores on stem at branch cut, lean																	
353	Southern Magnolia	17						17	53		33 28 17 25	2082	2-3	2-3	3		Preserve
Deacy at unclosed branch cut, good form and vigor																	
354	Southern Magnolia	15						15	42		19 19 12 18	907	2	2	2		Preserve
Good form and vigor																	
355	Peruvian Pepper	12.5						12.5	39	1	14 17 20 15	855	2	2	3		Consider Removal
Mid-stem cavity, increased liability																	
356	Peruvian Pepper	13						13	44	1	18 15 18 21	1017	2	2	2		Preserve
Good form and vigor																	
357	Southern Magnolia	16						16	56		19 22 16 18	1104	2	2	2		Preserve
Good form and vigor																	
358	Peruvian Pepper	9						9	36	1	10 18 12 16	615	2	2	2		Preserve
Good form and vigor, flush cuts																	
359	Southern Magnolia	15						15	53		24 19 14 18	1104	2	2	2		Preserve
Good form and vigor																	
360	Southern Magnolia	14						14	50		18 18 15 21	1017	2	2	2		Preserve
Good form and vigor, minor upper canopy deadwood																	
361	Southern Magnolia	14						14	40		18 15 12 14	683	2	2	2		Preserve
Good form and vigor, minor upper canopy deadwood, girdling roots																	
362	Southern Magnolia	15						15	56		18 16 12 17	779	2	2	2		Preserve
Good form and vigor																	

363	Southern Magnolia	16						16	58		17	26	18	26	1485	2	2	2		Preserve
Moss on N side, fair form and vigor																			
364	California Fan Palm	21						21	64	1	10	10	9	10	298	1-2	1-2	1-2		Preserve
Good form and vigor, mechanical damage																			
365	Peruvian Pepper	36						36	52	1	23	18	16	25	1320	3	2-3	3-4	Consider Removal immediately	Consider Removal Immediately
Urgent removal/hazardous, fungal mass, large cavity																			
366	Southern Magnolia	12						12	46		18	19	12	17	855	2-3	2	2-3		Preserve
Decayed branch cut, flush cut																			
367	Peruvian Pepper	15						15	40	1	19	22	16	18	1104	2-3	2	2-3		Preserve
Good form and vigor																			
368	Southern Magnolia	17						17	52		18	18	17	18	989	2	2	2		Preserve
Good form and vigor																			
369	Peruvian Pepper	21						21	50	1	30	29	18	31	2289	2	2	2		Preserve
Good form and vigor																			
370	Southern Magnolia	14						14	49		18	19	13	18	907	2	2	2		Preserve
Good form and vigor																			
371	Peruvian Pepper	18						18	53	1	28	19	20	29	1809	2-3	2-3	3		Preserve
Cavity at mid-stem from decayed flush cut																			
372	Southern Magnolia	18						18	55	1	18	22	18	28	1451	2-3	2	2-3		Preserve
Good form and vigor, girdling roots																			
373	California Fan Palm	23						23	67	1	15	10	0	10	240	2	2	2		Preserve
Good form and vigor																			
374	California Fan Palm	25						25	69	1	10	11	10	15	415	2-3	2-3	2-3	Treat	Preserve
Decayed periderm																			
375	Southern Magnolia	20						20	51	1	20	18	19	17	1075	3	2-3	3		Consider Removal
Large mid-stem cavity																			
376	Peruvian Pepper	10.5						10.5	52	1	17	19	20	18	1075	2-3	2-3	2-3		Preserve
Poorly trimmed, lean																			
377	Southern Magnolia	21.5						21.5	50	1	24	22	21	21	1520	2-3	2-3	3	Prune for safety and re-evaluate	Preserve
Decayed branches, increased liability until trimmed																			
378	Peruvian Pepper	11.5						11.5	34	1	14	27	20	25	1451	2-3	2-3	2-3		Preserve
Flush cuts, sweep lean																			

379	Peruvian Pepper	28						28	65	1	23 27 22 25	1847	3	3	3-4	Consider Removal immediately	Consider Removal Immediately
Large cavity/hollowed wood, Consider Removal ASAP																	
380	Southern Magnolia	17						17	51		18 20 20 23	1288	2-3	2	2-3		Preserve
Good form and vigor																	
381	Peruvian Pepper	13						13	41	1	16 23 16 23	1194	2-3	2-3	2-3		Preserve
Good form and vigor, minor lean																	
382	Southern Magnolia	20						20	63	1	24 30 22 27	2082	3	2-3	3	Prune for safety and re-evaluate to keep	Consider Removal
Decayed main limb																	
383	Mexican Fan Palm	15						15	66		10 8 9 12	298	1-2	2	2		Preserve
Good form and vigor																	
384	Silk Oak	25						25	77	1	15 14 19 20	907	2-3	2-3	3	Re-evaluate for safety	Preserve
Decayed branch cut at mid-stem, reaction wood at SW																	
385	Silk Oak	31						31	78	1	17 10 18 15	707	3	2	3		Consider Removal
Basal canker, failed branch, decay at mid-stem																	
386	Mexican Fan Palm	18	15					33	92	1	11 10 17 15	551	2	2-3	2-3		Preserve
Dual stem																	
387	Silk Oak	27						27	60	1	13 16 16 18	779	2	2	2-3	Re-evaluate root crown for safety	Preserve
Good form and vigor																	
388	Silk Oak	20						20	77	1	18 16 18 15	881	2	2	3		Preserve
Structural roots absent on E side																	
389	Silk Oak	35.5						35.5	76	1	18 10 18 17	779	3	2-3	3		Consider Removal
Decay at branch cut, significant decay on primary stem, increased liability																	
390	Silk Oak	36.5						36.5	77	1	16 20 14 18	907	2-3	2-3	2-3	Prune for safety and re-evaluate	Preserve
Hazardous branch due to decay																	
391	Silk Oak	32						32	75	1	18 18 18 18	1017	2-3	2-3	3		Consider Removal
Termites at basal flare in canker																	
392	Silk Oak	35						35	78	1	17 19 21 21	1194	2-3	2-3	3		Preserve
Major limb cavity at flush branch cut																	
393	Silk Oak	30.5						30.5	77	1	18 18 21 14	989	2-3	2-3	2-3	Prune for safety and re-evaluate	Preserve
Decay at unclosed branch cut, good vigor																	
394	Silk Oak	32.5						32.5	68	1	15 20 24 19	1194	3	2-3	3		Consider Removal
Large basal canker with termites, decay at large secondary stem																	
395	Silk Oak	32						32	64	1	19	1104	2-3	2	3		Preserve

Decay at failed branch cut location, L side												23 16 17					Prune for safety and re-evaluate	
396	Silk Oak	33							33	77	1	21 18 18 17	1075	2-3	2-3	3	Prune for safety and re-evaluate	Preserve
Flush cut decay																		
397	Silk Oak	42							42	76	1	21 19 19 21	1256	2-3	2-3	2-3	Prune for safety and re-evaluate	Preserve
Good vigor and form, decay at branch cut union in upper canopy																		
398	Silk Oak	29							29	75	1	18 20 20 21	1225	2-3	2-3	3-4		Consider Removal
Very poor crotch development, increased liability																		
399	Silk Oak	33.5							33.5	76	1	21 18 25 27	1625	2-3	2-3	2-3	Prune for safety and re-evaluate	Preserve
Flush cuts, decay at secondary stem cut																		
400	Peruvian Pepper	8.5							8.5	29	1	7 14 11 17	471	1-2	2	2		Preserve
Good form and vigor																		
401	Peruvian Pepper	10.5							10.5	40	1	18 15 10 21	804	1-2	2	2		Preserve
Good form and vigor																		
402	Peruvian Pepper	45							45	69	1	32 28 20 21	2002	3	2-3	3-4	Consider Removal immediately	Consider Removal Immediately
Decayed stem on W side, increased liability, urgent removal																		
403	Peruvian Pepper	33.5							33.5	52	1	20 24 13 11	907	3	2-3	3-4	Consider Removal immediately	Consider Removal Immediately
Urgent removal, poorly trimmed, hollowed base																		
404	Peruvian Pepper	18							18	39	1	12 23 12 29	1134	2	2	2		Preserve
Good form and vigor																		
405	Peruvian Pepper	42							42	58	1	29 29 15 33	2205	3	3	3-4	Consider Removal immediately	Consider Removal Immediately
Increased liability, hollowed stem, codominant stems, danger to traffic																		
406	Peruvian Pepper	8.5							8.5	36	1	13 13 11 13	491	1-2	2	2		Preserve
Good form and vigor																		
407	Peruvian Pepper	9							9	34	1	10 17 12 21	707	1-2	2	2		Preserve
Good form and vigor																		
408	Peruvian Pepper	27							27	44	1	13 19 11 19	754	3	2-3	3-4	Consider Removal immediately	Consider Removal Immediately
Hollowed stem, increased liability																		
409	Peruvian Pepper	18							18	43	1	18 18 16 20	1017	2	2	2		Preserve
Good form and vigor																		
410	Southern Magnolia	6							6	21		7 7 7 9	177	3	2-3	2-3		Consider Removal
Longitudinal canker on stem, poor prognosis																		
411	Peruvian Pepper	6.5							6.5	24		9 13 10 11	363	2	2	2		Preserve
Good form and vigor																		
412	Peruvian Pepper	8.5							8.5	33	1	15 15 11 14	594	2	2	2		Preserve
Good form and vigor																		
413	Deodar Cedar	23.5							23.5	68	1	30	2332	3	2-3	3		Consider Removal

Large basal canker												18	30	31						
414	Peruvian Pepper	13						13	45	1	24	14	19	16	1046	3	2-3	3		Consider Removal
Two large lower stem cankers, poor prognosis																				
415	Southern Magnolia	17						17	47		21	18	13	17	934	2	2	2		Preserve
Good form and vigor																				
416	Peruvian Pepper	16.5						16.5	48	1	23	26	21	21	1625	2-3	2-3	2-3		Preserve
Decayed flush cut																				
417	Southern Magnolia	7						7	30		10	8	12	11	330	2-3	2-3	3	Prune and re-evaluate	Preserve
Flare canker, dieback, small tree																				
418	Peruvian Pepper	15.5						15.5	36	1	5	18	21	32	1134	2-3	3	3		Consider Removal
Excess lean																				
419	Peruvian Pepper	10						10	36	1	18	14	12	11	594	2	2	2		Preserve
Good form and vigor																				
420	Peruvian Pepper	7						7	33		14	17	10	13	572	2	2	2		Preserve
Good form and vigor, flush cuts																				
421	Peruvian Pepper	5						5	24		10	10	8	10	283	1-2	1-2	1-2		Preserve
Good form and vigor, exfoliating bark																				
422	Mexican Fan Palm	25						25	67	1	16	14	11	14	594	1-2	2	2		Preserve
Good form and vigor																				
423	Mexican Fan Palm	22						22	76	1	14	14	11	11	491	2	2	2		Preserve
Good form and vigor																				
424	Southern Magnolia	20						20	46	1	18	17	17	16	907	2-3	2-3	2-3		Preserve
Fair form and vigor																				
425	Peruvian Pepper	13.5						13.5	37	1	19	16	17	13	829	3	2-3	2-3		Preserve
Poorly trimmed, failed branch cut																				
426	Peruvian Pepper	10						10	36	1	12	19	10	16	638	2	2	2		Preserve
Good form and vigor																				
427	Southern Magnolia	24.5						24.5	33	1	23	24	19	27	1697	3	2-3	3		Consider Removal
Large longitudinal canker																				
428	Southern Magnolia	14						14	37		10	13	11	13	434	3	2-3	3		Consider Removal
Basal canker, large canker in upper stem, increased liability																				
429	Peruvian Pepper	25						25	46	1	26				1963	2	2	2		Preserve

Good form and vigor												36	17	21						
430	Peruvian Pepper	10.5						10.5	35	1	16	18	21	21	1134	2	2	2		Preserve
Good form and vigor, unclosed branch flush cut																				
431	Southern Magnolia	33						33	61	1	28	33	28	29	2733	2-3	2-3	3	Prune for safety, brace and re-evaluate	Preserve
Large specimen																				
432	Peruvian Pepper	19.5						19.5	40	1	17	21	19	31	1520	2-3	2-3	2-3		Preserve
Good form and vigor, some small cankers																				
433	Peruvian Pepper	17.5						17.5	49	1	18	25	17	29	1554	2-3	3	2-3		Preserve
Unclosed flush branch cuts, unusual form																				
434	Peruvian Pepper	13						13	43	1	18	25	17	29	1554	2	2	2		Preserve
Good form and vigor																				
435	Peruvian Pepper	8						8	34	1	12	19	10	15	615	2-3	3	2-3		Preserve
Good vigor, fair form, lean																				
436	Southern Magnolia	17						17	54		24	26	21	17	1520	3	2-3	2-3	Consider removal due to degree of decline	Consider Removal
Moderate dieback, decayed flush cuts, saturated soil, multiple cankers along stem																				
437	Peruvian Pepper	13						13	36	1	17	24	20	19	1256	2-3	2-3	2-3		Preserve
Large unclosed flush branch cut																				
438	Southern Magnolia	14						14	43		13	14	12	12	510	2-3	2-3	2-3		Preserve
Over irrigated, some upper canopy deadwood, epicormic sprouting																				
439	Peruvian Pepper	10						10	36	1	10	16	21	18	829	2-3	3	3		Consider Removal
Excess lean, good vigor																				
440	Southern Magnolia	20.5						20.5	55	1	21	19	20	17	1164	2-3	2-3	2-3		Preserve
Large unclosed branch cut with decay, good form and vigor																				
441	Peruvian Pepper	15.5						15.5	41	1	23	21	8	25	1164	2-3	3	3		Consider Removal
Lean with deformed base, good vigor																				
442	Peruvian Pepper	6						6	28		7	10	11	14	346	3	2-3	2-3		Preserve
Mid-stem canker																				
448	Silk Oak	24.5						24.5	65	1	13	21	11	17	754	2-3	2-3	3		Consider Removal
Failed branch at mid-stem, fair vigor, minor upper canopy deadwood, increased liability																				
449	Silk Oak	29						29	64	1	17	12	12	16	638	2-3	2-3	2-3	Re-evaluate for safety	Preserve
Good vigor, codominant stems, minor fungal bodies in upper canopy at branch cut,																				
450	Silk Oak	26						26	72	1	13	14	12	18	638	2-3	2-3	3	Re-evaluate for safety	Preserve
Good form and vigor, re-examen crotch in upper canopy for failure risk																				

451	Silk Oak	37						37	67	1	22 16 18 17	1046	3	2-3	3-4		Consider Removal
Hazardous, failed branch at crotch																	
452	Silk Oak	31						31	79	1	16 16 19 19	962	2-3	2-3	2-3		Preserve
Good form and vigor																	
453	Silk Oak	28						28	61	1	24 18 12 18	1017	2-3	2-3	2-3		Preserve
Good form and vigor																	
454	Silk Oak	24.5						24.5	78	1	15 12 12 13	531	3	2-3	3-4	Prune for safety immediately	Consider Removal
Hazardous limb, flare canker, prune for safety right away																	
455	Silk Oak	43						43	74	1	18 16 14 21	934	2-3	2-3	2-3		Preserve
Good form and vigor, codominant stems																	
456	Silk Oak	41						41	73	1	18 12 12 16	660	2-3	2-3	2-3		Preserve
Good form and vigor, codominant stems																	
457	Silk Oak	32						32	85	1	24 14 14 14	855	2-3	2-3	2-3		Preserve
Good form and vigor																	
458	Silk Oak	29.5						29.5	36	1	17 16 14 17	804	2-3	2-3	2-3		Preserve
Good form and vigor																	
459	Silk Oak	37						37	82	1	16 20 19 25	1256	2	2-3	2-3		Preserve
Codominant stem, union ok, good vigor																	
460	Silk Oak	19.5						19.5	62	1	11 10 16 19	615	2	2-3	2-3		Preserve
Good form and vigor																	
461	Silk Oak	7						7	36		9 9 10 10	283	1-2	2	2		Preserve
Good form and vigor, competing canopy, planted too close to neighboring tree																	
462	Date Palm	14.5						14.5	27		5 8 7 8	154	1-2	2	2		Preserve
Good form and vigor																	
463	Date Palm	15						15	20		3 5 5 4	57	3	2	2	Monitor, and re-evaluate, may need to consider removal	Preserve
Over trimmed, poor prognosis																	
464	Silk Oak	32						32	65	1	18 16 16 11	730	2-3	2-3	3	Re-evaluate or consider removal	Consider Removal
Fungus on grass nearby, cavity in flare of tree																	
465	Canary Island Palm	23						23	63	1	12 12 14 14	531	2	2	2		Preserve
Good form and vigor																	
466	Silk Oak	25						25	66	1	18 27 15 18	1194	3	3	3		Consider Removal
Large branch cut mid-stem																	
467	Canary Island Palm	26						26	66	1	14 11 15 17	638	2	2	2		Preserve
Good form and vigor																	

468	California Fan Palm	27.5						27.5	70	1	10 9 12 12	363	1-2	2	2		Preserve
Good form and vigor																	
469	Silk Oak	12						12	43		16 17 12 12	638	2	2	2		Preserve
Good form and vigor																	
470	Silk Oak	39.5						39.5	77	1	18 16 20 22	1134	2-3	2-3	3		Consider Removal
Bird occupied branch cut, increased liability																	
471	Silk Oak	30						30	76	1	16 14 17 23	962	2-3	2-3	3		Consider Removal
Mature water sprout with termites at stump, increased liability																	
472	Silk Oak	25.5						25.5	59	1	12 14 12 13	510	3	3	3		Consider Removal
Minor to moderate upper canopy deadwood, decayed primary stem																	
473	Silk Oak	37						37	74	1	18 20 26 18	1320	2-3	2-3	2-3		Preserve
Good form and vigor																	
474	Silk Oak	32						32	72	1	20 16 21 21	1194	2-3	2-3	2-3		Preserve
Good form and vigor																	
475	Silk Oak	35.5						35.5	72	1	16 23 18 22	1225	2-3	2-3	2-3		Preserve
Good form and vigor																	
476	Shamel Ash	31						31	61	1	27 33 42 32	3524	2	2	2		Preserve
Good form and vigor																	
477	Silk Oak	42						42	59	1	20 20 14 16	962	2-3	2-3	2-3	Re-evaluate for safety	Consider Removal
Possibly lifting cement driveway																	
478	Mexican Fan Palm	16						16	55		9 10 8 13	314	2	2	2		Consider Removal
Good form and vigor, damaging wall																	
479	Silk Oak	36						36	74	1	20 19 17 17	1046	2-3	2-3	2-3		Preserve
Good form and vigor																	
480	Silk Oak	27						27	83	1	20 19 14 20	1046	2-3	2-3	3		Consider Removal
Lifting cement, decayed branch cut at crotch, increased liability																	
481	Silk Oak	34						34	77	1	15 16 13 22	855	3	3	3		Consider Removal
Large cavity at branch cut, flush cut																	
482	Silk Oak	36						36	76	1	20 22 26 22	1590	3	3	3-4	Consider Removal immediately	Consider Removal Immediately
Large cavity at failed branch, hazardous																	
483	Silk Oak	43						43	76	1	16 14 14 20	804	2-3	2-3	2-3		Preserve
Good form and vigor																	
484	Silk Oak	33						33	74	1	17	1134	2-3	2-3	2-3		Preserve

Good form and vigor											20 18 21				
485	Silk Oak	31						31	78	1	17 15 16 16	804	2-3 2-3 2-3		Preserve
Good form and vigor															
486	Silk Oak	44						44	82	1	23 28 21 29	2002	2-3 2-3 2-3		Preserve
Good form and vigor															
487	Western Sycamore	5						5	12		5 5 5 2	120	1-2 1-2 1-2		Preserve
Good form and vigor															
488	Western Sycamore	5						5	15		4 5 4 2	130	1-2 1-2 1-2		Preserve
Good form and vigor															
489	Olive	3						3	8		2 5 4 2	98	1-2 1-2 1-2		Preserve
Good form and vigor															
490	Olive	3						3	8		2 2 2 2	100	1-2 1-2 1-2		Preserve
Good form and vigor															
491	Olive	3						3	8		2 2 2 2	102	1-2 1-2 1-2		Preserve
Good form and vigor															
492	Western Sycamore	15						15	20	1	5 10 10 5	201	1-2 1-2 1-2		Preserve
Good form and vigor															
493	Western Sycamore	15						15	20	1	5 10 10 5	200	1-2 1-2 1-2		Preserve
Good form and vigor															
494	Western Sycamore	14						14	20	1	5 10 10 5	200	1-2 1-2 1-2		Preserve
Good form and vigor															
495	Western Sycamore	15						15	20	1	5 10 10 5	200	1-2 1-2 1-2		Preserve
Good form and vigor															
496	Western Sycamore	14						14	20	1	5	200	1-2 1-2 1-2		Preserve

Good form and vigor											10 10 5				
497	Western Sycamore	13						13	20	1	12 12 12 12	325	1-2 1-2 1-2		Preserve
Good form and vigor															
498	Western Sycamore	14						14	20	1	12 12 12 12	320	1-2 1-2 1-2		Preserve
Good form and vigor															
499	Western Sycamore	20						20	78	1	5 10 10 5	201	1-2 1-2 1-2		Preserve
Good form and vigor															
500	Myrtle	4						4	10		3 5 5 4	160	1-2 1-2 1-2		Preserve
Good form and vigor															
501	Myrtle	4						4	10		3 5 5 4	164	1-2 1-2 1-2		Preserve
Good form and vigor															
502	Myrtle	5						5	10		3 5 5 4	150	1-2 1-2 1-2		Preserve
Good form and vigor															
503	Western Sycamore	13						13	30	1	5 10 10 5	200	1-2 1-2 1-2		Preserve
Good form and vigor															
504	Western Sycamore	12						12	30	1	5 10 10 5	201	1-2 1-2 1-2		Preserve
Good form and vigor															
505	Western Sycamore	14						14	25	1	5 10 10 5	201	1-2 1-2 1-2		Preserve
Good form and vigor															
506	Western Sycamore	14						14	25	1	5 10 10 5	200	1-2 1-2 1-2		Preserve
Good form and vigor															

507	Western Sycamore	12						12	25	1	5	201	1-2 1-2 1-2		Preserve
Good form and vigor											10 10				
											5				
508	Western Sycamore	14						14	25	1	5	200	1-2 1-2 1-2		Preserve
Good form and vigor											10 10				
											5				
509	Western Sycamore	15						15	22	1	5	201	1-2 1-2 1-2		Preserve
Good form and vigor											10 10				
											5				
510	Western Sycamore	15						15	21	1	5	200	1-2 1-2 1-2		Preserve
Good form and vigor											10 10				
											5				
511	Western Sycamore	14						14	20	1	10	200	1-2 1-2 1-2		Preserve
Good form and vigor											10 10				
											10				
512	Western Sycamore	14						14	21	1	12	201	1-2 1-2 1-2		Preserve
Good form and vigor											10 10				
											12				
513	Western Sycamore	15						15	28	1	11	638	1-2 1-2 1-2		Preserve
Good form and vigor											14 15				
											14				
514	Western Sycamore	16						16	29	1	6	330	1-2 1-2 1-2		Preserve
Good form and vigor											7 6				
											8				
515	Western Sycamore	17						17	30	1	15	635	1-2 1-2 1-2		Preserve
Good form and vigor											14 14				
											14				
516	Western Sycamore	17						17	32	1	14	1017	1-2 1-2 1-2		Preserve
Good form and vigor											18 18				

											20				
517	Western Sycamore	14						14	33	1	11 14 15 14	639	1-2 1-2 1-2		Preserve
Good form and vigor															
518	Western Sycamore	15						15	28	1	6 7 6 8	331	1-2 1-2 1-2		Preserve
Good form and vigor															
519	Western Sycamore	17						17	32	1	15 14 14 14	636	1-2 1-2 1-2		Preserve
Good form and vigor															
520	Western Sycamore	15						15	28	1	14 18 18 20	1016	1-2 1-2 1-2		Preserve
Good form and vigor															
521	Western Sycamore	15						15	28	1	11 14 15 14	638	1-2 1-2 1-2		Preserve
Good form and vigor															
522	Western Sycamore	17						17	32	1	6 7 6 8	330	1-2 1-2 1-2		Preserve
Good form and vigor															
523	Western Sycamore	16						16	29	1	15 14 14 14	635	1-2 1-2 1-2		Preserve
Good form and vigor															
524	Western Sycamore	15						15	28	1	14 18 18 20	1017	1-2 1-2 1-2		Preserve
Good form and vigor															
525	Western Sycamore	17						17	32	1	11 14 15 14	639	1-2 1-2 1-2		Preserve
Good form and vigor															
526	Western Sycamore	16						16	29	1	6	331	1-2 1-2 1-2		Preserve

Good form and vigor											7 6				
											8				
527	Western Sycamore	15						15	28	1	15	636	1-2 1-2 1-2		Preserve
Good form and vigor											14 14				
											14				
528	Western Sycamore	17						17	32	1	14	1016	1-2 1-2 1-2		Preserve
Good form and vigor											18 18				
											20				
529	Western Sycamore	15						15	28	1	11	638	1-2 1-2 1-2		Preserve
Good form and vigor											14 15				
											14				
530	Western Sycamore	16						16	29	1	6	330	1-2 1-2 1-2		Preserve
Good form and vigor											7 6				
											8				
531	Western Sycamore	17						17	32	1	15	635	1-2 1-2 1-2		Preserve
Good form and vigor											14 14				
											14				
532	Western Sycamore	15						15	28	1	14	1017	1-2 1-2 1-2		Preserve
Good form and vigor											18 18				
											20				
533	Western Sycamore	16						16	29	1	11	639	1-2 1-2 1-2		Preserve
Good form and vigor											14 15				
											14				
534	Western Sycamore	17						17	32	1	6	331	1-2 1-2 1-2		Preserve
Good form and vigor											7 6				
											8				
535	Western Sycamore	15						15	28	1	15	636	1-2 1-2 1-2		Preserve
Good form and vigor											14 14				
											14				

536	Western Sycamore	16						16	29	1	11	638	1-2 1-2 1-2		Preserve
Good form and vigor											14 15				
											14				
537	Western Sycamore	17						17	32	1	6	330	1-2 1-2 1-2		Preserve
Good form and vigor											7 6				
											8				
538	Western Sycamore	15						15	28	1	15	635	1-2 1-2 1-2		Preserve
Good form and vigor											14 14				
											14				
539	Western Sycamore	17						17	32	1	14	1017	1-2 1-2 1-2		Preserve
Good form and vigor											18 18				
											20				
540	Western Sycamore	16						16	29	1	11	639	1-2 1-2 1-2		Preserve
Good form and vigor											14 15				
											14				
541	Western Sycamore	15						15	28	1	6	331	1-2 1-2 1-2		Preserve
Good form and vigor											7 6				
											8				
542	Western Sycamore	16						16	29	1	15	636	1-2 1-2 1-2		Preserve
Good form and vigor											14 14				
											14				
543	Western Sycamore	17						17	32	1	11	638	1-2 1-2 1-2		Preserve
Good form and vigor											14 15				
											14				
544	Western Sycamore	15						15	28	1	6	330	1-2 1-2 1-2		Preserve
Good form and vigor											7 6				
											8				
545	Western Sycamore	16						16	29	1	15	635	1-2 1-2 1-2		Preserve
Good form and vigor											14 14				

											14				
546	Western Sycamore	17						17	32	1	14 18 18 20	1017	1-2 1-2 1-2		Preserve
Good form and vigor															
547	Western Sycamore	15						15	28	1	11 14 15 14	639	1-2 1-2 1-2		Preserve
Good form and vigor															
548	Western Sycamore	17						17	32	1	6 7 6 8	331	1-2 1-2 1-2		Preserve
Good form and vigor															
549	Western Sycamore	16						16	32	1	15 14 14 14	636	1-2 1-2 1-2		Preserve
Good form and vigor															
550	Western Sycamore	17						17	31	1	11 14 15 14	638	1-2 1-2 1-2		Preserve
Good form and vigor															
551	Western Sycamore	15						15	28	1	6 7 6 8	330	1-2 1-2 1-2		Preserve
Good form and vigor															
552	Western Sycamore	15.5						15.5	30	1	15 14 14 14	635	1-2 1-2 1-2		Preserve
Good form and vigor															
553	Western Sycamore	15						15	28	1	14 18 18 20	1017	1-2 1-2 1-2		Preserve
Good form and vigor															
554	Western Sycamore	16						16	30	1	11 14 15 14	639	1-2 1-2 1-2		Preserve
Good form and vigor															
555	Jacaranda	13	1.5					26.5	42		17	962			Preserve

Good form and vigor											16 18 19		1-2 1-2 1-2		
556	Jacaranda	15						15	26		14 14 14 15	638	1-2 1-2 1-2		Preserve
Good form and vigor															
557	Magnolia	22						22	40		18 15 16 20	989	2-3 2 2		Preserve
Good form and vigor															
558	Ash	15						15	32		17 14 16 21	900	1-2 1-2 1-2		Preserve
Good form and vigor															
559	Carrotwood	14						14	48		14 17 16 13	707	2 2-3 1-2		Preserve
Good form and vigor															
560	Carrotwood	15						15	32		15 16 17 15	907	1-2 1-2 1-2		Preserve
Good form and vigor															
561	Carrotwood	15						15	32		14 17 16 13	707	1-2 1-2 1-2		Preserve
Good form and vigor															
562	Carrotwood	15						15	32		15 16 17 15	907	1-2 1-2 1-2		Preserve
Good form and vigor															
563	Carrotwood	13						13	20		14 17 16 13	707	1-2 1-2 1-2		Preserve
Good form and vigor															
564	Carrotwood	14						14	48		15 16 17 15	907	1-2 1-2 1-2		Preserve
Good form and vigor															
565	Carrotwood	15						15	30		14 17 16	707	1-2 1-2 1-2		Preserve
Good form and vigor															

											13				
566	Carrotwood	15						15	35		15 16 17 15	907	1-2 1-2 1-2		Preserve
Good form and vigor															
567	Carrotwood	16						16	42		14 17 16 13	707	1-2 1-2 1-2		Preserve
Good form and vigor															
568	Carrotwood	14						14	32		15 16 17 15	907	1-2 1-2 1-2		Preserve
Good form and vigor															
569	Jacaranda	15						15	26		17 16 18 19	962	1-2 1-2 1-2		Preserve
Good form and vigor															
570	Carrotwood	14						14	25		18 14 16 19	760	1-2 1-2 1-2		Preserve
Good form and vigor															
571	Jacaranda	16						16	25		14 14 14 15	638	1-2 1-2 1-2		Preserve
Good form and vigor															
572	Carrotwood	14						14	48		17 16 18 19	962	1-2 1-2 1-2		Preserve
Good form and vigor															
573	Jacaranda	15						15	26		14 14 14 15	638	1-2 1-2 1-2		Preserve
Good form and vigor															
574	Carrotwood	14						14	48		17 16 18 19	962	1-2 1-2 1-2		Preserve
Good form and vigor															
575	Jacaranda	15						15	26		17 16 18 19	962	1-2 1-2 1-2		Preserve
Good form and vigor															

576	Ash	12						12	32		14		638	1-2	1-2	1-2		Preserve
Good form and vigor											14	14						
											15							
577	Jacaranda	15						15	26		17		962	1-2	1-2	1-2		Preserve
Good form and vigor											16	18						
											19							
578	Myrtle	6						6	24		14		638	1-2	1-2	1-2		Preserve
Good form and vigor											14	14						
											15							
579	Palm	16						16	33		6		105	1-2	1-2	1-2		Preserve
Good form and vigor											4	4						
											8							
580	Palm	17						17	33		6		105	1-2	1-2	1-2		Preserve
Good form and vigor											4	4						
											8							
581	Palm	18						18	35		6		105	1-2	1-2	1-2		Preserve
Good form and vigor											4	4						
											8							
582	Palm	16						16	32		6		105	1-2	1-2	1-2		Preserve
Good form and vigor											4	4						
											8							
583	Palm	15						15	40		6		105	1-2	1-2	1-2		Preserve
Good form and vigor											4	4						
											8							
584	Jacaranda	15						15	26		17		962	1-2	1-2	1-2		Preserve
Good form and vigor											16	18						
											19							
585	Palm	16						16	48		6		105	1-2	1-2	1-2		Preserve
Good form and vigor											4	4						
											8							
586	Peruvian Pepper	21						21	48	1	18		934					Preserve

											22 15		2	2	2		
											14						
587	Peruvian Pepper	15						15	49	1	18	989					Preserve
											18 17		2	2	2		
											18						
588	Peruvian Pepper	17						17	53	1	28	989					Preserve
											17 11		2	2	2		
											15						
589	Peruvian Pepper	15						15	42	1	14	855					Preserve
											17 20		2	2	2		
											15						
590	Peruvian Pepper	12.5						12.5	39	1	18	1017					Preserve
									13		19 12		2	2	2		
											21						
591	Peruvian Pepper	13						13	36	1	18	934					Preserve
											22 15		2	2	2		
											14						
592	Peruvian Pepper	14						14	37	1	18	989					Preserve
											18 17		2	2	2		
											18						
593	Peruvian Pepper	15						15	49	1	28	989					Preserve
											17 11		2	2	2		
											15						
594	Peruvian Pepper	17						17	53	1	14	855					Preserve
											17 20		2	2	2		
											15						
595	Peruvian Pepper	15						15	42	1	18	1017					Preserve
											19 12		2	2	2		
											21						

596	Peruvian Pepper	14						14	37	1	18		934					Preserve
											22	15		2	2	2		
											14							
597	Peruvian Pepper	15						15	49	1	18		989					Preserve
											18	17		2	2	2		
											18							
598	Peruvian Pepper	14						14	37	1	28		989					Preserve
											17	11		2	2	2		
											15							
599	Peruvian Pepper	15						15	42	1	14		855					Preserve
											17	20		2	2	2		
											15							
600	Peruvian Pepper	15						15	49	1	18		1017					Preserve
											19	12		2	2	2		
											21							
601	Peruvian Pepper	17						17	53	1	18		934					Preserve
											22	15		2	2	2		
											14							
602	Peruvian Pepper	14						14	37	1	18		989					Preserve
											18	17		2	2	2		
											18							
603	Peruvian Pepper	15						15	42	1	28		989					Preserve
											17	11		2	2	2		
											15							
604	Peruvian Pepper	15						15	49	1	14		855					Preserve
											17	20		2	2	2		
											15							
605	Peruvian Pepper	17						17	53	1	18		1017					Preserve
											19	12		2	2	2		

											21						
606	Peruvian Pepper	18						18	41	1	18	934					Preserve
											22 15		2	2	2		
											14						
607	Peruvian Pepper	17						17	32	1	18	989					Preserve
											18 17		2	2	2		
											18						
608	Peruvian Pepper	14						14	50	1	28	989					Preserve
											17 11		2	2	2		
											15						
609	Peruvian Pepper	15						15	49	1	14	855					Preserve
											17 20		2	2	2		
											15						
610	Palm	10						10	62		18	989					Preserve
											18 17		2	2	2		
											18						
611	Palm	10						10	40		28	989					Preserve
											17 11		2	2	2		
											15						
612	Palm	10						10	45		14	855					Preserve
											17 20		2	2	2		
											15						
613	Silk Oak	22						22	65	1	21	1135	2	2	2		Preserve
											18 17						
											20						
614	Silk Oak	21						21	70	1	5	120	1-2	1-2	1-2		Preserve
											5 5						
											2						
615	Silk Oak	22						22	51	1	4	130	1-2	1-2	1-2		Preserve
											5 4						

												2							
616	Silk Oak	22						22	51	1		2		98	1-2	1-2	1-2		Preserve
											5		4						
												2							
617	Silk Oak	23						23	72	1		2		100	1-2	1-2	1-2		Preserve
											2		2						
												2							
618	Silk Oak	23						23	60	1		2		102	1-2	1-2	1-2		Preserve
											2		2						
												2							
619	Silk Oak	25						25	55	1		5		201	1-2	1-2	1-2		Preserve
											10		10						
												5							
620	Silk Oak	25						25	54	1		5		200	1-2	1-2	1-2		Preserve
											10		10						
												5							
621	Silk Oak	24						24	53	1		5		200	1-2	1-2	1-2		Preserve
											10		10						
												5							
622	Silk Oak	24						24	55	1		5		200	1-2	1-2	1-2		Preserve
											10		10						
												5							
623	Silk Oak	26						26	48	1		5		200	1-2	1-2	1-2		Preserve
											10		10						
												5							
624	Silk Oak	18						18	41	1		12		325	1-2	1-2	1-2		Preserve
											12		12						
												12							
625	Silk Oak	19						19	42	1		12		320	1-2	1-2	1-2		Preserve
											12		12						
												12							

626	Silk Oak	17						17	46	1	5 10 10 5	201	1-2 1-2 1-2		Preserve
627	Silk Oak	18						18	47	1	3 5 5 4	160	1-2 1-2 1-2		Preserve
628	Silk Oak	20						20	48	1	3 5 5 4	164	1-2 1-2 1-2		Preserve
629	Silk Oak	23						23	50	1	3 5 5 4	150	1-2 1-2 1-2		Preserve
630	Silk Oak	22						22	56	1	5 10 10 5	200	1-2 1-2 1-2		Preserve
631	Silk Oak	24						24	66	1	5 10 10 5	201	1-2 1-2 1-2		Preserve
632	Silk Oak	25						25	62	1	5 10 10 5	201	1-2 1-2 1-2		Preserve
633	Silk Oak	26						26	63	1	5 10 10 5	200	1-2 1-2 1-2		Preserve
634	Silk Oak	25						25	62	1	5 10 10 5	201	1-2 1-2 1-2		Preserve
635	Silk Oak	21						21	61	1	5 10 10 5	200	1-2 1-2 1-2		Preserve
636	Silk Oak	24						24	60	1	5	201			Preserve

											10 10		1-2 1-2 1-2		
											5				
637	Silk Oak	25						25	53		5				
										1	10 10	200	1-2 1-2 1-2		Preserve
											5				
638	Silk Oak	26						26	54		10				
										1	10 10	200	1-2 1-2 1-2		Preserve
											10				
639	Silk Oak	20						20	54		12				
										1	10 10	201	1-2 1-2 1-2		Preserve
											12				
640	Silk Oak	19						19	55		11	638			
										1	14 15		1-2 1-2 1-2		Preserve
											14				
641	Silk Oak	18						18	53		6	330			
										1	7 6		1-2 1-2 1-2		Preserve
											8				
642	Silk Oak	21						21	52		15	635			
									23	1	14 14		1-2 1-2 1-2		Preserve
											14				
643	Silk Oak	23						23	50		14	1017			
										1	18 18		1-2 1-2 1-2		Preserve
											20				
644	Silk Oak	24						24	70		11	639			
										1	14 15		1-2 1-2 1-2		Preserve
											14				
645	Silk Oak	26						26	62		6	331			
										1	7 6		1-2 1-2 1-2		Preserve
											8				
646	Silk Oak	22						22	36		15	636			
										1	14 14		1-2 1-2 1-2		Preserve

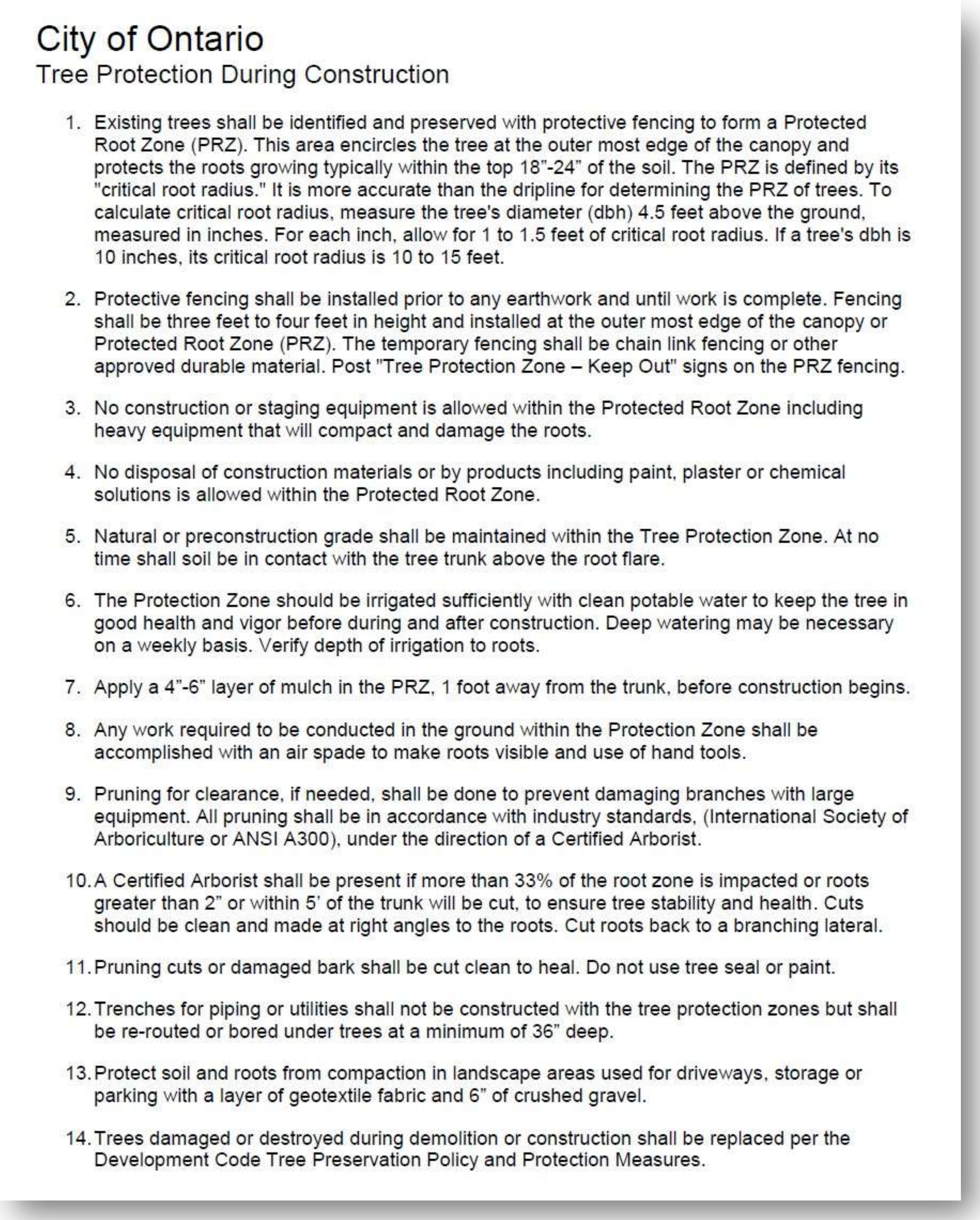
											14				
647	Silk Oak	21						21	35	1	14 18 18 20	1016	1-2 1-2 1-2		Preserve
648	Silk Oak	20						20	48	1	11 14 15 14	638	1-2 1-2 1-2		Preserve
649	Silk Oak	19						19	51	1	6 7 6 8	330	1-2 1-2 1-2		Preserve
650	Silk Oak	18						18	54	1	15 14 14 14	635	1-2 1-2 1-2		Preserve
651	Silk Oak	19						19	55	1	14 18 18 20	1017	1-2 1-2 1-2		Preserve
652	Silk Oak	18						18	50	1	11 14 15 14	639	1-2 1-2 1-2		Preserve
653	Silk Oak	18						18	61	1	6 7 6 8	331	1-2 1-2 1-2		Preserve
654	Silk Oak	22						22	60	1	15 14 14 14	636	1-2 1-2 1-2		Preserve
655	American Gum	28						28	60	1	14 18 18 20	1016	1-2 1-2 1-2		Preserve
656	American Gum	26						26	70	1	11 14 15 14	638	1-2 1-2 1-2		Preserve

657	American Gum	27						27	72	1	6 7 6 8	330	1-2 1-2 1-2		Preserve
658	American Gum	28						28	60	1	15 14 14 14	635	1-2 1-2 1-2		Preserve
659	American Gum	25						25	66	1	14 18 18 20	1017	1-2 1-2 1-2		Preserve
660	American Gum	24						24	65	1	11 14 15 14	639	1-2 1-2 1-2		Preserve
661	American Gum	18						18	64	1	6 7 6 8	331	1-2 1-2 1-2		Preserve
662	American Gum	18						18	63	1	15 14 14 14	636	1-2 1-2 1-2		Preserve
663	American Gum	19						19	66	1	11 14 15 14	638	1-2 1-2 1-2		Preserve
664	American Gum	20						20	50	1	6 7 6 8	330	1-2 1-2 1-2		Preserve
665	American Gum	26						26	51	1	15 14 14 14	635	1-2 1-2 1-2		Preserve
666	American Gum	28						28	52	1	14 18 18 20	1017	1-2 1-2 1-2		Preserve
667	American Gum	29						29	60	1	11 14 15 14	639	1-2 1-2 1-2		Preserve
668	American Gum	28						28	66	1	6	331	1-2 1-2 1-2		Preserve

											7 6 8				
669	American Gum	27						27	65	1	15 14 14 14	636	1-2 1-2 1-2		Preserve
670	American Gum	26						26	66	1	11 14 15 14	638	1-2 1-2 1-2		Preserve
671	American Gum	25						25	65	1	6 7 6 8	330	1-2 1-2 1-2		Preserve
672	American Gum	24						24	60	1	15 14 14 14	635	1-2 1-2 1-2		Preserve
673	American Gum	28						28	55	1	14 18 18 20	1017	1-2 1-2 1-2		Preserve
674	American Gum	30						30	48	1	11 14 15 14	639	1-2 1-2 1-2		Preserve
675	American Gum	28						28	48	1	6 7 6 8	331	1-2 1-2 1-2		Preserve
676	American Gum	30						30	60	1	15 14 14 14	636	1-2 1-2 1-2		Preserve
677	American Gum	25						31	60	1	11 14 15 14	638	1-2 1-2 1-2		Preserve
678	American Gum	26						26	61	1	6 7 6 8	330	1-2 1-2 1-2		Preserve
679	American Gum	28						28	62	1	15 14 14 14	635	1-2 1-2 1-2		Preserve

680	American Gum	28						28	63	1	14 18 18 20	1017	1-2 1-2 1-2		Preserve
681	American Gum	27						27	63	1	11 14 15 14	639	1-2 1-2 1-2		Preserve
682	American Gum	26						26	55	1	17 16 18 19	962	1-2 1-2 1-2		Preserve
683	American Gum	26						26	54	1	14 14 14 15	638	1-2 1-2 1-2		Preserve
684	American Gum	28						28	55	1	18 15 16 20	989	2-3 2 2		Preserve
685	American Gum	26						26	66	1	17 14 16 21	900	1-2 1-2 1-2		Preserve
686	American Gum	23						23	40	1	14 17 16 13	707	2 2-3 1-2		Preserve
687	American Gum	24						24	60	1	15 16 17 15	907	1-2 1-2 1-2		Preserve
688	American Gum	24						24	60	1	14 17 16 13	707	1-2 1-2 1-2		Preserve

Appendix B – Ontario Tree Protection During Construction



City of Ontario

Tree Protection During Construction

1. Existing trees shall be identified and preserved with protective fencing to form a Protected Root Zone (PRZ). This area encircles the tree at the outer most edge of the canopy and protects the roots growing typically within the top 18"-24" of the soil. The PRZ is defined by its "critical root radius." It is more accurate than the dripline for determining the PRZ of trees. To calculate critical root radius, measure the tree's diameter (dbh) 4.5 feet above the ground, measured in inches. For each inch, allow for 1 to 1.5 feet of critical root radius. If a tree's dbh is 10 inches, its critical root radius is 10 to 15 feet.

2. Protective fencing shall be installed prior to any earthwork and until work is complete. Fencing shall be three feet to four feet in height and installed at the outer most edge of the canopy or Protected Root Zone (PRZ). The temporary fencing shall be chain link fencing or other approved durable material. Post "Tree Protection Zone – Keep Out" signs on the PRZ fencing.

3. No construction or staging equipment is allowed within the Protected Root Zone including heavy equipment that will compact and damage the roots.

4. No disposal of construction materials or by products including paint, plaster or chemical solutions is allowed within the Protected Root Zone.

5. Natural or preconstruction grade shall be maintained within the Tree Protection Zone. At no time shall soil be in contact with the tree trunk above the root flare.

6. The Protection Zone should be irrigated sufficiently with clean potable water to keep the tree in good health and vigor before during and after construction. Deep watering may be necessary on a weekly basis. Verify depth of irrigation to roots.

7. Apply a 4"-6" layer of mulch in the PRZ, 1 foot away from the trunk, before construction begins.

8. Any work required to be conducted in the ground within the Protection Zone shall be accomplished with an air spade to make roots visible and use of hand tools.

9. Pruning for clearance, if needed, shall be done to prevent damaging branches with large equipment. All pruning shall be in accordance with industry standards, (International Society of Arboriculture or ANSI A300), under the direction of a Certified Arborist.

10. A Certified Arborist shall be present if more than 33% of the root zone is impacted or roots greater than 2" or within 5' of the trunk will be cut, to ensure tree stability and health. Cuts should be clean and made at right angles to the roots. Cut roots back to a branching lateral.

11. Pruning cuts or damaged bark shall be cut clean to heal. Do not use tree seal or paint.

12. Trenches for piping or utilities shall not be constructed with the tree protection zones but shall be re-routed or bored under trees at a minimum of 36" deep.

13. Protect soil and roots from compaction in landscape areas used for driveways, storage or parking with a layer of geotextile fabric and 6" of crushed gravel.

14. Trees damaged or destroyed during demolition or construction shall be replaced per the Development Code Tree Preservation Policy and Protection Measures.

APPENDIX D

Cultural Resources Assessment
BCR Consulting LLC, December 27, 2024

CULTURAL RESOURCES ASSESSMENT

UT1072 Downtown Recycled Water Pipeline Project
City of Ontario, San Bernardino County, California

Prepared for:

Lori Trottier AICP CEP
Ardurra
3737 Birch Street, Suite 250
Newport Beach, California 92660

Prepared by:

David Brunzell, M.A., RPA
Contributions by Nick Shepetuk, B.A.
BCR Consulting LLC
Claremont, California 91711

Project No. ARD2401

Data Base Information:
Type of Study: Intensive Survey
Resources Recorded: P-36-15982, -15983, -16417
Keywords: Euclid Avenue, Historic-Period Buildings
USGS Quadrangle: 7.5-minute *Guasti, California* (1981); *Ontario, California* (1981)

BCRCONSULTING LLC

December 27, 2024

MANAGEMENT SUMMARY

BCR Consulting LLC (BCR Consulting) is under contract to Ardurra to complete a Cultural Resources Assessment of the UT1072 Downtown Recycled Water Pipeline Project (the project) located in the City of Ontario (City), San Bernardino County, California. A cultural resources records search, intensive-level pedestrian field survey, Native American Heritage Commission (NAHC) Sacred Lands File Search, and vertebrate paleontological resources overview were conducted for the project in partial fulfillment of the California Environmental Quality Act (CEQA). The records search results revealed that 23 previous cultural resource studies have taken place, and 29 cultural resources have been identified within the half-mile research radius. Three of the previous studies have assessed the project site for cultural resources resulting in the recordation of three resources partially within portions of the project site. These include P-36-15982 (historic Euclid Avenue), P-36-15983 (the Historic Mule Car Display and Railroad Tracks), and P-36-16417 (the historic San Bernardino-Sonora Road). Euclid Avenue (P-36-15982) is listed on the National Register (Reference Number 05000843) and as such is a significant historical resource under CEQA.

The field survey has revealed that no physical evidence of P-36-15983 (the historic-period Euclid Avenue Mule Car and Railroad Tracks) or of P-36-16417 (the historic-period San Bernardino-Sonora Road) remain in place within the project alignment. As such, these two resources are considered destroyed at the locations that coincide with the project alignment. They will not be subject to any significant adverse effects under CEQA and do not require further consideration. A segment of one historical resource (Euclid Avenue, designated P-36-15982) was identified intact within a portion of the project alignment. Notably, the project alignment also occupies portions of one designated historic district, one potential historic district, and two proposed historic districts (City of Ontario 2021).

The *Euclid Avenue Historic Property Treatment and Management Plan* (HPTMP) developed by the California Department of Transportation (Caltrans) has established Character Defining Features (CDFs) of Euclid Avenue. The Euclid Avenue HPTMP intends to "provide guidance for future improvements on Euclid Avenue in a manner consistent with SOIS [U.S. Secretary of the Interior Standards] to avoid or minimize causing an adverse effect on the historic property through implementation of project conditions" (Caltrans 2023:6). The project as described will mostly occur within existing modern pavement and will impact "physical materials of the drives (pavement, striping, lane markers) [which] do not contribute to the character of Euclid Avenue as they have been substantially altered over time and replaced as needed for ongoing maintenance" (Caltrans 2023:58). However, CDFs that will be subject impact include CDF trees that must be removed and replaced, and CDFs that *may* be subject to impacts include granite cobblestone curbs, scored sidewalk, and Vintage Lighting. Treatment recommendations for CDFs are provided below, based on the Euclid Avenue HPTMP. Treatment recommendations for portions of the project alignment outside the Euclid Avenue HPTMP area are also provided below, as appropriate.

CDF Trees. Since the final arborists report is not yet available, individual removals and replacements are not specified here. CDF trees include any in the double row of California pepper trees in the Euclid Avenue median, any silk oak trees in the Euclid Avenue Parkway, and any oaks planted in the parkway between Holt Boulevard and G Street. Based on the Euclid Avenue HPTMP, "individual trees that are severely damaged and require replacement should be replaced in kind or with a species compatible with the historic character of the historic property. Where portions of the otherwise continuous tree rows are missing due to previous alterations, it is recommended that new t[r]ees that are compatible species be planted following the original landscape design of the parkways and median, as applicable, to restore the overall visual character of the historic property. Non-original trees that are incompatible with the historic character of the property may be retained or removed" (Caltrans 2023:59).

Heritage Trees Outside the Euclid Avenue HPTMP Area. Some portions of the project site will remove heritage trees that are outside the Euclid Avenue HPTMP area. Based on Section 4.02.060 of the City Development Code, a Heritage Tree is:

> A tree of historic or cultural significance, or a tree of importance to the community due to any one of the following factors:
>
> a. It is one of the largest or oldest trees of the species located in the City, with a trunk diameter of 18 inches or greater, measured at 54 inches above natural grade; or
>
> b. It has historical significance due to an association with an historic building, site, street, person, or event; or
>
> c. It is a defining landmark or significant outstanding feature of a neighborhood or district, or typical of early Ontario landscapes, including [i] Cinnamomum camphora (Camphor Tree), [ii] Cedrus deodara (Deodar Cedar), [iii] Platanus acerifolia, [iv] Quercus suber (Cork Oak), [v] Quercus ilex (Holly Oak), or [vi] Schinus molle (California Pepper); or
>
> d. It is a Native Tree. The term "Native Tree" means any one of the following California native tree species, which has a trunk diameter of more than 8 inches, measured at 54 inches above natural grade, including [i] Platanus racemosa (California Sycamore), [ii] Pinus torreyana (Torrey Pine), [iii] Quercus agrifolia (Coast Live Oak), [iv] Quercus engelmannii (Engelmann Oak), [v] Quercus lobata (Valley Oak), or [vi] Umbellularia californica (California Bay).

Preservation is the preferred method of mitigation for Heritage Trees. Where preservation is not feasible, the City will specify mitigation measures to reduce impacts of tree removals that are outside the Euclid Avenue HPTMP based on the results of the final arborists report, which is pending. Mitigations may include but may not be limited to:

- donation and planting of trees whose DBH are cumulatively equivalent to the tree being removed,
- monetary donation equal to the value of the tree.

Mitigations will be further specified in the arborist report.

Granite Cobblestone Curbs. Most project activities will occur in the road right of way and are not likely to result in impacts to granite cobblestone curbs. However, granite cobblestone curbs (defined as CDFs in the Euclid Avenue HPTMP) are located throughout the entire Euclid Avenue median and within much of the Euclid Avenue parkway and in other parts of the downtown project alignment. They are most likely to be impacted by staging, access, and the construction of recycled water laterals that tie new pipeline into existing infrastructure (as depicted in Figure 1). BCR Consulting recommends that the treatments from the Euclid Avenue HPTMP are appropriate throughout all portions of the downtown project alignment that contain granite cobblestone curbs. Staging, access, and construction activities should avoid granite cobblestone curbs where feasible. Where avoidance is not feasible,

> The overall design, spatial relationships, and visual character of the granite cobblestone curbs aligning the Euclid Avenue parkways [and throughout the downtown portion of the project alignment] should be preserved and maintained to the greatest extent feasible, including:
>
> - Retain existing granite cobblestone and concrete curbs throughout
> - Repair damaged concrete by patching with new that duplicates the old in strength, composition, color, and texture
> - Replace severely deteriorated or missing portions of granite cobblestone and concrete curbs in kind to match extant originals
> - Replacement cobblestone curbs should be replaced consistently with a plan developed by the City
> - When sections of modern concrete curb that replaced the original cobblestone curbs require replacement, these should be replaced with cobblestone curbs per City plan to re-establish historic continuity as much as possible
> - Do not paint the existing historic cobblestone and concrete curbs; remove paint from such features as appropriate (Caltrans 2023:46).

Scored Sidewalk. Most project activities will occur in the road right of way and are not likely to result in impacts to the scored sidewalks. However, scored sidewalk (defined as CDFs in the Euclid Avenue HPTMP) are located throughout much of the Euclid Avenue parkway and in other parts of the downtown project alignment. They are most likely to be impacted by staging, access, and the construction of recycled water laterals that tie new pipeline into existing infrastructure (as depicted in Figure 1). BCR Consulting recommends that the treatments from the Euclid Avenue HPTMP are appropriate throughout the portions of the downtown project alignment that contain scored sidewalk. Staging, access, and construction activities should avoid granite cobblestone curbs where feasible. Where avoidance is not feasible,

> The overall design, spatial relationships, and visual character of the scored concrete sidewalks along the Euclid Avenue parkways [and throughout the downtown portion of the project alignment] should be preserved and maintained to the greatest extent feasible, including:
>
> - Maintain existing sidewalk width
> - Retain extant sidewalks with historic scored concrete pattern throughout
> - Repair any damaged concrete by patching with new concrete that duplicates the old in strength, composition, color, and texture
> - Replace severely deteriorated or missing portions of historic sidewalk in kind to match the extant historic concrete sidewalks in composition, color, and texture
> - New concrete sections that emulate the old should be stamped with the new date to be compatible with but differentiated from the old, as to clearly be a record of its time and place as a later repair (Caltrans 2023: 47).

Vintage Lighting. Most project activities will occur in the road right of way and are not likely to result in impacts to vintage lighting. However, vintage lighting (defined as CDFs in the

Euclid Avenue HPTMP) is located throughout much of the Euclid Avenue parkway and median. It is most likely to be impacted by staging, access, and the construction of recycled water laterals that tie new pipeline into existing infrastructure (as depicted in Figure 1). BCR Consulting recommends that the treatments from the Euclid Avenue HPTMP are appropriate throughout the portions of the downtown project alignment that contain vintage lighting.

Recommended treatments for the vintage light fixtures include:

- Retaining the historic King Standard lampposts, Cobra lampposts and replica lampposts surrounding the community bandstand. These existing lampposts should be retained throughout
- Any damaged or deteriorated lampposts should be repaired and cleaned of corrosion as needed. Replace broken or missing glass within the lanterns in kind
- For consistency, lampposts requiring replacement or new light post should conform to the standard plan developed by the City
- Where deterioration necessitates replacement, individual lampposts should be replaced in kind. Where necessary to meet new safety requirements, compatible light fixtures should be added to the greatest extend feasible.

The resources recorded during this study and the cultural resources identified in the surrounding area during the records search indicate sensitivity for buried cultural resources within the project site. Furthermore, the project could result in impacts to Euclid Avenue HPTMP-defined CDFs within and adjacent to the project alignment. In order to reduce potential for impacts, BCR Consulting recommends that a cultural resource professional monitor all project activities to ensure that:

- accidental cultural resource discoveries are evaluated for significance, avoided, and/or mitigated according to CEQA, as appropriate, and
- avoidance and treatments to CDFs as recommended above are carried out appropriately.

The monitor would work under the direct supervision of a cultural resources professional who meets the U.S. Secretary of the Interior’s Professional Qualification Standards for archaeology. The monitor would be empowered to temporarily halt or redirect construction work in the vicinity of any find until the project archaeologist can evaluate it. In the event of a new find, salvage excavation and reporting would be required. Prehistoric or historic cultural materials that may be encountered during ground-disturbing activities include:

- historic-period artifacts such as glass bottles and fragments, cans, nails, ceramic and pottery fragments, and other metal objects;
- historic-period structural or building foundations, walkways, cisterns, pipes, privies, and other structural elements;
- prehistoric flaked-stone artifacts and debitage (waste material), consisting of obsidian, basalt, and or cryptocrystalline silicates;
- groundstone artifacts, including mortars, pestles, and grinding slabs;
- dark, greasy soil that may be associated with charcoal, ash, bone, shell, flaked stone, groundstone, and fire affected rocks;
- human remains.

Following the recommendations developed in the Euclid Avenue HPTMP and as described here will preclude a significant adverse effect to any historical resources during project implementation.

Findings were negative during the Sacred Lands File search with the NAHC (see Appendix C). The City will initiate Assembly Bill (AB) 52 Native American Consultation for the project. Since the City will initiate and carry out the required Native American Consultation, the results of the consultation are not provided in this report. However, this report may be used during the consultation process, and BCR Consulting staff is available to answer questions and address concerns as necessary.

According to CEQA Guidelines, projects must determine whether the project would “directly or indirectly destroy a unique paleontological resource”. The Paleontological Overview provided in Appendix E has recommended that:

> The geologic units underlying the project area are mapped as young alluvial fan deposits from the middle Holocene epoch (Morton, Miller, Cossette, and Bovard 2003). Holocene alluvial units are considered to be of high preservation value, but material found is unlikely to be fossil material due to the relatively modern associated dates of the deposits. However, if development requires any substantial depth of disturbance, the likelihood of reaching Pleistocene alluvial sediments would increase. The Western Science Center does not have localities within the project area or within a 1 or 2 mile radius of either project location.
>
> While the presence of any fossil material is unlikely, if excavation activity disturbs deeper sediment dating to the earliest parts of the Holocene or Late Pleistocene periods, the material would be scientifically significant. Excavation activity associated with the development of the project area is unlikely to be paleontologically sensitive, but caution during development should be observed.

If human remains are encountered during any project activities, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the NAHC, which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC.

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INTRODUCTION

BCR Consulting LLC (BCR Consulting) is under contract to Ardurra to complete a Cultural Resources Assessment of the UT1072 Downtown Recycled Water Pipeline Project in the City of Ontario (City), San Bernardino County, California. The project will construct approximately 20,400 linear feet of City-owned and operated recycled water mains, install approximately 300 LF of lateral connections, and will convert approximately 2,000 LF of existing potable water mains for distribution of recycled water within city limits. Proposed improvements will be completed using open trench construction methods and will involve approximately 63,400 square feet of disturbance and approximately 384,400 cubic feet of earthwork. The Project involves primarily underground infrastructure improvements and ancillary appurtenances above ground surface within landscaped areas, such as valves. At connection points with existing irrigation systems, project implementation will remove portions of existing landscaping and paved surfaces. Upon completion of construction, existing surfaces will be restored to pre project conditions at connection points and along the new and converted recycled water mains. Temporary construction activities and long-term operation and maintenance of new recycled water mains will occur on Euclid Avenue, West F Street, North Vine Avenue, Flora Street, East E Street, East C Street, East B Street, and East Riverside Drive. Tree removals and replacements will also take place. A cultural resources records search, additional research, intensive-level pedestrian field survey, Sacred Lands File search with the Native American Heritage Commission (NAHC), and paleontological overview were conducted for the project in partial fulfillment of the California Environmental Quality Act (CEQA). The project location is depicted in Figure 1 and Figure 2. It occupies portions of these legal descriptions (San Bernardino Base and Meridian):

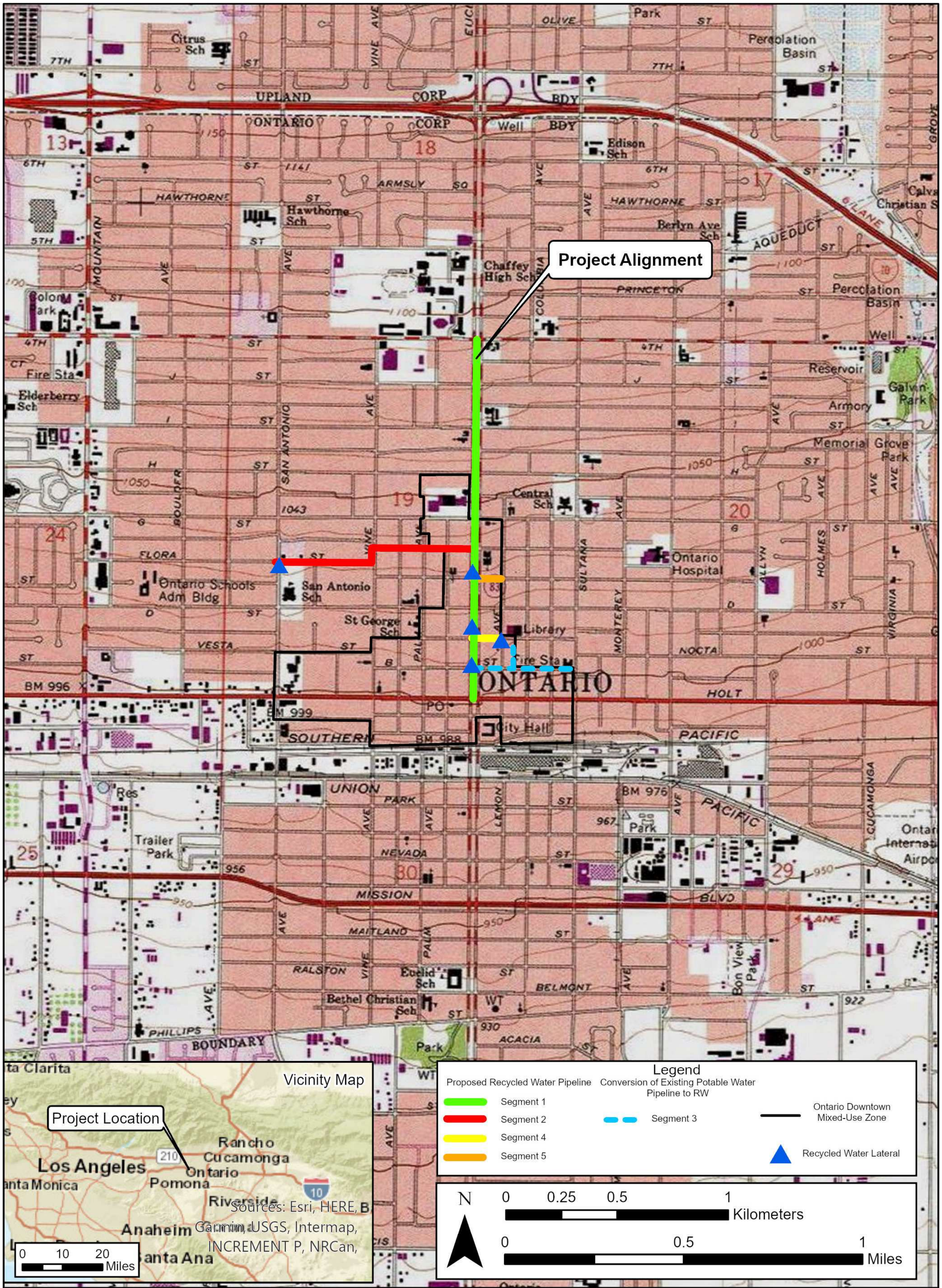
Table A. Project Area Legal Description

Ontario, CA (1981)	Township 1 South Range 7 West	Section 19
Ontario, CA (1981)	Township 2 South Range 7 West	Non-Sectioned
Guasti, CA (1981)	Township 2 South Range 7 West	Non-Sectioned

Regulatory Setting

The California Environmental Quality Act. CEQA applies to all discretionary projects undertaken or subject to approval by the state’s public agencies (California Code of Regulations 14(3), § 15002(i)). Under CEQA, “A project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment” (Cal. Code Regs. tit. 14(3), § 15064.5(b)). State CEQA Guidelines section 15064.5(a) defines a “historical resource” as a resource that meets one or more of the following criteria:

- Listed in, or eligible for listing in, the California Register of Historical Resources (California Register)
- Listed in a local register of historical resources (as defined at Cal. Public Res. Code § 5020.1(k))
- Identified as significant in a historical resource survey meeting the requirements of § 5024.1(g) of the Cal. Public Res. Code
- Determined to be a historical resource by a project's lead agency (Cal. Code Regs. tit. 14(3), § 15064.5(a))



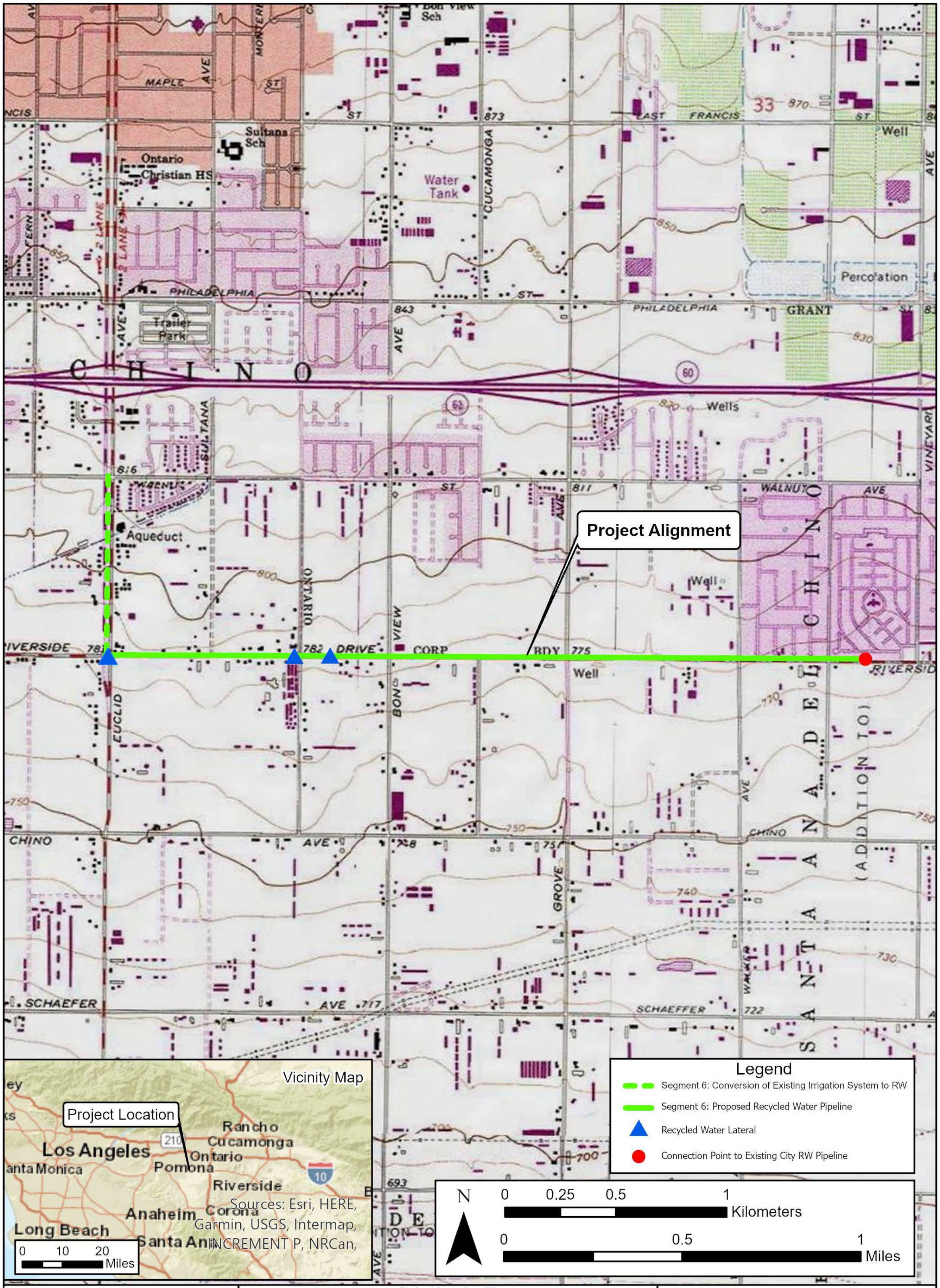
BCRCONSULTING LLC
Claremont Napa Tehachapi
www.bcrconsulting.net
909-525-7078

Project Location Site
Ontario Recycled Water Distribution Project

Figure 1

Reference: ESRI; USGS Quad: Ontario (1981), California

Ardurra



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909-525-7078

Project Location Site
Ontario Recycled Water Distribution Project

Figure 2

Ardurra

Reference: ESRI; USGS Quad: Ontario (1981), Guasti (1981), California

A historical resource consists of "Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California…Generally, a resource shall be considered by the lead agency to be 'historically significant' if the resource meets the criteria for listing in the California Register of Historical Resources" (Cal. Code Regs. tit. 14(3), § 15064.5(a)(3)).

The significance of a historical resource is impaired when a project demolishes or materially alters in an adverse manner the physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for the CRHR. If a historical or archaeological resource is significant, CEQA requires feasible measures to minimize the impact (State CEQA Guidelines § 15126.4 (a)(1)). Mitigation of significant impacts must lessen or eliminate the impact that the project will have on the resource.

Section 5024.1 of the Cal. Public Res. Code established the California Register. A resource is considered by the lead agency to be "historically significant" if the resource meets the criteria for listing in the California Register (Cal. Code Regs. tit. 14(3), § 15064.5(a)(3)). The eligibility criteria for the California Register are similar to those of the National Register of Historic Places (National Register), and a resource that meets one or more of the eligibility criteria of the National Register will be eligible for the California Register. The California Register program encourages public recognition and protection of resources of architectural, historical, archaeological, and cultural significance, identifies historical resources for state and local planning purposes, determines eligibility for state historic preservation grant funding and affords certain protections under CEQA. Criteria for Designation:

1. Associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the U.S.
2. Associated with the lives of persons important to local, California or national history.
3. Embodies the distinctive characteristics of a type, period, region or method of construction or represents the work of a master or possesses high artistic values.
4. Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation.

In addition to meeting one or more of the above criteria, the California Register requires that sufficient time has passed since a resource's period of significance to "obtain a scholarly perspective on the events or individuals associated with the resources." (CCR 4852 [d][2]). Fifty years is normally considered sufficient time for a potential historical resource, and in order that the evaluation remain valid for a minimum of five years after the date of this report, all resources older than 45 years (i.e. resources from the "historic-period") will be evaluated for California Register listing eligibility, or CEQA significance. The California Register also requires that a resource possess integrity. This is defined as the ability for the resource to convey its significance through seven aspects: location, setting, design, materials, workmanship, feeling, and association. Finally, CEQA requires that significant effects on unique archaeological resources be considered and addressed. CEQA defines a unique archaeological resource as any archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information.
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

CEQA Guidelines Section 15064.5 Appendix G includes significance criteria relative to archaeological and historical resources. These have been utilized as thresholds of significance here, and a project would have a significant environmental impact if it would:

a) cause a substantial adverse change in the significance of a historical resource as defined in section 10564.5;
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 10564.5;
c) Disturb any human remains, including those interred outside of formal cemeteries.

City of Ontario Designation Criteria. The City of Ontario Development Code Chapter 4, Section 4.02.040 provides the following designation criteria for a property to qualify as a City Historic Landmark:

a. It exemplifies or reflects special elements of the City's history;
b. It is identified with persons or events significant in local, state, or national history;
c. It is representative of the work of a notable builder, designer, architect, or artist;
d. It embodies distinguishing architectural characteristics of a style, type, period, or method of construction;
e. It is a noteworthy example of the use of indigenous materials or craftsmanship;
f. It embodies elements that represent a significant structural, engineering, or architectural achievement or innovation;
g. It has a unique location, a singular physical characteristic, or is an established and familiar visual feature of a neighborhood, community or the City;
h. It is one of the few remaining examples in the City, region, state, or nation possessing distinguishing characteristics of an architectural or historical type or specimen: or
i. It has yielded, or is likely to yield, information important to the City's history or prehistory.

A neighborhood or area listed as a historic resource may be designated a "Local Historic District" by the City if the neighborhood meets the criteria for listing in the National Register or the California Register, or it meets one or more of the following criteria:

a. It is a geographically definable area possessing a concentration of historic resources or a thematically related grouping of structures that contribute to each other and are unified by plan, style, or physical development, and embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values;

b. It reflects significant geographical patterns, including those associated with different eras of settlement and growth, particular transportation modes, or distinctive examples of a park landscape, site design, or community planning;

c. It is associated with, or the contributing resources are unified by, events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;

d. It is, or the contributing resources are, associated with the lives of persons important to the City, State or National history.

Cultural resources would be subject to evaluation for the above criteria. In addition to landmark and district designation criteria, historic resources must have integrity for the time in which they are significant. The period of significance is the date or span of time within which significant events transpired or significant individuals made their important contributions. The term integrity means the authenticity of a historical resource's physical identity, as evidenced by the survival of characteristics or historic or prehistoric fabric that existed during the resource's period of significance. Only after significance has been established, should the issue of integrity be addressed. The following criteria should be considered when evaluating properties for integrity:

a. Design. Any alterations to the property should not have adversely affected the character defining features of the property. Alterations to a resource or changes in its use over time may have historic, cultural or architectural significance.

b. Setting. Changes in the immediate surroundings of the property (e.g., buildings, land use and topography) should not have adversely affected the character of the property.

c. Materials and Workmanship. Any original materials should be retained, or if they have been removed or altered, replacements have been made that are compatible with the original materials.

d. Location. The relationship between a property and its location is an important component in determining integrity. The place where the property was built and where historic events occurred is often important to understanding why the property was created or why something happened. The actual location of a historic property, complemented by its setting, is particularly important in recapturing the sense of historic events and persons. Except in a few cases, the relationship between a property and its historic associations is destroyed if the property is moved.

e. Feeling. The term "feeling" means a property's expression of the aesthetic or historic sense of a particular period. It results from the presence of physical features that, taken together, convey the property's historic character. For example, a rural historic district, such as the Guasti Winery, retaining original design, materials, workmanship and setting, will relate the feeling of agricultural life in the 19th century.

f. Association. The term "association" means the direct link between an important historic event or person, and a historic property. A property retains its association if it is the place where the event or activity occurred and is sufficiently intact to convey that relationship to an observer. Like "feeling," association requires the presence of physical features that convey a property's historic character. For example, a Revolutionary War battlefield, whose natural and manmade elements have remained intact since the 18th century, will retain its quality of "association" with the battle. Because "feeling" and "association" depend upon individual perceptions, their retention alone is never sufficient to support eligibility. Historic resources must retain enough of their historic or prehistoric character or appearance to be recognizable as historic resources, and to convey the reasons for their significance.

Tribal Cultural Resources. The Legislature added requirements regarding tribal cultural resources for CEQA in Assembly Bill 52 (AB 52) that took effect July 1, 2015. AB 52 requires consultation with California Native American tribes and consideration of tribal cultural resources in the CEQA process. By including tribal cultural resources early in the CEQA process, the legislature intended to ensure that local and Tribal governments, public agencies, and project proponents would have information available, early in the project planning process, to identify and address potential adverse impacts to tribal cultural resources. By taking this proactive approach, the legislature also intended to reduce the potential for delay and conflicts in the environmental review process. To help determine whether a project may have such an effect, the Public Resources Code requires a lead agency to consult with any California Native American tribe that requests consultation and is traditionally and culturally affiliated with the geographic area of a Proposed Project. Since the City will initiate and carry out the required AB52 Native American Consultation, the results of the consultation are not provided in this report. However, this report may be used during the consultation process, and BCR Consulting staff are available to answer questions and address comments as necessary.

Paleontological Resources. CEQA indicates that a project would have a significant impact on paleontological resources if it disturbs or destroys a unique paleontological resource or site or unique geologic feature. Section 5097.5 of the California Public Resources Code specifies that any unauthorized removal of paleontological remains is a misdemeanor. Further, California Penal Code Section 622.5 sets the penalties for damage or removal of them. CEQA documentation would be required to analyze paleontological resources as a condition of the CEQA process to disclose potential impacts. Note that as of January 2018 paleontological resources are covered in geological rather than cultural category. Therefore, paleontological resources are not summarized in this report. A paleontological overview completed by the Western Science Center is provided (Appendix E).

NATURAL SETTING

The project is located in the Chino Valley, which is bounded on the west by the San Jose Hills, on the south by the Chino Hills, on the north by the foothills of the San Gabriel Mountains (USGS 1981a, 1981b), and on the east by La Sierra and the Jurupa Mountains. Local rainfall ranges from 5 to 15 inches annually (Jaeger and Smith 1971:36-37). The area containing the project site exhibits a gradual southerly slope and lies on a flood plain that feeds the Santa Ana River approximately five miles to the south (USGS 1981). The native biology of the region is difficult to reconstruct due to recent and historical agricultural, municipal, and industrial impacts. However, the project site is situated in the Upper Sonoran Life Zone, which is locally present between approximately 500 and 5,000 feet AMSL. This zone typically comprises cismontane valleys and low mountain slopes dominated by mixed coastal sage scrub and chaparral vegetation communities (Williams 2008).

CULTURAL SETTING

Prehistoric Context

The project site is located within the traditional boundaries of the Gabrielino (Bean and Smith 1978; Kroeber 1925). The Gabrielino probably first encountered Europeans when Spanish explorers reached California's southern coast during the 15th and 16th centuries (Bean and Smith 1978; Kroeber 1925). The first documented encounter, however, occurred in 1769 when Gaspar de Portola's expedition crossed Gabrielino territory (Bean and Smith 1978). Other brief encounters took place over the years and are documented in McCawley 1996 (citing numerous sources). The Gabrielino name has been attributed by association with the Spanish mission of San Gabriel, and refers to a subset of people sharing speech and customs with other Cupan speakers (such as the Juaneño/Luiseño/Ajachemem) from the greater Takic branch of the Uto-Aztecan language family (Bean and Smith 1978). Gabrielino villages occupied the watersheds of various rivers (locally including the Santa Ana) and intermittent streams. Chiefs were usually descended through the male line and often administered several villages. Gabrielino society was somewhat stratified and is thought to have contained three hierarchically ordered social classes which dictated ownership rights and social status and obligations (Bean and Smith 1978:540-546). Plants utilized for food were heavily relied upon and included acorn-producing oaks, as well as seed-producing grasses and sage. Animal protein was commonly derived from rabbits and deer in inland regions, while coastal populations supplemented their diets with fish, shellfish, and marine mammals (Boscana 1933, Heizer 1968, Johnston 1962, McCawley 1996). Dog, coyote, bear, tree squirrel, pigeon, dove, mud hen, eagle, buzzard, raven, lizards, frogs, and turtles were specifically not utilized as a food source (Kroeber 1925:652).

History

Historic-era California is generally divided into three periods: the Spanish or Mission Period (1769 to 1821), the Mexican or Rancho Period (1821 to 1848), and the American Period (1848 to present).

Spanish Period. The first European to pass through the area is thought to be a Spaniard called Father Francisco Garces. Having become familiar with the area, Garces acted as a guide to Juan Bautista de Anza, who had been commissioned to lead a group across the desert from a Spanish outpost in Arizona to set up quarters at the Mission San Gabriel in 1771 near what today is Pasadena (Beck and Haase 1974). Garces was followed by Alta California Governor Pedro Fages, who briefly explored the region in 1772. Searching for San Diego Presidio deserters, Fages had traveled through Riverside to San Bernardino, crossed over the mountains into the Mojave Desert, and then journeyed westward to the San Joaquin Valley (Beck and Haase 1974).

Mexican Period. In 1821, Mexico overthrew Spanish rule and the missions began to decline. By 1833, the Mexican government passed the Secularization Act, and the missions, reorganized as parish churches, lost their vast land holdings, and released their neophytes (Beattie and Beattie 1974).

American Period. The American Period, 1848–Present, began with the Treaty of Guadalupe Hidalgo. In 1850, California was accepted into the Union of the United States primarily due to the population increase created by the Gold Rush of 1849. The cattle industry reached its greatest prosperity during the first years of the American Period. Mexican Period land grants had created large pastoral estates in California, and demand for beef during the Gold Rush led to a cattle boom that lasted from 1849–1855. However, beginning about 1855, the demand for beef began to decline due to imports of sheep from New Mexico and cattle from the Mississippi and Missouri Valleys. When the beef market collapsed, many California ranchers lost their ranchos through foreclosure. A series of disastrous floods in 1861–1862, followed by a significant drought further diminished the economic impact of local ranching. This decline combined with ubiquitous agricultural and real estate developments of the late 19th century, set the stage for diversified economic pursuits that continue to this day (Beattie and Beattie 1974; Cleland 1941).

Ontario. In 1839, the Mexican government granted the 12,000-acre Rancho de Cucamonga to Tiburcio Tapia. Americans began settling in California in large numbers during the Gold Rush in the 1840s, and California statehood in 1850 accelerated the process. In 1881, George and William Chaffey purchased part of Rancho Cucamonga in order to develop Etiwanda, where they tested their irrigation and town planning ideas. That same year, the brothers purchased 6,000 acres west of Etiwanda, which became the cities of Ontario and Upland. In 1883, the Chaffeys added the Kincaid Ranch at the mouth of San Antonio Canyon to their holdings. They established the Ontario Land Company and subdivided the land into 10-acre farm lots, all of which had street frontage (Emick 2011:17, 20; Clucas 2009:7). The Chaffeys set aside a town site for Ontario as well as land for an agricultural college, making water available to each parcel in order to encourage farmers to settle there. George Chaffey laid out a boulevard named Euclid, which stretched from the Southern Pacific Depot to the mesa at the north end of their holdings. The Chaffey brothers sold off their acreage and left California for Australia in 1886. Charles Frankish had moved to Ontario from Riverside that year to participate in the Chaffeys' "Model Colony," and invested in undeveloped land along Euclid Avenue. He recruited a group of investors and formed the Ontario Land and Improvement Company, which bought the Chaffey brothers' land holdings in 1886. Frankish acted as Manager and later President, and actively participated in the sale of real estate as well as planning and developing Ontario. Frankish carried out many of the Chaffey brothers' ideas. He extended Euclid past the depot to the south end of the company's holdings, platting the street grid and planting trees. In 1887, he organized the

Ontario and San Antonio Heights Railroad Company (O&SA) as a subsidiary of the land company. In the 1890s, the O&SA constructed a hydro-electric plant at the mouth of San Antonio Canyon and electrified the system, making it the first electrified trolley west of Chicago. Ontario was officially incorporated as a city in 1891. In 1912, Frankish bought the land company's Ontario-area assets and formed the Frankish Company. Frankish installed electric streetlights in Ontario, established its first bank, and was involved in nearly every aspect of local commerce and planning until his abrupt departure from the area in 1927 (Ontario City Library 2014:7, 8, 17, 18; Swett 1969:13, 19).

Aviation interests were introduced to Ontario in 1923 when Waldo Waterman and Archie Mitchell established Latimer Field in the city limits. As more people moved to Ontario, its urban growth forced aviators eastward until they established an airport at the current location of Ontario International Airport. During World War II, Ontario's airport brought many to the area for its pilot training facilities. It was about this time that the citrus industry that had contributed to Ontario's nascent years of growth started to experience a broad decline. Land values increased as more and more Americans began moving westward and settling in the area. In subsequent years and decades, farmers sold their land to incoming residential developers. The population of Ontario swelled, and by the late 1950s, the city's residential area had expanded south and east. Manufacturing, defense, and dairy industries began to take the place of citrus as the local economic staples drawing in new residents. By the late twentieth century, manufacturing had waned and was replaced by service industries and warehousing. Today, the city has expanded to a population of more than 166,000 people living within a 50 square-mile area. The city's economic base is now heavily dependent on industrial and manufacturing, and with three freeways, three major railroads, and Ontario International Airport, the region is rich in transportation resources (City of Ontario 2018; Galvin & Associates 2004:40-41).

PERSONNEL

David Brunzell, M.A., RPA acted as the Project Manager and Principal Investigator for the current study. Mr. Brunzell meets the United States Secretary of the Interior Professional Qualification Standards for Archaeology and Architectural History. Mr. Brunzell completed the Department of Park and Recreation (DPR) 523 forms and wrote the technical report with contributions from BCR Consulting Archaeological Field Director Nicholas Shepetuk, B.A. BCR Consulting Archaeological Field Technicians Doug Kazmier, B.A., and George Brentner, B.A. conducted the field survey.

METHODS

This work was completed pursuant to CEQA, the Public Resources Code (PRC) Chapter 2.6, Section 21083.2, and California Code of Regulations (CCR) Title 14, Chapter 3, Article 5, Section 15064.5. The work is also completed pursuant to City Development Code Article 26: Historic Preservation. The pedestrian cultural resources survey was intended to locate and document previously recorded or new cultural resources, including archaeological sites, features, isolates, and historic-period buildings, that exceed 45 years in age within project boundaries. The project site was examined by vehicle where no sediment was visible, and using 15-meter transects where sediments were visible within or near the project alignment. This study is intended to determine whether cultural resources are located within the project boundaries, whether any cultural resources are significant pursuant to the above-referenced regulations, and to develop specific mitigation measures that will address potential impacts to existing or potential resources. Tasks pursued to achieve that end include:

- Cultural resources records search to review the results of any studies conducted within a half-mile radius of the project boundaries;
- Additional research through various local and regional resources;
- Systematic pedestrian survey of the entire accessible project site;
- California Register eligibility evaluation for resources identified;
- Development of recommendations and mitigation measures for cultural resources documented within the project boundaries, following CEQA;
- Completion of DPR 523 forms for any discovered cultural resources.

Research

Records Search. On January 23, 2024 a records search was conducted at the South Central Coastal Information Center (SCCIC) at California State University, Fullerton. This archival research reviewed the status of all recorded historic and prehistoric cultural resources, and survey and excavation reports completed within one-half mile of the project site. Additional resources reviewed included the Built Environment Resource Directory (BERD), which summarizes California Office of Historic Preservation (OHP) findings for resources listed and eligible for listing in the National Register and the California Register.

Field Survey

An intensive-level cultural resources field survey of the project site was conducted on February 8, October 14, and November 1, 2024. Cultural Resources were recorded on DPR 523 forms. Digital photographs were taken at various points within the project site. These included overviews as well as detail photographs of all cultural resources. Cultural resources were recorded per the California OHP *Instructions for Recording Historical Resources* in the field using:

- Detailed note taking for entry on DPR Forms (see Appendix B)
- Hand-held Garmin Global Positioning systems for mapping purposes
- Digital photographic overviews and photographs of all cultural resources (see Appendix D).

RESULTS

Research

Records Search. Data from the SCCIC revealed that 23 previous cultural resource studies have taken place, and 29 cultural resources have been identified within the half-mile research radius. Three of the previous studies have assessed the project site for cultural resources and three cultural resources have been identified partially within its boundaries. The records search results are summarized in Table A, and a cultural resources location figure and complete records search bibliography are provided in Appendix A.

Table B. Cultural Resources and Reports Within One Half-Mile of the Project Site

USGS 7.5 Min Quad	Cultural Resources Within One Half-Mile of Project Site	Studies W/in One-Half Mile
Guasti (1981), *Ontario* (1981)	P-36-10330: Union Pacific Railroad (0.2 Miles S) P-36-13230: Historic-Period Residence (0.3 Miles S) P-36-13231: Historic-Period Residence (0.3 Miles S) P-36-13232: Historic-Period Residence (0.4 Miles S) P-36-13233: Historic-Period Residence (Adjacent S) P-36-13234: Historic-Period Residence (0.1 Miles S) P-36-13235: Historic-Period Residence (Adjacent S) P-36-13236: Historic-Period Residence (0.35 Miles S) P-36-13237: Historic-Period Residence (Adjacent S) P-36-13238: Historic-Period Residence (0.1 Miles S) P-36-13239: Historic-Period Residence (Adjacent S) P-36-13240: Historic-Period Residence (0.1 Miles S) P-36-13241: Historic-Period Residence (0.2 Miles E) P-36-13242: Historic-Period Residence (0.3 Miles E) P-36-13243: Historic-Period Residence (0.25 Miles E) P-36-13244: Historic-Period Residence (0.45 Miles SE) P-36-15862: Historic-Period Dietz Garage (0.1 Miles SE) P-36-15979: Euclid Ave RR Properties (Adjacent to S Side) P-36-15980: Historic-Per. DeAnza Pk. Marker (0.2 Miles S) P-36-15982: Euclid Avenue* P-36-15983: Historic-Period Mule Car and Railroad Tracks* P-36-16070: Chaffey High School Auditorium (0.1 Miles W) P-36-16074: Chaffey High School (Adjacent W) P-36-16083: Historic-Period Somerset Hall (Adjacent SE) P-36-16223: Historic-Period Frankish Building (0.1 Miles S) P-36-16226: Historic-Period Ontario St. Bank (0.2 Miles S) P-36-16288: Historic-Period Post Office (0.1 Miles SW) P-36-16381: St. George Catholic Church (0.2 Miles W) P-36-16417: Historic-Period Mission Road*	SB-80, 295, 307, 324, 800, 2795, 2796, 3248, 3560, 4500, 4678*, 4683*, 5713, 5716, 5723*, 5874, 5976, 6929, 7075, 7300, 7301, 7732, 7886

*Within a portion of the project site.

Additional Research. The project alignment occupies portions of one designated historic district, one potential historic district, and two proposed historic districts (City of Ontario 2021). It is also within or adjacent to three individually designated resources, including Euclid Avenue (designated P-36-15982), the Euclid Avenue Mule Car and Tracks (designated P-36-15983), and the San Bernardino-Sonora Road (designated P-36-16417). Additional research was performed for the project site to provide the background for each of these historic-period cultural properties within its boundaries. The individual resources are recorded in detail in the Field Survey Results section, below.

Designated City of Ontario Euclid Avenue Historic District. Please note that although Euclid Avenue comprises the central feature of this district, Euclid Avenue is individually documented below as P-36-15982. The Euclid Avenue Historic District contains the portion of Euclid Avenue bounded by G Street on the South and Interstate 10 on the north. The project alignment coincides with the district from G Street in the south to the project's northern terminus near Chaffey High School. Character-defining features of the district include the 60-foot wide center landscape median, street trees, scored sidewalks, granite cobblestone curbs, street lights, and front yard setbacks and open space. It also comprises 102 properties consisting of historic buildings of which 75 are contributors to the district.

Potential Downtown West Addition Local Historic District. The City has depicted this potential district between West Flora Street on the north, West Vesta Street on the south, Vine Avenue on the east, and Beverly on the west. The project alignment coincides with this potential district along West Flora Street between Vine Avenue on the east and its western terminus at James R. Bryant Dog Park. This potential district has not been officially designated but it does contain street trees and granite cobblestone curbs, both of which have been determined character defining features of designated districts elsewhere.

Proposed Downtown Historic District. The City has depicted this proposed district between Lemon Avenue on the east, Laurel Avenue on the west, West G Street on the north, and the railroad overpass on the south. The project alignment coincides with this proposed district on Euclid Avenue (P-36-15982) from B Street in the south to the district's northern terminus at G Street. The project alignment also crosses this district on West F Street from Euclid Avenue on the east to North Laurel Avenue on the west. The Euclid Avenue Mule Car and Tracks (P-36-15983) is also located within this designated historic district. This proposed district has not been officially designated but it does contain street trees and granite cobblestone curbs, both of which have been determined character defining features of designated districts elsewhere.

Proposed Downtown West Historic District. The City has depicted this proposed district between Laurel Avenue on the east, Vine Avenue on the west, G Street on the north, and C Street on the south. The project alignment coincides with this proposed district on F Street between Laurel Avenue on the east and Vine Avenue on the west. This proposed district has not been officially designated but it does contain street trees and granite cobblestone curbs, both of which have been determined character defining features of designated districts elsewhere.

P-36-15982. Euclid Avenue is an eight-mile-long, roughly 200-foot-wide street with two lanes of traffic in both directions (Alexander 2005; City of Ontario ca. 2022). The northbound and southbound sides are divided by a 65-foot-wide landscaped median. Rows of trees, mainly pepper trees and palms, were originally planted along much of its length. The segment of the street stretching from the railroad tracks just south of Transit Street northward to 24th Street (contains the project site) was constructed between 1882 and 1884 under the supervision of George and William Chaffey. It has served as the city's main thoroughfare since that time, and has garnered international praise as an early and exceptional example of landscape architecture and irrigation colony community planning. Today, it remains a vital and celebrated route through the cities of Ontario and Upland. It was listed in both the National Register and the California Register on August 10, 2005 as occupying its current alignment between Philadelphia Street in Ontario and 24th Street in Upland (California Office of Historic Preservation 2020). It is also City of Ontario Designated Historic Landmark No. 67 (City of Ontario 2012). The segment of Euclid Avenue between G Street and Interstate 10 is a contributor to the Designated Euclid Avenue Ontario Local Historic District, and the segment between G Street and the railroad overpass is a contributor to the proposed Downtown Ontario Local Historic District. Due to its listing on the

National Register and its status as a district contributor on the local level, it qualifies as a historical resource under CEQA.

P-36-15983. The Euclid Avenue Mule Car and railroad tracks comprised a trolley car system that ran down the center of the street's median (Department of Parks and Recreation 1974; City of Ontario ca. 2020). It was first developed in 1887. Two trolly cars were used on it, each pulled by a single mule up the hill towards 24th Street. At the north end of the line, the mule would be loaded onto a trailer at the back of the car, and it would descend the hill to the south end of the track using gravity and a brake system. Electric trollies replaced the mule-powered ones in 1896. The line was completely removed sometime in the early to mid-twentieth century. A small museum featuring a reconstruction of one of the mule car trollies was placed in the Euclid Avenue median just south of its intersection with East B Street (immediately west of the project alignment). This resource was listed as a California Point of Historical Interest in 1974 (Reg. No. SBr-033), but was subsequently found ineligible for the National Register of Historic Places.

P-36-16417. The San Bernardino-Sonora Road was a northern segment of the Emigrant Trail (Department of Parks and Recreation 1973). During the period between 1822 and 1827 priests from the San Gabriel Mission travelled the road on their way to the San Bernardino Asistencia. In 1827, Jedidiah Smith used the path to make his way out of southern California. Today, West J Street is roughly in the location of the original road where it would have intersected with Euclid Avenue. However, no traces of it remain. Formal eligibility evaluation of the road has not taken place in the project vicinity.

Field Survey

BCR Consulting Archaeological Field Director Nick Shepetuk, M.A, RPA, and Staff Archaeologists Doug Kazmier, B.A., and George Brentner, B.A., completed the field survey of the project alignments on February 8, October 14, and November 1, 2024. The alignments were inspected on foot in areas that contained known or potential cultural resources. Recording the extent of designated, proposed, and potential districts was beyond the scope of the current project, although particular care was taken to note the presence of and photograph character defining features within or adjacent to proposed project installations, including the 60-foot wide center landscape median in Euclid Avenue, street trees, scored sidewalks, granite cobblestone curbs, street lights, and front yard setbacks and open space. The project site has been highly disturbed by historic-period and modern developments, including paved streets, landscaping, sidewalks, and buildings, and by the installation of utilities. Vegetation included landscaped ornamental plants such as magnolia and pepper trees. Surface visibility was limited by the presence of asphalt, sidewalk, landscaping, utilities and other installations. Each of the three previously recorded cultural resources identified during the records search were revisited during the field survey. These are described in detail below.

P-36-15982. This resource comprises a one-mile segment of Euclid Avenue between East 4th Street and East Holt Boulevard. It was recorded by B. Denton and M. Starratt on January 26, 1987 as part of a fifteen-mile-long street with eight miles of "double boulevard with two rows of pepper tree." The southern seven miles were recorded as being four lanes wide. The median was sixty-five feet wide and some of the original granite cobblestone curbs were still present. B. Parks updated the recording in 1988 and F. Smith updated in 1994. It was originally determined eligible for the National Register on October 25, 1977 under Criterion C for being a “significant example of landscape architecture, community planning and as a transportation facility” (Smith and Wlodarski 1994). It was listed in both the National Register and the California Register on August 10, 2005 as occupying its current alignment between Philadelphia Street in Ontario and 24th Street in Upland (California Office of Historic Preservation 2020). It is also City of Ontario Designated Historic Landmark No. 67 (City of Ontario 2012). The segment of Euclid Avenue between G Street and Interstate 10 is a contributor to the Designated Euclid Avenue Ontario Local Historic District, and the segment between G Street and the railroad overpass is a contributor to the proposed Downtown Ontario Local Historic District. BCR Consulting visited the resource on February 8, 2024, and found it to be in place as previously described.

P-36-15983. This resource comprises the historic-period Euclid Avenue Mule Car and Railroad Tracks. It was listed as a California Point of Historical Interest on July 8, 1974. The listing described it as a railroad track, built in 1887, that travelled along the center of Euclid Avenue, on which two mule cars traveled up and down its then eight-mile length. Electric trolley cars replaced the mule cars in 1896. This resource was listed as a California Point of Historical Interest in 1974 (Reg. No. SBr-033), but was subsequently found ineligible for the National Register of Historic Places. BCR Consulting visited a 36-foot segment of the resource that was within the project area (at the intersection of Euclid Avenue and West F Street) on February 8, 2024. There was no longer any trace of the resource within the area surveyed because the tracks had been removed and paved over.

P-36-16417. This resource comprised a 43-foot segment of the San Bernardino-Sonora Road which occupied the east side (northbound) of Euclid Avenue at its intersection with West J Street. Two separate portions of this resource have been previously recorded. In 2003, D. Ballester recorded a segment which stretched approximately one mile from the intersection of Barton Road and California Street to the intersection of Van Leuven Street and Ragsdale Road in Loma Linda. He did not identify any archaeological remains of the resource. In 2018, D. Mengers rerecorded two small segments along the same portion of the resource that Ballester recorded. He also failed to identify any evidence of the road. It was listed as a California Point of Historical Interest on January 26, 1973. BCR Consulting visited a previously unrecorded segment of the resource on February 8, 2024. No physical evidence of the road was identified within the project alignment.

SIGNIFICANCE EVALUATIONS

CEQA calls for the evaluation and recordation of historic and archaeological resources. The criteria for determining the significance of impacts to cultural resources are based on Section 15064.5 of the *CEQA Guidelines* and Guidelines for the Nomination of Properties to the California Register. Properties eligible for listing in the California Register and subject to review under CEQA are those meeting the criteria for listing in the California Register, or designation under a local ordinance. The field survey has revealed that no physical evidence of P-36-15983 (the historic-period Euclid Avenue Mule Car and Railroad Tracks) and P-36-16417 (the historic-period San Bernardino-Sonora Road) remains in place within the project alignment. As such, these two resources are considered destroyed at the locations that coincide with the project alignment. They do not require further consideration.

A segment of one historical resource (Euclid Avenue, designated P-36-15982) was identified intact within a portion of the project alignment. This resource is evaluated below.

Significance Criteria

California Register of Historical Resources. The California Register criteria are based on National Register criteria. For a property to be eligible for inclusion on the California Register or as a City Landmark, one or more of the following criteria must be met:

1. It is associated with the events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the U.S.;
2. It is associated with the lives of persons important to local, California, or U.S. history;
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, represents the work of a master, possesses high artistic values; and/or
4. It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

In addition to meeting one or more of the above criteria, the California Register requires that sufficient time has passed since a resource's period of significance to "obtain a scholarly perspective on the events or individuals associated with the resources." (CCR 4852 [d][2]). The California Register also requires that a resource possess integrity. This is defined as the ability for the resource to convey its significance through seven aspects: location, setting, design, materials, workmanship, feeling, and association.

City of Ontario Designation Criteria. The City of Ontario Development Code Chapter 4, Section 4.02.040 provides the following designation criteria for a property to qualify as a City Historic Landmark:

a. It exemplifies or reflects special elements of the City's history;
b. It is identified with persons or events significant in local, state, or national history;
c. It is representative of the work of a notable builder, designer, architect, or artist;
d. It embodies distinguishing architectural characteristics of a style, type, period, or method of construction;
e. It is a noteworthy example of the use of indigenous materials or craftsmanship;
f. It embodies elements that represent a significant structural, engineering, or architectural achievement or innovation;
g. It has a unique location, a singular physical characteristic, or is an established and familiar visual feature of a neighborhood, community or the City;
h. It is one of the few remaining examples in the City, region, state, or nation possessing distinguishing characteristics of an architectural or historical type or specimen: or
i. It has yielded, or is likely to yield, information important to the City's history or prehistory.

A neighborhood or area listed as a historic resource may be designated a "Local Historic District" by the City if the neighborhood meets the criteria for listing in the National Register or the California Register, or it meets one or more of the following criteria:

a. It is a geographically definable area possessing a concentration of historic resources or a thematically related grouping of structures that contribute to each other and are unified by plan, style, or physical development, and embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values;

b. It reflects significant geographical patterns, including those associated with different eras of settlement and growth, particular transportation modes, or distinctive examples of a park landscape, site design, or community planning;

c. It is associated with, or the contributing resources are unified by, events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;

d. It is, or the contributing resources are, associated with the lives of persons important to the City, State or National history.

Cultural resources would be subject to evaluation for the above criteria. In addition to landmark and district designation criteria, historic resources must have integrity for the time in which they are significant. The period of significance is the date or span of time within which significant events transpired or significant individuals made their important contributions. The term integrity means the authenticity of a historical resource's physical identity, as evidenced by the survival of characteristics or historic or prehistoric fabric that existed during the resource's period of significance. Only after significance has been established, should the issue of integrity be addressed. The following criteria should be considered when evaluating properties for integrity:

a. Design. Any alterations to the property should not have adversely affected the character defining features of the property. Alterations to a resource or changes in its use over time may have historic, cultural or architectural significance.

b. Setting. Changes in the immediate surroundings of the property (e.g., buildings, land use and topography) should not have adversely affected the character of the property.

c. Materials and Workmanship. Any original materials should be retained, or if they have been removed or altered, replacements have been made that are compatible with the original materials.

d. Location. The relationship between a property and its location is an important component in determining integrity. The place where the property was built and where historic events occurred is often important to understanding why the property was created or why something happened. The actual location of a historic property, complemented by its setting, is particularly important in recapturing the sense of historic events and persons. Except in a few cases, the relationship between a property and its historic associations is destroyed if the property is moved.

e. Feeling. The term “feeling” means a property's expression of the aesthetic or historic sense of a particular period. It results from the presence of physical features that, taken together, convey the property's historic character. For example, a rural historic district, such as the Guasti Winery, retaining original design, materials, workmanship and setting, will relate the feeling of agricultural life in the 19th century.

f. Association. The term “association” means the direct link between an important historic event or person, and a historic property. A property retains its association if it is the place where the event or activity occurred and is sufficiently intact to convey that relationship to an observer. Like “feeling,” association requires the presence of physical features that convey a property's historic character. For example, a Revolutionary War battlefield, whose natural and manmade elements have remained intact since the 18th century, will retain its quality of “association” with the battle. Because “feeling” and “association” depend upon individual perceptions, their retention alone is never sufficient to support eligibility. Historic resources must retain enough of their historic or prehistoric character or appearance to be recognizable as historic resources, and to convey the reasons for their significance.

Evaluation

P-36-15982 Evaluation. Euclid Avenue is listed on the National Register and the California Register. It was originally determined eligible for the National Register on October 25, 1977 under Criterion C for being a “significant example of landscape architecture, community planning and as a transportation facility” (Smith and Wlodarski 1994). It is also a City of Ontario Designated Historic Landmark. The segment of Euclid Avenue between G Street and Interstate 10 is a contributor to the Designated Euclid Avenue Ontario Local Historic District, and the segment between G Street and the railroad overpass is a contributor to the proposed Downtown Ontario Local Historic District. It is therefore considered a Historical Resource under CEQA. Based on observations made during the field visit and substantial background research, BCR Consulting has verified that Euclid Avenue remains intact within the project alignment.

RECOMMENDATIONS

BCR Consulting conducted a cultural resources assessment of the Ontario Recycled Water Distribution Project in the City of Ontario, San Bernardino County, California. During the cultural resource records search, three previously recorded resources P-36-15982, P-36-15983, and P-36-16417 were identified partially within portions of the project alignment. The field survey has revealed that no physical evidence of P-36-15983 (the historic-period Euclid Avenue Mule Car and Railroad Tracks) or of P-36-16417 (the historic-period San Bernardino-Sonora Road) remain in place within the project alignment. As such, these two resources will not be subject to any significant adverse effects under CEQA and do not require further consideration. A segment of one historical resource (Euclid Avenue, designated P-36-15982) was identified intact within a portion of the project alignment.

Notably, the project alignment also occupies portions of one designated historic district, one potential historic district, and two proposed historic districts (City of Ontario 2021).

The *Euclid Avenue Historic Property Treatment and Management Plan* (HPTMP) developed by the California Department of Transportation (Caltrans) has established Character Defining Features (CDFs) of Euclid Avenue. The Euclid Avenue HPTMP intends to "provide guidance for future improvements on Euclid Avenue in a manner consistent with SOIS [U.S. Secretary of the Interior Standards] to avoid or minimize causing an adverse effect on the historic property through implementation of project conditions" (Caltrans 2023:6). The project as described will mostly occur within existing modern pavement and will impact "physical materials of the drives (pavement, striping, lane markers) [which] do not contribute to the character of Euclid Avenue as they have been substantially altered over time and replaced as needed for ongoing maintenance" (Caltrans 2023:58). However, CDFs that will be subject impact include CDF trees that must be removed and replaced, and CDFs that *may* be subject to impacts include granite cobblestone curbs, scored sidewalk, and Vintage Lighting. Treatment recommendations for CDFs are provided below, based on the Euclid Avenue HPTMP. Treatment recommendations for portions of the project alignment outside the Euclid Avenue HPTMP area are also provided below, as appropriate.

CDF Trees. Since the final arborists report is not yet available, individual removals and replacements are not specified here. CDF trees include any in the double row of California pepper trees in the Euclid Avenue median, any silk oak trees in the Euclid Avenue Parkway, and any oaks planted in the parkway between Holt Boulevard and G Street. Based on the Euclid Avenue HPTMP, "individual trees that are severely damaged and require replacement should be replaced in kind or with a species compatible with the historic character of the historic property. Where portions of the otherwise continuous tree rows are missing due to previous alterations, it is recommended that new t[r]ees that are compatible species be planted following the original landscape design of the parkways and median, as applicable, to restore the overall visual character of the historic property. Non-original trees that are incompatible with the historic character of the property may be retained or removed" (Caltrans 2023:59).

Heritage Trees Outside the Euclid Avenue HPTMP Area. Some portions of the project site will remove heritage trees that are outside the Euclid Avenue HPTMP area. Based on Section 4.02.060 of the City Development Code, a Heritage Tree is:

> A tree of historic or cultural significance, or a tree of importance to the community due to any one of the following factors:
>
> a. It is one of the largest or oldest trees of the species located in the City, with a trunk diameter of 18 inches or greater, measured at 54 inches above natural grade; or
>
> e. It has historical significance due to an association with an historic building, site, street, person, or event; or
>
> f. It is a defining landmark or significant outstanding feature of a neighborhood or district, or typical of early Ontario landscapes, including [i] Cinnamomum camphora (Camphor Tree), [ii] Cedrus deodara (Deodar Cedar), [iii] Platanus acerifolia, [iv] Quercus suber (Cork Oak), [v] Quercus ilex (Holly Oak), or [vi] Schinus molle (California Pepper); or

g. It is a Native Tree. The term "Native Tree" means any one of the following California native tree species, which has a trunk diameter of more than 8 inches, measured at 54 inches above natural grade, including [i] Platanus racemosa (California Sycamore), [ii] Pinus torreyana (Torrey Pine), [iii] Quercus agrifolia (Coast Live Oak), [iv] Quercus engelmannii (Engelmann Oak), [v] Quercus lobata (Valley Oak), or [vi] Umbellularia californica (California Bay).

Preservation is the preferred method of mitigation for Heritage Trees. Where preservation is not feasible, the City will specify mitigation measures to reduce impacts of tree removals that are outside the Euclid Avenue HPTMP based on the results of the final arborists report, which is pending. Mitigations may include but may not be limited to:

- donation and planting of trees whose DBH are cumulatively equivalent to the tree being removed,
- monetary donation equal to the value of the tree.

Mitigations will be further specified in the arborist report.

Granite Cobblestone Curbs. Most project activities will occur in the road right of way and are not likely to result in impacts to granite cobblestone curbs. However, granite cobblestone curbs (defined as CDFs in the Euclid Avenue HPTMP) are located throughout the entire Euclid Avenue median and within much of the Euclid Avenue parkway and in other parts of the downtown project alignment. They are most likely to be impacted by staging, access, and the construction of recycled water laterals that tie new pipeline into existing infrastructure (as depicted in Figure 1). BCR Consulting recommends that the treatments from the Euclid Avenue HPTMP are appropriate throughout all portions of the downtown project alignment that contain granite cobblestone curbs. Staging, access, and construction activities should avoid granite cobblestone curbs where feasible. Where avoidance is not feasible,

> The overall design, spatial relationships, and visual character of the granite cobblestone curbs aligning the Euclid Avenue parkways [and throughout the downtown portion of the project alignment] should be preserved and maintained to the greatest extent feasible, including:
>
> - Retain existing granite cobblestone and concrete curbs throughout
> - Repair damaged concrete by patching with new that duplicates the old in strength, composition, color, and texture
> - Replace severely deteriorated or missing portions of granite cobblestone and concrete curbs in kind to match extant originals
> - Replacement cobblestone curbs should be replaced consistently with a plan developed by the City
> - When sections of modern concrete curb that replaced the original cobblestone curbs require replacement, these should be replaced with cobblestone curbs per City plan to re-establish historic continuity as much as possible
> - Do not paint the existing historic cobblestone and concrete curbs; remove paint from such features as appropriate (Caltrans 2023:46).

Scored Sidewalk. Most project activities will occur in the road right of way and are not likely to result in impacts to the scored sidewalks. However, scored sidewalk (defined as CDFs in the Euclid Avenue HPTMP) are located throughout much of the Euclid Avenue parkway and in other parts of the downtown project alignment. They are most likely to be impacted by staging, access, and the construction of recycled water laterals that tie new pipeline into existing infrastructure (as depicted in Figure 1). BCR Consulting recommends that the treatments from the Euclid Avenue HPTMP are appropriate throughout the portions of the downtown project alignment that contain scored sidewalk. Staging, access, and construction activities should avoid granite cobblestone curbs where feasible. Where avoidance is not feasible,

> The overall design, spatial relationships, and visual character of the scored concrete sidewalks along the Euclid Avenue parkways [and throughout the downtown portion of the project alignment] should be preserved and maintained to the greatest extent feasible, including:
>
> - Maintain existing sidewalk width
> - Retain extant sidewalks with historic scored concrete pattern throughout
> - Repair any damaged concrete by patching with new concrete that duplicates the old in strength, composition, color, and texture
> - Replace severely deteriorated or missing portions of historic sidewalk in kind to match the extant historic concrete sidewalks in composition, color, and texture
> - New concrete sections that emulate the old should be stamped with the new date as to be compatible with but differentiated from the old, as to clearly be a record of its time and place as a later repair (Caltrans 2023: 47).

Vintage Lighting. Most project activities will occur in the road right of way and are not likely to result in impacts to vintage lighting. However, vintage lighting (defined as CDFs in the Euclid Avenue HPTMP) is located throughout much of the Euclid Avenue parkway and median. It is most likely to be impacted by staging, access, and the construction of recycled water laterals that tie new pipeline into existing infrastructure (as depicted in Figure 1). BCR Consulting recommends that the treatments from the Euclid Avenue HPTMP are appropriate throughout the portions of the downtown project alignment that contain vintage lighting. Specifically:

> Recommended treatments for the vintage light fixtures include:
>
> - Retaining the historic King Standard lampposts, Cobra lampposts and replica lampposts surrounding the community bandstand. These existing lampposts should be retained throughout
> - Any damaged or deteriorated lampposts should be repaired and cleaned of corrosion as needed. Replace broken or missing glass within the lanterns in kind
> - For consistency, lampposts requiring replacement or new light post should conform to the standard plan developed by the City
> - Where deterioration necessitates replacement, individual lampposts should be replaced in kind. Where necessary to meet new safety requirements, compatible light fixtures should be added to the greatest extend feasible.

The resources recorded during this study and the cultural resources identified in the surrounding area during the records search indicate sensitivity for buried cultural resources within the project site. Furthermore, the project could result in impacts to Euclid Avenue HPTMP-defined CDFs within and adjacent to the project alignment. In order to reduce potential for impacts, BCR Consulting recommends that a cultural resource professional monitor all project activities to ensure that:

- accidental cultural resource discoveries are evaluated for significance, avoided, and/or mitigated according to CEQA, as appropriate, and
- avoidance and treatments to CDFs as recommended above are carried out appropriately.

The monitor would work under the direct supervision of a cultural resources professional who meets the U.S. Secretary of the Interior's Professional Qualification Standards for archaeology. The monitor would be empowered to temporarily halt or redirect construction work in the vicinity of any find until the project archaeologist can evaluate it. In the event of a new find, salvage excavation and reporting would be required. Prehistoric or historic cultural materials that may be encountered during ground-disturbing activities include:

- historic-period artifacts such as glass bottles and fragments, cans, nails, ceramic and pottery fragments, and other metal objects;
- historic-period structural or building foundations, walkways, cisterns, pipes, privies, and other structural elements;
- prehistoric flaked-stone artifacts and debitage (waste material), consisting of obsidian, basalt, and or cryptocrystalline silicates;
- groundstone artifacts, including mortars, pestles, and grinding slabs;
- dark, greasy soil that may be associated with charcoal, ash, bone, shell, flaked stone, groundstone, and fire affected rocks;
- human remains.

Following the recommendations developed in the Euclid Avenue HPTMP and as described here will preclude a significant adverse effect to any historical resources during project implementation.

Findings were negative during the Sacred Lands File search with the NAHC (see Appendix C). The City will initiate Assembly Bill (AB) 52 Native American Consultation for the project. Since the City will initiate and carry out the required Native American Consultation, the results of the consultation are not provided in this report. However, this report may be used during the consultation process, and BCR Consulting staff is available to answer questions and address concerns as necessary.

According to CEQA Guidelines, projects must determine whether the project would "directly or indirectly destroy a unique paleontological resource". The Paleontological Overview provided in Appendix E has recommended that:

> The geologic units underlying the project area are mapped as young alluvial fan deposits from the middle Holocene epoch (Morton, Miller, Cossette, and Bovard 2003). Holocene alluvial units are considered to be of high preservation value,

> but material found is unlikely to be fossil material due to the relatively modern associated dates of the deposits. However, if development requires any substantial depth of disturbance, the likelihood of reaching Pleistocene alluvial sediments would increase. The Western Science Center does not have localities within the project area or within a 1 or 2 mile radius of either project location.
>
> While the presence of any fossil material is unlikely, if excavation activity disturbs deeper sediment dating to the earliest parts of the Holocene or Late Pleistocene periods, the material would be scientifically significant. Excavation activity associated with the development of the project area is unlikely to be paleontologically sensitive, but caution during development should be observed.

If human remains are encountered during any project activities, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the NAHC, which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC.

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APPENDIX A

CULTURAL RESOURCE RECORD SEARCH BIBLIOGRAPHY

Report List

ARD2401

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
SB-00080	NADB-R - 1060080; Voided - 67-0.3	1967	CLEMENTS, THOMAS	SUMMARY OF GEOLOGY ON THE CALICO SITE, YERMO, CALIFORNIA		36-002102
SB-00295	NADB-R - 1060295; Voided - 76-1.3	1976	HAMMOND, STEPHEN R.	REPORT ON CULTURAL RESOURCES INVENTORY AND ASSESSMENT OF EUCLID AVENUE GRADE SEPARATION PROJECT	CALTRANS	36-015979
SB-00307	NADB-R - 1060307; Voided - 76-3.5	1976	HARRIS, RUTH D.	ARCHAEOLOGICAL - HISTORICAL ASSESSMENT, PROPOSED ANNEXATION TO THE CITY OF ONTARIO	SAN BERNARDINO COUNTY MUSEUM ASSOCIATION	
SB-00324	NADB-R - 1060324; Voided - 76-4.8	1976	HARRIS, RUTH D.	ARCHAEOLOGICAL - HISTORICAL RESOURCES ASSESSMENT OF AREA BOUNDED BY PHILADELPHIA STREET ON THE NORTH, BAKER AVENUE ON THE EAST, RIVERSIDE DRIVE ON THE SOUTH, AND SULTANA AVENUE ON THE WEST	SAN BERNARDINO COUNTY MUSEUM ASSOCIATION	
SB-00800	NADB-R - 1060800; Voided - 79-6.7	1979	HEARN, JOSEPH E.	ARCHAEOLOGICAL - HISTORICAL RESOURCES ASSESSMENT FOR CHINO AVENUE/WALKER AVENUE TO CUCAMONGA CHANNEL	SAN BERNARDINO COUNTY MUSEUM ASSOCIATION	
SB-02795	NADB-R - 1062795	1991	HAMPSON, R. PAUL, JAMES J. SCHMIDT, AND JUNE A. SCHMIDT	CULTURAL RESOURCE INVESTIGATION: CAJON PIPELINE PROJECT	GREENWOOD & ASSOCIATES	36-002910, 36-004252, 36-004253, 36-004255, 36-004268, 36-004271, 36-004272, 36-004411, 36-004418, 36-005361, 36-005362, 36-005568, 36-006793, 36-007076, 36-007077, 36-007078, 36-007079, 36-007080, 36-007081, 36-007082, 36-007084, 36-007085, 36-007086, 36-007087, 36-007088, 36-007089, 36-007090, 36-007091, 36-007092, 36-007093, 36-007094, 36-007095, 36-007096

Report List

ARD2401

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
SB-02796	NADB-R - 1062796	1993	MCKENNA, JEANETTE A.	CULTURAL RESOURCES INVESTIGATIONS, SITE INVENTORY AND EVALUATIONS, THE CAJON PIPELINE CORRIDOR, LOS ANGELES AND SAN BERNARDINO COUNTIES	MCKENNA ET AL	36-002257, 36-002910, 36-004252, 36-004253, 36-004255, 36-004268, 36-004271, 36-004272, 36-004411, 36-004418, 36-005288, 36-005361, 36-005362, 36-005568, 36-006509, 36-006516, 36-006699, 36-006793, 36-006810, 36-006847, 36-007076, 36-007077, 36-007078, 36-007079, 36-007080, 36-007081, 36-007082, 36-007084, 36-007085, 36-007086, 36-007087, 36-007088, 36-007089, 36-007090, 36-007093, 36-007094, 36-007095, 36-007282, 36-007294, 36-007295, 36-007296
SB-03248	NADB-R - 1063248	1994	SMITH, FRANCESCA and ROBERT WLODARSKI	HISTORIC PROPERTY SURVEY REPORT: PROVIDE HIGH OCCUPANCY VEHICLE LANES ON I-10 BETWEEN THE LOS ANGELES/SAN BERNARDINO COUNTY LINE & I-15 IN SAN BERNARDINO COUNTY, CA	MYRA L. FRANK & ASSOCIATES	
SB-03560	NADB-R - 1063560	2000	LAPIN, PHILLIPE AND CHRISTY HAMMOND	CULTURAL RESOURCE ASSESSMENT FOR PBW LA 217-01, COUNTY OF SAN BERNARDINO, CA. 19PP	LSA	
SB-04500	NADB-R - 1064500	2004	ROTENSTEIN, DAVID S.	NATIONAL HISTORIC PRESERVATION ACT SECTION 106 HISTORIC PROPERTY SURVEY: NEXTEL COMMUNICATIONS, ONTARIO WEST (CA-5772) FACILITY, ONTARIO, SAN BERNARDINO COUNTY, CA. 53PP.		
SB-04678	NADB-R - 1064678	2005	Encarnacion, Deirdre, Bai Tang, Michael Hogan, John J. Eddy, and Daniel Ballester	Historical/Archaeological Resources Survey Report: San Antonio Channel (West Edison) Recycled Water Pipeline Project in the Cities of Montclair and Ontario, San Bernardino County, California.	CRM TECH	36-015982, 36-016417
SB-04683	NADB-R - 1064683	2006	HAMMOND, CHRISTIE	HISTORIC PROPERTY SURVEY REPORT		
SB-05713	NADB-R - 1065713; OHP OTIS Report Nbr - FCC061003B	2006	Bonner, Wayne H. and Marnie Aislin-Kay	Cultural Resource Records Search Results and Site Visit for Royal Street Communications, LLC Telecommunications Facility Candidate LA0716C (Red Cross) 209 I Street, Ontario, San Bernardino County, California.	Michael Brandman Associates	
SB-05716						

Report List

ARD2401

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
SB-05723	Caltrans - ; NADB-R - 1065723	2006	Hammond, Christie	State Route 83 (Euclid Avenue), 5th Street to 4th Street, City of Ontario.	Caltrans	36-015982
SB-05874	NADB-R - 1065874; OHP OTIS Report Nbr - FCC071016B	2007	Bonner, Wayne H. and Marnie Aislin-Kay	Cultural Resource Records Search and Site Visit Results for Royal Street Communications, LLC Candidate LA07160D (1st United Methodist Church), 918 North Euclid Avenue, Ontario, San Bernardino County, California.	Michael Brandman Associate	
SB-05976	NADB-R - 1065976	2007	Wetherbee, Matthew, Sarah Siren and Gavin Archer	Cultural Resource Assessment New Model Colony East Backbone Infrastructure, City of Ontario, San Bernardino County, California.	Stantec	36-012533
SB-06929	NADB-R - 1066929	2010	Bonner, Wayne H., Sarah A. Williams, and Kathleen A. Crawford	Cultural Resources Records Search and Site Visit Results for T-Mobile USA Candidate IE24639-A (Sunkist Ground), 617 East Sunkist Street, Ontario, San Bernardino County, California	Michael Brandman Associates	
SB-07075	NADB-R - 1067075	2011	Puckett, Heather R.	Princeton, 1025 North Vine Avenue, Ontario, California 91762.	Tetra Tech, Inc	
SB-07300						
SB-07301						
SB-07732	NADB-R - 1067732	2014	Daly, Pam	Historic Resources Assessment Report of Saint George Catholic Church Building of 1923, 210 West D Street, Ontario, San Bernardino County, CA.	Daly & Associates	36-016381
SB-07886	Agency Nbr - 1067886; OHP OTIS Report Nbr - FCC_2014_0205_001	2014	Wills, Carrie D., Sarah A. Williams, and Kathleen A. Crawford	Cultural Resources Records Search and Site Visit Results for T-Mobile West, LLC Candidate IE04217A (CM217 First Methodist Church, 918 North Euclid Avenue, Ontario, San Bernardino County, California.	EAS	

Resource List

ARD2401

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-36-010330	CA-SBR-010330H	Resource Name - Union Pacific Railroad; Other - Southern Pacific Railroad; Other - West Line Basin Alignment; Other - Union Pacific Railroad Crossing at Anderson Street; Other - 19-186112	Structure, Object	Historic	AH07; HP39	1999 (S. Ashkar, Jones & Stokes Associates, Inc.); 2002 (Goodwin, R., LSA Associates, Inc.); 2008 (Harper, C.D., SWCA); 2010 (Tibbet, C., LSA Associates, Inc.); 2012 (Paul, Daniel D., ICF International)	SB-04335, SB-05495, SB-05614, SB-06291, SB-06441, SB-06720, SB-07451, SB-07666, SB-07955
P-36-013230		Resource Name - CRM Tech 1790-2	Building	Historic	HP02	2006 (Josh Smallwood, CRM Tech)	SB-05424
P-36-013231		Resource Name - CRM Tech 1790-3	Building	Historic	HP02	2006 (Josh Smallwood, CRM Tech)	SB-05424
P-36-013232		Resource Name - CRM Tech 1790-4	Building	Historic	HP02	2006 (Josh Smallwood, CRM Tech)	SB-05424
P-36-013233		Resource Name - CRM Tech 1790-5	Building	Historic	HP02	2006 (Josh Smallwood, CRM Tech)	SB-05424
P-36-013234		Resource Name - CRM Tech 1790-6	Building	Historic	HP02	2006 (Josh Smallwood, CRM Tech)	SB-05424
P-36-013235		Resource Name - CRM Tech 1790-7	Building	Historic	HP02	2006 (Josh Smallwood, CRM Tech)	SB-05424
P-36-013236		Resource Name - CRM Tech 1790-8	Building	Historic	HP02	2006 (Josh Smallwood, CRM Tech)	SB-05424
P-36-013237		Resource Name - CRM Tech 1790-9	Building	Historic	HP02	2006 (Josh Smallwood, CRM Tech)	SB-05424
P-36-013238		Resource Name - CRM Tech 1790-10	Building	Historic	HP02	2006 (Josh Smallwood, CRM Tech)	SB-05424
P-36-013239		Resource Name - CRM Tech 1790-11	Building	Historic	HP02	2006 (Josh Smallwood, CRM Tech)	SB-05424
P-36-013240		Resource Name - CRM Tech 1790-12	Building	Historic	HP02	2006 (Josh Smallwood, CRM Tech)	SB-05424
P-36-013241		Resource Name - CRM Tech 1790-13	Building	Historic	HP02	2006 (Josh Smallwood, CRM Tech)	SB-05424
P-36-013242		Resource Name - CRM Tech 1790-14	Building	Historic	HP02	2006 (Josh Smallwood, CRM Tech)	SB-05424
P-36-013243		Resource Name - CRM Tech 1790-15	Building	Historic	HP02	2006 (Josh Smallwood, CRM Tech)	SB-05424

Resource List

ARD2401

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-36-013244		Resource Name - CRM Tech 1790-16	Building	Historic	HP02	2006 (Josh Smallwood, CRM TECH)	SB-05424
P-36-015862		214 E Holt Blvd, Ontario; Dietz Garage			HP06	1987 (C. Hunt)	
P-36-015979		Euclid Ave Railroad Grade Separation Properties, Ontario; OHP Property Number - 059380					SB-00295
P-36-015980		Resource Name - DeAnza Park Marker & Anza Trail, Ontario; PHI - SBR-27	Structure, Site	Protohistoric, Historic	AP13; HP26	1973 (Kathryn Kaiser, DPR); 1986; 1987 (Bill Corrales, City of Ontario Planning)	
P-36-015982		Resource Name - Euclid Ave, Upland & Ontario; Voided - 36-018221; OHP Property Number - 092971	Structure	Historic	AH07	1979 (Vickie K. Alexander, Ontario Historic Landmarks); 1987 (Bryce Denton, City of Ontario); 1988 (Bonnie Parks, Caltrans); 1994 (Francesca Smith, Myra L. Frank & Associates)	SB-04678, SB-05723, SB-06516
P-36-015983		Resource Name - Mule Car; PHI - SBR-033	Structure	Historic	AH07	1974 (Kathryn Kaiser, DPR)	
P-36-016070		Resource Name - Chaffey High School Auditorium; Resource Name - Gardiner Spring Auditorium; Voided - 36-016128; OHP Property Number - 059736; Other - GWS Auditorium	Building, Element of district	Historic	HP01	2015 (Jeanette A. McKenna, McKenna et al.)	
P-36-016074		Resource Name - Chaffey High School; OHP Property Number - 059737	Building, District	Historic	HP15	1987 (Starratt, City of Ontario Planning)	SB-08082
P-36-016083		123 N. Euclid Ave, Ontario; Friend Block; Somerset Hall			AH15	1985 (Warner)	
P-36-016223		200 S. Euclid, Ontario; Frankish Bldg			AH15	1983 (C. Warren, M. Wormington)	
P-36-016226		300 S. Euclid, Ontario; Ontario State Bank Block				1983 (Warner)	
P-36-016288		125 W. Transit, Ontario; The Old Post Office/Company Store			AH15	1984 (Warren, Hoo)	

Resource List

ARD2401

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-36-016381		320 W D St, Ontario; St George Catholic Church			HP16	2014 (Daly & Associates)	SB-07732
P-36-016417		Other - Mission Rd, Loma Linda; Resource Name - San Bernardino-Sonora Rd; PHI - SBR-21	Site	Historic	AH07	1972; 2003 (D. Ballester); 2018 (D. Mengers, PanGIS); 2023 (David Brunzell, BCR)	SB-03732, SB-04203, SB-04365, SB-04678, SB-05420, SB-05643, SB-05973, SB-06441, SB-07183, SB-07393, SB-08323

APPENDIX B

DEPARTMENT OF PARKS AND RECREATIONS 523 FORMS

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary #
HRI#
Trinomial

Page 1 **of** 1

***Resource Name or #:** P-36-15982

*Recorded by: Douglas Kazmier, George Brentner *Date: February 8, 2024 ☐ Continuation ☑ Update

This resource comprised a one-mile segment of Euclid Avenue between E 4th Street and E Holt Boulevard. It was originally recorded by B. Denton and M. Starratt on January 26, 1987. They described it as a fifteen-mile-long street with eight miles of "double boulevard with two rows of pepper tree." The southern seven miles was recorded as being four lanes wide. The median was sixty-five feet wide and some of the original stone curbs were still present. Subsequently, B. Parks updated the recording in 1988 and F. Smith did as well in 1994. It was originally determined eligible for the National Register of Historic Places (NRHP) on October 25, 1977 under Criterion C for being a "significant example of landscape architecture, community planning and as a transportation facility" (Smith 1994). It was listed in both the NRHP and the California Register of Historical Resources on August 10, 2005. BCR Consulting visited the resource on February 8, 2024 and found it to be as previously described.

References

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1987 *Department of Parks and Recreation Site Record Forms for P-36-15982*. On file with the South Central Coastal Information Center, Fullerton, California.

Parks, Bonnie
1988 *Department of Parks and Recreation Site Record Forms for P-36-15982*. On file with the South Central Coastal Information Center, Fullerton, California.

Smith, Francesca
1994 *Department of Parks and Recreation Site Record Forms for P-36-15982*. On file with the South Central Coastal Information Center, Fullerton, California.

P36-015982

State of California
DEPARTMENT OF TRANSPORTATION
ARCHITECTURAL INVENTORY/EVALUATION FORM

Hist RES, DOE-36-94-0004-[illegible]

__ LISTED X DETERMINED ELIGIBLE
__ APPEARS ELIGIBLE __ APPEARS INELIGIBLE

Prop 092971 NR6Y1

IDENTIFICATION AND LOCATION

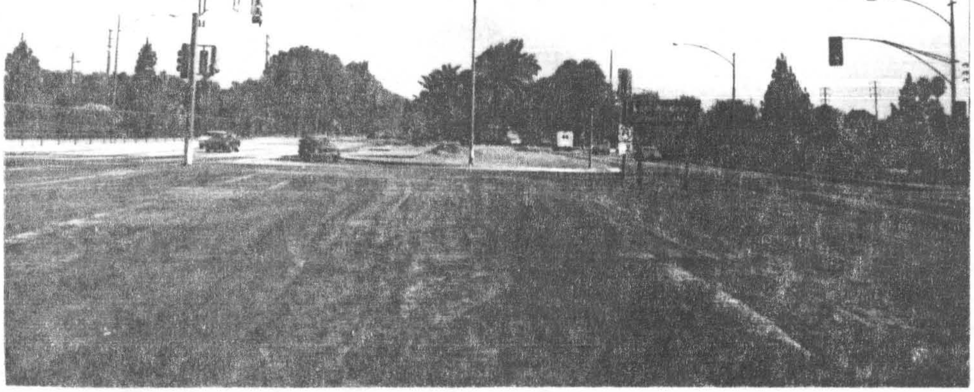
1. Historic name Euclid Avenue
*2. Common or current name same
*3. Number & street Euclid Avenue from Philadelphia to 24th Cross-corridor ____
City Ontario/Upland Vicinity only ____ Zip ____ County San Bernardino
4. UTM zone ____ A ____ B ____ C ____ D ____
5. Quad map No. ____ Parcel No. N/A Other ____

DESCRIPTION

6. Property category Structure If district, number of documented resources ____
*7. Briefly describe the present physical appearance of the property, including condition, boundaries, related features, surroundings, and (if appropriate) architectural style.

Euclid Avenue is a 200-foot wide boulevard, with a 60-foot median and two lanes of traffic on either side. The part of Euclid Avenue which was determined eligible for the National Register is located from Philadelphia Street, near Ontario's southern city limit, north through Ontario and Upland to 24th Street, Ontario's northern limit, a distance of 8.4 miles. Originally conceived as the main street of the "Model Colony," the avenue stretched a distance of 6.7 miles on a north-south axis. Within the project area, Euclid Avenue was heavily altered during construction of I-10-- the dirt median was paved in dyed, stamped concrete, the curbs and gutters replaced by standard concrete and the only trees were limited to three formal planters in the median. On the sidewalks, there are no flanking trees or landscaping. The only elements which associate the freeway overcrossing with the rest of the boulevard are the broad overall width and the wide median. Immediately north of the overcrossing, the median has grass lawn with concrete curbed planters

(continued on page A-13)



8. Planning agency
Ontario/Upland
9. Owner & address
public right-of-way
10. Type of ownership Public-local
11. Present use Public street
12. Zoning N/A
13. Threats Project Related

*Complete these items for historic preservation compliance projects under Section 106 (36 CFR 800). All items must be completed for historical resources survey information.

P36-015982

HISTORICAL INFORMATION

*14. Construction date(s) 1883 Original location ______ Date moved ______

15. Alterations & date Rail tracks, some gutters trees removed. Area at I-10 altered.

16. Architect George Chaffey, Engineer Builder unknown

17. Historic attributes (with number from list) ______

SIGNIFICANCE AND EVALUATION

18. Context for evaluation: Theme Landscape Architecture Area Ontario, Upland
Period 1880s Property type ______ Context formally developed? no.

*19. Briefly discuss the property's importance within the context. Use historical and architectural analysis as appropriate. Compare with similar properties.

Euclid Avenue was determined eligible for the National Register of Historic Places on October 25, 1977 under Criterion C, as a significant example of landscape architecture, community planning and as a transportation facility. Five blocks of arroyo stone gutters were separately determined eligible for the Register in November, 1979. The short segment of Euclid Avenue within the project area which comprises the bridge over Interstate 10 is listed in the Caltrans Structures Maintenance System- HSSALL as Category 5 "...not eligible for the National Register." The I-10 overcrossing segment of Euclid Avenue is devoid of those elements which make the other segments a significant resource to the community. The pepper and grevillea shade trees, the bridle trail and the arroyo stone gutters and curbs have each been removed or demolished along the overcrossing. The original overcrossing bridge was constructed around 1960, but was demolished toward the end of the decade to make way for a replacement bridge. The existing bridge was designed by the California Department of Transportation, (Caltrans) Structural Design department in late 1970. The current bridge has no remaining materials from the Chaffey brothers' 1883 main street, nor does it retain any parts of the earlier modern (circa 1960) bridge.

(continued on page A-13)

20. Sources
Spencer Crump, Henry Huntington and The Pacific Electric, 1978.; Charles Moore, The City Observed: Los Angeles, 1984; Route 30 F.O.E. & M.O.A.; Carey Mc Williams, Southern California: An Island In the Land, 1946.

21. Applicable National Register criteria C

22. Other recognition County Scenic Highway
State Landmark No. (if applicable) ______

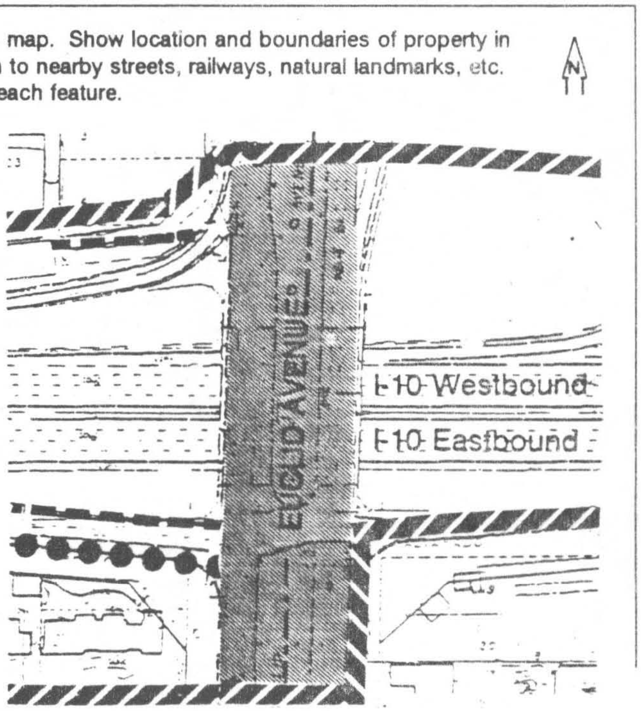
23. Evaluator ______
Date of evaluation ______

24. Survey type Caltrans

25. Survey name I-10 HOV/Segment 4B

*26. Year form prepared 1/5/94
By (name) Francesca Smith
Organization Myra L. Frank & Associates
Address 811 West Seventh Street, # 800
City & Zip LA, CA 90017
Phone (213) 627-5376

*Sketch map. Show location and boundaries of property in relation to nearby streets, railways, natural landmarks, etc. Name each feature.



P36-~~PSBR-49H~~ 015982

~~NRHP-E-89-2240~~

CHS1761-1

CALIFORNIA DEPARTMENT OF TRANSPORTATION
ARCHITECTURAL INVENTORY/EVALUATION FORM

MAP REFERENCE NO. 27
NRHP-E-94-0004,

County - Route - Postmile: SBd-30 0.0/22.8

( ) LISTED
( ) APPEARS ELIGIBLE
(xx) DETERMINED ELIGIBLE
( ) APPEARS INELIGIBLE

IDENTIFICATION

1.Common Name: Euclid Avenue

2.Historic Name: Euclid Avenue

3.Street or rural address: Euclid Avenue

City: Upland **Zip Code:** 91786 **County:** San Bernardino

4.Parcel Number: **Present Owner:** City of Upland

Address: City Hall **City:** Upland **Zip Code:**

5.Ownership Is: (x) Public ( ) Private

6.Present Use: Transportation **Original Use:** Transportation

DESCRIPTION

7a.Architectural Style: n/a

7b.The present PHYSICAL CONDITION of the site or structure and any major alterations from its original condition:

Euclid Avenue is a 200' wide divided boulevard with two lanes of roadway in each direction. The north/south alignment originally ran from the Southern Pacific Station in Ontario to 24th Street in Upland, a distance of 6.7 miles. It was later extended south through Ontario. The 60' wide median, formerly occupied by street railway tracks, is presently planted with grass in Ontario and downtown Upland, and lined on both sides with pepper trees, a few palms, and some later additions of other species. The east and west sides are planted with Eucalyptus and Grevillas. The portion between 24th Street and Philadelphia Street retains cobblestone curbs and gutters which have been covered over in other portions. This portion also retains cobblestone bridges over the gutters from the street to the properties. The "Madonna of the Trail" monument is located in the center of the median at the intersection with Foothill Boulevard.

NO PHOTO AVAILABLE

8. **Construction date**
   Estimated: ( ) **Factual:** (1883)
9. **Engineer:** George Chaffey
10. **Builder:**
11. **Approx. property size**
    Length: 8 miles **Width:** 200'
12. **Date(s) of enclosed photograph(s):**
    none

P36-015982

13.Condition: Excellent ( ) Good (x) Fair ( ) Deteriorated ( )

14.Alterations: As noted in item 7b.

15.Surroundings: Open landscape ( ) Scattered buildings ( ) Densely built-up ( )
Residential (x) Industrial ( ) Commercial (x)

16.Threats to site: None known ( ) Private Development ( ) Zoning ( ) Vandalism ( )
Public Works Project (x)

17.Is the structure: On its original site? (x) Moved? ( ) Unknown? ( )

18.Related features: As noted in item 7b.

SIGNIFICANCE

19.Historical and/or architectural Importance (including dates, events, and persons associated with the site):

Designed by George and William B. Chaffey, of Ontario, Canada, who bought up thousands of acres and laid out several towns, including Etiwanda and the "Model Colony" of Ontario, Euclid Avenue was the centerpiece for the "Model Colony." It was flanked by 66' wide parallel streets at 1/2 mile intervals and crossed by numbered streets every 1/4 mile. The "Model Colony" received considerable acclaim from the beginning, including being selected by the U. S. government as the standard for American Irrigation Colonies, in 1903, which resulted in a model of the town being built and displayed at the World's Fair in St. Louis the following year.

The Chaffey brothers planned a double track cable street railroad to be run by water power for the center of the median. However, in 1888, Charles Frankish and Godfrey Stamm, of the Ontario Land and Improvement Company, installed a "Gravity Mule Car" which was mule drawn uphill to 24th Street and, with the mule aboard, gravity-powered on the downhill run. In 1895, this was replaced by a electrified trolley. The system was perfected by E. H. Richardson, of San Antonio Heights, at the end of Euclid Avenue, who, in 1905, invented the "Hotpoint" electric iron. In the 1920s buses replaced the street cars.

Euclid Avenue was determined eligible for the National Register of Historic Places October 25, 1977.

Location sketch map
(Site and surrounding streets, roads, and prominent landmarks): See Map 3.

20.Main theme of the historic resource:
(Numbered in order of importance.)

Architecture ( ) Arts & Leisure ( )
Economic/Industrial ( ) Exploration/Settlement ( )
Government ( ) Military ( ) Religion ( )
Community Planning (1) Transportation (2)

21.Sources (Books, documents, surveys, personal interviews and their dates.)

Roger G.Hatheway and Roger D. Mason, Historic Property Survey Report: Euclid Avenue Improvement Project, City of Upland, California, Project 3645. M.S. 1986; Vicki K. Alexander, Nomination to the National Register of Historic Places, "Euclid Avenue", 1979; Federal Register, Vol. 44, No. 26, February 6, 1979.

Wallace W. Elliott, History of San Bernardino and San Diego Counties, California with Illustrations, 1883, facsimile edition,Riverside: Riverside Museum Press, 1965.

22.Date form prepared: December 20, 1988
By: Bonnie Parks
Organization: Caltrans
Address: 1120 N Street
City: Sacramento **Zip Code:** 95814
Phone: (916) 920-7680

DEPARTMENT OF PARKS AND RECREATION

HISTORIC RESOURCES INVENTORY

Ser. No. ________

HABS ____ HAER ____ NR ____ SHL ____ Loc ____

UTM: A ________ B ________

C ________ D ________

P36-015982

IDENTIFICATION

1. Common name: Euclid Avenue (Additional information) 1786-10 1761-~~201-9999~~
2. Historic name: Euclid Avenue
3. Street or rural address: North of "G" Street

City Ontario Zip ____ County San Bernardino

4. Parcel number: ____
5. Present Owner: City of Ontario Address: ____

City ____ Zip ____ Ownership is: Public X Private ____

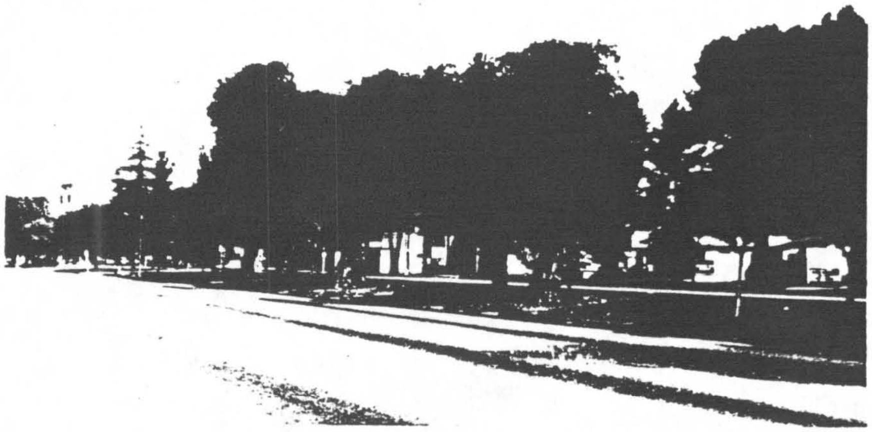
6. Present Use: ____ Original use: ____

DESCRIPTION

7a. Architectural style:

7b. Briefly describe the present *physical description* of the site or structure and describe any major alterations from its original condition:

Euclid Avenue is fifteen miles long, extending from the foothills to the north to Santa Ana Canyon to the south. Eight miles of this main thoroughfare have the double boulevard with two rows of pepper tree and the other seven miles are four lanes wide and continue south of the Ontario City boundary. Four and three-quarters (4.7) miles of the Avenue are within the current City boundaries of Ontario. The lawn carpeted center parkway is sixty-five feet wide and each of the parallel streets is sixty-six feet wide. Much of Euclid Avenue north of "G" Street has the original stone curbs, especially on the center medians. The Avenue was designed with a 2% slope to the South and each of the cross streets slope away from the Avenue.



8. Construction date:
Estimated ____ Factual 1882

9. Architect Chaffey Bros., E.J. Jaquet

10. Builder Chaffey Brothers

11. Approx. property size (in feet)
Frontage ____ Depth ____
or approx. acreage 4.7 miles

12. Date(s) of enclosed photograph(s)
11/7/83

DPR 523 (Rev. 4/79)

P36-015982

13. Condition: Excellent X Good ____ Fair ____ Deteriorated ____ No longer in existence ____

14. Alterations: ____

15. Surroundings: (Check more than one if necessary) Open land ____ Scattered buildings ____ Densely built-up ____
Residential X Industrial ____ Commercial X Other: ____

16. Threats to site: None known X Private development ____ Zoning ____ Vandalism ____
Public Works project ____ Other: ____

17. Is the structure: On its original site? X Moved? ____ Unknown? ____

18. Related features: ____

SIGNIFICANCE

19. Briefly state historical and/or architectural importance (include dates, events, and persons associated with the site.)

Euclid Avenue was originally laid out by the Chaffey brothers as one of the main features of their new Model Colony. It was staked out in 1882 and named Euclid because of the admiration George Chaffey had for the Greek mathematician. The planting of the pepper trees was done by Mr. Edward J. Jaquet along with four other men. It began in April of 1883 and continued through 1886. The eucalyptus and grevillea trees planted on the side parkways were chosen by the Chaffey brothers for their resistance to heat and drought. A 1939 census along Euclid Avenue counted 16 palm trees and 1730 pepper trees. A 1941 census by the Fire Department found 2099 trees. Euclid Avenue is a State scenic highway and has been chosen by a committee of landscape architects as one of the world's seven most beautiful boulevards and is considered as one of the seven most beautiful in America.

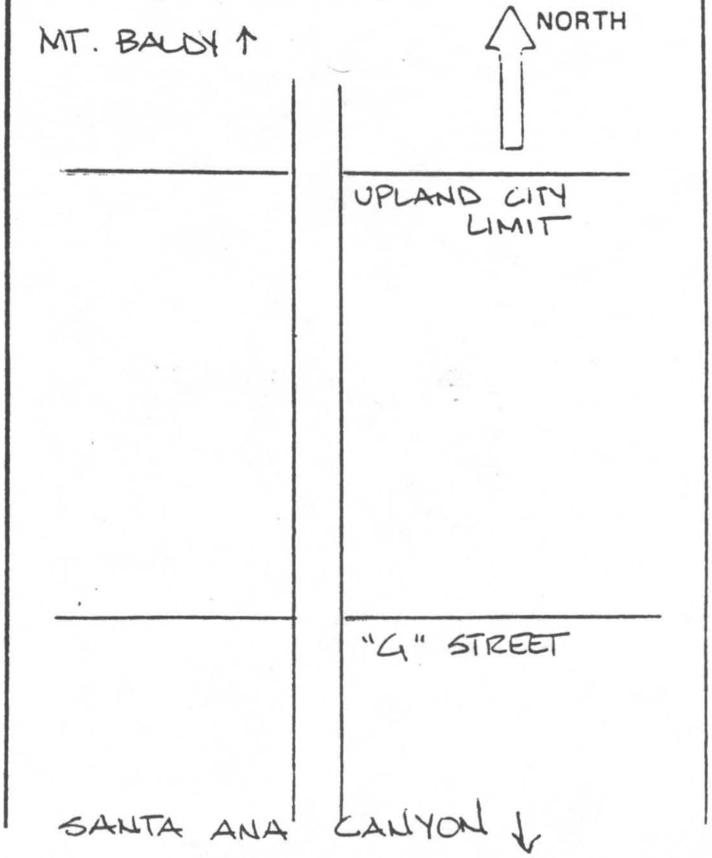
20. Main theme of the historic resource: (If more than one is checked, number in order of importance.)
Architecture ____ Arts & Leisure ____
Economic/Industrial ____ Exploration/Settlement X
Government ____ Military ____
Religion ____ Social/Education ____

21. Sources (List books, documents, surveys, personal interviews and their dates).

Model Colony Room Files

22. Date form prepared 1/26/87
By (name) Bryce Denton/Maggie Starratt
Organization City of Ontario Planning Dept.
Address: 303 East "B" Street
City Ontario Zip 91764
Phone: (714) 986-1151

Locational sketch map (draw and label site and surrounding streets, roads, and prominent landmarks):



No. 10-300 (Rev. 10-74)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

ATIONAL REGISTER OF HISTORIC PLACES INVENTORY -- NOMINATION FORM

[illegible]
of Sequence

FOR NPS USE ONLY
36-015982
RECEIVED
DATE ENTERED 8/10/2005

SEE INSTRUCTIONS IN *HOW TO COMPLETE NATIONAL REGISTER FORMS*
TYPE ALL ENTRIES -- COMPLETE APPLICABLE SECTIONS

1 NAME

NRHP-LISTED
05-000843

HISTORIC Euclid Avenue

AND/OR COMMON Euclid Avenue/State Route 83 (FAU)

2 LOCATION

STREET & NUMBER

__NOT FOR PUBLICATION

CITY, TOWN Ontario & Upland __ VICINITY OF

CONGRESSIONAL DISTRICT

STATE California CODE

COUNTY San Bernardino CODE

3 CLASSIFICATION

CATEGORY
- __DISTRICT
- __BUILDING(S)
- __STRUCTURE
- __SITE
- X OBJECT

OWNERSHIP
- X PUBLIC
- __PRIVATE
- __BOTH

PUBLIC ACQUISITION
- __IN PROCESS
- __BEING CONSIDERED

STATUS
- __OCCUPIED
- __UNOCCUPIED
- __WORK IN PROGRESS

ACCESSIBLE
- X YES: RESTRICTED
- __YES: UNRESTRICTED
- __NO

PRESENT USE
- __AGRICULTURE
- __COMMERCIAL
- __EDUCATIONAL
- __ENTERTAINMENT
- __GOVERNMENT
- __INDUSTRIAL
- __MILITARY
- __MUSEUM
- __PARK
- __PRIVATE RESIDENCE
- __RELIGIOUS
- __SCIENTIFIC
- X TRANSPORTATION
- __OTHER:

4 OWNER OF PROPERTY

NAME State of California, Department of Transportation

STREET & NUMBER 1120 N Street

CITY, TOWN Sacramento __ VICINITY OF

STATE CA 95814

5 LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC.

STREET & NUMBER

CITY, TOWN

STATE

6 REPRESENTATION IN EXISTING SURVEYS

TITLE

DATE __FEDERAL __STATE __COUNTY __LOCAL

DEPOSITORY FOR SURVEY RECORDS

CITY, TOWN

STATE

8 SIGNIFICANCE

PERIOD

__PREHISTORIC
__1400-1499
__1500-1599
__1600-1699
__1700-1799
X 1800-1899
__1900-

AREAS OF SIGNIFICANCE -- CHECK AND JUSTIFY BELOW

__ARCHEOLOGY-PREHISTORIC
__ARCHEOLOGY-HISTORIC
__AGRICULTURE
X ARCHITECTURE
__ART
__COMMERCE
__COMMUNICATIONS

X COMMUNITY PLANNING
__CONSERVATION
__ECONOMICS
__EDUCATION
__ENGINEERING
__EXPLORATION/SETTLEMENT
__INDUSTRY
__INVENTION

__LANDSCAPE ARCHITECTURE
__LAW
__LITERATURE
__MILITARY
__MUSIC
__PHILOSOPHY
__POLITICS/GOVERNMENT

__RELIGION
__SCIENCE
__SCULPTURE
__SOCIAL/HUMANITARIAN
__THEATER
X TRANSPORTATION
__OTHER (SPECIFY)

SPECIFIC DATES

BUILDER/ARCHITECT

STATEMENT OF SIGNIFICANCE

The significance of Euclid Avenue can be assigned to three areas: community planning, landscape architecture and transportation.

Euclid Avenue was conceived of by George Chaffey as a main thoroughfare from one end of the "Model Colony" of Ontario, at the Southern Pacific Railroad tracks, to the other, at the foot of San Gabriel Mountains; and around which the "Model Colony" would be laid out and centered. J. A. Alexander (1928; 48) states:

> "George Chaffey's subdivision (of Ontario) set a new standard for rural communities. Its most striking feature was that every ten-acre lot had a street or avenue frontage. From the mesa he laid out the main avenue 200 feet wide and eight (actually 6.2) miles long to the Southern Pacific Railway crossing. Parallel avenues 66 feet wide were laid out at half-mile intervals. These were intersected by numbered cross streets running east and west every quarter of a mile, thus cutting the tract into a series of eighty-acre blocks, each subdivided into eight ten-acre lots, ----."

An indication of the successfulness of George Chaffey's planned "Model Colony", was that, on January 17, 1903, it was chosen by the United States Government as the standard for American Irrigation Colonies. As such, a model of the entire colony was made by Federal engineers for exhibition at the 1904, St. Louis World's Fair.

Euclid Avenue, from the Southern Pacific tracks to 24th Street (6.2 miles), was designed and laid out in 1882 by George and William Chaffey, the founders of Ontario. Construction was begun in that same year under their direct supervision. By January 1883, four miles had been graded. Planting of the parkway trees between the Southern Pacific tracks and 4th Street began in April 1883, and was completed to 24th Street in 1884. The center parkway was planted with a double row of pepper and palm trees. Most of the palms were removed later. A single row of grevilleas and eucalyptuses was planted along the side parkways. The trees were selected because of their resistance to heat and drought and their ornamental qualities.

Determined Eligible 10/25/77; requested by DOT/FHWA; Euclid Avenue.

Item Number 7 -- continued

Immediately north of the Madonna of the Trail monument is the entrance to the bridal path which extends north to 24th Street (see Photos 8 and 10).

The only major alteration of Euclid Avenue was construction of the Interstate 10 Freeway, which passes underneath, thus making it necessary to construct an overpass linking the two severed ends of Euclid Avenue. There have been an unknown number of minor alterations (e.g., reconstruction of some of the cobblestone curbs and gutters, slight modification of the intersection at Euclid and Holt, construction of concrete slabs with benches and planters, removal of many of the cast iron lampposts, painting curbs red or yellow, etc.). None of the alterations which have occurred have significantly impaired the overall integrity of Euclid Avenue.

The setting of Euclid Avenue has not changed, except to the extent that over time buildings and structures fronting Euclid Avenue have changed. This change is reflected primarily in the different architectural styles of houses and commercial buildings fronting Euclid Avenue. The setting has been somewhat altered by the removal of significant historical, architectural, and cultural features along Euclid Avenue.

---

7 DESCRIPTION

CONDITION		CHECK ONE	CHECK ONE
☐ EXCELLENT	☐ DETERIORATED	☐ UNALTERED	☒ ORIGINAL SITE
☒ GOOD	☐ RUINS	☒ ALTERED	☐ MOVED DATE____
☐ FAIR	☐ UNEXPOSED		

DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

Historic Euclid Avenue, part of State Route 83, is a spacious treelined boulevard 200' wide and 8.4 miles long. It consists of two drives, one southbound and one northbound which are separated by a 60-foot wide center parkway and bordered by 15-foot wide sidewalks. It extends from Philadelphia (Ely) Street, near Ontario's southern City limit, north, through the Cities of Ontario and Upland to 24th Street, Upland's northern City limit.

The center parkway of Euclid Avenue from Philadelphia Street to Foothill Boulevard (Route 66) is planted to grass and trees (see Photos 1 and 6), while between Foothill and 24th Street there are only trees (see Photos 8 and 10). The center parkway trees from Philadelphia Street to the Interstate 10 Freeway are predominately peppers with some palms (original plantings - 1883) et al (see photos 1, 2, 3 and 5); from I-10 to Foothill Boulevard they are exclusively camphors; and from Foothill to 24th the center parkway trees are exclusively peppers (see Photos 8 and 10). The side parkway trees are predominately grevilleas (original plantings - 1883, 84, and 86) with some palms (original plantings - 1883) between the S.P. tracks and 4th Street.

The curbs and gutters along Euclid Avenue from Philadelphia Street to 24th Street are made of granite cobblestones and concrete (see Photo 9), except in those few places where they have been reconstructed with concrete only.

Relatively few of the old (1895?) cast iron lampposts (see Photo 4) are still in evidence along Euclid Avenue; this is because the City of Ontario is gradually replacing them with more modern lighting fixtures.

The fountain erected by George Chaffey in 1883, still stands in the middle of the center parkway at the intersection of Euclid Avenue and Emporia Streets, its original location (see Photos 2 and 3).

The Women's Christian Temperance Union (W.C.T.U.) drinking fountain and the Mule Car display are located in the center parkway between Holt (Valley) Boulevard and B Street (see Photo 5). The W.C.T.U. fountain, built in 1908, was originally located on the northwest corner of Euclid and Holt, but was subsequently moved to a local park. A local service club moved the fountain to its present location in 1975.

In the next few blocks north of B Street there are several concrete slabs with fixed benches and planters which are located in the center parkway. These were constructed by the City of Ontario to replace a number of movable benches.

The Madonna of the Trail monument is located in its original location in the center parkway at the intersection of Euclid Avenue and Foothill Boulevard (see Photo 7).

Charles Frankish was responsible for extending Euclid Avenue from the Southern Pacific tracks south to Ely (Philadelphia) Street, a distance of 2.2 miles. It was laid out, graded and planted under his personal supervision in 1886 to conform to Euclid Avenue north of the S.P. tracks.

Euclid Avenue has received widespread recognition and acclaim as an outstanding example of landscape architecture. An article in the Los Angeles Times Newspaper of October 24, 1926, stated:

> "It is a boulevard of national and even world renown and is unmatched for its beauty --- an attraction 'raved over' by every visitor to Southern California."

Ed Ainsworth reported on Euclid Avenue in his newspaper column, "El Camino Real", during the mid 1930's, that:

> "Charles Gibbs Adams, nationally known landscape architect, not long ago reported that a jury of experts, named for the purpose of selecting the world's most beautiful highways had included the Ontario thoroughfare in its list of seven."

In addition to its significance in the planning of Ontario and its subsequent renown as an outstanding example of landscape architecture, Euclid Avenue is also a transportation facility. As such, it is one of the earliest examples of a divided highway.

The Ontario and San Antonio Heights Railroad Company operated a most unusual transit system on Euclid Avenue between 1888 and 1895. It was called the "Gravity Mule Car", and consisted of small single, rail cars which were pulled up Euclid Avenue to San Antonio Heights by a pair of mules. Upon arrival at San Antonio Heights, the mules were unhitched and loaded onto an enclosed platform at the rear of the rail car for the gravity-powered-ride down to Ontario. The mule car was a unique conveyance even for its own time. It ran on track which was laid in the center parkway of Euclid Avenue, between the double row of pepper trees. The mule car railway was built by the Ontario Land and Improvement Company, the parent corporation of the Ontario and San Antonio Heights Railroad Company.

In 1895, the mule cars were replaced by electric-powered trolley cars. The"electrification" of the trolley line was done by Mr. E. H. Richardson, who invented the famous "Hotpoint" electric iron in 1905. When the trolley line was replaced by bus service, the tracks were removed and lawn planted in the center parkway.

Historic Euclid Avenue is now part of State Highway 83, running from 24th Street to south of Chino, where it enters State Route 71, a distance of some 15 miles.

In 1883, George Chaffey erected the fountain, which is still standing, in the center parkway of Euclid Avenue at Emporia Street. He did so because the neighboring community of Pomona was spreading a spurious rumor that the "Model Colony" had no water. Thus, to show that Ontario had water to spare, George Chaffey erected the fountain on Euclid Avenue, adjacent to the Southern Pacific Railroad tracks, and, as each train passed by, the fountain was turned on, shooting a large jet of water into the air for the edification of the passengers, especially those from Pomona.

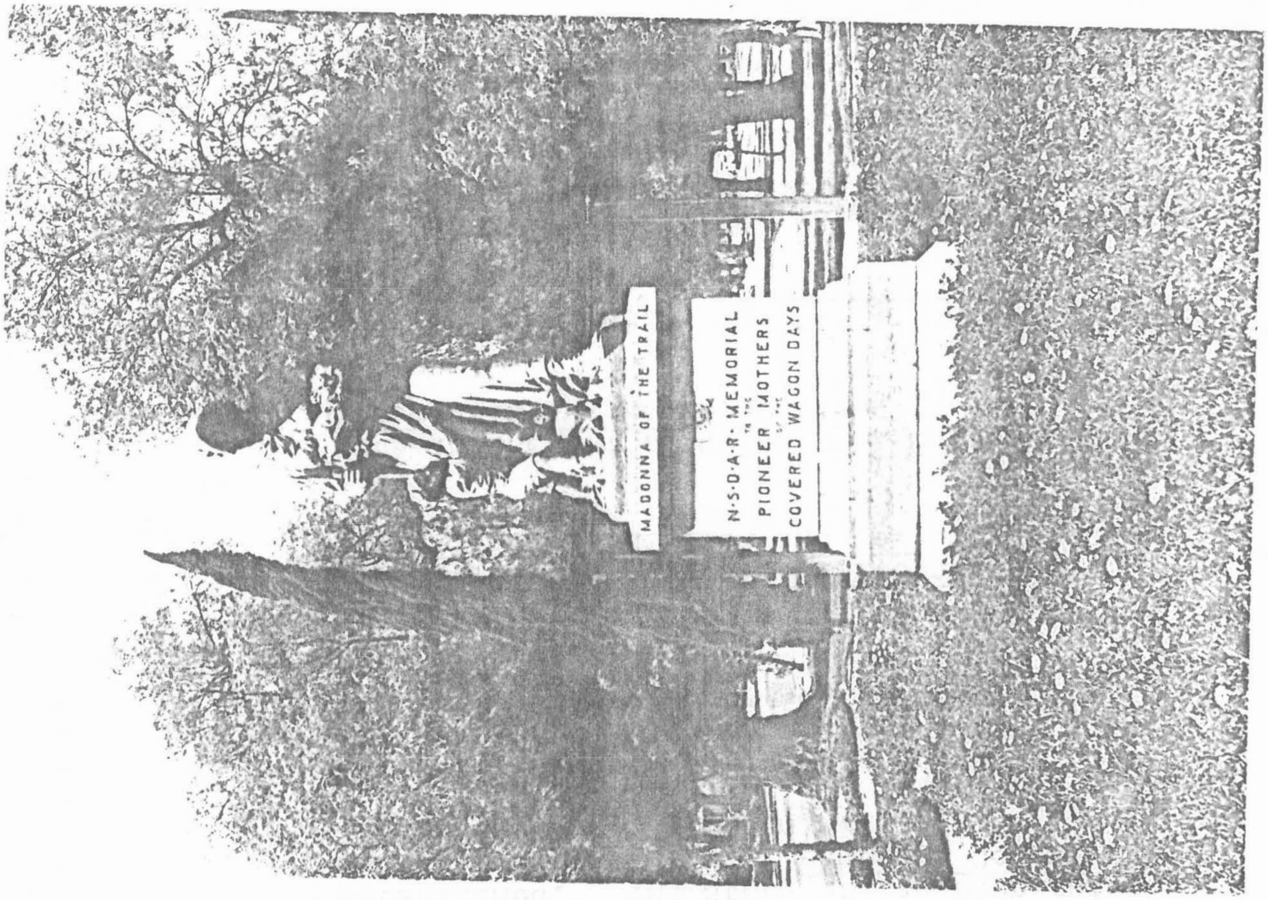
In 1952, when Ontario's City Manager planned to raze the fountain, long-time residents of Ontario together with the Native Sons and Daughters of the Golden West opposed the action so strongly that the City abandoned its plan. Instead of being razed the fountain was renovated and fenced off. The fence was subsequently removed and the fountain's basins filled with cement to prevent accidental downings. Since that time the City has shut off the fountain's water. Grace Canada Gilman, internationally known artist and former Ontario resident, has lauded the fountain's classic lines and made it the subject of at least one of her paintings.

The Madonna of the Trail monument to the Pioneer Mothers was dedicated by a then obscure federal judge from Missouri -- Harry S. Truman.

The Anza Trail, over which Juan Bautista de Anza, in 1774, led the first overland party into California, crosses Euclid Avenue just below Mission Boulevard, old Route 60.

George Chaffey, who conceived of Euclid Avenue and, with his brother, turned that conception into a reality, is the person most significantly associated with it. He founded the towns and cities of Etiwanda (1882), Ontario (1882), Mexicali (1901), Calexico (1901), Imperial (1901), and Manzanar (1905) in California and the City of Mildura, Australia (1888), all in connection with his many irrigation projects.

Anonymous	
1952	The Daily Report, Ontario. December 11, 14 and 27.
1953	The Daily Report, Ontario. January 4
1957	"Euclid Avenue, Ontario, U.S.A.," "Famous Gravity Mule Car," and "First Hydro-Electric Power." Official Program, Ontario Diamond Jubilee. Mexican-American Civic Committee, Ontario.
1958	"1887-1888, San Bernardino County Shares in the Boom of the Eighties, and the Pattern of Many of its Present Valley Towns and Cities is Established." The Story of San Bernardino County. Pioneer Title Insurance Company, San Bernardino, California.
1963	The Daily Report, Ontario.
N.D.	The Daily Report, Ontario. Various.
Alexander, J. A. 1928	The Life of George Chaffey: A Story of Irrigation Beginnings: California and Australia. MacMillian and Co. LTD, London.
Frankish, Charles 1888	Ontario the Gem of Colonies. Ontario Observer Steam Printing House, Ontario.
Frankish, Leonard 1961	"Out of the West." The Daily Report, Ontario. March 23.
1962	"Out of the West." The Daily Report, Ontario. February 18 and October 28.


MADONNA OF THE TRAIL
N·S·D·A·R· MEMORIAL
TO THE
PIONEER MOTHERS
OF THE
COVERED WAGON DAYS


NO LEFT TURN

9 MAJOR BIBLIOGRAPHICAL REFERENCES

See continuation sheet

10 GEOGRAPHICAL DATA

ACREAGE OF NOMINATED PROPERTY

UTM REFERENCES

A ZONE EASTING NORTHING

B ZONE EASTING NORTHING

C

D

VERBAL BOUNDARY DESCRIPTION

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE	CODE	COUNTY	CODE
STATE	CODE	COUNTY	CODE

11 FORM PREPARED BY

ONTARIO HISTORIC LANDMARKS SOCIETY, INC.
P. O. BOX 1493
ONTARIO, CALIFORNIA 91762

NAME / TITLE
Vickie K. Alexander, President

3-7-79

ORGANIZATION
Ontario Historic Landmarks Society, Inc.

DATE

STREET & NUMBER
9530 Benson

TELEPHONE
(714) 983-1624

CITY OR TOWN
Montclair

STATE
CA 91761

12 STATE HISTORIC PRESERVATION OFFICER CERTIFICATION

THE EVALUATED SIGNIFICANCE OF THIS PROPERTY WITHIN THE STATE IS:

NATIONAL ___ STATE ___ LOCAL ___

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

STATE HISTORIC PRESERVATION OFFICER SIGNATURE

TITLE

DATE

FOR NPS USE ONLY

I HEREBY CERTIFY THAT THIS PROPERTY IS INCLUDED IN THE NATIONAL REGISTER

DATE

DIRECTOR, OFFICE OF ARCHEOLOGY AND HISTORIC PRESERVATION

ATTEST:

DATE

KEEPER OF THE NATIONAL REGISTER

In 1882, he helped create the Holt-Chaffey Mutual Water Company system, which was used as a model for nearly all future irrigation companies in California. Etiwanda was the first irrigation settlement in California to be watered by a cement pipeline system. It was also the first place on the Pacific Slope at which hydroelectric current was developed. George Chaffey was the first engineer in Western America to file on mountain streams for electric current. In 1882, he successfully organized the Los Angeles Electric Company and made Los Angeles the first City in the United States, if not the world, to be lighted exclusively by electricity. In that same year, he installed a private telephone line from San Bernardino to Etiwanda. As such, it was the first long distance telephone line in California and the longest telephone line in the world.

During 1900-01, George Chaffey accomplished the greatest feat of his illustrious career - construction of the Imperial Canal. This 70-mile canal was constructed from the Colorado River through Mexico and into the Imperial Valley of California. It was completed in May of 1901, bringing the first water for irrigation purposes to the arid Salton Sink, which has since become an important agricultural area.

folders for each Historic

South Pasadena. *BUENA VISTA DISTRICT*, 917–1005 Buena Vista St.,

South Pasadena. *OAKLAND DISTRICT*, Oakland Ave.,

South Pasadena. *RHODES HOUSE*, 365 W. Bellevue Dr.,

South Pasadena. *WEST BELLEVUE DRIVE DISTRICT*, Portions of Naverley Dr., Bellevue Dr., Palmetto Dr., and Pasadena Ave.,

los angeles county

Los Angeles. *BALDWIN PARK CITY HALL (CENTRAL SCHOOL), BALDWIN PARK PASADENA, VISTA DEL ARROYA COMPLEX*, Bounded by Arroyo Blvd, and Defender's Pkwy, and Grand Ave. (63.3),

madera county

ARCHEOLOGICAL SITES, Buchanan Dam at Chowchilla River,

ARCHEOLOGICAL SITES: MAD-289 AND MAD-293, near Kerckhoff Lake (63.3),

Hensley Dam vicinity. *CA-MAD 176–185*,

Hensley Dam vicinity. *LOWER CHINA CROSSING*,

Hensley Dam vicinity. *NEW SITE*,

Sierra National Forest. *BASS LAKE ARCHEOLOGICAL SITES*,

marin county

Point Reyes. *P. E. BOOTH COMPANY PIER*, Point Reyes National Seashore,

Point Reyes. *POINT REYES LIGHT STATION*,

mariposa county

OLD COULTERVILLE ROAD AND TRAIL, Yosemite National Park,

WAWONA ARCHEOLOGICAL DISTRICT, Yosemite National Park,

mendocino county

Mendocino National Forest. *STICK LAKE PREHISTORIC SITE, CASE NO. 05-08-67*,

Mendocino National Forest. *UPPER LEACH LAKE PREHISTORIC SITE, CASE NO. 05-08-67*,

modoc county

Alturas vicinity. *RAIL SPRING*, About 30 mi. (48 km) N. of Alturas in Modoc National Forest,

Fender Flat vicinity. *JOHNSON SLOUGH SITE (SITE 1)*,

Tulelake vicinity. *LAVA BED NATIONAL MONUMENT ARCHEOLOGICAL DISTRICT*, S. of Tulelake,

mono county

Inyo National Forest. *ARCHEOLOGICAL SITE CA-MNO-584*,

monterey county

Big Sur. *POINT SUR LIGHT STATION*,

Salinas. *BUNN, THOMAS M., HOUSE*, 425 Blanco Rd.,

Salinas. *SURBECK, MARGARET HART, HOUSE*, 322 Blanco Rd. (63.3),

Salinas. *275 BLANCO ROAD HOUSE*, (63.3),

napa county

ARCHEOLOGICAL SITES 4-NAP-14, 4-NAP-261, Napa River Flood Control Project,

orange county

Cooks Corners vicinity. *ARCHEOLOGICAL DISTRICT*, (63.3),

plumas county

Mineral. *HAY BARN AND COOK'S CABIN, DRAKESBAD (SIFFORD FAMILY) GUEST HOUSE*, Lassen Volcanic National Park,

Mineral. *SUMMIT LAKE RANGER STATION*, Lassen Volcanic National Park,

Plumas National Forest. *ARCHEOLOGICAL SITES 05-11-55-11, 28, 33, 43, 44*,

riverside county

Blythe vicinity. *SUNDESERT, ARCHEOLOGICAL DISTRICT A*, (63.3),

Blythe vicinity. *SUNDESERT, ARCHEOLOGICAL DISTRICT E*, (63.3),

Blythe vicinity. *SUNDESERT, ARCHEOLOGICAL DISTRICT F*, (63.3),

La Quinta vicinity. *ARCHEOLOGICAL DISTRICT LA QUINTA EVACUATION CHANNEL*, Covers a 240 ft. easement from La Quinta to the white water at Indio,

Twentynine Palms. *COTTONWOOD OASIS (COTTONWOOD SPRINGS)*, Joshua Tree National Monument,

Twentynine Palms. *LOST HORSE MINE*, Joshua Tree National Monument,

sacramento county

SACRAMENTO RIVER BANK PROTECTION PROJECT, SITE 1, Sacramento River,

Sacramento. *SACRAMENTO WEIR*,

Sacramento. *TOWER BRIDGE*, M St. over Sacramento River, (also in Yolo County)

san barbara county

Santa Barbara vicinity. *POINT CONCEPTION LIGHT STATION*,

san bernadino county

Highland. *HIGHLAND HISTORIC DISTRICT*, Bounded by AT & SF RR. line, Pacific St., Church Ave., rear lots of Main St. and Cole Ave. (63.3),

Steam Well vicinity. *STEAM WELL PETROGLYPH ARCHEOLOGICAL DISTRICT*,

san bernardino county

Johannesburg. *TRONA PINNACLES RAILROAD CAMP*,

Ontario. *EUCLID AVENUE RAILROAD GRADE SEPARATION-PROPERTIES*,

Redlands vicinity. *MARSHALL HOUSE*, 27297 Barton Rd.,

Redlands vicinity. *WHITE HOUSE*, 26849 Barton Rd.,

San Bernardino. *SQUAW SPRING WELL ARCHEOLOGICAL DISTRICT*,

Twentynine Palms. *TWENTYNINE PALMS OASIS*, Joshua Tree National Monument,

san diego county

Campo. *CAMPO RAILROAD STATION*,

Escondido vicinity. *CALTRANS PROJECT (ARCHEOLOGICAL SITE 4-SDI-4558)*,

North Island. *CAMP HOWARD, U.S. MARINE CORPS*, Naval Air Station,

North Island. *ROCKWELL FIELD*, Naval Air Station,

San Diego. *MARINE CORPS RECRUIT DEPOT*, Barnett Ave.,

San Diego vicinity. *ARCHEOLOGICAL SITES SDI 4807, 4808, 4806, 4556*,

san francisco county

San Francisco. *ARONSON HISTORIC DISTRICT*, 87 3rd St., 693 and 710 Mission St.,

San Francisco. *FIRE BOAT HOUSE*, The Embarcadero (63.3),

San Francisco. *FLEISHHACKER POOL*, SE corner of Sloat Blvd. and the Great Hwy. (63.3),

San Francisco. *FOREST HILL STATION*,

San Francisco. *JESSIE HOTEL*, 179–181 Jessie St.,

San Francisco. *MERCANTILE BUILDING*, 710 Mission St.,

San Francisco. *NORTH POINT PARK; MARINA (EAGLE CAFE AND PIER FACADES)*, San Francisco northern waterfront,

San Francisco. *PIER 16 AND SHED*, The Embarcadero (63.3),

San Francisco. *SALVATION ARMY BUILDING*, 360 4th St.,

San Francisco. *SAN FRANCISDO SEAWALL*, The Embarcadero (63.3),

San Francisco. *ST. PATRICK CHURCH*, 748 Mission St.,

San Francisco. *THE FEDERAL BUILDING*, 100 McAllister St.,

San Francisco. *TWIN PEAKS TUNNEL*,

san luis obispo county

New Cuyana vicinity. *CALIENTE MOUNTAIN AIRCRAFT LOOKOUT TOWER*, 13 mi. (20.8 km) NW of New Cuyana off Rte. 166,

San Luis Obispo. *SAN LUIS OBISPO LIGHT STATION*,

san mateo county

Hillsborough. *POINT MONTANA LIGHT STATION*,

santa barbara county

ARCHEOLOGICAL SITES: CA-SBA-534; CA-SBA-551; CA-SBA-654; CA-SBA-678; CA-SBA-680; CA-SBA-682; CA-SBA-932; CA-SBA-1109; CA-SBA-1128; CA-SBA-1129, CA-SBA-1145; FS 05-14-59-45A; FS 05-14-59-45B, (63.3),

CA-SBA-539, (63.3),

CA-SBA-670, (63.3),

CA-SBA-931, (63.3),

SITE SBA-189, Near Veronica Springs Rd. (63.3),

U.S. COAST GUARD RESCUE STATION AND LOOKOUT TOWER, Venderberg Air Force Base (63.3),

Santa Barbara. *0*, Santa Monica Creek,

Santa Barbara. *S. P. RAILROAD DEPOT*, W of State St. (63.3),

Santa Barbara. *SANTA BARBARA TURN OF THE CENTURY ARCHITECTURAL DISTRICT*, Roughly bounded by Canon Perdido, Hwy. 101 and Cota and Bath Sts. (63.3),

Santa Barbara. *111 GUTIERREZ ST.*, (63.3),

Santa Barbara. *17 W. HALEY ST.*, (63.3),

Santa Barbara. *208 PALM ST.*, (63.3),

Santa Barbara. *212 PALM ST.*, (63.3),

Santa Barbara. *217 STATE ST.*, (63.3),

Santa Barbara. *23 W. HALEY ST.*, (63.3),

Santa Barbara. *315 CASTILLO ST.*, (63.3),

Santa Barbara. *315 STATE ST.*, (63.3),

Santa Barbara. *317 CHAPALA ST.*, (63.3),

Santa Barbara. *324–330 STATE ST.*, (63.3),

Santa Barbara. *333 ANACAPA ST.*, (63.3),

Santa Barbara. *409 STATE ST.*, (63.3),

Santa Barbara. *412 W. MONTECILO ST.*, (63.3),

Santa Barbara. *435 CHAPALA ST.*, (63.3),

Santa Barbara. *501 CHAPALA ST.*, (63.3),

Santa Barbara vicinity. *ARCHEOLOGICAL SITE CA-SBA-1437*, Los Padres National Forest (63.3),

Santa Barbara vicinity. *ARCHEOLOGICAL SITE CA-SBA-1444*, Los Padres National Forest (63.3),

Santa Barbara vicinity. *ARCHEOLOGICAL SITE CA-SBA-822*, Los Padres National Forest (63.3),

Santa Barbara vicinity. *SITE CA-SBA-1325*,

santa clara county

Coyote. *THE JOHNSON HOUSE COMPLEX*, Monterey Rd. (63.3),

Coyote vicinity. *THE DIARY*, (63.3),

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary #
HRI#
Trinomial

Page 1 **of** 1

***Resource Name or #:** P-36-15983

*Recorded by: Douglas Kazmier and George Brentner
*Date: February 22, 2024
☐ Continuation ☑ Update

This resource comprised a 36-foot segment of the historic-period Euclid Avenue mule car line. It was listed as a California Point of Historical Interest on July 8, 1974. This listing described it as a railroad track, built in 1887, that travelled along the center of Euclid Avenue, on which two mule cars traveled up and down its then eight-mile length. Electric trolley cars replaced them in 1896. BCR Consulting visited a 36-foot segment of the resource that was within the project area (at the intersection of Euclid Ave and W F St) on February 8, 2024. There was no longer any trace of the resource within the area surveyed because the tracks had been removed and paved over.

References

Department of Parks and Recreation
1974 Mule Car, listed in *California Points of Historical Interest*. California State Historic Preservation Office.

STATE OF CALIFORNIA—THE RESOURCES AGENCY
EDMUND G. BROWN JR., Governor

DEPARTMENT OF PARKS AND RECREATION
P.O. BOX 2390
SACRAMENTO 95811
(916) 445-8006

September 27, 1979

San Bernardino County ~~Historical Society~~ Museum
446 Chestnut Avenue
Redlands, CA 92373

Euclid Avenue
State Route 83
Ontario & Upland

The National Register of Historic Places Program is administered in California by the State Office of Historic Preservation. The property indicated above has been submitted for the Register.

☒ The State Historical Resources Commission will consider this property and make a judgment as to whether or not it meets the criteria on November 9, 1979 at 9:00 am. in City Council Chambers, 3900 Main Street, Riverside, California

☐ As the unit of local government containing the property, your comments on the significance of this property would be appreciated no later than one week prior to the next meeting of the State Historical Resources Commission.

☒ As your organization has been identified as having an interest in historic preservation in this area, we would appreciate your comments on the significance of the property no later than one week prior to the next meeting of the State Historical Resources Commission.

☐ The State Historical Resources Commission recommended the nomination of the property to the National Register. It will be presented to the State Historic Preservation Officer for formal nomination. The final decision will be made by the Keeper of the National Register, U. S. National Park Service, Washington, D.C. 20240.

☐ The property was placed on the National Register ____________

Placement on the National Register affords a property the honor of inclusion in the nation's official list of cultural resources worthy of preservation and provides a degree of protection from adverse effects resulting from federally funded or licensed projects. Registration provides a number of incentives for preservation of historic properties, including special building codes to facilitate the restoration of historic structures, federally guaranteed loans for the rehabilitating of residential properties, grants for restoration, and certain tax advantages. There are no restrictions placed upon a private property owner with regard to normal use, maintenance, or sale of a property listed in the National Register; however, proposals to demolish registered properties may require a standard review in compliance with local ordinances or the California Environmental Quality Act. In addition, certain provisions of the Tax Reform Act of 1976 relate directly to the demolition and replacement of structures listed in the National Register.

Sincerely yours,

Knox Mellon

Dr. Knox Mellon
State Historic Preservation Officer

DPR 548 (2/78)

P36-015983

STATE OF CALIFORNIA—RESOURCES AGENCY
DEPARTMENT OF PARKS AND RECREATION

POINT OF HISTORICAL INTEREST

DO NOT WRITE IN THIS BLOCK
Reg. No. SBr-033
Date 9-13-74
By

County San Bernardino
Name Mule Car
Location Ontario

Historical Significance:

The Cities of Ontario and Upland were developed by the Chaffey Brothers in 1882. Connecting the two cities was a very wide north/south street named Euclid Avenue. This 100' wide avenue extended from the San Gabriel Mountains to the Valley of Chino in a distance of approximately eight miles.

As the land along Euclid Avenue sold quickly, need for transportation developed. Mr. J. H. Tays, mining man from Mexico, developed the historic Mule Car transportation system from those he had seen in operation in the mines in Mexico.

Railroad tracks were laid and two mule cars built in 1887. The mules would pull the car north up Euclid Avenue and would be placed on a small car behind the trolley car to rid back down hill.

In 1896, the mules were replaced by electricity.A replica of the original Ontario & San Antonio Heights R.R. Co.-Mule Car Trolley, has now been placed on exhibit at Euclid Avenue and B. Streets in Ontario.

THIS POINT OF HISTORICAL INTEREST IS NOT A STATE REGISTERED HISTORICAL LANDMARK.

RECOMMENDED: Nancy E. Smith
Signature—Chairman, County Board of Supervisors
Date JUL -8 1974

APPROVED: Kathryn H. Kaiser
Signature—Chairman, Historical Landmarks Advisory Committee
Date September 5, 1974

DPR-147 (4-66)

68355-768 4-66 5M TRIP ② OSP

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary #
HRI#
Trinomial

Page 1 **of** 1

***Resource Name or #:** P-36-16417

*Recorded by: Douglas Kazmier and George Brentner *Date: February 8, 2024 ☐ Continuation ☑ Update

This resource comprised a 43-foot segment of the San Bernardino-Sonora wagon road which occupied the east side (northbound) of Euclid Avenue at its intersection with West J Street. Two separate portions of this resource have been previously recorded. In 2003, D. Ballester recorded a segment which stretched approximately one mile from the intersection of Barton Road and California Street to the intersection of Van Leuven Street and Ragsdale Road in Loma Linda. He did not identify any archaeological remains of the resource. In 2018, D. Mengers rerecorded two small segments along the same portion of the resource that Ballester recorded. He also failed to identify any evidence of the road. It was listed as a California Point of Historical Interest on January 26, 1973. BCR Consulting visited a previously unrecorded segment of the resource on February 8, 2024 and found it to be as previously described in Loma Linda. No physical evidence of the road was identified.

References

Ballester, Daniel
2003 *Department of Parks and Recreation Site Record Forms for P-36-16417*. On file with the South Central Coastal Information Center, Fullerton, California.

Department of Parks and Recreation
1973 San Bernardino-Sonora Road, Ontario, listed in *California Points of Historical Interest*. California State Historic Preservation Office.

Mengers, D.
2018 *Department of Parks and Recreation Site Record Forms for P-36-16417*. On file with the South Central Coastal Information Center, Fullerton, California.

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # P36-016417
HRI #
Trinomial

Page 1 of 3
Recorded by: D. Mengers, PanGIS, Inc.
☐ Continuation ■ Update

***Resource Name or #: P36-016417**
Date: 15 February, 2018

A portion of this resource was visited as part of Southern California Edison's (SCE) West of Devers Upgrade Project (WODUP) in July 2015. This resource is the historical location of the San Bernardino-Sonora wagon road, a branch of the Emigrant Trail, in use between 1827 and 1870. The road, listed as a California Point of Historical Interest, is no longer extant. As a main east-west corridor, it was replaced by the current alignment of Mission Road as early as 1870. Recorded in 2003, no archaeological remains related to the road have been discovered (Ballester).

The 2015 field visit was conducted within the area that this resource and the project areas intersected. These areas have been heavily disturbed by housing, road, and business construction. This field visit concluded in agreement with the previous 2003 Ballester report. No archaeological remains relating to the wagon road were observed within project area.

Figure 1. Mapped location of P36-016417 with Towers in background, facing east (Google Maps)

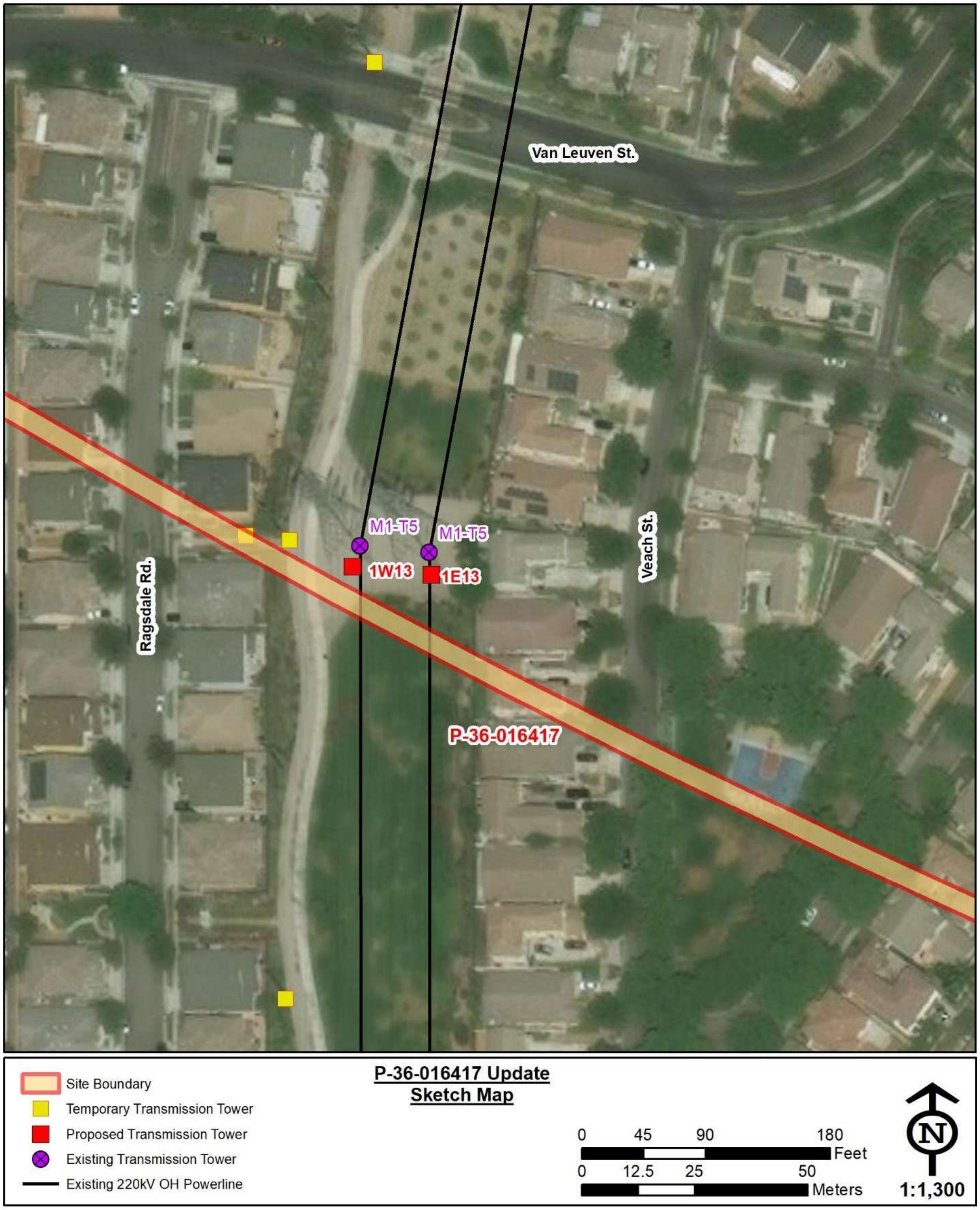
Figure 2. Mapped location of P36-016417, facing west north-west (Google Maps)

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # P36-016417
HRI #
Trinomial PBSR-1H

Page 2 of 3
Recorded by: D. Mengers, PanGIS, Inc.
☐ Continuation ■ Update

***Resource Name or #: P36-016417**
Date: 15 February, 2016



P-36-016417 Update
Sketch Map

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # P36-016417
HRI #
Trinomial PBSR-1H

Page 3 of 3
Recorded by: D. Mengers, PanGIS, Inc.
☐ Continuation ■ Update

***Resource Name or #: P36-016417**
Date: 15 February, 2016

update 5/09

State of California--The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # 36-016417 H
HRI #
Trinomial PBSR-1H(Update)

Page 1 **of** 2 **Resource name or #** (Assigned by recorder)

Recorded by Daniel Ballester ***Date** May 19, 2003 ____ Continuation √ Update

To recap, the San Bernardino-Sonora Road is currently listed as a California Point of Historic Interest, and thus meets CEQA's definition of a "historical resource." This historic wagon road was abandoned at least by the 1870s, leaving no identifiable archaeological remains in the area. Its successor, Mission Road or Cottonwood Row, as it was known in historic times, has served the same function since then, at least locally (Fig. 1). As the focal point of much of the settlement and development activities in the vicinity from the 1870s to the 1950s, Mission Road has become the centerpiece of the City-designated historic district bearing its name. As such, it is considered a primary contributor to the historic significance of the Mission Road Historic District.

Figure 1. Mission Road (San Bernardino/Sonora Road)

Report Citation:

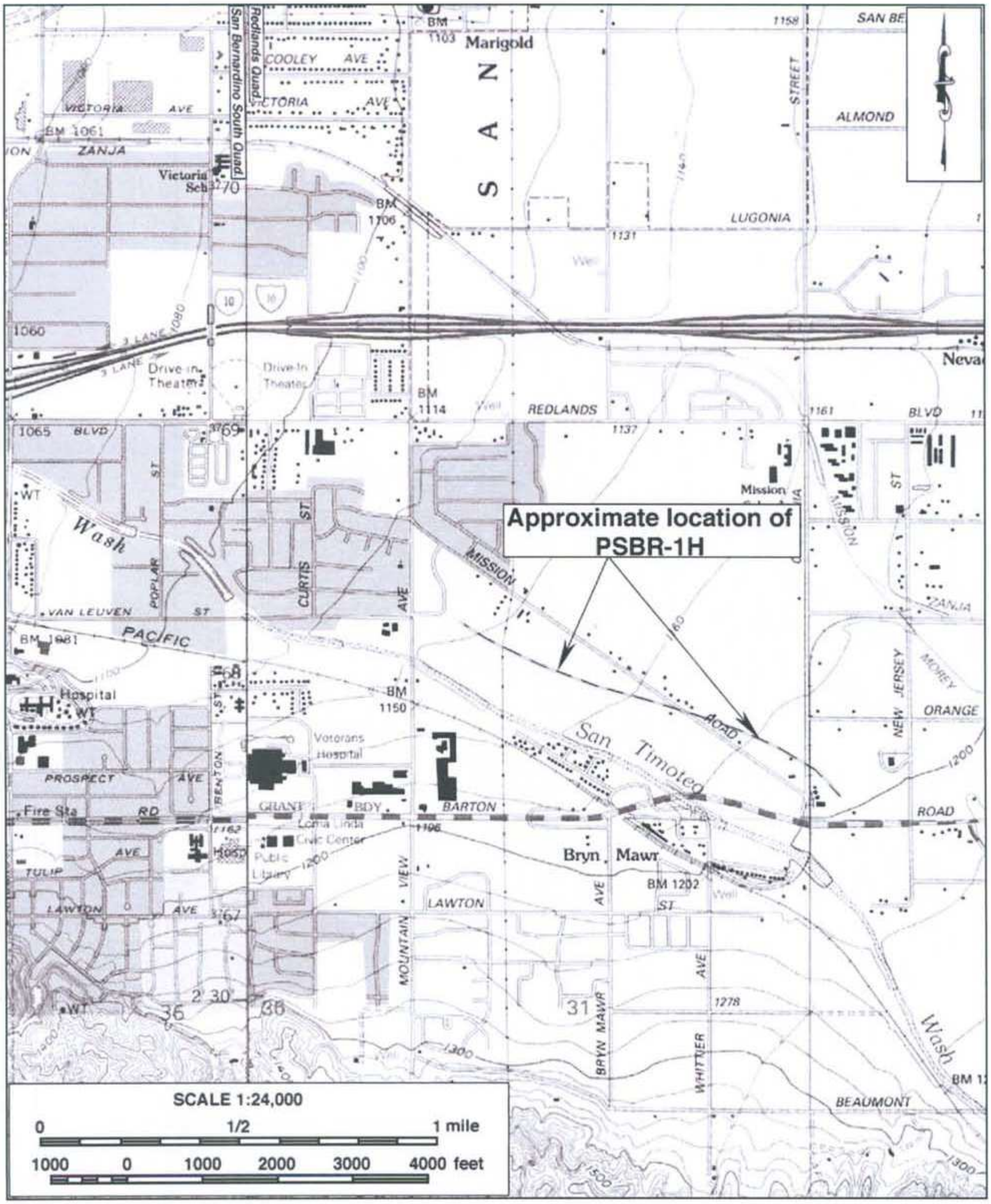
Tang Tom, Michael Hogan, Mariam Dahdul, Casey Tibbet, and Daniel Ballester (2003): Historical/Archaeological Resources Survey Report: University Village Project, City of Loma Linda, San Bernardino County, California. On file, Archaeological Information Center, San Bernardino County Museum, Redlands.

State of California--The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary # 36-016417
HRI #
Trinomial PSBR-1H(Update)

Page 2 of 2
*Resource Name or # (Assigned by recorder)
*Map Name: Redlands Quad, Calif.
*Scale: 1:24,000
*Date of Map: 1967/1985



*Required information

CPHI-SBR-21

P36-016417

STATE OF CALIFORNIA—RESOURCES AGENCY
DEPARTMENT OF PARKS AND RECREATION

POINT OF HISTORICAL INTEREST

DO NOT WRITE IN THIS BLOCK
Reg. No. CPHI-SBr-021
Date 1-31-73
By

County San Bernardino

Name San Bernardino-Sonora Road, Ontario

Location Euclid Avenue, at the intersection of J Street.

Historical Significance:

This was the northern branch of the Emigrant Trail which forked near Aguanga and continued via Beaumont, Redlands, Old San Bernardino, Colton, and Agua Mansa, and crossed the present Euclid Avenue in Ontario a mile north of the Southern Pacific railroad tracks.

Between 1822 and 1827, the San Gabriel Mission Fathers used this road to reach the San Bernardino Asistencia, and Jedediah Smith followed this route in 1827 on his way out of southern California.

THIS POINT OF HISTORICAL INTEREST IS <u>NOT</u> A STATE REGISTERED HISTORICAL LANDMARK.

RECOMMENDED:
Signature—Chairman, County Board of Supervisors

Date 11-30-72

APPROVED: Kathryn H. Kaiser
Signature—Chairman, Historical Landmarks Advisory Committee

Date January 26, 1973

DPR-147 (4-66)

68355-768 4-66 5M TRIP ② OSP

9pp

Hist. Soc. So. Calif. ANNUAL 1925

P36-01647

PSGC-1-H

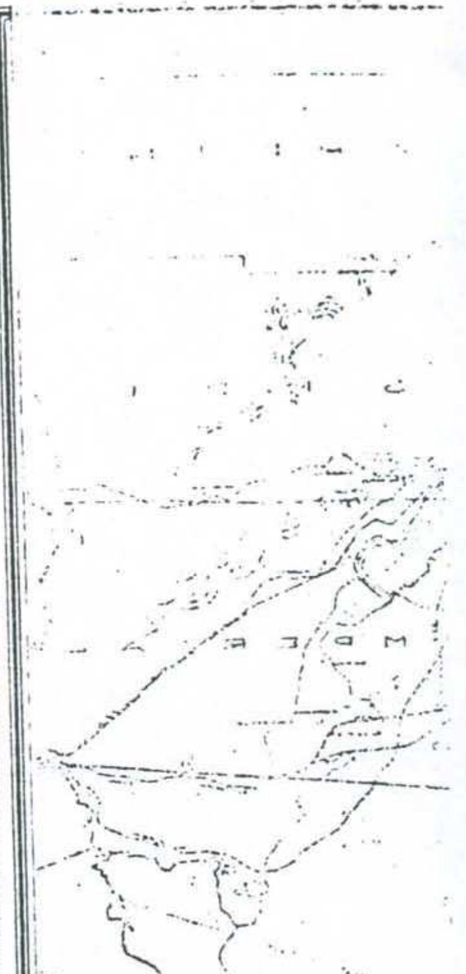
DEVELOPMENT OF TRAVEL BETWEEN SOUTHERN ARIZONA AND LOS ANGELES AS IT RELATED TO THE SAN BERNARDINO VALLEY

BY GEORGE WILLIAM BEATTIE

A thoughtful student of the history of California can hardly fail sooner or later to have his attention drawn to the routes by which the land was originally entered. Embracing as it does mountain, valley and desert, roads through it have not wandered as they listed, but have gone in obedience to imperious conditions. Long established highways are usually the result of numerous experiments—survivals of the fittest—and a study of their evolution is almost certain to bring out much that is thrillingly interesting. This paper is an endeavor to show something of what has gone into the making of *one* of these roads into California—a comparatively short stretch of the great transcontinental highway known in the days of the Forty-niners as the Southern Overland Route.[1]

The San Bernardino-Sonora Road

One of the first matters to come up in any newly settled region is that of deciding which of its various roads shall be classified as public highways. This problem arose in Southern California very soon after the State was formed. In Los Angeles County, which then included the San Bernardino Valley and the northern part of what is now Riverside County, an order adopted by the Court of Sessions, May 19, 1851,[2] designated certain roads as "public highways," each being carefully defined although in terms that would be unfamiliar to most of us today. One of these roads was referred to as the "San Bernardino-Sonora Road." Its description in the Court Order reads:



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[1] The Southern Overland Route was referred to later by engineers seeking a line for a railway to the Pacific as the Thirty-second Parallel Route. The portion of it lying between the Colorado River and Los Angeles is now, oddly enough, known as The Ocean to Ocean Highway.

[2] The order is somewhat inaccurately quoted in Guinn, J. M., "Old Highways of Los Angeles," Historical Society of Southern Calif., *Annual Publications*, (1905) Vol. VI, Part III, p. 256. According to U. S. Township Maps, this old road crossed the present line of the Santa Fe Railroad at North Pomona, and ran ¼ mile south of the same railroad at Claremont, 1 mile north of the Southern Pacific at Ontario ¾ miles north of that railroad at Guasti, and touched the base of the hills at Declez Quarry, passing on to the Aguajito, a little to the east. The course of the road from the Aguajito to Politana is indefinite, in the light of present knowledge.

P36-016417

"From Los Angeles to San Gabriel and below Azusa between San Antonio and San Jose,[3] by the Plain below the Rancho of Cucamonga, thence to the hill of the Aguajita (Aguajito)[4] by the Old Peublo (Pueblo) of the New Mexicans, known as the land of Apolitan,[5] by Jumua[6] and San Bernardino[7] to Yucaypa (Yucaipa) and San Gregorio (San Gorgonio.)"[8]

One mile to the south of San Gorgonio ran the line separating Los Angeles County from the county of San Diego, and the road was not described further as its course thenceforward was no concern of the Los Angeles County officials.

Recent investigations justify the belief set forth in this paper—that, after reaching San Gorgonio, the San Bernardino-Sonora Road turned southward and ran, via the present Lamb Canyon, to San Jacinto; thence to what is now Hemet; then through the hills, following approximately the line of the present St. John's Grade; and on until near what is now Aguanga, west of Warner's Ranch, it merged with another road from San Gabriel that was designated in the Court Order as the Colorado Road.[9] From this point of junction on to the desert and Sonora, the San Bernardino-Sonora Road and the Colorado Road were one

---

[3] San Antonio and San Jose were two old cattle ranchos of the Mission San Gabriel. They were included in the Mexican Grant of the "San Jose Rancho" issued in 1837 to Ygnacio Palomares and Ricardo Vijar. This grant included lands from the hills south of Pomona to the mountains north of Claremont. San Antonio, the northern part of the grant, was occupied by Palomares. The headquarters for San Antonio in mission days was half a mile west of Claremont and a little north of the Santa Fe Railroad. The old San Jose Rancho was the southern part of the San Jose Grant.

[4] "Hill of Aguajito," or little watering place—a small spring on the hillside east of Deciez Quarry.

[5] The term "Old Pueblo of the New Mexicans," referred to a settlement of people formerly connected with the Santa Fe caravans who in 1842 or 1843 had been presented by the Lugos with about 2200 acres of land south and west of the present Bunker Hill. Their homes were on the bluff on the eastern end of the tract. This land was given in order that their settlement might protect cattle on the Lugo "Rancho San Bernardino" from Indian raids. These colonists later, in response to a more attractive offer from Juan Bandini, owner of the "Jurupa Rancho" south of Slover Mountain, moved to what was called the "Bandini Donation," on the Jurupa Rancho. Apolitan, Politan, Politana, Epolitana, Hypolitana, are apparently variations of a name in court records which according to the testimony of David Seeley, who came to the valley in 1851, was derived from the name of Hipolito Espinosa, one of the original New Mexican settlers.

[6] Jumua, or Jumuba, was an Indian rancheria south of the Santa Ana river and east of Colton. San Gabriel Mission had cattle corrals there. The home of Jose Maria Lugo, one of the owners of the San Bernardino Rancho, was at Jumua.

[7] Not the present City, but the branch of the San Gabriel Mission at Old San Bernardino, now on the outskirts of Redlands.

[8] The old name of the settlement at the summit of San Gorgonio Pass. In 1887, a townsite was platted there, and the name San Gorgonio was changed to Beaumont.

[9] The Court Order defined the "Colorado Road" as running "From Los Angeles to Mission San Gabriel, thence to the Rancho of Puente, thence to the Rancho of Ybarras, thence to the Rancho Chino, thence to the Rincon, and thence to the Sierra and Temascal (Temescal) and thence to the Laguna and Tamacola (Temecula)."

BEATTIE, Geo. W., + HELEN PRUITT BEATTIE
HERITAGE OF THE VALLEY
San Pasqual Pr., Pasadena, 1939

P36-016417

SAN BERNARDINO – SONORA ROAD

The entry for the day on which the fathers departed shows the roundabout route then followed by travelers between San Bernardino and San Gabriel. The road ran west from the mission buildings, south of the present city of Colton, and then followed the Santa Ana River down through the Jurupa Rancho to Guapia (or Juapa), another San Gabriel Rancho, and thence to San Gabriel, probably by the line of the old Anza trail.[18]

The report Father Payeras made to the commissioner of the Mexican government in 1822, a year after his tour with Father Sánchez, gives the fullest information we have regarding mission work in the San Bernardino Valley at the end of the Spanish regime in California and at the beginning of Mexican sovereignty. Indeed it is the portion of this report devoted to San Gabriel and its branches that is our authority for asserting that active mission work in the Valley began at Guachama in 1819. The report shows a deep interest in the recently established mail service between Sonora and San Gabriel via San Gorgonio Pass, and the hope that the road followed by the Cocomaricopas might develop into a route for general travel. It also names a few of the sixteen different pagan tribes found on this road—the Cahuillas, the Jalchedunes, and others—some of whom had been visited; it describes the fertile soil; the abundance of fine water for irrigation; the rich pasture land in the Santa Ana River bottom; and the land already under cultivation—an area about five miles in circumference. It outlines plans for cutting a new and more direct road through the chamise-covered plain between Jurupa and what is now Claremont, to connect with the regular road to San Gabriel, thereby shortening the distance considerably and helping to break up the hiding places of runaway neophytes. The report reiterates the faith of the San Gabriel missionaries in the desirability of a regular mission in the San Bernardino Valley, and makes the assertion that intertribal jealousies would have been less had a mission been established there earlier.[19]

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[18] *Ibid.*

[19] Payeras, Report, 1822.

III

RIVAL MAIL ROUTES

LIFE ON the San Bernardino Rancho was greatly enlivened when, in December, 1823, Captain José Romero, a Mexican army officer, passed through on his way from San Gabriel to his presidio in Tucson by way of the Cocomaricopa trail. The Mexican government was no less anxious than the Spanish government had been to reestablish land travel between Sonora and Alta California, and Romero was attempting to discover a practicable route to take the place of the Anza road abandoned more than forty years before, and now all but forgotten. Tucson, then in Sonora, was deemed a logical starting point.[1]

Romero's instructions had been to explore a suggested route from Tucson into California by way of the mouth of the Colorado River. He found the Colorado River in flood and rough at the mouth, and he engaged Indians of that region to ferry his men and equipment across on four rafts that he had constructed. They were also to swim the horses over. All started promisingly, but when they reached mid-stream the Indians suddenly turned back with the two rafts containing the equipment and clothing, driving the horses before them. The two remaining rafts held Romero and his men and their arms, and only through the exertions of some who could swim did they reach the shore. As they were struggling they could see the faithless savages dividing the horses and baggage among themselves on the bank from which the party had started.

This was in July. On foot, then, with arms on shoulders, shoeless, naked, without food, and under the midsummer desert sun, Romero and his men crossed the waterless desert and the mountain range that lay between the river and Mission Santa Catalina in Lower California, sixty-five miles away. At that mission he secured some leather garments for the men, and animals to carry him to

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[1] Beattie, "Reopening the Anza Road."

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San Gabriel. One is not surprised that, in making his official report of this trip, he offered serious objections to the route for a mail road.

He had been told to return from San Gabriel to Tucson by San Bernardino and the Cocomaricopa trail, and it was in obedience to these orders that we find him at the San Bernardino Rancho in December. With him were his ten picked troopers from his own garrison in Tucson, and Lieutenant José María Estudillo, from the presidio at San Diego, with thirty mounted soldiers detailed as an escort by Governor Luis Antonio Argüello. There were also ten civilian helpers, numerous horses and mules to serve as remounts, and pack animals to carry the supplies. One of the mules bore a cannon. In advance of the main body was a drove of three hundred and seventy-six mares which Romero's soldiers were taking from California to Sonora, doubtless as a business venture. The party remained at San Bernardino about a week, completing their arrangements, and set forth on Christmas Day, 1823. Unhappily, the guide for the desert proved unreliable, they lost their way, consumed their provisions, and finally turned back, reappearing at San Bernardino a month later, many of their animals having died of thirst, and the men themselves exhausted and half-starved. At one time they had gone six days without finding water.

From San Bernardino they returned to San Gabriel, where they waited more or less patiently for nearly two years, until supplies for a second attempt could be collected and soldiers for an escort could be spared.

While Romero was marking time at this point, Santiago Argüello, an officer of the San Diego presidio, had pursued some Indian horse thieves to the Colorado River, and in so doing had learned the route by which Indians crossed the desert. Although he did not realize the fact, the route was none other than the old Anza trail, with the exception of the pass through the mountains, which was lower than the one Anza had followed, leading through what was known later as Warner's Ranch. Argüello had made a most important discovery. The road was recognized immediately as being in all probability the best of the routes between California and Sonora, but it was unavailable just then since it led into Yuma territory, and the Yumas were still hostile to whites. The possibility that the Cocomaricopa trail would be made the official mail route was so strong that Governor Echeandía ordered Romero's escort

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for the second trip to fortify San Gorgonio Pass when they reached it.

Just before Romero left San Gabriel, in November, 1825, on his second attempt to follow the Cocomaricopa trail, he received a letter from General José Figueroa, then governor of Sonora, that changed the entire aspect of affairs. The Yumas were actually seeking to reestablish friendly relations with the whites. Apparently they had come to realize that the mail route through their territory would be a profitable thing for them, and that their continued enmity toward foreigners was injuring themselves. Also, they were doubtless impressed by the four hundred soldiers that were with General Figueroa at the Colorado awaiting the arrival of Romero.

Romero followed the Cocomaricopa route as planned, but he was so certain that the Yuma road was preferable that he wrote to Governor Echeandía from San Bernardino giving plausible reasons why the expedition should not stop to fortify San Gorgonio Pass at that time. He succeeded in reaching the Colorado, but did not recommend the route. Lieutenant Romualdo Pacheco, the engineer who had accompanied him on this trip, returned to San Diego by way of Yuma, and reported in favor of that route. It was made the official mail road shortly after.

One can imagine what a blow this was to the missionaries in San Gabriel. So great had been their desire for the adoption of the overland route through San Bernardino and San Gorgonio that they had borne, without murmuring, the expense of outfitting Romero's first expedition, and of maintaining him and his ten troopers for two years. When the first expedition failed, Father Sánchez had exclaimed, "What a cost! May it be for the glory of God!"[2]

When the prospects for the adoption of the Cocomaricopa route first began to grow dim, Father Sánchez wrote to Governor Echeandía at San Diego, urging that work be begun on the road by way of San Bernardino, since it was the station nearest to the Colorado, and its resources would be the most easily available. All in vain.

But the missionaries were brave losers. When the road by Yuma and Warner's Pass to San Diego was finally selected, they adapted themselves to the situation and connected their San Bernardino road with the official one by a trail leading from San Gorgonio to

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[2] Sánchez to Argüello, Jan. 27, 1824. See n. 8(c), chap. I.

ber excepting Stout. He was replaced as assessor by V. J. Herring. Q. S. Sparks filled the office of district attorney but a little more than a year. On December 4, 1854, the office was declared vacant, Sparks having been absent from the county three months, and James H. Rollins was appointed in his stead.

Three public roads had been established by the Los Angeles County Court of Sessions in 1851, before San Bernardino County was formed. They were:

1. *The Colorado Road*, running via Chino and Temescal to Temecula.

2. *The San Bernardino-Sonora Road*, opened by the padres of San Gabriel about 1825, which entered the new county in what is now the city of Ontario, and ran along the north side of the Jurupa mountains, through Agua Mansa, through the old pueblo of the New Mexicans in the eastern part of Colton, thence across the river through Jumuba to the mission buildings at Old San Bernardino, and on to San Gorgonio Pass via Yucaipa.

3. *The Road to New Mexico*, which branched from the San Bernardino-Sonora Road in the western part of Ontario, and ran to Cajón Pass via Cucamonga, along the line of the old Spanish Trail.[5]

By 1853, Los Angeles had a board of supervisors, who relieved the court of sessions of the care of road matters. Just before the county was divided, the supervisors responded to a petition presented by residents of San Bernardino, and established a fourth public road, one that shortened the route between San Bernardino and Los Angeles. It was described as "running parallel with the base line, but south of the same from San Bernardino to Cucamonga, and thence to San Antonio Creek, thence to intersect the old road at the point of the mountain."[6] This road had been already opened through the brush land by the Mormons, and was the beginning of our present Foothill Boulevard.

To these roads, the San Bernardino County Court of Sessions in 1853 added a fifth public highway, running between the city of San Bernardino and "San Bernardino Mission . . . commencing at the South gate of the Fort San Bernardino, thence to the grist mill

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[5] Los Angeles County Court of Sessions, *Minutes*, May 19, 1851; Beattie, "Development of Travel between Southern Arizona and Los Angeles," *Ann. Pub.* Hist. Soc. Sou. Cal. (1925).

[6] Los Angeles County Supervisors, *Minutes*, Apr. 4, 1853.

PSE2 - 1-4
LOS ANGELES - SONORA ROAD

HISTORY OF SAN TIMOTEO CANYON

P36-016417

Old Stagecoach Road

Singleton Ranch in San Timoteo Canyon was the junction point where the road to San Gorgonio turned north from the Old Sonora Road. The old Indian trail through the San Gorgonio Pass then followed along the foothills two and one-half miles north of the present Highway 10.

The reason for this route is obvious when we consider that the route of Highway 10 lies near the wash, through open country, where water is scarce, while along the foothills we find the three essential needs of a pioneering people supplied. Here were springs and small streams to furnish water, trees for firewood and lumber for building homes. In these canyons and forests were an abundance of deer and small game. Travelers along the trail could rest beneath the oaks and sycamores to escape the heat of the noonday sun.

San Gabriel Mission's Rancho of San Bernardino extended through the San Gorgonio Pass as far as Whitewater, and Father Sanchez had established a mission station for the cattle herders at Banning Water Canyon in 1820.

Juan Hilario Bermudez and his wife, Anna Maria Lugo Bermudez, were in charge of this station at the time the Romero Estudillo Expedition stopped to rest there. Lt. Don Jose Maria Estudillo, the diarist of the Romero Expedition, made the following entry in his diary:

> Dec. 25, 1823. At 1:00 p.m. we arrived at the second rancho, named Yucaipa. It is five leagues from San Bernardino. We continued following the same route east until 5:00 p.m. in the afternoon, when we arrived at the last rancho, called San Gorgonio, and in the vernacular, Piatopa.
>
> The terrain covered today is full of obstructions, and rocky. The mountains are bare of large trees, and all is without pasture. At the entrance to the canyon of the northern mountains where the corrals for the cattle are, and where there is a small Indian house, there is a dry arroyo. It has a little water in small pools, horses did not drink. . . .

This site had been chosen by the Spanish authorities as the location for a fort and garrison to protect the ranches from raids by hostile Indians. Vicente Villa-Pacheco, with the second Romero Expedition in 1825, writes that the idea was abandoned because "It was felt that winters were too severe there for troops to remain and that the outpost would have little use considering the expenditure of men to maintain it."

Early settlers in the Pass chose to locate their homesteads along the foothills. Daniel Sexton established a sawmill in Edgar Canyon in 1842. Paulino Weaver, who owned the ranch now known as Highland Springs, was a partner with him in this venture.

APPENDIX C

NATIVE AMERICAN HERITAGE COUNCIL SACRED LANDS FILE SEARCH

STATE OF CALIFORNIA **Gavin Newsom, *Governor***

NATIVE AMERICAN HERITAGE COMMISSION

February 5, 2024

David Brunzell
BCR Consulting, LLC

Via Email to: bcrllc2008@gmail.com

Re: Ontario Recycled Water Distribution Project (ARD2401), San Bernardino County

Dear Mr. Brunzell:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded 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. I suggest you contact all of those indicated; if they cannot supply information, they might 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 me. 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: Cameron.vela@nahc.ca.gov.

Sincerely,

[redacted]

Cameron Vela
Cultural Resources Analyst

Attachment

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

TRIBE	CONTACT	ADDRESS	CITY	STATE	ZIP	PHONE	EMAIL	NOTES
Gabrieleño Band of Mission Indians - Kizh Nation	Andrew Salas, Chairman	PO Box 393	Covina	CA	91723	(626) 926-4131	gabrielenoindians@yahoo.com	
Yuhaaviatam of San Manuel Nation (formerly known as the San Manuel Band of Mission Indians)	Ryan Nordness, Cultural Resource Analyst	26569 Community Center Drive	Highland	CA	92346	(909) 864-8933	jessica.mauck@sanmanuel-nsn.gov ryan.nordness@sanmanuel-nsn.gov	**Confirmed with Jessica Mauck that the new consultation contact is Ryan Nordess.**
Soboba Band of Luiseño Indians	Joseph Ontiveros, Cultural Resources Director	PO Box 487	San Jacinto	CA	92581	(951) 654-5544 X4137	jontiveros@soboba-nsn.gov	**Soboba has requested for all notices to include a CHRIS Report for review**
Soboba Band of Luiseño Indians	Jessica Valdez, Cultural Resources Department	PO Box 487	San Jacinto	CA	92581	(951)-654-5544 X4139	JValdez@soboba-nsn.gov	**Soboba has indicated that they prefer an email notice to be sent to Joseph Ontiveros and to have Jessica Valdez copied on the email. In addition to a Certified Letter which is the Department's process, please make sure to email Joseph and copy Jessica in your email.**
San Gabriel Band of Mission Indians	Anthony Morales, Chief	PO Box 693	San Gabriel	CA	91778	(626) 483-3564	GTTribalcouncil@aol.com	**Send via certified mail**

From: Eunice Ambriz
To: Luke Zhipeng Qu
Cc: Kristen Tuosto
Subject: UT1072 Downtown Recycled Water Pipeline Project [CIT-ONT-2024-2]
Date: Thursday, November 14, 2024 1:25:41 PM
Attachments: CIT-ONT-2024-2.pdf

Dear Luke,

Thank you for contacting the Yuhaaviatam of San Manuel Nation (formerly the San Manuel Band of Mission Indians) regarding the above referenced project. YSMN appreciates the opportunity to review the project documentation, which was received by our Cultural Resources Management Department on November 7, 2024, pursuant to CEQA (AB 52) and CA PRC 21080.3.1. The proposed project area exists within Serrano ancestral territory and, therefore, is of interest to the Tribe. However, due to the nature and location of the proposed project, and given the CRM Department's present state of knowledge, YSMN does not have any concerns with the project's implementation, as planned, at this time. As a result, YSMN requests that the following language be made a part of the project/permit/plan conditions:

CUL MMs

1. In the event that cultural resources are discovered during project activities, all work in the immediate vicinity of the find (within a 60-foot buffer) shall cease and a qualified archaeologist meeting Secretary of Interior standards shall be hired to assess the find. Work on the other portions of the project outside of the buffered area may continue during this assessment period. Additionally, the Yuhaaviatam of San Manuel Nation Cultural Resources Department (YSMN) shall be contacted, as detailed within TCR-1, regarding any pre-contact finds and be provided information after the archaeologist makes his/her initial assessment of the nature of the find, so as to provide Tribal input with regards to significance and treatment.

2. If significant pre-contact cultural resources, as defined by CEQA (as amended, 2015), are discovered and avoidance cannot be ensured, the archaeologist shall develop a Monitoring and Treatment Plan, the drafts of which shall be provided to YSMN for review and comment, as detailed within TCR-1. The archaeologist shall monitor the remainder of the project and implement the Plan accordingly.

3. If human remains or funerary objects are encountered during any activities associated with the project, work in the immediate vicinity (within a 100-foot buffer of the find) shall cease and the County Coroner shall be contacted pursuant to State Health and Safety Code §7050.5 and that code enforced for the duration of the project.

TCR MMs

1. The Yuhaaviatam of San Manuel Nation Cultural Resources Management Department (YSMN) shall be contacted, as detailed in CUL-1, of any pre-contact cultural resources discovered during project implementation, and be provided information regarding the nature of the find, so as to provide Tribal input with regards to significance and treatment. Should the find be deemed significant, as defined by CEQA (as amended, 2015), a Cultural Resources Monitoring and Treatment Plan shall be created by the archaeologist, in coordination with YSMN, and all subsequent finds shall be subject to this Plan. This Plan shall allow for a monitor to be present that represents YSMN for the remainder of the project, should YSMN elect to place a monitor on-site.

2. Any and all archaeological/cultural documents created as a part of the project (isolate records, site records, survey reports, testing reports, etc.) shall be supplied to the applicant

and Lead Agency for dissemination to YSMN. The Lead Agency and/or applicant shall, in good faith, consult with YSMN throughout the life of the project.

Note: Yuhaaviatam of San Manuel Nation realizes that there may be additional tribes claiming cultural affiliation to the area; however, Yuhaaviatam of San Manuel Nation can only speak for itself. The Tribe has no objection if the agency, developer, and/or archaeologist wishes to consult with other tribes in addition to YSMN and if the Lead Agency wishes to revise the conditions to recognize additional tribes.

Please provide the final copy of the project/permit/plan conditions so that YSMN may review the included language. If you should have any further questions with regard to this matter, please do not hesitate to contact me or Kristen Tuosto, the Tribal Archaeologist (cc'ed), at your convenience, as we will be your Point of Contact (POC) for YSMN with respect to this project.

Regards,
Eunice

Eunice Ambriz
Cultural Resources Technician
Eunice.Ambriz@sanmanuel-nsn.gov
O:(909) 864-8933 x 50-2033
M:(909) 649-4867
26569 Community Center Dr Highland, California 92346

CITY OF ONTARIO

303 EAST B STREET | ONTARIO, CALIFORNIA 91764

(909) 395-2000 FAX (909) 395-2070 OntarioCA.gov

PAUL S. LEON
MAYOR

DEBRA PORADA
MAYOR PRO TEM

ALAN D. WAPNER
JIM W. BOWMAN
RUBEN VALENCIA
COUNCIL MEMBERS

SHEILA MAUTZ
CITY CLERK

JAMES R. MILHISER
TREASURER

SCOTT OCHOA
CITY MANAGER

RECEIVED

NOV 07 2024

BY: TS

November 5, 2024

Yuhaaviatam of San Manuel Nation
Ryan Nordness, Cultural Resource Analyst
26569 Community Center Drive
Highland, California 92346

Subject: Assembly Bill 52 Native American Consultation for the UT1072 Downtown Recycled Water Pipeline Project, Ontario, San Bernardino County, California

Dear Mr. Nordness:

The City of Ontario (City) is requesting your review of the UT1072 Downtown Recycled Water Pipeline Project (the project) to determine if formal consultation is appropriate pursuant to Public Resource Code Section 21080.3.2(b) and 21074(a)(1)(A)-(B) (Assembly Bill [AB] 52). The City is the lead agency for the project. The proposed project will construct approximately 25,000 linear feet (LF) of City-owned and operated recycled water mains, install approximately 300 LF of lateral connections, and will convert approximately 2,000 LF of existing potable water mains for distribution of recycled water within city limits. Proposed improvements will be completed using open-trench construction methods. The project involves primarily underground infrastructure improvements and ancillary appurtenances above ground surface within landscaped areas, such as valves. At connection points with existing irrigation systems, project implementation will remove portions of existing landscaping and pave surfaces. Upon completion of construction, existing surfaces will be restored to pre-project conditions at connection points and along the new and converted recycled water mains. Temporary construction activities and long-term operation and maintenance of new recycled water mains will occur on Euclid Avenue, West F Street, North Vine Street, Flora Street, East C Street, East B Street, and East Riverside Drive.

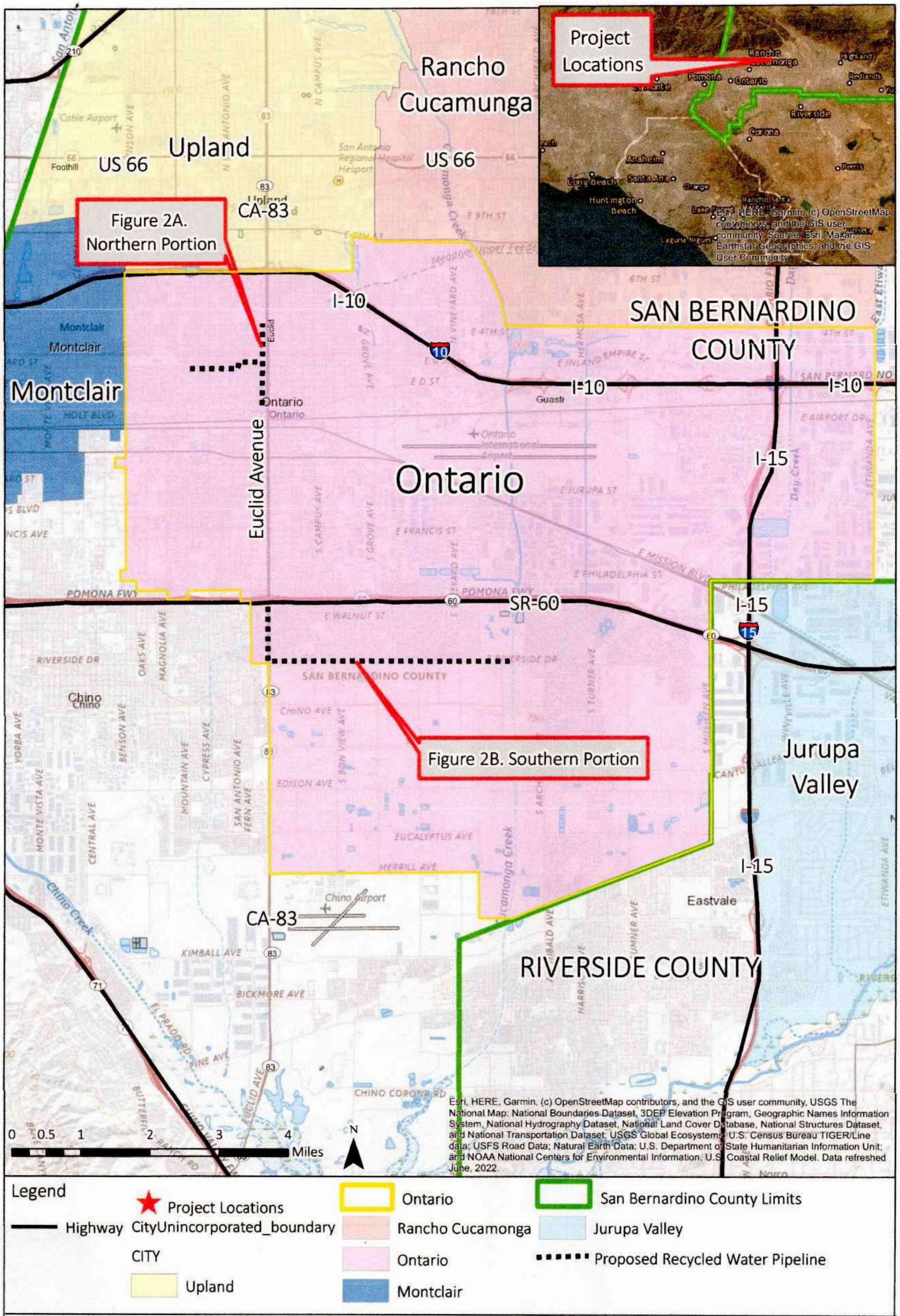
A project map is attached. We are requesting that you advise the City at the earliest possible time of your interest in consulting. Under the provisions of AB-52, you have 30 days from the date of receipt of this notice, which will be on or around December 5, 2024 in which to contact the City regarding your interest in consultation. Please contact me to initiate consultation. My contact information is as follows:

Luke Zhipeng Qu
909-395-2676, LZQu@ontarioca.gov

Sincerely,

Ontario Municipal Utilities Company, City of Ontario
14725 S. Bon View Avenue, Ontario, CA 91761

Attachment: Project Map



Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed June, 2022.

City of Ontario

UT1702 Recycled Water Pipeline Project

Figure 1. Regional Location Map

ARDURRA

C I T Y O F O N T A R I O
303 EAST B STREET | ONTARIO, CALIFORNIA 91764
(909) 395-2000 FAX (909) 395-2070 OntarioCA.gov

PAUL S. LEON
MAYOR

DEBRA PORADA
MAYOR PRO TEM

ALAN D. WAPNER
JIM W. BOWMAN
RUBEN VALENCIA
COUNCIL MEMBERS

SHEILA MAUTZ
CITY CLERK

JAMES R. MILHISER
TREASURER

SCOTT OCHOA
CITY MANAGER

November 5, 2024

San Gabriel Band of Mission Indians
Anthony Morales, Chief
P.O. Box 693
San Gabriel, California 91778

Subject: Assembly Bill 52 Native American Consultation for the UT1072 Downtown Recycled Water Pipeline Project, Ontario, San Bernardino County, California

Dear Chief Morales:

The City of Ontario (City) is requesting your review of the UT1072 Downtown Recycled Water Pipeline Project (the project) to determine if formal consultation is appropriate pursuant to Public Resource Code Section 21080.3.2(b) and 21074(a)(1)(A)-(B) (Assembly Bill [AB] 52). The City is the lead agency for the project. The proposed project will construct approximately 25,000 linear feet (LF) of City-owned and operated recycled water mains, install approximately 300 LF of lateral connections, and will convert approximately 2,000 LF of existing potable water mains for distribution of recycled water within city limits. Proposed improvements will be completed using open-trench construction methods. The project involves primarily underground infrastructure improvements and ancillary appurtenances above ground surface within landscaped areas, such as valves. At connection points with existing irrigation systems, project implementation will remove portions of existing landscaping and pave surfaces. Upon completion of construction, existing surfaces will be restored to pre-project conditions at connection points and along the new and converted recycled water mains. Temporary construction activities and long-term operation and maintenance of new recycled water mains will occur on Euclid Avenue, West F Street, North Vine Street, Flora Street, East C Street, East B Street, and East Riverside Drive.

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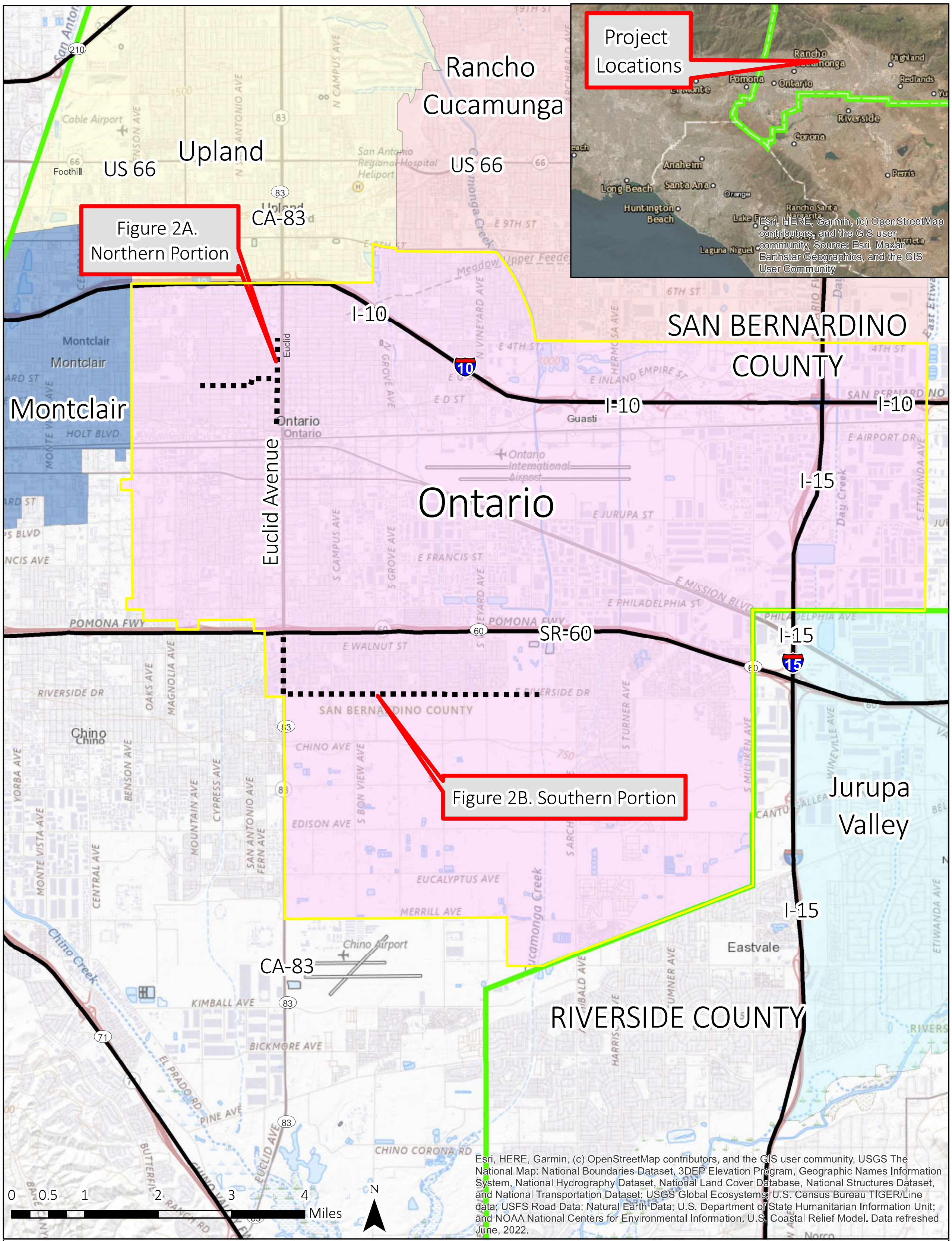
Luke Zhipeng Qu
909-395-2676, LZQu@ontarioca.gov

Sincerely,

Ontario Municipal Utilities Company, City of Ontario
14725 S. Bon View Avenue, Ontario, CA 91761

Attachment: Project Map



Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed June, 2022.

Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Legend

★ Project Locations

— Highway

CityUnincorporated_boundary

CITY

▭ Upland

▭ Ontario

▭ Rancho Cucamonga

▭ Ontario

▭ Montclair

▭ San Bernardino County Limits

▭ Jurupa Valley

▪▪▪▪ Proposed Recycled Water Pipeline

City of Ontario

UT1702 Recycled Water Pipeline Project

Figure 1. Regional Location Map

ARDURRA

CITY OF ONTARIO
303 EAST B STREET | ONTARIO, CALIFORNIA 91764
(909) 395-2000 FAX (909) 395-2070 OntarioCA.gov

PAUL S. LEON
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COUNCIL MEMBERS

SHEILA MAUTZ
CITY CLERK

JAMES R. MILHISER
TREASURER

SCOTT OCHOA
CITY MANAGER

November 5, 2024

Yuhaaviatam of San Manuel Nation
Ryan Nordness, Cultural Resource Analyst
26569 Community Center Drive
Highland, California 92346

Subject: Assembly Bill 52 Native American Consultation for the UT1072 Downtown Recycled Water Pipeline Project, Ontario, San Bernardino County, California

Dear Mr. Nordness:

The City of Ontario (City) is requesting your review of the UT1072 Downtown Recycled Water Pipeline Project (the project) to determine if formal consultation is appropriate pursuant to Public Resource Code Section 21080.3.2(b) and 21074(a)(1)(A)-(B) (Assembly Bill [AB] 52). The City is the lead agency for the project. The proposed project will construct approximately 25,000 linear feet (LF) of City-owned and operated recycled water mains, install approximately 300 LF of lateral connections, and will convert approximately 2,000 LF of existing potable water mains for distribution of recycled water within city limits. Proposed improvements will be completed using open-trench construction methods. The project involves primarily underground infrastructure improvements and ancillary appurtenances above ground surface within landscaped areas, such as valves. At connection points with existing irrigation systems, project implementation will remove portions of existing landscaping and pave surfaces. Upon completion of construction, existing surfaces will be restored to pre-project conditions at connection points and along the new and converted recycled water mains. Temporary construction activities and long-term operation and maintenance of new recycled water mains will occur on Euclid Avenue, West F Street, North Vine Street, Flora Street, East C Street, East B Street, and East Riverside Drive.

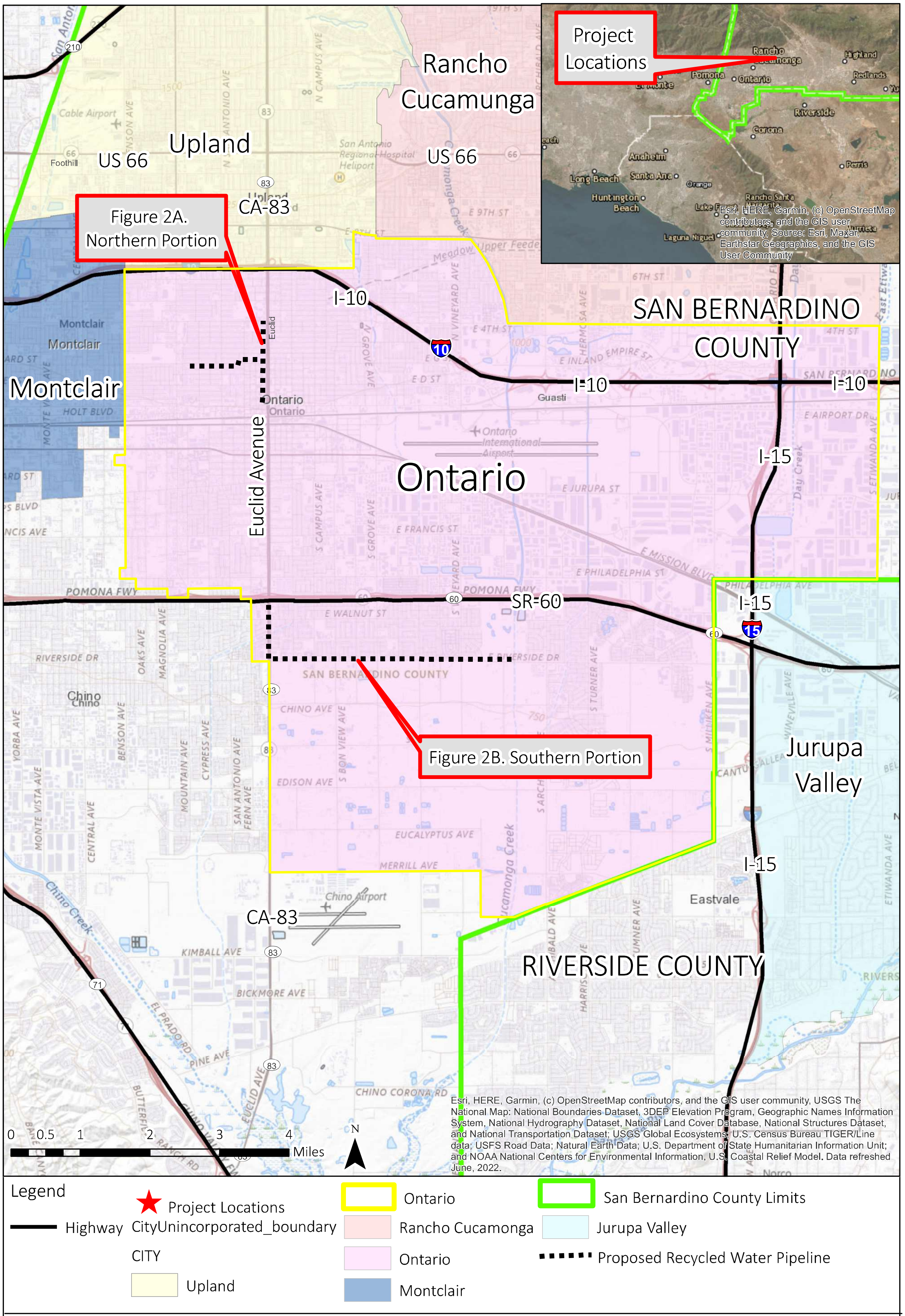
A project map is attached. We are requesting that you advise the City at the earliest possible time of your interest in consulting. Under the provisions of AB-52, you have 30 days from the date of receipt of this notice, which will be on or around December 5, 2024 in which to contact the City regarding your interest in consultation. Please contact me to initiate consultation. My contact information is as follows:

Luke Zhipeng Qu
909-395-2676, LZQu@ontarioca.gov

Sincerely,

Ontario Municipal Utilities Company, City of Ontario
14725 S. Bon View Avenue, Ontario, CA 91761

Attachment: Project Map



Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed June, 2022.

City of Ontario

UT1702 Recycled Water Pipeline Project

Figure 1. Regional Location Map

C I T Y O F O N T A R I O
303 EAST B STREET | ONTARIO, CALIFORNIA 91764
(909) 395-2000 FAX (909) 395-2070 OntarioCA.gov

PAUL S. LEON
MAYOR

DEBRA PORADA
MAYOR PRO TEM

ALAN D. WAPNER
JIM W. BOWMAN
RUBEN VALENCIA
COUNCIL MEMBERS

SHEILA MAUTZ
CITY CLERK

JAMES R. MILHISER
TREASURER

SCOTT OCHOA
CITY MANAGER

November 5, 2024

Soboba Band of Luiseño Indians
Joseph Ontiveros, Cultural Resources Director
P.O. Box 487 San Jacinto, California 92581

Subject: Assembly Bill 52 Native American Consultation for the UT1072 Downtown Recycled Water Pipeline Project, Ontario, San Bernardino County, California

Dear Mr. Ontiveros:

The City of Ontario (City) is requesting your review of the UT1072 Downtown Recycled Water Pipeline Project (the project) to determine if formal consultation is appropriate pursuant to Public Resource Code Section 21080.3.2(b) and 21074(a)(1)(A)-(B) (Assembly Bill [AB] 52). The City is the lead agency for the project. The proposed project will construct approximately 25,000 linear feet (LF) of City-owned and operated recycled water mains, install approximately 300 LF of lateral connections, and will convert approximately 2,000 LF of existing potable water mains for distribution of recycled water within city limits. Proposed improvements will be completed using open-trench construction methods. The project involves primarily underground infrastructure improvements and ancillary appurtenances above ground surface within landscaped areas, such as valves. At connection points with existing irrigation systems, project implementation will remove portions of existing landscaping and pave surfaces. Upon completion of construction, existing surfaces will be restored to pre-project conditions at connection points and along the new and converted recycled water mains. Temporary construction activities and long-term operation and maintenance of new recycled water mains will occur on Euclid Avenue, West F Street, North Vine Street, Flora Street, East C Street, East B Street, and East Riverside Drive.

A project map is attached. We are requesting that you advise the City at the earliest possible time of your interest in consulting. Under the provisions of AB-52, you have 30 days from the date of receipt of this notice, which will be on or around December 5, 2024 in which to contact the City regarding your interest in consultation. Please contact me to initiate consultation. My contact information is as follows:

Luke Zhipeng Qu
909-395-2676, LZQu@ontarioca.gov

Sincerely,

Ontario Municipal Utilities Company, City of Ontario
14725 S. Bon View Avenue, Ontario, CA 91761

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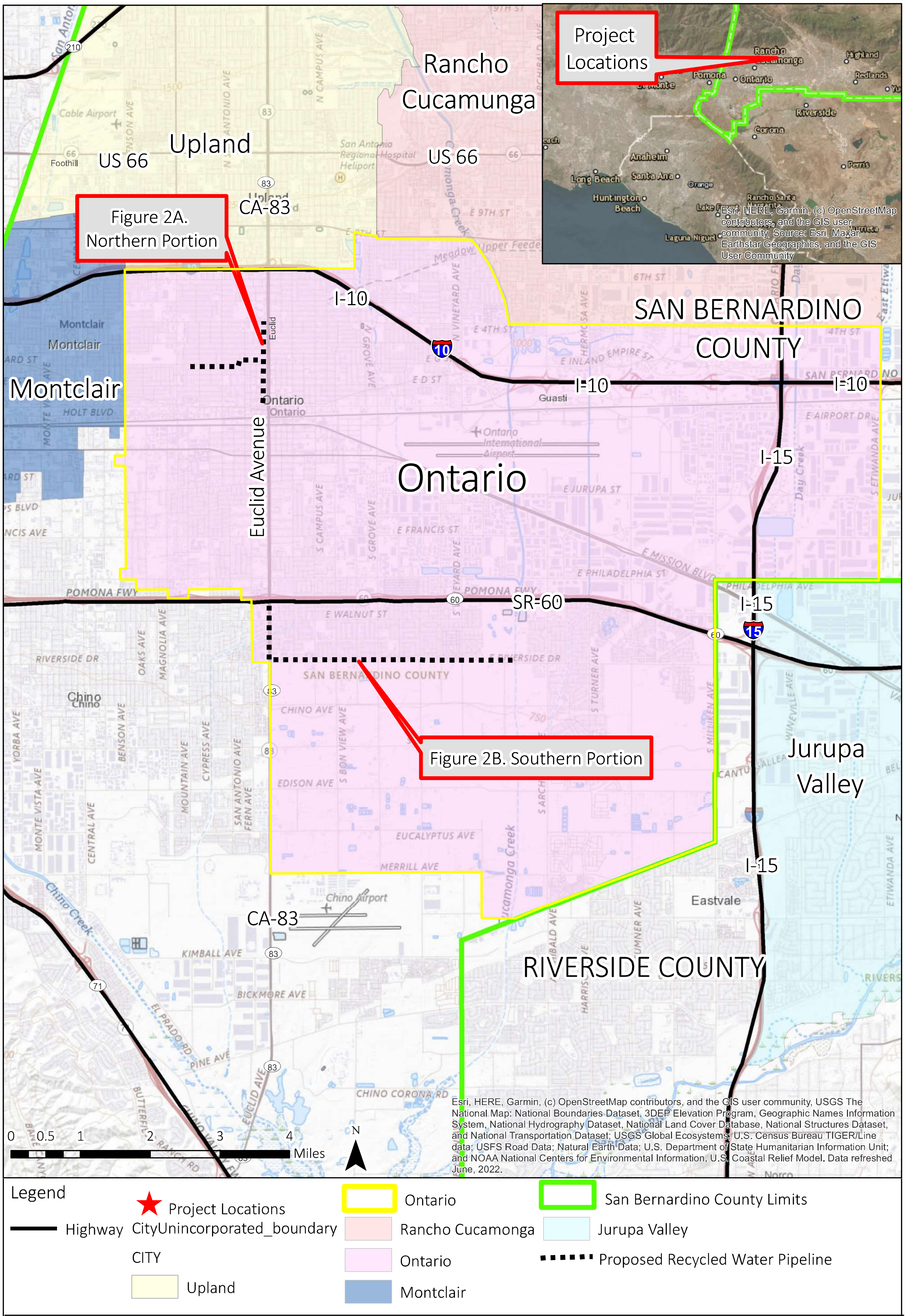

Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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City of Ontario
UT1702 Recycled Water Pipeline Project
Figure 1. Regional Location Map

ARDURRA

CITY OF ONTARIO
303 EAST B STREET | ONTARIO, CALIFORNIA 91764
(909) 395-2000 FAX (909) 395-2070 OntarioCA.gov

PAUL S. LEON
MAYOR

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ALAN D. WAPNER
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RUBEN VALENCIA
COUNCIL MEMBERS

SHEILA MAUTZ
CITY CLERK

JAMES R. MILHISER
TREASURER

SCOTT OCHOA
CITY MANAGER

November 5, 2024

Gabrieleño Band of Mission Indians-Kizh Nation
Andrew Salas, Chairman
P.O. Box 393
Covina, California 91723

Subject: Assembly Bill 52 Native American Consultation for the UT1072 Downtown Recycled Water Pipeline Project, Ontario, San Bernardino County, California

Dear Chairman Salas:

The City of Ontario (City) is requesting your review of the UT1072 Downtown Recycled Water Pipeline Project (the project) to determine if formal consultation is appropriate pursuant to Public Resource Code Section 21080.3.2(b) and 21074(a)(1)(A)-(B) (Assembly Bill [AB] 52). The City is the lead agency for the project. The proposed project will construct approximately 25,000 linear feet (LF) of City-owned and operated recycled water mains, install approximately 300 LF of lateral connections, and will convert approximately 2,000 LF of existing potable water mains for distribution of recycled water within city limits. Proposed improvements will be completed using open-trench construction methods. The project involves primarily underground infrastructure improvements and ancillary appurtenances above ground surface within landscaped areas, such as valves. At connection points with existing irrigation systems, project implementation will remove portions of existing landscaping and pave surfaces. Upon completion of construction, existing surfaces will be restored to pre-project conditions at connection points and along the new and converted recycled water mains. Temporary construction activities and long-term operation and maintenance of new recycled water mains will occur on Euclid Avenue, West F Street, North Vine Street, Flora Street, East C Street, East B Street, and East Riverside Drive.

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Luke Zhipeng Qu
909-395-2676, LZQu@ontarioca.gov

Sincerely,

Ontario Municipal Utilities Company, City of Ontario
14725 S. Bon View Avenue, Ontario, CA 91761

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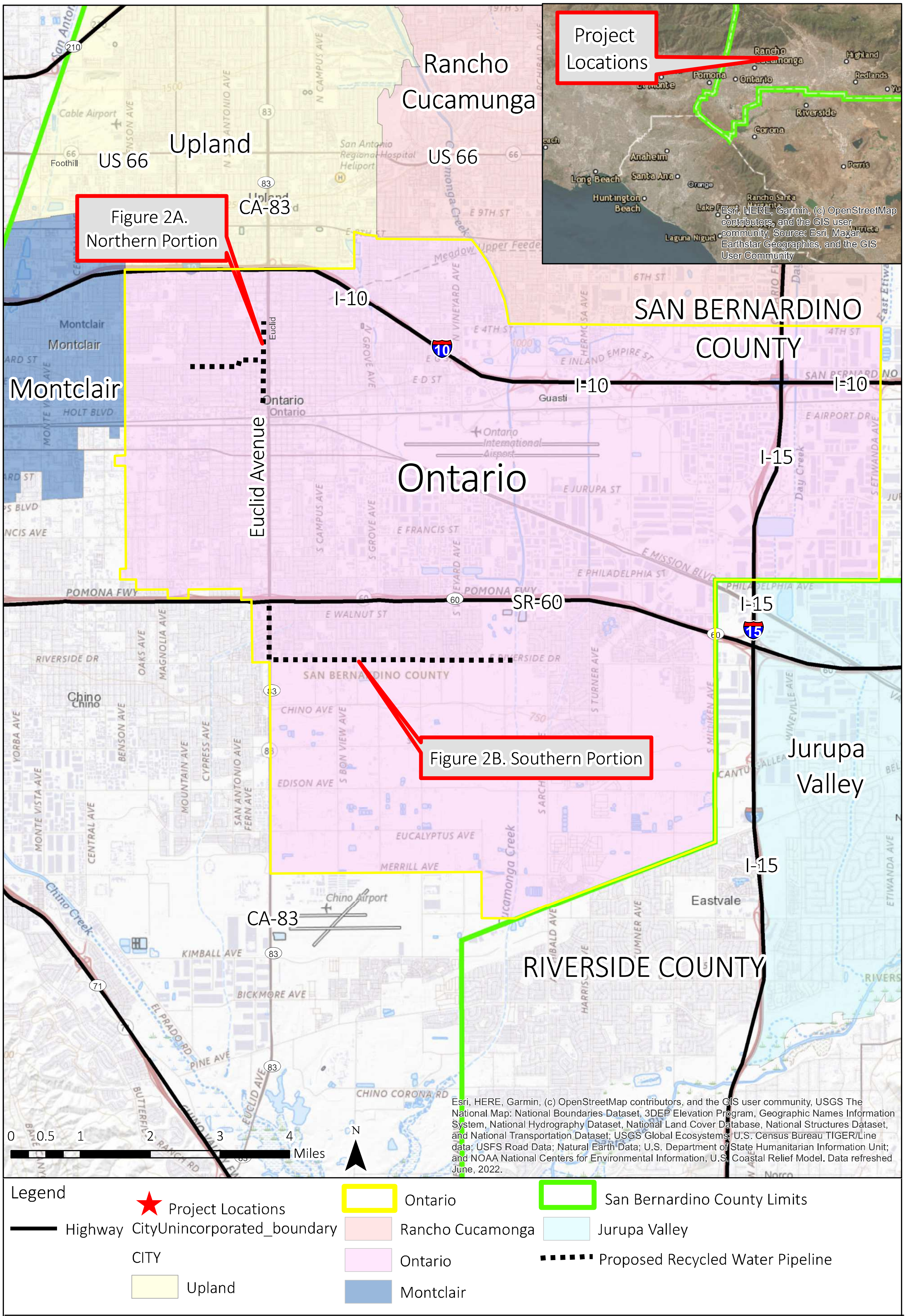

Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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City of Ontario

UT1702 Recycled Water Pipeline Project

Figure 1. Regional Location Map

ARDURRA

Report List

ARD2401

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
SB-00080	NADB-R - 1060080; Voided - 67-0.3	1967	CLEMENTS, THOMAS	SUMMARY OF GEOLOGY ON THE CALICO SITE, YERMO, CALIFORNIA		36-002102
SB-00295	NADB-R - 1060295; Voided - 76-1.3	1976	HAMMOND, STEPHEN R.	REPORT ON CULTURAL RESOURCES INVENTORY AND ASSESSMENT OF EUCLID AVENUE GRADE SEPARATION PROJECT	CALTRANS	36-015979
SB-00307	NADB-R - 1060307; Voided - 76-3.5	1976	HARRIS, RUTH D.	ARCHAEOLOGICAL - HISTORICAL ASSESSMENT, PROPOSED ANNEXATION TO THE CITY OF ONTARIO	SAN BERNARDINO COUNTY MUSEUM ASSOCIATION	
SB-00324	NADB-R - 1060324; Voided - 76-4.8	1976	HARRIS, RUTH D.	ARCHAEOLOGICAL - HISTORICAL RESOURCES ASSESSMENT OF AREA BOUNDED BY PHILADELPHIA STREET ON THE NORTH, BAKER AVENUE ON THE EAST, RIVERSIDE DRIVE ON THE SOUTH, AND SULTANA AVENUE ON THE WEST	SAN BERNARDINO COUNTY MUSEUM ASSOCIATION	
SB-00800	NADB-R - 1060800; Voided - 79-6.7	1979	HEARN, JOSEPH E.	ARCHAEOLOGICAL - HISTORICAL RESOURCES ASSESSMENT FOR CHINO AVENUE/WALKER AVENUE TO CUCAMONGA CHANNEL	SAN BERNARDINO COUNTY MUSEUM ASSOCIATION	
SB-02795	NADB-R - 1062795	1991	HAMPSON, R. PAUL, JAMES J. SCHMIDT, AND JUNE A. SCHMIDT	CULTURAL RESOURCE INVESTIGATION: CAJON PIPELINE PROJECT	GREENWOOD & ASSOCIATES	36-002910, 36-004252, 36-004253, 36-004255, 36-004268, 36-004271, 36-004272, 36-004411, 36-004418, 36-005361, 36-005362, 36-005568, 36-006793, 36-007076, 36-007077, 36-007078, 36-007079, 36-007080, 36-007081, 36-007082, 36-007084, 36-007085, 36-007086, 36-007087, 36-007088, 36-007089, 36-007090, 36-007091, 36-007092, 36-007093, 36-007094, 36-007095, 36-007096

Report List

ARD2401

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
SB-02796	NADB-R - 1062796	1993	MCKENNA, JEANETTE A.	CULTURAL RESOURCES INVESTIGATIONS, SITE INVENTORY AND EVALUATIONS, THE CAJON PIPELINE CORRIDOR, LOS ANGELES AND SAN BERNARDINO COUNTIES	MCKENNA ET AL	36-002257, 36-002910, 36-004252, 36-004253, 36-004255, 36-004268, 36-004271, 36-004272, 36-004411, 36-004418, 36-005288, 36-005361, 36-005362, 36-005568, 36-006509, 36-006516, 36-006699, 36-006793, 36-006810, 36-006847, 36-007076, 36-007077, 36-007078, 36-007079, 36-007080, 36-007081, 36-007082, 36-007084, 36-007085, 36-007086, 36-007087, 36-007088, 36-007089, 36-007090, 36-007093, 36-007094, 36-007095, 36-007282, 36-007294, 36-007295, 36-007296
SB-03248	NADB-R - 1063248	1994	SMITH, FRANCESCA and ROBERT WLODARSKI	HISTORIC PROPERTY SURVEY REPORT: PROVIDE HIGH OCCUPANCY VEHICLE LANES ON I-10 BETWEEN THE LOS ANGELES/SAN BERNARDINO COUNTY LINE & I-15 IN SAN BERNARDINO COUNTY, CA	MYRA L. FRANK & ASSOCIATES	
SB-03560	NADB-R - 1063560	2000	LAPIN, PHILLIPE AND CHRISTY HAMMOND	CULTURAL RESOURCE ASSESSMENT FOR PBW LA 217-01, COUNTY OF SAN BERNARDINO, CA. 19PP	LSA	
SB-04500	NADB-R - 1064500	2004	ROTENSTEIN, DAVID S.	NATIONAL HISTORIC PRESERVATION ACT SECTION 106 HISTORIC PROPERTY SURVEY: NEXTEL COMMUNICATIONS, ONTARIO WEST (CA-5772) FACILITY, ONTARIO, SAN BERNARDINO COUNTY, CA. 53PP.		
SB-04678	NADB-R - 1064678	2005	Encarnacion, Deirdre, Bai Tang, Michael Hogan, John J. Eddy, and Daniel Ballester	Historical/Archaeological Resources Survey Report: San Antonio Channel (West Edison) Recycled Water Pipeline Project in the Cities of Montclair and Ontario, San Bernardino County, California.	CRM TECH	36-015982, 36-016417
SB-04683	NADB-R - 1064683	2006	HAMMOND, CHRISTIE	HISTORIC PROPERTY SURVEY REPORT		
SB-05713	NADB-R - 1065713; OHP OTIS Report Nbr - FCC061003B	2006	Bonner, Wayne H. and Marnie Aislin-Kay	Cultural Resource Records Search Results and Site Visit for Royal Street Communications, LLC Telecommunications Facility Candidate LA0716C (Red Cross) 209 I Street, Ontario, San Bernardino County, California.	Michael Brandman Associates	
SB-05716						

Report List

ARD2401

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
SB-05723	Caltrans - ; NADB-R - 1065723	2006	Hammond, Christie	State Route 83 (Euclid Avenue), 5th Street to 4th Street, City of Ontario.	Caltrans	36-015982
SB-05874	NADB-R - 1065874; OHP OTIS Report Nbr - FCC071016B	2007	Bonner, Wayne H. and Marnie Aislin-Kay	Cultural Resource Records Search and Site Visit Results for Royal Street Communications, LLC Candidate LA07160D (1st United Methodist Church), 918 North Euclid Avenue, Ontario, San Bernardino County, California.	Michael Brandman Associate	
SB-05976	NADB-R - 1065976	2007	Wetherbee, Matthew, Sarah Siren and Gavin Archer	Cultural Resource Assessment New Model Colony East Backbone Infrastructure, City of Ontario, San Bernardino County, California.	Stantec	36-012533
SB-06929	NADB-R - 1066929	2010	Bonner, Wayne H., Sarah A. Williams, and Kathleen A. Crawford	Cultural Resources Records Search and Site Visit Results for T-Mobile USA Candidate IE24639-A (Sunkist Ground), 617 East Sunkist Street, Ontario, San Bernardino County, California	Michael Brandman Associates	
SB-07075	NADB-R - 1067075	2011	Puckett, Heather R.	Princeton, 1025 North Vine Avenue, Ontario, California 91762.	Tetra Tech, Inc	
SB-07300						
SB-07301						
SB-07732	NADB-R - 1067732	2014	Daly, Pam	Historic Resources Assessment Report of Saint George Catholic Church Building of 1923, 210 West D Street, Ontario, San Bernardino County, CA.	Daly & Associates	36-016381
SB-07886	Agency Nbr - 1067886; OHP OTIS Report Nbr - FCC_2014_0205_001	2014	Wills, Carrie D., Sarah A. Williams, and Kathleen A. Crawford	Cultural Resources Records Search and Site Visit Results for T-Mobile West, LLC Candidate IE04217A (CM217 First Methodist Church, 918 North Euclid Avenue, Ontario, San Bernardino County, California.	EAS	

Resource List

ARD2401

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-36-010330	CA-SBR-010330H	Resource Name - Union Pacific Railroad; Other - Southern Pacific Railroad; Other - West Line Basin Alignment; Other - Union Pacific Railroad Crossing at Anderson Street; Other - 19-186112	Structure, Object	Historic	AH07; HP39	1999 (S. Ashkar, Jones & Stokes Associates, Inc.); 2002 (Goodwin, R., LSA Associates, Inc.); 2008 (Harper, C.D., SWCA); 2010 (Tibbet, C., LSA Associates, Inc.); 2012 (Paul, Daniel D., ICF International)	SB-04335, SB-05495, SB-05614, SB-06291, SB-06441, SB-06720, SB-07451, SB-07666, SB-07955
P-36-013230		Resource Name - CRM Tech 1790-2	Building	Historic	HP02	2006 (Josh Smallwood, CRM Tech)	SB-05424
P-36-013231		Resource Name - CRM Tech 1790-3	Building	Historic	HP02	2006 (Josh Smallwood, CRM Tech)	SB-05424
P-36-013232		Resource Name - CRM Tech 1790-4	Building	Historic	HP02	2006 (Josh Smallwood, CRM Tech)	SB-05424
P-36-013233		Resource Name - CRM Tech 1790-5	Building	Historic	HP02	2006 (Josh Smallwood, CRM Tech)	SB-05424
P-36-013234		Resource Name - CRM Tech 1790-6	Building	Historic	HP02	2006 (Josh Smallwood, CRM Tech)	SB-05424
P-36-013235		Resource Name - CRM Tech 1790-7	Building	Historic	HP02	2006 (Josh Smallwood, CRM Tech)	SB-05424
P-36-013236		Resource Name - CRM Tech 1790-8	Building	Historic	HP02	2006 (Josh Smallwood, CRM Tech)	SB-05424
P-36-013237		Resource Name - CRM Tech 1790-9	Building	Historic	HP02	2006 (Josh Smallwood, CRM Tech)	SB-05424
P-36-013238		Resource Name - CRM Tech 1790-10	Building	Historic	HP02	2006 (Josh Smallwood, CRM Tech)	SB-05424
P-36-013239		Resource Name - CRM Tech 1790-11	Building	Historic	HP02	2006 (Josh Smallwood, CRM Tech)	SB-05424
P-36-013240		Resource Name - CRM Tech 1790-12	Building	Historic	HP02	2006 (Josh Smallwood, CRM Tech)	SB-05424
P-36-013241		Resource Name - CRM Tech 1790-13	Building	Historic	HP02	2006 (Josh Smallwood, CRM Tech)	SB-05424
P-36-013242		Resource Name - CRM Tech 1790-14	Building	Historic	HP02	2006 (Josh Smallwood, CRM Tech)	SB-05424
P-36-013243		Resource Name - CRM Tech 1790-15	Building	Historic	HP02	2006 (Josh Smallwood, CRM Tech)	SB-05424

Resource List

ARD2401

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-36-013244		Resource Name - CRM Tech 1790-16	Building	Historic	HP02	2006 (Josh Smallwood, CRM TECH)	SB-05424
P-36-015862		214 E Holt Blvd, Ontario; Dietz Garage			HP06	1987 (C. Hunt)	
P-36-015979		Euclid Ave Railroad Grade Separation Properties, Ontario; OHP Property Number - 059380					SB-00295
P-36-015980		Resource Name - DeAnza Park Marker & Anza Trail, Ontario; PHI - SBR-27	Structure, Site	Protohistoric, Historic	AP13; HP26	1973 (Kathryn Kaiser, DPR); 1986; 1987 (Bill Corrales, City of Ontario Planning)	
P-36-015982		Resource Name - Euclid Ave, Upland & Ontario; Voided - 36-018221; OHP Property Number - 092971	Structure	Historic	AH07	1979 (Vickie K. Alexander, Ontario Historic Landmarks); 1987 (Bryce Denton, City of Ontario); 1988 (Bonnie Parks, Caltrans); 1994 (Francesca Smith, Myra L. Frank & Associates)	SB-04678, SB-05723, SB-06516
P-36-015983		Resource Name - Mule Car; PHI - SBR-033	Structure	Historic	AH07	1974 (Kathryn Kaiser, DPR)	
P-36-016070		Resource Name - Chaffey High School Auditorium; Resource Name - Gardiner Spring Auditorium; Voided - 36-016128; OHP Property Number - 059736; Other - GWS Auditorium	Building, Element of district	Historic	HP01	2015 (Jeanette A. McKenna, McKenna et al.)	
P-36-016074		Resource Name - Chaffey High School; OHP Property Number - 059737	Building, District	Historic	HP15	1987 (Starratt, City of Ontario Planning)	SB-08082
P-36-016083		123 N. Euclid Ave, Ontario; Friend Block; Somerset Hall			AH15	1985 (Warner)	
P-36-016223		200 S. Euclid, Ontario; Frankish Bldg			AH15	1983 (C. Warren, M. Wormington)	
P-36-016226		300 S. Euclid, Ontario; Ontario State Bank Block				1983 (Warner)	
P-36-016288		125 W. Transit, Ontario; The Old Post Office/Company Store			AH15	1984 (Warren, Hoo)	

Resource List

ARD2401

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-36-016381		320 W D St, Ontario; St George Catholic Church			HP16	2014 (Daly & Associates)	SB-07732
P-36-016417		Other - Mission Rd, Loma Linda; Resource Name - San Bernardino-Sonora Rd; PHI - SBR-21	Site	Historic	AH07	1972; 2003 (D. Ballester); 2018 (D. Mengers, PanGIS); 2023 (David Brunzell, BCR)	SB-03732, SB-04203, SB-04365, SB-04678, SB-05420, SB-05643, SB-05973, SB-06441, SB-07183, SB-07393, SB-08323

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary #
HRI#
Trinomial

Page 1 **of** 1

***Resource Name or #:** P-36-15982

*Recorded by: Douglas Kazmier, George Brentner

*Date: February 8, 2024

☐ Continuation ☑ Update

This resource comprised a one-mile segment of Euclid Avenue between E 4th Street and E Holt Boulevard. It was originally recorded by B. Denton and M. Starratt on January 26, 1987. They described it as a fifteen-mile-long street with eight miles of "double boulevard with two rows of pepper tree." The southern seven miles was recorded as being four lanes wide. The median was sixty-five feet wide and some of the original stone curbs were still present. Subsequently, B. Parks updated the recording in 1988 and F. Smith did as well in 1994. It was originally determined eligible for the National Register of Historic Places (NRHP) on October 25, 1977 under Criterion C for being a "significant example of landscape architecture, community planning and as a transportation facility" (Smith 1994). It was listed in both the NRHP and the California Register of Historical Resources on August 10, 2005. BCR Consulting visited the resource on February 8, 2024 and found it to be as previously described.

References

Denton, Bryce, and Maggie Starratt
1987 *Department of Parks and Recreation Site Record Forms for P-36-15982*. On file with the South Central Coastal Information Center, Fullerton, California.
Parks, Bonnie
1988 *Department of Parks and Recreation Site Record Forms for P-36-15982*. On file with the South Central Coastal Information Center, Fullerton, California.
Smith, Francesca
1994 *Department of Parks and Recreation Site Record Forms for P-36-15982*. On file with the South Central Coastal Information Center, Fullerton, California.

P36-015982

State of California
DEPARTMENT OF TRANSPORTATION
ARCHITECTURAL INVENTORY/EVALUATION FORM

Hist.RES, DOE-36-94-0004-0000

__ LISTED X DETERMINED ELIGIBLE
__ APPEARS ELIGIBLE __ APPEARS INELIGIBLE

IDENTIFICATION AND LOCATION

1. Historic name Euclid Avenue Prop 092971 NR6Y1

*2. Common or current name same

*3. Number & street Euclid Avenue from Philadelphia to 24th Cross-corridor ______
City Ontario/Upland Vicinity only ______ Zip ______ County San Bernardino

4. UTM zone ______ A ______ B ______ C ______ D ______

5. Quad map No. ______ Parcel No. N/A Other ______

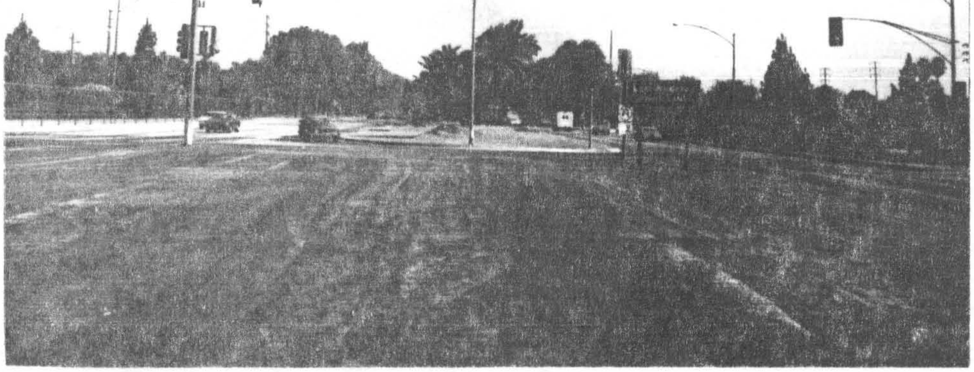
DESCRIPTION

6. Property category Structure If district, number of documented resources ______

*7. Briefly describe the present physical appearance of the property, including condition, boundaries, related features, surroundings, and (if appropriate) architectural style.

Euclid Avenue is a 200-foot wide boulevard, with a 60-foot median and two lanes of traffic on either side. The part of Euclid Avenue which was determined eligible for the National Register is located from Philadelphia Street, near Ontario's southern city limit, north through Ontario and Upland to 24th Street, Ontario's northern limit, a distance of 8.4 miles. Originally conceived as the main street of the "Model Colony," the avenue stretched a distance of 6.7 miles on a north-south axis. Within the project area, Euclid Avenue was heavily altered during construction of I-10-- the dirt median was paved in dyed, stamped concrete, the curbs and gutters replaced by standard concrete and the only trees were limited to three formal planters in the median. On the sidewalks, there are no flanking trees or landscaping. The only elements which associate the freeway overcrossing with the rest of the boulevard are the broad overall width and the wide median. Immediately north of the overcrossing, the median has grass lawn with concrete curbed planters

(continued on page A-13)



8. Planning agency
Ontario/Upland

9. Owner & address
public right-of-way

10. Type of ownership Public-local

11. Present use Public street

12. Zoning N/A

13. Threats Project Related

*Complete these items for historic preservation compliance projects under Section 106 (36 CFR 800). All items must be completed for historical resources survey information.

P36-015982

HISTORICAL INFORMATION

*14. Construction date(s) 1883 Original location Date moved

15. Alterations & date Rail tracks, some gutters trees removed. Area at I-10 altered.

16. Architect George Chaffey, Engineer Builder unknown

17. Historic attributes (with number from list)

SIGNIFICANCE AND EVALUATION

18. Context for evaluation: Theme Landscape Architecture Area Ontario, Upland
Period 1880s Property type Context formally developed? no.

*19. Briefly discuss the property's importance within the context. Use historical and architectural analysis as appropriate. Compare with similar properties.

Euclid Avenue was determined eligible for the National Register of Historic Places on October 25, 1977 under Criterion C, as a significant example of landscape architecture, community planning and as a transportation facility. Five blocks of arroyo stone gutters were separately determined eligible for the Register in November, 1979. The short segment of Euclid Avenue within the project area which comprises the bridge over Interstate 10 is listed in the Caltrans Structures Maintenance System- HSSALL as Category 5 "...not eligible for the National Register." The I-10 overcrossing segment of Euclid Avenue is devoid of those elements which make the other segments a significant resource to the community. The pepper and grevillea shade trees, the bridle trail and the arroyo stone gutters and curbs have each been removed or demolished along the overcrossing. The original overcrossing bridge was constructed around 1960, but was demolished toward the end of the decade to make way for a replacement bridge. The existing bridge was designed by the California Department of Transportation, (Caltrans) Structural Design department in late 1970. The current bridge has no remaining materials from the Chaffey brothers' 1883 main street, nor does it retain any parts of the earlier modern (circa 1960) bridge.

(continued on page A-13)

20. Sources
Spencer Crump, Henry Huntington and The Pacific Electric, 1978.; Charles Moore, The City Observed: Los Angeles, 1984; Route 30 F.O.E. & M.O.A.; Carey Mc Williams, Southern California: An Island In the Land, 1946.

21. Applicable National Register criteria C

22. Other recognition County Scenic Highway
State Landmark No. (if applicable)

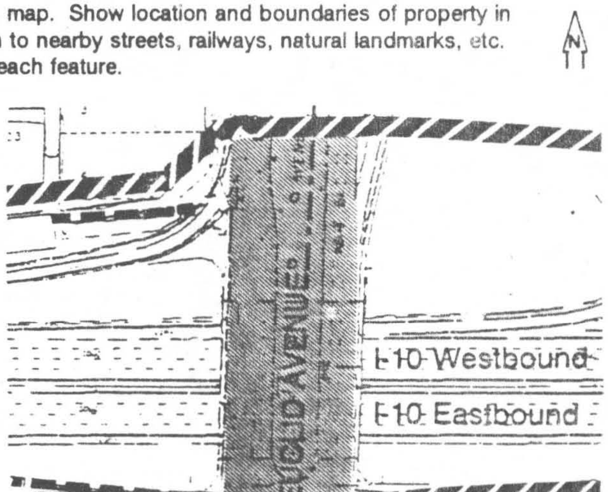
23. Evaluator
Date of evaluation

24. Survey type Caltrans

25. Survey name I-10 HOV/Segment 4B

*26. Year form prepared 1/5/94
By (name) Francesca Smith
Organization Myra L. Frank & Associates
Address 811 West Seventh Street, # 800
City & Zip LA, CA 90017
Phone (213) 627-5376

*Sketch map. Show location and boundaries of property in relation to nearby streets, railways, natural landmarks, etc. Name each feature.



~~PSBR-49H~~
P36-015982
~~NRHP-E-83-22402~~
CHS 1761-1

CALIFORNIA DEPARTMENT OF TRANSPORTATION
ARCHITECTURAL INVENTORY/EVALUATION FORM

MAP REFERENCE NO. 27
NRHP-E-94-0004,

County - Route - Postmile: SBd-30 0.0/22.8

( ) LISTED
( ) APPEARS ELIGIBLE
(xx) DETERMINED ELIGIBLE
( ) APPEARS INELIGIBLE

IDENTIFICATION

1.Common Name: Euclid Avenue

2.Historic Name: Euclid Avenue

3.Street or rural address: Euclid Avenue

City: Upland **Zip Code:** 91786 **County:** San Bernardino

4.Parcel Number: **Present Owner:** City of Upland

Address: City Hall **City:** Upland **Zip Code:**

5.Ownership Is: (x) Public ( ) Private

6.Present Use: Transportation **Original Use:** Transportation

DESCRIPTION

7a.Architectural Style: n/a

7b.The present PHYSICAL CONDITION of the site or structure and any major alterations from its original condition:

Euclid Avenue is a 200' wide divided boulevard with two lanes of roadway in each direction. The north/south alignment originally ran from the Southern Pacific Station in Ontario to 24th Street in Upland, a distance of 6.7 miles. It was later extended south through Ontario. The 60' wide median, formerly occupied by street railway tracks, is presently planted with grass in Ontario and downtown Upland, and lined on both sides with pepper trees, a few palms, and some later additions of other species. The east and west sides are planted with Eucalyptus and Grevillas. The portion between 24th Street and Philadelphia Street retains cobblestone curbs and gutters which have been covered over in other portions. This portion also retains cobblestone bridges over the gutters from the street to the properties. The "Madonna of the Trail" monument is located in the center of the median at the intersection with Foothill Boulevard.

NO PHOTO AVAILABLE

8. **Construction date**
   Estimated: ( ) **Factual:** (1883)
9. **Engineer:** George Chaffey
10. **Builder:**
11. **Approx. property size**
    Length: 8 miles **Width:** 200'
12. **Date(s) of enclosed photograph(s):**
    none

P36-015982

13.Condition: Excellent ( ) Good (x) Fair ( ) Deteriorated ( )

14.Alterations: As noted in item 7b.

15.Surroundings: Open landscape ( ) Scattered buildings ( ) Densely built-up ( )
Residential (x) Industrial ( ) Commercial (x)

16.Threats to site: None known ( ) Private Development ( ) Zoning ( ) Vandalism ( )
Public Works Project (x)

17.Is the structure: On its original site? (x) Moved? ( ) Unknown? ( )

18.Related features: As noted in item 7b.

SIGNIFICANCE

19.Historical and/or architectural importance (including dates, events, and persons associated with the site):

Designed by George and William B. Chaffey, of Ontario, Canada, who bought up thousands of acres and laid out several towns, including Etiwanda and the "Model Colony" of Ontario, Euclid Avenue was the centerpiece for the "Model Colony." It was flanked by 66' wide parallel streets at 1/2 mile intervals and crossed by numbered streets every 1/4 mile. The "Model Colony" received considerable acclaim from the beginning, including being selected by the U. S. government as the standard for American Irrigation Colonies, in 1903, which resulted in a model of the town being built and displayed at the World's Fair in St. Louis the following year.

The Chaffey brothers planned a double track cable street railroad to be run by water power for the center of the median. However, in 1888, Charles Frankish and Godfrey Stamm, of the Ontario Land and Improvement Company, installed a "Gravity Mule Car" which was mule drawn uphill to 24th Street and, with the mule aboard, gravity-powered on the downhill run. In 1895, this was replaced by a electrified trolley. The system was perfected by E. H. Richardson, of San Antonio Heights, at the end of Euclid Avenue, who, in 1905, invented the "Hotpoint" electric iron. In the 1920s buses replaced the street cars.

Euclid Avenue was determined eligible for the National Register of Historic Places October 25, 1977.

Location sketch map
(Site and surrounding streets, roads, and prominent landmarks): See Map 3.

20.Main theme of the historic resource:
(Numbered in order of importance.)

Architecture ( ) Arts & Leisure ( )
Economic/Industrial ( ) Exploration/Settlement ( )
Government ( ) Military ( ) Religion ( )
Community Planning (1) Transportation (2)

21.Sources (Books, documents, surveys, personal interviews and their dates.)

Roger G.Hatheway and Roger D. Mason, Historic Property Survey Report: Euclid Avenue Improvement Project, City of Upland, California, Project 3645. M.S. 1986; Vicki K. Alexander, Nomination to the National Register of Historic Places, "Euclid Avenue", 1979; Federal Register, Vol. 44, No. 26, February 6, 1979.

Wallace W. Elliott, History of San Bernardino and San Diego Counties, California with Illustrations, 1883, facsimile edition,Riverside: Riverside Museum Press, 1965.

22.Date form prepared: December 20, 1988
By: Bonnie Parks
Organization: Caltrans
Address: 1120 N Street
City: Sacramento **Zip Code:** 95814
Phone: (916) 920-7680

DEPARTMENT OF PARKS AND RECREATION

HISTORIC RESOURCES INVENTORY

Ser. No. ______

HABS ____ HAER ____ NR ____ SHL ____ Loc ____

UTM: A ______ B ______

C ______ D ______

P36-015982

IDENTIFICATION

1. Common name: Euclid Avenue (Additional information) 1786-10 1761-~~201-9959~~
2. Historic name: Euclid Avenue
3. Street or rural address: North of "G" Street

City Ontario Zip ______ County San Bernardino

4. Parcel number: ______
5. Present Owner: City of Ontario Address: ______

City ______ Zip ______ Ownership is: Public X Private ______

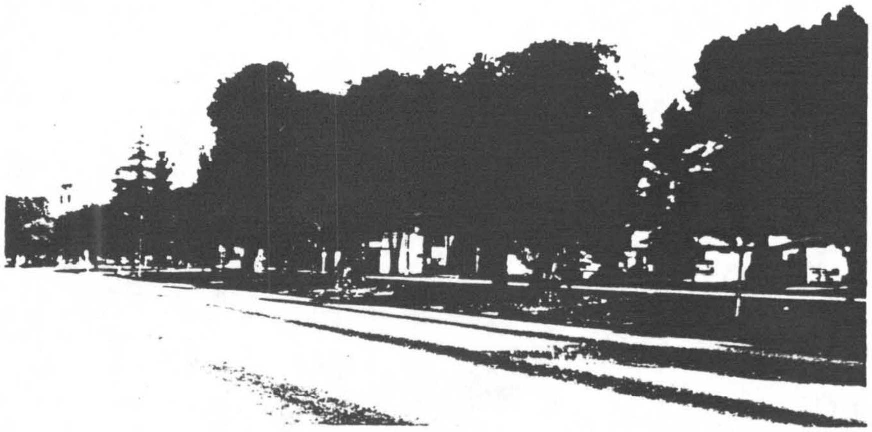
6. Present Use: ______ Original use: ______

DESCRIPTION

7a. Architectural style:

7b. Briefly describe the present *physical description* of the site or structure and describe any major alterations from its original condition:

Euclid Avenue is fifteen miles long, extending from the foothills to the north to Santa Ana Canyon to the south. Eight miles of this main thoroughfare have the double boulevard with two rows of pepper tree and the other seven miles are four lanes wide and continue south of the Ontario City boundary. Four and three-quarters (4.7) miles of the Avenue are within the current City boundaries of Ontario. The lawn carpeted center parkway is sixty-five feet wide and each of the parallel streets is sixty-six feet wide. Much of Euclid Avenue north of "G" Street has the original stone curbs, especially on the center medians. The Avenue was designed with a 2% slope to the South and each of the cross streets slope away from the Avenue.



8. Construction date:
   Estimated ______ Factual 1882
9. Architect Chaffey Bros., E.J.Jaquet
10. Builder Chaffey Brothers
11. Approx. property size (in feet)
    Frontage ______ Depth ______
    or approx. acreage 4.7 miles
12. Date(s) of enclosed photograph(s)
    11/7/83

DPR 523 (Rev. 4/79)

13. Condition: Excellent X Good ____ Fair ____ Deteriorated ____ No longer in existence ____

P36-015982

14. Alterations: ____

15. Surroundings: (Check more than one if necessary) Open land ____ Scattered buildings ____ Densely built-up ____
Residential X Industrial ____ Commercial X Other: ____

16. Threats to site: None known X Private development ____ Zoning ____ Vandalism ____
Public Works project ____ Other: ____

17. Is the structure: On its original site? X Moved? ____ Unknown? ____

18. Related features: ____

SIGNIFICANCE

19. Briefly state historical and/or architectural importance (include dates, events, and persons associated with the site.)

Euclid Avenue was originally laid out by the Chaffey brothers as one of the main features of their new Model Colony. It was staked out in 1882 and named Euclid because of the admiration George Chaffey had for the Greek mathematician. The planting of the pepper trees was done by Mr. Edward J. Jaquet along with four other men. It began in April of 1883 and continued through 1886. The eucalyptus and grevillea trees planted on the side parkways were chosen by the Chaffey brothers for their resistance to heat and drought. A 1939 census along Euclid Avenue counted 16 palm trees and 1730 pepper trees. A 1941 census by the Fire Department found 2099 trees. Euclid Avenue is a State scenic highway and has been chosen by a committee of landscape architects as one of the world's seven most beautiful boulevards and is considered as one of the seven most beautiful in America.

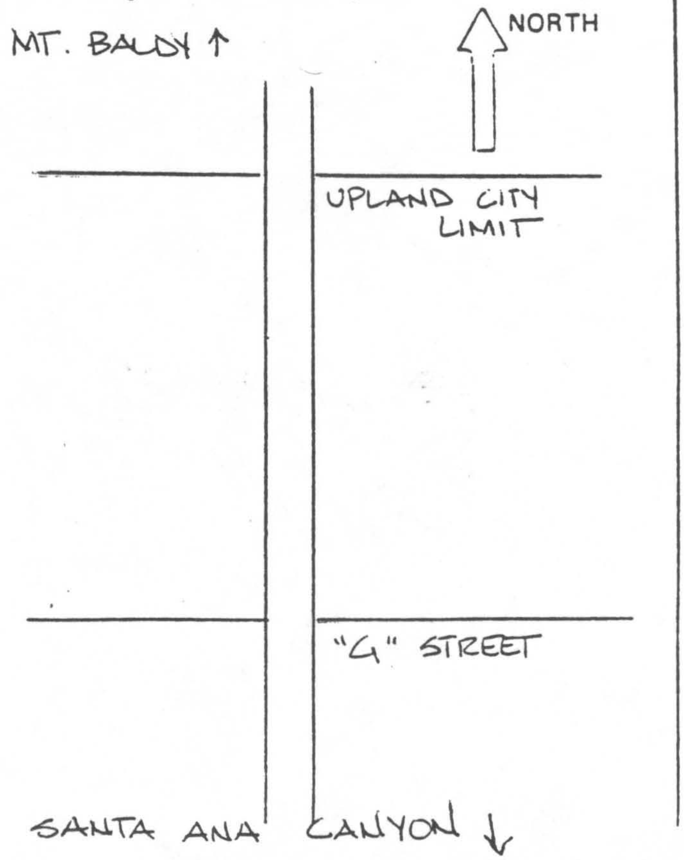
20. Main theme of the historic resource: (If more than one is checked, number in order of importance.)
Architecture ____ Arts & Leisure ____
Economic/Industrial ____ Exploration/Settlement X
Government ____ Military ____
Religion ____ Social/Education ____

21. Sources (List books, documents, surveys, personal interviews and their dates).

Model Colony Room Files

22. Date form prepared 1/26/87
By (name) Bryce Denton/Maggie Starratt
Organization City of Ontario Planning Dept.
Address: 303 East "B" Street
City Ontario Zip 91764
Phone: (714) 986-1151

Locational sketch map (draw and label site and surrounding streets, roads, and prominent landmarks):



[illegible]
of Sequence

No. 10-300 (Rev. 10-74)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

ATIONAL REGISTER OF HISTORIC PLACES INVENTORY -- NOMINATION FORM

FOR NPS USE ONLY
36-015982
RECEIVED
DATE ENTERED 8/10/2005

SEE INSTRUCTIONS IN *HOW TO COMPLETE NATIONAL REGISTER FORMS*
TYPE ALL ENTRIES -- COMPLETE APPLICABLE SECTIONS

1 NAME

NRHP-LISTED
05-000843

HISTORIC Euclid Avenue

AND/OR COMMON Euclid Avenue/State Route 83 (FAU)

2 LOCATION

STREET & NUMBER

__NOT FOR PUBLICATION

CITY, TOWN Ontario & Upland __ VICINITY OF

CONGRESSIONAL DISTRICT

STATE California CODE

COUNTY San Bernardino CODE

3 CLASSIFICATION

CATEGORY
- __DISTRICT
- __BUILDING(S)
- __STRUCTURE
- __SITE
- X OBJECT

OWNERSHIP
- X PUBLIC
- __PRIVATE
- __BOTH

PUBLIC ACQUISITION
- __IN PROCESS
- __BEING CONSIDERED

STATUS
- __OCCUPIED
- __UNOCCUPIED
- __WORK IN PROGRESS

ACCESSIBLE
- X YES: RESTRICTED
- __YES: UNRESTRICTED
- __NO

PRESENT USE
- __AGRICULTURE
- __COMMERCIAL
- __EDUCATIONAL
- __ENTERTAINMENT
- __GOVERNMENT
- __INDUSTRIAL
- __MILITARY
- __MUSEUM
- __PARK
- __PRIVATE RESIDENCE
- __RELIGIOUS
- __SCIENTIFIC
- X TRANSPORTATION
- __OTHER:

4 OWNER OF PROPERTY

NAME State of California, Department of Transportation

STREET & NUMBER 1120 N Street

CITY, TOWN Sacramento __ VICINITY OF

STATE CA 95814

5 LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC.

STREET & NUMBER

CITY, TOWN

STATE

6 REPRESENTATION IN EXISTING SURVEYS

TITLE

DATE

__FEDERAL __STATE __COUNTY __LOCAL

DEPOSITORY FOR SURVEY RECORDS

CITY, TOWN

STATE

8 SIGNIFICANCE

PERIOD

__PREHISTORIC
__1400-1499
__1500-1599
__1600-1699
__1700-1799
X1800-1899
__1900-

AREAS OF SIGNIFICANCE -- CHECK AND JUSTIFY BELOW

__ARCHEOLOGY-PREHISTORIC
__ARCHEOLOGY-HISTORIC
__AGRICULTURE
XARCHITECTURE
__ART
__COMMERCE
__COMMUNICATIONS

XCOMMUNITY PLANNING
__CONSERVATION
__ECONOMICS
__EDUCATION
__ENGINEERING
__EXPLORATION/SETTLEMENT
__INDUSTRY
__INVENTION

__LANDSCAPE ARCHITECTURE
__LAW
__LITERATURE
__MILITARY
__MUSIC
__PHILOSOPHY
__POLITICS/GOVERNMENT

__RELIGION
__SCIENCE
__SCULPTURE
__SOCIAL/HUMANITARIAN
__THEATER
XTRANSPORTATION
__OTHER (SPECIFY)

SPECIFIC DATES

BUILDER/ARCHITECT

STATEMENT OF SIGNIFICANCE

The significance of Euclid Avenue can be assigned to three areas: community planning, landscape architecture and transportation.

Euclid Avenue was conceived of by George Chaffey as a main thoroughfare from one end of the "Model Colony" of Ontario, at the Southern Pacific Railroad tracks, to the other, at the foot of San Gabriel Mountains; and around which the "Model Colony" would be laid out and centered. J. A. Alexander (1928; 48) states:

> "George Chaffey's subdivision (of Ontario) set a new standard for rural communities. Its most striking feature was that every ten-acre lot had a street or avenue frontage. From the mesa he laid out the main avenue 200 feet wide and eight (actually 6.2) miles long to the Southern Pacific Railway crossing. Parallel avenues 66 feet wide were laid out at half-mile intervals. These were intersected by numbered cross streets running east and west every quarter of a mile, thus cutting the tract into a series of eighty-acre blocks, each subdivided into eight ten-acre lots, ----."

An indication of the successfulness of George Chaffey's planned "Model Colony", was that, on January 17, 1903, it was chosen by the United States Government as the standard for American Irrigation Colonies. As such, a model of the entire colony was made by Federal engineers for exhibition at the 1904, St. Louis World's Fair.

Euclid Avenue, from the Southern Pacific tracks to 24th Street (6.2 miles), was designed and laid out in 1882 by George and William Chaffey, the founders of Ontario. Construction was begun in that same year under their direct supervision. By January 1883, four miles had been graded. Planting of the parkway trees between the Southern Pacific tracks and 4th Street began in April 1883, and was completed to 24th Street in 1884. The center parkway was planted with a double row of pepper and palm trees. Most of the palms were removed later. A single row of grevilleas and eucalyptuses was planted along the side parkways. The trees were selected because of their resistance to heat and drought and their ornamental qualities.

Determined Eligible 10/25/77; requested by DOT/FHWA; Euclid Avenue.

Item Number 7 -- continued

Immediately north of the Madonna of the Trail monument is the entrance to the bridal path which extends north to 24th Street (see Photos 8 and 10).

The only major alteration of Euclid Avenue was construction of the Interstate 10 Freeway, which passes underneath, thus making it necessary to construct an overpass linking the two severed ends of Euclid Avenue. There have been an unknown number of minor alterations (e.g., reconstruction of some of the cobblestone curbs and gutters, slight modification of the intersection at Euclid and Holt, construction of concrete slabs with benches and planters, removal of many of the cast iron lampposts, painting curbs red or yellow, etc.). None of the alterations which have occurred have significantly impaired the overall integrity of Euclid Avenue.

The setting of Euclid Avenue has not changed, except to the extent that over time buildings and structures fronting Euclid Avenue have changed. This change is reflected primarily in the different architectural styles of houses and commercial buildings fronting Euclid Avenue. The setting has been somewhat altered by the removal of significant historical, architectural, and cultural features along Euclid Avenue.

---

7 DESCRIPTION

CONDITION		CHECK ONE	CHECK ONE
_EXCELLENT	_DETERIORATED	_UNALTERED	X ORIGINAL SITE
X GOOD	_RUINS	X ALTERED	_MOVED DATE_____
_FAIR	_UNEXPOSED		

DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

Historic Euclid Avenue, part of State Route 83, is a spacious treelined boulevard 200' wide and 8.4 miles long. It consists of two drives, one southbound and one northbound which are separated by a 60-foot wide center parkway and bordered by 15-foot wide sidewalks. It extends from Philadelphia (Ely) Street, near Ontario's southern City limit, north, through the Cities of Ontario and Upland to 24th Street, Upland's northern City limit.

The center parkway of Euclid Avenue from Philadelphia Street to Foothill Boulevard (Route 66) is planted to grass and trees (see Photos 1 and 6), while between Foothill and 24th Street there are only trees (see Photos 8 and 10). The center parkway trees from Philadelphia Street to the Interstate 10 Freeway are predominately peppers with some palms (original plantings - 1883) et al (see photos 1, 2, 3 and 5); from I-10 to Foothill Boulevard they are exclusively camphors; and from Foothill to 24th the center parkway trees are exclusively peppers (see Photos 8 and 10). The side parkway trees are predominately grevilleas (original plantings - 1883, 84, and 86) with some palms (original plantings - 1883) between the S.P. tracks and 4th Street.

The curbs and gutters along Euclid Avenue from Philadelphia Street to 24th Street are made of granite cobblestones and concrete (see Photo 9), except in those few places where they have been reconstructed with concrete only.

Relatively few of the old (1895?) cast iron lampposts (see Photo 4) are still in evidence along Euclid Avenue; this is because the City of Ontario is gradually replacing them with more modern lighting fixtures.

The fountain erected by George Chaffey in 1883, still stands in the middle of the center parkway at the intersection of Euclid Avenue and Emporia Streets, its original location (see Photos 2 and 3).

The Women's Christian Temperance Union (W.C.T.U.) drinking fountain and the Mule Car display are located in the center parkway between Holt (Valley) Boulevard and B Street (see Photo 5). The W.C.T.U. fountain, built in 1908, was originally located on the northwest corner of Euclid and Holt, but was subsequently moved to a local park. A local service club moved the fountain to its present location in 1975.

In the next few blocks north of B Street there are several concrete slabs with fixed benches and planters which are located in the center parkway. These were constructed by the City of Ontario to replace a number of movable benches.

The Madonna of the Trail monument is located in its original location in the center parkway at the intersection of Euclid Avenue and Foothill Boulevard (see Photo 7).

Charles Frankish was responsible for extending Euclid Avenue from the Southern Pacific tracks south to Ely (Philadelphia) Street, a distance of 2.2 miles. It was laid out, graded and planted under his personal supervision in 1886 to conform to Euclid Avenue north of the S.P. tracks.

Euclid Avenue has received widespread recognition and acclaim as an outstanding example of landscape architecture. An article in the Los Angeles Times Newspaper of October 24, 1926, stated:

> "It is a boulevard of national and even world renown and is unmatched for its beauty --- an attraction 'raved over' by every visitor to Southern California."

Ed Ainsworth reported on Euclid Avenue in his newspaper column, "El Camino Real", during the mid 1930's, that:

> "Charles Gibbs Adams, nationally known landscape architect, not long ago reported that a jury of experts, named for the purpose of selecting the world's most beautiful highways had included the Ontario thoroughfare in its list of seven."

In addition to its significance in the planning of Ontario and its subsequent renown as an outstanding example of landscape architecture, Euclid Avenue is also a transportation facility. As such, it is one of the earliest examples of a divided highway.

The Ontario and San Antonio Heights Railroad Company operated a most unusual transit system on Euclid Avenue between 1888 and 1895. It was called the "Gravity Mule Car", and consisted of small single, rail cars which were pulled up Euclid Avenue to San Antonio Heights by a pair of mules. Upon arrival at San Antonio Heights, the mules were unhitched and loaded onto an enclosed platform at the rear of the rail car for the gravity-powered-ride down to Ontario. The mule car was a unique conveyance even for its own time. It ran on track which was laid in the center parkway of Euclid Avenue, between the double row of pepper trees. The mule car railway was built by the Ontario Land and Improvement Company, the parent corporation of the Ontario and San Antonio Heights Railroad Company.

In 1895, the mule cars were replaced by electric-powered trolley cars. The"electrification" of the trolley line was done by Mr. E. H. Richardson, who invented the famous "Hotpoint" electric iron in 1905. When the trolley line was replaced by bus service, the tracks were removed and lawn planted in the center parkway.

Historic Euclid Avenue is now part of State Highway 83, running from 24th Street to south of Chino, where it enters State Route 71, a distance of some 15 miles.

In 1883, George Chaffey erected the fountain, which is still standing, in the center parkway of Euclid Avenue at Emporia Street. He did so because the neighboring community of Pomona was spreading a spurious rumor that the "Model Colony" had no water. Thus, to show that Ontario had water to spare, George Chaffey erected the fountain on Euclid Avenue, adjacent to the Southern Pacific Railroad tracks, and, as each train passed by, the fountain was turned on, shooting a large jet of water into the air for the edification of the passengers, especially those from Pomona.

In 1952, when Ontario's City Manager planned to raze the fountain, long-time residents of Ontario together with the Native Sons and Daughters of the Golden West opposed the action so strongly that the City abandoned its plan. Instead of being razed the fountain was renovated and fenced off. The fence was subsequently removed and the fountain's basins filled with cement to prevent accidental downings. Since that time the City has shut off the fountain's water. Grace Canada Gilman, internationally known artist and former Ontario resident, has lauded the fountain's classic lines and made it the subject of at least one of her paintings.

The Madonna of the Trail monument to the Pioneer Mothers was dedicated by a then obscure federal judge from Missouri -- Harry S. Truman.

The Anza Trail, over which Juan Bautista de Anza, in 1774, led the first overland party into California, crosses Euclid Avenue just below Mission Boulevard, old Route 60.

George Chaffey, who conceived of Euclid Avenue and, with his brother, turned that conception into a reality, is the person most significantly associated with it. He founded the towns and cities of Etiwanda (1882), Ontario (1882), Mexicali (1901), Calexico (1901), Imperial (1901), and Manzanar (1905) in California and the City of Mildura, Australia (1888), all in connection with his many irrigation projects.

Anonymous

1952 *The Daily Report*, Ontario. December 11, 14 and 27.

1953 *The Daily Report*, Ontario. January 4

1957 "Euclid Avenue, Ontario, U.S.A.," "Famous Gravity Mule Car," and "First Hydro-Electric Power." *Official Program, Ontario Diamond Jubilee.* Mexican-American Civic Committee, Ontario.

1958 "1887-1888, San Bernardino County Shares in the Boom of the Eighties, and the Pattern of Many of its Present Valley Towns and Cities is Established." *The Story of San Bernardino* County. Pioneer Title Insurance Company, San Bernardino, California.

1963 *The Daily Report*, Ontario.

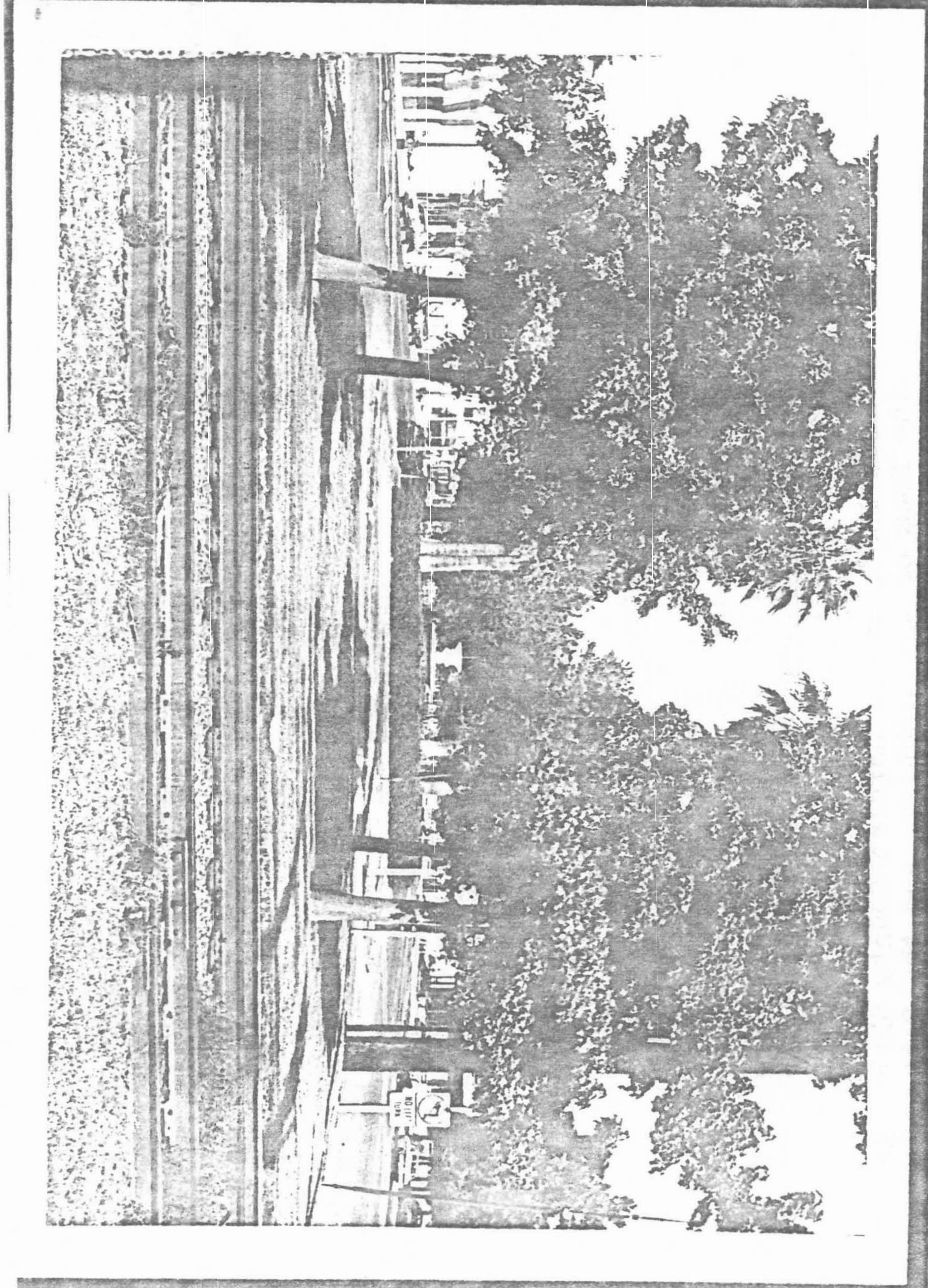
N.D. *The Daily Report*, Ontario. Various.

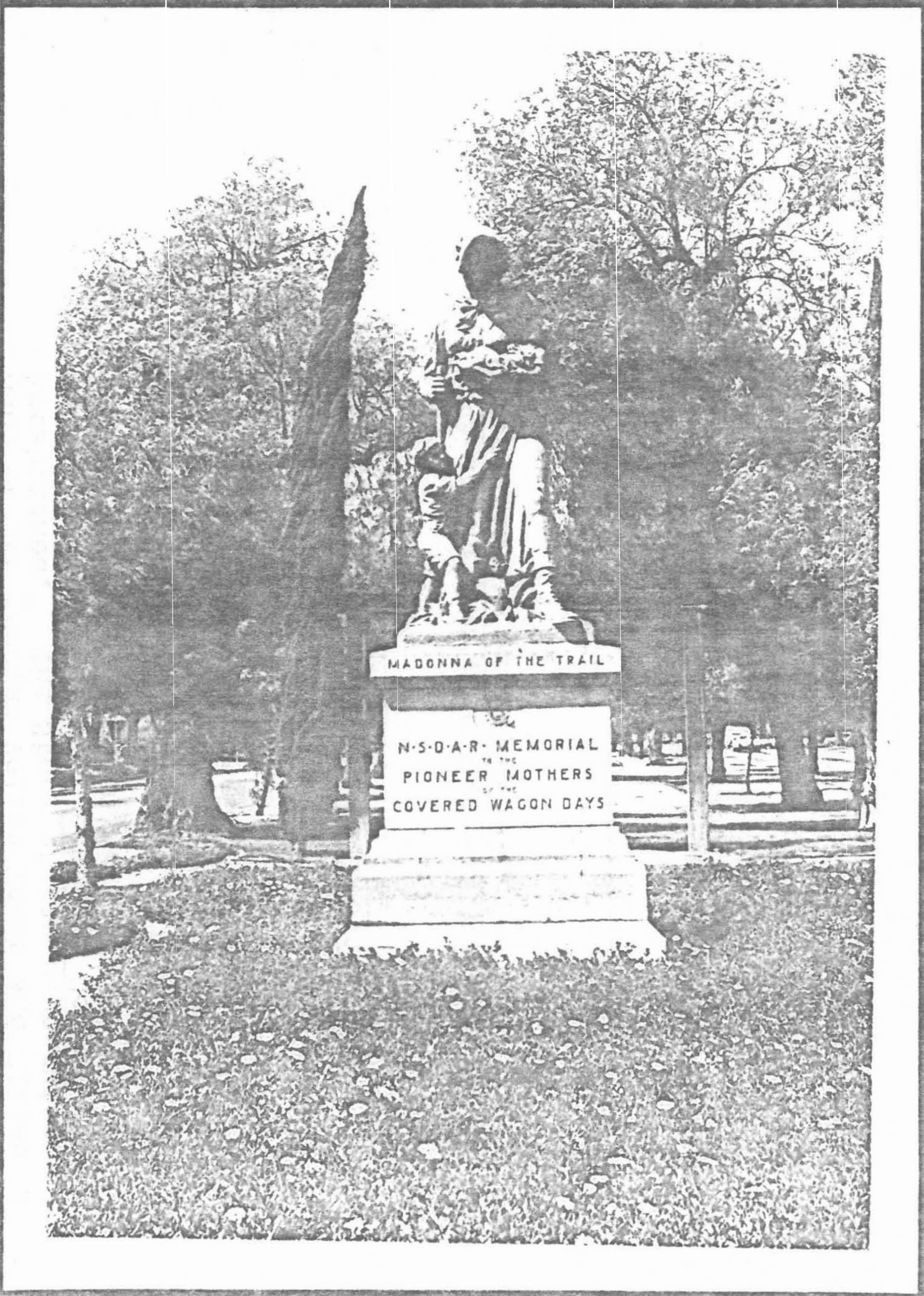
Alexander, J. A.
1928 *The Life of George Chaffey: A Story of Irrigation Beginnings: California and Australia.* MacMillian and Co. LTD, London.

Frankish, Charles
1888 *Ontario the Gem of Colonies.* Ontario Observer Steam Printing House, Ontario.

Frankish, Leonard
1961 "Out of the West." *The Daily Report*, Ontario. March 23.

1962 "Out of the West." *The Daily Report*, Ontario. February 18 and October 28.




MADONNA OF THE TRAIL
N·S·D·A·R· MEMORIAL
TO THE
PIONEER MOTHERS
OF THE
COVERED WAGON DAYS

9 MAJOR BIBLIOGRAPHICAL REFERENCES

See continuation sheet

---

10 GEOGRAPHICAL DATA

ACREAGE OF NOMINATED PROPERTY

UTM REFERENCES

A ZONE EASTING NORTHING

B ZONE EASTING NORTHING

C

D

VERBAL BOUNDARY DESCRIPTION

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE CODE COUNTY CODE

STATE CODE COUNTY CODE

11 FORM PREPARED BY

ONTARIO HISTORIC LANDMARKS SOCIETY, INC.
P.O. BOX 1493
ONTARIO, CALIFORNIA 91762

NAME / TITLE
Vickie K. Alexander, President

3-7-79

ORGANIZATION
Ontario Historic Landmarks Society, Inc.

DATE

STREET & NUMBER
9530 Benson

TELEPHONE
(714) 983-1624

CITY OR TOWN
Montclair

STATE
CA 91761

12 STATE HISTORIC PRESERVATION OFFICER CERTIFICATION

THE EVALUATED SIGNIFICANCE OF THIS PROPERTY WITHIN THE STATE IS:

NATIONAL ___ STATE ___ LOCAL ___

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

STATE HISTORIC PRESERVATION OFFICER SIGNATURE

TITLE

DATE

FOR NPS USE ONLY

I HEREBY CERTIFY THAT THIS PROPERTY IS INCLUDED IN THE NATIONAL REGISTER

DATE

DIRECTOR, OFFICE OF ARCHEOLOGY AND HISTORIC PRESERVATION

ATTEST:

DATE

KEEPER OF THE NATIONAL REGISTER

In 1882, he helped create the Holt-Chaffey Mutual Water Company system, which was used as a model for nearly all future irrigation companies in California. Etiwanda was the first irrigation settlement in California to be watered by a cement pipeline system. It was also the first place on the Pacific Slope at which hydroelectric current was developed. George Chaffey was the first engineer in Western America to file on mountain streams for electric current. In 1882, he successfully organized the Los Angeles Electric Company and made Los Angeles the first City in the United States, if not the world, to be lighted exclusively by electricity. In that same year, he installed a private telephone line from San Bernardino to Etiwanda. As such, it was the first long distance telephone line in California and the longest telephone line in the world.

During 1900-01, George Chaffey accomplished the greatest feat of his illustrious career - construction of the Imperial Canal. This 70-mile canal was constructed from the Colorado River through Mexico and into the Imperial Valley of California. It was completed in May of 1901, bringing the first water for irrigation purposes to the arid Salton Sink, which has since become an important agricultural area.

folders for each Historic

South Pasadena. *BUENA VISTA DISTRICT*, 917–1005 Buena Vista St.,

South Pasadena. *OAKLAND DISTRICT*, Oakland Ave.,

South Pasadena. *RHODES HOUSE*, 365 W. Bellevue Dr.,

South Pasadena. *WEST BELLEVUE DRIVE DISTRICT*, Portions of Naverley Dr., Bellevue Dr., Palmetto Dr., and Pasadena Ave.,

los angeles county

Los Angeles. *BALDWIN PARK CITY HALL (CENTRAL SCHOOL), BALDWIN PARK PASADENA, VISTA DEL ARROYA COMPLEX*, Bounded by Arroyo Blvd, and Defender's Pkwy, and Grand Ave. (63.3),

madera county

ARCHEOLOGICAL SITES, Buchanan Dam at Chowchilla River,

ARCHEOLOGICAL SITES: MAD-289 AND MAD-293, near Kerckhoff Lake (63.3),

Hensley Dam vicinity. *CA-MAD 176–185*,

Hensley Dam vicinity. *LOWER CHINA CROSSING*,

Hensley Dam vicinity. *NEW SITE*,

Sierra National Forest. *BASS LAKE ARCHEOLOGICAL SITES*,

marin county

Point Reyes. *P. E. BOOTH COMPANY PIER*, Point Reyes National Seashore,

Point Reyes. *POINT REYES LIGHT STATION*,

mariposa county

OLD COULTERVILLE ROAD AND TRAIL, Yosemite National Park,

WAWONA ARCHEOLOGICAL DISTRICT, Yosemite National Park,

mendocino county

Mendocino National Forest. *STICK LAKE PREHISTORIC SITE, CASE NO. 05-08-67*,

Mendocino National Forest. *UPPER LEACH LAKE PREHISTORIC SITE, CASE NO. 05-08-67*,

modoc county

Alturas vicinity. *RAIL SPRING*, About 30 mi. (48 km) N. of Alturas in Modoc National Forest,

Fender Flat vicinity. *JOHNSON SLOUGH SITE (SITE 1)*,

Tulelake vicinity. *LAVA BED NATIONAL MONUMENT ARCHEOLOGICAL DISTRICT*, S. of Tulelake,

mono county

Inyo National Forest. *ARCHEOLOGICAL SITE CA-MNO-584*,

monterey county

Big Sur. *POINT SUR LIGHT STATION*,

Salinas. *BUNN, THOMAS M., HOUSE*, 425 Blanco Rd.,

Salinas. *SURBECK, MARGARET HART, HOUSE*, 322 Blanco Rd. (63.3),

Salinas. *275 BLANCO ROAD HOUSE*, (63.3),

napa county

ARCHEOLOGICAL SITES 4-NAP-14, 4-NAP-261, Napa River Flood Control Project,

orange county

Cooks Corners vicinity. *ARCHEOLOGICAL DISTRICT*, (63.3),

plumas county

Mineral. *HAY BARN AND COOK'S CABIN, DRAKESBAD (SIFFORD FAMILY) GUEST HOUSE*, Lassen Volcanic National Park,

Mineral. *SUMMIT LAKE RANGER STATION*, Lassen Volcanic National Park,

Plumas National Forest. *ARCHEOLOGICAL SITES 05-11-55-11, 28, 33, 43, 44*,

riverside county

Blythe vicinity. *SUNDESERT, ARCHEOLOGICAL DISTRICT A*, (63.3),

Blythe vicinity. *SUNDESERT, ARCHEOLOGICAL DISTRICT E*, (63.3),

Blythe vicinity. *SUNDESERT, ARCHEOLOGICAL DISTRICT F*, (63.3),

La Quinta vicinity. *ARCHEOLOGICAL DISTRICT LA QUINTA EVACUATION CHANNEL*, Covers a 240 ft. easement from La Quinta to the white water at Indio,

Twentynine Palms. *COTTONWOOD OASIS (COTTONWOOD SPRINGS)*, Joshua Tree National Monument,

Twentynine Palms. *LOST HORSE MINE*, Joshua Tree National Monument,

sacramento county

SACRAMENTO RIVER BANK PROTECTION PROJECT, SITE 1, Sacramento River,

Sacramento. *SACRAMENTO WEIR*,

Sacramento. *TOWER BRIDGE*, M St. over Sacramento River, (also in Yolo County)

san barbara county

Santa Barbara vicinity. *POINT CONCEPTION LIGHT STATION*,

san bernadino county

Highland. *HIGHLAND HISTORIC DISTRICT*, Bounded by AT & SF RR. line, Pacific St., Church Ave., rear lots of Main St. and Cole Ave. (63.3),

Steam Well vicinity. *STEAM WELL PETROGLYPH ARCHEOLOGICAL DISTRICT*,

san bernardino county

Johannesburg. *TRONA PINNACLES RAILROAD CAMP*,

Ontario. *EUCLID AVENUE RAILROAD GRADE SEPARATION-PROPERTIES*,

Redlands vicinity. *MARSHALL HOUSE*, 27297 Barton Rd.,

Redlands vicinity. *WHITE HOUSE*, 26849 Barton Rd.,

San Bernardino. *SQUAW SPRING WELL ARCHEOLOGICAL DISTRICT*,

Twentynine Palms. *TWENTYNINE PALMS OASIS*, Joshua Tree National Monument,

san diego county

Campo. *CAMPO RAILROAD STATION*,

Escondido vicinity. *CALTRANS PROJECT (ARCHEOLOGICAL SITE 4-SDI-4558)*,

North Island. *CAMP HOWARD, U.S. MARINE CORPS*, Naval Air Station,

North Island. *ROCKWELL FIELD*, Naval Air Station,

San Diego. *MARINE CORPS RECRUIT DEPOT*, Barnett Ave.,

San Diego vicinity. *ARCHEOLOGICAL SITES SDI 4807, 4808, 4806, 4556*,

san francisco county

San Francisco. *ARONSON HISTORIC DISTRICT*, 87 3rd St., 693 and 710 Mission St.,

San Francisco. *FIRE BOAT HOUSE*, The Embarcadero (63.3),

San Francisco. *FLEISHHACKER POOL*, SE corner of Sloat Blvd. and the Great Hwy. (63.3),

San Francisco. *FOREST HILL STATION*,

San Francisco. *JESSIE HOTEL*, 179–181 Jessie St.,

San Francisco. *MERCANTILE BUILDING*, 710 Mission St.,

San Francisco. *NORTH POINT PARK; MARINA (EAGLE CAFE AND PIER FACADES)*, San Francisco northern waterfront,

San Francisco. *PIER 16 AND SHED*, The Embarcadero (63.3),

San Francisco. *SALVATION ARMY BUILDING*, 360 4th St.,

San Francisco. *SAN FRANCISDO SEAWALL*, The Embarcadero (63.3),

San Francisco. *ST. PATRICK CHURCH*, 748 Mission St.,

San Francisco. *THE FEDERAL BUILDING*, 100 McAllister St.,

San Francisco. *TWIN PEAKS TUNNEL*,

san luis obispo county

New Cuyana vicinity. *CALIENTE MOUNTAIN AIRCRAFT LOOKOUT TOWER*, 13 mi. (20.8 km) NW of New Cuyana off Rte. 166,

San Luis Obispo. *SAN LUIS OBISPO LIGHT STATION*,

san mateo county

Hillsborough. *POINT MONTANA LIGHT STATION*,

santa barbara county

ARCHEOLOGICAL SITES: CA-SBA-534; CA-SBA-551; CA-SBA-654; CA-SBA-678; CA-SBA-680; CA-SBA-682; CA-SBA-932; CA-SBA-1109; CA-SBA-1128; CA-SBA-1129, CA-SBA-1145; FS 05-14-59-45A; FS 05-14-59-45B, (63.3),

CA-SBA-539, (63.3),

CA-SBA-670, (63.3),

CA-SBA-931, (63.3),

SITE SBA-189, Near Veronica Springs Rd. (63.3),

U.S. COAST GUARD RESCUE STATION AND LOOKOUT TOWER, Venderberg Air Force Base (63.3),

Santa Barbara. *0*, Santa Monica Creek,

Santa Barbara. *S. P. RAILROAD DEPOT*, W of State St. (63.3),

Santa Barbara. *SANTA BARBARA TURN OF THE CENTURY ARCHITECTURAL DISTRICT*, Roughly bounded by Canon Perdido, Hwy. 101 and Cota and Bath Sts. (63.3),

Santa Barbara. *111 GUTIERREZ ST.*, (63.3),

Santa Barbara. *17 W. HALEY ST.*, (63.3),

Santa Barbara. *208 PALM ST.*, (63.3),

Santa Barbara. *212 PALM ST.*, (63.3),

Santa Barbara. *217 STATE ST.*, (63.3),

Santa Barbara. *23 W. HALEY ST.*, (63.3),

Santa Barbara. *315 CASTILLO ST.*, (63.3),

Santa Barbara. *315 STATE ST.*, (63.3),

Santa Barbara. *317 CHAPALA ST.*, (63.3),

Santa Barbara. *324–330 STATE ST.*, (63.3),

Santa Barbara. *333 ANACAPA ST.*, (63.3),

Santa Barbara. *409 STATE ST.*, (63.3),

Santa Barbara. *412 W. MONTECILO ST.*, (63.3),

Santa Barbara. *435 CHAPALA ST.*, (63.3),

Santa Barbara. *501 CHAPALA ST.*, (63.3),

Santa Barbara vicinity. *ARCHEOLOGICAL SITE CA-SBA-1437*, Los Padres National Forest (63.3),

Santa Barbara vicinity. *ARCHEOLOGICAL SITE CA-SBA-1444*, Los Padres National Forest (63.3),

Santa Barbara vicinity. *ARCHEOLOGICAL SITE CA-SBA-822*, Los Padres National Forest (63.3),

Santa Barbara vicinity. *SITE CA-SBA-1325*,

santa clara county

Coyote. *THE JOHNSON HOUSE COMPLEX*, Monterey Rd. (63.3),

Coyote vicinity. *THE DIARY*, (63.3),

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary #
HRI#
Trinomial

Page 1 **of** 1

***Resource Name or #:** P-36-15983

*Recorded by: Douglas Kazmier and George Brentner *Date: February 22, 2024 ☐ Continuation ☑ Update

This resource comprised a 36-foot segment of the historic-period Euclid Avenue mule car line. It was listed as a California Point of Historical Interest on July 8, 1974. This listing described it as a railroad track, built in 1887, that travelled along the center of Euclid Avenue, on which two mule cars traveled up and down its then eight-mile length. Electric trolley cars replaced them in 1896. BCR Consulting visited a 36-foot segment of the resource that was within the project area (at the intersection of Euclid Ave and W F St) on February 8, 2024. There was no longer any trace of the resource within the area surveyed because the tracks had been removed and paved over.

References

Department of Parks and Recreation
1974 Mule Car, listed in *California Points of Historical Interest*. California State Historic Preservation Office.

STATE OF CALIFORNIA—THE RESOURCES AGENCY EDMUND G. BROWN JR., Governor

DEPARTMENT OF PARKS AND RECREATION
P.O. BOX 2390
SACRAMENTO 95811
(916) 445-8006

September 27, 1979

San Bernardino County ~~Historical Society~~ Museum
446 Chestnut Avenue
Redlands, CA 92373

Euclid Avenue
State Route 83
Ontario & Upland

The National Register of Historic Places Program is administered in California by the State Office of Historic Preservation. The property indicated above has been submitted for the Register.

☒ The State Historical Resources Commission will consider this property and make a judgment as to whether or not it meets the criteria on November 9, 1979 at 9:00 am. in City Council Chambers, 3900 Main Street, Riverside, California

☐ As the unit of local government containing the property, your comments on the significance of this property would be appreciated no later than one week prior to the next meeting of the State Historical Resources Commission.

☒ As your organization has been identified as having an interest in historic preservation in this area, we would appreciate your comments on the significance of the property no later than one week prior to the next meeting of the State Historical Resources Commission.

☐ The State Historical Resources Commission recommended the nomination of the property to the National Register. It will be presented to the State Historic Preservation Officer for formal nomination. The final decision will be made by the Keeper of the National Register, U. S. National Park Service, Washington, D.C. 20240.

☐ The property was placed on the National Register ____________

Placement on the National Register affords a property the honor of inclusion in the nation's official list of cultural resources worthy of preservation and provides a degree of protection from adverse effects resulting from federally funded or licensed projects. Registration provides a number of incentives for preservation of historic properties, including special building codes to facilitate the restoration of historic structures, federally guaranteed loans for the rehabilitating of residential properties, grants for restoration, and certain tax advantages. There are no restrictions placed upon a private property owner with regard to normal use, maintenance, or sale of a property listed in the National Register; however, proposals to demolish registered properties may require a standard review in compliance with local ordinances or the California Environmental Quality Act. In addition, certain provisions of the Tax Reform Act of 1976 relate directly to the demolition and replacement of structures listed in the National Register.

Sincerely yours,

Knox Mellon

Dr. Knox Mellon
State Historic Preservation Officer

DPR 548 (2/78)

P36-015983

STATE OF CALIFORNIA—RESOURCES AGENCY
DEPARTMENT OF PARKS AND RECREATION

POINT OF HISTORICAL INTEREST

DO NOT WRITE IN THIS BLOCK
Reg. No. SBr-033
Date 9-13-74
By

County San Bernardino

Name Mule Car

Location Ontario

Historical Significance:

The Cities of Ontario and Upland were developed by the Chaffey Brothers in 1882. Connecting the two cities was a very wide north/south street named Euclid Avenue. This 100' wide avenue extended from the San Gabriel Mountains to the Valley of Chino in a distance of approximately eight miles.

As the land along Euclid Avenue sold quickly, need for transportation developed. Mr. J. H. Tays, mining man from Mexico, developed the historic Mule Car transportation system from those he had seen in operation in the mines in Mexico.

Railroad tracks were laid and two mule cars built in 1887. The mules would pull the car north up Euclid Avenue and would be placed on a small car behind the trolley car to rid back down hill.

In 1896, the mules were replaced by electricity.A replica of the original Ontario & San Antonio Heights R.R. Co.-Mule Car Trolley, has now been placed on exhibit at Euclid Avenue and B. Streets in Ontario.

THIS POINT OF HISTORICAL INTEREST IS NOT A STATE REGISTERED HISTORICAL LANDMARK.

RECOMMENDED: Nancy E. Smith
Signature—Chairman, County Board of Supervisors

Date JUL -8 1974

APPROVED: Kathryn H. Kaiser
Signature—Chairman, Historical Landmarks Advisory Committee

Date September 5, 1974

DPR-147 (4-66)

68355-768 4-66 5M TRIP ② OSP

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary #
HRI#
Trinomial

Page 1 **of** 1

***Resource Name or #:** P-36-16417

*Recorded by: Douglas Kazmier and George Brentner

*Date: February 8, 2024

☐ Continuation ☑ Update

This resource comprised a 43-foot segment of the San Bernardino-Sonora wagon road which occupied the east side (northbound) of Euclid Avenue at its intersection with West J Street. Two separate portions of this resource have been previously recorded. In 2003, D. Ballester recorded a segment which stretched approximately one mile from the intersection of Barton Road and California Street to the intersection of Van Leuven Street and Ragsdale Road in Loma Linda. He did not identify any archaeological remains of the resource. In 2018, D. Mengers rerecorded two small segments along the same portion of the resource that Ballester recorded. He also failed to identify any evidence of the road. It was listed as a California Point of Historical Interest on January 26, 1973. BCR Consulting visited a previously unrecorded segment of the resource on February 8, 2024 and found it to be as previously described in Loma Linda. No physical evidence of the road was identified.

References

Ballester, Daniel
2003 *Department of Parks and Recreation Site Record Forms for P-36-16417*. On file with the South Central Coastal Information Center, Fullerton, California.

Department of Parks and Recreation
1973 San Bernardino-Sonora Road, Ontario, listed in *California Points of Historical Interest*. California State Historic Preservation Office.

Mengers, D.
2018 *Department of Parks and Recreation Site Record Forms for P-36-16417*. On file with the South Central Coastal Information Center, Fullerton, California.

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

CONTINUATION SHEET

Primary # P36-016417
HRI #
Trinomial

Page 1 of 3
Recorded by: D. Mengers, PanGIS, Inc.
☐ Continuation ■ Update

***Resource Name or #: P36-016417**
Date: 15 February, 2018

A portion of this resource was visited as part of Southern California Edison's (SCE) West of Devers Upgrade Project (WODUP) in July 2015. This resource is the historical location of the San Bernardino-Sonora wagon road, a branch of the Emigrant Trail, in use between 1827 and 1870. The road, listed as a California Point of Historical Interest, is no longer extant. As a main east-west corridor, it was replaced by the current alignment of Mission Road as early as 1870. Recorded in 2003, no archaeological remains related to the road have been discovered (Ballester).

The 2015 field visit was conducted within the area that this resource and the project areas intersected. These areas have been heavily disturbed by housing, road, and business construction. This field visit concluded in agreement with the previous 2003 Ballester report. No archaeological remains relating to the wagon road were observed within project area.

Figure 1. Mapped location of P36-016417 with Towers in background, facing east (Google Maps)

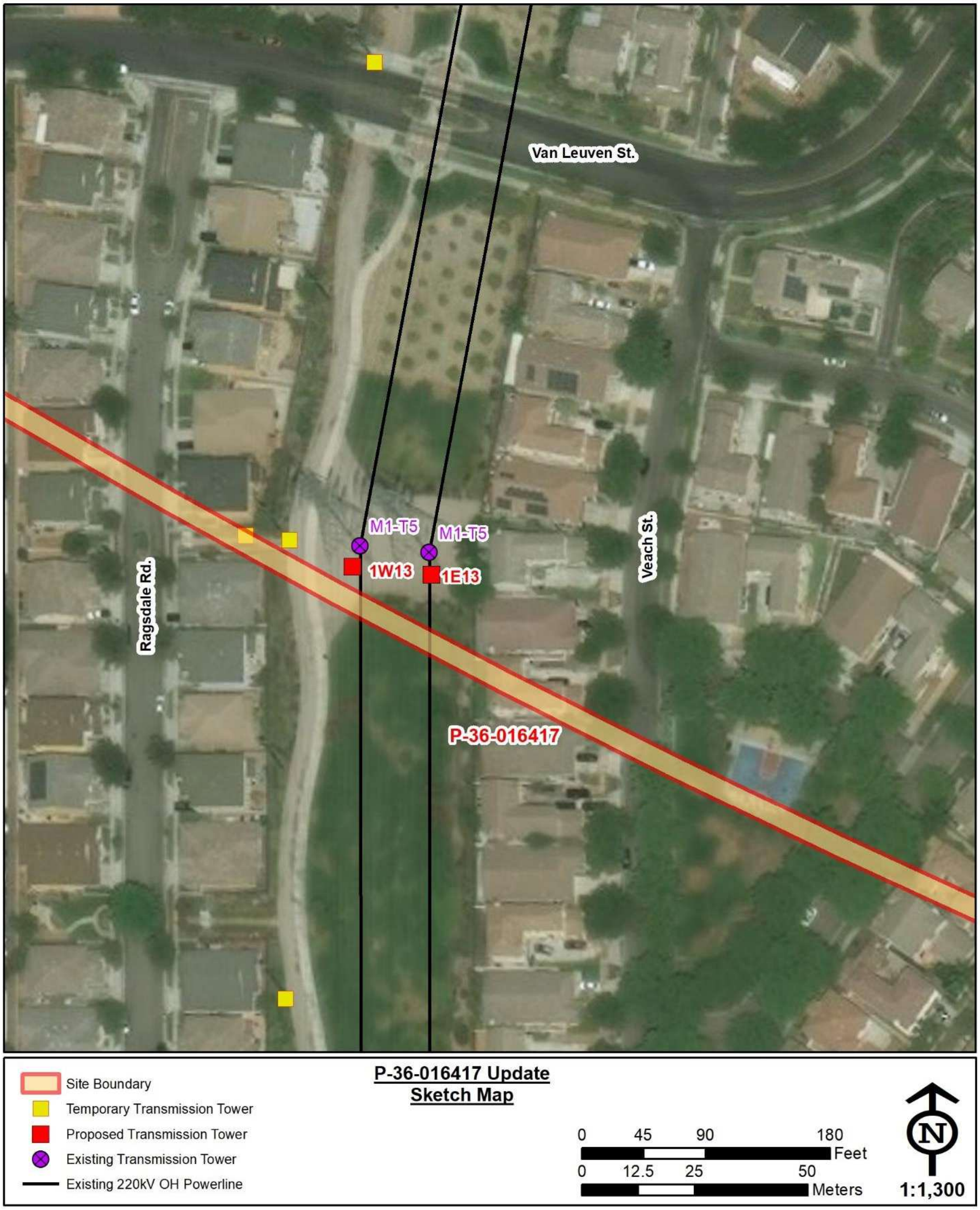
Figure 2. Mapped location of P36-016417, facing west north-west (Google Maps)

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # P36-016417
HRI #
Trinomial PBSR-1H

Page 2 of 3
Recorded by: D. Mengers, PanGIS, Inc.
☐ Continuation ■ Update

***Resource Name or #:** P36-016417
Date: 15 February, 2016



P-36-016417 Update
Sketch Map

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # P36-016417
HRI #
Trinomial PBSR-1H

Page 3 of 3
Recorded by: D. Mengers, PanGIS, Inc.
☐ Continuation ■ Update

***Resource Name or #: P36-016417**
Date: 15 February, 2016

update 5/09

State of California--The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

CONTINUATION SHEET

Primary # 36-016417
HRI #
Trinomial PBSR-1H(Update)

Page 1 **of** 2 **Resource name or #** (Assigned by recorder)

Recorded by Daniel Ballester ***Date** May 19, 2003 ☐ Continuation ☑ Update

To recap, the San Bernardino-Sonora Road is currently listed as a California Point of Historic Interest, and thus meets CEQA's definition of a "historical resource." This historic wagon road was abandoned at least by the 1870s, leaving no identifiable archaeological remains in the area. Its successor, Mission Road or Cottonwood Row, as it was known in historic times, has served the same function since then, at least locally (Fig. 1). As the focal point of much of the settlement and development activities in the vicinity from the 1870s to the 1950s, Mission Road has become the centerpiece of the City-designated historic district bearing its name. As such, it is considered a primary contributor to the historic significance of the Mission Road Historic District.

Figure 1. Mission Road (San Bernardino/Sonora Road)

Report Citation:

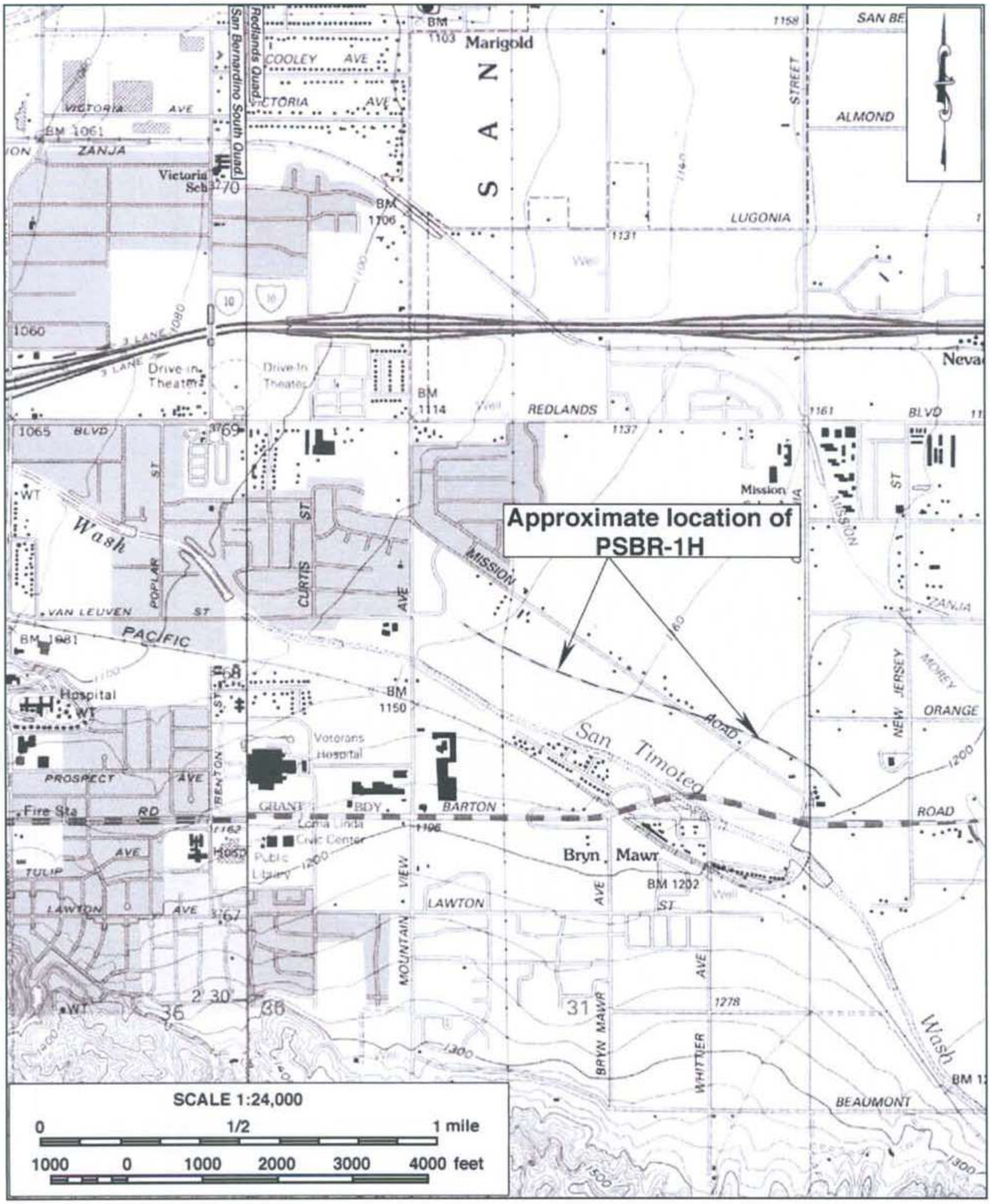
Tang Tom, Michael Hogan, Mariam Dahdul, Casey Tibbet, and Daniel Ballester (2003): Historical/Archaeological Resources Survey Report: University Village Project, City of Loma Linda, San Bernardino County, California. On file, Archaeological Information Center, San Bernardino County Museum, Redlands.

State of California--The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary # 36-016417
HRI #
Trinomial PSBR-1H(Update)

Page 2 of 2
*Resource Name or # (Assigned by recorder)
*Map Name: Redlands Quad, Calif.
*Scale: 1:24,000
*Date of Map: 1967/1985



Approximate location of PSBR-1H

DPR 523L (1/95)

*Required information

CPHI-SBR-21

P36-016417

STATE OF CALIFORNIA—RESOURCES AGENCY
DEPARTMENT OF PARKS AND RECREATION

POINT OF HISTORICAL INTEREST

DO NOT WRITE IN THIS BLOCK
Reg. No. CPHI-SBr-021
Date 1-31-73
By

County San Bernardino

Name San Bernardino-Sonora Road, Ontario

Location Euclid Avenue, at the intersection of J Street.

Historical Significance:

This was the northern branch of the Emigrant Trail which forked near Aguanga and continued via Beaumont, Redlands, Old San Bernardino, Colton, and Agua Mansa, and crossed the present Euclid Avenue in Ontario a mile north of the Southern Pacific railroad tracks.

Between 1822 and 1827, the San Gabriel Mission Fathers used this road to reach the San Bernardino Asistencia, and Jedediah Smith followed this route in 1827 on his way out of southern California.

THIS POINT OF HISTORICAL INTEREST IS NOT A STATE REGISTERED HISTORICAL LANDMARK.

RECOMMENDED:
Signature—Chairman, County Board of Supervisors
Date 11-30-72

APPROVED: Kathryn H. Kaiser
Signature—Chairman, Historical Landmarks Advisory Committee
Date January 26, 1973

DPR-147 (4-66)

68355-768 4-66 5M TRIP ② OSP

9pp

Hist. Soc. So. Calif. ANNUAL 1935

P36-01647

PSSC-1-H

DEVELOPMENT OF TRAVEL BETWEEN SOUTHERN ARIZONA AND LOS ANGELES AS IT RELATED TO THE SAN BERNARDINO VALLEY

BY GEORGE WILLIAM BEATTIE

A thoughtful student of the history of California can hardly fail sooner or later to have his attention drawn to the routes by which the land was originally entered. Embracing as it does mountain, valley and desert, roads through it have not wandered as they listed, but have gone in obedience to imperious conditions. Long established highways are usually the result of numerous experiments—survivals of the fittest—and a study of their evolution is almost certain to bring out much that is thrillingly interesting. This paper is an endeavor to show something of what has gone into the making of *one* of these roads into California—a comparatively short stretch of the great transcontinental highway known in the days of the Forty-niners as the Southern Overland Route.[1]

The San Bernardino-Sonora Road

One of the first matters to come up in any newly settled region is that of deciding which of its various roads shall be classified as public highways. This problem arose in Southern California very soon after the State was formed. In Los Angeles County, which then included the San Bernardino Valley and the northern part of what is now Riverside County, an order adopted by the Court of Sessions, May 19, 1851,[2] designated certain roads as "public highways," each being carefully defined although in terms that would be unfamiliar to most of us today. One of these roads was referred to as the "San Bernardino-Sonora Road." Its description in the Court Order reads:

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[1] The Southern Overland Route was referred to later by engineers seeking a line for a railway to the Pacific as the Thirty-second Parallel Route. The portion of it lying between the Colorado River and Los Angeles is now, oddly enough, known as The Ocean to Ocean Highway.

[2] The order is somewhat inaccurately quoted in Guinn, J. M., "Old Highways of Los Angeles." Historical Society of Southern Calif., *Annual Publications*, (1905) Vol. VI, Part III, p. 256. According to U. S. Township Maps, this old road crossed the present line of the Santa Fe Railroad at North Pomona, and ran ¼ mile south of the same railroad at Claremont, 1 mile north of the Southern Pacific at Ontario ¼ miles north of that railroad at Guasti, and touched the base of the hills at Declez Quarry, passing on to the Aguajito, a little to the east. The course of the road from the Aguajito to Politana is indefinite, in the light of present knowledge.

P36-016417

"From Los Angeles to San Gabriel and below Azusa between San Antonio and San Jose,[3] by the Plain below the Rancho of Cucamonga, thence to the hill of the Aguajita (Aguajito)[4] by the Old Peublo (Pueblo) of the New Mexicans, known as the land of Apolitan,[5] by Jumua[6] and San Bernardino[7] to Yucaypa (Yucaipa) and San Gregorio (San Gorgonio.)"[8]

One mile to the south of San Gorgonio ran the line separating Los Angeles County from the county of San Diego, and the road was not described further as its course thenceforward was no concern of the Los Angeles County officials.

Recent investigations justify the belief set forth in this paper—that, after reaching San Gorgonio, the San Bernardino-Sonora Road turned southward and ran, via the present Lamb Canyon, to San Jacinto; thence to what is now Hemet; then through the hills, following approximately the line of the present St. John's Grade; and on until near what is now Aguanga, west of Warner's Ranch, it merged with another road from San Gabriel that was designated in the Court Order as the Colorado Road.[9] From this point of junction on to the desert and Sonora, the San Bernardino-Sonora Road and the Colorado Road were one

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3. San Antonio and San Jose were two old cattle ranchos of the Mission San Gabriel. They were included in the Mexican Grant of the "San Jose Rancho" issued in 1837 to Ygnacio Palomares and Ricardo Vijar. This grant included lands from the hills south of Pomona to the mountains north of Claremont. San Antonio, the northern part of the grant, was occupied by Palomares. The headquarters for San Antonio in mission days was half a mile west of Claremont and a little north of the Santa Fe Railroad. The old San Jose Rancho was the southern part of the San Jose Grant.

4. "Hill of Aguajito," or little watering place—a small spring on the hillside east of Declez Quarry.

5. The term "Old Pueblo of the New Mexicans," referred to a settlement of people formerly connected with the Santa Fe caravans who in 1842 or 1843 had been presented by the Lugos with about 2200 acres of land south and west of the present Bunker Hill. Their homes were on the bluff on the eastern end of the tract. This land was given in order that their settlement might protect cattle on the Lugo "Rancho San Bernardino" from Indian raids. These colonists later, in response to a more attractive offer from Juan Bandini, owner of the "Jurupa Rancho" south of Slover Mountain, moved to what was called the "Bandini Donation," on the Jurupa Rancho. Apolitan, Politan, Politana, Epolitana, Hypolitana, are apparently variations of a name in court records which according to the testimony of David Seeley, who came to the valley in 1851, was derived from the name of Hipolito Espinosa, one of the original New Mexican settlers.

6. Jumua, or Jumuba, was an Indian rancheria south of the Santa Ana river and east of Colton. San Gabriel Mission had cattle corrals there. The home of Jose Maria Lugo, one of the owners of the San Bernardino Rancho, was at Jumua.

7. Not the present City, but the branch of the San Gabriel Mission at Old San Bernardino, now on the outskirts of Redlands.

8. The old name of the settlement at the summit of San Gorgonio Pass. In 1887, a townsite was platted there, and the name San Gorgonio was changed to Beaumont.

9. The Court Order defined the "Colorado Road" as running "From Los Angeles to Mission San Gabriel, thence to the Rancho of Puente, thence to the Rancho of Ybarras, thence to the Rancho Chino, thence to the Rincon, and thence to the Sierra and Temascal (Temescal) and thence to the Laguna and Tamacola (Temecula)."

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BEATTIE, Geo. W., + HELEN PRUITT BEATTIE
HERITAGE OF THE VALLEY
San Pasqual Pr., Pasadena, 1939

P36-016417

SAN BERNARDINO – SONORA ROAD

The entry for the day on which the fathers departed shows the roundabout route then followed by travelers between San Bernardino and San Gabriel. The road ran west from the mission buildings, south of the present city of Colton, and then followed the Santa Ana River down through the Jurupa Rancho to Guapia (or Juapa), another San Gabriel Rancho, and thence to San Gabriel, probably by the line of the old Anza trail.[18]

The report Father Payeras made to the commissioner of the Mexican government in 1822, a year after his tour with Father Sánchez, gives the fullest information we have regarding mission work in the San Bernardino Valley at the end of the Spanish regime in California and at the beginning of Mexican sovereignty. Indeed it is the portion of this report devoted to San Gabriel and its branches that is our authority for asserting that active mission work in the Valley began at Guachama in 1819. The report shows a deep interest in the recently established mail service between Sonora and San Gabriel via San Gorgonio Pass, and the hope that the road followed by the Cocomaricopas might develop into a route for general travel. It also names a few of the sixteen different pagan tribes found on this road—the Cahuillas, the Jalchedunes, and others—some of whom had been visited; it describes the fertile soil; the abundance of fine water for irrigation; the rich pasture land in the Santa Ana River bottom; and the land already under cultivation—an area about five miles in circumference. It outlines plans for cutting a new and more direct road through the chamise-covered plain between Jurupa and what is now Claremont, to connect with the regular road to San Gabriel, thereby shortening the distance considerably and helping to break up the hiding places of runaway neophytes. The report reiterates the faith of the San Gabriel missionaries in the desirability of a regular mission in the San Bernardino Valley, and makes the assertion that intertribal jealousies would have been less had a mission been established there earlier.[19]

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[18] *Ibid.*

[19] Payeras, Report, 1822.

P36-016417

III

RIVAL MAIL ROUTES

LIFE ON the San Bernardino Rancho was greatly enlivened when, in December, 1823, Captain José Romero, a Mexican army officer, passed through on his way from San Gabriel to his presidio in Tucson by way of the Cocomaricopa trail. The Mexican government was no less anxious than the Spanish government had been to reestablish land travel between Sonora and Alta California, and Romero was attempting to discover a practicable route to take the place of the Anza road abandoned more than forty years before, and now all but forgotten. Tucson, then in Sonora, was deemed a logical starting point.[1]

Romero's instructions had been to explore a suggested route from Tucson into California by way of the mouth of the Colorado River. He found the Colorado River in flood and rough at the mouth, and he engaged Indians of that region to ferry his men and equipment across on four rafts that he had constructed. They were also to swim the horses over. All started promisingly, but when they reached mid-stream the Indians suddenly turned back with the two rafts containing the equipment and clothing, driving the horses before them. The two remaining rafts held Romero and his men and their arms, and only through the exertions of some who could swim did they reach the shore. As they were struggling they could see the faithless savages dividing the horses and baggage among themselves on the bank from which the party had started.

This was in July. On foot, then, with arms on shoulders, shoeless, naked, without food, and under the midsummer desert sun, Romero and his men crossed the waterless desert and the mountain range that lay between the river and Mission Santa Catalina in Lower California, sixty-five miles away. At that mission he secured some leather garments for the men, and animals to carry him to

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[1] Beattie, "Reopening the Anza Road."

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P36-016417

San Gabriel. One is not surprised that, in making his official report of this trip, he offered serious objections to the route for a mail road.

He had been told to return from San Gabriel to Tucson by San Bernardino and the Cocomaricopa trail, and it was in obedience to these orders that we find him at the San Bernardino Rancho in December. With him were his ten picked troopers from his own garrison in Tucson, and Lieutenant José María Estudillo, from the presidio at San Diego, with thirty mounted soldiers detailed as an escort by Governor Luis Antonio Argüello. There were also ten civilian helpers, numerous horses and mules to serve as remounts, and pack animals to carry the supplies. One of the mules bore a cannon. In advance of the main body was a drove of three hundred and seventy-six mares which Romero's soldiers were taking from California to Sonora, doubtless as a business venture. The party remained at San Bernardino about a week, completing their arrangements, and set forth on Christmas Day, 1823. Unhappily, the guide for the desert proved unreliable, they lost their way, consumed their provisions, and finally turned back, reappearing at San Bernardino a month later, many of their animals having died of thirst, and the men themselves exhausted and half-starved. At one time they had gone six days without finding water.

From San Bernardino they returned to San Gabriel, where they waited more or less patiently for nearly two years, until supplies for a second attempt could be collected and soldiers for an escort could be spared.

While Romero was marking time at this point, Santiago Argüello, an officer of the San Diego presidio, had pursued some Indian horse thieves to the Colorado River, and in so doing had learned the route by which Indians crossed the desert. Although he did not realize the fact, the route was none other than the old Anza trail, with the exception of the pass through the mountains, which was lower than the one Anza had followed, leading through what was known later as Warner's Ranch. Argüello had made a most important discovery. The road was recognized immediately as being in all probability the best of the routes between California and Sonora, but it was unavailable just then since it led into Yuma territory, and the Yumas were still hostile to whites. The possibility that the Cocomaricopa trail would be made the official mail route was so strong that Governor Echeandía ordered Romero's escort

P36-016417

for the second trip to fortify San Gorgonio Pass when they reached it.

Just before Romero left San Gabriel, in November, 1825, on his second attempt to follow the Cocomaricopa trail, he received a letter from General José Figueroa, then governor of Sonora, that changed the entire aspect of affairs. The Yumas were actually seeking to reestablish friendly relations with the whites. Apparently they had come to realize that the mail route through their territory would be a profitable thing for them, and that their continued enmity toward foreigners was injuring themselves. Also, they were doubtless impressed by the four hundred soldiers that were with General Figueroa at the Colorado awaiting the arrival of Romero.

Romero followed the Cocomaricopa route as planned, but he was so certain that the Yuma road was preferable that he wrote to Governor Echeandía from San Bernardino giving plausible reasons why the expedition should not stop to fortify San Gorgonio Pass at that time. He succeeded in reaching the Colorado, but did not recommend the route. Lieutenant Romualdo Pacheco, the engineer who had accompanied him on this trip, returned to San Diego by way of Yuma, and reported in favor of that route. It was made the official mail road shortly after.

One can imagine what a blow this was to the missionaries in San Gabriel. So great had been their desire for the adoption of the overland route through San Bernardino and San Gorgonio that they had borne, without murmuring, the expense of outfitting Romero's first expedition, and of maintaining him and his ten troopers for two years. When the first expedition failed, Father Sánchez had exclaimed, "What a cost! May it be for the glory of God!"[2]

When the prospects for the adoption of the Cocomaricopa route first began to grow dim, Father Sánchez wrote to Governor Echeandía at San Diego, urging that work be begun on the road by way of San Bernardino, since it was the station nearest to the Colorado, and its resources would be the most easily available. All in vain.

But the missionaries were brave losers. When the road by Yuma and Warner's Pass to San Diego was finally selected, they adapted themselves to the situation and connected their San Bernardino road with the official one by a trail leading from San Gorgonio to

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[2] Sánchez to Argüello, Jan. 27, 1824. See n. 8(c), chap. I.

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[3] Enge
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[5] *Ibid.*,
[6] *Ibid.*,
[7] Alvar

ber excepting Stout. He was replaced as assessor by V. J. Herring. Q. S. Sparks filled the office of district attorney but a little more than a year. On December 4, 1854, the office was declared vacant, Sparks having been absent from the county three months, and James H. Rollins was appointed in his stead.

Three public roads had been established by the Los Angeles County Court of Sessions in 1851, before San Bernardino County was formed. They were:

1. *The Colorado Road*, running via Chino and Temescal to Temecula.

2. *The San Bernardino-Sonora Road*, opened by the padres of San Gabriel about 1825, which entered the new county in what is now the city of Ontario, and ran along the north side of the Jurupa mountains, through Agua Mansa, through the old pueblo of the New Mexicans in the eastern part of Colton, thence across the river through Jumuba to the mission buildings at Old San Bernardino, and on to San Gorgonio Pass via Yucaipa.

3. *The Road to New Mexico*, which branched from the San Bernardino-Sonora Road in the western part of Ontario, and ran to Cajón Pass via Cucamonga, along the line of the old Spanish Trail.[5]

By 1853, Los Angeles had a board of supervisors, who relieved the court of sessions of the care of road matters. Just before the county was divided, the supervisors responded to a petition presented by residents of San Bernardino, and established a fourth public road, one that shortened the route between San Bernardino and Los Angeles. It was described as "running parallel with the base line, but south of the same from San Bernardino to Cucamonga, and thence to San Antonio Creek, thence to intersect the old road at the point of the mountain."[6] This road had been already opened through the brush land by the Mormons, and was the beginning of our present Foothill Boulevard.

To these roads, the San Bernardino County Court of Sessions in 1853 added a fifth public highway, running between the city of San Bernardino and "San Bernardino Mission . . . commencing at the South gate of the Fort San Bernardino, thence to the grist mill

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[5] Los Angeles County Court of Sessions, *Minutes*, May 19, 1851; Beattie, "Development of Travel between Southern Arizona and Los Angeles," *Ann. Pub.* Hist. Soc. Sou. Cal. (1925).

[6] Los Angeles County Supervisors, *Minutes*, Apr. 4, 1853.

PSE2 - 1-U
LOS ANGELES - SONORA ROAD

HISTORY OF SAN TIMOTEO CANYON

P36-016417

Old Stagecoach Road

Singleton Ranch in San Timoteo Canyon was the junction point where the road to San Gorgonio turned north from the Old Sonora Road. The old Indian trail through the San Gorgonio Pass then followed along the foothills two and one-half miles north of the present Highway 10.

The reason for this route is obvious when we consider that the route of Highway 10 lies near the wash, through open country, where water is scarce, while along the foothills we find the three essential needs of a pioneering people supplied. Here were springs and small streams to furnish water, trees for firewood and lumber for building homes. In these canyons and forests were an abundance of deer and small game. Travelers along the trail could rest beneath the oaks and sycamores to escape the heat of the noonday sun.

San Gabriel Mission's Rancho of San Bernardino extended through the San Gorgonio Pass as far as Whitewater, and Father Sanchez had established a mission station for the cattle herders at Banning Water Canyon in 1820.

Juan Hilario Bermudez and his wife, Anna Maria Lugo Bermudez, were in charge of this station at the time the Romero Estudillo Expedition stopped to rest there. Lt. Don Jose Maria Estudillo, the diarist of the Romero Expedition, made the following entry in his diary:

> Dec. 25, 1823. At 1:00 p.m. we arrived at the second rancho, named Yucaipa. It is five leagues from San Bernardino. We continued following the same route east until 5:00 p.m. in the afternoon, when we arrived at the last rancho, called San Gorgonio, and in the vernacular, Piatopa.
>
> The terrain covered today is full of obstructions, and rocky. The mountains are bare of large trees, and all is without pasture. At the entrance to the canyon of the northern mountains where the corrals for the cattle are, and where there is a small Indian house, there is a dry arroyo. It has a little water in small pools, horses did not drink. . . .

This site had been chosen by the Spanish authorities as the location for a fort and garrison to protect the ranches from raids by hostile Indians. Vicente Villa-Pacheco, with the second Romero Expedition in 1825, writes that the idea was abandoned because "It was felt that winters were too severe there for troops to remain and that the outpost would have little use considering the expenditure of men to maintain it."

Early settlers in the Pass chose to locate their homesteads along the foothills. Daniel Sexton established a sawmill in Edgar Canyon in 1842. Paulino Weaver, who owned the ranch now known as Highland Springs, was a partner with him in this venture.

APPENDIX D

PROJECT PHOTOGRAPHS

Photo 1: Overview

Photo 2: Overview

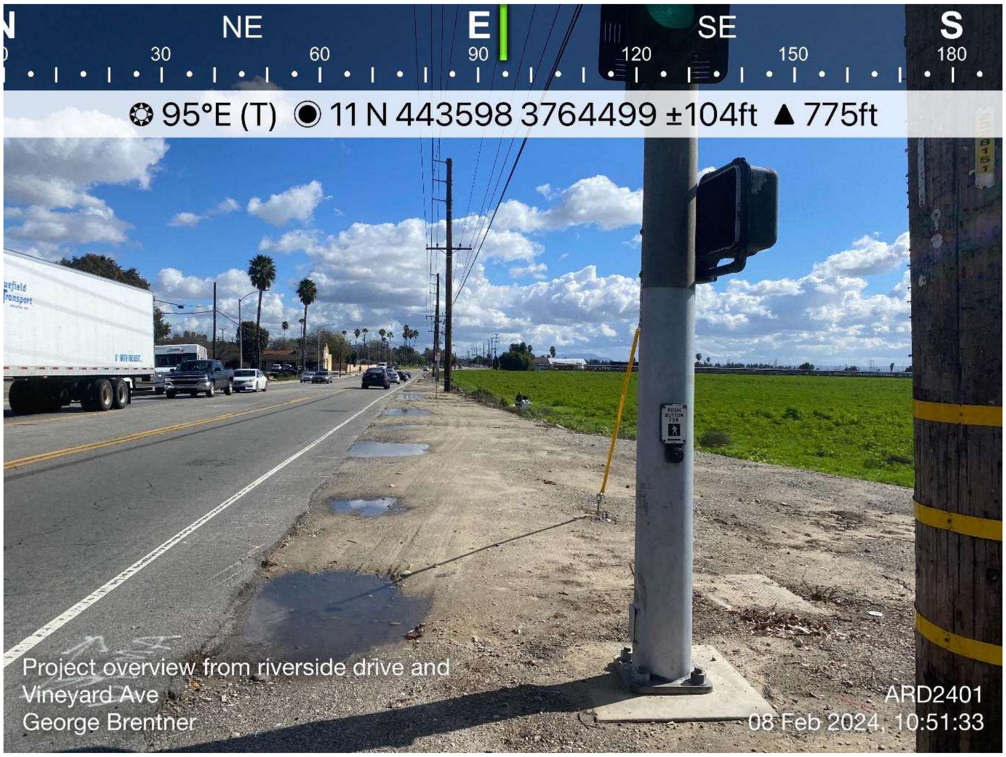


Photo 3: Overview

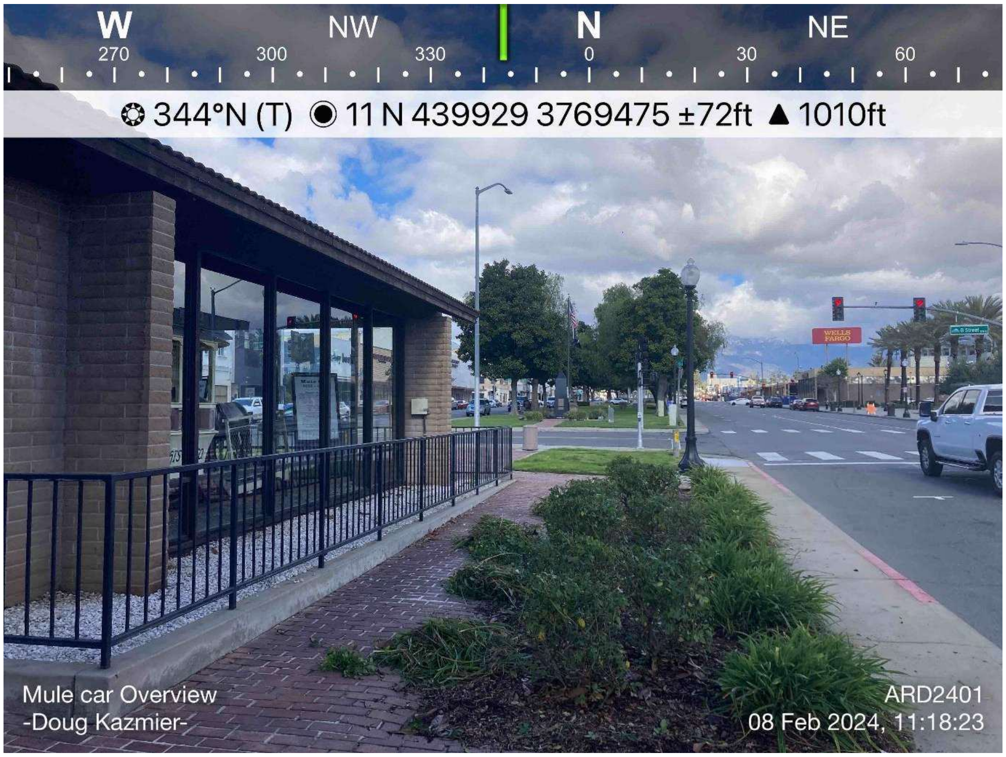


Photo 4: Overview of P-36-15983 (Mule Car) and P-36-15982 (Euclid Avenue)

Photo 5: Overview Towards Estimated Location of P-36-15983

Photo 6: Euclid Avenue (P-36-15982) Overview

APPENDIX E

PALEONTOLOGICAL RESOURCES OVERVIEW

WESTERN SCIENCE CENTER

March 5th, 2024

BCR Consulting, LLC
Joseph Orozco
505 W. 8th St.
Claremont, CA 91711

Dear Mr. Orozco,

This letter presents the results of a record search conducted for Ontario Recycled Water Distribution Project located in the city of Ontario, San Bernardino County, CA. The project is located as follows:

USGS Quad: Ontario (1981), California
Township 1 South, Range 7 West, Sections 18, 19 (SBBM)
Township 2 South, Range 7 West, Non-Sectioned (SBBM)

USGS Quad: Guasti (1981), California
Township 2 South, Range 7 West, Non-Sectioned (SBBM)

The geologic units underlying the project area are mapped as young alluvial fan deposits from the middle Holocene epoch (Morton, Miller, Cossette, and Bovard 2003). Holocene alluvial units are considered to be of high preservation value, but material found is unlikely to be fossil material due to the relatively modern associated dates of the deposits. However, if development requires any substantial depth of disturbance, the likelihood of reaching Pleistocene alluvial sediments would increase. The Western Science Center does not have localities within the project area or within a 1 or 2 mile radius of either project location.

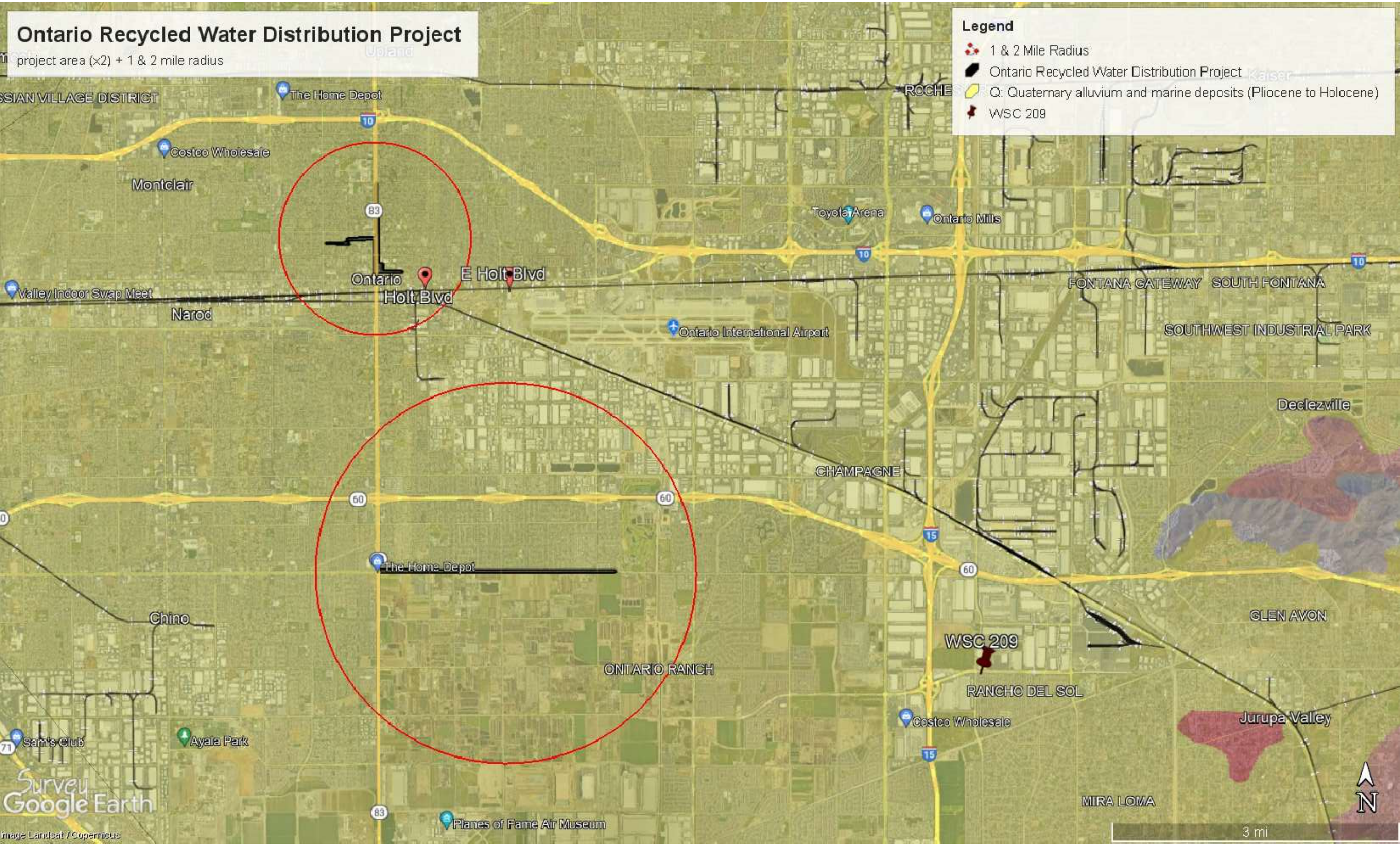
While the presence of any fossil material is unlikely, if excavation activity disturbs deeper sediment dating to the earliest parts of the Holocene or Late Pleistocene periods, the material would be scientifically significant. Excavation activity associated with the development of the project area is unlikely to be paleontologically sensitive, but caution during development should be observed.

If you have any questions, or would like further information, please feel free to contact me at bstoneburg@westerncentermuseum.org.

Sincerely,

WESTERN SCIENCE CENTER

Brittney Elizabeth Stoneburg, MSc
Collections Manager



Ontario Recycled Water Distribution Project

project area (x2) + 1 & 2 mile radius

APPENDIX E

Geotechnical Investigation
NOVA Services LLC, February 16, 2024

GEOTECHNICAL INVESTIGATION

Euclid Avenue Downtown Recycled Water Project, UT 1072

Euclid Avenue, West Flora Street, North Vine Avenue, West F Street, East C Street, East Riverside Drive, Ontario, California

CITY OF ONTARIO SOUTHERN CALIFORNIA

Submitted to:

ARDURRA
14271 Danielson Street
Poway, California 92064

NOVA Services

4373 Viewridge Avenue
Suite B
San Diego, California 92123
858.292.7575

944 Calle Amanecer
Suite F
San Clemente, CA 92673
949.388.7710

usa-nova.com

NOVA Project No. 2023168
October 29, 2024

NOVA

GEOTECHNICAL

MATERIALS

SPECIAL INSPECTION

DVBE ♦ SBE ♦ SDVOSB ♦ SLBE

Dolores Salgado, Project Manager
Ardurra
1401 Commercial Way, Suite 100
Bakersfield, California 93309

October 29, 2024
NOVA Project No. 2023168

Subject: Geotechnical Investigation
City of Ontario
Euclid Avenue Downtown Recycled Water Project, UT 1072
Euclid Avenue, West Flora Street, North Vine Avenue, West F Street, East C Street, East Riverside Drive
Ontario, California

Dear Ms. Salgado:

NOVA Services, Inc. (NOVA) is pleased to present our report describing the geotechnical investigation performed for the Euclid Avenue Downtown Recycled Water Project, UT 1072 located along Euclid Avenue, West Flora Street, North Vine Avenue, West F Street, East C Street, East Riverside Drive in the City of Ontario, California. The geotechnical investigation was conducted in general conformance with the scope of work presented in our revised proposal dated July 14, 2023, and authorized on August 7, 2023.

This site is considered geotechnically suitable for the proposed improvements provided the recommendations within this report are followed.

NOVA appreciates the opportunity to be of service to Ardurra on this project. If you have any questions regarding this report, please call us at 858.292.7575 x 417.

Sincerely,
NOVA Services, Inc.

HYUN JIN KIM
No. 3106

Paul Hyun Jin Kim, GE 3106
Senior Geotechnical Engineer

ANDREW K. NEUHAUS
No. 2591

Andrew K. Neuhaus, CEG 2591
Senior Engineering Geologist

GEOTECHNICAL INVESTIGATION

Euclid Avenue Downtown Recycled Water Project, UT 1072

Euclid Avenue, West Flora Street, North Vine Avenue, West F Street, East C Street, & East Riverside Drive
Ontario, California

TABLE OF CONTENTS

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1. INTRODUCTION

This report presents the results of the geotechnical investigation NOVA performed for the proposed Recycled Water Project, UT 1072, located along Euclid Avenue, West Flora Street, North Vine Avenue, West F Street, East C Street, and East Riverside Drive in the city of Ontario, California. The segment on East D Street previously reported has since been moved to West Flora Street, North Vine Ave, and West F Street. The scope of work presented herein is based on review of the request for proposals (RFP) number 1621, direction provided by the City of Ontario's project manager, correspondence with you, our experience with similar utility improvement projects, and our familiarity with the subsurface conditions beneath the project alignment. The purpose of NOVA's work is to provide conclusions and recommendations regarding the geotechnical aspects of the project. Figure 1-1 presents a site vicinity map of the pipeline alignments in the Downtown neighborhood. Figure 1-2 presents a site vicinity map of the pipeline alignments in the Ontario Ranch neighborhood.

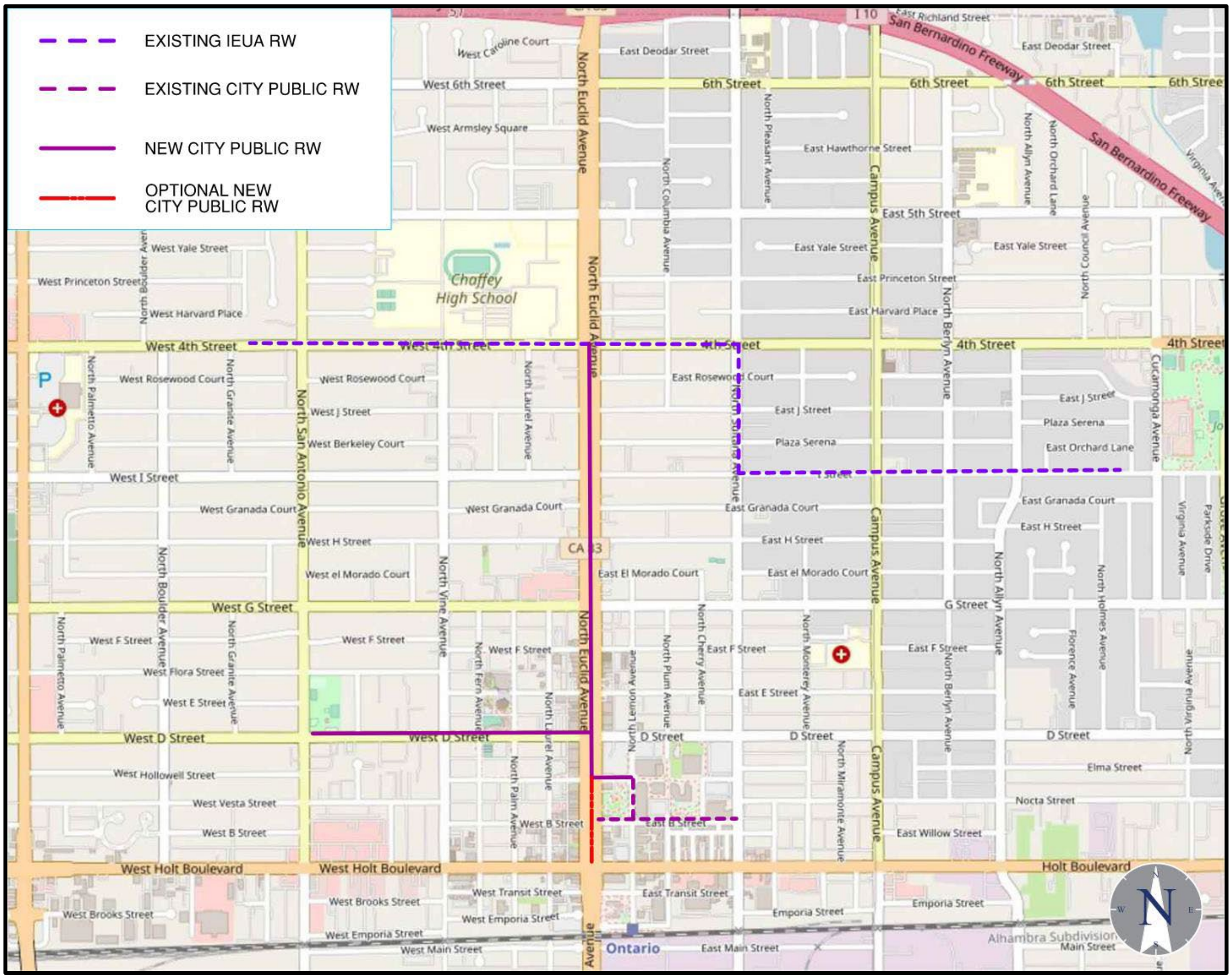

Figure 1-1. Site Vicinity Map: Downtown

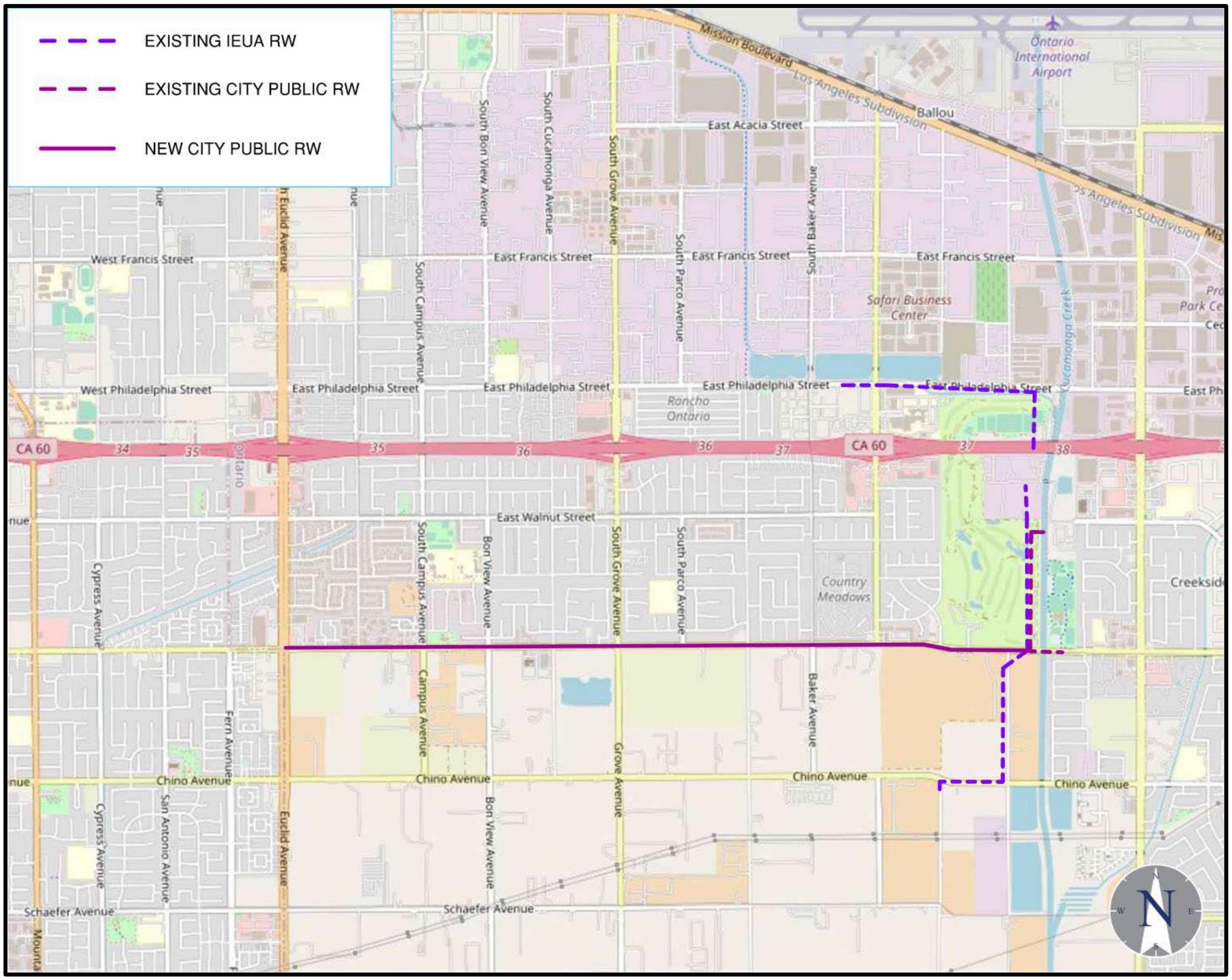

Figure 1-2. Site Vicinity Map: Ontario Ranch

2. SCOPE OF WORK

2.1. Field Investigation

NOVA's field investigation consisted of drilling thirty geotechnical borings (B-1 through B-30) to depths up to about 20 feet below the ground surface (bgs) using a truck-mounted drill rig equipped with a hollow-stem auger. Figure 2-1 presents the approximate locations of the borings in the Downtown neighborhood. Figure 2-2 presents the approximate locations of the borings in the Ontario Ranch neighborhood.

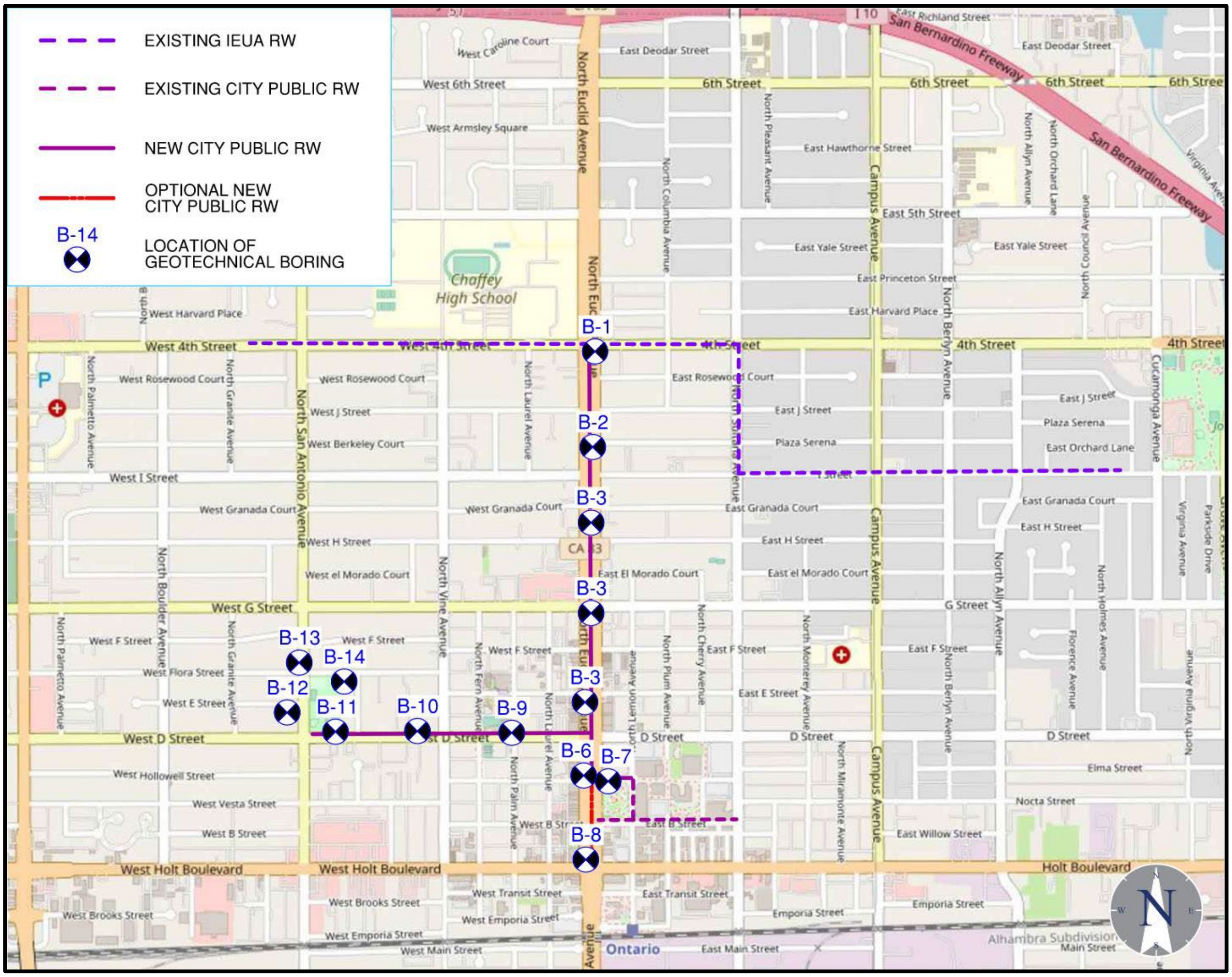

Figure 2-1. Boring Locations: Downtown

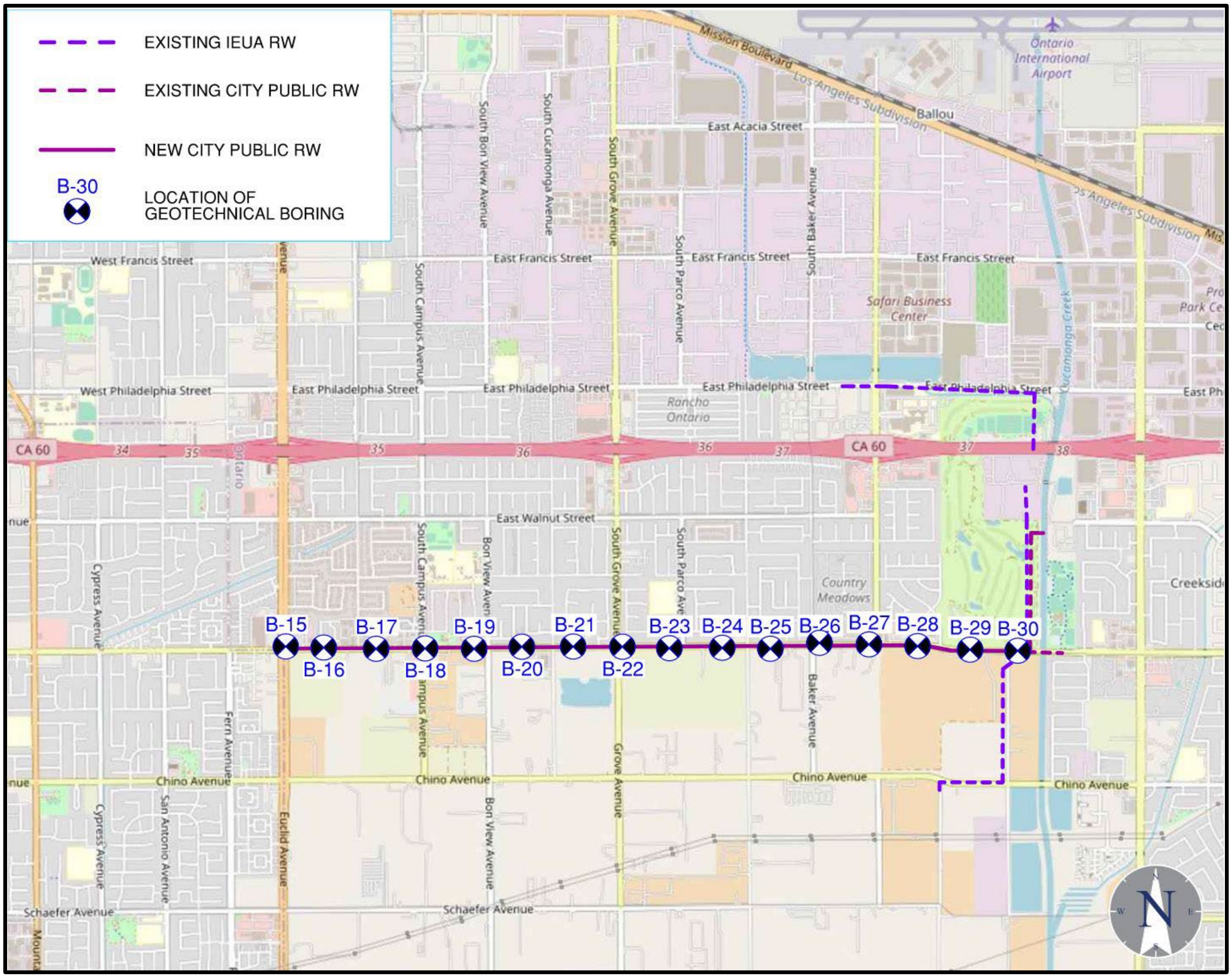

Figure 2-2. Boring Locations: Ontario Ranch

A NOVA geologist logged the borings and collected samples of the materials encountered for laboratory testing. A relatively undisturbed sample was obtained using a modified California (CAL) sampler, a ring-lined split tube sampler with a 3-inch outer diameter and 2½-inch inner diameter. Standard Penetration Tests (SPT) were performed in the borings using a 2-inch outer diameter and 1⅜-inch inner diameter split tube sampler. The CAL and SPT samplers were driven using an automatic hammer with a calibrated Energy Transfer Ratio (ETR) of about 81.8% and 85.3%. The number of blows needed to drive the sampler the final 12 inches of an 18-inch drive is noted on the logs. Sampler refusal was encountered when 50 blows were applied during any one of the three 6-inch intervals, a total of 100 blows was applied, or there was no discernible sampler advancement during the application of 10 successive blows. The field blow counts, N, were corrected to a standard hammer (cathead and rope) with a 60% ETR. The corrected blow counts are noted on the boring logs as N_{60}. Disturbed bulk samples were obtained from the SPT sampler and the drill cuttings. Logs of the borings are presented in Appendix B. Soils are classified according to the Unified Soil Classification System.

2.2. Laboratory Testing

NOVA tested select samples obtained from the borings to evaluate soil classification and engineering properties and develop geotechnical conclusions and recommendations. The laboratory tests consisted of in situ moisture and density, particle-size distribution, Atterberg limits, R-value, and corrosivity. The results of the laboratory tests and brief explanations of the test procedures are presented in Appendix C.

2.3. Environmental Soil Testing

NOVA obtained environmental soil samples at depths of about 5 or 10 feet bgs in every boring except Boring B-1 where no recovery at the testing depth of about 10 feet was encountered. We subcontracted with Eurofins Calscience, a State of California certified laboratory, to perform analytical testing on the samples as an indication of the presence of hazardous materials at the site. We utilized a Photo Ionization Detector (PID) to monitor and assess the soils for potential contamination. Tests for volatile organic compounds (VOCs) and semi volatile organic compounds (SVOCs) would be assigned if PID readings were greater than 45 parts per million (ppm). As such, the PID readings did not exceed 45 ppm and tests for total petroleum hydrocarbons and CAM 17 total metals were assigned. The samples were placed in four-ounce jars, labeled, stored in an insulated cooler with ice, and transported under chain-of-custody to Eurofins Calscience for analytical testing. The sampling equipment was decontaminated between samples to reduce the likelihood of cross-contamination. Appendix D presents the results of the analytical testing.

2.4. Analysis and Report Preparation

The results of the field and laboratory testing were evaluated to develop conclusions and recommendations regarding the geotechnical aspects of the proposed construction. This report presents our findings, conclusions, and recommendations.

3. SITE AND PROJECT DESCRIPTION

3.1. Site Description

The existing alignments are in the Downtown and Ontario Ranch neighborhoods of Ontario, California and consist of approximately 2710 linear feet (lf) of 8-inch diameter, 4425 lf of 12-inch diameter, and 15,335 lf of 24-inch diameter PVC pipeline within the existing asphalt paved roadways along Euclid Avenue, West Flora Street, North Vine Avenue, West F Street, East C Street, and East Riverside Drive. The irrigation system at James Bryant Park will be retrofitted to connect directly to new recycled water mains. This water system will be separate from potable water uses. The potable water will be disconnected from the constructed recycled water system for the Civic Center at the intersection of B Street and Sultana Avenue. A new connection or upsize will be provided to IEUA recycled water main at 4th Street and Euclid Avenue. An option exists for approximately 895 lf of 8-inch PVD pipeline along Euclid Avenue between East C Street and East Holt Boulevard.

Profiles shown on the provided as-built plans (COO, 1970-2018) indicate that Euclid Avenue generally slopes upward towards the north. West Flora Street and West F Street are generally flat, North Vine Street slopes down gently to the south, and East C Street and East Riverside Drive slope down gently to the west. Surface elevations on Euclid Avenue range from about El. 1093 at East 4th Street to about El. 1007 at the intersection of East Holt Boulevard. Surface elevations on West Flora Street range at about El. 1033 at North San Antonio Avenue to about El. 1030 at North Vine Street. Surface elevations on West F Street range from about El. 1030 at North Vine Street to about El. 1036 at Euclid Avenue. Surface elevations on East C Street range from about El. 1016 at Euclid Avenue to El. 1013 at Lemon Avenue. Surface elevations on East Riverside Drive range from about El. 787 at Euclid Avenue to about El. 775 at the Cucamonga Channel Surface Improvements along these streets consist of residential and commercial developments. Figure 3-1 presents the approximate pipeline alignments in the Downtown neighborhood. Figure 3-2 presents the approximate pipeline alignments in the Ontario Ranch neighborhood.

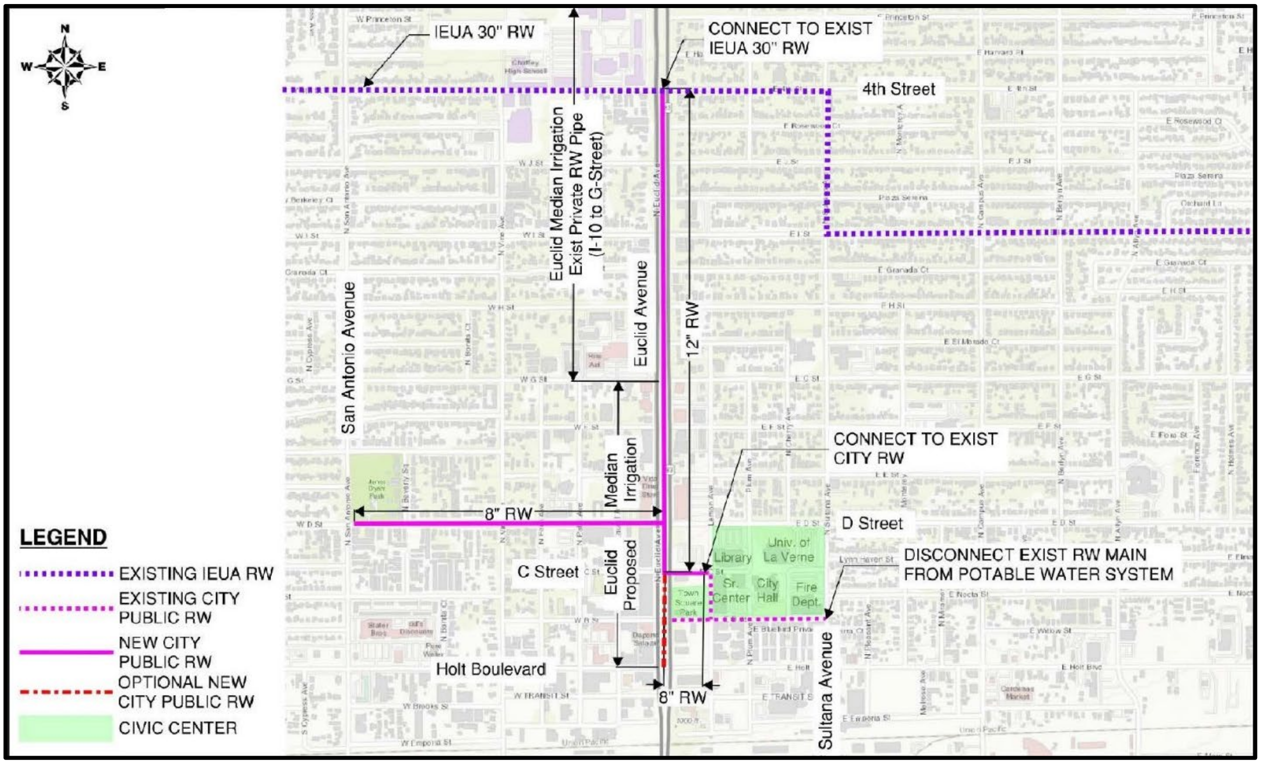

Figure 3-1. Pipeline Alignment Map: Downtown

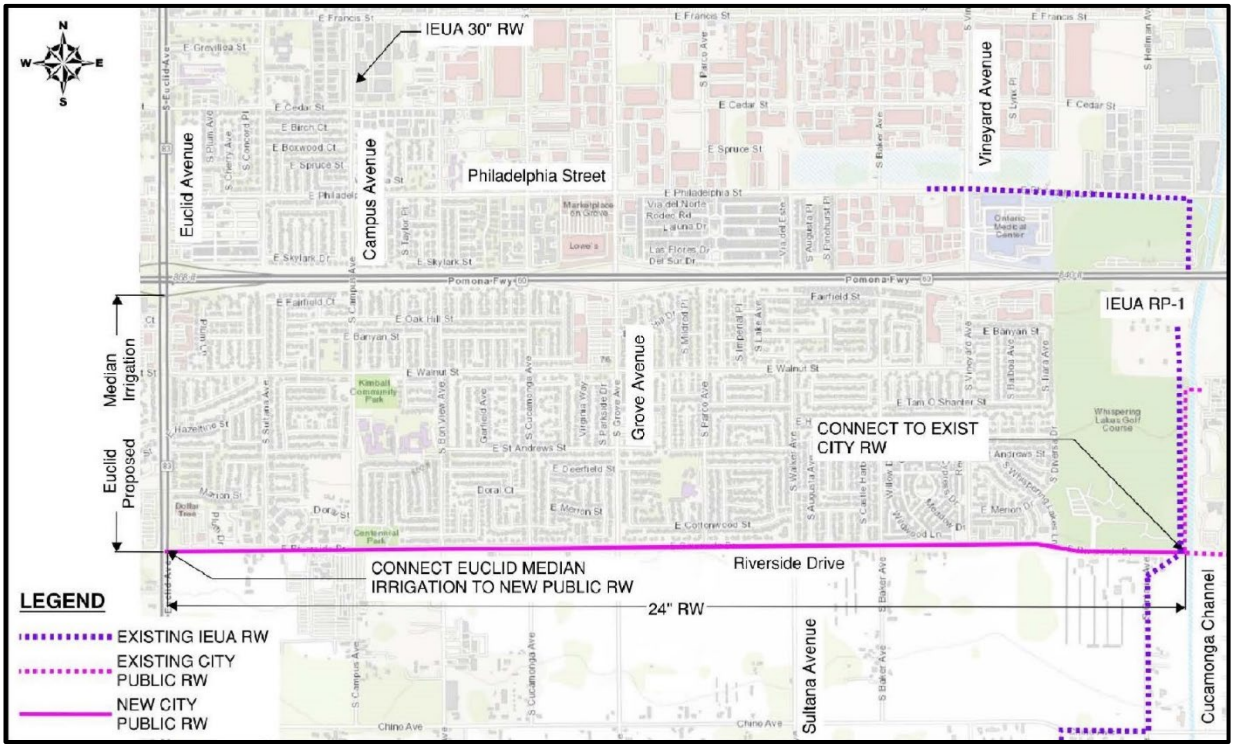

Figure 3-2. Pipeline Alignment Map: Ontario Ranch

3.2. Proposed Construction

Based on our review of the provided RFP (COO, 2023), we understand the project will consist of the design and installation of recycled water mains in the City of Ontario, California. A summary of the proposed improvements is provided in Tables 3-1 and 3-2 below:

Table 3-1. Summary of Proposed Improvements

Street Name	Type	Limits	Pipe Diameter (inches)	Length (feet)
Euclid Avenue	Recycled Water	East 4th Street to East C Street	12	4425
West Flora Street		North San Antonio Avenue to North Vine Street	8	1400*
North Vine Street		West Flora Street to West F Street	8	220*
West F Street		North Vine Street Avenue to Euclid Avenue	8	1400*
East C Street		Euclid Avenue to an existing connection west of Lemon Avenue	8	420
East Riverside Drive		Euclid Avenue and the Cucamonga Channel	24	15,335

*Pipeline length approximated.

Table 3-2. Summary of Optional Proposed Improvements

Street Name	Type	Limits	Pipe Diameter (inches)	Length (feet)
Euclid Avenue	Recycled Water	East C Street and East Holt Boulevard	8	895.00

4. GEOLOGY AND SUBSURFACE CONDITIONS

4.1. Regional Geology

The site is located within the Peninsular Ranges Geomorphic Province of California, which stretches from the Los Angeles basin to the tip of Baja California in Mexico. In general, the province consists of northwest trending mountains underlain by Tertiary sedimentary rocks, Cretaceous igneous rocks of the western Peninsular Ranges batholith, and Mesozoic meta-volcanic and metasedimentary rocks. The Peninsular Ranges Province is traversed by a group of sub-parallel faults and fault zones trending roughly northwest. Several of these faults are considered active. The Elsinore, San Jacinto, and San Andreas Fault Zones are active systems located east of the project area and the Newport-Inglewood, Agua Blanca-Coronado Bank, and San Clemente Fault Zones are active systems located offshore, west of the site. The majority of these faults have right-lateral, strike-slip movement. Uplift associated with these faults has created a diverse topographic environment that has also brought hazards such as landslides, mudslides, and hillside creep (gradual downhill soil movement). The site is located on the northern portion of the Perris block, located west of the San Jacinto Mountains block (Kennedy and Tan, 2008). It is a rectangular shaped block, has low relief, and is bounded on the east by the San Jacinto Fault Zone and on the west by the Elsinore Fault Zone. The northwestern part of the block is somewhat ill-defined north of Corona where the Elsinore Fault becomes the more westward striking Whittier fault, and in the Pomona-San Jose Hills area where it is poorly defined beneath thick Quaternary and Tertiary cover. This area is considered the concealed western margin of the Perris block to roughly coincide with the east edge of the Chino basin. The Perris block consists of two distinct parts. The site is located in the northern area. Regional geologic maps indicate the site is underlain by middle Holocene young alluvial flood-plain deposits, Unit 1 and Unit 3 (Qyf_1 Qyf_3). Figure 4-1 presents the regional geology within the alignments.

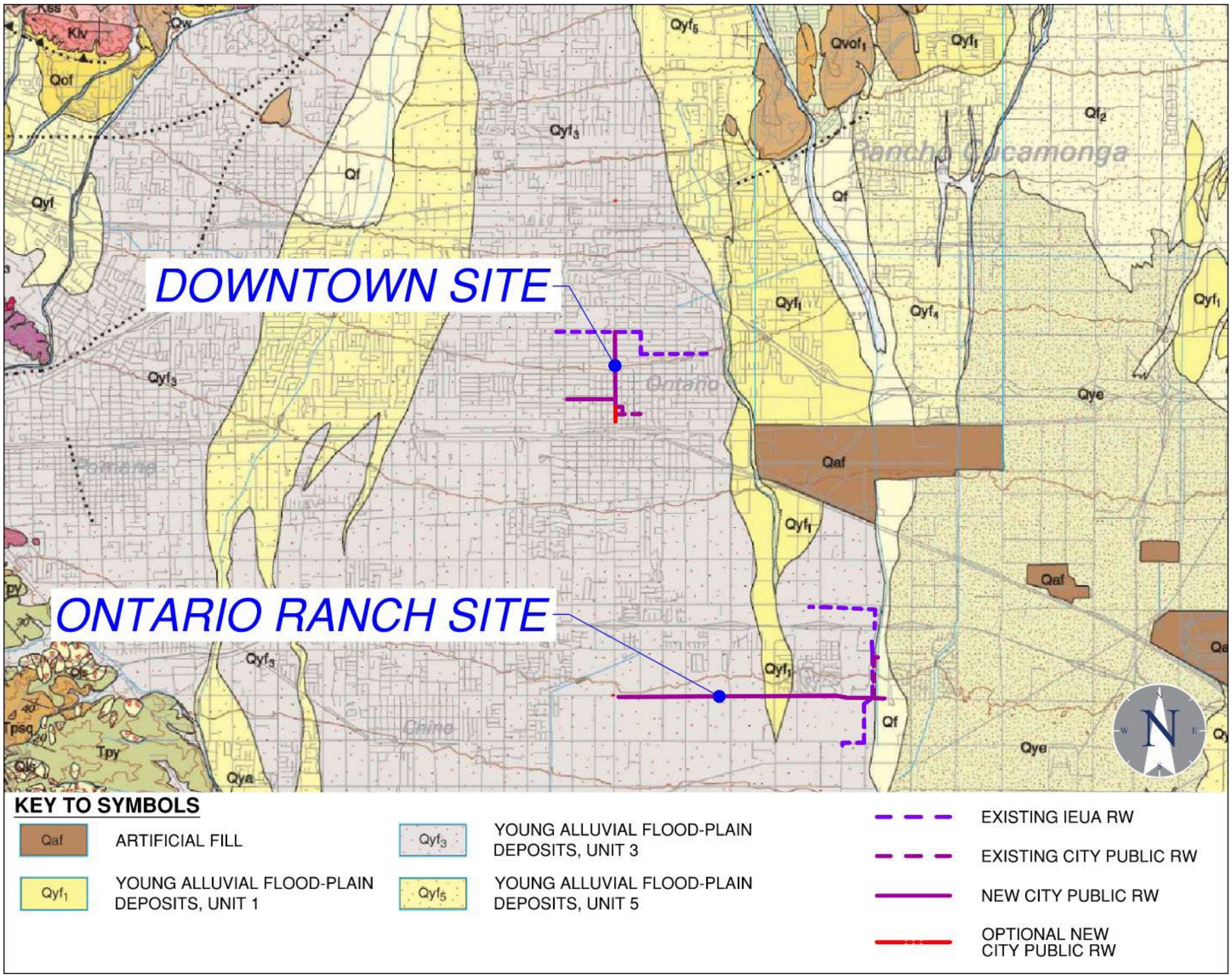

Figure 4-1. Regional Geologic Map

4.2. Site-Specific Geology

As observed in our borings, the site is underlain by fill. Descriptions of the materials encountered are presented below.

> **Fill (af):** Fill was encountered beneath the pavement sections to depths of between about 2½ to 6½ ft in Borings B-1 through B-5, B-14, and B-28 through B-30. As encountered, the fill generally consisted of loose to medium dense silty sand with varying amounts of gravel and cobbles. Figure 4-2 presents a photo of the fill encountered in Boring B-29.

Figure 4-2. Fill in Boring B-29

Young alluvial flood-plain deposits (Qyf_1) and (Qyf_3): Young alluvial fan-deposits were encountered beneath the fill and pavement sections in Borings B-6 through B-13 and B-15 through B-27 to the maximum explored depth of about 20 feet (bgs). As encountered, the alluvial deposits generally consisted of loose to very dense poorly graded gravel, poorly graded sand with and without silt, silty and clayey sand, and sandy silt with varying amounts of gravel and cobbles. Minor amounts of elastic silt, lean clay, and silty clay were also encountered. Figure 4-2 presents a photo of the young alluvial-fan deposits encountered in Boring B-21

Figure 4-2. Young Alluvial Flood-Plain Deposits in Boring B-21

<u>Groundwater</u>: Groundwater was not encountered in the borings. Groundwater levels may fluctuate in the future due to changes in the Santa Ana River's surface elevation, rainfall, irrigation, broken pipes, or changes in site drainage. Records published by Sustainable Groundwater Management (SGMA) indicate historic high groundwater levels for Wells CHINO-1002321, CHINO-1002349, CHINO-1208387 are 701 feet bgs on 1976-04-29, 648 feet bgs on 1967-05-09, and 701 feet bgs on 2008-07-01, respectively. Groundwater seepage should be anticipated during construction of the proposed pipelines.

5. GEOLOGIC HAZARDS

5.1. Faulting and Surface Rupture

Major known active faults in the region consist generally of en echelon, northwest striking, right-lateral, strike-slip faults. These include the San Andreas and San Jacinto faults located northeast of the alignments; the San Clemente, San Diego Trough, Agua Blanca-Coronado Bank Faults, and Newport-Inglewood-Rose Canyon Fault Zone (NIRC) located to the southwest of the alignments; and the Elsinore Fault Zone located southwest of the alignments.

The tectonic setting of the metropolitan southern California area includes major north and northwest striking fault zones, the most prominent and active of which is the Elsinore Fault Zone, which can generate earthquakes of M_W = 7.8. The Elsinore Fault Zone and a large portion of the San Andreas Fault System divides the Santa Ana Mountains block to the west from the Perris block to the east. In the center of this mapped area, the Murrieta Hot Springs fault is a generally east striking major fault splay.

Earthquake fault zones have been established along known active faults in California in accordance with the Alquist-Priolo Earthquake Fault Zoning Act. The site is not located in the Alquist-Priolo Earthquake Fault Zone. The nearest active mapped Alquist-Priolo Earthquake Fault Zones are located approximately 5.5 miles northwest and 4.42 miles southwest of the project alignment, in the Cucamonga section of the Sierra Madre Fault Zone, and the Chino section of the Elsinore Fault Zone. Evidence of active faulting was not observed at the site during our field investigation. However, since mapped active faults are not known to underlie the site, the probability of fault rupture is considerable.

Figure 5-1 shows the locations of known faults in the general site area. Active faults are presented in red and orange and potentially active, or undifferentiated Quaternary faults are presented in green and purple.

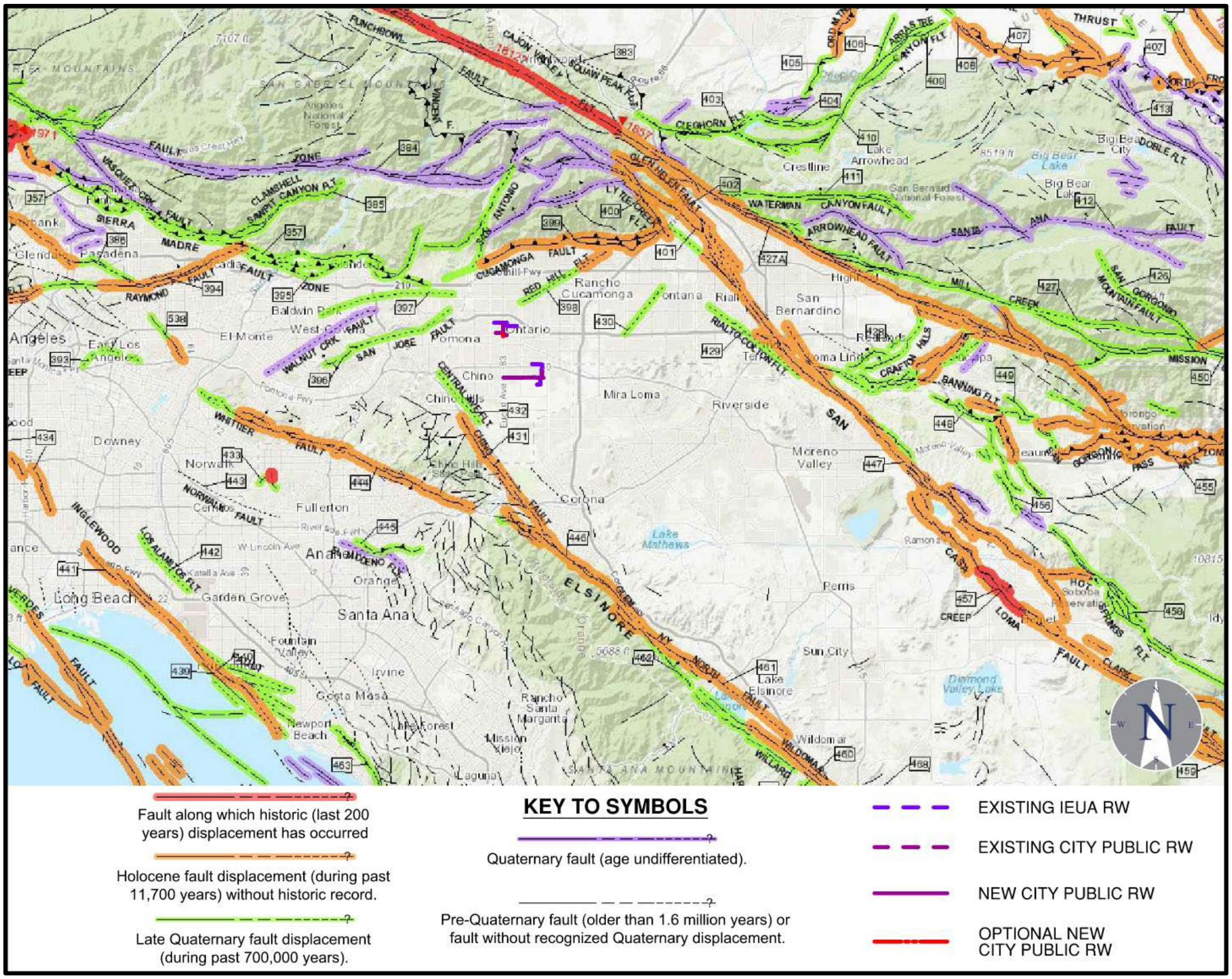

Figure 5-1. Regional Faulting in the Site Vicinity

5.2. Landslides and Slope Stability

Evidence of landslides, deep-seated landslides, or slope instabilities was not observed at the time of NOVA’s field evaluation. Additionally, there are no mapped landslides in the vicinity of the project site. The potential for landslides or slope instabilities to occur at the site is considered very low given the relatively flat topography, and flat-lying geological structure below the site.

5.3. Liquefaction and Dynamic Settlement

Liquefaction occurs when loose, saturated, generally fine sands and silts are subjected to strong ground shaking. The soils lose shear strength and become liquid, resulting in large total and differential ground surface settlements, as well as possible lateral spreading during an earthquake. Groundwater was not encountered during our subsurface investigation. However, as previously discussed, groundwater may be encountered at shallower depths due to changes in Santa Ana River's surface elevation, rainfall, irrigation, broken pipes, or changes in site drainage, which may increase the potential for liquefaction and dynamic settlement to occur. If liquefaction occurs, the pipeline alignment may be damaged and out of service until repaired. Liquefaction analysis was not part of our scope of work for this project. If the risk of liquefaction is deemed unacceptable, NOVA should be contacted to perform liquefaction analyses and provide additional recommendations, if necessary.

5.4. Flooding, Tsunamis, and Seiches

The project alignment is mapped within Zoned X and AE (FEMA, 2008) Accordingly, the potential for a flood to affect the project alignment is considered high. The evaluation of a flood affecting the utility line is beyond the scope of this work. Consideration should be given to properly design storm drain devices such that flooding will not affect subsurface utility lines. Figures 5-2 and 5-3 show the proposed flood mapping of the sites.

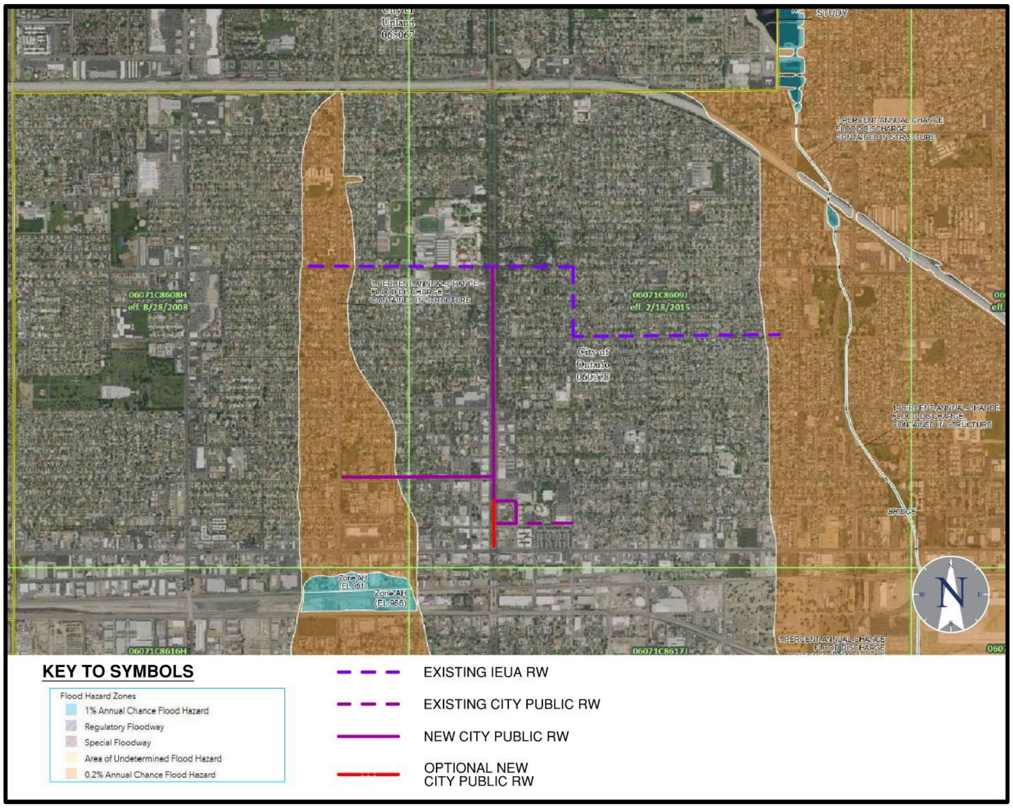

Figure 5-2. Flooding Potential in the Downtown Vicinity

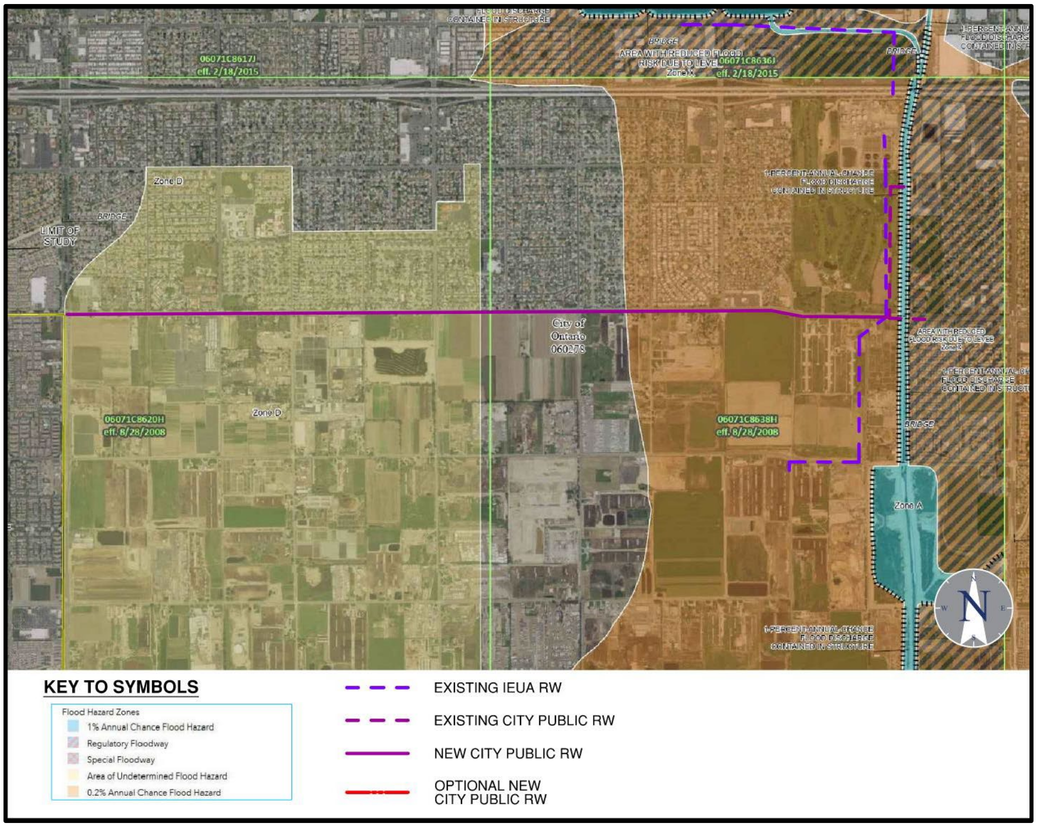

Figure 5-3. Flooding Potential in the Ontario Ranch Vicinity

The site is not located within a mapped area on the State of California Tsunami Inundation Maps (Cal EMA, 2009); therefore, damage due to tsunamis is considered low. Seiches are periodic oscillations in large bodies of water such as lakes, harbors, bays, or reservoirs. The site is not located adjacent to any lakes or confined bodies of water; therefore, the potential for a seiche to affect the site is considered very low.

5.5. Subsidence

The entire site is located in an area of known subsidence associated with groundwater pumping (USGS, 2022b), therefore, the potential for subsidence due to the extraction of fluids is considered high. The impact of subsidence on the design off the subsurface utility line is beyond the scope of this work. Review of GPS data maintained by the Geodectic Facility for the Advancement of Geoscience (GAGE), NOTA Network Monitoring gps station in Rancho Cucamonga suggests fluctuations of approximately 1 inch. An additional differential movement of at least 1 inch should be accounted for in the design of the pipeline.

5.6. Hydro-Consolidation

Hydro-consolidation can occur in recently deposited sediments (less than 10,000 years old) that were deposited in a semi-arid environment. Examples of such sediments are eolian sands, alluvial fan deposits, and mudflow sediments deposited during flash floods. The pore spaces between the particle grains can re-adjust when inundated by groundwater, causing the material to consolidate. The young alluvial-fan deposits underlying the project alignment can be considered susceptible to hydro-consolidation. The adverse effects from hydro-consolidation can be remediated by scarifying and moisture conditioning of the subgrade soils.

6. CONCLUSIONS

Based on the results of NOVA's investigation, we consider the proposed construction feasible from a geotechnical standpoint provided the recommendations contained in this report are followed. Geotechnical conditions exist that should be addressed prior to construction. Geotechnical design and construction considerations include the following.

- The site is not located in the Alquist-Priolo Earthquake Fault Zone. The primary seismic hazards at the site are moderate to severe ground shaking in response to large-magnitude earthquakes generated during the lifetime of the proposed construction. The risk of strong ground motion is common to all construction in southern California and is typically mitigated through design in accordance with the CBC.

- Additional geologic hazards at the site include flooding and subsidence due to groundwater pumping. Evaluation of these hazards is beyond the scope of this work. Appropriate drainage devices should be employed to collect stormwater and transport it away from the project area. The utility line should also be designed to accommodate additional differential movement. These can aid in minimizing the adverse effects from flooding and subsidence.

- The site is underlain by fill and young alluvial-fan deposits. The fill and alluvial fan deposits are considered suitable for support of the proposed pipeline.

- In general, excavations should be achievable using standard trenching equipment in good working order with experienced operators.

- Groundwater was not encountered in the borings. Groundwater levels may fluctuate in the future due to changes in the Santa Ana River's surface elevation, rainfall, irrigation, broken pipes, changes in site drainage, tides, or sea level rise. Groundwater seepage should be anticipated during construction of the proposed pipeline.

7. RECOMMENDATIONS

The remainder of this report presents recommendations regarding earthwork construction as well as geotechnical recommendations for the design of the proposed pipeline. These recommendations are based on empirical and analytical methods typical of the standard of practice in southern California. If these recommendations appear not to address a specific feature of the project, please contact our office for additions or revisions to the recommendations.

7.1. Earthwork

Earthwork is anticipated to include excavations for underground utilities, and placement and compaction of backfill. Earthwork should be conducted in accordance with the CBC and with the recommendations of this report. The following recommendations are provided regarding specific aspects of the proposed earthwork construction. These recommendations should be considered subject to revision based on field conditions observed by the geotechnical consultant during grading.

7.1.1 Site Preparation

Site preparation should begin with the removal of existing improvements and debris. Subsurface improvements that are abandoned should be removed, and the resulting excavations should be backfilled and compacted in accordance with the recommendations of this report. Pipeline abandonment can consist of capping or rerouting at the project perimeter and removal within the project perimeter. If appropriate, abandoned pipelines can be filled with grout or slurry as recommended by and observed by the geotechnical consultant.

To reduce the effects of hydro consolidation, the exposed subgrade following removals, should scarified to a depth of at least 12 inches, be moisture conditioned to at least 100% of the optimum moisture content and compacted to at least 90% of the maximum dry density (ASTM D1557).

7.1.2 Excavation Characteristics

It is anticipated that excavations can be achieved with conventional earthwork equipment in good working order. Groundwater, gravel, and cobbles should also be anticipated. The contractor should mobilize equipment capable of excavating materials with gravel and cobbles.

7.1.3 Temporary Excavations

Temporary excavations 3 feet deep or less can be made vertically. Deeper temporary excavations should be laid back no steeper than 1:1 (horizontal:vertical)(h:v). Excavations exposing sandy and friable soils may have to be limited to gradients of 1.5:1 (h:v) with no allowances of a vertical cut. The faces of temporary slopes should be inspected daily by the contractor’s Competent Person before personnel are allowed to enter the excavation. Zones of potential instability, sloughing, or raveling should be brought to the attention of the engineer and corrective action implemented before personnel begin working in the trench.

Due to constraints from existing improvements, excavations may utilize shoring. Soldier piles and lagging, corrugated metal pipe, internally braced shoring, or trench boxes could be used. If trench boxes or corrugated metal pipes are used, the soil immediately adjacent to the shoring is not directly supported. Ground surface deformations immediately adjacent to the pit or trench could be greater where trench boxes are used compared to other methods of shoring.

Excavated soils should not be stockpiled behind temporary excavations within a distance equal to the depth of the excavation. NOVA should be notified if other surcharge loads are anticipated so that lateral load criteria can be developed for the specific situation. If temporary slopes are to be maintained during the rainy season, berms are recommended along the tops of slopes to prevent runoff water from entering the excavation and eroding the slope faces.

7.1.4 Temporary Shoring

For design of cantilevered shoring, an active soil pressure equal to a fluid weighing 40 pounds per cubic feet (pcf) can be used for level retained ground or 60 pcf for 2:1 (h:v) sloping ground. The surcharge loads on shoring from traffic and construction equipment adjacent to the excavation can be modeled by assuming an additional 2 feet of soil behind the shoring. For design of soldier piles, an allowable passive pressure of 300 pounds per square foot (psf) per foot of embedment over twice the pile diameter up to a maximum of 3,000 psf can be used. Soldier piles should be spaced at least three pile diameters, center to center. Continuous lagging will be required throughout. The soldier piles should be designed for the full anticipated lateral pressure; however, the pressure on the lagging will be less due to arching in the soils. For design of lagging, the earth pressure can be limited to a maximum value of 400 psf.

Piles should be filled with concrete immediately after drilling. The concrete should be pumped to the bottom of the drilled holes using the tremie method. If casing is used, the casing should be removed as the concrete is placed, keeping the level of the concrete at least 5 feet above the bottom of the casing at all times.

7.1.5 Groundwater Seepage

Groundwater seepage may occur locally and should be anticipated in excavations. Dewatering, if necessary, should be evaluated and implemented by an experienced and qualified specialty or dewatering contractor.

7.1.6 Imported Soil

Imported soil should consist of predominately granular soil free of organic matter and rocks greater than 6 inches. Imported soil should be observed and, if appropriate, tested by NOVA prior to transport to the site to assess suitability for the intended use.

7.1.7 Oversized Material

Excavations may generate oversized material. Oversized material is defined as rocks or cemented clasts greater than 6 inches in largest dimension. Oversized material should be broken down to no greater than 6 inches in largest dimension for use in fill, used as landscape material, or disposed of off-site.

7.2. Pipelines

7.2.1 Modulus of Soil Reaction

The modulus of soil reaction (E') is used to characterize the stiffness of soil backfill placed along the side of buried flexible pipelines for evaluating deflection due to the load associated with trench backfill over the pipe. A value of 1,000 psi is recommended for the modulus of soil reaction assuming that granular bedding material is placed adjacent to the pipe and is compacted to a minimum of 90% relative compaction.

7.2.2 Pipe Bedding

Pipe bedding as specified in the "Greenbook" Standard Specifications for Public Works Construction can be used. Bedding material should consist of clean sand having a sand equivalent not less than 30 and should extend to at least 12 inches above the top of pipe. Alternative materials meeting the intent of the bedding specifications are also acceptable. Samples of materials proposed for use as bedding should be provided to the engineer for inspection and testing before the material is imported for use on the project. The on-site materials are not expected to meet "Greenbook" bedding specifications (i.e. clean sand) and cannot be processed to meet the requirements as the material types cannot be changed. The pipe bedding material should be placed over the full width of the trench. After placement of the pipe, the bedding should be brought up uniformly on both sides of the pipe to reduce the potential for unbalanced loads. No voids or uncompacted areas should be left beneath the pipe haunches. Ponding or jetting the pipe bedding should not be allowed.

Where pipeline inclinations exceed 15%, cutoff walls are recommended in trench excavations. Additionally, we do not recommend that open graded rock be used for pipe bedding or backfill because of the potential for piping erosion. The recommended bedding is clean sand having a sand equivalent not less than 30 or 2-sack sand/cement slurry. If sand/cement slurry is used for pipe bedding to at least 1 foot over the top of the pipe, cutoff walls are not considered necessary. The need for cutoff walls should be further evaluated by the project civil engineer designing the pipeline.

7.2.3 Trench Backfill

Utility trench sections should conform to the minimum requirements of the City of Ontario. In our opinion, the excavated on-site material, except for soil containing roots, debris, and rock greater than 6 inches, can be used as trench backfill provided it meets the recommendations for fill material. However, in our opinion, the majority of on-site material will meet the most recent edition of the Greenbook (2021), which states that trench backfill material should have a sand equivalent (SE) greater than 20. Clayey and silty soils will not meet this requirement.

Backfill should be placed in 6-inch to 8-inch-thick loose lifts, moisture conditioned to above the optimum moisture content, and compacted to at least 90% relative compaction of the material's maximum dry density. Where trench backfill is to be placed on surfaces inclined steeper than 5:1 (h:v), benches should be excavated to provide a relatively level surface for fill placement. Benches should extend through any loose soils to expose competent material.

The top 12 inches of trench backfill beneath paved areas should be moisture conditioned to above the optimum moisture content and compacted to at least 95% relative compaction of the material's maximum dry density. Aggregate base material should be compacted to at least 95% relative compaction. Materials and methods of construction should conform to good engineering practices and the City of Ontario Design Standards.

The maximum dry density and optimum moisture content for the evaluation of relative compaction should be determined in accordance with ASTM D1557. It should be noted that maximum dry density and optimum moisture content is dependent on the properties of the selected material.

7.2.4 Trench Resurfacing

Trench resurfacing (pavement replacement) should conform to the minimum requirements of the City of Ontario. We recommend resurfacing in accordance with City of Ontario Standard Plan No. 1306. Resurfacing efforts should satisfy the minimum requirements of the City of Ontario project inspector, which may be more stringent.

7.2.5 Thrust Blocks

For level ground conditions, a passive earth pressure of 300 psf per foot of depth below the lowest adjacent final grade can be used to compute allowable thrust block resistance. A value of 120 psf per foot should be used below groundwater level, if encountered.

7.3. Soil Corrosivity

Representative samples of the on-site soils from the project alignment were tested to evaluate corrosion potential. The test results are presented in Appendix C. The project design engineer can use the sulfate results in conjunction with ACI 318 to specify the water/cement ratio, compressive strength, and cementitious material types for concrete exposed to soil. A corrosion engineer should be contacted to provide specific corrosion control recommendations.

8. CLOSURE

NOVA should review project plans and specifications prior to bidding and construction to check that the intent of the recommendations in this report has been incorporated. Observations and tests should be performed during construction. If the conditions encountered during construction differ from those anticipated based on the subsurface exploration program, the presence of personnel from NOVA during construction will enable an evaluation of the exposed conditions and modifications of the recommendations in this report or development of additional recommendations in a timely manner.

NOVA should be advised of changes in the project scope so that the recommendations contained in this report can be evaluated with respect to the revised plans. Changes in recommendations will be verified in writing. The findings in this report are valid as of the date of this report. Changes in the condition of the site can, however, occur with the passage of time, whether they are due to natural processes or work on this or adjacent areas. In addition, changes in the standards of practice and government regulations can occur. Thus, the findings in this report may be invalidated wholly or in part by changes beyond NOVA's control. This report should not be relied upon after a period of two years without a review by NOVA verifying the suitability of the conclusions and recommendations to site conditions at that time.

In the performance of professional services, NOVA exercises the level of care and skill ordinarily exercised by members of the geotechnical profession currently practicing under similar conditions and in the same locality. The client recognizes that subsurface conditions may vary from those encountered at the boring locations and that the data, interpretations, and recommendations reported herein are based solely on the information obtained by NOVA. NOVA will be responsible for those data, interpretations, and recommendations, but shall not be responsible for interpretations by others of the information developed. Our services consist of professional consultation and observation only, and no warranty whatsoever, express or implied, is made or intended in connection with the work performed or to be performed by us, or by our proposal for consulting or other services, or by our furnishing of oral or written reports or findings.

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APPENDIX A
USE OF THE GEOTECHNICAL REPORT

Important Information About Your
Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

The following information is provided to help you manage your risks.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely, on Your ASFE-Member Geotechncial Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you ASFE-member geotechnical engineer for more information.

ASFE
The Best People on Earth

8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733 Facsimile: 301/589-2017
e-mail: info@asfe.org www.asfe.org

APPENDIX B
BORING LOGS

MAJOR DIVISIONS				TYPICAL NAMES
COARSE-GRAINED SOILS MORE THAN HALF IS COARSER THAN NO. 200 SIEVE	GRAVEL MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVEL WITH LESS THAN 15% FINES	GW	WELL-GRADED GRAVEL WITH OR WITHOUT SAND
			GP	POORLY GRADED GRAVEL WITH OR WITHOUT SAND
		GRAVEL WITH 15% OR MORE FINES	GM	SILTY GRAVEL WITH OR WITHOUT SAND
			GC	CLAYEY GRAVEL WITH OR WITHOUT SAND
	SAND MORE THAN HALF COARSE FRACTION IS FINER THAN NO. 4 SIEVE SIZE	CLEAN SAND WITH LESS THAN 15% FINES	SW	WELL-GRADED SAND WITH OR WITHOUT GRAVEL
			SP	POORLY GRADED SAND WITH OR WITHOUT GRAVEL
		SAND WITH 15% OR MORE FINES	SM	SILTY SAND WITH OR WITHOUT GRAVEL
			SC	CLAYEY SAND WITH OR WITHOUT GRAVEL
FINE-GRAINED SOILS MORE THAN HALF IS FINER THAN NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT 50% OR LESS		ML	SILT WITH OR WITHOUT SAND OR GRAVEL
			CL	LEAN CLAY WITH OR WITHOUT SAND OR GRAVEL
			OL	ORGANIC SILT OR CLAY OF LOW TO MEDIUM PLASTICITY WITH OR WITHOUT SAND OR GRAVEL
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50%		MH	ELASTIC SILT WITH OR WITHOUT SAND OR GRAVEL
			CH	FAT CLAY WITH OR WITHOUT SAND OR GRAVEL
			OH	ORGANIC SILT OR CLAY OF HIGH PLASTICITY WITH OR WITHOUT SAND OR GRAVEL
HIGHLY ORGANIC SOILS			PT	PEAT AND OTHER HIGHLY ORGANIC SOILS

▽/▼	GROUNDWATER / STABILIZED
	GROUNDWATER SEEPAGE
☒	BULK SAMPLE
⧄	SPT SAMPLE (ASTM D1586)
■	MOD. CAL. SAMPLE (ASTM D3550)
*	UNRELIABLE BLOW COUNTS
—	GEOLOGIC CONTACT
– –	SOIL TYPE CHANGE

LAB TEST ABBREVIATIONS

CR	CORROSIVITY
MD	MAXIMUM DENSITY
DS	DIRECT SHEAR
EI	EXPANSION INDEX
AL	ATTERBERG LIMITS
SA	SIEVE ANALYSIS
RV	RESISTANCE VALUE
CN	CONSOLIDATION
SE	SAND EQUIVALENT

LOG ABBREVIATIONS

REF	REFUSAL

RELATIVE DENSITY OF COHESIONLESS SOILS	
RELATIVE DENSITY	SPT N60 BLOWS/FOOT
VERY LOOSE	0 - 4
LOOSE	5 - 10
MEDIUM DENSE	11 - 30
DENSE	31 - 50
VERY DENSE	OVER 50

CONSISTENCY OF COHESIVE SOILS		
CONSISTENCY	SPT N60 BLOWS/FOOT	POCKET PENETROMETER MEASUREMENT (TSF)
VERY SOFT	0 - 2	0 - 0.25
SOFT	3 - 4	0.26 - 0.50
MEDIUM STIFF	5 - 8	0.51 - 1.0
STIFF	9 - 15	1.1 - 2.0
VERY STIFF	16 - 30	2.1 - 4.0
HARD	OVER 30	OVER 4.0

NUMBER OF BLOWS OF 140 LB HAMMER FALLING 30 INCHES TO DRIVE A 2 INCH O.D. (1-3/8 INCH I.D.) SPLIT-BARREL SAMPLER THE LAST 12 INCHES OF AN 18-INCH DRIVE (ASTM-1586 STANDARD PENETRATION TEST).

IF THE SEATING INTERVAL (1st 6 INCH INTERVAL) IS NOT ACHIEVED, N IS REPORTED AS REF. IF MORE THAN 50 BLOWS ARE RECORDED IN ANY 6-INCH INTERVAL, N_{60} IS REPORTED AS REF.

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SUBSURFACE EXPLORATION LEGEND

LOG OF BORING B-1

DATE DRILLED: JAN 18, 2024 **DRILLING EQUIPMENT:** CME 75 **SAMPLE METHOD:** HAMMER: 140 LBS., DROP: 30 IN (AUTO)

ELEVATION (FT): +1091 MSL (GE) **DRILLING METHOD:** HOLLOW STEM AUGER **LOGGED BY:** GN

GROUNDWATER DEPTH (FT): N/A **NOTES:** ETR~81.3%, $N_{60} \sim \frac{81.3}{60}$*N~1.36*N **REVIEWED BY:** AN

DEPTH (FT)	BULK SAMPLE	CAL/SPT SAMPLE	BLOWS PER 6 IN N	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	SOIL CLASS (USCS)	**SOIL DESCRIPTION** SUMMARY OF SUBSURFACE CONDITIONS (USCS; COLOR, MOISTURE, DENSITY, GRAIN SIZE, OTHER)	LAB TESTS
0								*5 IN ASPHALT CONCRETE*	
	☒						SM	**FILL (af):** *SILTY SAND WITH GRAVEL; OLIVE BROWN, MOIST, MEDIUM DENSE, FINE TO MEDIUM GRAINED, MICACEOUS, ABOUT 25-30% GRAVEL, ORGANIC ODOR, PID = 1.1 PPM*	RV
	☒ ☒						SM	**YOUNG ALLUVIAL-FAN DEPOSITS, UNIT 3 (Qyf$_3$):** *SILTY SAND; BROWN, MOIST, MEDIUM DENSE, FINE GRAINED, MICACEOUS, ABOUT 10-15% GRAVEL AND COBBLES*	
5		⧄	9 18 12	40			SP	*POORLY GRADED SAND WITH GRAVEL; LIGHT OLIVE BROWN, MOIST, DENSE, FINE TO COARSE GRAINED, MICACEOUS, ABOUT 25-30% GRAVEL*	SA
							GM	*SILTY GRAVEL; LIGHT OLIVE BROWN, MOIST, VERY DENSE, FINE TO COARSE GRAINED, MICACEOUS, ABOUT 50% GRAVEL AND COBBLES*	
10		■	40 50/6"	REF				*NO SAMPLE RECOVERY*	
15		⧄	18 24 46	95				*MEDIUM TO COARSE GRAINED, ABOUT 60% GRAVEL* *WITH A 2-IN LENS OF OLIVE BROWN POORLY GRADED SAND* *DECREASED DRILLING RESISTANCE*	
							SM	*SILTY SAND; OLIVE BROWN, MOIST, MEDIUM DENSE, FINE GRAINED, MICACEOUS*	
		⧄	4 4 7	15				*LIGHT OLIVE BROWN* *OLIVE BROWN, INCREASE IN FINES*	
20								*BORING TERMINATED AT 20 FT. NO GROUNDWATER ENCOUNTERED.*	
25									
30									

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EUCLID AVENUE DOWNTOWN RECYCLED WATER PROJECT, UT 1072

EUCLID AVENUE, WEST D STREET, EAST C STREET, EAST RIVERSIDE DRIVE

ONTARIO, CALIFORNIA

DRAFTED BY: GN PROJECT: 2023168 FIGURE: B.1

LOG OF BORING B-2

DATE DRILLED: JAN 18, 2024 **DRILLING EQUPMENT:** CME 75 **SAMPLE METHOD:** HAMMER: 140 LBS., DROP: 30 IN (AUTO)

ELEVATION (FT): +1072 MSL (GE) **DRILLING METHOD:** HOLLOW STEM AUGER **LOGGED BY:** GN

GROUNDWATER DEPTH (FT): N/A **NOTES:** ETR~81.3%, $N_{60} \sim \frac{81.3}{60}$*N~1.36*N **REVIEWED BY:** AN

DEPTH (FT)	BULK SAMPLE	CAL/SPT SAMPLE	BLOWS PER 6 IN N	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	SOIL CLASS (USCS)	**SOIL DESCRIPTION** *SUMMARY OF SUBSURFACE CONDITIONS (USCS; COLOR, MOISTURE, DENSITY, GRAIN SIZE, OTHER)*	LAB TESTS
0								*5 IN ASPHALT CONCRETE*	
	☒						SM	**FILL (af):** *SILTY SAND WITH GRAVEL AND COBBLES; OLIVE BROWN, MOIST, MEDIUM DENSE, FINE GRAINED, MICACEOUS, ABOUT 15% GRAVEL AND COBBLES, SLIGHT ORGANIC ODOR, PID = 0.5 PPM*	
	☒						SP	**YOUNG ALLUVIAL-FAN DEPOSITS, UNIT 3 (Qyf$_3$):** *POORLY GRADED SAND WITH GRAVEL; OLIVE BROWN, MOIST, DENSE, FINE TO COARSE GRAINED, ABOUT 25-30% GRAVEL AND COBBLES*	
5		■	15 18 37	49				*LIGHT OLIVE BROWN*	SA
10		⧄	8 13 7	27				*ABOUT 40% GRAVEL AND COBBLES*	
							SM	*SILTY SAND; OLIVE BROWN, MOIST, MEDIUM DENSE, FINE GRAINED, MICACEOUS*	
15		⧄	24 50/6"	REF			GM	*SILTY GRAVEL; LIGHT OLIVE BROWN, MOIST, VERY DENSE, MEDIUM TO COARSE GRAINED, SLIGHTLY MICACEOUS, ABOUT 40-60% GRAVEL AND COBBLES*	
		⧄	18 29 19	65				*OLIVE BROWN, ABOUT 40% GRAVEL*	
							SM	*SILTY SAND; LIGHT OLIVE BROWN, MOIST, VERY DENSE, FINE GRAINED, MICACEOUS*	
20								*BORING TERMINATED AT 20 FT. NO GROUNDWATER ENCOUNTERED.*	
25									
30									

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EUCLID AVENUE, WEST D STREET, EAST C STREET, EAST RIVERSIDE DRIVE

ONTARIO, CALIFORNIA

DRAFTED BY: GN | PROJECT: 2023168 | FIGURE: B.2

LOG OF BORING B-3

DATE DRILLED: JAN 18, 2024 **DRILLING EQUPMENT:** CME 75 **SAMPLE METHOD:** HAMMER: 140 LBS., DROP: 30 IN (AUTO)

ELEVATION (FT): +1058 MSL (GE) **DRILLING METHOD:** HOLLOW STEM AUGER **LOGGED BY:** GN

GROUNDWATER DEPTH (FT): N/A **NOTES:** ETR~81.3%, $N_{60} \sim \frac{81.3}{60}$*N~1.36*N **REVIEWED BY:** AN

DEPTH (FT)	BULK SAMPLE	CAL/SPT SAMPLE	BLOWS PER 6 IN N	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	SOIL CLASS (USCS)	**SOIL DESCRIPTION** SUMMARY OF SUBSURFACE CONDITIONS (USCS; COLOR, MOISTURE, DENSITY, GRAIN SIZE, OTHER)	LAB TESTS
0								*6½ IN ASPHALT CONCRETE*	
	☒ ☒						SM	**FILL (af):** *SILTY SAND WITH GRAVEL AND COBBLES; OLIVE BROWN, MOIST, MEDIUM DENSE, FINE TO MEDIUM GRAINED, MICACEOUS, ABOUT 30-40% GRAVEL AND COBBLES*	RV
	☒						SP-SM	**YOUNG ALLUVIAL-FAN DEPOSITS, UNIT 3 (Qyf$_3$):** *POORLY GRADED SAND WITH SILT AND GRAVEL; OLIVE BROWN, MOIST, MEDIUM DENSE, FINE GRAINED, MICACEOUS, ABOUT 40-50% GRAVEL AND COBBLES*	
5		⧄	5 7 14	29				*LIGHT OLIVE BROWN, FINE TO COARSE GRAINED, ABOUT 25-30% GRAVEL*	SA
10		■	12 28 50/5"	REF				*ABOUT 40-50% GRAVEL AND COBBLES* *VERY DENSE*	
15		⧄	18 39 46	116			GM	*SILTY GRAVEL; LIGHT OLIVE BROWN, MOIST, VERY DENSE, MEDIUM TO COARSE GRAINED, MICACEOUS, ABOUT 40-60% GRAVEL AND COBBLES* *LENS OF FINE GRAINED OLIVE BROWN SILTY SAND*	
		⧄	7 18 20	52			ML+SP	*INTERBEDDED SANDY SILT AND POORLY GRADED SAND; OLIVE BROWN AND LIGHT OLIVE BROWN, MOIST, VERY DENSE, FINE GRAINED SAND, MICACEOUS*	
20							GM	*SILTY GRAVEL; LIGHT OLIVE BROWN, MOIST, VERY DENSE, FINE TO COARSE GRAINED SAND, ABOUT 50-60% GRAVEL*	
								BORING TERMINATED AT 20 FT. NO GROUNDWATER ENCOUNTERED.	
25									
30									

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EUCLID AVENUE, WEST D STREET, EAST C STREET, EAST RIVERSIDE DRIVE

ONTARIO, CALIFORNIA

DRAFTED BY: GN	PROJECT: 2023168	FIGURE: B.3

LOG OF BORING B-4

DATE DRILLED: JAN 18, 2024 **DRILLING EQUPMENT:** CME 75 **SAMPLE METHOD:** HAMMER: 140 LBS., DROP: 30 IN (AUTO)

ELEVATION (FT): +1043 MSL (GE) **DRILLING METHOD:** HOLLOW STEM AUGER **LOGGED BY:** GN

GROUNDWATER DEPTH (FT): N/A **NOTES:** ETR~81.3%, $N_{60} \sim \frac{81.3}{60} * N \sim 1.36 * N$ **REVIEWED BY:** AN

DEPTH (FT)	BULK SAMPLE	CAL/SPT SAMPLE	BLOWS PER 6 IN N	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	SOIL CLASS (USCS)	**SOIL DESCRIPTION** *SUMMARY OF SUBSURFACE CONDITIONS* *(USCS; COLOR, MOISTURE, DENSITY, GRAIN SIZE, OTHER)*	LAB TESTS
0								*5 IN ASPHALT CONCRETE*	
	☒						SM	**FILL (af):** *SILTY SAND WITH GRAVEL AND COBBLES; OLIVE BROWN, MOIST, MEDIUM DENSE TO DENSE, FINE GRAINED, MICACEOUS, ABOUT 20-30% GRAVEL AND COBBLES*	
	☒ ☒						SM	**YOUNG ALLUVIAL-FAN DEPOSITS, UNIT 3 (Qyf$_3$):** *SILTY SAND WITH GRAVEL; OLIVE BROWN, MOIST, DENSE, FINE TO MEDIUM GRAINED, MICACEOUS, ABOUT 15-20% GRAVEL AND COBBLES* *ABOUT 50% GRAVEL AND COBBLES, AUGER CHATTER*	
5		■	21 22 24	41					
								AUGER CHATTER	
							GM	*SILTY GRAVEL; LIGHT OLIVE BROWN, MOIST, DENSE TO VERY DENSE, MEDIUM TO COARSE GRAINED, MICACEOUS, ABOUT 40% GRAVEL AND COBBLES, AUGER CHATTER*	
10		⧄	8 14 31	27			SP-SM	*POORLY GRADED SAND WITH SILT AND GRAVEL, LIGHT OLIVE BROWN, MOIST, MEDIUM DENSE, FINE TO COARSE GRAINED, ABOUT 40% GRAVEL, WITH A 2-IN LENS OF OLIVE BROWN SILTY SAND, INCREASED AUGER CHATTER*	SA
								AUGER CHATTER	
15		⧄	14 24 34	79			GM	*SILTY GRAVEL; LIGHT OLIVE BROWN, MOIST, VERY DENSE, MEDIUM TO COARSE GRAINED, MICACEOUS, ABOUT 60-70% GRAVEL, AUGER CHATTER*	
		⧄	24 30 38	92				*ABOUT 50-60% GRAVEL*	
20								*BORING TERMINATED AT 20 FT. NO GROUNDWATER ENCOUNTERED.*	
25									
30									

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EUCLID AVENUE DOWNTOWN RECYCLED WATER PROJECT, UT 1072

EUCLID AVENUE, WEST D STREET, EAST C STREET, EAST RIVERSIDE DRIVE

ONTARIO, CALIFORNIA

DRAFTED BY: GN	PROJECT: 2023168	FIGURE: B.4

LOG OF BORING B-5

DATE DRILLED: JAN 17, 2024 **DRILLING EQUIPMENT:** CME 75 **SAMPLE METHOD:** HAMMER: 140 LBS., DROP: 30 IN (AUTO)

ELEVATION (FT): +1028 MSL (GE) **DRILLING METHOD:** HOLLOW STEM AUGER **LOGGED BY:** GN

GROUNDWATER DEPTH (FT): N/A **NOTES:** ETR~81.3%, $N_{60} \sim \frac{81.3}{60}$*N~1.36*N **REVIEWED BY:** AN

DEPTH (FT)	BULK SAMPLE	CAL/SPT SAMPLE	BLOWS PER 6 IN N	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	SOIL CLASS (USCS)	**SOIL DESCRIPTION** SUMMARY OF SUBSURFACE CONDITIONS (USCS; COLOR, MOISTURE, DENSITY, GRAIN SIZE, OTHER)	LAB TESTS
0								*7½ IN ASPHALT CONCRETE OVER 4½ IN CONCRETE*	
	☒						SM	**FILL (af):** *SILTY SAND; OLIVE BROWN, MOIST, MEDIUM DENSE, FINE TO MEDIUM GRAINED, MICACEOUS, SOME CONCRETE DEBRIS, TREE ROOTS, ABOUT 10-15% GRAVEL*	
	☒						SM	**YOUNG ALLUVIAL-FAN DEPOSITS, UNIT 3 (Qyf_3):** *SILTY SAND; OLIVE BROWN, MOIST, DENSE, FINE TO MEDIUM GRAINED, MICACEOUS, ABOUT 10-15% GRAVEL, AUGER CHATTER*	
5		⧄	14 21 11	44			SP	*POORLY GRADED SAND WITH GRAVEL; LIGHT OLIVE BROWN, MOIST, DENSE, MEDIUM TO COARSE GRAINED, SLIGHTLY MICACEOUS, ABOUT 30-40% GRAVEL AND COBBLES* *AUGER CHATTER*	
10		■	31 50/6"	REF				*DISTURBED SAMPLE, AUGER CHATTER*	
15		⧄	3 3 1	5			SM	*SILTY SAND; OLIVE BROWN, MOIST, LOOSE, FINE GRAINED, MICACEOUS*	
							SP	*POORLY GRADED SAND WITH GRAVEL; LIGHT OLIVE BROWN, MOIST, MEDIUM DENSE, MEDIUM TO COARSE GRAINED, ABOUT 30-40% GRAVEL*	
		⧄	4 8 8	22			SM	*SILTY SAND; OLIVE BROWN, MOIST, DENSE, FINE GRAINED, MICACEOUS* *LIGHT BROWN, 2-IN GRAVEL LENS*	
20							ML	*SANDY SILT; LIGHT REDDISH BROWN, MOIST, MEDIUM DENSE, FINE GRAINED, MICACEOUS*	
								BORING TERMINATED AT 20 FT. NO GROUNDWATER ENCOUNTERED.	
25									
30									

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EUCLID AVENUE, WEST D STREET, EAST C STREET, EAST RIVERSIDE DRIVE

ONTARIO, CALIFORNIA

DRAFTED BY: GN	PROJECT: 2023168	FIGURE: B.5

LOG OF BORING B-6

DATE DRILLED: JAN 17, 2024 **DRILLING EQUIPMENT:** CME 75 **SAMPLE METHOD:** HAMMER: 140 LBS., DROP: 30 IN (AUTO)

ELEVATION (FT): +1016 MSL (GE) **DRILLING METHOD:** HOLLOW STEM AUGER **LOGGED BY:** GN

GROUNDWATER DEPTH (FT): N/A **NOTES:** ETR~81.3%, $N_{60} \sim \frac{81.3}{60}$*N~1.36*N **REVIEWED BY:** AN

DEPTH (FT)	BULK SAMPLE	CAL/SPT SAMPLE	BLOWS PER 6 IN N	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	SOIL CLASS (USCS)	**SOIL DESCRIPTION** *SUMMARY OF SUBSURFACE CONDITIONS* *(USCS; COLOR, MOISTURE, DENSITY, GRAIN SIZE, OTHER)*	LAB TESTS
0								*7½ IN ASPHALT CONCRETE OVER 4½ IN CONCRETE*	
	☒ ☒						SP-SM	**YOUNG ALLUVIAL-FAN DEPOSITS, UNIT 3 (Qyf$_3$):** *POORLY GRADED SAND WITH SILT AND GRAVEL; OLIVE BROWN, MOIST, MEDIUM DENSE TO DENSE, FINE TO MEDIUM GRAINED, MICACEOUS, ABOUT 15% GRAVEL AND COBBLES*	
5		■	7 11 21	28				*MEDIUM DENSE, FINE TO COARSE GRAINED, ABOUT 25-30% GRAVEL, AUGER CHATTER*	SA
10		⧄	14 21 25	63			SP	*SILTY SAND WITH GRAVEL; LIGHT OLIVE BROWN, MOIST, VERY DENSE, MEDIUM TO COARSE GRAINED, SLIGHTLY MICACEOUS, ABOUT 30-40% GRAVEL*	
15		⧄	3 5 5	14			SM	*SILTY SAND; OLIVE BROWN, MOIST, MEDIUM DENSE, FINE TO COARSE GRAINED, MICACEOUS, ABOUT 10-15% GRAVEL*	SA
							SP	*POORLY GRADED SAND WITH GRAVEL; LIGHT OLIVE BROWN, MOIST, DENSE, MEDIUM TO COARSE GRAINED, SLIGHTLY MICACEOUS, ABOUT 30-40% GRAVEL* *LENS OF SILTY SAND*	
		⧄	11 15 20	48					
20							SM	*SILTY SAND; OLIVE BROWN, MOIST, DENSE, FINE TO MEDIUM GRAINED, MICACEOUS*	
								BORING TERMINATED AT 20 FT. NO GROUNDWATER ENCOUNTERED.	
25									
30									

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EUCLID AVENUE, WEST D STREET, EAST C STREET, EAST RIVERSIDE DRIVE

ONTARIO, CALIFORNIA

DRAFTED BY: GN PROJECT: 2023168 FIGURE: B.6

LOG OF BORING B-7

DATE DRILLED: OCT 26, 2023 **DRILLING EQUIPMENT:** CME 75 **SAMPLE METHOD:** HAMMER: 140 LBS., DROP: 30 IN (AUTO)

ELEVATION (FT): +1011 MSL (GE) **DRILLING METHOD:** HOLLOW STEM AUGER **LOGGED BY:** GN

GROUNDWATER DEPTH (FT): N/A **NOTES:** ETR~85.3%, $N_{60} \sim \frac{85.3}{60}*N \sim 1.42*N$ **REVIEWED BY:** AN

DEPTH (FT)	BULK SAMPLE	CAL/SPT SAMPLE	BLOWS PER 6 IN N	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	SOIL CLASS (USCS)	**SOIL DESCRIPTION** *SUMMARY OF SUBSURFACE CONDITIONS* *(USCS; COLOR, MOISTURE, DENSITY, GRAIN SIZE, OTHER)*	LAB TESTS
0								*4½ IN ASPHALT CONCRETE OVER 6 IN BASE (WITH CONCRETE AND ASPHALT)*	
	☒						SM	**YOUNG ALLUVIAL-FAN DEPOSITS, UNIT 3 (Qyf$_3$):** *SILTY SAND; BROWN, MOIST, MEDIUM DENSE, FINE TO MEDIUM GRAINED, MICACEOUS, ABOUT 10-15% GRAVEL*	
	☒						SP-SM	*POORLY GRADED SAND WITH SILT AND GRAVEL; BROWN, MOIST, MEDIUM DENSE, FINE TO MEDIUM GRAINED, MICACEOUS, ABOUT 30% GRAVEL*	
5		⧄	7 7 9	15				*LIGHT OLIVE BROWN, FINE TO COARSE GRAINED, SLIGHTLY MICACEOUS, ABOUT 25-30% GRAVEL*	SA
10		■	8 20 19	36	2.1		SP	*POORLY GRADED SAND WITH GRAVEL; OLIVE BROWN, MOIST, DENSE, MEDIUM TO COARSE GRAINED, SLIGHTLY MICACEOUS, ABOUT 30-35% GRAVEL* *(SAMPLE DISTURBED)*	
15		⧄	8 18 17	50				*LIGHT OLIVE BROWN, ABOUT 25% GRAVEL* *2-IN LENS OF OLIVE BROWN SILTY SAND WITH 10-15% GRAVEL*	
		⧄	8 12 17	41				*OLIVE BROWN, ABOUT 25-30% GRAVEL* *LIGHT OLIVE BROWN, LENS OF POORLY GRADED SAND* *ABOUT 20% GRAVEL*	
20								*BORING TERMINATED AT 20 FT. NO GROUNDWATER ENCOUNTERED.*	
25									
30									

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EUCLID AVENUE, WEST D STREET, EAST C STREET, EAST RIVERSIDE DRIVE

ONTARIO, CALIFORNIA

DRAFTED BY: GN	PROJECT: 2023168	FIGURE: B.7

LOG OF BORING B-8

DATE DRILLED: JAN 17, 2024 **DRILLING EQUPMENT:** CME 75 **SAMPLE METHOD:** HAMMER: 140 LBS., DROP: 30 IN (AUTO)

ELEVATION (FT): +1001 MSL (GE) **DRILLING METHOD:** HOLLOW STEM AUGER **LOGGED BY:** GN

GROUNDWATER DEPTH (FT): N/A **NOTES:** ETR~81.3%, $N_{60} \sim \frac{81.3}{60}*N \sim 1.36*N$ **REVIEWED BY:** AN

DEPTH (FT)	BULK SAMPLE	CAL/SPT SAMPLE	BLOWS PER 6 IN N	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	SOIL CLASS (USCS)	**SOIL DESCRIPTION** *SUMMARY OF SUBSURFACE CONDITIONS* *(USCS; COLOR, MOISTURE, DENSITY, GRAIN SIZE, OTHER)*	LAB TESTS
0								*7 IN ASPHALT CONCRETE OVER 4 IN CONCRETE*	
	☒ ☒ ☒						SM	**YOUNG ALLUVIAL-FAN DEPOSITS, UNIT 3 (Qyf$_3$):** *SILTY SAND WITH GRAVEL AND COBBLES; OLIVE BROWN, MOIST, MEDIUM DENSE TO DENSE, FINE TO MEDIUM GRAINED, MICACEOUS, ABOUT 15% GRAVEL AND COBBLES*	RV
5		⧄	4 4 8	16				*MEDIUM DENSE, FINE TO COARSE GRAINED, AUGER CHATTER*	
10		▨	28 32 48	71			SP	*POORLY GRADED SAND WITH GRAVEL; LIGHT OLIVE BROWN, MOIST, VERY DENSE, MEDIUM TO COARSE GRAINED, ABOUT 20-30% GRAVEL, AUGER CHATTER*	
							SM	*SILTY SAND; OLIVE BROWN, MOIST, VERY DENSE, FINE TO MEDIUM GRAINED, MICACEOUS*	
15		⧄	15 20 22	57			SP	*POORLY GRADED SAND WITH GRAVEL; LIGHT OLIVE BROWN, MOIST, VERY DENSE, MEDIUM TO COARSE GRAINED, ABOUT 30% GRAVEL*	
		⧄	4 5 7	16			SM	*SILTY SAND; LIGHT OLIVE BROWN, MOIST, MEDIUM DENSE, FINE GRAINED, MICACEOUS FINE TO MEDIUM GRAINED, WITH A 2-IN LENS OF SANDY SILT FINE GRAINED*	
20								*BORING TERMINATED AT 20 FT. NO GROUNDWATER ENCOUNTERED.*	
25									
30									

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ONTARIO, CALIFORNIA

DRAFTED BY: GN	PROJECT: 2023168	FIGURE: B.8

LOG OF BORING B-9

DATE DRILLED: OCT 26, 2023 **DRILLING EQUIPMENT:** CME 75 **SAMPLE METHOD:** HAMMER: 140 LBS., DROP: 30 IN (AUTO)

ELEVATION (FT): +1020 MSL (GE) **DRILLING METHOD:** HOLLOW STEM AUGER **LOGGED BY:** GN

GROUNDWATER DEPTH (FT): N/A **NOTES:** ETR~85.3%, $N_{60} \sim \frac{85.3}{60}*N \sim 1.42*N$ **REVIEWED BY:** AN

DEPTH (FT)	BULK SAMPLE	CAL/SPT SAMPLE	BLOWS PER 6 IN N	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	SOIL CLASS (USCS)	**SOIL DESCRIPTION** SUMMARY OF SUBSURFACE CONDITIONS (USCS; COLOR, MOISTURE, DENSITY, GRAIN SIZE, OTHER)	LAB TESTS
0								*6 IN ASPHALT CONCRETE OVER 3 IN BASE (WITH CONCRETE AND ASPHALT)*	
	☒						SM	**YOUNG ALLUVIAL-FAN DEPOSITS, UNIT 3 (Qyf$_3$):** *SILTY SAND WITH GRAVEL; BROWN, MOIST, MEDIUM DENSE, FINE GRAINED, MICACEOUS, ABOUT 10-20% GRAVEL*	RV CR
5		⧄	3 4 5	13				*LIGHT OLIVE BROWN, FINE TO MEDIUM GRAINED, ABOUT 25-35% GRAVEL, AUGER CHATTER*	
							SP-SM	*POORLY GRADED SAND WITH GRAVEL; LIGHT OLIVE BROWN, MOIST, MEDIUM DENSE, FINE TO COARSE GRAINED, SLIGHTLY MICACEOUS, ABOUT 25-30% GRAVEL*	
10		■	7 19 11	28	0.8			*ABOUT 35-45% GRAVEL* *(SAMPLE DISTURBED)*	
15		⧄	5 14 27	58				*ABOUT 20-25% GRAVEL*	SA
							SP	*POORLY GRADED SAND WITH GRAVEL; LIGHT OLIVE BROWN, MOIST, VERY DENSE, MEDIUM TO COARSE GRAINED, SLIGHTLY MICACEOUS, ABOUT 20-25% GRAVEL*	
		⧄	21 30 50/6"	REF				*3-IN LENS OF OLIVE BROWN POORLY GRADED SAND WITH NO GRAVEL* *ABOUT 30-40% GRAVEL*	
20								*BORING TERMINATED AT 20 FT. NO GROUNDWATER ENCOUNTERED.*	
25									
30									

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EUCLID AVENUE DOWNTOWN RECYCLED WATER PROJECT, UT 1072

EUCLID AVENUE, WEST D STREET, EAST C STREET, EAST RIVERSIDE DRIVE

ONTARIO, CALIFORNIA

DRAFTED BY: GN | PROJECT: 2023168 | FIGURE: B.9

LOG OF BORING B-10

DATE DRILLED: OCT 26, 2023 **DRILLING EQUPMENT:** CME 75 **SAMPLE METHOD:** HAMMER: 140 LBS., DROP: 30 IN (AUTO)

ELEVATION (FT): +1020 MSL (GE) **DRILLING METHOD:** HOLLOW STEM AUGER **LOGGED BY:** GN

GROUNDWATER DEPTH (FT): N/A **NOTES:** ETR~85.3%, $N_{60} \sim \frac{85.3}{60}*N \sim 1.42*N$ **REVIEWED BY:** AN

DEPTH (FT)	BULK SAMPLE	CAL/SPT SAMPLE	BLOWS PER 6 IN N	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	SOIL CLASS (USCS)	**SOIL DESCRIPTION** *SUMMARY OF SUBSURFACE CONDITIONS* *(USCS; COLOR, MOISTURE, DENSITY, GRAIN SIZE, OTHER)*	LAB TESTS
0								*6 IN ASPHALT CONCRTETE OVER 3 IN BASE (WITH CONCRETE AND ASPHALT)*	
	☒						ML	**YOUNG ALLUVIAL-FAN DEPOSITS, UNIT 3 (Qyf$_3$):** *SANDY SILT; BROWN, MOIST, MEDIUM DENSE, FINE GRAINED SAND, MICACEOUS, ABOUT 10% GRAVEL* *COBBLE* *AUGER CHATTER*	
	☒						SM	*SILTY SAND WITH GRAVEL; OLIVE BROWN, MOIST, MEDIUM DENSE TO DENSE, FINE TO MEDIUM GRAINED, ABOUT 30% GRAVEL*	
5		■	10 16 20	33			SP	*POORLY GRADED SAND WITH GRAVEL; OLIVE BROWN, MOIST, DENSE, MEDIUM GRAINED, MICACEOUS, ABOUT 30% GRAVEL* *(DISTURBED SAMPLE)* *GRAVEL CONTENT INCREASED WITH DEPTH*	
10		⧄	7 19 20	55			SP-SM	*POORLY GRADED SAND WITH SILT; LIGHT OLIVE BROWN, MOIST, VERY DENSE, FINE TO MEDIUM GRAINED, MICACEOUS, ABOUT 10% GRAVEL* *GRAVEL LAYER*	
15		⧄	8 10 6	23			SP	*POORLY GRADED SAND WITH GRAVEL; LIGHT OLIVE BROWN, MOIST, MEDIUM DENSE, MEDIUM TO COARSE GRAINED, SLIGHTLY MICACEOUS, ABOUT 30% GRAVEL*	
							ML	*SANDY SILT; OLIVE BROWN, MOIST, MEDIUM DENSE, FINE GRAINED SAND, MICACEOUS*	
		⧄	3 7 10	24			SM	*SILTY SAND; OLIVE BROWN, MOIST, MEDIUM DENSE, FINE GRAINED, MICACEOUS, WITH A 3 IN LENS OF FINE GRAINED OLIVE BROWN SANDY SILT* *FINE TO MEDIUM GRAINED*	SA
20								*BORING TERMINATED AT 20 FT. NO GROUNDWATER ENCOUNTERED.*	
25									
30									

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ONTARIO, CALIFORNIA

DRAFTED BY: GN PROJECT: 2023168 FIGURE: B.10

LOG OF BORING B-11

DATE DRILLED: OCT 25, 2023 **DRILLING EQUIPMENT:** CME 75 **SAMPLE METHOD:** HAMMER: 140 LBS., DROP: 30 IN (AUTO)

ELEVATION (FT): +1020 MSL (GE) **DRILLING METHOD:** HOLLOW STEM AUGER **LOGGED BY:** GN

GROUNDWATER DEPTH (FT): N/A **NOTES:** ETR~85.3%, $N_{60} \sim \frac{85.3}{60}$*N~1.42*N **REVIEWED BY:** AN

DEPTH (FT)	BULK SAMPLE	CAL/SPT SAMPLE	BLOWS PER 6 IN N	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	SOIL CLASS (USCS)	**SOIL DESCRIPTION** *SUMMARY OF SUBSURFACE CONDITIONS (USCS; COLOR, MOISTURE, DENSITY, GRAIN SIZE, OTHER)*	LAB TESTS
0								*5½ IN ASPHALT CONCRTETE*	
	☒						ML	**YOUNG ALLUVIAL-FAN DEPOSITS, UNIT 3 (Qyf$_3$):** *SANDY SILT; BROWN, MOIST, LOOSE TO MEDIUM DENSE, FINE GRAINED SAND, POROUS, MICACEOUS, ABOUT 5-10% GRAVEL, ROOTS* *INCREASED SAND CONTENT*	
5		⧄	2 3 3	9			SM	*SILTY SAND; BROWN, MOIST, LOOSE, FINE TO MEDIUM GRAINED GRAINED, ABOUT 10-15% GRAVEL, MICACEOUS*	SA
10		■	3 4 5	8	7.0	97.6		*ROOTS*	
15		⧄	2 3 4	10				*OLIVE BROWN, MEDIUM DENSE*	SA
		⧄	6 5 5	14				*FINE TO MEDIUM GRAINED*	
20								*BORING TERMINATED AT 20 FT. NO GROUNDWATER ENCOUNTERED.*	
25									
30									

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EUCLID AVENUE, WEST D STREET, EAST C STREET, EAST RIVERSIDE DRIVE

ONTARIO, CALIFORNIA

DRAFTED BY: GN | PROJECT: 2023168 | FIGURE: B.11

LOG OF BORING B-12

DATE DRILLED: OCT 26, 2023 **DRILLING EQUIPMENT:** CME 75 **SAMPLE METHOD:** HAMMER: 140 LBS., DROP: 30 IN (AUTO)

ELEVATION (FT): +1028 MSL (GE) **DRILLING METHOD:** HOLLOW STEM AUGER **LOGGED BY:** GN

GROUNDWATER DEPTH (FT): N/A **NOTES:** ETR~85.3%, $N_{60} \sim \frac{85.3}{60} * N \sim 1.42 * N$ **REVIEWED BY:** AN

DEPTH (FT)	BULK SAMPLE	CAL/SPT SAMPLE	BLOWS PER 6 IN N	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	SOIL CLASS (USCS)	**SOIL DESCRIPTION** *SUMMARY OF SUBSURFACE CONDITIONS* *(USCS; COLOR, MOISTURE, DENSITY, GRAIN SIZE, OTHER)*	LAB TESTS
0								*8 IN ASPHALT CONCRTETE OVER 4 IN CONCRETE*	
	☒						SM	**YOUNG ALLUVIAL-FAN DEPOSITS, UNIT 3 (Qyf_3):** *SILTY SAND; BROWN, MOIST, MEDIUM DENSE, FINE TO MEDIUM GRAINED SAND, MICACEOUS, TRACE GRAVEL* *COBBLE AT 3½ FT* *AUGER CHATTER*	
5		■	41 44 50/5"	REF			SP	*POORLY GRADED SAND WITH GRAVEL; LIGHT OLIVE BROWN, MOIST, VERY DENSE, MEDIUM TO COARSE GRAINED, SLIGHTLY MICACEOUS, ABOUT 40-60% GRAVEL AND COBBLES* *AUGER CHATTER, DISTURBED SAMPLE* *OLIVE BROWN*	
10		⧄	8 14 14	40			SP-SM	*POORLY GRADED SAND WITH SILT WITH GRAVEL; LIGHT OLIVE BROWN, MOIST, DENSE, FINE TO COARSE GRAINED, MICACEOUS, ABOUT 30-35% GRAVEL AND ROCK FRAGMENTS*	SA
15		⧄	4 5 14	27			SM	*SILTY SAND; OLIVE BROWN, MOIST, MEDIUM DENSE, FINE GRAINED, MICACEOUS* *LIGHT OLIVE BROWN, MEDIUM TO COARSE GRAINED, ABOUT 10-15% GRAVEL*	
		⧄	5 10 14	34			SP	*POORLY GRADED SAND WITH GRAVEL; LIGHT OLIVE BROWN, MOIST, DENSE, MEDIUM TO COARSE GRAINED, SLIGHTLY MICACEOUS,* *ABOUT 30% GRAVEL AND ROCK FRAGMENTS*	
20								*BORING TERMINATED AT 20 FT. NO GROUNDWATER ENCOUNTERED.*	
25									
30									

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EUCLID AVENUE, WEST D STREET, EAST C STREET, EAST RIVERSIDE DRIVE

ONTARIO, CALIFORNIA

DRAFTED BY: GN PROJECT: 2023168 FIGURE: B.12

LOG OF BORING B-13

DATE DRILLED: OCT 25, 2023 **DRILLING EQUIPMENT:** CME 75 **SAMPLE METHOD:** HAMMER: 140 LBS., DROP: 30 IN (AUTO)

ELEVATION (FT): +1034 MSL (GE) **DRILLING METHOD:** HOLLOW STEM AUGER **LOGGED BY:** GN

GROUNDWATER DEPTH (FT): N/A **NOTES:** ETR~85.3%, $N_{60} \sim \frac{85.3}{60}*N \sim 1.42*N$ **REVIEWED BY:** AN

DEPTH (FT)	BULK SAMPLE	CAL/SPT SAMPLE	BLOWS PER 6 IN N	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	SOIL CLASS (USCS)	**SOIL DESCRIPTION** *SUMMARY OF SUBSURFACE CONDITIONS* *(USCS; COLOR, MOISTURE, DENSITY, GRAIN SIZE, OTHER)*	LAB TESTS
0								*3½ IN ASPHALT CONCRTETE*	
	☒						SM	**YOUNG ALLUVIAL-FAN DEPOSITS, UNIT 3 (Qyf$_3$):** *SILTY SAND; BROWN, MOIST, MEDIUM DENSE, FINE TO MEDIUM GRAINED, MICACEOUS, TRACE GRAVEL*	
5		◩	3 8 11	27					SA
							GP	*POORLY GRADED GRAVEL WITH SAND; OLIVE BROWN, MOIST, DENSE, FINE TO COARSE GRAINED, ABOUT 30% GRAVEL*	
10		■	9 29 39	63	0.9			*VERY DENSE, ABOUT 60-65% GRAVEL*	SA
15		◩	4 5 6	16				*ABOUT 40% GRAVEL*	
							SM	*SILTY SAND; OLIVE BROWN, MOIST, MEDIUM DENSE, FINE TO MEDIUM GRAINED, MICACEOUS, TRACE GRAVEL* *FINE TO COARSE GRAINED*	
		◩	6 5 5	14			ML+SP	*SANDY SILT; OLIVE BROWN, MOIST, MEDIUM DENSE, FINE GRAINED, MICACEOUS, INTERBEDDED WITH LIGHT OLIVE BROWN, MEDIUM TO COARSE GRAINED POORLY GRADED SAND*	
20								*BORING TERMINATED AT 20 FT. NO GROUNDWATER ENCOUNTERED.*	
25									
30									

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EUCLID AVENUE, WEST D STREET, EAST C STREET, EAST RIVERSIDE DRIVE
ONTARIO, CALIFORNIA

DRAFTED BY: GN	PROJECT: 2023168	FIGURE: B.13

LOG OF BORING B-14

DATE DRILLED: OCT 25, 2023 **DRILLING EQUIPMENT:** CME 75 **SAMPLE METHOD:** HAMMER: 140 LBS., DROP: 30 IN (AUTO)

ELEVATION (FT): +1027 MSL (GE) **DRILLING METHOD:** HOLLOW STEM AUGER **LOGGED BY:** GN

GROUNDWATER DEPTH (FT): N/A **NOTES:** ETR~85.3%, $N_{60} \sim \frac{85.3}{60}*N \sim 1.42*N$ **REVIEWED BY:** AN

DEPTH (FT)	BULK SAMPLE	CAL/SPT SAMPLE	BLOWS PER 6 IN N	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	SOIL CLASS (USCS)	**SOIL DESCRIPTION** *SUMMARY OF SUBSURFACE CONDITIONS (USCS; COLOR, MOISTURE, DENSITY, GRAIN SIZE, OTHER)*	LAB TESTS
0								*6 IN ASPHALT CONCRETE*	
	☒						SM	**FILL (af):** *SILTY SAND WITH GRAVEL; BROWN, MOIST, MEDIUM DENSE TO DENSE, FINE TO MEDIUM GRAINED SAND, MICACEOUS, ABOUT 30-40% GRAVEL AND COBBLES, SOME ASPHALT DEBRIS* *AUGER REFUSAL AT 3 FT, STEPOUT 2½ FT NORTHWEST*	
5		■	27 25 22	43	2.0		SM	**YOUNG ALLUVIAL-FAN DEPOSITS, UNIT 3 (Qyf_3):** *SILTY SAND; OLIVE BROWN, MOIST, DENSE, FINE TO MEDIUM GRAINED, MICACEOUS* *ABOUT 60% GRAVEL AND COBBLES AT 6 FT* *(SAMPLE DISTURBED)*	SA
10		⧄	14 28 26	77				*LIGHT OLIVE BROWN, VERY DENSE, ABOUT 40-60% GRAVEL AND COBBLES*	
15		⧄	9 18 22	57				*OLIVE BROWN, ABOUT 20-30% GRAVEL*	
		⧄	9 20 22	60			GP	*POORLY GRADED GRAVEL WITH SAND; OLIVE BROWN, MOIST, DENSE TO VERY DENSE, MEDIUM TO COARSE GRAINED, SLIGHTLY MICACEOUS, ABOUT 60-80% GRAVEL AND ROCK FRAGMENTS*	
20								*BORING TERMINATED AT 20 FT. NO GROUNDWATER ENCOUNTERED.*	
25									
30									

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EUCLID AVENUE, WEST D STREET, EAST C STREET, EAST RIVERSIDE DRIVE

ONTARIO, CALIFORNIA

DRAFTED BY: GN

PROJECT: 2023168

FIGURE: B.14

LOG OF BORING B-15

DATE DRILLED: NOV 2, 2023 **DRILLING EQUIPMENT:** CME 75 **SAMPLE METHOD:** HAMMER: 140 LBS., DROP: 30 IN (AUTO)

ELEVATION (FT): +784 MSL (GE) **DRILLING METHOD:** HOLLOW STEM AUGER **LOGGED BY:** GN

GROUNDWATER DEPTH (FT): N/A **NOTES:** ETR~81.8%, $N_{60} \sim \frac{81.8}{60}*N \sim 1.36*N$ **REVIEWED BY:** AN

DEPTH (FT)	BULK SAMPLE	CAL/SPT SAMPLE	BLOWS PER 6 IN N	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	SOIL CLASS (USCS)	**SOIL DESCRIPTION** *SUMMARY OF SUBSURFACE CONDITIONS (USCS; COLOR, MOISTURE, DENSITY, GRAIN SIZE, OTHER)*	LAB TESTS
0								*6½ IN ASPHALT CONCRETE OVER 15 IN AGGREGATE BASE*	
	☒						SM	**YOUNG ALLUVIAL-FAN DEPOSITS, UNIT 3 (Qyf$_3$):** *SILTY SAND; OLIVE BROWN, MOIST, LOOSE TO MEDIUM DENSE, FINE TO MEDIUM GRAINED, MICACEOUS*	
								TRACE GRAVEL	
5		◩	3 8 11	10					SA
								LIGHT OLIVE BROWN WITH RED YELLOW STAINING	
10		■	8 9 10	17	28.7	92.0	CL	*LEAN CLAY; OLIVE BROWN, MOIST, VERY STIFF, PP = 1.5-1.75 TSF,TRACE WHITE MINERAL PRECIPITATE DEPOSITS, INCREASED MOISTURE CONTENT*	SA
15		◩	4 4 6	14			SM	*SILTY SAND; OLIVE BROWN, MOIST, MEDIUM DENSE, FINE TO MEDIUM GRAINED, WITH REDDISH BROWN STAINING, MICACEOUS, TRACE WHITE MINERAL PRECIPITATE DEPOSITS*	SA
		◩	6 9 13	30			SC	*CLAYEY SAND; MOTTLED OLIVE BROWN AND RED YELLOW, MOIST, MEDIUM DENSE, FINE GRAINED, MICACEOUS* *WITH 15% GRAVEL*	
20							SP	*POORLY GRADED SAND WITH GRAVEL; LIGHT OLIVE BROWN, MOIST, DENSE, MEDIUM TO COARSE GRAINED, WITH RED STAINING, ABOUT 25-30% GRAVEL*	
								BORING TERMINATED AT 20 FT. NO GROUNDWATER ENCOUNTERED.	
25									
30									

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EUCLID AVENUE, WEST D STREET, EAST C STREET, EAST RIVERSIDE DRIVE

ONTARIO, CALIFORNIA

DRAFTED BY: GN	PROJECT: 2023168	FIGURE: B.15

LOG OF BORING B-16

DATE DRILLED: NOV 2, 2023 **DRILLING EQUPMENT:** CME 75 **SAMPLE METHOD:** HAMMER: 140 LBS., DROP: 30 IN (AUTO)

ELEVATION (FT): +788 MSL (GE) **DRILLING METHOD:** HOLLOW STEM AUGER **LOGGED BY:** GN

GROUNDWATER DEPTH (FT): N/A **NOTES:** ETR~81.8%, $N_{60} \sim \frac{81.8}{60}*N \sim 1.36*N$ **REVIEWED BY:** AN

DEPTH (FT)	BULK SAMPLE	CAL/SPT SAMPLE	BLOWS PER 6 IN N	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	SOIL CLASS (USCS)	**SOIL DESCRIPTION** *SUMMARY OF SUBSURFACE CONDITIONS* *(USCS; COLOR, MOISTURE, DENSITY, GRAIN SIZE, OTHER)*	LAB TESTS
0								*4 IN ASPHALT CONCRETE OVER 2 IN AGGREGATE BASE*	
	☒						SM	**YOUNG ALLUVIAL-FAN DEPOSITS, UNIT 3 (Qyf$_3$):** *SILTY SAND; OLIVE BROWN, MOIST, LOOSE TO MEDIUM DENSE, FINE TO MEDIUM GRAINED, MICACEOUS*	CR
5		▨	4 5 7	11	6.0	105.6		*LIGHT OLIVE BROWN*	
10		⧄	3 4 5	13			CL	*LEAN CLAY WITH SAND; OLIVE BROWN, MOIST, STIFF, FINE TO MEDIUM GRAINED SAND, PP = 1.5-1.75*	SA AL
15		⧄	4 5 5	14			ML	*SANDY SILT; OLIVE BROWN, MOIST, MEDIUM DENSE, FINE GRAINED SAND, MICACEOUS, WITH RED YELLOW STAINING*	
							ML	*SILT; OLIVE BROWN, MOIST, STIFF, PP = 1.0-1.25 TSF, TRACE CHARCOAL OR BLACK MINERAL PRECIPITATE DEPOSITS* *INCREASED MOISTURE CONTENT*	
		⧄	2 4 6	14				*PP = 1.0 TSF* *PP = 2.0 TSF*	
20								*BORING TERMINATED AT 20 FT. NO GROUNDWATER ENCOUNTERED.*	
25									
30									

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EUCLID AVENUE DOWNTOWN RECYCLED WATER PROJECT, UT 1072

EUCLID AVENUE, WEST D STREET, EAST C STREET, EAST RIVERSIDE DRIVE

ONTARIO, CALIFORNIA

DRAFTED BY: GN | PROJECT: 2023168 | FIGURE: B.16

LOG OF BORING B-17

DATE DRILLED: NOV 2, 2023 **DRILLING EQUIPMENT:** CME 75 **SAMPLE METHOD:** HAMMER: 140 LBS., DROP: 30 IN (AUTO)

ELEVATION (FT): +785 MSL (GE) **DRILLING METHOD:** HOLLOW STEM AUGER **LOGGED BY:** GN

GROUNDWATER DEPTH (FT): N/A **NOTES:** ETR~81.8%, $N_{60} \sim \frac{81.8}{60}*N \sim 1.36*N$ **REVIEWED BY:** AN

DEPTH (FT)	BULK SAMPLE	CAL/SPT SAMPLE	BLOWS PER 6 IN N	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	SOIL CLASS (USCS)	**SOIL DESCRIPTION** *SUMMARY OF SUBSURFACE CONDITIONS* *(USCS; COLOR, MOISTURE, DENSITY, GRAIN SIZE, OTHER)*	LAB TESTS
0								*7 IN ASPHALT CONCRETE*	
	☒						SM	**YOUNG ALLUVIAL-FAN DEPOSITS, UNIT 3 (Qyf$_3$):** *SILTY SAND; OLIVE BROWN, MOIST, LOOSE, FINE TO MEDIUM GRAINED, MICACEOUS*	
5		⧄	2 3 3	8				*LIGHT OLIVE BROWN*	SA
10		■	9 11 11	19	25.3	91.7	ML	*SANDY SILT; OLIVE GRAY BROWN, MOIST, MEDIUM DENSE, FINE GRAINED SAND, TRACE YELLOW RED STAINING, INCREASED MOISTURE CONTENT*	
15		⧄	3 4 6	14			MH	*ELASTIC SILT; OLIVE BROWN, MOIST, MEDIUM STIFF, MICACEOUS, PP = 1.25 TSF, WITH A 2-IN LENS OF OLIVE BROWN FINE GRAINED SILTY SAND*	
		⧄	6 9 13	30			SM	*SILTY SAND; LIGHT OLIVE BROWN, MOIST, MEDIUM DENSE, MEDIUM GRAINED, SLIGHTLY MICACEOUS*	
20							SP	*POORLY GRADED SAND; LIGHT OLIVE BROWN, MOIST, DENSE, MEDIUM TO COARSE GRAINED, TRACE GRAVEL, WITH RED YELLOW STAINING*	
								BORING TERMINATED AT 20 FT. NO GROUNDWATER ENCOUNTERED.	
25									
30									

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EUCLID AVENUE, WEST D STREET, EAST C STREET, EAST RIVERSIDE DRIVE

ONTARIO, CALIFORNIA

DRAFTED BY: GN PROJECT: 2023168 FIGURE: B.17

LOG OF BORING B-18

DATE DRILLED: NOV 2, 2023 **DRILLING EQUIPMENT:** CME 75 **SAMPLE METHOD:** HAMMER: 140 LBS., DROP: 30 IN (AUTO)

ELEVATION (FT): +784 MSL (GE) **DRILLING METHOD:** HOLLOW STEM AUGER **LOGGED BY:** GN

GROUNDWATER DEPTH (FT): N/A **NOTES:** ETR~81.8%, $N_{60} \sim \frac{81.8}{60}$*N~1.36*N **REVIEWED BY:** AN

DEPTH (FT)	BULK SAMPLE	CAL/SPT SAMPLE	BLOWS PER 6 IN N	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	SOIL CLASS (USCS)	**SOIL DESCRIPTION** *SUMMARY OF SUBSURFACE CONDITIONS* *(USCS; COLOR, MOISTURE, DENSITY, GRAIN SIZE, OTHER)*	LAB TESTS
0								*7½ IN ASPHALT CONCRETE*	
	☒						SM	**YOUNG ALLUVIAL-FAN DEPOSITS, UNIT 3 (Qyf$_3$):** *SILTY SAND; OLIVE BROWN, MOIST, LOOSE TO MEDIUM DENSE, FINE GRAINED, MICACEOUS*	
5		■	4 6 8	12	9.4	109.9		*FINE TO MEDIUM GRAINED*	
							SP-SM	*POORLY GRADED SAND WITH SILT; LIGHT OLIVE BROWN, MOIST, MEDIUM DENSE, MEDIUM TO COARSE GRAINED*	
10		⧄	6 13 15	38				*DENSE, FINE TO COARSE GRAINED, MICACEOUS, ABOUT 25-30% GRAVEL*	SA
								AUGER CHATTER	
15		⧄	4 5 13	25			ML	*SANDY SILT; OLIVE BROWN, MOIST, MEDIUM DENSE, FINE GRAINED, MICACEOUS*	
							SP	*POORLY GRADED SAND; LIGHT OLIVE BROWN, MOIST, MEDIUM DENSE, MEDIUM TO COARSE GRAINED, MICACEOUS, ABOUT 10-15% GRAVEL*	
		⧄	8 8 13	29			SM	*SILTY SAND; LIGHT OLIVE BROWN, MOIST, MEDIUM DENSE, FINE GRAINED, MICACEOUS, TRACE RED YELLOW STAINING*	
20							SP	*POORLY GRADED SAND; LIGHT OLIVE BROWN, MOIST, MEDIUM DENSE, MEDIUM GRAINED, MICACEOUS*	
								BORING TERMINATED AT 20 FT. NO GROUNDWATER ENCOUNTERED.	
25									
30									

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EUCLID AVENUE DOWNTOWN RECYCLED WATER PROJECT, UT 1072

EUCLID AVENUE, WEST D STREET, EAST C STREET, EAST RIVERSIDE DRIVE

ONTARIO, CALIFORNIA

DRAFTED BY: GN | PROJECT: 2023168 | FIGURE: B.18

LOG OF BORING B-19

DATE DRILLED: NOV 2, 2023 **DRILLING EQUIPMENT:** CME 75 **SAMPLE METHOD:** HAMMER: 140 LBS., DROP: 30 IN (AUTO)

ELEVATION (FT): +785 MSL (GE) **DRILLING METHOD:** HOLLOW STEM AUGER **LOGGED BY:** GN

GROUNDWATER DEPTH (FT): N/A **NOTES:** ETR~81.8%, $N_{60} \sim \frac{81.8}{60} * N \sim 1.36 * N$ **REVIEWED BY:** AN

DEPTH (FT)	BULK SAMPLE	CAL/SPT SAMPLE	BLOWS PER 6 IN N	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	SOIL CLASS (USCS)	**SOIL DESCRIPTION** SUMMARY OF SUBSURFACE CONDITIONS (USCS; COLOR, MOISTURE, DENSITY, GRAIN SIZE, OTHER)	LAB TESTS
0								*8 IN ASPHALT CONCRETE OVER 4 IN AGGREGATE BASE*	
	☒						SM	**YOUNG ALLUVIAL-FAN DEPOSITS, UNIT 3 (Qyf$_3$):** *SILTY SAND; OLIVE BROWN, MOIST, LOOSE, FINE TO MEDIUM GRAINED, MICACEOUS, TRACE GRAVEL* *NO GRAVEL*	
5		◩	2 3 3	8				*FINE GRAINED*	
10		■	9 22 30	46	24.2	99.0		*DENSE*	
							CL	*CLAY; MOTTLED BROWN AND LIGHT RED YELLOW, MOIST, HARD, MICACEOUS, PP > 4.0 TSF, INCREASED MOISTURE CONTENT*	AL
15		◩	4 8 11	26			ML	*SANDY SILT; OLIVE BROWN, MOIST, MEDIUM DENSE, FINE TO MEDIUM GRAINED SAND, MICACEOUS, WITH MINOR RED YELLOW STAINING*	SA
		◩	5 7 10	23				*MOTTLED LIGHT OLIVE BROWN AND LIGHT RED YELLOW*	
20							SM	*SILTY SAND; MOTTLED LIGHT OLIVE BROWN AND LIGHT RED YELLOW, MOIST, MEDIUM DENSE, FINE GRAINED, MICACEOUS*	
								BORING TERMINATED AT 20 FT. NO GROUNDWATER ENCOUNTERED.	
25									
30									

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EUCLID AVENUE, WEST D STREET, EAST C STREET, EAST RIVERSIDE DRIVE

ONTARIO, CALIFORNIA

DRAFTED BY: GN	PROJECT: 2023168	FIGURE: B.19

LOG OF BORING B-20

DATE DRILLED: NOV 1, 2023 **DRILLING EQUPMENT:** CME 75 **SAMPLE METHOD:** HAMMER: 140 LBS., DROP: 30 IN (AUTO)

ELEVATION (FT): +779 MSL (GE) **DRILLING METHOD:** HOLLOW STEM AUGER **LOGGED BY:** GN

GROUNDWATER DEPTH (FT): N/A **NOTES:** ETR~81.8%, $N_{60} \sim \frac{81.8}{60} * N \sim 1.36 * N$ **REVIEWED BY:** AN

DEPTH (FT)	BULK SAMPLE	CAL/SPT SAMPLE	BLOWS PER 6 IN N	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	SOIL CLASS (USCS)	**SOIL DESCRIPTION** *SUMMARY OF SUBSURFACE CONDITIONS* *(USCS; COLOR, MOISTURE, DENSITY, GRAIN SIZE, OTHER)*	LAB TESTS
0								*8½ IN ASPHALT CONCRETE*	
	☒						SM	**YOUNG ALLUVIAL-FAN DEPOSITS, UNIT 3 (Qyf$_3$):** *SILTY SAND; OLIVE BROWN, MOIST, LOOSE TO MEDIUM DENSE, FINE TO MEDIUM GRAINED, MICACEOUS*	
5		■	5 5 7	11	8.2	107.8			
10		▨	2 3 4	10					
15		▨	2 3 5	11			SP	*POORLY GRADED SAND; OLIVE BROWN, MOIST, LOOSE, MEDIUM TO COARSE GRAINED*	
							CL	*LEAN CLAY; LIGHT OLIVE BROWN, MOIST, STIFF, MICACEOUS, WITH REDDISH BROWN STAINING, PP = 1.25 TSF*	
		▨	4 4 4	11			SM	*SILTY SAND; LIGHT OLIVE BROWN, MOIST, MEDIUM DENSE, FINE GRAINED, MICACEOUS*	
20							CL	*CLAY; OLIVE BROWN, MOIST, STIFF, MICACEOUS, WITH REDDISH BROWN STAINING, PP = 1.25 TSF*	
								BORING TERMINATED AT 20 FT. NO GROUNDWATER ENCOUNTERED.	
25									
30									

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EUCLID AVENUE, WEST D STREET, EAST C STREET, EAST RIVERSIDE DRIVE
ONTARIO, CALIFORNIA

DRAFTED BY: GN	PROJECT: 2023168	FIGURE: B.20

LOG OF BORING B-21

DATE DRILLED: NOV 2, 2023 **DRILLING EQUIPMENT:** CME 75 **SAMPLE METHOD:** HAMMER: 140 LBS., DROP: 30 IN (AUTO)

ELEVATION (FT): +779 MSL (GE) **DRILLING METHOD:** HOLLOW STEM AUGER **LOGGED BY:** GN

GROUNDWATER DEPTH (FT): N/A **NOTES:** ETR~81.8%, $N_{60} \sim \frac{81.8}{60}*N \sim 1.36*N$ **REVIEWED BY:** AN

DEPTH (FT)	BULK SAMPLE	CAL/SPT SAMPLE	BLOWS PER 6 IN N	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	SOIL CLASS (USCS)	**SOIL DESCRIPTION** *SUMMARY OF SUBSURFACE CONDITIONS* *(USCS; COLOR, MOISTURE, DENSITY, GRAIN SIZE, OTHER)*	LAB TESTS
0								*8 IN ASPHALT CONCRETE*	
	☒						ML	**YOUNG ALLUVIAL-FAN DEPOSITS, UNIT 3 (Qyf_3):** *SANDY SILT; OLIVE BROWN, MOIST, LOOSE TO MEDIUM DENSE, FINE TO MEDIUM GRAINED SAND, MICACEOUS, TRACE GRAVEL* *NO GRAVEL*	RV CR
5		⧄	2 2 3	7				*MOTTLED OLIVE BROWN AND GRAYISH BROWN, WITH SOME MINOR REDDISH BROWN STAINING*	SA
10		▨	6 9 10	26	12.4		SM	*SILTY SAND; MOTTLED OLIVE BROWN AND LIGHT GRAYISH BROWN, MOIST, MEDIUM DENSE, FINE GRAINED, MICACEOUS, TRACE WHITE MINERAL PRECIPITATE DEPOSITS*	
							SC	*CLAYEY SAND; MOTTLED OLIVE BROWN AND LIGHT GRAYISH BROWN, MOIST, MEDIUM DENSE, FINE TO MEDIUM GRAINED, MICACEOUS, TRACE WHITE MINERAL PRECIPITATE DEPOSITS, (SAMPLE DISTURBED)*	SA AL
15		⧄	5 5 9	19			SM	*SILTY SAND; MOTTLED REDDISH BROWN AND GRAYISH BROWN, MOIST, MEDIUM DENSE, FINE GRAINED, MICACEOUS, TRACE 2-IN GRAVEL*	
		⧄	9 10 12	30			SP	*POORLY GRADED SAND; MOTTLED OLIVE BROWN AND GRAYISH BROWN, MOIST, DENSE, MEDIUM TO COARSE GRAINED, MICACEOUS*	
20								*BORING TERMINATED AT 20 FT. NO GROUNDWATER ENCOUNTERED.*	
25									
30									

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EUCLID AVENUE, WEST D STREET, EAST C STREET, EAST RIVERSIDE DRIVE

ONTARIO, CALIFORNIA

DRAFTED BY: GN PROJECT: 2023168 FIGURE: B.21

LOG OF BORING B-22

DATE DRILLED: NOV 2, 2023 **DRILLING EQUIPMENT:** CME 75 **SAMPLE METHOD:** HAMMER: 140 LBS., DROP: 30 IN (AUTO)

ELEVATION (FT): +776 MSL (GE) **DRILLING METHOD:** HOLLOW STEM AUGER **LOGGED BY:** GN

GROUNDWATER DEPTH (FT): N/A **NOTES:** ETR~81.8%, $N_{60} \sim \frac{81.8}{60}$*N~1.36*N **REVIEWED BY:** AN

DEPTH (FT)	BULK SAMPLE	CAL/SPT SAMPLE	BLOWS PER 6 IN N	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	SOIL CLASS (USCS)	**SOIL DESCRIPTION** SUMMARY OF SUBSURFACE CONDITIONS (USCS; COLOR, MOISTURE, DENSITY, GRAIN SIZE, OTHER)	LAB TESTS
0								*11 IN ASPHALT CONCRETE OVER 3 IN AGGREGATE BASE*	
	☒						SM	**YOUNG ALLUVIAL-FAN DEPOSITS, UNIT 3 (Qyf_3):** *SILTY SAND; OLIVE BROWN, MOIST, LOOSE, FINE GRAINED, MICACEOUS* *SOME SMALL COBBLES*	
5		▨	3 4 6	9	14.6	115.7			
10		☒	4 6 7	18				*FINE TO MEDIUM GRAINED*	
							ML	*SANDY SILT; OLIVE BROWN, MOIST, MEDIUM DENSE, FINE GRAINED SAND, MICACEOUS*	
15		☒	4 6 10	22				*MOTTLED REDDISH BROWN AND LIGHT OLIVE BROWN, BLACK MINERAL PRECIPITATE DEPOSITS*	
							SM	*SILTY SAND; REDDISH BROWN, MOIST, MEDIUM DENSE, FINE GRAINED, MICACEOUS*	
		☒	4 8 14	30			MH	*ELASTIC SILT; LIGHT OLIVE BROWN, MOIST, MEDIUM STIFF, MICACEOUS, PP = 1.0 TSF*	
							ML	*SANDY SILT; REDDISH BROWN, MOIST, MEDIUM DENSE, FINE GRAINED SAND, MICACEOUS*	
20								*BORING TERMINATED AT 20 FT. NO GROUNDWATER ENCOUNTERED.*	
25									
30									

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EUCLID AVENUE, WEST D STREET, EAST C STREET, EAST RIVERSIDE DRIVE

ONTARIO, CALIFORNIA

DRAFTED BY: GN

PROJECT: 2023168

FIGURE: B.22

LOG OF BORING B-23

DATE DRILLED: NOV 1, 2023 **DRILLING EQUPMENT:** CME 75 **SAMPLE METHOD:** HAMMER: 140 LBS., DROP: 30 IN (AUTO)

ELEVATION (FT): +780 MSL (GE) **DRILLING METHOD:** HOLLOW STEM AUGER **LOGGED BY:** GN

GROUNDWATER DEPTH (FT): N/A **NOTES:** ETR~81.8%, $N_{60} \sim \frac{81.8}{60}*N \sim 1.36*N$ **REVIEWED BY:** AN

DEPTH (FT)	BULK SAMPLE	CAL/SPT SAMPLE	BLOWS PER 6 IN N	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	SOIL CLASS (USCS)	**SOIL DESCRIPTION** *SUMMARY OF SUBSURFACE CONDITIONS* *(USCS; COLOR, MOISTURE, DENSITY, GRAIN SIZE, OTHER)*	LAB TESTS
0								*6½ IN ASPHALT CONCRETE*	
	⊠						SM	**YOUNG ALLUVIAL-FAN DEPOSITS, UNIT 3 (Qyf_3):** *SILTY SAND; OLIVE BROWN, MOIST, LOOSE TO MEDIUM DENSE, FINE TO MEDIUM GRAINED, MICACEOUS*	RV CR
5		◩	3 4 5	12				*FINE GRAINED*	
10		■	5 6 9	13	3.4		SP-SM	*POORLY GRADED SAND WITH SILT; OLIVE BROWN, MOIST, MEDIUM DENSE, FINE TO MEDIUM GRAINED, MICACEOUS*	SA
							SM	*SILTY SAND; OLIVE BROWN, MOIST, MEDIUM DENSE, FINE TO MEDIUM GRAINED, MICACEOUS*	
15		◩	3 5 6	15				*YELLOWISH OLIVE BROWN, FINE TO MEDIUM GRAINED, TRACE COARSE GRAINS, TRACE WHITE MINERAL PRECIPITATE DEPOSITS*	
		◩	7 11 11	30				*MOTTLED LIGHT OLIVE BROWN AND LIGHT RED YELLOW*	
							SM	*SILTY SAND; MOTTLED LIGHT OLIVE BROWN AND LIGHT RED YELLOW, MOIST, MEDIUM DENSE TO DENSE, FINE GRAINED, MICACEOUS*	
20								*BORING TERMINATED AT 20 FT. NO GROUNDWATER ENCOUNTERED.*	
25									
30									

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EUCLID AVENUE, WEST D STREET, EAST C STREET, EAST RIVERSIDE DRIVE

ONTARIO, CALIFORNIA

DRAFTED BY: GN PROJECT: 2023168 FIGURE: B.23

LOG OF BORING B-24

DATE DRILLED: NOV 1, 2023 **DRILLING EQUIPMENT:** CME 75 **SAMPLE METHOD:** HAMMER: 140 LBS., DROP: 30 IN (AUTO)

ELEVATION (FT): +787 MSL (GE) **DRILLING METHOD:** HOLLOW STEM AUGER **LOGGED BY:** GN

GROUNDWATER DEPTH (FT): N/A **NOTES:** ETR~81.8%, $N_{60} \sim \frac{81.8}{60} * N \sim 1.36 * N$ **REVIEWED BY:** AN

DEPTH (FT)	BULK SAMPLE	CAL/SPT SAMPLE	BLOWS PER 6 IN N	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	SOIL CLASS (USCS)	**SOIL DESCRIPTION** SUMMARY OF SUBSURFACE CONDITIONS (USCS; COLOR, MOISTURE, DENSITY, GRAIN SIZE, OTHER)	LAB TESTS
0								*6½ IN ASPHALT CONCRETE*	
	☒						SM	**YOUNG ALLUVIAL-FAN DEPOSITS, UNIT 1 (Qyf_1):** *SILTY SAND; OLIVE BROWN, MOIST, MEDIUM DENSE, FINE TO MEDIUM GRAINED, MICACEOUS*	
5		■	4 5 9	12	5.6	104.6		*MEDIUM DENSE*	
10		⧄	3 3 3	8				*LOOSE*	
15		⧄	4 5 6	15			SP	*POORLY GRADED SAND; LIGHT OLIVE BROWN, MOIST, MEDIUM DENSE, MEDIUM TO COARSE GRAINED, MICACEOUS, TRACE GRAVEL*	
		⧄	13 10 14	11					
20								*BORING TERMINATED AT 20 FT. NO GROUNDWATER ENCOUNTERED.*	
25									
30									

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EUCLID AVENUE, WEST D STREET, EAST C STREET, EAST RIVERSIDE DRIVE

ONTARIO, CALIFORNIA

DRAFTED BY: GN

PROJECT: 2023168

FIGURE: B.24

LOG OF BORING B-25

DATE DRILLED: NOV 1, 2023 **DRILLING EQUIPMENT:** CME 75 **SAMPLE METHOD:** HAMMER: 140 LBS., DROP: 30 IN (AUTO)

ELEVATION (FT): +783 MSL (GE) **DRILLING METHOD:** HOLLOW STEM AUGER **LOGGED BY:** GN

GROUNDWATER DEPTH (FT): N/A **NOTES:** ETR~81.8%, $N_{60} \sim \frac{81.8}{60}$*N~1.36*N **REVIEWED BY:** AN

DEPTH (FT)	BULK SAMPLE	CAL/SPT SAMPLE	BLOWS PER 6 IN N	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	SOIL CLASS (USCS)	SOIL DESCRIPTION SUMMARY OF SUBSURFACE CONDITIONS (USCS; COLOR, MOISTURE, DENSITY, GRAIN SIZE, OTHER)	LAB TESTS
0								*6½ IN ASPHALT CONCRETE*	
	☒						SM	**YOUNG ALLUVIAL-FAN DEPOSITS, UNIT 1 (Qyf$_1$):** *SILTY SAND; OLIVE BROWN, MOIST, LOOSE, FINE TO MEDIUM GRAINED, MICACEOUS*	
5		⧄	2 2 2	5				*FINE GRAINED*	
10		■	7 8 9	15	5.3		SP-SM	*POORLY GRADED SAND; LIGHT OLIVE BROWN, MOIST, MEDIUM DENSE, MEDIUM GRAINED, MICACEOUS*	
							SM	*SILTY SAND; OLIVE BROWN, MOIST, MEDIUM DENSE, FINE GRAINED, MICACEOUS*	
15		⧄	6 15 18	45			ML	*SANDY SILT; OLIVE BROWN, MOIST, MEDIUM DENSE, FINE GRAINED, MICACEOUS*	
							SP-SM	*POORLY GRADED SAND WITH SILT AND GRAVEL; LIGHT OLIVE BROWN, MOIST, DENSE, MEDIUM TO COARSE GRAINED, MICACEOUS, ABOUT 10-15% GRAVEL*	SA
		⧄	11 13 15	38			SM	*SILTY SAND; LIGHT OLIVE BROWN, MOIST, DENSE, FINE TO MEDIUM GRAINED, MICACEOUS*	
20							SP	*POORLY GRADED SAND; LIGHT OLIVE BROWN, MOIST, DENSE, MEDIUM TO COARSE GRAINED, MICACEOUS, ABOUT 10-15% GRAVEL*	
								BORING TERMINATED AT 20 FT. NO GROUNDWATER ENCOUNTERED.	
25									
30									

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EUCLID AVENUE DOWNTOWN RECYCLED WATER PROJECT, UT 1072

EUCLID AVENUE, WEST D STREET, EAST C STREET, EAST RIVERSIDE DRIVE

ONTARIO, CALIFORNIA

DRAFTED BY: GN PROJECT: 2023168 FIGURE: B.25

LOG OF BORING B-26

DATE DRILLED: OCT 27, 2023 **DRILLING EQUIPMENT:** CME 75 **SAMPLE METHOD:** HAMMER: 140 LBS., DROP: 30 IN (AUTO)

ELEVATION (FT): +780 MSL (GE) **DRILLING METHOD:** HOLLOW STEM AUGER **LOGGED BY:** GN

GROUNDWATER DEPTH (FT): N/A **NOTES:** ETR~85.3%, $N_{60} \sim \frac{85.3}{60}*N \sim 1.42*N$ **REVIEWED BY:** AN

DEPTH (FT)	BULK SAMPLE	CAL/SPT SAMPLE	BLOWS PER 6 IN N	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	SOIL CLASS (USCS)	**SOIL DESCRIPTION** *SUMMARY OF SUBSURFACE CONDITIONS (USCS; COLOR, MOISTURE, DENSITY, GRAIN SIZE, OTHER)*	LAB TESTS
0								*8 IN ASPHALT CONCRETE OVER 5 IN BASE (WITH CONCRETE AND ASPHALT)*	
	☒						SM	**YOUNG ALLUVIAL-FAN DEPOSITS, UNIT 3 (Qyf_3):** *SILTY SAND; REDDISH OLIVE BROWN, MOIST, LOOSE, FINE TO MEDIUM GRAINED, MICACEOUS, FEW GRAVEL*	CR
5		■	2 3 3	5	11.0	97.8			
10		⧄	2 2 2	6			ML	*SANDY SILT; REDDISH OLIVE BROWN, MOIST, LOOSE, FINE TO MEDIUM GRAINED SAND, MICACEOUS*	SA
15		⧄	3 5 5	14			SM	*SILTY SAND; REDDISH OLIVE BROWN, MOIST, MEDIUM DENSE, FINE GRAINED, MICACEOUS*	
		⧄	5 5 5	14			CL-ML	*SILTY CLAY; OLIVE BROWN, MOIST, STIFF, MICACEOUS, PP = 1.5-2.0 TSF*	AL
20								*BORING TERMINATED AT 20 FT. NO GROUNDWATER ENCOUNTERED.*	
25									
30									

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EUCLID AVENUE DOWNTOWN RECYCLED WATER PROJECT, UT 1072

EUCLID AVENUE, WEST D STREET, EAST C STREET, EAST RIVERSIDE DRIVE
ONTARIO, CALIFORNIA

DRAFTED BY: GN

PROJECT: 2023168

FIGURE: B.26

LOG OF BORING B-27

DATE DRILLED: OCT 27, 2023 **DRILLING EQUPMENT:** CME 75 **SAMPLE METHOD:** HAMMER: 140 LBS., DROP: 30 IN (AUTO)

ELEVATION (FT): +777 MSL (GE) **DRILLING METHOD:** HOLLOW STEM AUGER **LOGGED BY:** GN

GROUNDWATER DEPTH (FT): N/A **NOTES:** ETR~85.3%, $N_{60} \sim \frac{85.3}{60}$*N~1.42*N **REVIEWED BY:** AN

DEPTH (FT)	BULK SAMPLE	CAL/SPT SAMPLE	BLOWS PER 6 IN N	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	SOIL CLASS (USCS)	**SOIL DESCRIPTION** *SUMMARY OF SUBSURFACE CONDITIONS* *(USCS; COLOR, MOISTURE, DENSITY, GRAIN SIZE, OTHER)*	LAB TESTS
0								*10 IN ASPHALT CONCRETE OVER 5½ IN BASE (WITH CONCRETE AND ASPHALT)*	
	☒						SM	**YOUNG ALLUVIAL-FAN DEPOSITS, UNIT 3 (Qyf_3):** *SILTY SAND WITH GRAVEL; OLIVE BROWN, MOIST, MEDIUM DENSE, FINE TO MEDIUM GRAINED, MICACEOUS, ABOUT 15% GRAVEL*	
5		■	5 9 14	21	7.8			*FINE GRAINED, NO GRAVEL*	
10		⧄	4 12 12	34				*DENSE* *TRACE GRAVEL*	
15		⧄	3 5 5	14				*LIGHT OLIVE BROWN, MEDIUM DENSE, INCREASED SILT CONTENT*	
		⧄	3 3 5	11				*OLIVE BROWN*	
20								*BORING TERMINATED AT 20 FT. NO GROUNDWATER ENCOUNTERED.*	
25									
30									

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EUCLID AVENUE, WEST D STREET, EAST C STREET, EAST RIVERSIDE DRIVE

ONTARIO, CALIFORNIA

DRAFTED BY: GN PROJECT: 2023168 FIGURE: B.27

LOG OF BORING B-28

DATE DRILLED: OCT 27, 2023 **DRILLING EQUIPMENT:** CME 75 **SAMPLE METHOD:** HAMMER: 140 LBS., DROP: 30 IN (AUTO)

ELEVATION (FT): +777 MSL (GE) **DRILLING METHOD:** HOLLOW STEM AUGER **LOGGED BY:** GN

GROUNDWATER DEPTH (FT): N/A **NOTES:** ETR~85.3%, $N_{60} \sim \frac{85.3}{60}*N \sim 1.42*N$ **REVIEWED BY:** AN

DEPTH (FT)	BULK SAMPLE	CAL/SPT SAMPLE	BLOWS PER 6 IN N	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	SOIL CLASS (USCS)	**SOIL DESCRIPTION** SUMMARY OF SUBSURFACE CONDITIONS (USCS; COLOR, MOISTURE, DENSITY, GRAIN SIZE, OTHER)	LAB TESTS
0								*6½ IN ASPHALT CONCRETE*	
	☒						SM	**FILL (af):** *SILTY SAND WITH GRAVEL; OLIVE BROWN, MOIST, MEDIUM DENSE, FINE TO MEDIUM GRAINED, MICACEOUS, ABOUT 15% GRAVEL, ASPHALT DEBRIS* *AT 3½ FT, 1½ IN ASPHALT CONCRETE OVER CONCRETE, BROKE THROUGH WITH AUGER*	
5		⧄	10 11 6	24			SM	**YOUNG ALLUVIAL-FAN DEPOSITS, UNIT 3 (Qyf_3):** *SILTY SAND; LIGHT OLIVE BROWN, MOIST, MEDIUM DENSE, FINE GRAINED, TRACE FINE GRAVEL*	
10		■	6 10 9	17	6.5	113.6		*OLIVE BROWN, FINE TO MEDIUM GRAINED, TRACE COARSE GRAINS, TRACE SMALL GRAVEL*	
								ROCK FRAGMENT	
15		⧄	7 9 9	26			ML	*SANDY SILT; MOTTLED OLIVE BROWN AND BROWN, MOIST, MEDIUM DENSE, FINE GRAINED GRAINED, MICACEOUS*	
		⧄	4 9 16	36				*DENSE, INCREASED SILT CONTENT*	
20								*BORING TERMINATED AT 20 FT. NO GROUNDWATER ENCOUNTERED.*	
25									
30									

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DRAFTED BY: GN PROJECT: 2023168 FIGURE: B.28

LOG OF BORING B-29

DATE DRILLED: OCT 27, 2023 **DRILLING EQUIPMENT:** CME 75 **SAMPLE METHOD:** HAMMER: 140 LBS., DROP: 30 IN (AUTO)

ELEVATION (FT): +777 MSL (GE) **DRILLING METHOD:** HOLLOW STEM AUGER **LOGGED BY:** GN

GROUNDWATER DEPTH (FT): N/A **NOTES:** ETR~85.3%, $N_{60} \sim \frac{85.3}{60}$*N~1.42*N **REVIEWED BY:** AN

DEPTH (FT)	BULK SAMPLE	CAL/SPT SAMPLE	BLOWS PER 6 IN N	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	SOIL CLASS (USCS)	**SOIL DESCRIPTION** SUMMARY OF SUBSURFACE CONDITIONS (USCS; COLOR, MOISTURE, DENSITY, GRAIN SIZE, OTHER)	LAB TESTS
0								*8 IN ASPHALT CONCRETE OVER 7 IN BASE (WITH CONCRETE AND ASPHALT)*	
	☒						SM	**FILL (af):** *SILTY SAND WITH GRAVEL; BROWN, MOIST, LOOSE TO MEDIUM DENSE, FINE TO MEDIUM GRAINED, MICACEOUS, ABOUT 10-15% GRAVEL* *DARK BROWN, SOME ASPHALT DEBRIS*	CR
5		⧄	1 2 2	6				*FINE TO COARSE GRAINED, OLIVE BROWN, TRACE GRAVEL*	SA
							ML	**YOUNG ALLUVIAL-FAN DEPOSITS, UNIT 3 (Qyf$_3$):** *SANDY SILT; OLIVE BROWN, MOIST, LOOSE, FINE GRAINED GRAINED, MICACEOUS*	
10		■	4 6 9	14	6.4	105.9	SM	*SILTY SAND; REDDISH OLIVE BROWN, MOIST, MEDIUM DENSE, FINE GRAINED, MICACEOUS, TRACE COARSE GRAINS* *FINE TO MEDIUM GRAINED*	
15		⧄	5 19 20	55			SP	*POORLY GRADED SAND; OLIVE BROWN, MOIST, MEDIUM DENSE, MEDIUM TO COARSE GRAINED, MICACEOUS, TRACE GRAVEL*	
							SP-SM	*POORLY GRADED SAND WITH SILT AND GRAVEL; LIGHT OLIVE BROWN, MOIST, VERY DENSE, MEDIUM TO COARSE GRAINED, MICACEOUS, ABOUT 20-30% GRAVEL*	
		⧄	8 18 27	38				*REDDISH OLIVE BROWN, FINE TO MEDIUM GRAINED* *LIGHT OLIVE BROWN, INCREASE IN FINES, ABOUT 15% GRAVEL*	
20								*BORING TERMINATED AT 20 FT. NO GROUNDWATER ENCOUNTERED.*	
25									
30									

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DRAFTED BY: GN PROJECT: 2023168 FIGURE: B.29

LOG OF BORING B-30

DATE DRILLED: OCT 27, 2023 **DRILLING EQUPMENT:** CME 75 **SAMPLE METHOD:** HAMMER: 140 LBS., DROP: 30 IN (AUTO)

ELEVATION (FT): +783 MSL (GE) **DRILLING METHOD:** HOLLOW STEM AUGER **LOGGED BY:** GN

GROUNDWATER DEPTH (FT): N/A **NOTES:** ETR~85.3%, $N_{60} \sim \frac{85.3}{60}$*N~1.42*N **REVIEWED BY:** AN

DEPTH (FT)	BULK SAMPLE	CAL/SPT SAMPLE	BLOWS PER 6 IN N	N_{60}	MOISTURE (%)	DRY DENSITY (pcf)	SOIL CLASS (USCS)	**SOIL DESCRIPTION** *SUMMARY OF SUBSURFACE CONDITIONS (USCS; COLOR, MOISTURE, DENSITY, GRAIN SIZE, OTHER)*	LAB TESTS
0								*12 IN ASPHALT CONCRETE*	
	☒						SM	**FILL (af):** *SILTY SAND WITH GRAVEL; OLIVE BROWN, MOIST, MEDIUM DENSE, FINE TO MEDIUM GRAINED, MICACEOUS, ABOUT 15% GRAVEL, ASPHALT DEBRIS*	
	☒						SM	**YOUNG ALLUVIAL-FAN DEPOSITS, UNIT 3 (Qyf$_3$):** *SILTY SAND; OLIVE BROWN, MOIST, LOOSE, FINE GRAINED, MICACEOUS, TRACE GRAVEL*	
5		■	2 3 5	7					
							SP	*POORLY GRADED SAND; LIGHT OLIVE BROWN, MOIST, MEDIUM DENSE, MEDIUM TO COARSE GRAINED, SLIGHTLY MICACEOUS, TRACE GRAVEL*	
10		⧄	3 5 8	12	6.0	95.6		*OLIVE BROWN, FINE TO MEDIUM GRAINED, TRACE COARSE GRAINS, TRACE FINE GRAVEL*	
15		⧄	5 8 11	26				*ABOUT 10% GRAVEL* *ROCK FRAGMENT*	
		⧄	11 12 16	36			SM	*SILTY SAND WITH GRAVEL; RED YELLOWISH BROWN, MOIST, DENSE, FINE TO MEDIUM GRAINED, MICACEOUS, ABOUT 15% GRAVEL*	SA
20								*BORING TERMINATED AT 20 FT. NO GROUNDWATER ENCOUNTERED.*	
25									
30									

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DRAFTED BY: GN	PROJECT: 2023168	FIGURE: B.30

APPENDIX C
LABORATORY TESTING

Laboratory tests were performed in accordance with the generally accepted American Society for Testing and Materials (ASTM) test methods or suggested procedures. Brief descriptions of the tests performed are presented below:

- **CLASSIFICATION:** *Field classifications were verified in the laboratory by visual examination. The final soil classifications are in accordance with the Unified Soils Classification System and are presented on the exploration logs in Appendix B.*
- **IN-PLACE MOISTURE AND DENSITY OF SOIL (ASTM D3550):** *In-place moisture contents and dry densities were determined for representative soil samples. This information was an aid to classification and permitted recognition of variations in material consistency with depth. The dry unit weight is determined in pounds per cubic foot, and the in-place moisture content is determined as a percentage of the soil's dry weight. The results are summarized in the exploration logs presented in Appendix B.*
- **MOISTURE CONTENT (ASTM D2216):** *Tests were performed on selected representative soil samples to evaluate the water (moisture) content by mass of soil, rock, and similar materials where the reduction in mass by drying is due to loss of water. The test samples were dried in an oven at a temperature of 110° ± 5°C to a constant mass. The loss of mass due to drying is considered to be water. The water (moisture) content were determined in general accordance with ASTM D2216. The results are summarized in the exploration logs presented in Appendix B.*
- **GRADATION ANALYSIS (ASTM D6913):** *Gradation analyses were performed on representative soil samples in general accordance with ASTM D422. The grain size distributions of the samples were determined in accordance with ASTM D6913.*
- **ATTERBERG LIMITS (ASTM D4318):** *Tests were performed on selected representative fine-grained soil samples to evaluate the liquid limits, plastic limits, and plasticity indexes in general accordance with ASTM D4318. These test results were utilized to evaluate the soil classification in accordance with the Unified Soil Classification System.*
- **CORROSIVITY TEST (CAL. TEST METHOD 417, 422, 643):** *Soil pH and minimum resistivity tests were performed on representative soil samples in general accordance with test method CT 643. The sulfate and chloride contents of the selected samples were evaluated in general accordance with CT 417 and CT 422, respectively.*
- **R-VALUE (CT 301 and ASTM D 2844):** *The resistance value, or R-Value, for near-surface site soils was evaluated in general accordance with California Test (CT) 301 and ASTM D 2844. The samples were prepared and evaluated for exudation pressure and expansion pressure. The equilibrium R-Value is reported as the lesser or more conservative of the two calculated results.*

Soil samples not tested are now stored in our laboratory for future reference and evaluation, if needed. Unless notified to the contrary, samples will be disposed of 60 days from the date of this report.

LAB TEST SUMMARY

EUCLID AVENUE DOWNTOWN RECYCLED WATER PROJECT, UT 1072

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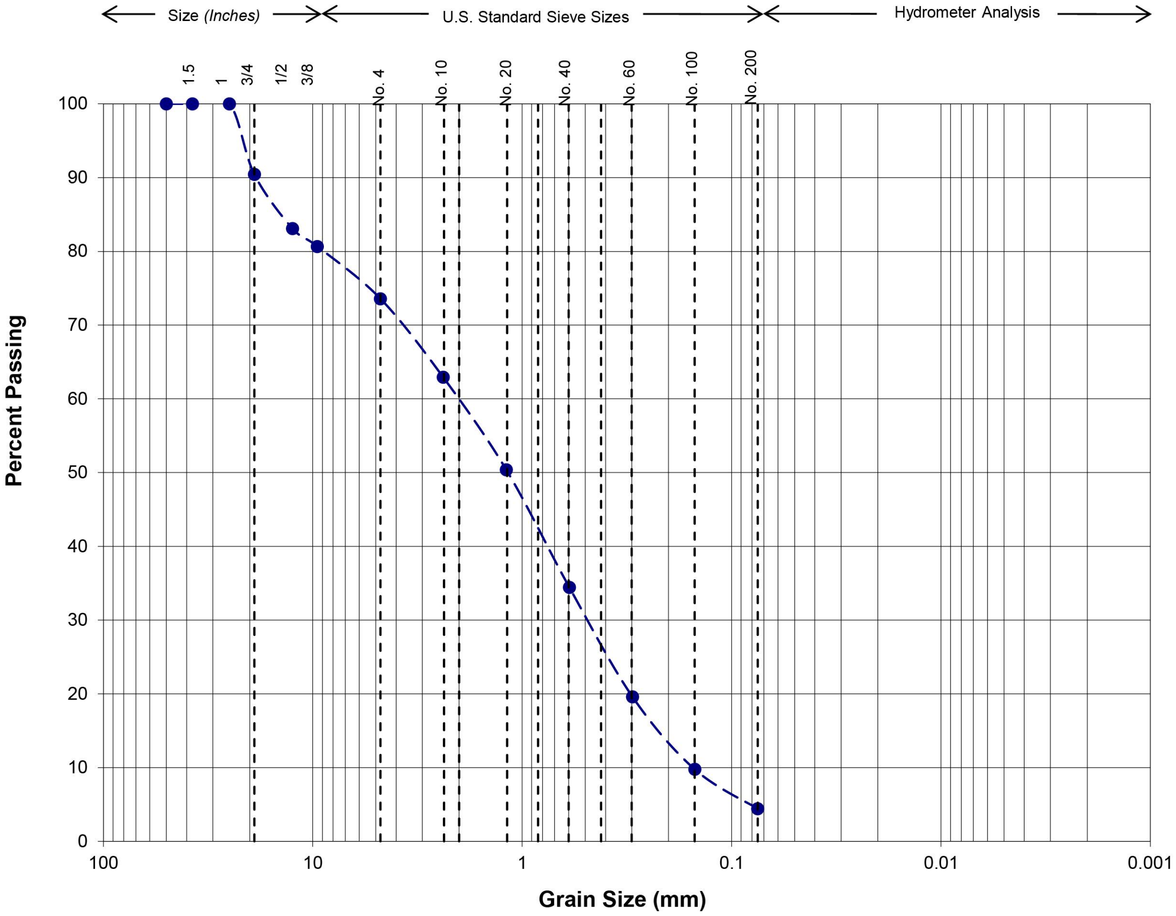
BY: GN	REVIEWED BY: AN	PROJECT: 2023168	FIGURE: C.1



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample Location: B-1

Depth (ft): 5 - 6½

USCS Soil Type: SP

Passing No. 200 (%): 4

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CLASSIFICATION TEST RESULTS

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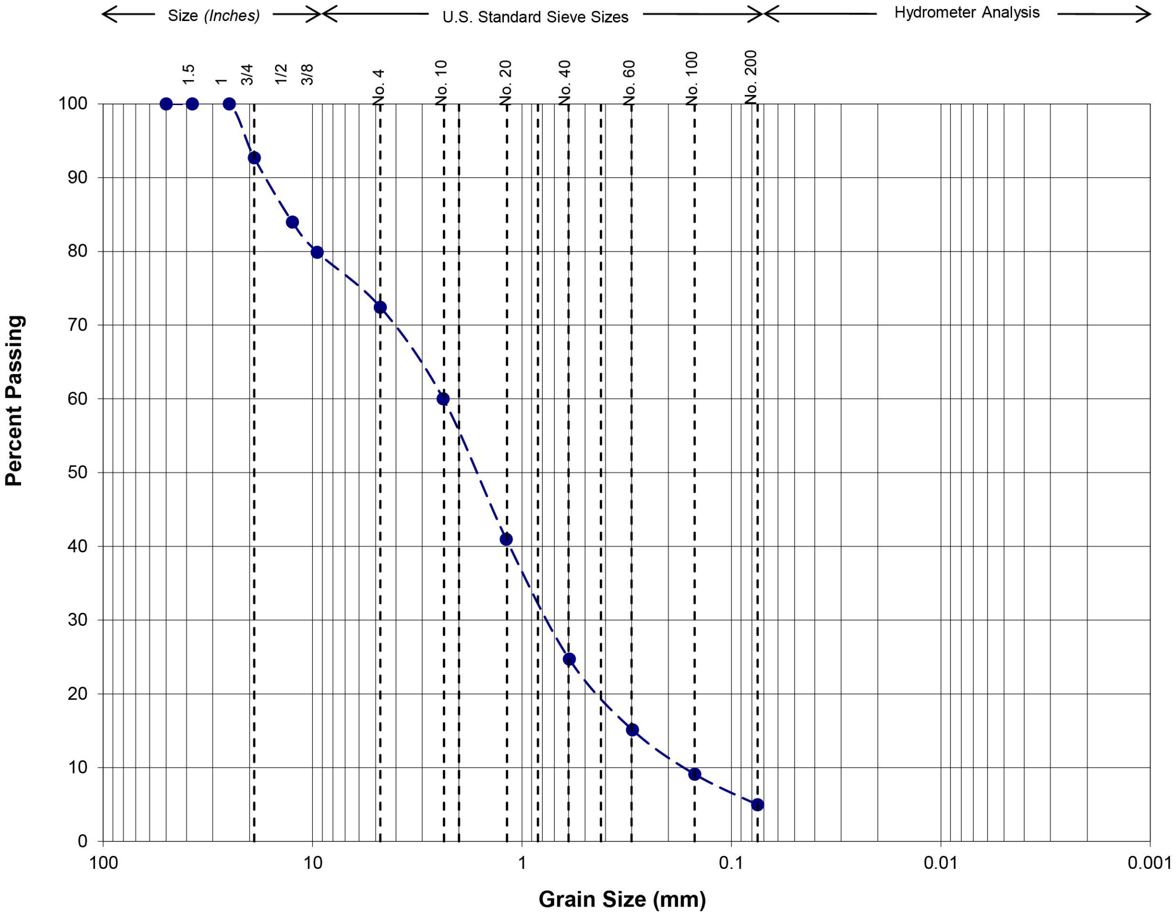
BY: GN	REVIEWED BY: AN	PROJECT: 2023168	FIGURE: C.2



<table>
<tr><th colspan="2">Gravel</th><th colspan="3">Sand</th><th rowspan="2">Silt or Clay</th></tr>
<tr><td>Coarse</td><td>Fine</td><td>Coarse</td><td>Medium</td><td>Fine</td></tr>
</table>

Sample Location: B-2

Depth (ft): 5 - 6½

USCS Soil Type: SP

Passing No. 200 (%): 5

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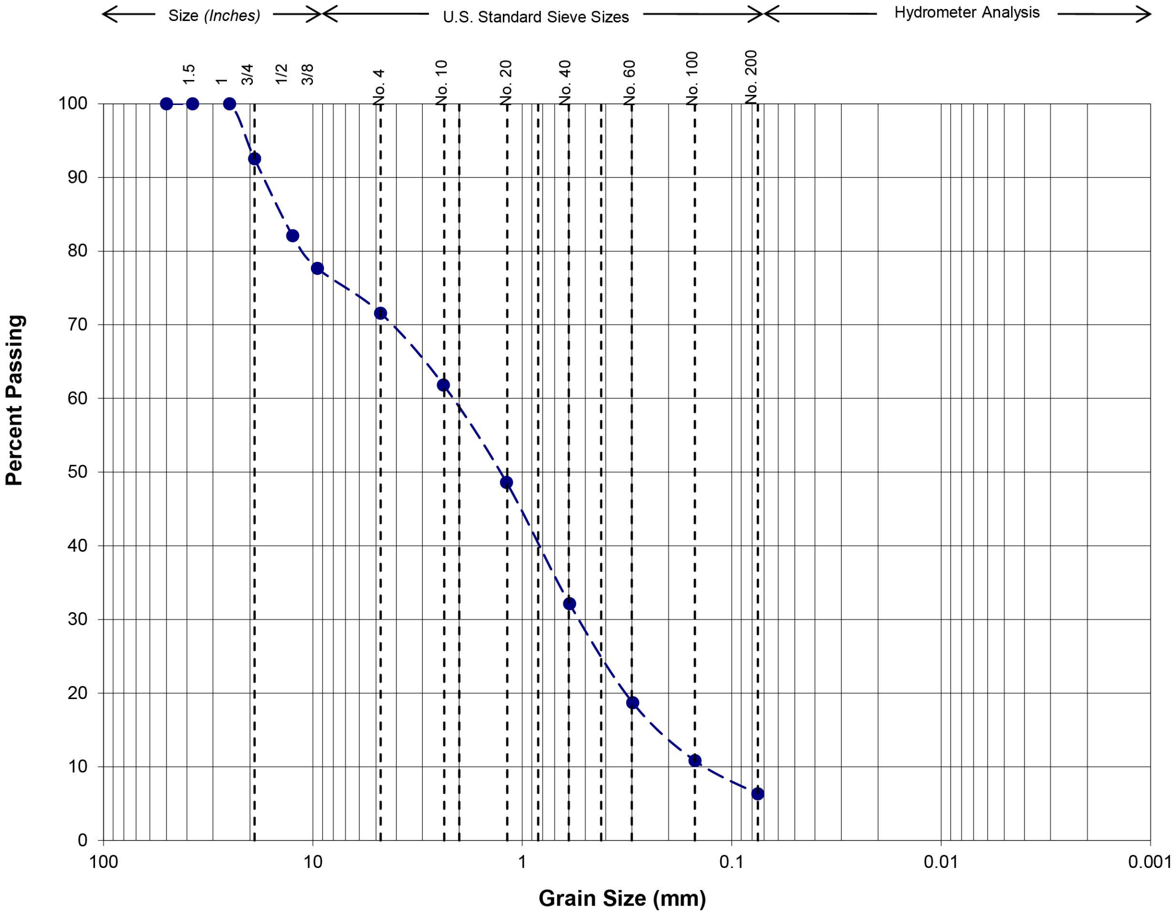
BY: GN	REVIEWED BY: AN	PROJECT: 2023168	FIGURE: C.3



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample Location: B-3

Depth (ft): 5 - 6½

USCS Soil Type: SP-SM

Passing No. 200 (%): 6

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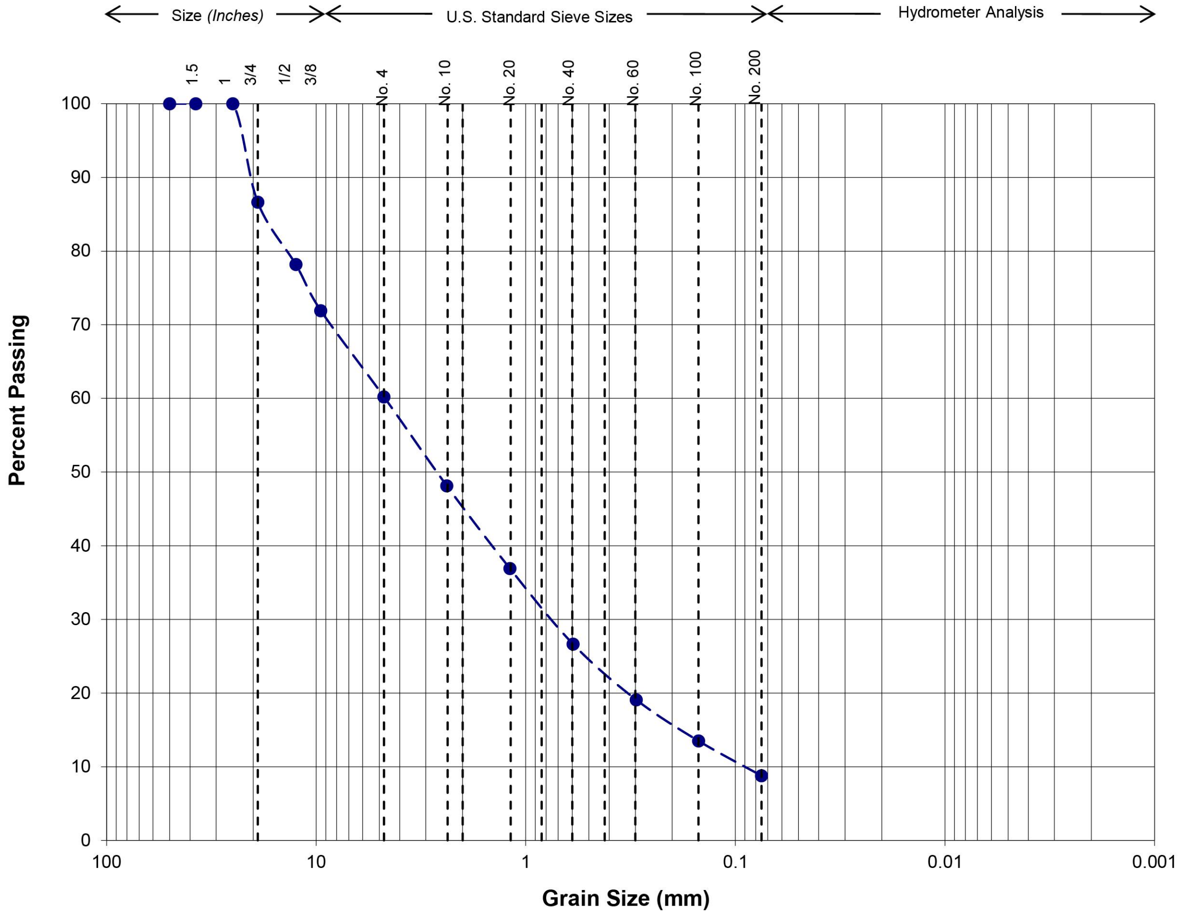
BY: GN	REVIEWED BY: AN	PROJECT: 2023168	FIGURE: C.4



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample Location: B-4

Depth (ft): 10 - 11½

USCS Soil Type: SP-SM

Passing No. 200 (%): 9

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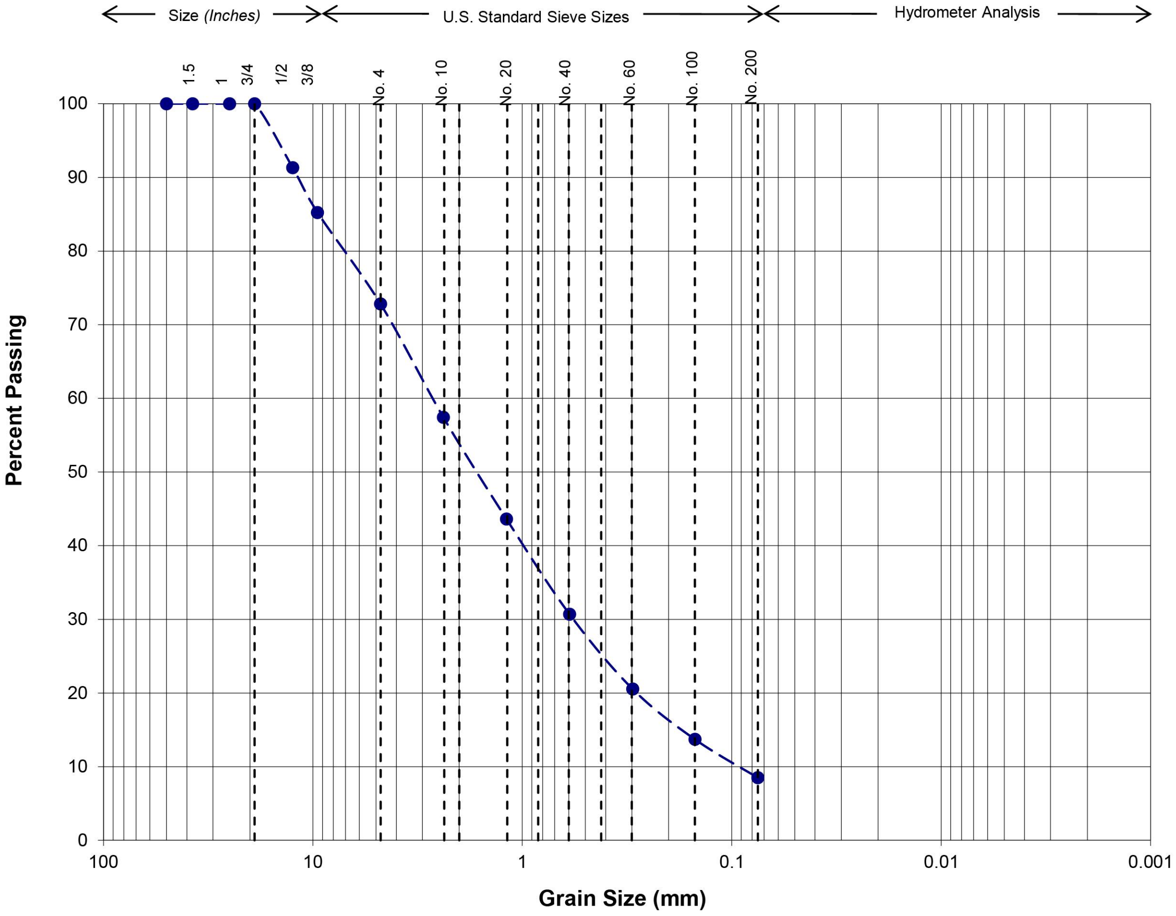
BY: GN	REVIEWED BY: AN	PROJECT: 2023168	FIGURE: C.5



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample Location: B-6

Depth (ft): 5 - 6½

USCS Soil Type: SP-SM

Passing No. 200 (%): 9

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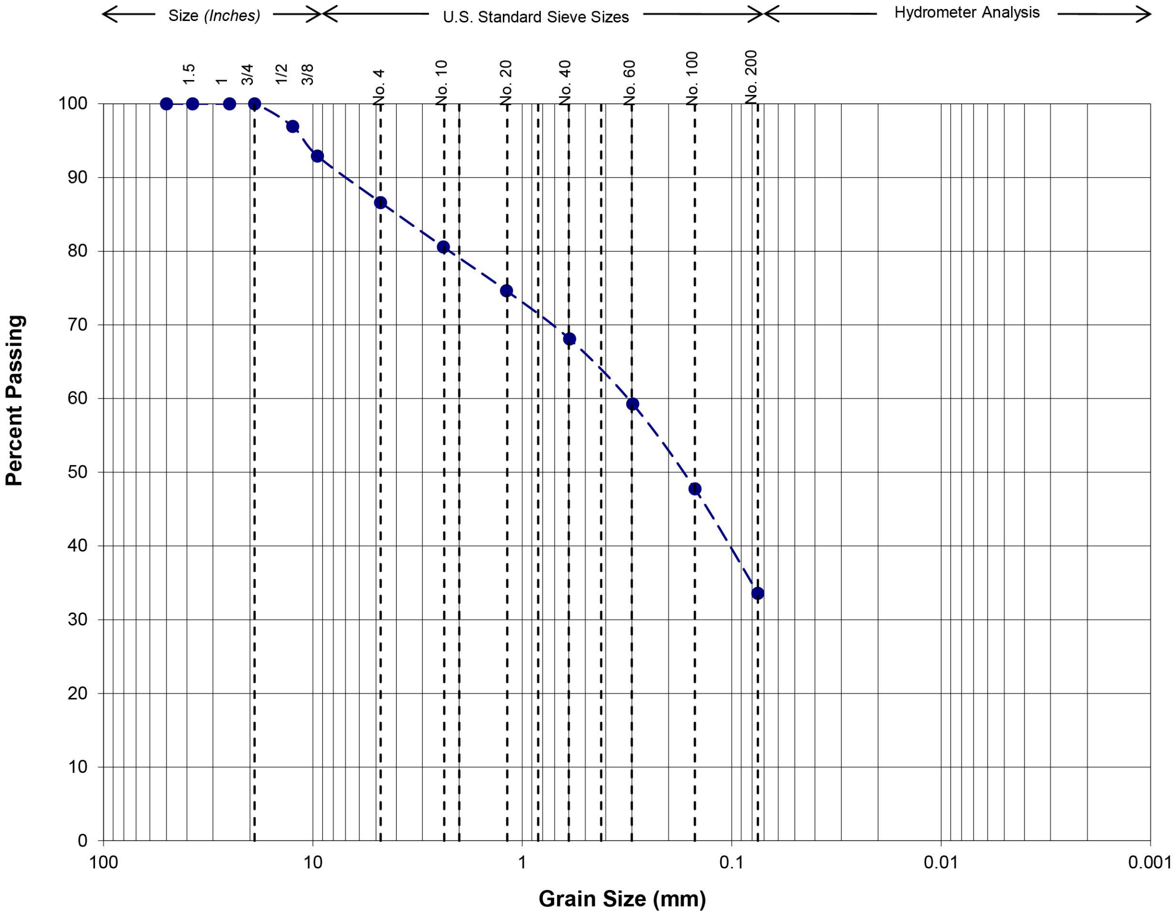
BY: GN	REVIEWED BY: AN	PROJECT: 2023168	FIGURE: C.6



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample Location: B-6

Depth (ft): 10 - 11½

USCS Soil Type: SM

Passing No. 200 (%): 34

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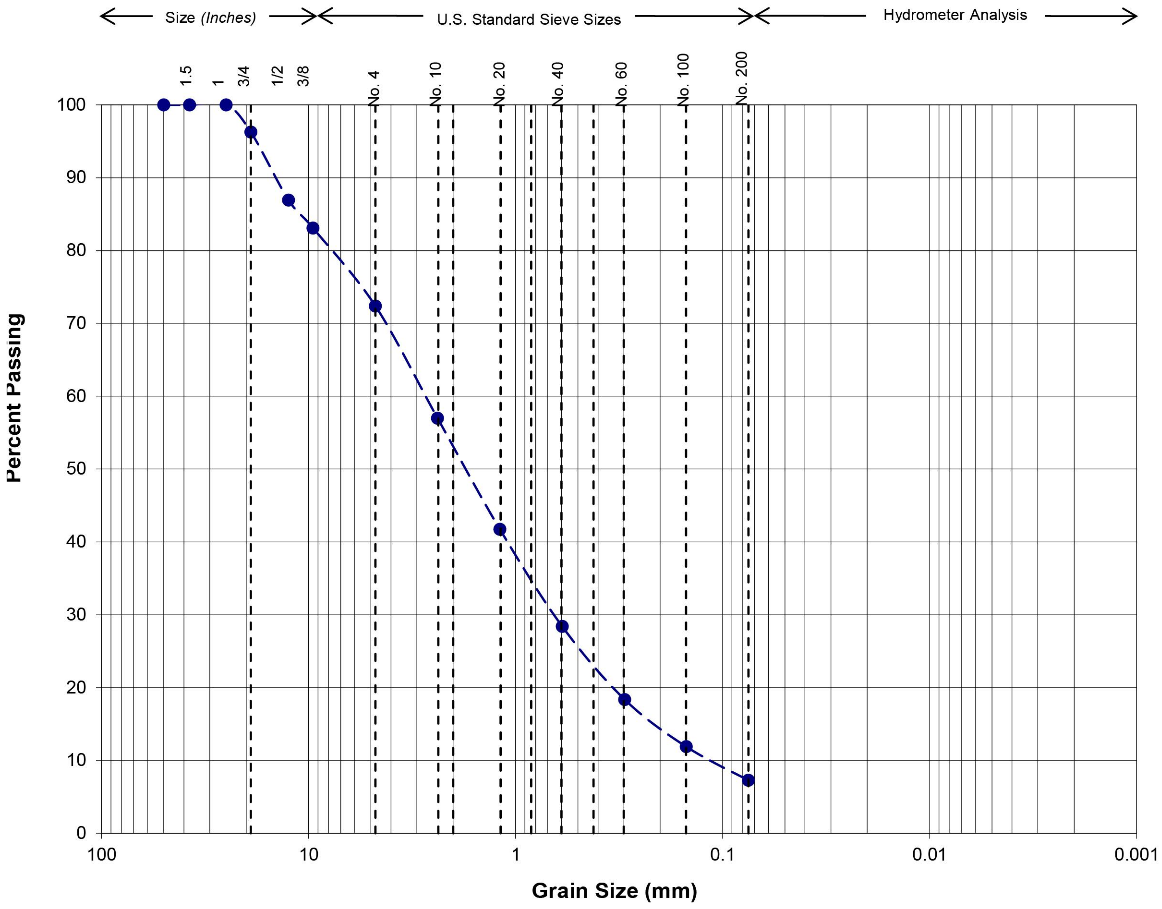
BY: GN	REVIEWED BY: AN	PROJECT: 2023168	FIGURE: C.7



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample Location: B-7

Depth (ft): 5 - 6½

USCS Soil Type: SP-SM

Passing No. 200 (%): 7

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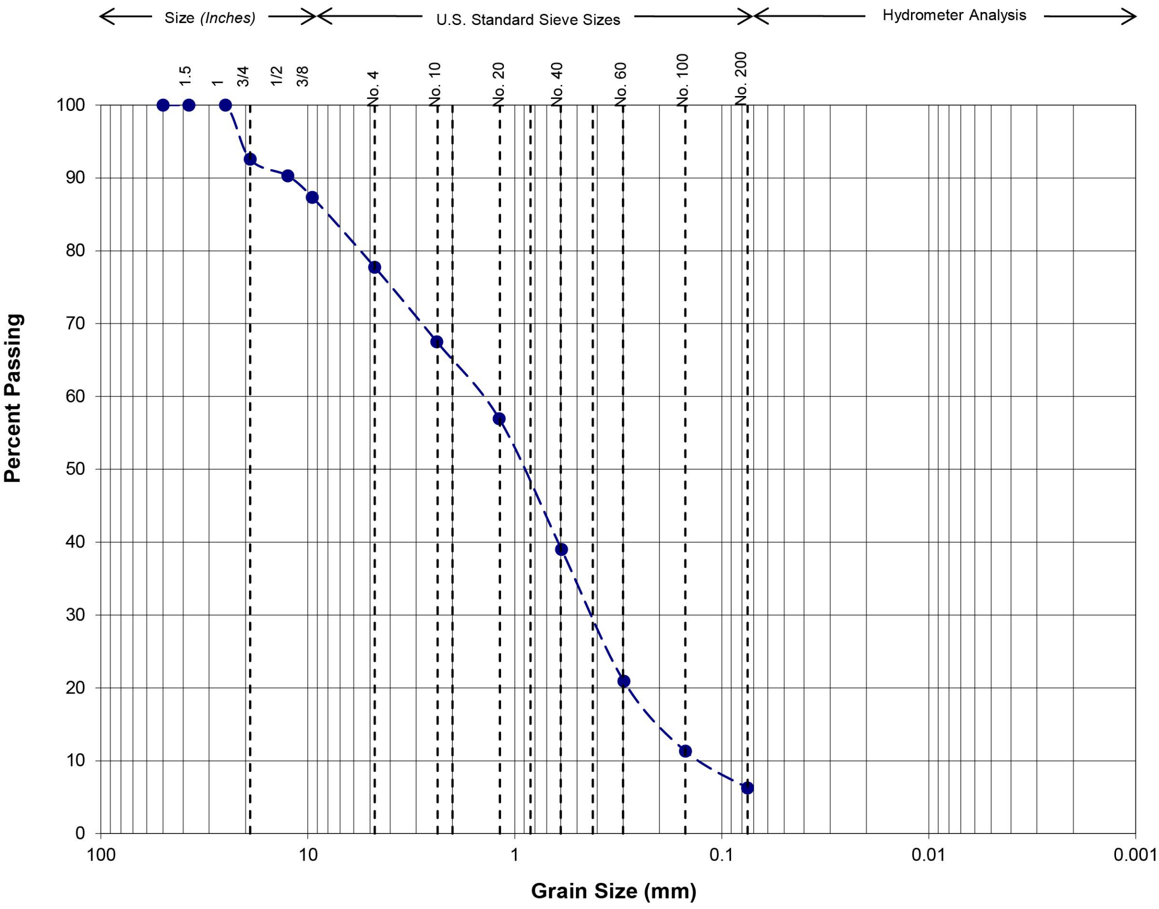
BY: GN

REVIEWED BY: AN

PROJECT: 2023168

FIGURE: C.8



<table>
<tr><th colspan="2">Gravel</th><th colspan="3">Sand</th><th rowspan="2">Silt or Clay</th></tr>
<tr><td>Coarse</td><td>Fine</td><td>Coarse</td><td>Medium</td><td>Fine</td></tr>
</table>

Sample Location:	B-9
Depth (ft):	15 - 16½
USCS Soil Type:	SP-SM
Passing No. 200 (%):	6

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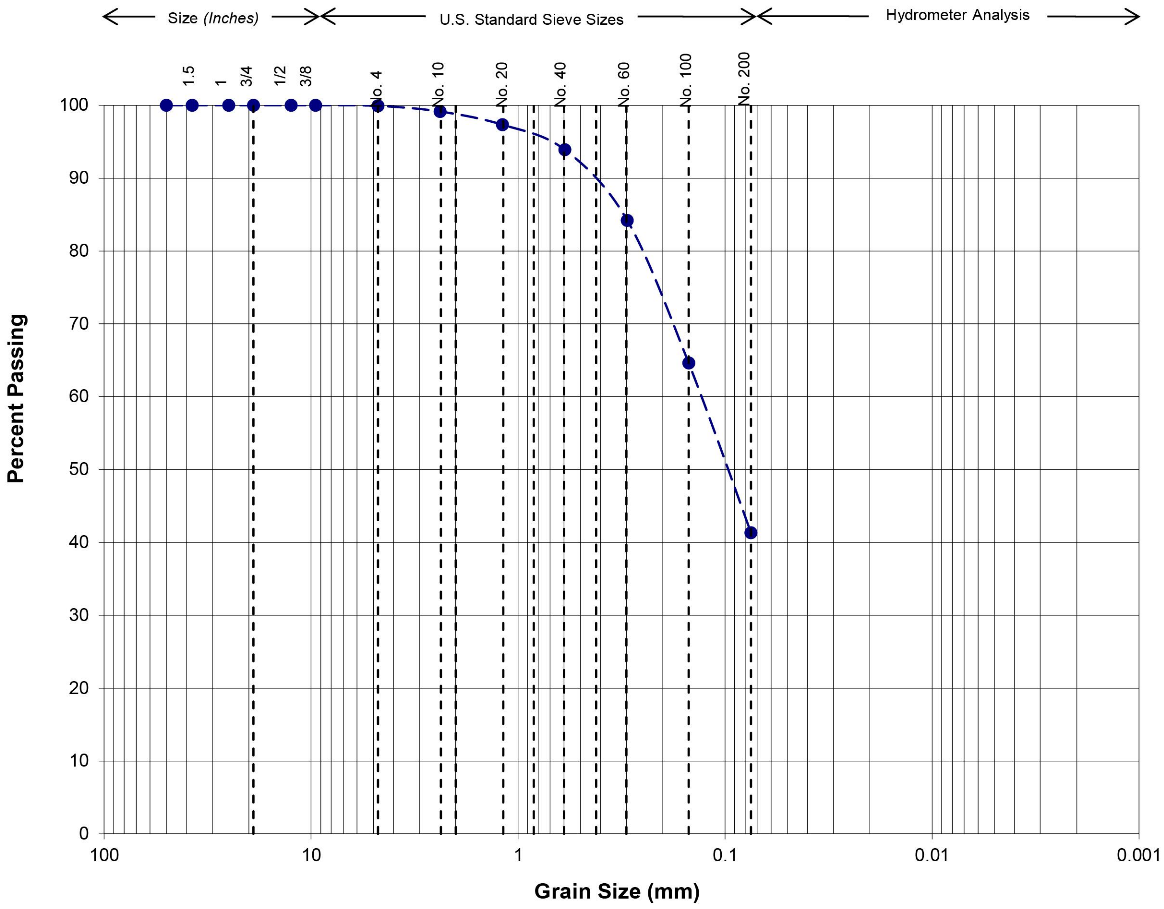

Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample Location: B-10

Depth (ft): 18½ - 20

USCS Soil Type: SM

Passing No. 200 (%): 41

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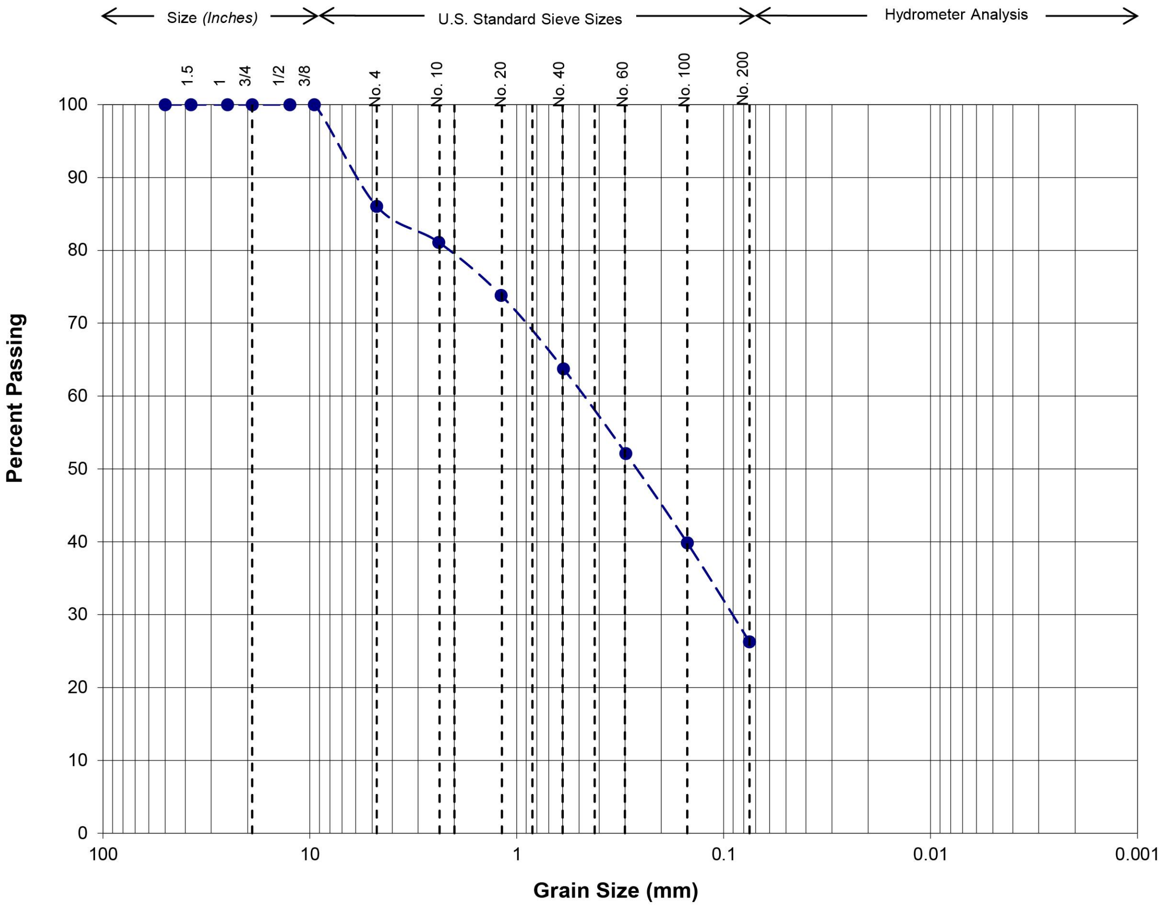

Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample Location: B-11

Depth (ft): 5 - 6½

USCS Soil Type: SM

Passing No. 200 (%): 26

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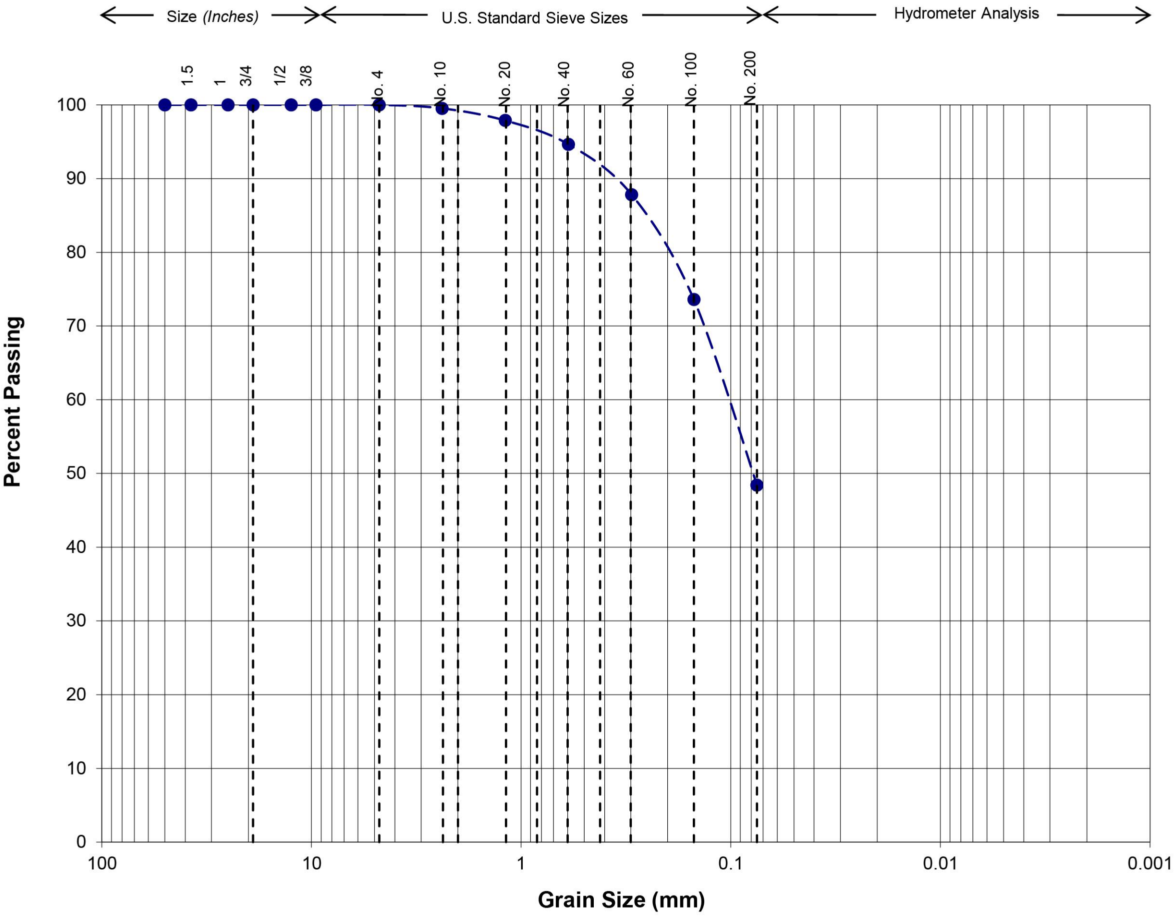
BY: GN	REVIEWED BY: AN	PROJECT: 2023168	FIGURE: C.11



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample Location: B-11

Depth (ft): 15 - 16½

USCS Soil Type: SM

Passing No. 200 (%): 48

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CLASSIFICATION TEST RESULTS

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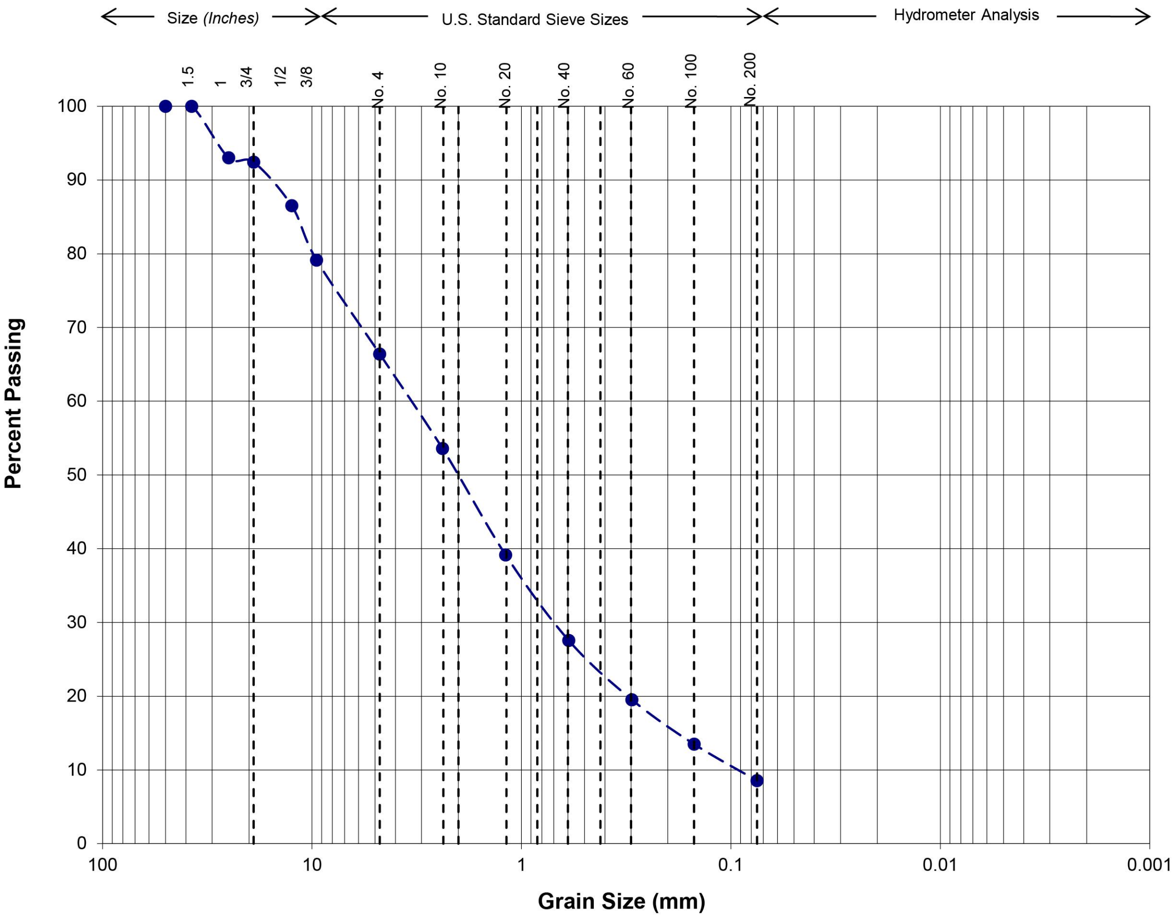
BY: GN	REVIEWED BY: AN	PROJECT: 2023168	FIGURE: C.12



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample Location: B-12

Depth (ft): 10 - 11½

USCS Soil Type: SP-SM

Passing No. 200 (%): 9

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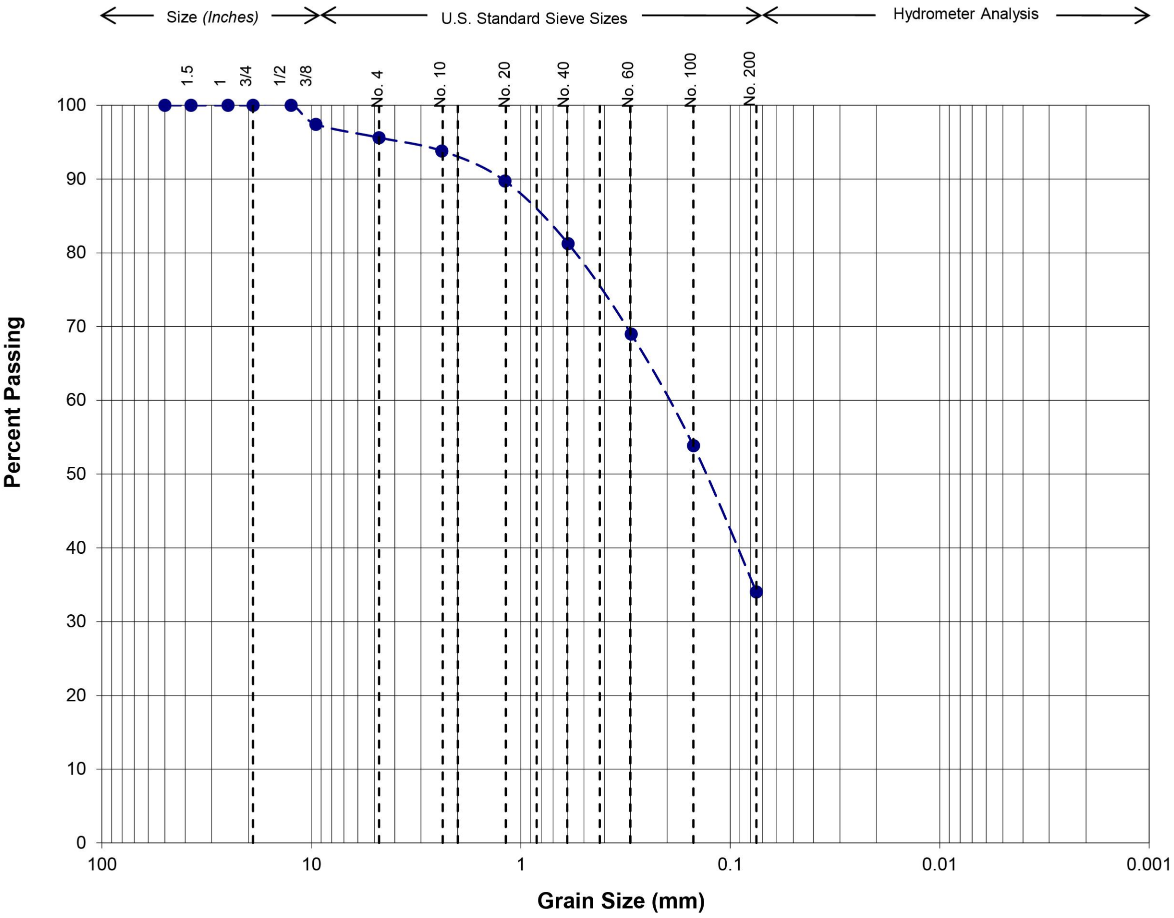
BY: GN	REVIEWED BY: XX	PROJECT: 2023168	FIGURE: C.13



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample Location: B-13

Depth (ft): 5 - 6½

USCS Soil Type: SM

Passing No. 200 (%): 34

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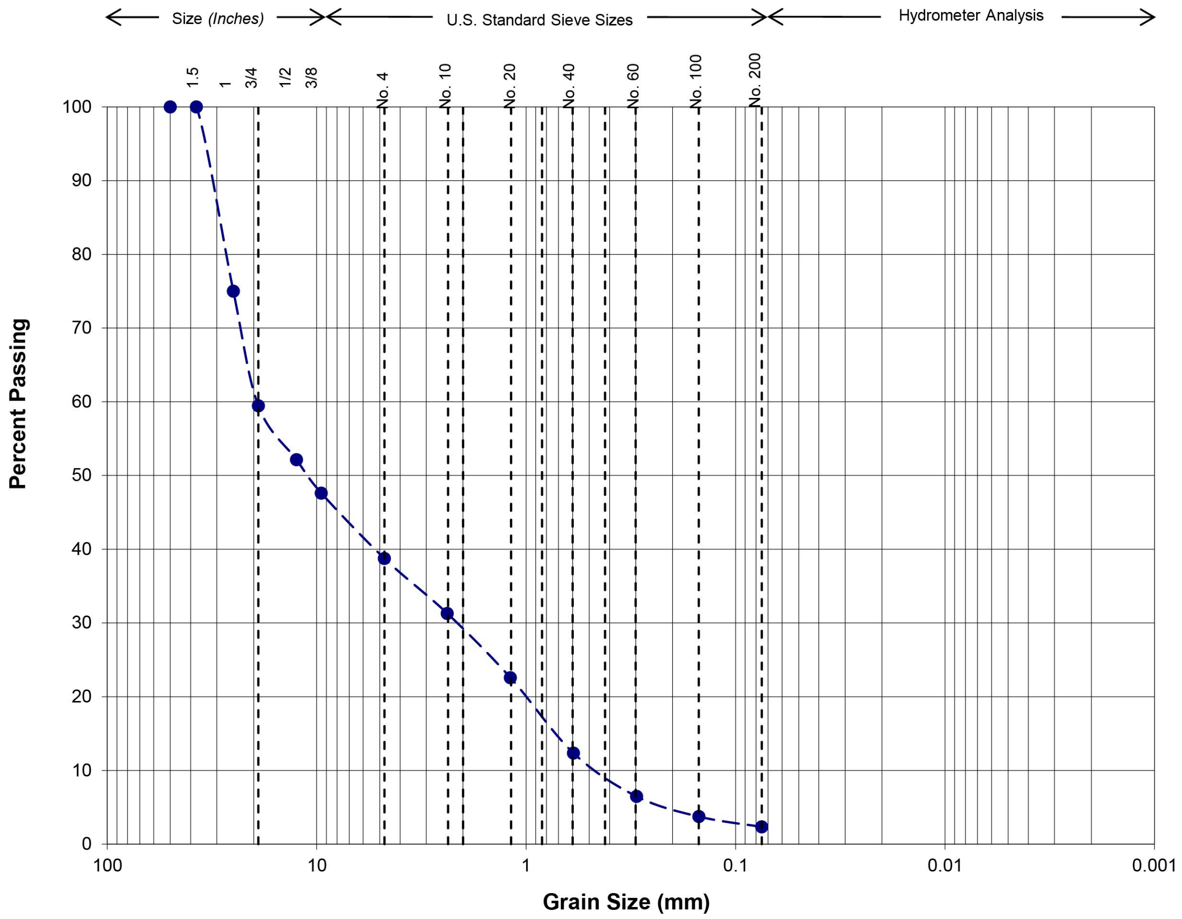
BY: GN	REVIEWED BY: AN	PROJECT: 2023168	FIGURE: C.14



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample Location: B-13

Depth (ft): 10 - 11½

USCS Soil Type: GP

Passing No. 200 (%): 2

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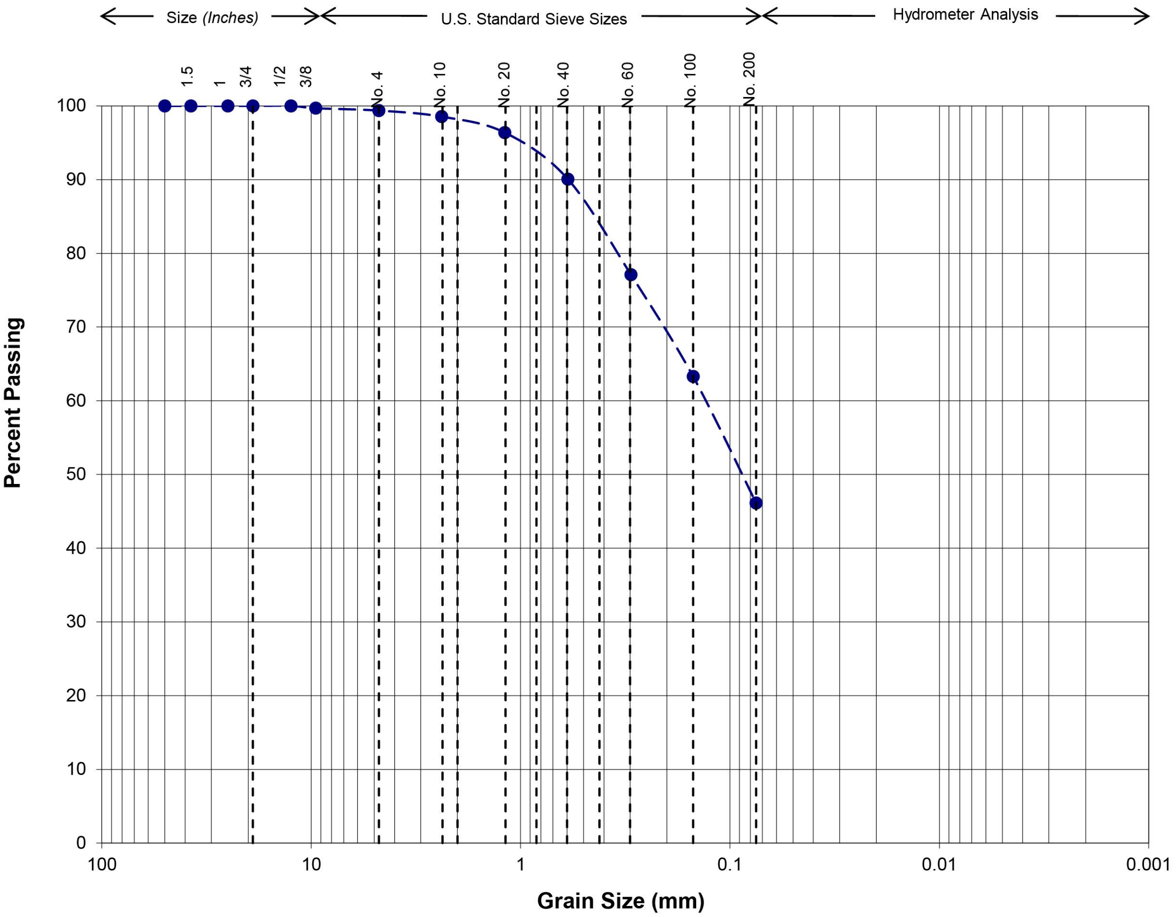
BY: GN	REVIEWED BY: AN	PROJECT: 2023168	FIGURE: C.15



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample Location: B-14

Depth (ft): 5 - 6½

USCS Soil Type: SM

Passing No. 200 (%): 46

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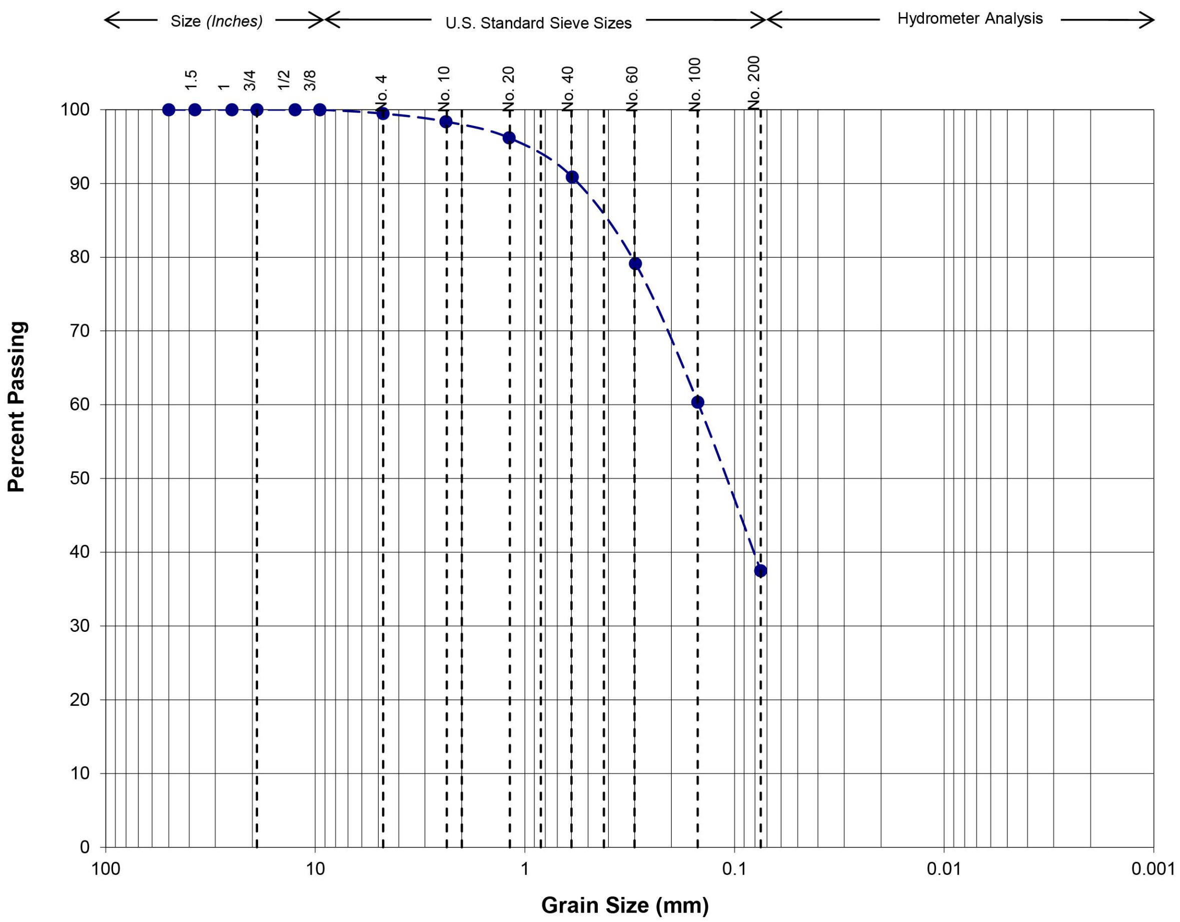
BY: GN	REVIEWED BY: AN	PROJECT: 2023168	FIGURE: C.16



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample Location: B-15

Depth (ft): 5 - 6½

USCS Soil Type: SM

Passing No. 200 (%): 37

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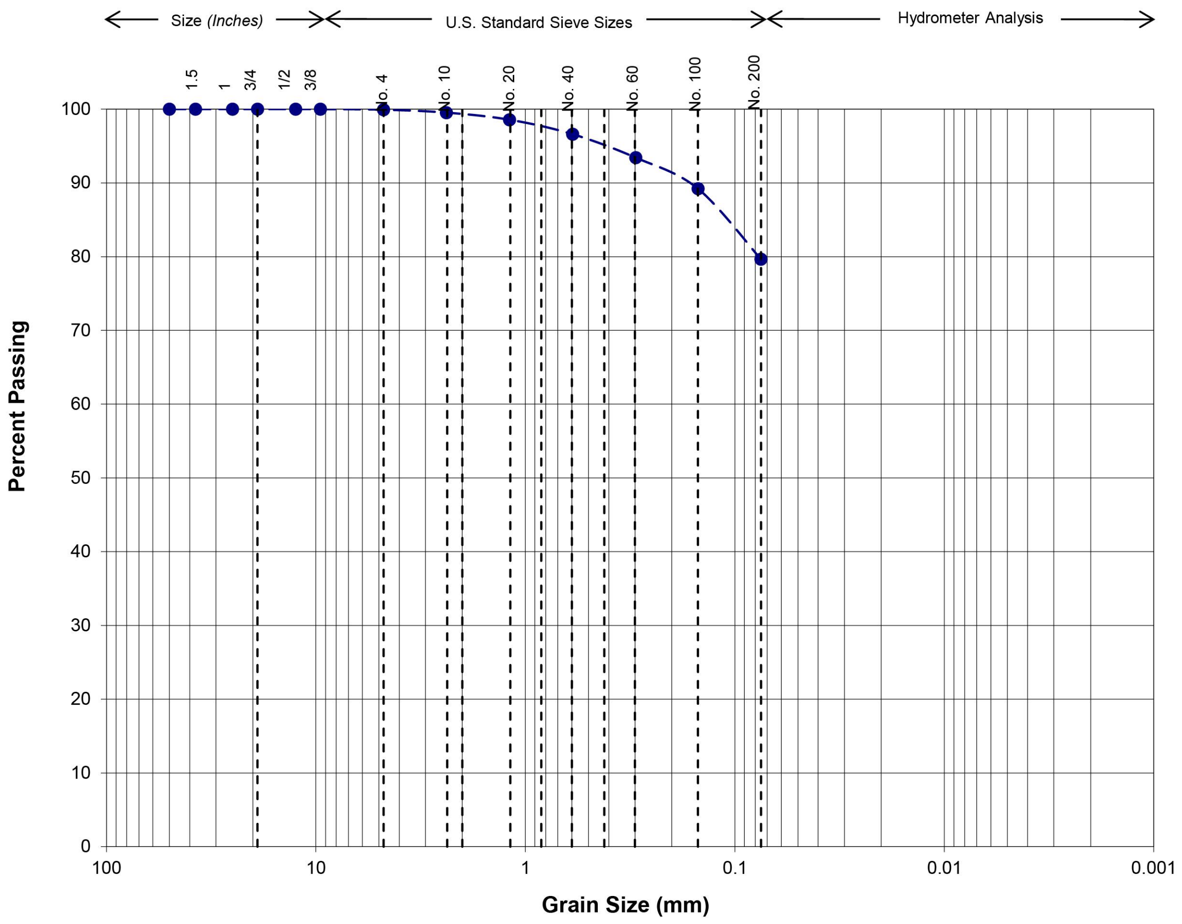
BY: GN	REVIEWED BY: AN	PROJECT: 2023168	FIGURE: C.17



<table>
<tr><td colspan="2">Gravel</td><td colspan="3">Sand</td><td rowspan="2">Silt or Clay</td></tr>
<tr><td>Coarse</td><td>Fine</td><td>Coarse</td><td>Medium</td><td>Fine</td></tr>
</table>

Sample Location:	B-15
Depth (ft):	10 - 11½
USCS Soil Type:	CL
Passing No. 200 (%):	80

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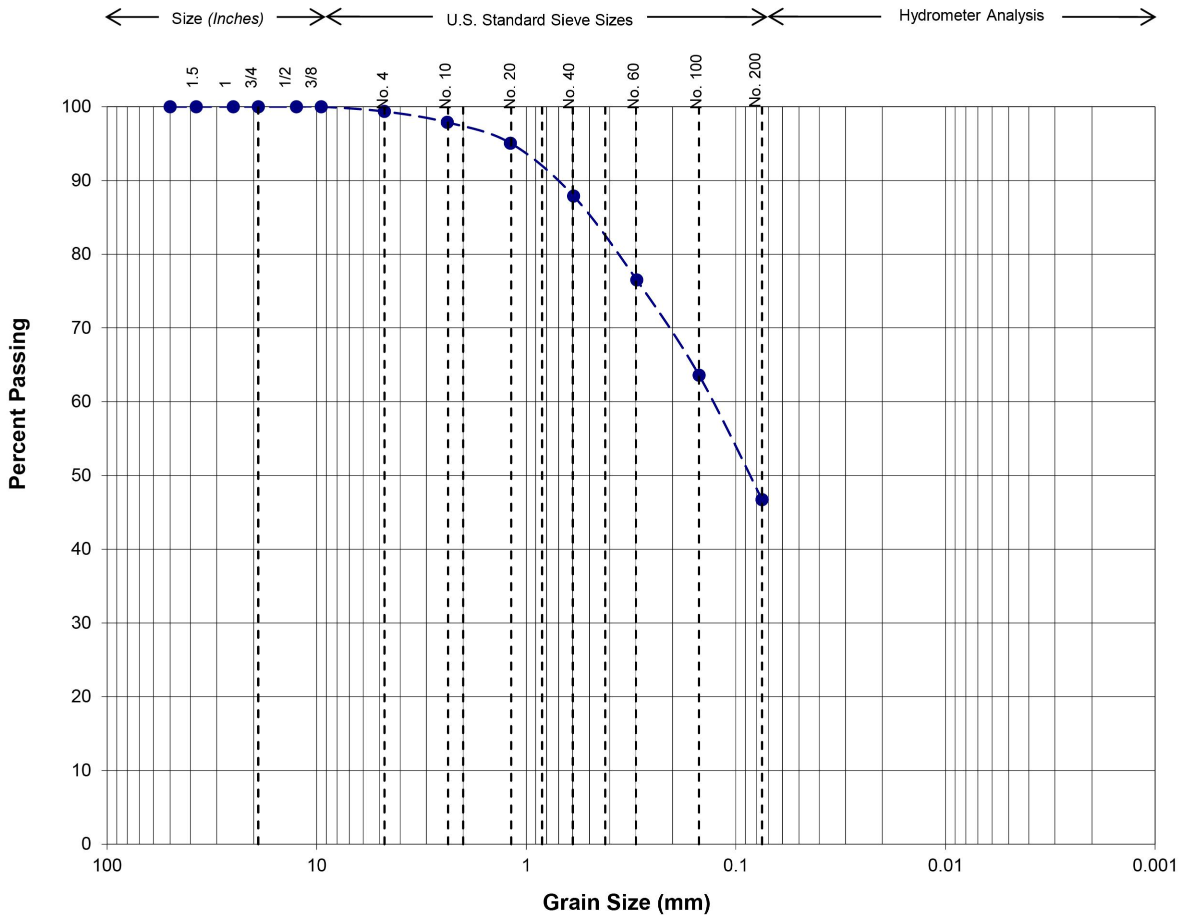
BY: GN	REVIEWED BY: AN	PROJECT: 2023168	FIGURE: C.18



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample Location: B-15

Depth (ft): 15 - 16½

USCS Soil Type: SM

Passing No. 200 (%): 47

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EUCLID AVENUE, WEST D STREET, EAST C STREET, EAST RIVERSIDE DRIVE
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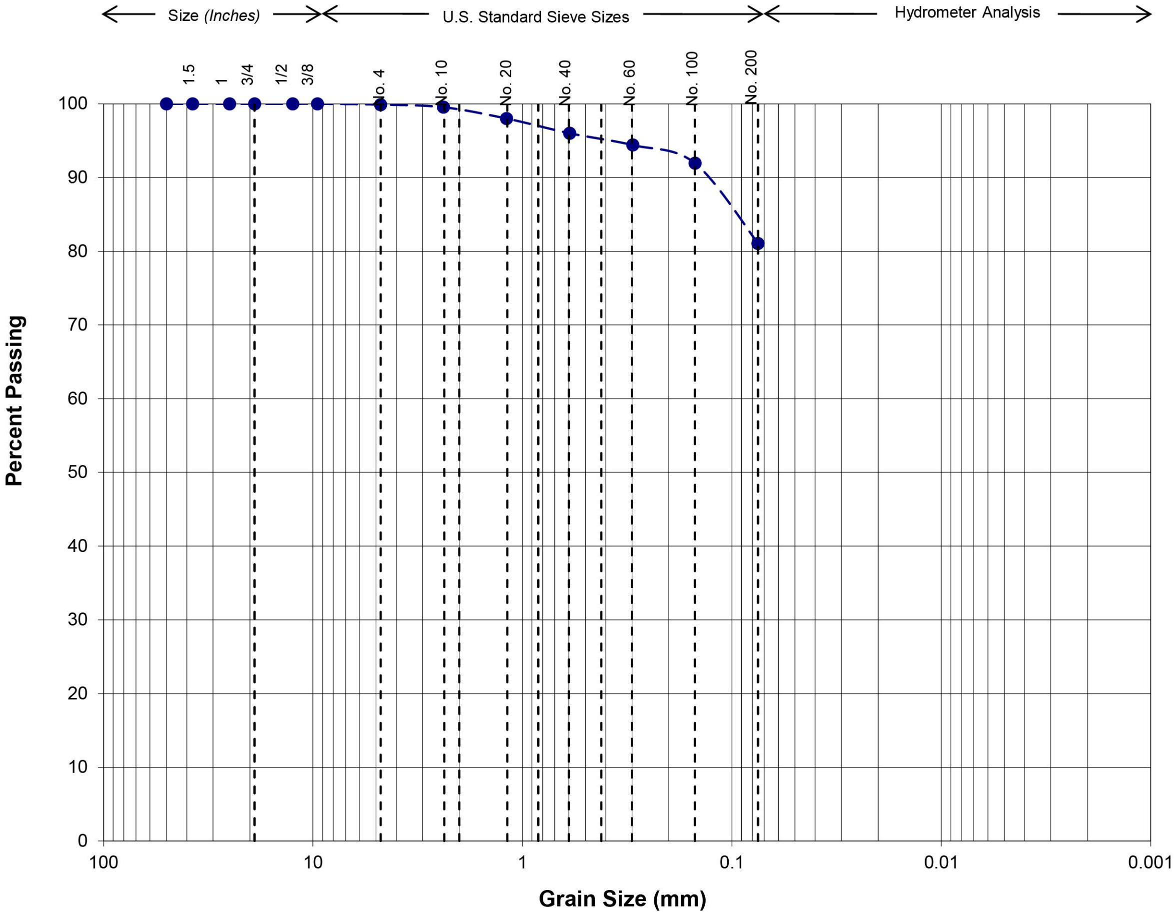
BY: GN	REVIEWED BY: AN	PROJECT: 2023168	FIGURE: C.19



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample Location: B-16

Depth (ft): 10 - 11½

USCS Soil Type: CL

Passing No. 200 (%): 81

Atterberg Limits (ASTM D4318):

Liquid Limit, LL: 34

Plastic Limit, PL: 20

Plasticity Index, PI: 14

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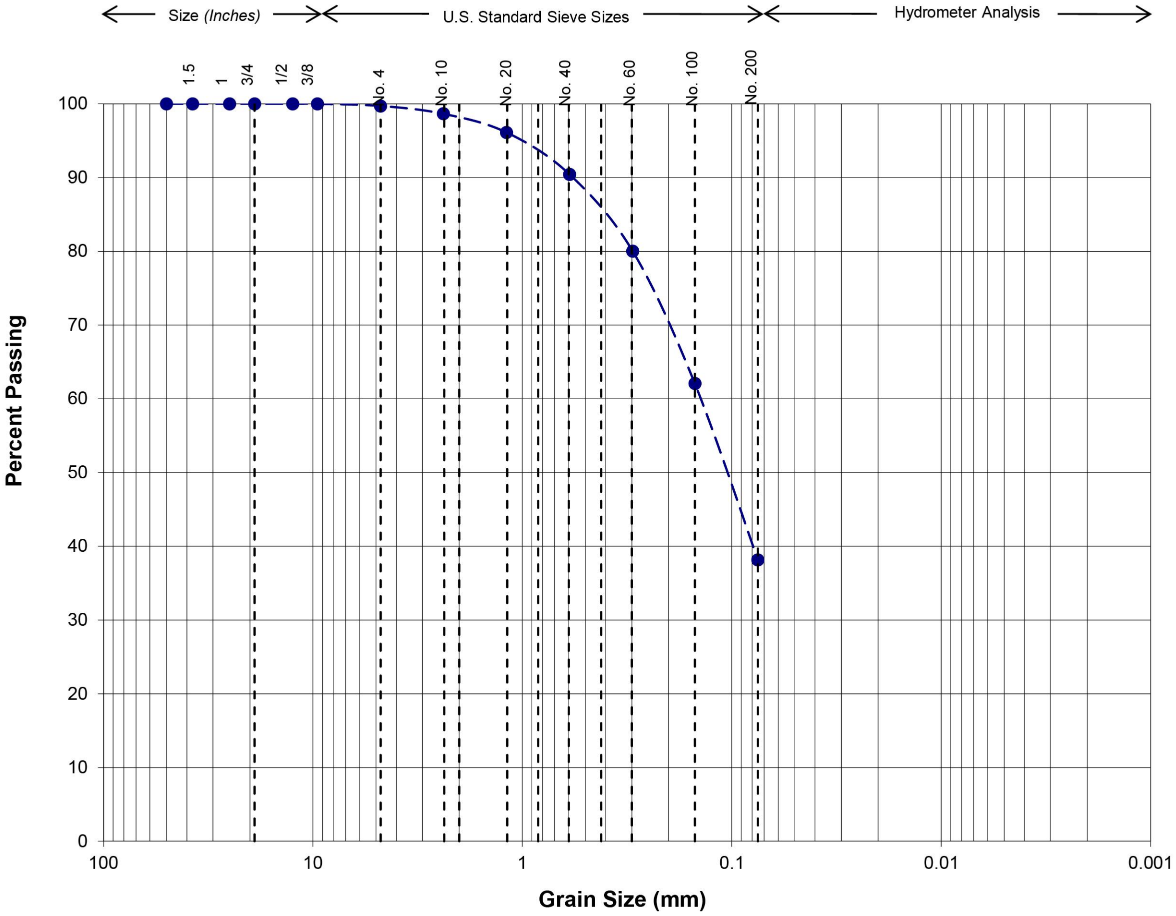
BY: GN	REVIEWED BY: AN	PROJECT: 2023168	FIGURE: C.20



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample Location: B-17

Depth (ft): 5 - 6½

USCS Soil Type: SM

Passing No. 200 (%): 38

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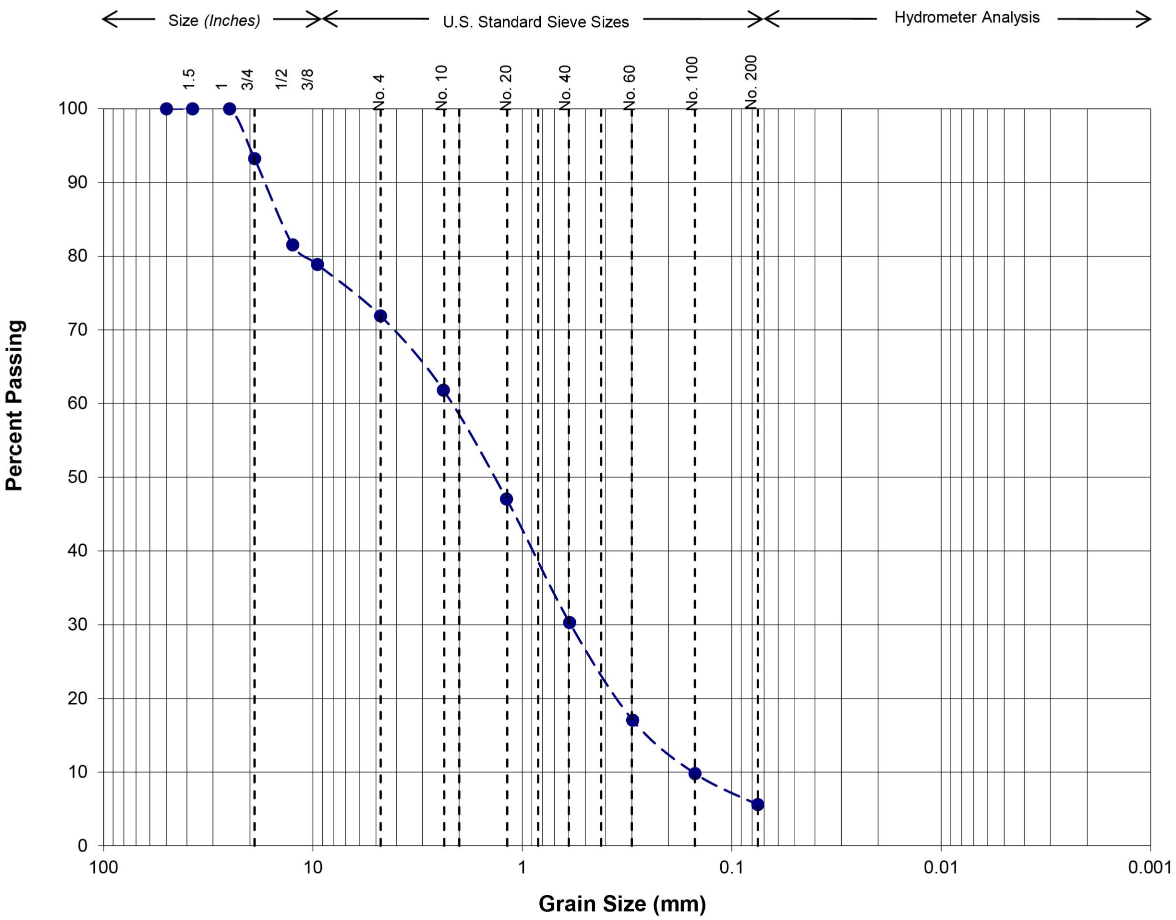
BY: GN	REVIEWED BY: AN	PROJECT: 2023168	FIGURE: C.21



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample Location:	B-18
Depth (ft):	10 - 11½
USCS Soil Type:	SP-SM
Passing No. 200 (%):	6

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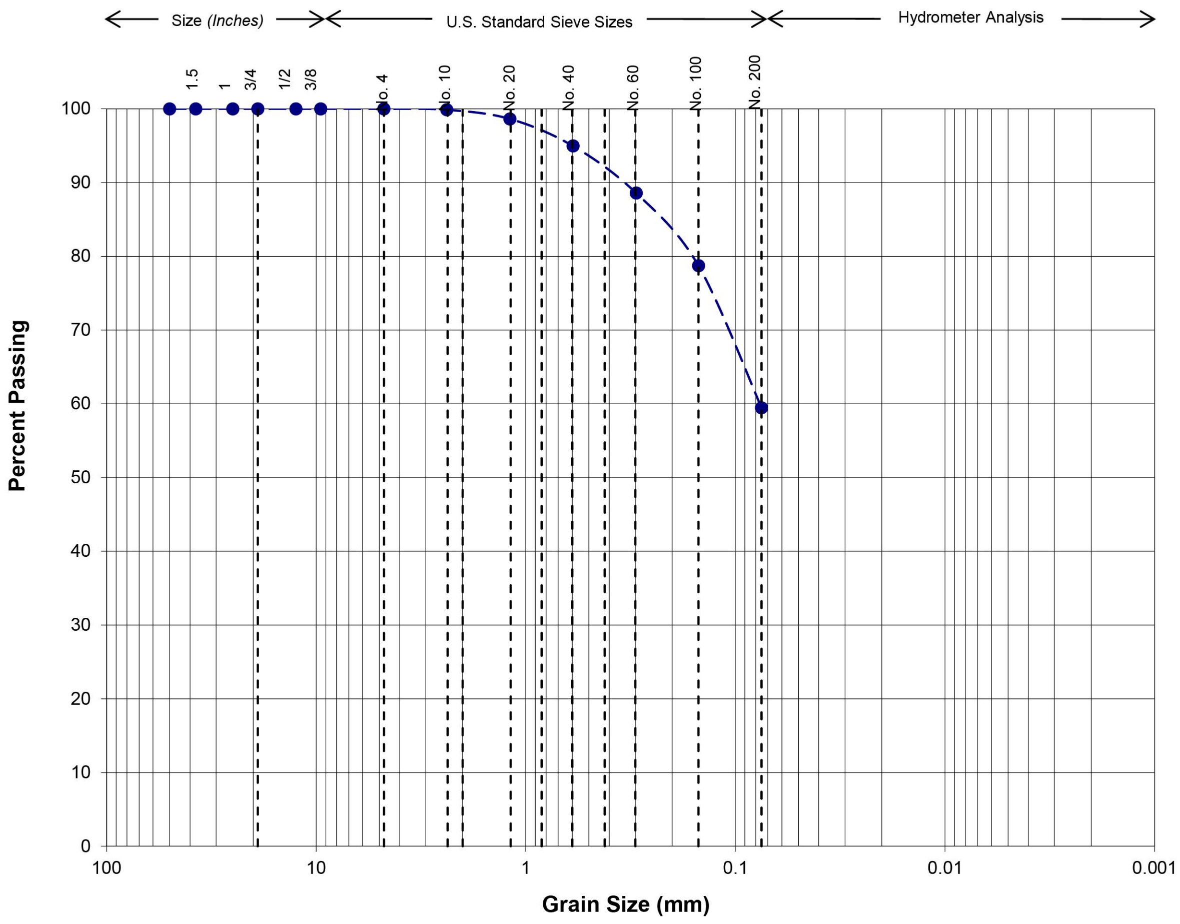
BY: GN	REVIEWED BY: AN	PROJECT: 2023168	FIGURE: C.22



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample Location: B-19

Depth (ft): 15 - 16½

USCS Soil Type: ML

Passing No. 200 (%): 59

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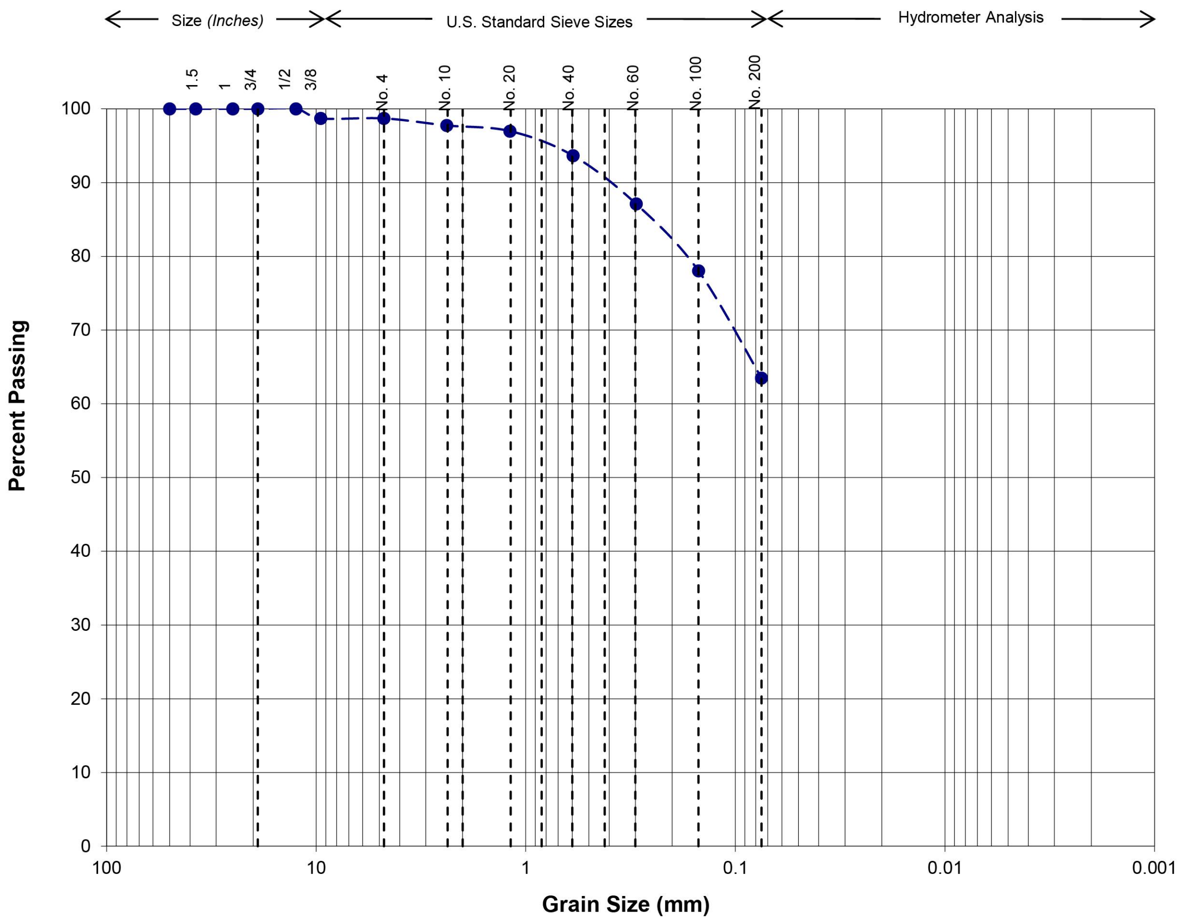
BY: GN	REVIEWED BY: AN	PROJECT: 2023168	FIGURE: C.23



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample Location: B-21

Depth (ft): 5 - 6½

USCS Soil Type: ML

Passing No. 200 (%): 63

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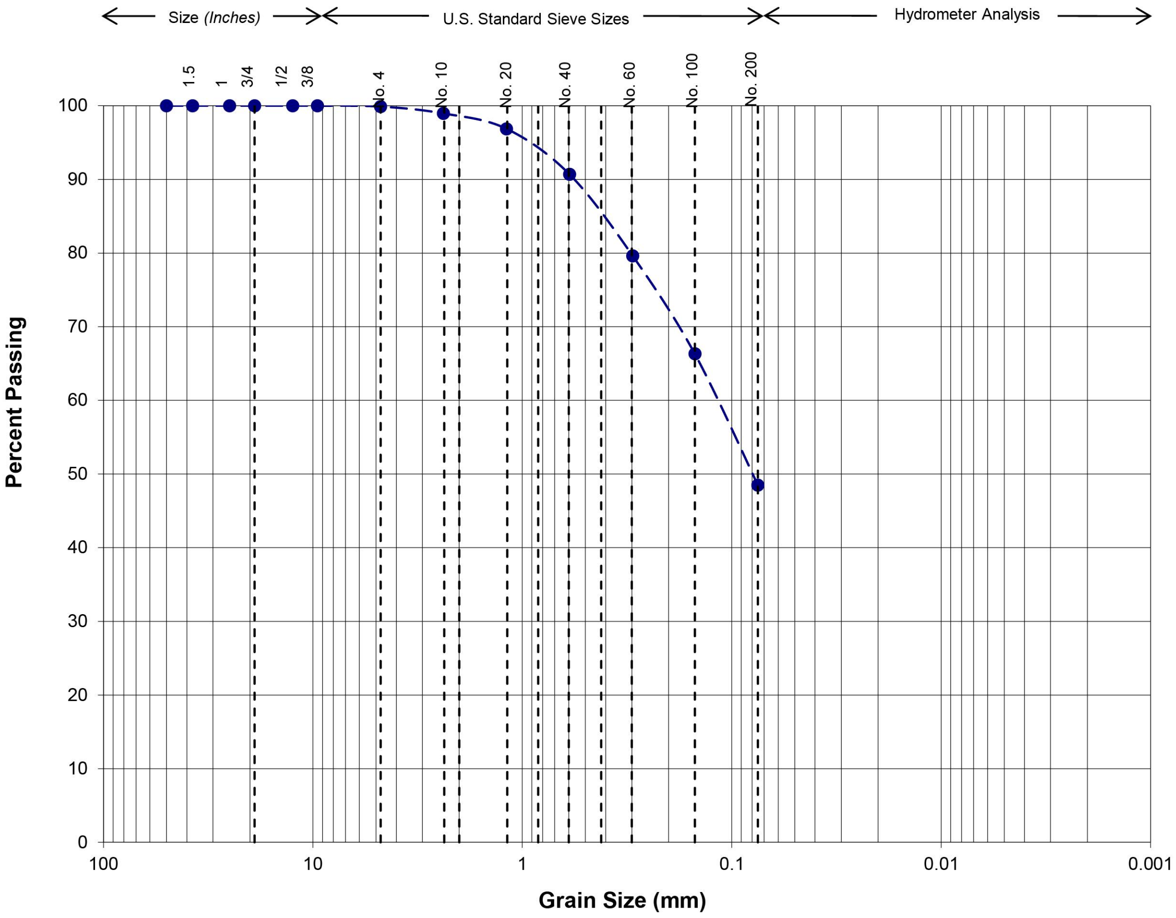
BY: GN	REVIEWED BY: AN	PROJECT: 2023168	FIGURE: C.24



<table>
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<tr><td>Coarse</td><td>Fine</td><td>Coarse</td><td>Medium</td><td>Fine</td></tr>
</table>

Sample Location:	B-21
Depth (ft):	10 - 11½
USCS Soil Type:	SC
Passing No. 200 (%):	48

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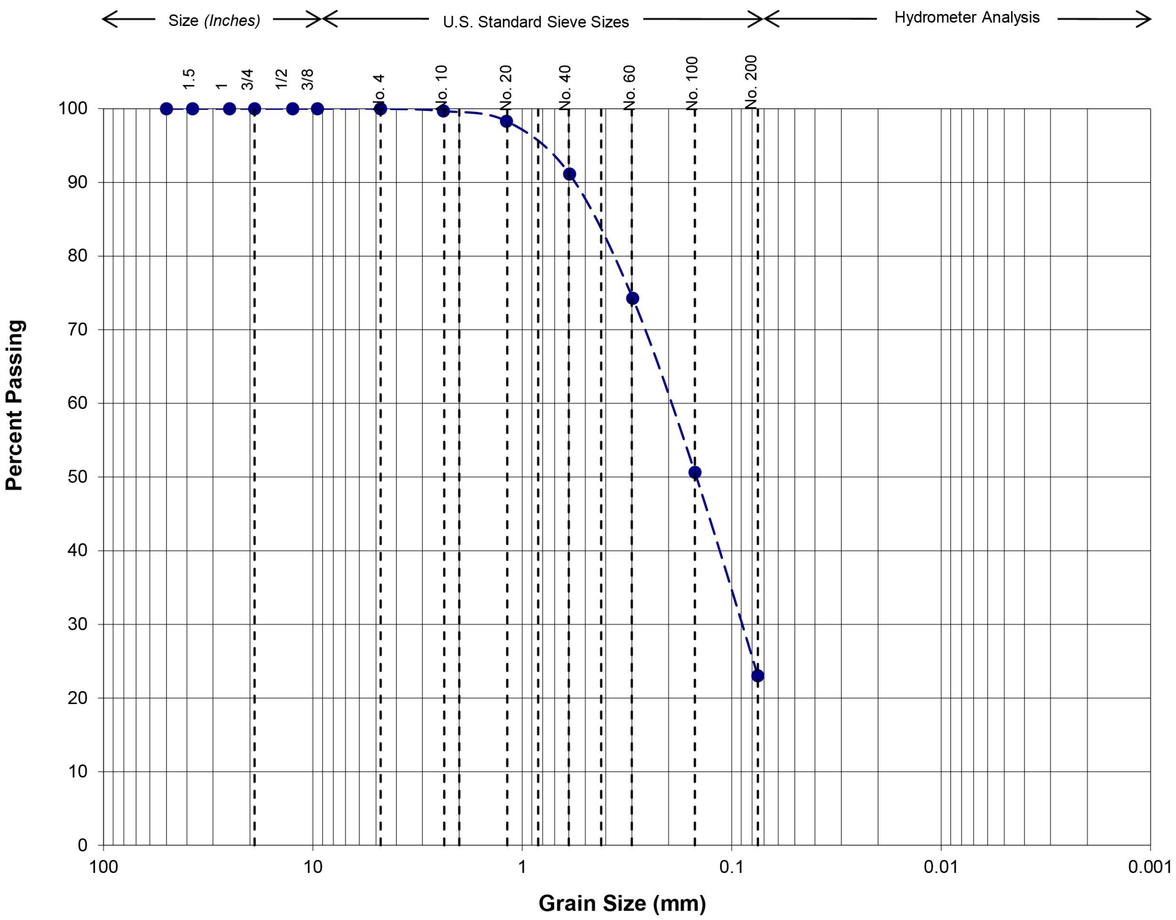
BY: GN	REVIEWED BY: AN	PROJECT: 2023168	FIGURE: C.25



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample Location: B-23

Depth (ft): 10 - 11½

USCS Soil Type: SM

Passing No. 200 (%): 23

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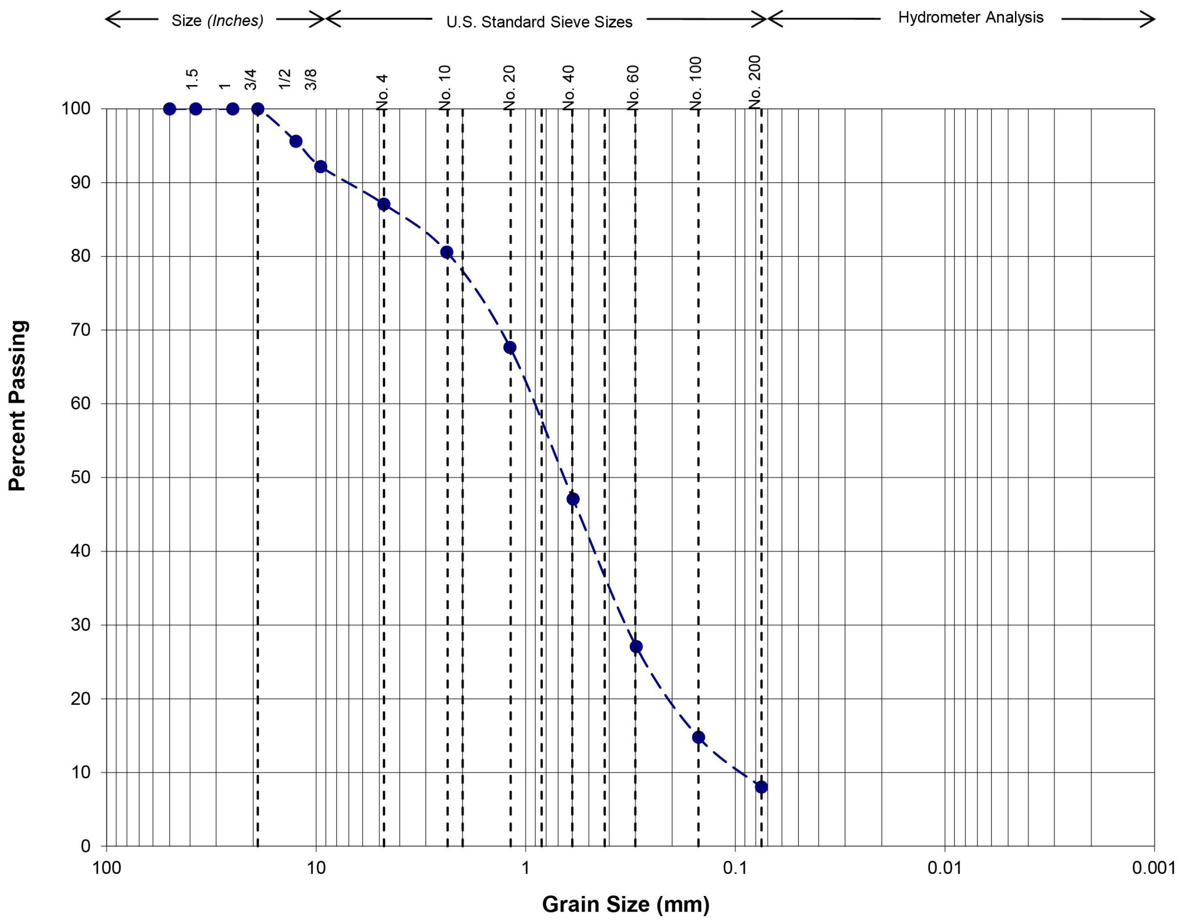
BY: GN	REVIEWED BY: AN	PROJECT: 2023168	FIGURE: C.26



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample Location: B-25

Depth (ft): 15 - 16½

USCS Soil Type: SP-SM

Passing No. 200 (%): 8

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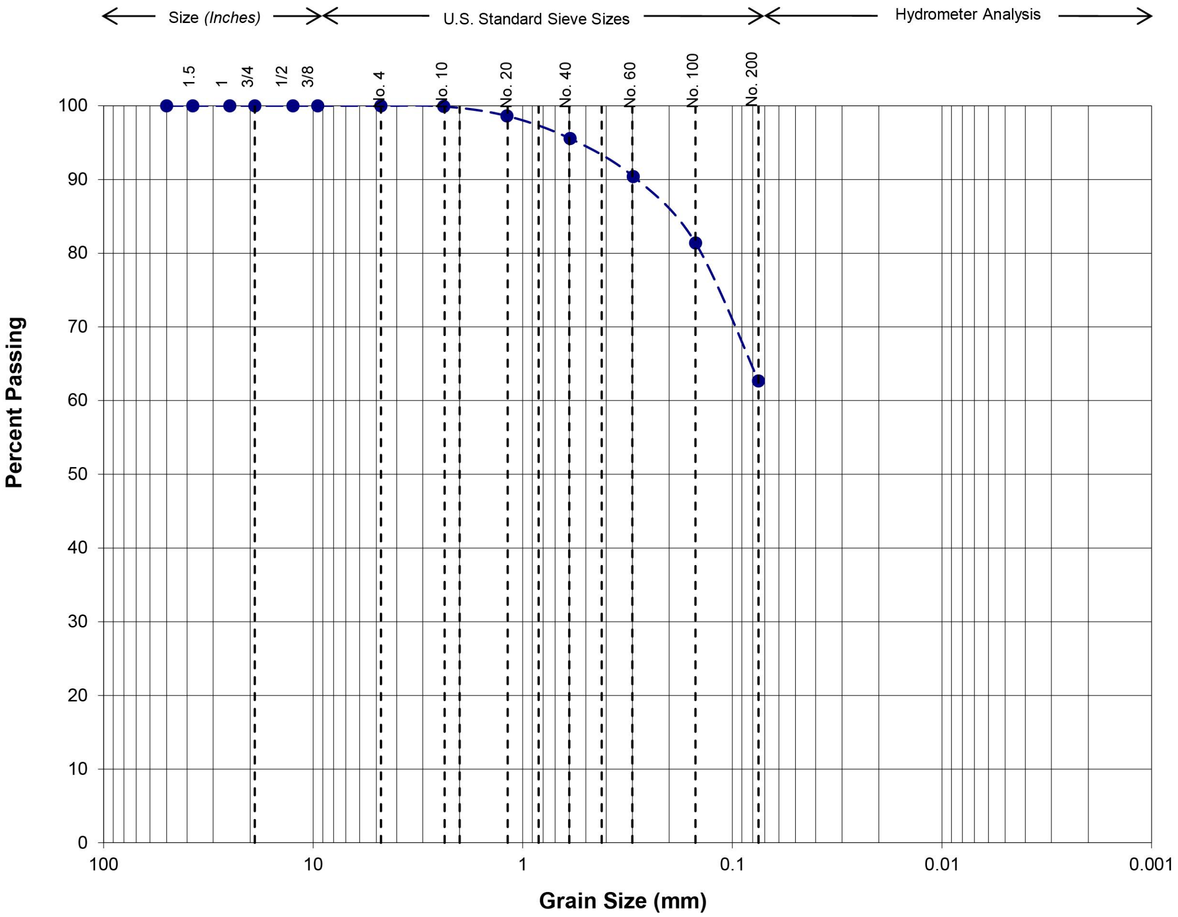
BY: GN	REVIEWED BY: AN	PROJECT: 2023168	FIGURE: C.27



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample Location: B-26

Depth (ft): 10 - 11½

USCS Soil Type: CL-ML

Passing No. 200 (%): 63

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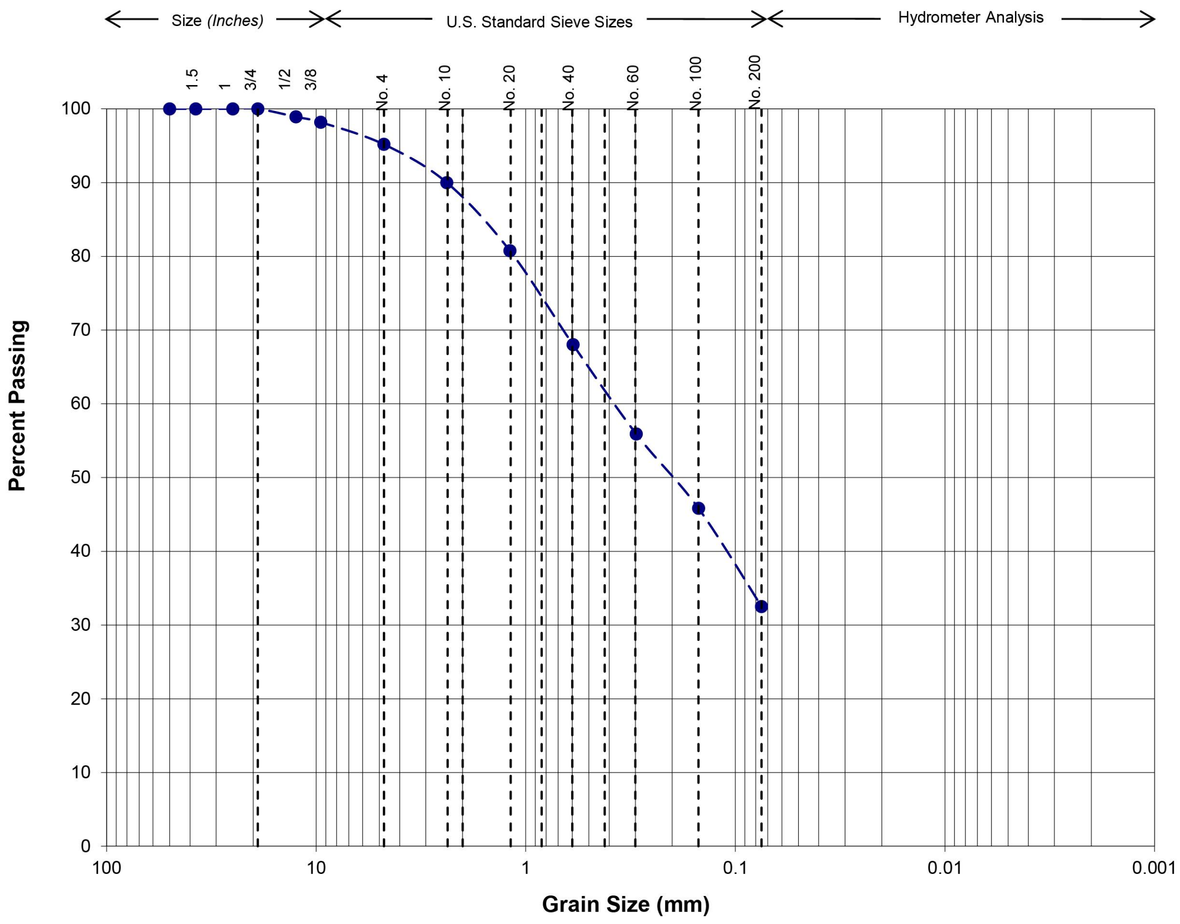
BY: GN	REVIEWED BY: AN	PROJECT: 2023168	FIGURE: C.28



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample Location: B-29

Depth (ft): 5 - 6½

USCS Soil Type: SM

Passing No. 200 (%): 33

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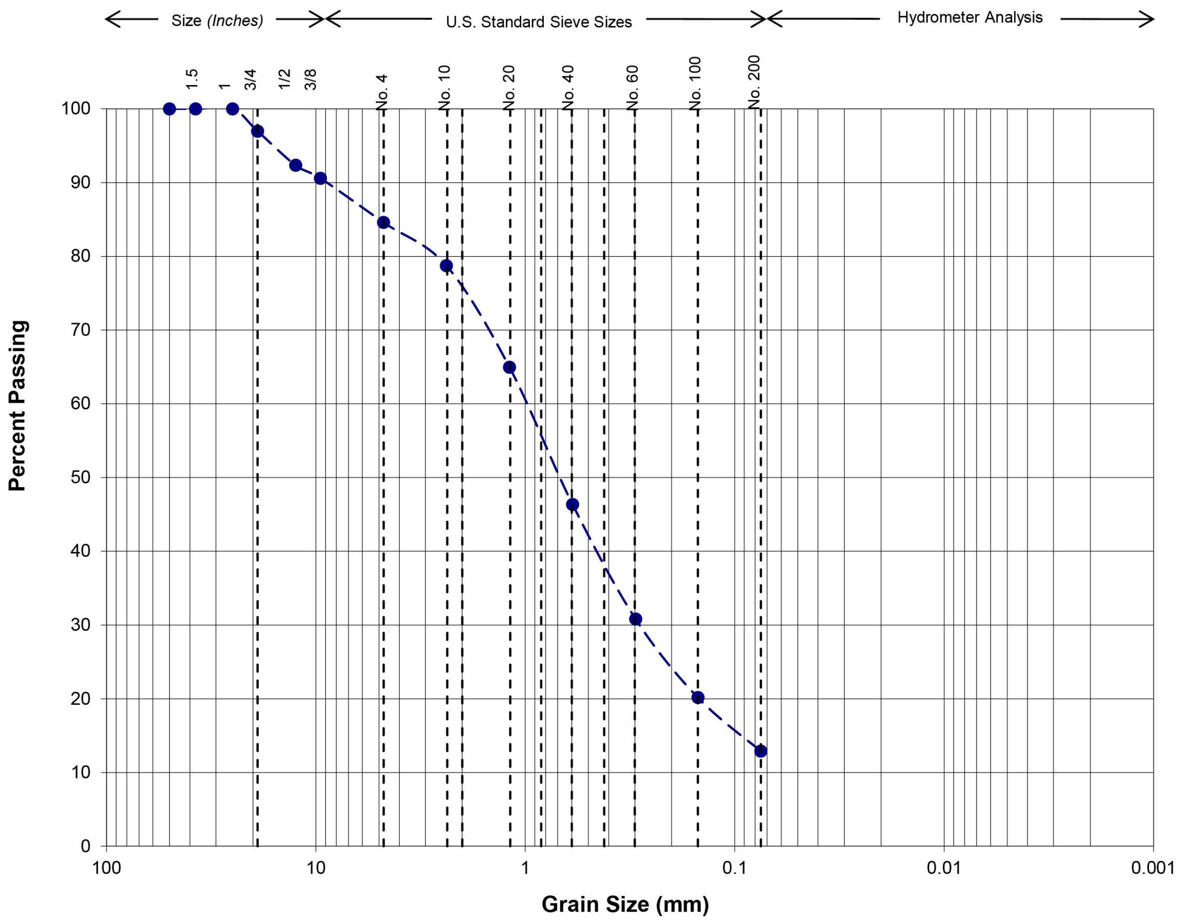
BY: GN	REVIEWED BY: AN	PROJECT: 2023168	FIGURE: C.29



Gravel		Sand			Silt or Clay
Coarse	Fine	Coarse	Medium	Fine	

Sample Location: B-30

Depth (ft): 18½ - 20

USCS Soil Type: SM

Passing No. 200 (%): 13

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BY: GN	REVIEWED BY: AN	PROJECT: 2023168	FIGURE: C.30

Atterberg Limits (ASTM D4318)

Sample Location	Sample Depth (ft.)	Liquid Limit, LL	Plastic Limit, PL	Plasticity Index, PI	USCS (% Finer than No. 40)
B-16	10 - 11½	34	20	14	CL
B-19	10 - 11½	33	19	14	CL
B-20	18½ - 20	29	16	13	CL
B-21	10 - 11½	23	13	10	CL
B-26	18½ - 20	21	16	5	CL-ML

Corrosivity (Cal. Test Method 417,422,643)

Sample Location	Sample Depth (ft.)	pH	Resistivity (Ohm-cm)	Sulfate Content		Chloride Content	
				(ppm)	(%)	(ppm)	(%)
B-5	5 - 6½	7.9	4560	270	0.003	0	0.000
B-9	1 - 5	7.5	6510	27	0.003	3	0.000
B-16	1 - 5	7.6	21375	3	0.000	12	0.001
B-21	1 - 5	7.6	8591	12	0.001	8	0.001
B-23	1 - 3	7.6	7208	0	0.000	46	0.005
B-26	1 - 5	7.6	9130	0	0.000	9	0.001
B-29	1½ - 5	7.3	9619	18	0.002	40	0.004

Water-Soluble Sulfate Exposure (ACI 318 Table 19.3.1.1 and Table 19.3.2.1)

Water-Soluble Sulfate (SO_4) in Soil (% by Weight)	Exposure Severity	Exposure Class	Cement Type (ASTM C150)	Max. W/C	Min. f_c' (psi)
$SO_4 < 0.10$	N/A	S0	No type restriction	N/A	2,500
$0.10 \leq SO_4 < 0.20$	Moderate	S1	II	0.50	4,000
$0.20 \leq SO_4 \leq 2.00$	Severe	S2	V	0.45	4,500
$SO_4 > 2.00$	Very Severe	S3	V plus pozzolan or slag cement	0.45	4,500

R-Value (Cal. Test Method 301 & ASTM D2844)

Sample Location	Sample Depth (ft.)	R-Value
B-1	½ - 2	73
B-3	1 - 2	74
B-8	1 - 2½	77
B-9	1 - 5	66
B-21	1 - 5	67
B-23	1 - 5	70

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BY: GN	REVIEWED BY: AN	PROJECT: 2023168	FIGURE: C.31

APPENDIX D
ENVIRONMENTAL SOILS TESTING

Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Andrew K Neuhaus
NOVA Services
4373 Viewridge Avenue, Suite B
San Diego, California 92123

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JOB DESCRIPTION

Euclid Ave. Downtown Recycled Water Proj.,UT 1072

JOB NUMBER

570-159800-1

Eurofins Calscience
2841 Dow Avenue, Suite 100
Tustin CA 92780

See page two for job notes and contact information.

Eurofins Calscience

Job Notes

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Authorization

Terri Chang

Authorized for release by
Terri Chang, Project Manager I
Terri.Chang@et.eurofinsus.com
(657)210-6295

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Definitions/Glossary

Client: NOVA Services
Project/Site: Euclid Ave. Downtown Recycled Water Proj.,UT 1072

Job ID: 570-159800-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Job ID: 570-159800-1

Laboratory: Eurofins Calscience

Narrative

Job Narrative
570-159800-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.

Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt

The samples were received on 11/7/2023 6:50 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.6°C

Diesel Range Organics

Method 8015B_DRO: Surrogate recovery for the following sample was outside control limits: B-20 @ 5' (570-159800-17). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals

Method 6010B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-382317 and analytical batch 570-382892 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

Method 6010B: The post digestion spike % recovery for Silver associated with batch 570-382892 was outside of control limits. The associated sample is: (570-159800-H-21-A PDS ^5).

Method 6010B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-382315 and analytical batch 570-382894 were outside control limits for one or more analytes. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Detection Summary

Client: NOVA Services

Job ID: 570-159800-1

Project/Site: Euclid Ave. Downtown Recycled Water Proj.,UT 1072

Client Sample ID: B-14 @ 5'

Lab Sample ID: 570-159800-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C8-C40	18		4.9	3.8	mg/Kg	1		8015B	Total/NA
Arsenic	2.74	J	3.00	1.39	mg/Kg	5		6010B	Total/NA
Barium	35.3		3.00	0.142	mg/Kg	5		6010B	Total/NA
Beryllium	0.213	J	0.500	0.0690	mg/Kg	5		6010B	Total/NA
Chromium	13.4		1.00	0.186	mg/Kg	5		6010B	Total/NA
Cobalt	6.24		1.00	0.206	mg/Kg	5		6010B	Total/NA
Copper	16.5		2.00	0.958	mg/Kg	5		6010B	Total/NA
Lead	3.25		2.00	0.409	mg/Kg	5		6010B	Total/NA
Nickel	9.76		2.00	0.362	mg/Kg	5		6010B	Total/NA
Vanadium	25.9		1.00	0.168	mg/Kg	5		6010B	Total/NA
Zinc	31.9		5.00	1.16	mg/Kg	5		6010B	Total/NA

Client Sample ID: B-13 @ 10'

Lab Sample ID: 570-159800-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C8-C40	4.6	J	5.0	3.8	mg/Kg	1		8015B	Total/NA
Barium	28.9		2.97	0.141	mg/Kg	5		6010B	Total/NA
Beryllium	0.149	J	0.495	0.0683	mg/Kg	5		6010B	Total/NA
Chromium	10.8		0.990	0.184	mg/Kg	5		6010B	Total/NA
Cobalt	6.10		0.990	0.204	mg/Kg	5		6010B	Total/NA
Copper	13.1		1.98	0.949	mg/Kg	5		6010B	Total/NA
Lead	2.66		1.98	0.405	mg/Kg	5		6010B	Total/NA
Nickel	8.37		1.98	0.358	mg/Kg	5		6010B	Total/NA
Vanadium	19.5		0.990	0.166	mg/Kg	5		6010B	Total/NA
Zinc	26.5		4.95	1.14	mg/Kg	5		6010B	Total/NA

Client Sample ID: B-11 @ 10'

Lab Sample ID: 570-159800-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	3.60		2.93	1.36	mg/Kg	5		6010B	Total/NA
Barium	44.7		2.93	0.139	mg/Kg	5		6010B	Total/NA
Beryllium	0.317	J	0.488	0.0673	mg/Kg	5		6010B	Total/NA
Chromium	18.6		0.976	0.181	mg/Kg	5		6010B	Total/NA
Cobalt	7.55		0.976	0.201	mg/Kg	5		6010B	Total/NA
Copper	16.9		1.95	0.935	mg/Kg	5		6010B	Total/NA
Lead	4.22		1.95	0.399	mg/Kg	5		6010B	Total/NA
Nickel	13.0		1.95	0.353	mg/Kg	5		6010B	Total/NA
Vanadium	33.5		0.976	0.164	mg/Kg	5		6010B	Total/NA
Zinc	40.1		4.88	1.13	mg/Kg	5		6010B	Total/NA

Client Sample ID: B-12 @ 5'

Lab Sample ID: 570-159800-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C25-C28	4.7	J	5.1	4.0	mg/Kg	1		8015B	Total/NA
C8-C40	20		5.1	4.0	mg/Kg	1		8015B	Total/NA
Arsenic	1.48	J	2.94	1.36	mg/Kg	5		6010B	Total/NA
Barium	33.4		2.94	0.139	mg/Kg	5		6010B	Total/NA
Beryllium	0.159	J	0.490	0.0676	mg/Kg	5		6010B	Total/NA
Chromium	12.2		0.980	0.182	mg/Kg	5		6010B	Total/NA
Cobalt	5.10		0.980	0.202	mg/Kg	5		6010B	Total/NA
Copper	12.6		1.96	0.939	mg/Kg	5		6010B	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client Sample ID: B-12 @ 5' (Continued) — Lab Sample ID: 570-159800-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	3.26		1.96	0.401	mg/Kg	5		6010B	Total/NA
Nickel	8.09		1.96	0.355	mg/Kg	5		6010B	Total/NA
Vanadium	21.2		0.980	0.165	mg/Kg	5		6010B	Total/NA
Zinc	28.9		4.90	1.13	mg/Kg	5		6010B	Total/NA

Client Sample ID: B-7 @ 10' — Lab Sample ID: 570-159800-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C21-C22	5.5		5.2	4.0	mg/Kg	1		8015B	Total/NA
C25-C28	5.2		5.2	4.0	mg/Kg	1		8015B	Total/NA
C29-C32	4.3	J	5.2	4.0	mg/Kg	1		8015B	Total/NA
C8-C40	26		5.2	4.0	mg/Kg	1		8015B	Total/NA
Arsenic	1.52	J	2.99	1.38	mg/Kg	5		6010B	Total/NA
Barium	21.7		2.99	0.141	mg/Kg	5		6010B	Total/NA
Beryllium	0.149	J	0.498	0.0687	mg/Kg	5		6010B	Total/NA
Chromium	10.8		0.995	0.185	mg/Kg	5		6010B	Total/NA
Cobalt	4.91		0.995	0.205	mg/Kg	5		6010B	Total/NA
Copper	9.90		1.99	0.953	mg/Kg	5		6010B	Total/NA
Lead	2.65		1.99	0.407	mg/Kg	5		6010B	Total/NA
Nickel	7.46		1.99	0.360	mg/Kg	5		6010B	Total/NA
Vanadium	18.7		0.995	0.167	mg/Kg	5		6010B	Total/NA
Zinc	25.9		4.98	1.15	mg/Kg	5		6010B	Total/NA

Client Sample ID: B-10 @ 5' — Lab Sample ID: 570-159800-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C21-C22	4.9		4.9	3.8	mg/Kg	1		8015B	Total/NA
C25-C28	4.7	J	4.9	3.8	mg/Kg	1		8015B	Total/NA
C8-C40	21		4.9	3.8	mg/Kg	1		8015B	Total/NA
Arsenic	1.63	J	2.99	1.38	mg/Kg	5		6010B	Total/NA
Barium	49.0		2.99	0.141	mg/Kg	5		6010B	Total/NA
Beryllium	0.174	J	0.498	0.0687	mg/Kg	5		6010B	Total/NA
Chromium	15.0		0.995	0.185	mg/Kg	5		6010B	Total/NA
Cobalt	6.75		0.995	0.205	mg/Kg	5		6010B	Total/NA
Copper	15.5		1.99	0.953	mg/Kg	5		6010B	Total/NA
Lead	2.33		1.99	0.407	mg/Kg	5		6010B	Total/NA
Nickel	10.6		1.99	0.360	mg/Kg	5		6010B	Total/NA
Vanadium	29.3		0.995	0.167	mg/Kg	5		6010B	Total/NA
Zinc	35.6		4.98	1.15	mg/Kg	5		6010B	Total/NA

Client Sample ID: B-9 @ 10' — Lab Sample ID: 570-159800-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C21-C22	5.3		5.1	3.9	mg/Kg	1		8015B	Total/NA
C25-C28	4.5	J	5.1	3.9	mg/Kg	1		8015B	Total/NA
C8-C40	22		5.1	3.9	mg/Kg	1		8015B	Total/NA
Arsenic	1.45	J	3.00	1.39	mg/Kg	5		6010B	Total/NA
Barium	31.9		3.00	0.142	mg/Kg	5		6010B	Total/NA
Beryllium	0.150	J	0.500	0.0690	mg/Kg	5		6010B	Total/NA
Chromium	11.9		1.00	0.186	mg/Kg	5		6010B	Total/NA
Cobalt	4.94		1.00	0.206	mg/Kg	5		6010B	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client Sample ID: B-9 @ 10' (Continued) — Lab Sample ID: 570-159800-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Copper	11.8		2.00	0.958	mg/Kg	5		6010B	Total/NA
Lead	2.63		2.00	0.409	mg/Kg	5		6010B	Total/NA
Nickel	8.00		2.00	0.362	mg/Kg	5		6010B	Total/NA
Vanadium	20.6		1.00	0.168	mg/Kg	5		6010B	Total/NA
Zinc	28.6		5.00	1.16	mg/Kg	5		6010B	Total/NA

Client Sample ID: B-30 @ 5' — Lab Sample ID: 570-159800-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C21-C22	4.2	J	5.2	4.0	mg/Kg	1		8015B	Total/NA
C25-C28	4.1	J	5.2	4.0	mg/Kg	1		8015B	Total/NA
C8-C40	17		5.2	4.0	mg/Kg	1		8015B	Total/NA
Barium	98.0		3.06	0.145	mg/Kg	5		6010B	Total/NA
Beryllium	0.217	J	0.510	0.0704	mg/Kg	5		6010B	Total/NA
Chromium	27.0		1.02	0.190	mg/Kg	5		6010B	Total/NA
Cobalt	5.46		1.02	0.210	mg/Kg	5		6010B	Total/NA
Copper	10.8		2.04	0.978	mg/Kg	5		6010B	Total/NA
Lead	2.04		2.04	0.417	mg/Kg	5		6010B	Total/NA
Molybdenum	0.867	J	2.04	0.526	mg/Kg	5		6010B	Total/NA
Nickel	12.2		2.04	0.369	mg/Kg	5		6010B	Total/NA
Vanadium	32.5		1.02	0.171	mg/Kg	5		6010B	Total/NA
Zinc	35.4		5.10	1.18	mg/Kg	5		6010B	Total/NA

Client Sample ID: B-28 @ 10' — Lab Sample ID: 570-159800-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C21-C22	6.0		5.2	4.0	mg/Kg	1		8015B	Total/NA
C25-C28	6.1		5.2	4.0	mg/Kg	1		8015B	Total/NA
C8-C40	29		5.2	4.0	mg/Kg	1		8015B	Total/NA
Arsenic	1.78	J	3.00	1.39	mg/Kg	5		6010B	Total/NA
Barium	84.6		3.00	0.142	mg/Kg	5		6010B	Total/NA
Beryllium	0.238	J	0.500	0.0690	mg/Kg	5		6010B	Total/NA
Chromium	12.0		1.00	0.186	mg/Kg	5		6010B	Total/NA
Cobalt	4.49		1.00	0.206	mg/Kg	5		6010B	Total/NA
Copper	7.21		2.00	0.958	mg/Kg	5		6010B	Total/NA
Lead	1.93	J	2.00	0.409	mg/Kg	5		6010B	Total/NA
Nickel	7.01		2.00	0.362	mg/Kg	5		6010B	Total/NA
Vanadium	30.1		1.00	0.168	mg/Kg	5		6010B	Total/NA
Zinc	30.6		5.00	1.16	mg/Kg	5		6010B	Total/NA

Client Sample ID: B-29 @ 10' — Lab Sample ID: 570-159800-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C8-C40	6.1		4.8	3.7	mg/Kg	1		8015B	Total/NA
Arsenic	1.92	J	2.99	1.38	mg/Kg	5		6010B	Total/NA
Barium	105		2.99	0.141	mg/Kg	5		6010B	Total/NA
Beryllium	0.286	J	0.498	0.0687	mg/Kg	5		6010B	Total/NA
Chromium	12.9		0.995	0.185	mg/Kg	5		6010B	Total/NA
Cobalt	5.12		0.995	0.205	mg/Kg	5		6010B	Total/NA
Copper	9.53		1.99	0.953	mg/Kg	5		6010B	Total/NA
Lead	2.46		1.99	0.407	mg/Kg	5		6010B	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client Sample ID: B-29 @ 10' (Continued) Lab Sample ID: 570-159800-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nickel	8.00		1.99	0.360	mg/Kg	5		6010B	Total/NA
Vanadium	32.9		0.995	0.167	mg/Kg	5		6010B	Total/NA
Zinc	33.6		4.98	1.15	mg/Kg	5		6010B	Total/NA

Client Sample ID: B-27 @ 5' Lab Sample ID: 570-159800-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C19-C20	5.9		5.1	4.0	mg/Kg	1		8015B	Total/NA
C21-C22	9.5		5.1	4.0	mg/Kg	1		8015B	Total/NA
C23-C24	4.1	J	5.1	4.0	mg/Kg	1		8015B	Total/NA
C25-C28	12		5.1	4.0	mg/Kg	1		8015B	Total/NA
C29-C32	14		5.1	4.0	mg/Kg	1		8015B	Total/NA
C33-C36	10		5.1	4.0	mg/Kg	1		8015B	Total/NA
C37-C40	5.0	J	5.1	4.0	mg/Kg	1		8015B	Total/NA
C8-C40	64		5.1	4.0	mg/Kg	1		8015B	Total/NA
Arsenic	1.85	J	3.00	1.39	mg/Kg	5		6010B	Total/NA
Barium	98.3		3.00	0.142	mg/Kg	5		6010B	Total/NA
Beryllium	0.288	J	0.500	0.0690	mg/Kg	5		6010B	Total/NA
Chromium	13.9		1.00	0.186	mg/Kg	5		6010B	Total/NA
Cobalt	5.69		1.00	0.206	mg/Kg	5		6010B	Total/NA
Copper	9.99		2.00	0.958	mg/Kg	5		6010B	Total/NA
Lead	2.86		2.00	0.409	mg/Kg	5		6010B	Total/NA
Nickel	8.04		2.00	0.362	mg/Kg	5		6010B	Total/NA
Vanadium	34.6		1.00	0.168	mg/Kg	5		6010B	Total/NA
Zinc	37.7		5.00	1.16	mg/Kg	5		6010B	Total/NA

Client Sample ID: B-26 @ 5' Lab Sample ID: 570-159800-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C8-C40	12		5.1	4.0	mg/Kg	1		8015B	Total/NA
Arsenic	1.97	J	2.99	1.38	mg/Kg	5		6010B	Total/NA
Barium	137		2.99	0.141	mg/Kg	5		6010B	Total/NA
Beryllium	0.323	J	0.498	0.0687	mg/Kg	5		6010B	Total/NA
Chromium	18.1		0.995	0.185	mg/Kg	5		6010B	Total/NA
Cobalt	7.40		0.995	0.205	mg/Kg	5		6010B	Total/NA
Copper	14.4		1.99	0.953	mg/Kg	5		6010B	Total/NA
Lead	3.03		1.99	0.407	mg/Kg	5		6010B	Total/NA
Nickel	10.5		1.99	0.360	mg/Kg	5		6010B	Total/NA
Vanadium	44.2		0.995	0.167	mg/Kg	5		6010B	Total/NA
Zinc	45.8		4.98	1.15	mg/Kg	5		6010B	Total/NA

Client Sample ID: B-25 @ 10' Lab Sample ID: 570-159800-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C19-C20	4.4	J	4.9	3.8	mg/Kg	1		8015B	Total/NA
C21-C22	7.3		4.9	3.8	mg/Kg	1		8015B	Total/NA
C25-C28	6.9		4.9	3.8	mg/Kg	1		8015B	Total/NA
C29-C32	5.7		4.9	3.8	mg/Kg	1		8015B	Total/NA
C8-C40	33		4.9	3.8	mg/Kg	1		8015B	Total/NA
Barium	65.2		2.96	0.140	mg/Kg	5		6010B	Total/NA
Beryllium	0.123	J	0.493	0.0680	mg/Kg	5		6010B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: B-25 @ 10' (Continued) Lab Sample ID: 570-159800-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	9.95		0.985	0.183	mg/Kg	5		6010B	Total/NA
Cobalt	4.22		0.985	0.203	mg/Kg	5		6010B	Total/NA
Copper	7.22		1.97	0.944	mg/Kg	5		6010B	Total/NA
Lead	1.28	J	1.97	0.403	mg/Kg	5		6010B	Total/NA
Nickel	5.90		1.97	0.357	mg/Kg	5		6010B	Total/NA
Vanadium	25.8		0.985	0.166	mg/Kg	5		6010B	Total/NA
Zinc	24.6		4.93	1.14	mg/Kg	5		6010B	Total/NA

Client Sample ID: B-24 @ 5' Lab Sample ID: 570-159800-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C21-C22	3.8	J	4.8	3.7	mg/Kg	1		8015B	Total/NA
C8-C40	16		4.8	3.7	mg/Kg	1		8015B	Total/NA
Barium	92.6		2.96	0.140	mg/Kg	5		6010B	Total/NA
Beryllium	0.185	J	0.493	0.0680	mg/Kg	5		6010B	Total/NA
Chromium	13.9		0.985	0.183	mg/Kg	5		6010B	Total/NA
Cobalt	5.34		0.985	0.203	mg/Kg	5		6010B	Total/NA
Copper	12.5		1.97	0.944	mg/Kg	5		6010B	Total/NA
Lead	1.31	J	1.97	0.403	mg/Kg	5		6010B	Total/NA
Nickel	7.80		1.97	0.357	mg/Kg	5		6010B	Total/NA
Vanadium	33.3		0.985	0.166	mg/Kg	5		6010B	Total/NA
Zinc	36.9		4.93	1.14	mg/Kg	5		6010B	Total/NA

Client Sample ID: B-23 @ 10' Lab Sample ID: 570-159800-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C8-C40	14		5.0	3.8	mg/Kg	1		8015B	Total/NA
Barium	65.5		2.94	0.139	mg/Kg	5		6010B	Total/NA
Beryllium	0.135	J	0.490	0.0676	mg/Kg	5		6010B	Total/NA
Chromium	11.7		0.980	0.182	mg/Kg	5		6010B	Total/NA
Cobalt	4.33		0.980	0.202	mg/Kg	5		6010B	Total/NA
Copper	15.0		1.96	0.939	mg/Kg	5		6010B	Total/NA
Lead	1.45	J	1.96	0.401	mg/Kg	5		6010B	Total/NA
Nickel	6.54		1.96	0.355	mg/Kg	5		6010B	Total/NA
Vanadium	26.3		0.980	0.165	mg/Kg	5		6010B	Total/NA
Zinc	36.0		4.90	1.13	mg/Kg	5		6010B	Total/NA

Client Sample ID: B-21 @ 10' Lab Sample ID: 570-159800-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C19-C20	4.2	J	5.1	3.9	mg/Kg	1		8015B	Total/NA
C21-C22	6.6		5.1	3.9	mg/Kg	1		8015B	Total/NA
C25-C28	5.7		5.1	3.9	mg/Kg	1		8015B	Total/NA
C29-C32	4.1	J	5.1	3.9	mg/Kg	1		8015B	Total/NA
C8-C40	28		5.1	3.9	mg/Kg	1		8015B	Total/NA
Arsenic	3.06		2.93	1.36	mg/Kg	5		6010B	Total/NA
Barium	97.2		2.93	0.139	mg/Kg	5		6010B	Total/NA
Beryllium	0.317	J	0.488	0.0673	mg/Kg	5		6010B	Total/NA
Chromium	17.3		0.976	0.181	mg/Kg	5		6010B	Total/NA
Cobalt	6.60		0.976	0.201	mg/Kg	5		6010B	Total/NA
Copper	12.0		1.95	0.935	mg/Kg	5		6010B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: B-21 @ 10' (Continued)
Lab Sample ID: 570-159800-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	2.74		1.95	0.399	mg/Kg	5		6010B	Total/NA
Nickel	9.73		1.95	0.353	mg/Kg	5		6010B	Total/NA
Vanadium	40.2		0.976	0.164	mg/Kg	5		6010B	Total/NA
Zinc	38.1		4.88	1.13	mg/Kg	5		6010B	Total/NA

Client Sample ID: B-20 @ 5'
Lab Sample ID: 570-159800-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C19-C20 - RA	4.5	J	4.8	3.7	mg/Kg	1		8015B	Total/NA
C21-C22 - RA	5.8		4.8	3.7	mg/Kg	1		8015B	Total/NA
C25-C28 - RA	5.7		4.8	3.7	mg/Kg	1		8015B	Total/NA
C29-C32 - RA	4.6	J	4.8	3.7	mg/Kg	1		8015B	Total/NA
C8-C40 - RA	33		4.8	3.7	mg/Kg	1		8015B	Total/NA
Arsenic	3.35		3.03	1.41	mg/Kg	5		6010B	Total/NA
Barium	78.3		3.03	0.143	mg/Kg	5		6010B	Total/NA
Beryllium	0.265	J	0.505	0.0697	mg/Kg	5		6010B	Total/NA
Chromium	19.6		1.01	0.188	mg/Kg	5		6010B	Total/NA
Cobalt	7.36		1.01	0.208	mg/Kg	5		6010B	Total/NA
Copper	23.9		2.02	0.968	mg/Kg	5		6010B	Total/NA
Lead	3.22		2.02	0.413	mg/Kg	5		6010B	Total/NA
Nickel	12.4		2.02	0.366	mg/Kg	5		6010B	Total/NA
Vanadium	37.2		1.01	0.170	mg/Kg	5		6010B	Total/NA
Zinc	42.8		5.05	1.17	mg/Kg	5		6010B	Total/NA

Client Sample ID: B-19 @ 10'
Lab Sample ID: 570-159800-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C8-C40	15		5.2	4.0	mg/Kg	1		8015B	Total/NA
Arsenic	9.23		3.06	1.42	mg/Kg	5		6010B	Total/NA
Barium	115		3.06	0.145	mg/Kg	5		6010B	Total/NA
Beryllium	0.485	J	0.510	0.0704	mg/Kg	5		6010B	Total/NA
Chromium	32.5		1.02	0.190	mg/Kg	5		6010B	Total/NA
Cobalt	11.9		1.02	0.210	mg/Kg	5		6010B	Total/NA
Copper	34.7		2.04	0.978	mg/Kg	5		6010B	Total/NA
Lead	7.96		2.04	0.417	mg/Kg	5		6010B	Total/NA
Nickel	22.3		2.04	0.369	mg/Kg	5		6010B	Total/NA
Vanadium	53.4		1.02	0.171	mg/Kg	5		6010B	Total/NA
Zinc	67.2		5.10	1.18	mg/Kg	5		6010B	Total/NA

Client Sample ID: B-18 @ 5'
Lab Sample ID: 570-159800-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C19-C20	4.6	J	5.2	4.0	mg/Kg	1		8015B	Total/NA
C21-C22	7.7		5.2	4.0	mg/Kg	1		8015B	Total/NA
C25-C28	6.7		5.2	4.0	mg/Kg	1		8015B	Total/NA
C8-C40	34		5.2	4.0	mg/Kg	1		8015B	Total/NA
Arsenic	2.58	J	3.05	1.41	mg/Kg	5		6010B	Total/NA
Barium	66.2		3.05	0.144	mg/Kg	5		6010B	Total/NA
Beryllium	0.241	J	0.508	0.0701	mg/Kg	5		6010B	Total/NA
Chromium	17.4		1.02	0.189	mg/Kg	5		6010B	Total/NA
Cobalt	6.50		1.02	0.209	mg/Kg	5		6010B	Total/NA

Detection Summary

Client: NOVA Services
Job ID: 570-159800-1
Project/Site: Euclid Ave. Downtown Recycled Water Proj.,UT 1072

Client Sample ID: B-18 @ 5' (Continued) Lab Sample ID: 570-159800-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Copper	30.4		2.03	0.973	mg/Kg	5		6010B	Total/NA
Lead	5.93		2.03	0.415	mg/Kg	5		6010B	Total/NA
Nickel	11.1		2.03	0.368	mg/Kg	5		6010B	Total/NA
Vanadium	32.7		1.02	0.171	mg/Kg	5		6010B	Total/NA
Zinc	45.9		5.08	1.17	mg/Kg	5		6010B	Total/NA

Client Sample ID: B-17 @ 10' Lab Sample ID: 570-159800-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C19-C20	8.6		5.3	4.0	mg/Kg	1		8015B	Total/NA
C21-C22	15		5.3	4.0	mg/Kg	1		8015B	Total/NA
C23-C24	5.1	J	5.3	4.0	mg/Kg	1		8015B	Total/NA
C25-C28	12		5.3	4.0	mg/Kg	1		8015B	Total/NA
C29-C32	9.5		5.3	4.0	mg/Kg	1		8015B	Total/NA
C33-C36	6.1		5.3	4.0	mg/Kg	1		8015B	Total/NA
C8-C40	61		5.3	4.0	mg/Kg	1		8015B	Total/NA
Arsenic	3.92		2.96	1.37	mg/Kg	5		6010B	Total/NA
Barium	94.8		2.96	0.140	mg/Kg	5		6010B	Total/NA
Beryllium	0.505		0.493	0.0680	mg/Kg	5		6010B	Total/NA
Chromium	35.2		0.985	0.183	mg/Kg	5		6010B	Total/NA
Cobalt	11.9		0.985	0.203	mg/Kg	5		6010B	Total/NA
Copper	26.6		1.97	0.944	mg/Kg	5		6010B	Total/NA
Lead	9.98		1.97	0.403	mg/Kg	5		6010B	Total/NA
Nickel	23.5		1.97	0.357	mg/Kg	5		6010B	Total/NA
Vanadium	50.5		0.985	0.166	mg/Kg	5		6010B	Total/NA
Zinc	67.0		4.93	1.14	mg/Kg	5		6010B	Total/NA
Mercury	0.0330	J	0.0850	0.0327	mg/Kg	1		7471A	Total/NA

Client Sample ID: B-16 @ 5' Lab Sample ID: 570-159800-21

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C21-C22	5.9		5.2	4.0	mg/Kg	1		8015B	Total/NA
C25-C28	5.0	J	5.2	4.0	mg/Kg	1		8015B	Total/NA
C8-C40	24		5.2	4.0	mg/Kg	1		8015B	Total/NA
Arsenic	3.86		3.00	1.39	mg/Kg	5		6010B	Total/NA
Barium	47.7		3.00	0.142	mg/Kg	5		6010B	Total/NA
Beryllium	0.300	J	0.500	0.0690	mg/Kg	5		6010B	Total/NA
Chromium	20.5		1.00	0.186	mg/Kg	5		6010B	Total/NA
Cobalt	7.89		1.00	0.206	mg/Kg	5		6010B	Total/NA
Copper	16.1		2.00	0.958	mg/Kg	5		6010B	Total/NA
Lead	3.98		2.00	0.409	mg/Kg	5		6010B	Total/NA
Nickel	13.7		2.00	0.362	mg/Kg	5		6010B	Total/NA
Vanadium	36.7		1.00	0.168	mg/Kg	5		6010B	Total/NA
Zinc	42.5		5.00	1.16	mg/Kg	5		6010B	Total/NA

Client Sample ID: B-15 @ 10' Lab Sample ID: 570-159800-22

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C8-C40	13		5.2	4.0	mg/Kg	1		8015B	Total/NA
Arsenic	4.20		3.02	1.40	mg/Kg	5		6010B	Total/NA
Barium	81.9		3.02	0.143	mg/Kg	5		6010B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: B-15 @ 10' (Continued) Lab Sample ID: 570-159800-22

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Beryllium	0.377	J	0.503	0.0693	mg/Kg	5		6010B	Total/NA
Chromium	26.8		1.01	0.187	mg/Kg	5		6010B	Total/NA
Cobalt	8.32		1.01	0.207	mg/Kg	5		6010B	Total/NA
Copper	19.6		2.01	0.963	mg/Kg	5		6010B	Total/NA
Lead	5.39		2.01	0.411	mg/Kg	5		6010B	Total/NA
Nickel	15.4		2.01	0.364	mg/Kg	5		6010B	Total/NA
Vanadium	39.7		1.01	0.169	mg/Kg	5		6010B	Total/NA
Zinc	47.3		5.03	1.16	mg/Kg	5		6010B	Total/NA

Client Sample ID: B-22 @ 5' Lab Sample ID: 570-159800-23

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
C21-C22	5.1		4.9	3.7	mg/Kg	1		8015B	Total/NA
C25-C28	9.3		4.9	3.7	mg/Kg	1		8015B	Total/NA
C29-C32	13		4.9	3.7	mg/Kg	1		8015B	Total/NA
C33-C36	9.7		4.9	3.7	mg/Kg	1		8015B	Total/NA
C37-C40	4.9		4.9	3.7	mg/Kg	1		8015B	Total/NA
C8-C40	52		4.9	3.7	mg/Kg	1		8015B	Total/NA
Arsenic	3.82		3.05	1.41	mg/Kg	5		6010B	Total/NA
Barium	109		3.05	0.144	mg/Kg	5		6010B	Total/NA
Beryllium	0.343	J	0.508	0.0701	mg/Kg	5		6010B	Total/NA
Chromium	22.8		1.02	0.189	mg/Kg	5		6010B	Total/NA
Cobalt	10.2		1.02	0.209	mg/Kg	5		6010B	Total/NA
Copper	20.5		2.03	0.973	mg/Kg	5		6010B	Total/NA
Lead	4.51		2.03	0.415	mg/Kg	5		6010B	Total/NA
Nickel	14.6		2.03	0.368	mg/Kg	5		6010B	Total/NA
Vanadium	44.3		1.02	0.171	mg/Kg	5		6010B	Total/NA
Zinc	46.9		5.08	1.17	mg/Kg	5		6010B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Method: SW846 8015B - Diesel Range Organics (DRO) (GC)

Client Sample ID: B-14 @ 5'
Date Collected: 10/25/23 11:11
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-1
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		4.9	3.8	mg/Kg		11/08/23 18:20	11/11/23 23:22	1
C9-C10	ND		4.9	3.8	mg/Kg		11/08/23 18:20	11/11/23 23:22	1
C11-C12	ND		4.9	3.8	mg/Kg		11/08/23 18:20	11/11/23 23:22	1
C13-C14	ND		4.9	3.8	mg/Kg		11/08/23 18:20	11/11/23 23:22	1
C15-C16	ND		4.9	3.8	mg/Kg		11/08/23 18:20	11/11/23 23:22	1
C17-C18	ND		4.9	3.8	mg/Kg		11/08/23 18:20	11/11/23 23:22	1
C19-C20	ND		4.9	3.8	mg/Kg		11/08/23 18:20	11/11/23 23:22	1
C21-C22	ND		4.9	3.8	mg/Kg		11/08/23 18:20	11/11/23 23:22	1
C23-C24	ND		4.9	3.8	mg/Kg		11/08/23 18:20	11/11/23 23:22	1
C25-C28	ND		4.9	3.8	mg/Kg		11/08/23 18:20	11/11/23 23:22	1
C29-C32	ND		4.9	3.8	mg/Kg		11/08/23 18:20	11/11/23 23:22	1
C33-C36	ND		4.9	3.8	mg/Kg		11/08/23 18:20	11/11/23 23:22	1
C37-C40	ND		4.9	3.8	mg/Kg		11/08/23 18:20	11/11/23 23:22	1
C8-C40	**18**		4.9	3.8	mg/Kg		11/08/23 18:20	11/11/23 23:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*127*		*60 - 138*	*11/08/23 18:20*	*11/11/23 23:22*	*1*

Client Sample ID: B-13 @ 10'
Date Collected: 10/25/23 12:49
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-2
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		5.0	3.8	mg/Kg		11/08/23 18:20	11/11/23 23:43	1
C9-C10	ND		5.0	3.8	mg/Kg		11/08/23 18:20	11/11/23 23:43	1
C11-C12	ND		5.0	3.8	mg/Kg		11/08/23 18:20	11/11/23 23:43	1
C13-C14	ND		5.0	3.8	mg/Kg		11/08/23 18:20	11/11/23 23:43	1
C15-C16	ND		5.0	3.8	mg/Kg		11/08/23 18:20	11/11/23 23:43	1
C17-C18	ND		5.0	3.8	mg/Kg		11/08/23 18:20	11/11/23 23:43	1
C19-C20	ND		5.0	3.8	mg/Kg		11/08/23 18:20	11/11/23 23:43	1
C21-C22	ND		5.0	3.8	mg/Kg		11/08/23 18:20	11/11/23 23:43	1
C23-C24	ND		5.0	3.8	mg/Kg		11/08/23 18:20	11/11/23 23:43	1
C25-C28	ND		5.0	3.8	mg/Kg		11/08/23 18:20	11/11/23 23:43	1
C29-C32	ND		5.0	3.8	mg/Kg		11/08/23 18:20	11/11/23 23:43	1
C33-C36	ND		5.0	3.8	mg/Kg		11/08/23 18:20	11/11/23 23:43	1
C37-C40	ND		5.0	3.8	mg/Kg		11/08/23 18:20	11/11/23 23:43	1
C8-C40	**4.6**	**J**	5.0	3.8	mg/Kg		11/08/23 18:20	11/11/23 23:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*129*		*60 - 138*	*11/08/23 18:20*	*11/11/23 23:43*	*1*

Client Sample ID: B-11 @ 10'
Date Collected: 10/25/23 15:15
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-3
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		5.2	4.0	mg/Kg		11/08/23 18:20	11/12/23 00:05	1
C9-C10	ND		5.2	4.0	mg/Kg		11/08/23 18:20	11/12/23 00:05	1
C11-C12	ND		5.2	4.0	mg/Kg		11/08/23 18:20	11/12/23 00:05	1
C13-C14	ND		5.2	4.0	mg/Kg		11/08/23 18:20	11/12/23 00:05	1
C15-C16	ND		5.2	4.0	mg/Kg		11/08/23 18:20	11/12/23 00:05	1

Method: SW846 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Client Sample ID: B-11 @ 10'
Lab Sample ID: 570-159800-3
Date Collected: 10/25/23 15:15
Matrix: Solid
Date Received: 11/07/23 18:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C17-C18	ND		5.2	4.0	mg/Kg		11/08/23 18:20	11/12/23 00:05	1
C19-C20	ND		5.2	4.0	mg/Kg		11/08/23 18:20	11/12/23 00:05	1
C21-C22	ND		5.2	4.0	mg/Kg		11/08/23 18:20	11/12/23 00:05	1
C23-C24	ND		5.2	4.0	mg/Kg		11/08/23 18:20	11/12/23 00:05	1
C25-C28	ND		5.2	4.0	mg/Kg		11/08/23 18:20	11/12/23 00:05	1
C29-C32	ND		5.2	4.0	mg/Kg		11/08/23 18:20	11/12/23 00:05	1
C33-C36	ND		5.2	4.0	mg/Kg		11/08/23 18:20	11/12/23 00:05	1
C37-C40	ND		5.2	4.0	mg/Kg		11/08/23 18:20	11/12/23 00:05	1
C8-C40	ND		5.2	4.0	mg/Kg		11/08/23 18:20	11/12/23 00:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*123*		*60 - 138*	*11/08/23 18:20*	*11/12/23 00:05*	*1*

Client Sample ID: B-12 @ 5'
Lab Sample ID: 570-159800-4
Date Collected: 10/26/23 09:04
Matrix: Solid
Date Received: 11/07/23 18:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 00:12	1
C9-C10	ND		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 00:12	1
C11-C12	ND		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 00:12	1
C13-C14	ND		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 00:12	1
C15-C16	ND		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 00:12	1
C17-C18	ND		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 00:12	1
C19-C20	ND		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 00:12	1
C21-C22	ND		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 00:12	1
C23-C24	ND		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 00:12	1
C25-C28	**4.7**	**J**	5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 00:12	1
C29-C32	ND		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 00:12	1
C33-C36	ND		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 00:12	1
C37-C40	ND		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 00:12	1
C8-C40	**20**		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 00:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*107*		*60 - 138*	*11/08/23 18:28*	*11/22/23 00:12*	*1*

Client Sample ID: B-7 @ 10'
Lab Sample ID: 570-159800-5
Date Collected: 10/26/23 10:30
Matrix: Solid
Date Received: 11/07/23 18:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 00:33	1
C9-C10	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 00:33	1
C11-C12	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 00:33	1
C13-C14	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 00:33	1
C15-C16	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 00:33	1
C17-C18	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 00:33	1
C19-C20	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 00:33	1
C21-C22	**5.5**		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 00:33	1
C23-C24	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 00:33	1
C25-C28	**5.2**		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 00:33	1

Method: SW846 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Client Sample ID: B-7 @ 10'
Lab Sample ID: 570-159800-5
Date Collected: 10/26/23 10:30
Matrix: Solid
Date Received: 11/07/23 18:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C29-C32	**4.3**	**J**	5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 00:33	1
C33-C36	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 00:33	1
C37-C40	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 00:33	1
C8-C40	**26**		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 00:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*109*		*60 - 138*	*11/08/23 18:28*	*11/22/23 00:33*	*1*

Client Sample ID: B-10 @ 5'
Lab Sample ID: 570-159800-6
Date Collected: 10/26/23 11:45
Matrix: Solid
Date Received: 11/07/23 18:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		4.9	3.8	mg/Kg		11/08/23 18:28	11/22/23 00:55	1
C9-C10	ND		4.9	3.8	mg/Kg		11/08/23 18:28	11/22/23 00:55	1
C11-C12	ND		4.9	3.8	mg/Kg		11/08/23 18:28	11/22/23 00:55	1
C13-C14	ND		4.9	3.8	mg/Kg		11/08/23 18:28	11/22/23 00:55	1
C15-C16	ND		4.9	3.8	mg/Kg		11/08/23 18:28	11/22/23 00:55	1
C17-C18	ND		4.9	3.8	mg/Kg		11/08/23 18:28	11/22/23 00:55	1
C19-C20	ND		4.9	3.8	mg/Kg		11/08/23 18:28	11/22/23 00:55	1
C21-C22	**4.9**		4.9	3.8	mg/Kg		11/08/23 18:28	11/22/23 00:55	1
C23-C24	ND		4.9	3.8	mg/Kg		11/08/23 18:28	11/22/23 00:55	1
C25-C28	**4.7**	**J**	4.9	3.8	mg/Kg		11/08/23 18:28	11/22/23 00:55	1
C29-C32	ND		4.9	3.8	mg/Kg		11/08/23 18:28	11/22/23 00:55	1
C33-C36	ND		4.9	3.8	mg/Kg		11/08/23 18:28	11/22/23 00:55	1
C37-C40	ND		4.9	3.8	mg/Kg		11/08/23 18:28	11/22/23 00:55	1
C8-C40	**21**		4.9	3.8	mg/Kg		11/08/23 18:28	11/22/23 00:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*107*		*60 - 138*	*11/08/23 18:28*	*11/22/23 00:55*	*1*

Client Sample ID: B-9 @ 10'
Lab Sample ID: 570-159800-7
Date Collected: 10/26/23 14:25
Matrix: Solid
Date Received: 11/07/23 18:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		5.1	3.9	mg/Kg		11/08/23 18:28	11/22/23 01:16	1
C9-C10	ND		5.1	3.9	mg/Kg		11/08/23 18:28	11/22/23 01:16	1
C11-C12	ND		5.1	3.9	mg/Kg		11/08/23 18:28	11/22/23 01:16	1
C13-C14	ND		5.1	3.9	mg/Kg		11/08/23 18:28	11/22/23 01:16	1
C15-C16	ND		5.1	3.9	mg/Kg		11/08/23 18:28	11/22/23 01:16	1
C17-C18	ND		5.1	3.9	mg/Kg		11/08/23 18:28	11/22/23 01:16	1
C19-C20	ND		5.1	3.9	mg/Kg		11/08/23 18:28	11/22/23 01:16	1
C21-C22	**5.3**		5.1	3.9	mg/Kg		11/08/23 18:28	11/22/23 01:16	1
C23-C24	ND		5.1	3.9	mg/Kg		11/08/23 18:28	11/22/23 01:16	1
C25-C28	**4.5**	**J**	5.1	3.9	mg/Kg		11/08/23 18:28	11/22/23 01:16	1
C29-C32	ND		5.1	3.9	mg/Kg		11/08/23 18:28	11/22/23 01:16	1
C33-C36	ND		5.1	3.9	mg/Kg		11/08/23 18:28	11/22/23 01:16	1
C37-C40	ND		5.1	3.9	mg/Kg		11/08/23 18:28	11/22/23 01:16	1
C8-C40	**22**		5.1	3.9	mg/Kg		11/08/23 18:28	11/22/23 01:16	1

Method: SW846 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*104*		*60 - 138*	*11/08/23 18:28*	*11/22/23 01:16*	*1*

Client Sample ID: B-30 @ 5'
Date Collected: 10/27/23 08:35
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-8
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 01:38	1
C9-C10	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 01:38	1
C11-C12	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 01:38	1
C13-C14	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 01:38	1
C15-C16	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 01:38	1
C17-C18	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 01:38	1
C19-C20	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 01:38	1
C21-C22	**4.2**	**J**	5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 01:38	1
C23-C24	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 01:38	1
C25-C28	**4.1**	**J**	5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 01:38	1
C29-C32	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 01:38	1
C33-C36	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 01:38	1
C37-C40	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 01:38	1
C8-C40	**17**		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 01:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*106*		*60 - 138*	*11/08/23 18:28*	*11/22/23 01:38*	*1*

Client Sample ID: B-28 @ 10'
Date Collected: 10/27/23 10:10
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-9
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 02:00	1
C9-C10	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 02:00	1
C11-C12	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 02:00	1
C13-C14	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 02:00	1
C15-C16	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 02:00	1
C17-C18	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 02:00	1
C19-C20	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 02:00	1
C21-C22	**6.0**		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 02:00	1
C23-C24	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 02:00	1
C25-C28	**6.1**		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 02:00	1
C29-C32	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 02:00	1
C33-C36	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 02:00	1
C37-C40	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 02:00	1
C8-C40	**29**		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 02:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*107*		*60 - 138*	*11/08/23 18:28*	*11/22/23 02:00*	*1*

Client Sample ID: B-29 @ 10'
Date Collected: 10/27/23 11:22
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-10
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/22/23 02:21	1
C9-C10	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/22/23 02:21	1

Method: SW846 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Client Sample ID: B-29 @ 10'
Lab Sample ID: 570-159800-10
Date Collected: 10/27/23 11:22
Matrix: Solid
Date Received: 11/07/23 18:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C11-C12	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/22/23 02:21	1
C13-C14	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/22/23 02:21	1
C15-C16	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/22/23 02:21	1
C17-C18	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/22/23 02:21	1
C19-C20	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/22/23 02:21	1
C21-C22	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/22/23 02:21	1
C23-C24	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/22/23 02:21	1
C25-C28	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/22/23 02:21	1
C29-C32	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/22/23 02:21	1
C33-C36	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/22/23 02:21	1
C37-C40	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/22/23 02:21	1
C8-C40	**6.1**		4.8	3.7	mg/Kg		11/08/23 18:28	11/22/23 02:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*102*		*60 - 138*	*11/08/23 18:28*	*11/22/23 02:21*	*1*

Client Sample ID: B-27 @ 5'
Lab Sample ID: 570-159800-11
Date Collected: 10/27/23 12:36
Matrix: Solid
Date Received: 11/07/23 18:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 02:43	1
C9-C10	ND		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 02:43	1
C11-C12	ND		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 02:43	1
C13-C14	ND		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 02:43	1
C15-C16	ND		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 02:43	1
C17-C18	ND		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 02:43	1
C19-C20	**5.9**		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 02:43	1
C21-C22	**9.5**		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 02:43	1
C23-C24	**4.1**	**J**	5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 02:43	1
C25-C28	**12**		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 02:43	1
C29-C32	**14**		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 02:43	1
C33-C36	**10**		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 02:43	1
C37-C40	**5.0**	**J**	5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 02:43	1
C8-C40	**64**		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 02:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*103*		*60 - 138*	*11/08/23 18:28*	*11/22/23 02:43*	*1*

Client Sample ID: B-26 @ 5'
Lab Sample ID: 570-159800-12
Date Collected: 10/27/23 14:52
Matrix: Solid
Date Received: 11/07/23 18:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 03:04	1
C9-C10	ND		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 03:04	1
C11-C12	ND		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 03:04	1
C13-C14	ND		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 03:04	1
C15-C16	ND		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 03:04	1
C17-C18	ND		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 03:04	1
C19-C20	ND		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 03:04	1

Method: SW846 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Client Sample ID: B-26 @ 5'

Lab Sample ID: 570-159800-12

Date Collected: 10/27/23 14:52

Matrix: Solid

Date Received: 11/07/23 18:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C21-C22	ND		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 03:04	1
C23-C24	ND		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 03:04	1
C25-C28	ND		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 03:04	1
C29-C32	ND		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 03:04	1
C33-C36	ND		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 03:04	1
C37-C40	ND		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 03:04	1
C8-C40	**12**		5.1	4.0	mg/Kg		11/08/23 18:28	11/22/23 03:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*109*		*60 - 138*	*11/08/23 18:28*	*11/22/23 03:04*	*1*

Client Sample ID: B-25 @ 10'

Lab Sample ID: 570-159800-13

Date Collected: 11/01/23 07:57

Matrix: Solid

Date Received: 11/07/23 18:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		4.9	3.8	mg/Kg		11/08/23 18:28	11/22/23 03:26	1
C9-C10	ND		4.9	3.8	mg/Kg		11/08/23 18:28	11/22/23 03:26	1
C11-C12	ND		4.9	3.8	mg/Kg		11/08/23 18:28	11/22/23 03:26	1
C13-C14	ND		4.9	3.8	mg/Kg		11/08/23 18:28	11/22/23 03:26	1
C15-C16	ND		4.9	3.8	mg/Kg		11/08/23 18:28	11/22/23 03:26	1
C17-C18	ND		4.9	3.8	mg/Kg		11/08/23 18:28	11/22/23 03:26	1
C19-C20	**4.4**	**J**	4.9	3.8	mg/Kg		11/08/23 18:28	11/22/23 03:26	1
C21-C22	**7.3**		4.9	3.8	mg/Kg		11/08/23 18:28	11/22/23 03:26	1
C23-C24	ND		4.9	3.8	mg/Kg		11/08/23 18:28	11/22/23 03:26	1
C25-C28	**6.9**		4.9	3.8	mg/Kg		11/08/23 18:28	11/22/23 03:26	1
C29-C32	**5.7**		4.9	3.8	mg/Kg		11/08/23 18:28	11/22/23 03:26	1
C33-C36	ND		4.9	3.8	mg/Kg		11/08/23 18:28	11/22/23 03:26	1
C37-C40	ND		4.9	3.8	mg/Kg		11/08/23 18:28	11/22/23 03:26	1
C8-C40	**33**		4.9	3.8	mg/Kg		11/08/23 18:28	11/22/23 03:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*107*		*60 - 138*	*11/08/23 18:28*	*11/22/23 03:26*	*1*

Client Sample ID: B-24 @ 5'

Lab Sample ID: 570-159800-14

Date Collected: 11/01/23 08:35

Matrix: Solid

Date Received: 11/07/23 18:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/22/23 03:48	1
C9-C10	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/22/23 03:48	1
C11-C12	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/22/23 03:48	1
C13-C14	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/22/23 03:48	1
C15-C16	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/22/23 03:48	1
C17-C18	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/22/23 03:48	1
C19-C20	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/22/23 03:48	1
C21-C22	**3.8**	**J**	4.8	3.7	mg/Kg		11/08/23 18:28	11/22/23 03:48	1
C23-C24	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/22/23 03:48	1
C25-C28	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/22/23 03:48	1
C29-C32	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/22/23 03:48	1
C33-C36	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/22/23 03:48	1

Client Sample Results

Method: SW846 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Client Sample ID: B-24 @ 5'
Date Collected: 11/01/23 08:35
Date Received: 11/07/23 18:50
Lab Sample ID: 570-159800-14
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C37-C40	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/22/23 03:48	1
C8-C40	**16**		4.8	3.7	mg/Kg		11/08/23 18:28	11/22/23 03:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*89*		*60 - 138*	*11/08/23 18:28*	*11/22/23 03:48*	*1*

Client Sample ID: B-23 @ 10'
Date Collected: 11/01/23 09:37
Date Received: 11/07/23 18:50
Lab Sample ID: 570-159800-15
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		5.0	3.8	mg/Kg		11/08/23 18:28	11/22/23 04:09	1
C9-C10	ND		5.0	3.8	mg/Kg		11/08/23 18:28	11/22/23 04:09	1
C11-C12	ND		5.0	3.8	mg/Kg		11/08/23 18:28	11/22/23 04:09	1
C13-C14	ND		5.0	3.8	mg/Kg		11/08/23 18:28	11/22/23 04:09	1
C15-C16	ND		5.0	3.8	mg/Kg		11/08/23 18:28	11/22/23 04:09	1
C17-C18	ND		5.0	3.8	mg/Kg		11/08/23 18:28	11/22/23 04:09	1
C19-C20	ND		5.0	3.8	mg/Kg		11/08/23 18:28	11/22/23 04:09	1
C21-C22	ND		5.0	3.8	mg/Kg		11/08/23 18:28	11/22/23 04:09	1
C23-C24	ND		5.0	3.8	mg/Kg		11/08/23 18:28	11/22/23 04:09	1
C25-C28	ND		5.0	3.8	mg/Kg		11/08/23 18:28	11/22/23 04:09	1
C29-C32	ND		5.0	3.8	mg/Kg		11/08/23 18:28	11/22/23 04:09	1
C33-C36	ND		5.0	3.8	mg/Kg		11/08/23 18:28	11/22/23 04:09	1
C37-C40	ND		5.0	3.8	mg/Kg		11/08/23 18:28	11/22/23 04:09	1
C8-C40	**14**		5.0	3.8	mg/Kg		11/08/23 18:28	11/22/23 04:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*103*		*60 - 138*	*11/08/23 18:28*	*11/22/23 04:09*	*1*

Client Sample ID: B-21 @ 10'
Date Collected: 11/01/23 11:23
Date Received: 11/07/23 18:50
Lab Sample ID: 570-159800-16
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		5.1	3.9	mg/Kg		11/08/23 18:28	11/22/23 04:31	1
C9-C10	ND		5.1	3.9	mg/Kg		11/08/23 18:28	11/22/23 04:31	1
C11-C12	ND		5.1	3.9	mg/Kg		11/08/23 18:28	11/22/23 04:31	1
C13-C14	ND		5.1	3.9	mg/Kg		11/08/23 18:28	11/22/23 04:31	1
C15-C16	ND		5.1	3.9	mg/Kg		11/08/23 18:28	11/22/23 04:31	1
C17-C18	ND		5.1	3.9	mg/Kg		11/08/23 18:28	11/22/23 04:31	1
C19-C20	**4.2**	**J**	5.1	3.9	mg/Kg		11/08/23 18:28	11/22/23 04:31	1
C21-C22	**6.6**		5.1	3.9	mg/Kg		11/08/23 18:28	11/22/23 04:31	1
C23-C24	ND		5.1	3.9	mg/Kg		11/08/23 18:28	11/22/23 04:31	1
C25-C28	**5.7**		5.1	3.9	mg/Kg		11/08/23 18:28	11/22/23 04:31	1
C29-C32	**4.1**	**J**	5.1	3.9	mg/Kg		11/08/23 18:28	11/22/23 04:31	1
C33-C36	ND		5.1	3.9	mg/Kg		11/08/23 18:28	11/22/23 04:31	1
C37-C40	ND		5.1	3.9	mg/Kg		11/08/23 18:28	11/22/23 04:31	1
C8-C40	**28**		5.1	3.9	mg/Kg		11/08/23 18:28	11/22/23 04:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*107*		*60 - 138*	*11/08/23 18:28*	*11/22/23 04:31*	*1*

Client Sample Results

Client: NOVA Services
Project/Site: Euclid Ave. Downtown Recycled Water Proj.,UT 1072

Job ID: 570-159800-1

Method: SW846 8015B - Diesel Range Organics (DRO) (GC)

Client Sample ID: B-19 @ 10'
Date Collected: 11/01/23 14:32
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-18
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 05:15	1
C9-C10	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 05:15	1
C11-C12	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 05:15	1
C13-C14	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 05:15	1
C15-C16	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 05:15	1
C17-C18	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 05:15	1
C19-C20	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 05:15	1
C21-C22	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 05:15	1
C23-C24	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 05:15	1
C25-C28	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 05:15	1
C29-C32	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 05:15	1
C33-C36	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 05:15	1
C37-C40	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 05:15	1
C8-C40	**15**		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 05:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*105*		*60 - 138*	*11/08/23 18:28*	*11/22/23 05:15*	*1*

Client Sample ID: B-18 @ 5'
Date Collected: 11/02/23 07:51
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-19
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 06:20	1
C9-C10	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 06:20	1
C11-C12	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 06:20	1
C13-C14	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 06:20	1
C15-C16	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 06:20	1
C17-C18	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 06:20	1
C19-C20	**4.6**	**J**	5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 06:20	1
C21-C22	**7.7**		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 06:20	1
C23-C24	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 06:20	1
C25-C28	**6.7**		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 06:20	1
C29-C32	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 06:20	1
C33-C36	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 06:20	1
C37-C40	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 06:20	1
C8-C40	**34**		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 06:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*61*		*60 - 138*	*11/08/23 18:28*	*11/22/23 06:20*	*1*

Client Sample ID: B-17 @ 10'
Date Collected: 11/02/23 08:41
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-20
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		5.3	4.0	mg/Kg		11/08/23 18:28	11/22/23 06:42	1
C9-C10	ND		5.3	4.0	mg/Kg		11/08/23 18:28	11/22/23 06:42	1
C11-C12	ND		5.3	4.0	mg/Kg		11/08/23 18:28	11/22/23 06:42	1
C13-C14	ND		5.3	4.0	mg/Kg		11/08/23 18:28	11/22/23 06:42	1
C15-C16	ND		5.3	4.0	mg/Kg		11/08/23 18:28	11/22/23 06:42	1

Client Sample Results

Client: NOVA Services
Job ID: 570-159800-1
Project/Site: Euclid Ave. Downtown Recycled Water Proj.,UT
1072

Method: SW846 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Client Sample ID: B-17 @ 10'
Lab Sample ID: 570-159800-20
Date Collected: 11/02/23 08:41
Matrix: Solid
Date Received: 11/07/23 18:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C17-C18	ND		5.3	4.0	mg/Kg		11/08/23 18:28	11/22/23 06:42	1
C19-C20	**8.6**		5.3	4.0	mg/Kg		11/08/23 18:28	11/22/23 06:42	1
C21-C22	**15**		5.3	4.0	mg/Kg		11/08/23 18:28	11/22/23 06:42	1
C23-C24	**5.1**	**J**	5.3	4.0	mg/Kg		11/08/23 18:28	11/22/23 06:42	1
C25-C28	**12**		5.3	4.0	mg/Kg		11/08/23 18:28	11/22/23 06:42	1
C29-C32	**9.5**		5.3	4.0	mg/Kg		11/08/23 18:28	11/22/23 06:42	1
C33-C36	**6.1**		5.3	4.0	mg/Kg		11/08/23 18:28	11/22/23 06:42	1
C37-C40	ND		5.3	4.0	mg/Kg		11/08/23 18:28	11/22/23 06:42	1
C8-C40	**61**		5.3	4.0	mg/Kg		11/08/23 18:28	11/22/23 06:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*106*		*60 - 138*	*11/08/23 18:28*	*11/22/23 06:42*	*1*

Client Sample ID: B-16 @ 5'
Lab Sample ID: 570-159800-21
Date Collected: 11/02/23 09:27
Matrix: Solid
Date Received: 11/07/23 18:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 07:04	1
C9-C10	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 07:04	1
C11-C12	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 07:04	1
C13-C14	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 07:04	1
C15-C16	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 07:04	1
C17-C18	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 07:04	1
C19-C20	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 07:04	1
C21-C22	**5.9**		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 07:04	1
C23-C24	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 07:04	1
C25-C28	**5.0**	**J**	5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 07:04	1
C29-C32	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 07:04	1
C33-C36	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 07:04	1
C37-C40	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 07:04	1
C8-C40	**24**		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 07:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*102*		*60 - 138*	*11/08/23 18:28*	*11/22/23 07:04*	*1*

Client Sample ID: B-15 @ 10'
Lab Sample ID: 570-159800-22
Date Collected: 11/02/23 10:20
Matrix: Solid
Date Received: 11/07/23 18:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 07:25	1
C9-C10	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 07:25	1
C11-C12	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 07:25	1
C13-C14	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 07:25	1
C15-C16	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 07:25	1
C17-C18	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 07:25	1
C19-C20	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 07:25	1
C21-C22	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 07:25	1
C23-C24	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 07:25	1
C25-C28	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 07:25	1

Method: SW846 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Client Sample ID: B-15 @ 10'
Lab Sample ID: 570-159800-22
Date Collected: 11/02/23 10:20
Matrix: Solid
Date Received: 11/07/23 18:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C29-C32	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 07:25	1
C33-C36	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 07:25	1
C37-C40	ND		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 07:25	1
C8-C40	**13**		5.2	4.0	mg/Kg		11/08/23 18:28	11/22/23 07:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*110*		*60 - 138*	*11/08/23 18:28*	*11/22/23 07:25*	*1*

Client Sample ID: B-22 @ 5'
Lab Sample ID: 570-159800-23
Date Collected: 11/02/23 12:52
Matrix: Solid
Date Received: 11/07/23 18:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		4.9	3.7	mg/Kg		11/08/23 18:28	11/22/23 07:47	1
C9-C10	ND		4.9	3.7	mg/Kg		11/08/23 18:28	11/22/23 07:47	1
C11-C12	ND		4.9	3.7	mg/Kg		11/08/23 18:28	11/22/23 07:47	1
C13-C14	ND		4.9	3.7	mg/Kg		11/08/23 18:28	11/22/23 07:47	1
C15-C16	ND		4.9	3.7	mg/Kg		11/08/23 18:28	11/22/23 07:47	1
C17-C18	ND		4.9	3.7	mg/Kg		11/08/23 18:28	11/22/23 07:47	1
C19-C20	ND		4.9	3.7	mg/Kg		11/08/23 18:28	11/22/23 07:47	1
C21-C22	**5.1**		4.9	3.7	mg/Kg		11/08/23 18:28	11/22/23 07:47	1
C23-C24	ND		4.9	3.7	mg/Kg		11/08/23 18:28	11/22/23 07:47	1
C25-C28	**9.3**		4.9	3.7	mg/Kg		11/08/23 18:28	11/22/23 07:47	1
C29-C32	**13**		4.9	3.7	mg/Kg		11/08/23 18:28	11/22/23 07:47	1
C33-C36	**9.7**		4.9	3.7	mg/Kg		11/08/23 18:28	11/22/23 07:47	1
C37-C40	**4.9**		4.9	3.7	mg/Kg		11/08/23 18:28	11/22/23 07:47	1
C8-C40	**52**		4.9	3.7	mg/Kg		11/08/23 18:28	11/22/23 07:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*105*		*60 - 138*	*11/08/23 18:28*	*11/22/23 07:47*	*1*

Client Sample Results

Client: NOVA Services
Job ID: 570-159800-1
Project/Site: Euclid Ave. Downtown Recycled Water Proj.,UT 1072

Method: SW846 8015B - Diesel Range Organics (DRO) (GC) - RA

Client Sample ID: B-20 @ 5'
Lab Sample ID: 570-159800-17
Date Collected: 11/01/23 12:27
Matrix: Solid
Date Received: 11/07/23 18:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/28/23 13:14	1
C9-C10	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/28/23 13:14	1
C11-C12	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/28/23 13:14	1
C13-C14	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/28/23 13:14	1
C15-C16	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/28/23 13:14	1
C17-C18	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/28/23 13:14	1
C19-C20	**4.5**	**J**	4.8	3.7	mg/Kg		11/08/23 18:28	11/28/23 13:14	1
C21-C22	**5.8**		4.8	3.7	mg/Kg		11/08/23 18:28	11/28/23 13:14	1
C23-C24	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/28/23 13:14	1
C25-C28	**5.7**		4.8	3.7	mg/Kg		11/08/23 18:28	11/28/23 13:14	1
C29-C32	**4.6**	**J**	4.8	3.7	mg/Kg		11/08/23 18:28	11/28/23 13:14	1
C33-C36	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/28/23 13:14	1
C37-C40	ND		4.8	3.7	mg/Kg		11/08/23 18:28	11/28/23 13:14	1
C8-C40	**33**		4.8	3.7	mg/Kg		11/08/23 18:28	11/28/23 13:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*57*	*S1-*	*60 - 138*	*11/08/23 18:28*	*11/28/23 13:14*	*1*

Client Sample Results

Client: NOVA Services
Job ID: 570-159800-1
Project/Site: Euclid Ave. Downtown Recycled Water Proj.,UT 1072

Method: SW846 6010B - Metals (ICP)

Client Sample ID: B-14 @ 5'
Lab Sample ID: 570-159800-1
Date Collected: 10/25/23 11:11
Matrix: Solid
Date Received: 11/07/23 18:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		10.0	2.86	mg/Kg		11/10/23 06:55	11/11/23 23:34	5
Arsenic	**2.74**	**J**	3.00	1.39	mg/Kg		11/10/23 06:55	11/11/23 23:34	5
Barium	**35.3**		3.00	0.142	mg/Kg		11/10/23 06:55	11/11/23 23:34	5
Beryllium	**0.213**	**J**	0.500	0.0690	mg/Kg		11/10/23 06:55	11/11/23 23:34	5
Cadmium	ND		0.500	0.164	mg/Kg		11/10/23 06:55	11/11/23 23:34	5
Chromium	**13.4**		1.00	0.186	mg/Kg		11/10/23 06:55	11/11/23 23:34	5
Cobalt	**6.24**		1.00	0.206	mg/Kg		11/10/23 06:55	11/11/23 23:34	5
Copper	**16.5**		2.00	0.958	mg/Kg		11/10/23 06:55	11/11/23 23:34	5
Lead	**3.25**		2.00	0.409	mg/Kg		11/10/23 06:55	11/11/23 23:34	5
Molybdenum	ND		2.00	0.515	mg/Kg		11/10/23 06:55	11/11/23 23:34	5
Nickel	**9.76**		2.00	0.362	mg/Kg		11/10/23 06:55	11/11/23 23:34	5
Selenium	ND		3.00	1.22	mg/Kg		11/10/23 06:55	11/11/23 23:34	5
Silver	ND		1.50	0.144	mg/Kg		11/10/23 06:55	11/11/23 23:34	5
Thallium	ND		10.0	2.11	mg/Kg		11/10/23 06:55	11/11/23 23:34	5
Vanadium	**25.9**		1.00	0.168	mg/Kg		11/10/23 06:55	11/11/23 23:34	5
Zinc	**31.9**		5.00	1.16	mg/Kg		11/10/23 06:55	11/11/23 23:34	5

Client Sample ID: B-13 @ 10'
Lab Sample ID: 570-159800-2
Date Collected: 10/25/23 12:49
Matrix: Solid
Date Received: 11/07/23 18:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	F1	9.90	2.83	mg/Kg		11/10/23 06:55	11/11/23 23:25	5
Arsenic	ND		2.97	1.38	mg/Kg		11/10/23 06:55	11/11/23 23:25	5
Barium	**28.9**		2.97	0.141	mg/Kg		11/10/23 06:55	11/11/23 23:25	5
Beryllium	**0.149**	**J**	0.495	0.0683	mg/Kg		11/10/23 06:55	11/11/23 23:25	5
Cadmium	ND		0.495	0.162	mg/Kg		11/10/23 06:55	11/11/23 23:25	5
Chromium	**10.8**		0.990	0.184	mg/Kg		11/10/23 06:55	11/11/23 23:25	5
Cobalt	**6.10**		0.990	0.204	mg/Kg		11/10/23 06:55	11/11/23 23:25	5
Copper	**13.1**		1.98	0.949	mg/Kg		11/10/23 06:55	11/11/23 23:25	5
Lead	**2.66**		1.98	0.405	mg/Kg		11/10/23 06:55	11/11/23 23:25	5
Molybdenum	ND		1.98	0.510	mg/Kg		11/10/23 06:55	11/11/23 23:25	5
Nickel	**8.37**		1.98	0.358	mg/Kg		11/10/23 06:55	11/11/23 23:25	5
Selenium	ND		2.97	1.21	mg/Kg		11/10/23 06:55	11/11/23 23:25	5
Silver	ND		1.49	0.143	mg/Kg		11/10/23 06:55	11/11/23 23:25	5
Thallium	ND		9.90	2.09	mg/Kg		11/10/23 06:55	11/11/23 23:25	5
Vanadium	**19.5**		0.990	0.166	mg/Kg		11/10/23 06:55	11/11/23 23:25	5
Zinc	**26.5**		4.95	1.14	mg/Kg		11/10/23 06:55	11/11/23 23:25	5

Client Sample ID: B-11 @ 10'
Lab Sample ID: 570-159800-3
Date Collected: 10/25/23 15:15
Matrix: Solid
Date Received: 11/07/23 18:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		9.76	2.79	mg/Kg		11/10/23 06:55	11/11/23 23:37	5
Arsenic	**3.60**		2.93	1.36	mg/Kg		11/10/23 06:55	11/11/23 23:37	5
Barium	**44.7**		2.93	0.139	mg/Kg		11/10/23 06:55	11/11/23 23:37	5
Beryllium	**0.317**	**J**	0.488	0.0673	mg/Kg		11/10/23 06:55	11/11/23 23:37	5
Cadmium	ND		0.488	0.160	mg/Kg		11/10/23 06:55	11/11/23 23:37	5
Chromium	**18.6**		0.976	0.181	mg/Kg		11/10/23 06:55	11/11/23 23:37	5
Cobalt	**7.55**		0.976	0.201	mg/Kg		11/10/23 06:55	11/11/23 23:37	5

Method: SW846 6010B - Metals (ICP) (Continued)

Client Sample ID: B-11 @ 10'
Date Collected: 10/25/23 15:15
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-3
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	**16.9**		1.95	0.935	mg/Kg		11/10/23 06:55	11/11/23 23:37	5
Lead	**4.22**		1.95	0.399	mg/Kg		11/10/23 06:55	11/11/23 23:37	5
Molybdenum	ND		1.95	0.502	mg/Kg		11/10/23 06:55	11/11/23 23:37	5
Nickel	**13.0**		1.95	0.353	mg/Kg		11/10/23 06:55	11/11/23 23:37	5
Selenium	ND		2.93	1.19	mg/Kg		11/10/23 06:55	11/11/23 23:37	5
Silver	ND		1.46	0.140	mg/Kg		11/10/23 06:55	11/11/23 23:37	5
Thallium	ND		9.76	2.05	mg/Kg		11/10/23 06:55	11/11/23 23:37	5
Vanadium	**33.5**		0.976	0.164	mg/Kg		11/10/23 06:55	11/11/23 23:37	5
Zinc	**40.1**		4.88	1.13	mg/Kg		11/10/23 06:55	11/11/23 23:37	5

Client Sample ID: B-12 @ 5'
Date Collected: 10/26/23 09:04
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-4
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		9.80	2.80	mg/Kg		11/10/23 06:55	11/11/23 23:39	5
Arsenic	**1.48**	**J**	2.94	1.36	mg/Kg		11/10/23 06:55	11/11/23 23:39	5
Barium	**33.4**		2.94	0.139	mg/Kg		11/10/23 06:55	11/11/23 23:39	5
Beryllium	**0.159**	**J**	0.490	0.0676	mg/Kg		11/10/23 06:55	11/11/23 23:39	5
Cadmium	ND		0.490	0.161	mg/Kg		11/10/23 06:55	11/11/23 23:39	5
Chromium	**12.2**		0.980	0.182	mg/Kg		11/10/23 06:55	11/11/23 23:39	5
Cobalt	**5.10**		0.980	0.202	mg/Kg		11/10/23 06:55	11/11/23 23:39	5
Copper	**12.6**		1.96	0.939	mg/Kg		11/10/23 06:55	11/11/23 23:39	5
Lead	**3.26**		1.96	0.401	mg/Kg		11/10/23 06:55	11/11/23 23:39	5
Molybdenum	ND		1.96	0.505	mg/Kg		11/10/23 06:55	11/11/23 23:39	5
Nickel	**8.09**		1.96	0.355	mg/Kg		11/10/23 06:55	11/11/23 23:39	5
Selenium	ND		2.94	1.20	mg/Kg		11/10/23 06:55	11/11/23 23:39	5
Silver	ND		1.47	0.141	mg/Kg		11/10/23 06:55	11/11/23 23:39	5
Thallium	ND		9.80	2.06	mg/Kg		11/10/23 06:55	11/11/23 23:39	5
Vanadium	**21.2**		0.980	0.165	mg/Kg		11/10/23 06:55	11/11/23 23:39	5
Zinc	**28.9**		4.90	1.13	mg/Kg		11/10/23 06:55	11/11/23 23:39	5

Client Sample ID: B-7 @ 10'
Date Collected: 10/26/23 10:30
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-5
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		9.95	2.84	mg/Kg		11/10/23 06:55	11/11/23 23:42	5
Arsenic	**1.52**	**J**	2.99	1.38	mg/Kg		11/10/23 06:55	11/11/23 23:42	5
Barium	**21.7**		2.99	0.141	mg/Kg		11/10/23 06:55	11/11/23 23:42	5
Beryllium	**0.149**	**J**	0.498	0.0687	mg/Kg		11/10/23 06:55	11/11/23 23:42	5
Cadmium	ND		0.498	0.163	mg/Kg		11/10/23 06:55	11/11/23 23:42	5
Chromium	**10.8**		0.995	0.185	mg/Kg		11/10/23 06:55	11/11/23 23:42	5
Cobalt	**4.91**		0.995	0.205	mg/Kg		11/10/23 06:55	11/11/23 23:42	5
Copper	**9.90**		1.99	0.953	mg/Kg		11/10/23 06:55	11/11/23 23:42	5
Lead	**2.65**		1.99	0.407	mg/Kg		11/10/23 06:55	11/11/23 23:42	5
Molybdenum	ND		1.99	0.512	mg/Kg		11/10/23 06:55	11/11/23 23:42	5
Nickel	**7.46**		1.99	0.360	mg/Kg		11/10/23 06:55	11/11/23 23:42	5
Selenium	ND		2.99	1.22	mg/Kg		11/10/23 06:55	11/11/23 23:42	5
Silver	ND		1.49	0.143	mg/Kg		11/10/23 06:55	11/11/23 23:42	5
Thallium	ND		9.95	2.10	mg/Kg		11/10/23 06:55	11/11/23 23:42	5

Method: SW846 6010B - Metals (ICP) (Continued)

Client Sample ID: B-7 @ 10'
Date Collected: 10/26/23 10:30
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-5
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vanadium	**18.7**		0.995	0.167	mg/Kg		11/10/23 06:55	11/11/23 23:42	5
Zinc	**25.9**		4.98	1.15	mg/Kg		11/10/23 06:55	11/11/23 23:42	5

Client Sample ID: B-10 @ 5'
Date Collected: 10/26/23 11:45
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-6
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		9.95	2.84	mg/Kg		11/10/23 06:55	11/11/23 23:44	5
Arsenic	**1.63**	**J**	2.99	1.38	mg/Kg		11/10/23 06:55	11/11/23 23:44	5
Barium	**49.0**		2.99	0.141	mg/Kg		11/10/23 06:55	11/11/23 23:44	5
Beryllium	**0.174**	**J**	0.498	0.0687	mg/Kg		11/10/23 06:55	11/11/23 23:44	5
Cadmium	ND		0.498	0.163	mg/Kg		11/10/23 06:55	11/11/23 23:44	5
Chromium	**15.0**		0.995	0.185	mg/Kg		11/10/23 06:55	11/11/23 23:44	5
Cobalt	**6.75**		0.995	0.205	mg/Kg		11/10/23 06:55	11/11/23 23:44	5
Copper	**15.5**		1.99	0.953	mg/Kg		11/10/23 06:55	11/11/23 23:44	5
Lead	**2.33**		1.99	0.407	mg/Kg		11/10/23 06:55	11/11/23 23:44	5
Molybdenum	ND		1.99	0.512	mg/Kg		11/10/23 06:55	11/11/23 23:44	5
Nickel	**10.6**		1.99	0.360	mg/Kg		11/10/23 06:55	11/11/23 23:44	5
Selenium	ND		2.99	1.22	mg/Kg		11/10/23 06:55	11/11/23 23:44	5
Silver	ND		1.49	0.143	mg/Kg		11/10/23 06:55	11/11/23 23:44	5
Thallium	ND		9.95	2.10	mg/Kg		11/10/23 06:55	11/11/23 23:44	5
Vanadium	**29.3**		0.995	0.167	mg/Kg		11/10/23 06:55	11/11/23 23:44	5
Zinc	**35.6**		4.98	1.15	mg/Kg		11/10/23 06:55	11/11/23 23:44	5

Client Sample ID: B-9 @ 10'
Date Collected: 10/26/23 14:25
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-7
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		10.0	2.86	mg/Kg		11/10/23 06:55	11/11/23 23:51	5
Arsenic	**1.45**	**J**	3.00	1.39	mg/Kg		11/10/23 06:55	11/11/23 23:51	5
Barium	**31.9**		3.00	0.142	mg/Kg		11/10/23 06:55	11/11/23 23:51	5
Beryllium	**0.150**	**J**	0.500	0.0690	mg/Kg		11/10/23 06:55	11/11/23 23:51	5
Cadmium	ND		0.500	0.164	mg/Kg		11/10/23 06:55	11/11/23 23:51	5
Chromium	**11.9**		1.00	0.186	mg/Kg		11/10/23 06:55	11/11/23 23:51	5
Cobalt	**4.94**		1.00	0.206	mg/Kg		11/10/23 06:55	11/11/23 23:51	5
Copper	**11.8**		2.00	0.958	mg/Kg		11/10/23 06:55	11/11/23 23:51	5
Lead	**2.63**		2.00	0.409	mg/Kg		11/10/23 06:55	11/11/23 23:51	5
Molybdenum	ND		2.00	0.515	mg/Kg		11/10/23 06:55	11/11/23 23:51	5
Nickel	**8.00**		2.00	0.362	mg/Kg		11/10/23 06:55	11/11/23 23:51	5
Selenium	ND		3.00	1.22	mg/Kg		11/10/23 06:55	11/11/23 23:51	5
Silver	ND		1.50	0.144	mg/Kg		11/10/23 06:55	11/11/23 23:51	5
Thallium	ND		10.0	2.11	mg/Kg		11/10/23 06:55	11/11/23 23:51	5
Vanadium	**20.6**		1.00	0.168	mg/Kg		11/10/23 06:55	11/11/23 23:51	5
Zinc	**28.6**		5.00	1.16	mg/Kg		11/10/23 06:55	11/11/23 23:51	5

Client Sample Results

Client: NOVA Services
Project/Site: Euclid Ave. Downtown Recycled Water Proj.,UT 1072

Job ID: 570-159800-1

Method: SW846 6010B - Metals (ICP)

Client Sample ID: B-30 @ 5'
Date Collected: 10/27/23 08:35
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-8
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		10.2	2.92	mg/Kg		11/10/23 06:55	11/11/23 23:54	5
Arsenic	ND		3.06	1.42	mg/Kg		11/10/23 06:55	11/11/23 23:54	5
Barium	**98.0**		3.06	0.145	mg/Kg		11/10/23 06:55	11/11/23 23:54	5
Beryllium	**0.217**	**J**	0.510	0.0704	mg/Kg		11/10/23 06:55	11/11/23 23:54	5
Cadmium	ND		0.510	0.167	mg/Kg		11/10/23 06:55	11/11/23 23:54	5
Chromium	**27.0**		1.02	0.190	mg/Kg		11/10/23 06:55	11/11/23 23:54	5
Cobalt	**5.46**		1.02	0.210	mg/Kg		11/10/23 06:55	11/11/23 23:54	5
Copper	**10.8**		2.04	0.978	mg/Kg		11/10/23 06:55	11/11/23 23:54	5
Lead	**2.04**		2.04	0.417	mg/Kg		11/10/23 06:55	11/11/23 23:54	5
Molybdenum	**0.867**	**J**	2.04	0.526	mg/Kg		11/10/23 06:55	11/11/23 23:54	5
Nickel	**12.2**		2.04	0.369	mg/Kg		11/10/23 06:55	11/11/23 23:54	5
Selenium	ND		3.06	1.25	mg/Kg		11/10/23 06:55	11/11/23 23:54	5
Silver	ND		1.53	0.147	mg/Kg		11/10/23 06:55	11/11/23 23:54	5
Thallium	ND		10.2	2.15	mg/Kg		11/10/23 06:55	11/11/23 23:54	5
Vanadium	**32.5**		1.02	0.171	mg/Kg		11/10/23 06:55	11/11/23 23:54	5
Zinc	**35.4**		5.10	1.18	mg/Kg		11/10/23 06:55	11/11/23 23:54	5

Client Sample ID: B-28 @ 10'
Date Collected: 10/27/23 10:10
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-9
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		10.0	2.86	mg/Kg		11/10/23 06:55	11/11/23 23:56	5
Arsenic	**1.78**	**J**	3.00	1.39	mg/Kg		11/10/23 06:55	11/11/23 23:56	5
Barium	**84.6**		3.00	0.142	mg/Kg		11/10/23 06:55	11/11/23 23:56	5
Beryllium	**0.238**	**J**	0.500	0.0690	mg/Kg		11/10/23 06:55	11/11/23 23:56	5
Cadmium	ND		0.500	0.164	mg/Kg		11/10/23 06:55	11/11/23 23:56	5
Chromium	**12.0**		1.00	0.186	mg/Kg		11/10/23 06:55	11/11/23 23:56	5
Cobalt	**4.49**		1.00	0.206	mg/Kg		11/10/23 06:55	11/11/23 23:56	5
Copper	**7.21**		2.00	0.958	mg/Kg		11/10/23 06:55	11/11/23 23:56	5
Lead	**1.93**	**J**	2.00	0.409	mg/Kg		11/10/23 06:55	11/11/23 23:56	5
Molybdenum	ND		2.00	0.515	mg/Kg		11/10/23 06:55	11/11/23 23:56	5
Nickel	**7.01**		2.00	0.362	mg/Kg		11/10/23 06:55	11/11/23 23:56	5
Selenium	ND		3.00	1.22	mg/Kg		11/10/23 06:55	11/11/23 23:56	5
Silver	ND		1.50	0.144	mg/Kg		11/10/23 06:55	11/11/23 23:56	5
Thallium	ND		10.0	2.11	mg/Kg		11/10/23 06:55	11/11/23 23:56	5
Vanadium	**30.1**		1.00	0.168	mg/Kg		11/10/23 06:55	11/11/23 23:56	5
Zinc	**30.6**		5.00	1.16	mg/Kg		11/10/23 06:55	11/11/23 23:56	5

Client Sample ID: B-29 @ 10'
Date Collected: 10/27/23 11:22
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-10
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		9.95	2.84	mg/Kg		11/10/23 06:55	11/11/23 23:58	5
Arsenic	**1.92**	**J**	2.99	1.38	mg/Kg		11/10/23 06:55	11/11/23 23:58	5
Barium	**105**		2.99	0.141	mg/Kg		11/10/23 06:55	11/11/23 23:58	5
Beryllium	**0.286**	**J**	0.498	0.0687	mg/Kg		11/10/23 06:55	11/11/23 23:58	5
Cadmium	ND		0.498	0.163	mg/Kg		11/10/23 06:55	11/11/23 23:58	5
Chromium	**12.9**		0.995	0.185	mg/Kg		11/10/23 06:55	11/11/23 23:58	5
Cobalt	**5.12**		0.995	0.205	mg/Kg		11/10/23 06:55	11/11/23 23:58	5

Method: SW846 6010B - Metals (ICP) (Continued)

Client Sample ID: B-29 @ 10'
Date Collected: 10/27/23 11:22
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-10
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	**9.53**		1.99	0.953	mg/Kg		11/10/23 06:55	11/11/23 23:58	5
Lead	**2.46**		1.99	0.407	mg/Kg		11/10/23 06:55	11/11/23 23:58	5
Molybdenum	ND		1.99	0.512	mg/Kg		11/10/23 06:55	11/11/23 23:58	5
Nickel	**8.00**		1.99	0.360	mg/Kg		11/10/23 06:55	11/11/23 23:58	5
Selenium	ND		2.99	1.22	mg/Kg		11/10/23 06:55	11/11/23 23:58	5
Silver	ND		1.49	0.143	mg/Kg		11/10/23 06:55	11/11/23 23:58	5
Thallium	ND		9.95	2.10	mg/Kg		11/10/23 06:55	11/11/23 23:58	5
Vanadium	**32.9**		0.995	0.167	mg/Kg		11/10/23 06:55	11/11/23 23:58	5
Zinc	**33.6**		4.98	1.15	mg/Kg		11/10/23 06:55	11/11/23 23:58	5

Client Sample ID: B-27 @ 5'
Date Collected: 10/27/23 12:36
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-11
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		10.0	2.86	mg/Kg		11/10/23 06:55	11/12/23 00:01	5
Arsenic	**1.85**	**J**	3.00	1.39	mg/Kg		11/10/23 06:55	11/12/23 00:01	5
Barium	**98.3**		3.00	0.142	mg/Kg		11/10/23 06:55	11/12/23 00:01	5
Beryllium	**0.288**	**J**	0.500	0.0690	mg/Kg		11/10/23 06:55	11/12/23 00:01	5
Cadmium	ND		0.500	0.164	mg/Kg		11/10/23 06:55	11/12/23 00:01	5
Chromium	**13.9**		1.00	0.186	mg/Kg		11/10/23 06:55	11/12/23 00:01	5
Cobalt	**5.69**		1.00	0.206	mg/Kg		11/10/23 06:55	11/12/23 00:01	5
Copper	**9.99**		2.00	0.958	mg/Kg		11/10/23 06:55	11/12/23 00:01	5
Lead	**2.86**		2.00	0.409	mg/Kg		11/10/23 06:55	11/12/23 00:01	5
Molybdenum	ND		2.00	0.515	mg/Kg		11/10/23 06:55	11/12/23 00:01	5
Nickel	**8.04**		2.00	0.362	mg/Kg		11/10/23 06:55	11/12/23 00:01	5
Selenium	ND		3.00	1.22	mg/Kg		11/10/23 06:55	11/12/23 00:01	5
Silver	ND		1.50	0.144	mg/Kg		11/10/23 06:55	11/12/23 00:01	5
Thallium	ND		10.0	2.11	mg/Kg		11/10/23 06:55	11/12/23 00:01	5
Vanadium	**34.6**		1.00	0.168	mg/Kg		11/10/23 06:55	11/12/23 00:01	5
Zinc	**37.7**		5.00	1.16	mg/Kg		11/10/23 06:55	11/12/23 00:01	5

Client Sample ID: B-26 @ 5'
Date Collected: 10/27/23 14:52
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-12
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		9.95	2.84	mg/Kg		11/10/23 06:55	11/12/23 00:03	5
Arsenic	**1.97**	**J**	2.99	1.38	mg/Kg		11/10/23 06:55	11/12/23 00:03	5
Barium	**137**		2.99	0.141	mg/Kg		11/10/23 06:55	11/12/23 00:03	5
Beryllium	**0.323**	**J**	0.498	0.0687	mg/Kg		11/10/23 06:55	11/12/23 00:03	5
Cadmium	ND		0.498	0.163	mg/Kg		11/10/23 06:55	11/12/23 00:03	5
Chromium	**18.1**		0.995	0.185	mg/Kg		11/10/23 06:55	11/12/23 00:03	5
Cobalt	**7.40**		0.995	0.205	mg/Kg		11/10/23 06:55	11/12/23 00:03	5
Copper	**14.4**		1.99	0.953	mg/Kg		11/10/23 06:55	11/12/23 00:03	5
Lead	**3.03**		1.99	0.407	mg/Kg		11/10/23 06:55	11/12/23 00:03	5
Molybdenum	ND		1.99	0.512	mg/Kg		11/10/23 06:55	11/12/23 00:03	5
Nickel	**10.5**		1.99	0.360	mg/Kg		11/10/23 06:55	11/12/23 00:03	5
Selenium	ND		2.99	1.22	mg/Kg		11/10/23 06:55	11/12/23 00:03	5
Silver	ND		1.49	0.143	mg/Kg		11/10/23 06:55	11/12/23 00:03	5
Thallium	ND		9.95	2.10	mg/Kg		11/10/23 06:55	11/12/23 00:03	5

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Method: SW846 6010B - Metals (ICP) (Continued)

Client Sample ID: B-26 @ 5'
Date Collected: 10/27/23 14:52
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-12
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vanadium	**44.2**		0.995	0.167	mg/Kg		11/10/23 06:55	11/12/23 00:03	5
Zinc	**45.8**		4.98	1.15	mg/Kg		11/10/23 06:55	11/12/23 00:03	5

Client Sample ID: B-25 @ 10'
Date Collected: 11/01/23 07:57
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-13
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		9.85	2.81	mg/Kg		11/10/23 06:55	11/12/23 00:06	5
Arsenic	ND		2.96	1.37	mg/Kg		11/10/23 06:55	11/12/23 00:06	5
Barium	**65.2**		2.96	0.140	mg/Kg		11/10/23 06:55	11/12/23 00:06	5
Beryllium	**0.123**	**J**	0.493	0.0680	mg/Kg		11/10/23 06:55	11/12/23 00:06	5
Cadmium	ND		0.493	0.162	mg/Kg		11/10/23 06:55	11/12/23 00:06	5
Chromium	**9.95**		0.985	0.183	mg/Kg		11/10/23 06:55	11/12/23 00:06	5
Cobalt	**4.22**		0.985	0.203	mg/Kg		11/10/23 06:55	11/12/23 00:06	5
Copper	**7.22**		1.97	0.944	mg/Kg		11/10/23 06:55	11/12/23 00:06	5
Lead	**1.28**	**J**	1.97	0.403	mg/Kg		11/10/23 06:55	11/12/23 00:06	5
Molybdenum	ND		1.97	0.507	mg/Kg		11/10/23 06:55	11/12/23 00:06	5
Nickel	**5.90**		1.97	0.357	mg/Kg		11/10/23 06:55	11/12/23 00:06	5
Selenium	ND		2.96	1.20	mg/Kg		11/10/23 06:55	11/12/23 00:06	5
Silver	ND		1.48	0.142	mg/Kg		11/10/23 06:55	11/12/23 00:06	5
Thallium	ND		9.85	2.07	mg/Kg		11/10/23 06:55	11/12/23 00:06	5
Vanadium	**25.8**		0.985	0.166	mg/Kg		11/10/23 06:55	11/12/23 00:06	5
Zinc	**24.6**		4.93	1.14	mg/Kg		11/10/23 06:55	11/12/23 00:06	5

Client Sample ID: B-24 @ 5'
Date Collected: 11/01/23 08:35
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-14
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		9.85	2.81	mg/Kg		11/10/23 06:55	11/12/23 00:08	5
Arsenic	ND		2.96	1.37	mg/Kg		11/10/23 06:55	11/12/23 00:08	5
Barium	**92.6**		2.96	0.140	mg/Kg		11/10/23 06:55	11/12/23 00:08	5
Beryllium	**0.185**	**J**	0.493	0.0680	mg/Kg		11/10/23 06:55	11/12/23 00:08	5
Cadmium	ND		0.493	0.162	mg/Kg		11/10/23 06:55	11/12/23 00:08	5
Chromium	**13.9**		0.985	0.183	mg/Kg		11/10/23 06:55	11/12/23 00:08	5
Cobalt	**5.34**		0.985	0.203	mg/Kg		11/10/23 06:55	11/12/23 00:08	5
Copper	**12.5**		1.97	0.944	mg/Kg		11/10/23 06:55	11/12/23 00:08	5
Lead	**1.31**	**J**	1.97	0.403	mg/Kg		11/10/23 06:55	11/12/23 00:08	5
Molybdenum	ND		1.97	0.507	mg/Kg		11/10/23 06:55	11/12/23 00:08	5
Nickel	**7.80**		1.97	0.357	mg/Kg		11/10/23 06:55	11/12/23 00:08	5
Selenium	ND		2.96	1.20	mg/Kg		11/10/23 06:55	11/12/23 00:08	5
Silver	ND		1.48	0.142	mg/Kg		11/10/23 06:55	11/12/23 00:08	5
Thallium	ND		9.85	2.07	mg/Kg		11/10/23 06:55	11/12/23 00:08	5
Vanadium	**33.3**		0.985	0.166	mg/Kg		11/10/23 06:55	11/12/23 00:08	5
Zinc	**36.9**		4.93	1.14	mg/Kg		11/10/23 06:55	11/12/23 00:08	5

Method: SW846 6010B - Metals (ICP)

Client Sample ID: B-23 @ 10'
Date Collected: 11/01/23 09:37
Date Received: 11/07/23 18:50
Lab Sample ID: 570-159800-15
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		9.80	2.80	mg/Kg		11/10/23 06:55	11/12/23 00:10	5
Arsenic	ND		2.94	1.36	mg/Kg		11/10/23 06:55	11/12/23 00:10	5
Barium	**65.5**		2.94	0.139	mg/Kg		11/10/23 06:55	11/12/23 00:10	5
Beryllium	**0.135**	**J**	0.490	0.0676	mg/Kg		11/10/23 06:55	11/12/23 00:10	5
Cadmium	ND		0.490	0.161	mg/Kg		11/10/23 06:55	11/12/23 00:10	5
Chromium	**11.7**		0.980	0.182	mg/Kg		11/10/23 06:55	11/12/23 00:10	5
Cobalt	**4.33**		0.980	0.202	mg/Kg		11/10/23 06:55	11/12/23 00:10	5
Copper	**15.0**		1.96	0.939	mg/Kg		11/10/23 06:55	11/12/23 00:10	5
Lead	**1.45**	**J**	1.96	0.401	mg/Kg		11/10/23 06:55	11/12/23 00:10	5
Molybdenum	ND		1.96	0.505	mg/Kg		11/10/23 06:55	11/12/23 00:10	5
Nickel	**6.54**		1.96	0.355	mg/Kg		11/10/23 06:55	11/12/23 00:10	5
Selenium	ND		2.94	1.20	mg/Kg		11/10/23 06:55	11/12/23 00:10	5
Silver	ND		1.47	0.141	mg/Kg		11/10/23 06:55	11/12/23 00:10	5
Thallium	ND		9.80	2.06	mg/Kg		11/10/23 06:55	11/12/23 00:10	5
Vanadium	**26.3**		0.980	0.165	mg/Kg		11/10/23 06:55	11/12/23 00:10	5
Zinc	**36.0**		4.90	1.13	mg/Kg		11/10/23 06:55	11/12/23 00:10	5

Client Sample ID: B-21 @ 10'
Date Collected: 11/01/23 11:23
Date Received: 11/07/23 18:50
Lab Sample ID: 570-159800-16
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		9.76	2.79	mg/Kg		11/10/23 06:55	11/12/23 00:13	5
Arsenic	**3.06**		2.93	1.36	mg/Kg		11/10/23 06:55	11/12/23 00:13	5
Barium	**97.2**		2.93	0.139	mg/Kg		11/10/23 06:55	11/12/23 00:13	5
Beryllium	**0.317**	**J**	0.488	0.0673	mg/Kg		11/10/23 06:55	11/12/23 00:13	5
Cadmium	ND		0.488	0.160	mg/Kg		11/10/23 06:55	11/12/23 00:13	5
Chromium	**17.3**		0.976	0.181	mg/Kg		11/10/23 06:55	11/12/23 00:13	5
Cobalt	**6.60**		0.976	0.201	mg/Kg		11/10/23 06:55	11/12/23 00:13	5
Copper	**12.0**		1.95	0.935	mg/Kg		11/10/23 06:55	11/12/23 00:13	5
Lead	**2.74**		1.95	0.399	mg/Kg		11/10/23 06:55	11/12/23 00:13	5
Molybdenum	ND		1.95	0.502	mg/Kg		11/10/23 06:55	11/12/23 00:13	5
Nickel	**9.73**		1.95	0.353	mg/Kg		11/10/23 06:55	11/12/23 00:13	5
Selenium	ND		2.93	1.19	mg/Kg		11/10/23 06:55	11/12/23 00:13	5
Silver	ND		1.46	0.140	mg/Kg		11/10/23 06:55	11/12/23 00:13	5
Thallium	ND		9.76	2.05	mg/Kg		11/10/23 06:55	11/12/23 00:13	5
Vanadium	**40.2**		0.976	0.164	mg/Kg		11/10/23 06:55	11/12/23 00:13	5
Zinc	**38.1**		4.88	1.13	mg/Kg		11/10/23 06:55	11/12/23 00:13	5

Client Sample ID: B-20 @ 5'
Date Collected: 11/01/23 12:27
Date Received: 11/07/23 18:50
Lab Sample ID: 570-159800-17
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		10.1	2.89	mg/Kg		11/10/23 06:55	11/12/23 00:20	5
Arsenic	**3.35**		3.03	1.41	mg/Kg		11/10/23 06:55	11/12/23 00:20	5
Barium	**78.3**		3.03	0.143	mg/Kg		11/10/23 06:55	11/12/23 00:20	5
Beryllium	**0.265**	**J**	0.505	0.0697	mg/Kg		11/10/23 06:55	11/12/23 00:20	5
Cadmium	ND		0.505	0.166	mg/Kg		11/10/23 06:55	11/12/23 00:20	5
Chromium	**19.6**		1.01	0.188	mg/Kg		11/10/23 06:55	11/12/23 00:20	5
Cobalt	**7.36**		1.01	0.208	mg/Kg		11/10/23 06:55	11/12/23 00:20	5

Client Sample Results

Method: SW846 6010B - Metals (ICP) (Continued)

Client Sample ID: B-20 @ 5'
Lab Sample ID: 570-159800-17
Date Collected: 11/01/23 12:27
Matrix: Solid
Date Received: 11/07/23 18:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	**23.9**		2.02	0.968	mg/Kg		11/10/23 06:55	11/12/23 00:20	5
Lead	**3.22**		2.02	0.413	mg/Kg		11/10/23 06:55	11/12/23 00:20	5
Molybdenum	ND		2.02	0.520	mg/Kg		11/10/23 06:55	11/12/23 00:20	5
Nickel	**12.4**		2.02	0.366	mg/Kg		11/10/23 06:55	11/12/23 00:20	5
Selenium	ND		3.03	1.23	mg/Kg		11/10/23 06:55	11/12/23 00:20	5
Silver	ND		1.52	0.145	mg/Kg		11/10/23 06:55	11/12/23 00:20	5
Thallium	ND		10.1	2.13	mg/Kg		11/10/23 06:55	11/12/23 00:20	5
Vanadium	**37.2**		1.01	0.170	mg/Kg		11/10/23 06:55	11/12/23 00:20	5
Zinc	**42.8**		5.05	1.17	mg/Kg		11/10/23 06:55	11/12/23 00:20	5

Client Sample ID: B-19 @ 10'
Lab Sample ID: 570-159800-18
Date Collected: 11/01/23 14:32
Matrix: Solid
Date Received: 11/07/23 18:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		10.2	2.92	mg/Kg		11/10/23 06:55	11/12/23 00:22	5
Arsenic	**9.23**		3.06	1.42	mg/Kg		11/10/23 06:55	11/12/23 00:22	5
Barium	**115**		3.06	0.145	mg/Kg		11/10/23 06:55	11/12/23 00:22	5
Beryllium	**0.485**	**J**	0.510	0.0704	mg/Kg		11/10/23 06:55	11/12/23 00:22	5
Cadmium	ND		0.510	0.167	mg/Kg		11/10/23 06:55	11/12/23 00:22	5
Chromium	**32.5**		1.02	0.190	mg/Kg		11/10/23 06:55	11/12/23 00:22	5
Cobalt	**11.9**		1.02	0.210	mg/Kg		11/10/23 06:55	11/12/23 00:22	5
Copper	**34.7**		2.04	0.978	mg/Kg		11/10/23 06:55	11/12/23 00:22	5
Lead	**7.96**		2.04	0.417	mg/Kg		11/10/23 06:55	11/12/23 00:22	5
Molybdenum	ND		2.04	0.526	mg/Kg		11/10/23 06:55	11/12/23 00:22	5
Nickel	**22.3**		2.04	0.369	mg/Kg		11/10/23 06:55	11/12/23 00:22	5
Selenium	ND		3.06	1.25	mg/Kg		11/10/23 06:55	11/12/23 00:22	5
Silver	ND		1.53	0.147	mg/Kg		11/10/23 06:55	11/12/23 00:22	5
Thallium	ND		10.2	2.15	mg/Kg		11/10/23 06:55	11/12/23 00:22	5
Vanadium	**53.4**		1.02	0.171	mg/Kg		11/10/23 06:55	11/12/23 00:22	5
Zinc	**67.2**		5.10	1.18	mg/Kg		11/10/23 06:55	11/12/23 00:22	5

Client Sample ID: B-18 @ 5'
Lab Sample ID: 570-159800-19
Date Collected: 11/02/23 07:51
Matrix: Solid
Date Received: 11/07/23 18:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		10.2	2.90	mg/Kg		11/10/23 06:55	11/12/23 00:25	5
Arsenic	**2.58**	**J**	3.05	1.41	mg/Kg		11/10/23 06:55	11/12/23 00:25	5
Barium	**66.2**		3.05	0.144	mg/Kg		11/10/23 06:55	11/12/23 00:25	5
Beryllium	**0.241**	**J**	0.508	0.0701	mg/Kg		11/10/23 06:55	11/12/23 00:25	5
Cadmium	ND		0.508	0.166	mg/Kg		11/10/23 06:55	11/12/23 00:25	5
Chromium	**17.4**		1.02	0.189	mg/Kg		11/10/23 06:55	11/12/23 00:25	5
Cobalt	**6.50**		1.02	0.209	mg/Kg		11/10/23 06:55	11/12/23 00:25	5
Copper	**30.4**		2.03	0.973	mg/Kg		11/10/23 06:55	11/12/23 00:25	5
Lead	**5.93**		2.03	0.415	mg/Kg		11/10/23 06:55	11/12/23 00:25	5
Molybdenum	ND		2.03	0.523	mg/Kg		11/10/23 06:55	11/12/23 00:25	5
Nickel	**11.1**		2.03	0.368	mg/Kg		11/10/23 06:55	11/12/23 00:25	5
Selenium	ND		3.05	1.24	mg/Kg		11/10/23 06:55	11/12/23 00:25	5
Silver	ND		1.52	0.146	mg/Kg		11/10/23 06:55	11/12/23 00:25	5
Thallium	ND		10.2	2.14	mg/Kg		11/10/23 06:55	11/12/23 00:25	5

Method: SW846 6010B - Metals (ICP) (Continued)

Client Sample ID: B-18 @ 5'
Date Collected: 11/02/23 07:51
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-19
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vanadium	**32.7**		1.02	0.171	mg/Kg		11/10/23 06:55	11/12/23 00:25	5
Zinc	**45.9**		5.08	1.17	mg/Kg		11/10/23 06:55	11/12/23 00:25	5

Client Sample ID: B-17 @ 10'
Date Collected: 11/02/23 08:41
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-20
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		9.85	2.81	mg/Kg		11/10/23 06:55	11/12/23 00:27	5
Arsenic	**3.92**		2.96	1.37	mg/Kg		11/10/23 06:55	11/12/23 00:27	5
Barium	**94.8**		2.96	0.140	mg/Kg		11/10/23 06:55	11/12/23 00:27	5
Beryllium	**0.505**		0.493	0.0680	mg/Kg		11/10/23 06:55	11/12/23 00:27	5
Cadmium	ND		0.493	0.162	mg/Kg		11/10/23 06:55	11/12/23 00:27	5
Chromium	**35.2**		0.985	0.183	mg/Kg		11/10/23 06:55	11/12/23 00:27	5
Cobalt	**11.9**		0.985	0.203	mg/Kg		11/10/23 06:55	11/12/23 00:27	5
Copper	**26.6**		1.97	0.944	mg/Kg		11/10/23 06:55	11/12/23 00:27	5
Lead	**9.98**		1.97	0.403	mg/Kg		11/10/23 06:55	11/12/23 00:27	5
Molybdenum	ND		1.97	0.507	mg/Kg		11/10/23 06:55	11/12/23 00:27	5
Nickel	**23.5**		1.97	0.357	mg/Kg		11/10/23 06:55	11/12/23 00:27	5
Selenium	ND		2.96	1.20	mg/Kg		11/10/23 06:55	11/12/23 00:27	5
Silver	ND		1.48	0.142	mg/Kg		11/10/23 06:55	11/12/23 00:27	5
Thallium	ND		9.85	2.07	mg/Kg		11/10/23 06:55	11/12/23 00:27	5
Vanadium	**50.5**		0.985	0.166	mg/Kg		11/10/23 06:55	11/12/23 00:27	5
Zinc	**67.0**		4.93	1.14	mg/Kg		11/10/23 06:55	11/12/23 00:27	5

Client Sample ID: B-16 @ 5'
Date Collected: 11/02/23 09:27
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-21
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	F1	10.0	2.86	mg/Kg		11/10/23 07:17	11/11/23 19:49	5
Arsenic	**3.86**		3.00	1.39	mg/Kg		11/10/23 07:17	11/11/23 19:49	5
Barium	**47.7**		3.00	0.142	mg/Kg		11/10/23 07:17	11/11/23 19:49	5
Beryllium	**0.300**	**J**	0.500	0.0690	mg/Kg		11/10/23 07:17	11/11/23 19:49	5
Cadmium	ND		0.500	0.164	mg/Kg		11/10/23 07:17	11/11/23 19:49	5
Chromium	**20.5**		1.00	0.186	mg/Kg		11/10/23 07:17	11/11/23 19:49	5
Cobalt	**7.89**		1.00	0.206	mg/Kg		11/10/23 07:17	11/11/23 19:49	5
Copper	**16.1**		2.00	0.958	mg/Kg		11/10/23 07:17	11/11/23 19:49	5
Lead	**3.98**		2.00	0.409	mg/Kg		11/10/23 07:17	11/11/23 19:49	5
Molybdenum	ND		2.00	0.515	mg/Kg		11/10/23 07:17	11/11/23 19:49	5
Nickel	**13.7**		2.00	0.362	mg/Kg		11/10/23 07:17	11/11/23 19:49	5
Selenium	ND		3.00	1.22	mg/Kg		11/10/23 07:17	11/11/23 19:49	5
Silver	ND		1.50	0.144	mg/Kg		11/10/23 07:17	11/11/23 19:49	5
Thallium	ND		10.0	2.11	mg/Kg		11/10/23 07:17	11/11/23 19:49	5
Vanadium	**36.7**		1.00	0.168	mg/Kg		11/10/23 07:17	11/11/23 19:49	5
Zinc	**42.5**		5.00	1.16	mg/Kg		11/10/23 07:17	11/11/23 19:49	5

Client Sample Results

Client: NOVA Services

Job ID: 570-159800-1

Project/Site: Euclid Ave. Downtown Recycled Water Proj.,UT 1072

Method: SW846 6010B - Metals (ICP)

Client Sample ID: B-15 @ 10'

Lab Sample ID: 570-159800-22

Date Collected: 11/02/23 10:20

Matrix: Solid

Date Received: 11/07/23 18:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		10.1	2.87	mg/Kg		11/10/23 07:17	11/11/23 20:03	5
Arsenic	**4.20**		3.02	1.40	mg/Kg		11/10/23 07:17	11/11/23 20:03	5
Barium	**81.9**		3.02	0.143	mg/Kg		11/10/23 07:17	11/11/23 20:03	5
Beryllium	**0.377**	**J**	0.503	0.0693	mg/Kg		11/10/23 07:17	11/11/23 20:03	5
Cadmium	ND		0.503	0.165	mg/Kg		11/10/23 07:17	11/11/23 20:03	5
Chromium	**26.8**		1.01	0.187	mg/Kg		11/10/23 07:17	11/11/23 20:03	5
Cobalt	**8.32**		1.01	0.207	mg/Kg		11/10/23 07:17	11/11/23 20:03	5
Copper	**19.6**		2.01	0.963	mg/Kg		11/10/23 07:17	11/11/23 20:03	5
Lead	**5.39**		2.01	0.411	mg/Kg		11/10/23 07:17	11/11/23 20:03	5
Molybdenum	ND		2.01	0.518	mg/Kg		11/10/23 07:17	11/11/23 20:03	5
Nickel	**15.4**		2.01	0.364	mg/Kg		11/10/23 07:17	11/11/23 20:03	5
Selenium	ND		3.02	1.23	mg/Kg		11/10/23 07:17	11/11/23 20:03	5
Silver	ND		1.51	0.145	mg/Kg		11/10/23 07:17	11/11/23 20:03	5
Thallium	ND		10.1	2.12	mg/Kg		11/10/23 07:17	11/11/23 20:03	5
Vanadium	**39.7**		1.01	0.169	mg/Kg		11/10/23 07:17	11/11/23 20:03	5
Zinc	**47.3**		5.03	1.16	mg/Kg		11/10/23 07:17	11/11/23 20:03	5

Client Sample ID: B-22 @ 5'

Lab Sample ID: 570-159800-23

Date Collected: 11/02/23 12:52

Matrix: Solid

Date Received: 11/07/23 18:50

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		10.2	2.90	mg/Kg		11/10/23 07:17	11/11/23 20:05	5
Arsenic	**3.82**		3.05	1.41	mg/Kg		11/10/23 07:17	11/11/23 20:05	5
Barium	**109**		3.05	0.144	mg/Kg		11/10/23 07:17	11/11/23 20:05	5
Beryllium	**0.343**	**J**	0.508	0.0701	mg/Kg		11/10/23 07:17	11/11/23 20:05	5
Cadmium	ND		0.508	0.166	mg/Kg		11/10/23 07:17	11/11/23 20:05	5
Chromium	**22.8**		1.02	0.189	mg/Kg		11/10/23 07:17	11/11/23 20:05	5
Cobalt	**10.2**		1.02	0.209	mg/Kg		11/10/23 07:17	11/11/23 20:05	5
Copper	**20.5**		2.03	0.973	mg/Kg		11/10/23 07:17	11/11/23 20:05	5
Lead	**4.51**		2.03	0.415	mg/Kg		11/10/23 07:17	11/11/23 20:05	5
Molybdenum	ND		2.03	0.523	mg/Kg		11/10/23 07:17	11/11/23 20:05	5
Nickel	**14.6**		2.03	0.368	mg/Kg		11/10/23 07:17	11/11/23 20:05	5
Selenium	ND		3.05	1.24	mg/Kg		11/10/23 07:17	11/11/23 20:05	5
Silver	ND		1.52	0.146	mg/Kg		11/10/23 07:17	11/11/23 20:05	5
Thallium	ND		10.2	2.14	mg/Kg		11/10/23 07:17	11/11/23 20:05	5
Vanadium	**44.3**		1.02	0.171	mg/Kg		11/10/23 07:17	11/11/23 20:05	5
Zinc	**46.9**		5.08	1.17	mg/Kg		11/10/23 07:17	11/11/23 20:05	5

Method: SW846 7471A - Mercury (CVAA)

Client Sample ID: B-14 @ 5'
Date Collected: 10/25/23 11:11
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-1
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0850	0.0327	mg/Kg		11/17/23 16:05	11/21/23 19:25	1

Client Sample ID: B-13 @ 10'
Date Collected: 10/25/23 12:49
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-2
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0786	0.0302	mg/Kg		11/17/23 16:05	11/21/23 19:27	1

Client Sample ID: B-11 @ 10'
Date Collected: 10/25/23 15:15
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-3
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0817	0.0314	mg/Kg		11/17/23 16:05	11/21/23 19:29	1

Client Sample ID: B-12 @ 5'
Date Collected: 10/26/23 09:04
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-4
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0801	0.0308	mg/Kg		11/17/23 16:05	11/21/23 19:35	1

Client Sample ID: B-7 @ 10'
Date Collected: 10/26/23 10:30
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-5
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0833	0.0320	mg/Kg		11/17/23 16:05	11/21/23 19:37	1

Client Sample ID: B-10 @ 5'
Date Collected: 10/26/23 11:45
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-6
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0817	0.0314	mg/Kg		11/17/23 16:05	11/21/23 19:39	1

Client Sample ID: B-9 @ 10'
Date Collected: 10/26/23 14:25
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-7
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0801	0.0308	mg/Kg		11/17/23 16:05	11/21/23 19:41	1

Client Sample ID: B-30 @ 5'
Date Collected: 10/27/23 08:35
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-8
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0817	0.0314	mg/Kg		11/17/23 16:05	11/21/23 19:43	1

Client Sample ID: B-28 @ 10'
Date Collected: 10/27/23 10:10
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-9
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0850	0.0327	mg/Kg		11/17/23 16:05	11/21/23 19:45	1

Method: SW846 7471A - Mercury (CVAA)

Client Sample ID: B-29 @ 10'
Date Collected: 10/27/23 11:22
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-10
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0868	0.0333	mg/Kg		11/17/23 16:05	11/21/23 19:47	1

Client Sample ID: B-27 @ 5'
Date Collected: 10/27/23 12:36
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-11
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0833	0.0320	mg/Kg		11/17/23 16:05	11/21/23 19:49	1

Client Sample ID: B-26 @ 5'
Date Collected: 10/27/23 14:52
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-12
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0817	0.0314	mg/Kg		11/17/23 16:05	11/21/23 19:51	1

Client Sample ID: B-25 @ 10'
Date Collected: 11/01/23 07:57
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-13
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0868	0.0333	mg/Kg		11/17/23 16:05	11/21/23 19:53	1

Client Sample ID: B-24 @ 5'
Date Collected: 11/01/23 08:35
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-14
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0786	0.0302	mg/Kg		11/17/23 16:05	11/21/23 19:59	1

Client Sample ID: B-23 @ 10'
Date Collected: 11/01/23 09:37
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-15
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0850	0.0327	mg/Kg		11/17/23 16:05	11/21/23 20:01	1

Client Sample ID: B-21 @ 10'
Date Collected: 11/01/23 11:23
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-16
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0833	0.0320	mg/Kg		11/17/23 16:05	11/21/23 20:03	1

Client Sample ID: B-20 @ 5'
Date Collected: 11/01/23 12:27
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-17
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0801	0.0308	mg/Kg		11/17/23 16:05	11/21/23 20:05	1

Client Sample ID: B-19 @ 10'
Date Collected: 11/01/23 14:32
Date Received: 11/07/23 18:50

Lab Sample ID: 570-159800-18
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0786	0.0302	mg/Kg		11/17/23 16:05	11/21/23 20:07	1

Method: SW846 7471A - Mercury (CVAA)

Client Sample ID: B-18 @ 5'
Date Collected: 11/02/23 07:51
Date Received: 11/07/23 18:50
Lab Sample ID: 570-159800-19
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0801	0.0308	mg/Kg		11/17/23 16:05	11/21/23 20:09	1

Client Sample ID: B-17 @ 10'
Date Collected: 11/02/23 08:41
Date Received: 11/07/23 18:50
Lab Sample ID: 570-159800-20
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.0330**	**J**	0.0850	0.0327	mg/Kg		11/17/23 16:08	11/21/23 18:31	1

Client Sample ID: B-16 @ 5'
Date Collected: 11/02/23 09:27
Date Received: 11/07/23 18:50
Lab Sample ID: 570-159800-21
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0887	0.0340	mg/Kg		11/17/23 16:05	11/21/23 19:19	1

Client Sample ID: B-15 @ 10'
Date Collected: 11/02/23 10:20
Date Received: 11/07/23 18:50
Lab Sample ID: 570-159800-22
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0801	0.0308	mg/Kg		11/17/23 16:08	11/21/23 18:33	1

Client Sample ID: B-22 @ 5'
Date Collected: 11/02/23 12:52
Date Received: 11/07/23 18:50
Lab Sample ID: 570-159800-23
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0817	0.0314	mg/Kg		11/17/23 16:08	11/21/23 18:35	1

Surrogate Summary

Client: NOVA Services
Project/Site: Euclid Ave. Downtown Recycled Water Proj.,UT 1072

Job ID: 570-159800-1

Method: 8015B - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OTCSN1 (60-138)
570-159800-1	B-14 @ 5'	127
570-159800-2	B-13 @ 10'	129
570-159800-3	B-11 @ 10'	123
570-159800-4	B-12 @ 5'	107
570-159800-5	B-7 @ 10'	109
570-159800-6	B-10 @ 5'	107
570-159800-7	B-9 @ 10'	104
570-159800-8	B-30 @ 5'	106
570-159800-9	B-28 @ 10'	107
570-159800-10	B-29 @ 10'	102
570-159800-11	B-27 @ 5'	103
570-159800-12	B-26 @ 5'	109
570-159800-13	B-25 @ 10'	107
570-159800-14	B-24 @ 5'	89
570-159800-15	B-23 @ 10'	103
570-159800-16	B-21 @ 10'	107
570-159800-17 - RA	B-20 @ 5'	57 S1-
570-159800-18	B-19 @ 10'	105
570-159800-19	B-18 @ 5'	61
570-159800-20	B-17 @ 10'	106
570-159800-21	B-16 @ 5'	102
570-159800-21 MS	B-16 @ 5'	105
570-159800-21 MSD	B-16 @ 5'	106
570-159800-22	B-15 @ 10'	110
570-159800-23	B-22 @ 5'	105
LCS 570-381742/2-A	Lab Control Sample	127
LCS 570-381828/2-A	Lab Control Sample	121
LCSD 570-381742/3-A	Lab Control Sample Dup	124
LCSD 570-381828/3-A	Lab Control Sample Dup	106
MB 570-381742/1-A	Method Blank	124
MB 570-381828/1-A	Method Blank	109

Surrogate Legend

OTCSN = n-Octacosane (Surr)

QC Sample Results

Client: NOVA Services
Project/Site: Euclid Ave. Downtown Recycled Water Proj.,UT 1072

Job ID: 570-159800-1

Method: 8015B - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 570-381742/1-A
Matrix: Solid
Analysis Batch: 382659

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 381742

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		5.0	3.8	mg/Kg		11/08/23 15:09	11/11/23 18:10	1
C9-C10	ND		5.0	3.8	mg/Kg		11/08/23 15:09	11/11/23 18:10	1
C11-C12	ND		5.0	3.8	mg/Kg		11/08/23 15:09	11/11/23 18:10	1
C13-C14	ND		5.0	3.8	mg/Kg		11/08/23 15:09	11/11/23 18:10	1
C15-C16	ND		5.0	3.8	mg/Kg		11/08/23 15:09	11/11/23 18:10	1
C17-C18	ND		5.0	3.8	mg/Kg		11/08/23 15:09	11/11/23 18:10	1
C19-C20	ND		5.0	3.8	mg/Kg		11/08/23 15:09	11/11/23 18:10	1
C21-C22	ND		5.0	3.8	mg/Kg		11/08/23 15:09	11/11/23 18:10	1
C23-C24	ND		5.0	3.8	mg/Kg		11/08/23 15:09	11/11/23 18:10	1
C25-C28	ND		5.0	3.8	mg/Kg		11/08/23 15:09	11/11/23 18:10	1
C29-C32	ND		5.0	3.8	mg/Kg		11/08/23 15:09	11/11/23 18:10	1
C33-C36	ND		5.0	3.8	mg/Kg		11/08/23 15:09	11/11/23 18:10	1
C37-C40	ND		5.0	3.8	mg/Kg		11/08/23 15:09	11/11/23 18:10	1
C8-C40	ND		5.0	3.8	mg/Kg		11/08/23 15:09	11/11/23 18:10	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*124*		*60 - 138*	*11/08/23 15:09*	*11/11/23 18:10*	*1*

Lab Sample ID: LCS 570-381742/2-A
Matrix: Solid
Analysis Batch: 382659

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 381742

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			400	457.3		mg/Kg		114	80 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Octacosane (Surr)	*127*		*60 - 138*

Lab Sample ID: LCSD 570-381742/3-A
Matrix: Solid
Analysis Batch: 382659

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 381742

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]			400	459.0		mg/Kg		115	80 - 130	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
n-Octacosane (Surr)	*124*		*60 - 138*

Lab Sample ID: MB 570-381828/1-A
Matrix: Solid
Analysis Batch: 386171

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 381828

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		5.0	3.8	mg/Kg		11/08/23 18:28	11/21/23 22:24	1
C9-C10	ND		5.0	3.8	mg/Kg		11/08/23 18:28	11/21/23 22:24	1

Method: 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 570-381828/1-A
Client Sample ID: Method Blank
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 386171
Prep Batch: 381828

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C11-C12	ND		5.0	3.8	mg/Kg		11/08/23 18:28	11/21/23 22:24	1
C13-C14	ND		5.0	3.8	mg/Kg		11/08/23 18:28	11/21/23 22:24	1
C15-C16	ND		5.0	3.8	mg/Kg		11/08/23 18:28	11/21/23 22:24	1
C17-C18	ND		5.0	3.8	mg/Kg		11/08/23 18:28	11/21/23 22:24	1
C19-C20	ND		5.0	3.8	mg/Kg		11/08/23 18:28	11/21/23 22:24	1
C21-C22	ND		5.0	3.8	mg/Kg		11/08/23 18:28	11/21/23 22:24	1
C23-C24	ND		5.0	3.8	mg/Kg		11/08/23 18:28	11/21/23 22:24	1
C25-C28	ND		5.0	3.8	mg/Kg		11/08/23 18:28	11/21/23 22:24	1
C29-C32	ND		5.0	3.8	mg/Kg		11/08/23 18:28	11/21/23 22:24	1
C33-C36	ND		5.0	3.8	mg/Kg		11/08/23 18:28	11/21/23 22:24	1
C37-C40	ND		5.0	3.8	mg/Kg		11/08/23 18:28	11/21/23 22:24	1
C8-C40	ND		5.0	3.8	mg/Kg		11/08/23 18:28	11/21/23 22:24	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*109*		*60 - 138*	*11/08/23 18:28*	*11/21/23 22:24*	*1*

Lab Sample ID: LCS 570-381828/2-A
Client Sample ID: Lab Control Sample
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 386171
Prep Batch: 381828

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			400	423.6		mg/Kg		106	80 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Octacosane (Surr)	*121*		*60 - 138*

Lab Sample ID: LCSD 570-381828/3-A
Client Sample ID: Lab Control Sample Dup
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 386171
Prep Batch: 381828

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]			400	374.1		mg/Kg		94	80 - 130	12	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
n-Octacosane (Surr)	*106*		*60 - 138*

Lab Sample ID: 570-159800-21 MS
Client Sample ID: B-16 @ 5'
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 386171
Prep Batch: 381828

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]	18		417	403.7		mg/Kg		92	43 - 165		

QC Sample Results

Client: NOVA Services
Job ID: 570-159800-1
Project/Site: Euclid Ave. Downtown Recycled Water Proj.,UT 1072

Method: 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 570-159800-21 MS
Client Sample ID: B-16 @ 5'
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 386171
Prep Batch: 381828

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
n-Octacosane (Surr)	*105*		*60 - 138*

Lab Sample ID: 570-159800-21 MSD
Client Sample ID: B-16 @ 5'
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 386171
Prep Batch: 381828

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	18		389	374.4		mg/Kg		92	43 - 165	8	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
n-Octacosane (Surr)	*106*		*60 - 138*

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 570-382315/1-A ^5
Client Sample ID: Method Blank
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 382894
Prep Batch: 382315

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		9.76	2.79	mg/Kg		11/10/23 06:55	11/11/23 23:10	5
Arsenic	ND		2.93	1.36	mg/Kg		11/10/23 06:55	11/11/23 23:10	5
Barium	ND		2.93	0.139	mg/Kg		11/10/23 06:55	11/11/23 23:10	5
Beryllium	ND		0.488	0.0673	mg/Kg		11/10/23 06:55	11/11/23 23:10	5
Cadmium	ND		0.488	0.160	mg/Kg		11/10/23 06:55	11/11/23 23:10	5
Chromium	ND		0.976	0.181	mg/Kg		11/10/23 06:55	11/11/23 23:10	5
Cobalt	ND		0.976	0.201	mg/Kg		11/10/23 06:55	11/11/23 23:10	5
Copper	ND		1.95	0.935	mg/Kg		11/10/23 06:55	11/11/23 23:10	5
Lead	ND		1.95	0.399	mg/Kg		11/10/23 06:55	11/11/23 23:10	5
Molybdenum	ND		1.95	0.502	mg/Kg		11/10/23 06:55	11/11/23 23:10	5
Nickel	ND		1.95	0.353	mg/Kg		11/10/23 06:55	11/11/23 23:10	5
Selenium	ND		2.93	1.19	mg/Kg		11/10/23 06:55	11/11/23 23:10	5
Silver	ND		1.46	0.140	mg/Kg		11/10/23 06:55	11/11/23 23:10	5
Thallium	ND		9.76	2.05	mg/Kg		11/10/23 06:55	11/11/23 23:10	5
Vanadium	ND		0.976	0.164	mg/Kg		11/10/23 06:55	11/11/23 23:10	5
Zinc	ND		4.88	1.13	mg/Kg		11/10/23 06:55	11/11/23 23:10	5

Lab Sample ID: LCS 570-382315/2-A ^5
Client Sample ID: Lab Control Sample
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 382894
Prep Batch: 382315

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	49.0	48.74		mg/Kg		99	80 - 120
Arsenic	49.0	44.14		mg/Kg		90	80 - 120
Barium	49.0	43.95		mg/Kg		90	80 - 120
Beryllium	49.0	43.69		mg/Kg		89	80 - 120
Cadmium	49.0	43.75		mg/Kg		89	80 - 120
Chromium	49.0	45.00		mg/Kg		92	80 - 120

QC Sample Results

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: LCS 570-382315/2-A ^5
Client Sample ID: Lab Control Sample
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 382894
Prep Batch: 382315

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cobalt	49.0	44.24		mg/Kg		90	80 - 120
Copper	49.0	44.18		mg/Kg		90	80 - 120
Lead	49.0	44.14		mg/Kg		90	80 - 120
Molybdenum	49.0	44.49		mg/Kg		91	80 - 120
Nickel	49.0	44.55		mg/Kg		91	80 - 120
Selenium	49.0	42.06		mg/Kg		86	80 - 120
Silver	24.5	21.75		mg/Kg		89	80 - 120
Thallium	49.0	44.01		mg/Kg		90	80 - 120
Vanadium	49.0	44.09		mg/Kg		90	80 - 120
Zinc	49.0	43.53		mg/Kg		89	80 - 120

Lab Sample ID: LCSD 570-382315/3-A ^5
Client Sample ID: Lab Control Sample Dup
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 382894
Prep Batch: 382315

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	49.8	46.72		mg/Kg		94	80 - 120	4	20
Arsenic	49.8	41.83		mg/Kg		84	80 - 120	5	20
Barium	49.8	42.41		mg/Kg		85	80 - 120	4	20
Beryllium	49.8	42.20		mg/Kg		85	80 - 120	3	20
Cadmium	49.8	42.18		mg/Kg		85	80 - 120	4	20
Chromium	49.8	43.50		mg/Kg		87	80 - 120	3	20
Cobalt	49.8	42.35		mg/Kg		85	80 - 120	4	20
Copper	49.8	42.89		mg/Kg		86	80 - 120	3	20
Lead	49.8	42.64		mg/Kg		86	80 - 120	3	20
Molybdenum	49.8	42.65		mg/Kg		86	80 - 120	4	20
Nickel	49.8	42.81		mg/Kg		86	80 - 120	4	20
Selenium	49.8	40.42		mg/Kg		81	80 - 120	4	20
Silver	24.9	20.97		mg/Kg		84	80 - 120	4	20
Thallium	49.8	42.35		mg/Kg		85	80 - 120	4	20
Vanadium	49.8	42.43		mg/Kg		85	80 - 120	4	20
Zinc	49.8	42.25		mg/Kg		85	80 - 120	3	20

Lab Sample ID: 570-159800-2 MS
Client Sample ID: B-13 @ 10'
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 382894
Prep Batch: 382315

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	ND	F1	49.8	30.16	F1	mg/Kg		61	75 - 125
Arsenic	ND		49.8	44.43		mg/Kg		89	75 - 125
Barium	28.9		49.8	69.39		mg/Kg		81	75 - 125
Beryllium	0.149	J	49.8	42.77		mg/Kg		86	75 - 125
Cadmium	ND		49.8	41.59		mg/Kg		84	75 - 125
Chromium	10.8		49.8	53.37		mg/Kg		86	75 - 125
Cobalt	6.10		49.8	46.01		mg/Kg		80	75 - 125
Copper	13.1		49.8	54.48		mg/Kg		83	75 - 125
Lead	2.66		49.8	43.88		mg/Kg		83	75 - 125
Molybdenum	ND		49.8	42.54		mg/Kg		85	75 - 125

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: 570-159800-2 MS
Matrix: Solid
Analysis Batch: 382894

Client Sample ID: B-13 @ 10'
Prep Type: Total/NA
Prep Batch: 382315

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nickel	8.37		49.8	48.46		mg/Kg		81	75 - 125
Selenium	ND		49.8	41.46		mg/Kg		83	75 - 125
Silver	ND		24.9	21.12		mg/Kg		85	75 - 125
Thallium	ND		49.8	41.68		mg/Kg		84	75 - 125
Vanadium	19.5		49.8	62.29		mg/Kg		86	75 - 125
Zinc	26.5		49.8	68.84		mg/Kg		85	75 - 125

Lab Sample ID: 570-159800-2 MSD
Matrix: Solid
Analysis Batch: 382894

Client Sample ID: B-13 @ 10'
Prep Type: Total/NA
Prep Batch: 382315

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	ND	F1	49.0	34.11	F1	mg/Kg		70	75 - 125	12	20
Arsenic	ND		49.0	45.27		mg/Kg		92	75 - 125	2	20
Barium	28.9		49.0	67.88		mg/Kg		79	75 - 125	2	20
Beryllium	0.149	J	49.0	44.79		mg/Kg		91	75 - 125	5	20
Cadmium	ND		49.0	43.50		mg/Kg		89	75 - 125	4	20
Chromium	10.8		49.0	54.00		mg/Kg		88	75 - 125	1	20
Cobalt	6.10		49.0	46.74		mg/Kg		83	75 - 125	2	20
Copper	13.1		49.0	59.93		mg/Kg		96	75 - 125	10	20
Lead	2.66		49.0	45.64		mg/Kg		88	75 - 125	4	20
Molybdenum	ND		49.0	44.73		mg/Kg		91	75 - 125	5	20
Nickel	8.37		49.0	49.02		mg/Kg		83	75 - 125	1	20
Selenium	ND		49.0	42.65		mg/Kg		87	75 - 125	3	20
Silver	ND		24.5	22.01		mg/Kg		90	75 - 125	4	20
Thallium	ND		49.0	43.75		mg/Kg		89	75 - 125	5	20
Vanadium	19.5		49.0	60.22		mg/Kg		83	75 - 125	3	20
Zinc	26.5		49.0	64.44		mg/Kg		77	75 - 125	7	20

Lab Sample ID: MB 570-382317/1-A ^5
Matrix: Solid
Analysis Batch: 382892

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 382317

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		9.90	2.83	mg/Kg		11/10/23 07:17	11/11/23 19:39	5
Arsenic	ND		2.97	1.38	mg/Kg		11/10/23 07:17	11/11/23 19:39	5
Barium	ND		2.97	0.141	mg/Kg		11/10/23 07:17	11/11/23 19:39	5
Beryllium	ND		0.495	0.0683	mg/Kg		11/10/23 07:17	11/11/23 19:39	5
Cadmium	ND		0.495	0.162	mg/Kg		11/10/23 07:17	11/11/23 19:39	5
Chromium	ND		0.990	0.184	mg/Kg		11/10/23 07:17	11/11/23 19:39	5
Cobalt	ND		0.990	0.204	mg/Kg		11/10/23 07:17	11/11/23 19:39	5
Copper	ND		1.98	0.949	mg/Kg		11/10/23 07:17	11/11/23 19:39	5
Lead	ND		1.98	0.405	mg/Kg		11/10/23 07:17	11/11/23 19:39	5
Molybdenum	ND		1.98	0.510	mg/Kg		11/10/23 07:17	11/11/23 19:39	5
Nickel	ND		1.98	0.358	mg/Kg		11/10/23 07:17	11/11/23 19:39	5
Selenium	ND		2.97	1.21	mg/Kg		11/10/23 07:17	11/11/23 19:39	5
Silver	ND		1.49	0.143	mg/Kg		11/10/23 07:17	11/11/23 19:39	5
Thallium	ND		9.90	2.09	mg/Kg		11/10/23 07:17	11/11/23 19:39	5

QC Sample Results

Client: NOVA Services
Job ID: 570-159800-1
Project/Site: Euclid Ave. Downtown Recycled Water Proj.,UT 1072

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: MB 570-382317/1-A ^5
Matrix: Solid
Analysis Batch: 382892

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 382317

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vanadium	ND		0.990	0.166	mg/Kg		11/10/23 07:17	11/11/23 19:39	5
Zinc	ND		4.95	1.14	mg/Kg		11/10/23 07:17	11/11/23 19:39	5

Lab Sample ID: LCS 570-382317/2-A ^5
Matrix: Solid
Analysis Batch: 382892

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 382317

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Antimony			49.3	51.18		mg/Kg		104	80 - 120		
Arsenic			49.3	45.38		mg/Kg		92	80 - 120		
Barium			49.3	45.79		mg/Kg		93	80 - 120		
Beryllium			49.3	45.42		mg/Kg		92	80 - 120		
Cadmium			49.3	45.17		mg/Kg		92	80 - 120		
Chromium			49.3	46.72		mg/Kg		95	80 - 120		
Cobalt			49.3	45.64		mg/Kg		93	80 - 120		
Copper			49.3	46.03		mg/Kg		93	80 - 120		
Lead			49.3	45.85		mg/Kg		93	80 - 120		
Molybdenum			49.3	46.49		mg/Kg		94	80 - 120		
Nickel			49.3	46.17		mg/Kg		94	80 - 120		
Selenium			49.3	43.09		mg/Kg		87	80 - 120		
Silver			24.6	22.68		mg/Kg		92	80 - 120		
Thallium			49.3	45.67		mg/Kg		93	80 - 120		
Vanadium			49.3	45.76		mg/Kg		93	80 - 120		
Zinc			49.3	45.32		mg/Kg		92	80 - 120		

Lab Sample ID: LCSD 570-382317/3-A ^5
Matrix: Solid
Analysis Batch: 382892

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 382317

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony			49.8	52.26		mg/Kg		105	80 - 120	2	20
Arsenic			49.8	45.77		mg/Kg		92	80 - 120	1	20
Barium			49.8	46.60		mg/Kg		94	80 - 120	2	20
Beryllium			49.8	46.23		mg/Kg		93	80 - 120	2	20
Cadmium			49.8	46.08		mg/Kg		93	80 - 120	2	20
Chromium			49.8	47.74		mg/Kg		96	80 - 120	2	20
Cobalt			49.8	46.60		mg/Kg		94	80 - 120	2	20
Copper			49.8	46.82		mg/Kg		94	80 - 120	2	20
Lead			49.8	46.79		mg/Kg		94	80 - 120	2	20
Molybdenum			49.8	47.11		mg/Kg		95	80 - 120	1	20
Nickel			49.8	47.03		mg/Kg		95	80 - 120	2	20
Selenium			49.8	43.42		mg/Kg		87	80 - 120	1	20
Silver			24.9	23.03		mg/Kg		93	80 - 120	2	20
Thallium			49.8	47.05		mg/Kg		95	80 - 120	3	20
Vanadium			49.8	46.67		mg/Kg		94	80 - 120	2	20
Zinc			49.8	45.93		mg/Kg		92	80 - 120	1	20

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: 570-159800-21 MS
Matrix: Solid
Analysis Batch: 382892

Client Sample ID: B-16 @ 5'
Prep Type: Total/NA
Prep Batch: 382317

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	ND	F1	49.0	22.40	F1	mg/Kg		46	75 - 125
Arsenic	3.86		49.0	48.58		mg/Kg		91	75 - 125
Barium	47.7		49.0	92.88		mg/Kg		92	75 - 125
Beryllium	0.300	J	49.0	45.21		mg/Kg		92	75 - 125
Cadmium	ND		49.0	43.35		mg/Kg		88	75 - 125
Chromium	20.5		49.0	67.29		mg/Kg		95	75 - 125
Cobalt	7.89		49.0	51.00		mg/Kg		88	75 - 125
Copper	16.1		49.0	62.76		mg/Kg		95	75 - 125
Lead	3.98		49.0	47.86		mg/Kg		90	75 - 125
Molybdenum	ND		49.0	45.26		mg/Kg		92	75 - 125
Nickel	13.7		49.0	56.76		mg/Kg		88	75 - 125
Selenium	ND		49.0	42.14		mg/Kg		86	75 - 125
Silver	ND		24.5	22.32		mg/Kg		91	75 - 125
Thallium	ND		49.0	43.37		mg/Kg		88	75 - 125
Vanadium	36.7		49.0	84.78		mg/Kg		98	75 - 125
Zinc	42.5		49.0	84.82		mg/Kg		86	75 - 125

Lab Sample ID: 570-159800-21 MSD
Matrix: Solid
Analysis Batch: 382892

Client Sample ID: B-16 @ 5'
Prep Type: Total/NA
Prep Batch: 382317

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	ND	F1	49.0	21.41	F1	mg/Kg		44	75 - 125	5	20
Arsenic	3.86		49.0	50.61		mg/Kg		95	75 - 125	4	20
Barium	47.7		49.0	96.56		mg/Kg		100	75 - 125	4	20
Beryllium	0.300	J	49.0	45.97		mg/Kg		93	75 - 125	2	20
Cadmium	ND		49.0	44.00		mg/Kg		90	75 - 125	1	20
Chromium	20.5		49.0	68.15		mg/Kg		97	75 - 125	1	20
Cobalt	7.89		49.0	52.12		mg/Kg		90	75 - 125	2	20
Copper	16.1		49.0	63.93		mg/Kg		98	75 - 125	2	20
Lead	3.98		49.0	48.62		mg/Kg		91	75 - 125	2	20
Molybdenum	ND		49.0	45.70		mg/Kg		93	75 - 125	1	20
Nickel	13.7		49.0	57.87		mg/Kg		90	75 - 125	2	20
Selenium	ND		49.0	41.99		mg/Kg		86	75 - 125	0	20
Silver	ND		24.5	22.77		mg/Kg		93	75 - 125	2	20
Thallium	ND		49.0	44.83		mg/Kg		91	75 - 125	3	20
Vanadium	36.7		49.0	86.85		mg/Kg		102	75 - 125	2	20
Zinc	42.5		49.0	86.15		mg/Kg		89	75 - 125	2	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 570-384956/1-A
Matrix: Solid
Analysis Batch: 386126

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 384956

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0817	0.0314	mg/Kg		11/17/23 16:05	11/21/23 19:13	1

QC Sample Results

Client: NOVA Services
Project/Site: Euclid Ave. Downtown Recycled Water Proj.,UT 1072

Job ID: 570-159800-1

Method: 7471A - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 570-384956/2-A
Matrix: Solid
Analysis Batch: 386126

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 384956

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.392	0.3359		mg/Kg		86	80 - 120

Lab Sample ID: LCSD 570-384956/3-A
Matrix: Solid
Analysis Batch: 386126

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 384956

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	0.385	0.3333		mg/Kg		87	80 - 120	1	10

Lab Sample ID: 570-159800-21 MS
Matrix: Solid
Analysis Batch: 386126

Client Sample ID: B-16 @ 5'
Prep Type: Total/NA
Prep Batch: 384956

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	ND		0.408	0.3581		mg/Kg		88	80 - 120

Lab Sample ID: 570-159800-21 MSD
Matrix: Solid
Analysis Batch: 386126

Client Sample ID: B-16 @ 5'
Prep Type: Total/NA
Prep Batch: 384956

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	ND		0.385	0.3479		mg/Kg		90	80 - 120	3	20

Lab Sample ID: MB 570-384957/1-A
Matrix: Solid
Analysis Batch: 386126

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 384957

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0850	0.0327	mg/Kg		11/17/23 16:08	11/21/23 18:15	1

Lab Sample ID: LCS 570-384957/2-A
Matrix: Solid
Analysis Batch: 386126

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 384957

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.377	0.3368		mg/Kg		89	80 - 120

Lab Sample ID: LCSD 570-384957/3-A
Matrix: Solid
Analysis Batch: 386126

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 384957

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	0.392	0.3612		mg/Kg		92	80 - 120	7	10

QC Association Summary

Client: NOVA Services
Job ID: 570-159800-1
Project/Site: Euclid Ave. Downtown Recycled Water Proj.,UT 1072

GC Semi VOA

Prep Batch: 381742

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-159800-1	B-14 @ 5'	Total/NA	Solid	3550C	
570-159800-2	B-13 @ 10'	Total/NA	Solid	3550C	
570-159800-3	B-11 @ 10'	Total/NA	Solid	3550C	
MB 570-381742/1-A	Method Blank	Total/NA	Solid	3550C	
LCS 570-381742/2-A	Lab Control Sample	Total/NA	Solid	3550C	
LCSD 570-381742/3-A	Lab Control Sample Dup	Total/NA	Solid	3550C	

Prep Batch: 381828

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-159800-4	B-12 @ 5'	Total/NA	Solid	3550C	
570-159800-5	B-7 @ 10'	Total/NA	Solid	3550C	
570-159800-6	B-10 @ 5'	Total/NA	Solid	3550C	
570-159800-7	B-9 @ 10'	Total/NA	Solid	3550C	
570-159800-8	B-30 @ 5'	Total/NA	Solid	3550C	
570-159800-9	B-28 @ 10'	Total/NA	Solid	3550C	
570-159800-10	B-29 @ 10'	Total/NA	Solid	3550C	
570-159800-11	B-27 @ 5'	Total/NA	Solid	3550C	
570-159800-12	B-26 @ 5'	Total/NA	Solid	3550C	
570-159800-13	B-25 @ 10'	Total/NA	Solid	3550C	
570-159800-14	B-24 @ 5'	Total/NA	Solid	3550C	
570-159800-15	B-23 @ 10'	Total/NA	Solid	3550C	
570-159800-16	B-21 @ 10'	Total/NA	Solid	3550C	
570-159800-17 - RA	B-20 @ 5'	Total/NA	Solid	3550C	
570-159800-18	B-19 @ 10'	Total/NA	Solid	3550C	
570-159800-19	B-18 @ 5'	Total/NA	Solid	3550C	
570-159800-20	B-17 @ 10'	Total/NA	Solid	3550C	
570-159800-21	B-16 @ 5'	Total/NA	Solid	3550C	
570-159800-22	B-15 @ 10'	Total/NA	Solid	3550C	
570-159800-23	B-22 @ 5'	Total/NA	Solid	3550C	
MB 570-381828/1-A	Method Blank	Total/NA	Solid	3550C	
LCS 570-381828/2-A	Lab Control Sample	Total/NA	Solid	3550C	
LCSD 570-381828/3-A	Lab Control Sample Dup	Total/NA	Solid	3550C	
570-159800-21 MS	B-16 @ 5'	Total/NA	Solid	3550C	
570-159800-21 MSD	B-16 @ 5'	Total/NA	Solid	3550C	

Analysis Batch: 382659

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-159800-1	B-14 @ 5'	Total/NA	Solid	8015B	381742
570-159800-2	B-13 @ 10'	Total/NA	Solid	8015B	381742
570-159800-3	B-11 @ 10'	Total/NA	Solid	8015B	381742
MB 570-381742/1-A	Method Blank	Total/NA	Solid	8015B	381742
LCS 570-381742/2-A	Lab Control Sample	Total/NA	Solid	8015B	381742
LCSD 570-381742/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B	381742

Analysis Batch: 386171

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-159800-4	B-12 @ 5'	Total/NA	Solid	8015B	381828
570-159800-5	B-7 @ 10'	Total/NA	Solid	8015B	381828
570-159800-6	B-10 @ 5'	Total/NA	Solid	8015B	381828
570-159800-7	B-9 @ 10'	Total/NA	Solid	8015B	381828

GC Semi VOA (Continued)

Analysis Batch: 386171 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-159800-8	B-30 @ 5'	Total/NA	Solid	8015B	381828
570-159800-9	B-28 @ 10'	Total/NA	Solid	8015B	381828
570-159800-10	B-29 @ 10'	Total/NA	Solid	8015B	381828
570-159800-11	B-27 @ 5'	Total/NA	Solid	8015B	381828
570-159800-12	B-26 @ 5'	Total/NA	Solid	8015B	381828
570-159800-13	B-25 @ 10'	Total/NA	Solid	8015B	381828
570-159800-14	B-24 @ 5'	Total/NA	Solid	8015B	381828
570-159800-15	B-23 @ 10'	Total/NA	Solid	8015B	381828
570-159800-16	B-21 @ 10'	Total/NA	Solid	8015B	381828
570-159800-18	B-19 @ 10'	Total/NA	Solid	8015B	381828
570-159800-19	B-18 @ 5'	Total/NA	Solid	8015B	381828
570-159800-20	B-17 @ 10'	Total/NA	Solid	8015B	381828
570-159800-21	B-16 @ 5'	Total/NA	Solid	8015B	381828
570-159800-22	B-15 @ 10'	Total/NA	Solid	8015B	381828
570-159800-23	B-22 @ 5'	Total/NA	Solid	8015B	381828
MB 570-381828/1-A	Method Blank	Total/NA	Solid	8015B	381828
LCS 570-381828/2-A	Lab Control Sample	Total/NA	Solid	8015B	381828
LCSD 570-381828/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B	381828
570-159800-21 MS	B-16 @ 5'	Total/NA	Solid	8015B	381828
570-159800-21 MSD	B-16 @ 5'	Total/NA	Solid	8015B	381828

Analysis Batch: 387129

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-159800-17 - RA	B-20 @ 5'	Total/NA	Solid	8015B	381828

Metals

Prep Batch: 382315

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-159800-1	B-14 @ 5'	Total/NA	Solid	3050B	
570-159800-2	B-13 @ 10'	Total/NA	Solid	3050B	
570-159800-3	B-11 @ 10'	Total/NA	Solid	3050B	
570-159800-4	B-12 @ 5'	Total/NA	Solid	3050B	
570-159800-5	B-7 @ 10'	Total/NA	Solid	3050B	
570-159800-6	B-10 @ 5'	Total/NA	Solid	3050B	
570-159800-7	B-9 @ 10'	Total/NA	Solid	3050B	
570-159800-8	B-30 @ 5'	Total/NA	Solid	3050B	
570-159800-9	B-28 @ 10'	Total/NA	Solid	3050B	
570-159800-10	B-29 @ 10'	Total/NA	Solid	3050B	
570-159800-11	B-27 @ 5'	Total/NA	Solid	3050B	
570-159800-12	B-26 @ 5'	Total/NA	Solid	3050B	
570-159800-13	B-25 @ 10'	Total/NA	Solid	3050B	
570-159800-14	B-24 @ 5'	Total/NA	Solid	3050B	
570-159800-15	B-23 @ 10'	Total/NA	Solid	3050B	
570-159800-16	B-21 @ 10'	Total/NA	Solid	3050B	
570-159800-17	B-20 @ 5'	Total/NA	Solid	3050B	
570-159800-18	B-19 @ 10'	Total/NA	Solid	3050B	
570-159800-19	B-18 @ 5'	Total/NA	Solid	3050B	
570-159800-20	B-17 @ 10'	Total/NA	Solid	3050B	
MB 570-382315/1-A ^5	Method Blank	Total/NA	Solid	3050B	

Metals (Continued)

Prep Batch: 382315 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 570-382315/2-A ^5	Lab Control Sample	Total/NA	Solid	3050B	
LCSD 570-382315/3-A ^5	Lab Control Sample Dup	Total/NA	Solid	3050B	
570-159800-2 MS	B-13 @ 10'	Total/NA	Solid	3050B	
570-159800-2 MSD	B-13 @ 10'	Total/NA	Solid	3050B	

Prep Batch: 382317

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-159800-21	B-16 @ 5'	Total/NA	Solid	3050B	
570-159800-22	B-15 @ 10'	Total/NA	Solid	3050B	
570-159800-23	B-22 @ 5'	Total/NA	Solid	3050B	
MB 570-382317/1-A ^5	Method Blank	Total/NA	Solid	3050B	
LCS 570-382317/2-A ^5	Lab Control Sample	Total/NA	Solid	3050B	
LCSD 570-382317/3-A ^5	Lab Control Sample Dup	Total/NA	Solid	3050B	
570-159800-21 MS	B-16 @ 5'	Total/NA	Solid	3050B	
570-159800-21 MSD	B-16 @ 5'	Total/NA	Solid	3050B	

Analysis Batch: 382892

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-159800-21	B-16 @ 5'	Total/NA	Solid	6010B	382317
570-159800-22	B-15 @ 10'	Total/NA	Solid	6010B	382317
570-159800-23	B-22 @ 5'	Total/NA	Solid	6010B	382317
MB 570-382317/1-A ^5	Method Blank	Total/NA	Solid	6010B	382317
LCS 570-382317/2-A ^5	Lab Control Sample	Total/NA	Solid	6010B	382317
LCSD 570-382317/3-A ^5	Lab Control Sample Dup	Total/NA	Solid	6010B	382317
570-159800-21 MS	B-16 @ 5'	Total/NA	Solid	6010B	382317
570-159800-21 MSD	B-16 @ 5'	Total/NA	Solid	6010B	382317

Analysis Batch: 382894

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-159800-1	B-14 @ 5'	Total/NA	Solid	6010B	382315
570-159800-2	B-13 @ 10'	Total/NA	Solid	6010B	382315
570-159800-3	B-11 @ 10'	Total/NA	Solid	6010B	382315
570-159800-4	B-12 @ 5'	Total/NA	Solid	6010B	382315
570-159800-5	B-7 @ 10'	Total/NA	Solid	6010B	382315
570-159800-6	B-10 @ 5'	Total/NA	Solid	6010B	382315
570-159800-7	B-9 @ 10'	Total/NA	Solid	6010B	382315
570-159800-8	B-30 @ 5'	Total/NA	Solid	6010B	382315
570-159800-9	B-28 @ 10'	Total/NA	Solid	6010B	382315
570-159800-10	B-29 @ 10'	Total/NA	Solid	6010B	382315
570-159800-11	B-27 @ 5'	Total/NA	Solid	6010B	382315
570-159800-12	B-26 @ 5'	Total/NA	Solid	6010B	382315
570-159800-13	B-25 @ 10'	Total/NA	Solid	6010B	382315
570-159800-14	B-24 @ 5'	Total/NA	Solid	6010B	382315
570-159800-15	B-23 @ 10'	Total/NA	Solid	6010B	382315
570-159800-16	B-21 @ 10'	Total/NA	Solid	6010B	382315
570-159800-17	B-20 @ 5'	Total/NA	Solid	6010B	382315
570-159800-18	B-19 @ 10'	Total/NA	Solid	6010B	382315
570-159800-19	B-18 @ 5'	Total/NA	Solid	6010B	382315
570-159800-20	B-17 @ 10'	Total/NA	Solid	6010B	382315
MB 570-382315/1-A ^5	Method Blank	Total/NA	Solid	6010B	382315

Metals (Continued)

Analysis Batch: 382894 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 570-382315/2-A ^5	Lab Control Sample	Total/NA	Solid	6010B	382315
LCSD 570-382315/3-A ^5	Lab Control Sample Dup	Total/NA	Solid	6010B	382315
570-159800-2 MS	B-13 @ 10'	Total/NA	Solid	6010B	382315
570-159800-2 MSD	B-13 @ 10'	Total/NA	Solid	6010B	382315

Prep Batch: 384956

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-159800-1	B-14 @ 5'	Total/NA	Solid	7471A	
570-159800-2	B-13 @ 10'	Total/NA	Solid	7471A	
570-159800-3	B-11 @ 10'	Total/NA	Solid	7471A	
570-159800-4	B-12 @ 5'	Total/NA	Solid	7471A	
570-159800-5	B-7 @ 10'	Total/NA	Solid	7471A	
570-159800-6	B-10 @ 5'	Total/NA	Solid	7471A	
570-159800-7	B-9 @ 10'	Total/NA	Solid	7471A	
570-159800-8	B-30 @ 5'	Total/NA	Solid	7471A	
570-159800-9	B-28 @ 10'	Total/NA	Solid	7471A	
570-159800-10	B-29 @ 10'	Total/NA	Solid	7471A	
570-159800-11	B-27 @ 5'	Total/NA	Solid	7471A	
570-159800-12	B-26 @ 5'	Total/NA	Solid	7471A	
570-159800-13	B-25 @ 10'	Total/NA	Solid	7471A	
570-159800-14	B-24 @ 5'	Total/NA	Solid	7471A	
570-159800-15	B-23 @ 10'	Total/NA	Solid	7471A	
570-159800-16	B-21 @ 10'	Total/NA	Solid	7471A	
570-159800-17	B-20 @ 5'	Total/NA	Solid	7471A	
570-159800-18	B-19 @ 10'	Total/NA	Solid	7471A	
570-159800-19	B-18 @ 5'	Total/NA	Solid	7471A	
570-159800-21	B-16 @ 5'	Total/NA	Solid	7471A	
MB 570-384956/1-A	Method Blank	Total/NA	Solid	7471A	
LCS 570-384956/2-A	Lab Control Sample	Total/NA	Solid	7471A	
LCSD 570-384956/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	
570-159800-21 MS	B-16 @ 5'	Total/NA	Solid	7471A	
570-159800-21 MSD	B-16 @ 5'	Total/NA	Solid	7471A	

Prep Batch: 384957

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-159800-20	B-17 @ 10'	Total/NA	Solid	7471A	
570-159800-22	B-15 @ 10'	Total/NA	Solid	7471A	
570-159800-23	B-22 @ 5'	Total/NA	Solid	7471A	
MB 570-384957/1-A	Method Blank	Total/NA	Solid	7471A	
LCS 570-384957/2-A	Lab Control Sample	Total/NA	Solid	7471A	
LCSD 570-384957/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	

Analysis Batch: 386126

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-159800-1	B-14 @ 5'	Total/NA	Solid	7471A	384956
570-159800-2	B-13 @ 10'	Total/NA	Solid	7471A	384956
570-159800-3	B-11 @ 10'	Total/NA	Solid	7471A	384956
570-159800-4	B-12 @ 5'	Total/NA	Solid	7471A	384956
570-159800-5	B-7 @ 10'	Total/NA	Solid	7471A	384956
570-159800-6	B-10 @ 5'	Total/NA	Solid	7471A	384956

Metals (Continued)

Analysis Batch: 386126 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-159800-7	B-9 @ 10'	Total/NA	Solid	7471A	384956
570-159800-8	B-30 @ 5'	Total/NA	Solid	7471A	384956
570-159800-9	B-28 @ 10'	Total/NA	Solid	7471A	384956
570-159800-10	B-29 @ 10'	Total/NA	Solid	7471A	384956
570-159800-11	B-27 @ 5'	Total/NA	Solid	7471A	384956
570-159800-12	B-26 @ 5'	Total/NA	Solid	7471A	384956
570-159800-13	B-25 @ 10'	Total/NA	Solid	7471A	384956
570-159800-14	B-24 @ 5'	Total/NA	Solid	7471A	384956
570-159800-15	B-23 @ 10'	Total/NA	Solid	7471A	384956
570-159800-16	B-21 @ 10'	Total/NA	Solid	7471A	384956
570-159800-17	B-20 @ 5'	Total/NA	Solid	7471A	384956
570-159800-18	B-19 @ 10'	Total/NA	Solid	7471A	384956
570-159800-19	B-18 @ 5'	Total/NA	Solid	7471A	384956
570-159800-20	B-17 @ 10'	Total/NA	Solid	7471A	384957
570-159800-21	B-16 @ 5'	Total/NA	Solid	7471A	384956
570-159800-22	B-15 @ 10'	Total/NA	Solid	7471A	384957
570-159800-23	B-22 @ 5'	Total/NA	Solid	7471A	384957
MB 570-384956/1-A	Method Blank	Total/NA	Solid	7471A	384956
MB 570-384957/1-A	Method Blank	Total/NA	Solid	7471A	384957
LCS 570-384956/2-A	Lab Control Sample	Total/NA	Solid	7471A	384956
LCS 570-384957/2-A	Lab Control Sample	Total/NA	Solid	7471A	384957
LCSD 570-384956/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	384956
LCSD 570-384957/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	384957
570-159800-21 MS	B-16 @ 5'	Total/NA	Solid	7471A	384956
570-159800-21 MSD	B-16 @ 5'	Total/NA	Solid	7471A	384956

Lab Chronicle

Client: NOVA Services
Job ID: 570-159800-1
Project/Site: Euclid Ave. Downtown Recycled Water Proj.,UT 1072

Client Sample ID: B-14 @ 5'

Lab Sample ID: 570-159800-1
Date Collected: 10/25/23 11:11
Matrix: Solid
Date Received: 11/07/23 18:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			10.21 g	10 mL	381742	11/08/23 18:20	USUL	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	382659	11/11/23 23:22	SP9M	EET CAL 4
	Instrument ID:	GC47								
Total/NA	Prep	3050B			2.00 g	50 mL	382315	11/10/23 06:55	GYR8	EET CAL 4
Total/NA	Analysis	6010B		5			382894	11/11/23 23:34	K1UV	EET CAL 4
	Instrument ID:	ICP11								
Total/NA	Prep	7471A			0.49 g	50 mL	384956	11/17/23 16:05	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			386126	11/21/23 19:25	CS5Z	EET CAL 4
	Instrument ID:	HG8								

Client Sample ID: B-13 @ 10'

Lab Sample ID: 570-159800-2
Date Collected: 10/25/23 12:49
Matrix: Solid
Date Received: 11/07/23 18:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			10.09 g	10 mL	381742	11/08/23 18:20	USUL	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	382659	11/11/23 23:43	SP9M	EET CAL 4
	Instrument ID:	GC47								
Total/NA	Prep	3050B			2.02 g	50 mL	382315	11/10/23 06:55	GYR8	EET CAL 4
Total/NA	Analysis	6010B		5			382894	11/11/23 23:25	K1UV	EET CAL 4
	Instrument ID:	ICP11								
Total/NA	Prep	7471A			0.53 g	50 mL	384956	11/17/23 16:05	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			386126	11/21/23 19:27	CS5Z	EET CAL 4
	Instrument ID:	HG8								

Client Sample ID: B-11 @ 10'

Lab Sample ID: 570-159800-3
Date Collected: 10/25/23 15:15
Matrix: Solid
Date Received: 11/07/23 18:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			9.68 g	10 mL	381742	11/08/23 18:20	USUL	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	382659	11/12/23 00:05	SP9M	EET CAL 4
	Instrument ID:	GC47								
Total/NA	Prep	3050B			2.05 g	50 mL	382315	11/10/23 06:55	GYR8	EET CAL 4
Total/NA	Analysis	6010B		5			382894	11/11/23 23:37	K1UV	EET CAL 4
	Instrument ID:	ICP11								
Total/NA	Prep	7471A			0.51 g	50 mL	384956	11/17/23 16:05	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			386126	11/21/23 19:29	CS5Z	EET CAL 4
	Instrument ID:	HG8								

Lab Chronicle

Client: NOVA Services
Job ID: 570-159800-1
Project/Site: Euclid Ave. Downtown Recycled Water Proj.,UT 1072

Client Sample ID: B-12 @ 5'
Lab Sample ID: 570-159800-4
Date Collected: 10/26/23 09:04
Matrix: Solid
Date Received: 11/07/23 18:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			9.72 g	10 mL	381828	11/08/23 18:28	KH3Z	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	386171	11/22/23 00:12	SP9M	EET CAL 4
	Instrument ID:	GC50								
Total/NA	Prep	3050B			2.04 g	50 mL	382315	11/10/23 06:55	GYR8	EET CAL 4
Total/NA	Analysis	6010B		5			382894	11/11/23 23:39	K1UV	EET CAL 4
	Instrument ID:	ICP11								
Total/NA	Prep	7471A			0.52 g	50 mL	384956	11/17/23 16:05	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			386126	11/21/23 19:35	CS5Z	EET CAL 4
	Instrument ID:	HG8								

Client Sample ID: B-7 @ 10'
Lab Sample ID: 570-159800-5
Date Collected: 10/26/23 10:30
Matrix: Solid
Date Received: 11/07/23 18:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			9.67 g	10 mL	381828	11/08/23 18:28	KH3Z	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	386171	11/22/23 00:33	SP9M	EET CAL 4
	Instrument ID:	GC50								
Total/NA	Prep	3050B			2.01 g	50 mL	382315	11/10/23 06:55	GYR8	EET CAL 4
Total/NA	Analysis	6010B		5			382894	11/11/23 23:42	K1UV	EET CAL 4
	Instrument ID:	ICP11								
Total/NA	Prep	7471A			0.50 g	50 mL	384956	11/17/23 16:05	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			386126	11/21/23 19:37	CS5Z	EET CAL 4
	Instrument ID:	HG8								

Client Sample ID: B-10 @ 5'
Lab Sample ID: 570-159800-6
Date Collected: 10/26/23 11:45
Matrix: Solid
Date Received: 11/07/23 18:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			10.19 g	10 mL	381828	11/08/23 18:28	KH3Z	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	386171	11/22/23 00:55	SP9M	EET CAL 4
	Instrument ID:	GC50								
Total/NA	Prep	3050B			2.01 g	50 mL	382315	11/10/23 06:55	GYR8	EET CAL 4
Total/NA	Analysis	6010B		5			382894	11/11/23 23:44	K1UV	EET CAL 4
	Instrument ID:	ICP11								
Total/NA	Prep	7471A			0.51 g	50 mL	384956	11/17/23 16:05	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			386126	11/21/23 19:39	CS5Z	EET CAL 4
	Instrument ID:	HG8								

Client Sample ID: B-9 @ 10'

Lab Sample ID: 570-159800-7

Date Collected: 10/26/23 14:25

Matrix: Solid

Date Received: 11/07/23 18:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			9.79 g	10 mL	381828	11/08/23 18:28	KH3Z	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	386171	11/22/23 01:16	SP9M	EET CAL 4
	Instrument ID:	GC50								
Total/NA	Prep	3050B			2.00 g	50 mL	382315	11/10/23 06:55	GYR8	EET CAL 4
Total/NA	Analysis	6010B		5			382894	11/11/23 23:51	K1UV	EET CAL 4
	Instrument ID:	ICP11								
Total/NA	Prep	7471A			0.52 g	50 mL	384956	11/17/23 16:05	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			386126	11/21/23 19:41	CS5Z	EET CAL 4
	Instrument ID:	HG8								

Client Sample ID: B-30 @ 5'

Lab Sample ID: 570-159800-8

Date Collected: 10/27/23 08:35

Matrix: Solid

Date Received: 11/07/23 18:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			9.69 g	10 mL	381828	11/08/23 18:28	KH3Z	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	386171	11/22/23 01:38	SP9M	EET CAL 4
	Instrument ID:	GC50								
Total/NA	Prep	3050B			1.96 g	50 mL	382315	11/10/23 06:55	GYR8	EET CAL 4
Total/NA	Analysis	6010B		5			382894	11/11/23 23:54	K1UV	EET CAL 4
	Instrument ID:	ICP11								
Total/NA	Prep	7471A			0.51 g	50 mL	384956	11/17/23 16:05	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			386126	11/21/23 19:43	CS5Z	EET CAL 4
	Instrument ID:	HG8								

Client Sample ID: B-28 @ 10'

Lab Sample ID: 570-159800-9

Date Collected: 10/27/23 10:10

Matrix: Solid

Date Received: 11/07/23 18:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			9.56 g	10 mL	381828	11/08/23 18:28	KH3Z	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	386171	11/22/23 02:00	SP9M	EET CAL 4
	Instrument ID:	GC50								
Total/NA	Prep	3050B			2.00 g	50 mL	382315	11/10/23 06:55	GYR8	EET CAL 4
Total/NA	Analysis	6010B		5			382894	11/11/23 23:56	K1UV	EET CAL 4
	Instrument ID:	ICP11								
Total/NA	Prep	7471A			0.49 g	50 mL	384956	11/17/23 16:05	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			386126	11/21/23 19:45	CS5Z	EET CAL 4
	Instrument ID:	HG8								

Lab Chronicle

Client: NOVA Services

Job ID: 570-159800-1

Project/Site: Euclid Ave. Downtown Recycled Water Proj.,UT 1072

Client Sample ID: B-29 @ 10'

Lab Sample ID: 570-159800-10

Date Collected: 10/27/23 11:22

Matrix: Solid

Date Received: 11/07/23 18:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			10.36 g	10 mL	381828	11/08/23 18:28	KH3Z	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	386171	11/22/23 02:21	SP9M	EET CAL 4
	Instrument ID: GC50									
Total/NA	Prep	3050B			2.01 g	50 mL	382315	11/10/23 06:55	GYR8	EET CAL 4
Total/NA	Analysis	6010B		5			382894	11/11/23 23:58	K1UV	EET CAL 4
	Instrument ID: ICP11									
Total/NA	Prep	7471A			0.48 g	50 mL	384956	11/17/23 16:05	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			386126	11/21/23 19:47	CS5Z	EET CAL 4
	Instrument ID: HG8									

Client Sample ID: B-27 @ 5'

Lab Sample ID: 570-159800-11

Date Collected: 10/27/23 12:36

Matrix: Solid

Date Received: 11/07/23 18:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			9.71 g	10 mL	381828	11/08/23 18:28	KH3Z	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	386171	11/22/23 02:43	SP9M	EET CAL 4
	Instrument ID: GC50									
Total/NA	Prep	3050B			2.00 g	50 mL	382315	11/10/23 06:55	GYR8	EET CAL 4
Total/NA	Analysis	6010B		5			382894	11/12/23 00:01	K1UV	EET CAL 4
	Instrument ID: ICP11									
Total/NA	Prep	7471A			0.50 g	50 mL	384956	11/17/23 16:05	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			386126	11/21/23 19:49	CS5Z	EET CAL 4
	Instrument ID: HG8									

Client Sample ID: B-26 @ 5'

Lab Sample ID: 570-159800-12

Date Collected: 10/27/23 14:52

Matrix: Solid

Date Received: 11/07/23 18:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			9.72 g	10 mL	381828	11/08/23 18:28	KH3Z	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	386171	11/22/23 03:04	SP9M	EET CAL 4
	Instrument ID: GC50									
Total/NA	Prep	3050B			2.01 g	50 mL	382315	11/10/23 06:55	GYR8	EET CAL 4
Total/NA	Analysis	6010B		5			382894	11/12/23 00:03	K1UV	EET CAL 4
	Instrument ID: ICP11									
Total/NA	Prep	7471A			0.51 g	50 mL	384956	11/17/23 16:05	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			386126	11/21/23 19:51	CS5Z	EET CAL 4
	Instrument ID: HG8									

Lab Chronicle

Client Sample ID: B-25 @ 10'

Lab Sample ID: 570-159800-13

Date Collected: 11/01/23 07:57

Matrix: Solid

Date Received: 11/07/23 18:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			10.12 g	10 mL	381828	11/08/23 18:28	KH3Z	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	386171	11/22/23 03:26	SP9M	EET CAL 4
	Instrument ID: GC50									
Total/NA	Prep	3050B			2.03 g	50 mL	382315	11/10/23 06:55	GYR8	EET CAL 4
Total/NA	Analysis	6010B		5			382894	11/12/23 00:06	K1UV	EET CAL 4
	Instrument ID: ICP11									
Total/NA	Prep	7471A			0.48 g	50 mL	384956	11/17/23 16:05	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			386126	11/21/23 19:53	CS5Z	EET CAL 4
	Instrument ID: HG8									

Client Sample ID: B-24 @ 5'

Lab Sample ID: 570-159800-14

Date Collected: 11/01/23 08:35

Matrix: Solid

Date Received: 11/07/23 18:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			10.42 g	10 mL	381828	11/08/23 18:28	KH3Z	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	386171	11/22/23 03:48	SP9M	EET CAL 4
	Instrument ID: GC50									
Total/NA	Prep	3050B			2.03 g	50 mL	382315	11/10/23 06:55	GYR8	EET CAL 4
Total/NA	Analysis	6010B		5			382894	11/12/23 00:08	K1UV	EET CAL 4
	Instrument ID: ICP11									
Total/NA	Prep	7471A			0.53 g	50 mL	384956	11/17/23 16:05	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			386126	11/21/23 19:59	CS5Z	EET CAL 4
	Instrument ID: HG8									

Client Sample ID: B-23 @ 10'

Lab Sample ID: 570-159800-15

Date Collected: 11/01/23 09:37

Matrix: Solid

Date Received: 11/07/23 18:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			9.99 g	10 mL	381828	11/08/23 18:28	KH3Z	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	386171	11/22/23 04:09	SP9M	EET CAL 4
	Instrument ID: GC50									
Total/NA	Prep	3050B			2.04 g	50 mL	382315	11/10/23 06:55	GYR8	EET CAL 4
Total/NA	Analysis	6010B		5			382894	11/12/23 00:10	K1UV	EET CAL 4
	Instrument ID: ICP11									
Total/NA	Prep	7471A			0.49 g	50 mL	384956	11/17/23 16:05	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			386126	11/21/23 20:01	CS5Z	EET CAL 4
	Instrument ID: HG8									

Lab Chronicle

Client: NOVA Services
Job ID: 570-159800-1
Project/Site: Euclid Ave. Downtown Recycled Water Proj.,UT 1072

Client Sample ID: B-21 @ 10'

Lab Sample ID: 570-159800-16
Date Collected: 11/01/23 11:23
Matrix: Solid
Date Received: 11/07/23 18:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			9.82 g	10 mL	381828	11/08/23 18:28	KH3Z	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	386171	11/22/23 04:31	SP9M	EET CAL 4
	Instrument ID:	GC50								
Total/NA	Prep	3050B			2.05 g	50 mL	382315	11/10/23 06:55	GYR8	EET CAL 4
Total/NA	Analysis	6010B		5			382894	11/12/23 00:13	K1UV	EET CAL 4
	Instrument ID:	ICP11								
Total/NA	Prep	7471A			0.50 g	50 mL	384956	11/17/23 16:05	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			386126	11/21/23 20:03	CS5Z	EET CAL 4
	Instrument ID:	HG8								

Client Sample ID: B-20 @ 5'

Lab Sample ID: 570-159800-17
Date Collected: 11/01/23 12:27
Matrix: Solid
Date Received: 11/07/23 18:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C	RA		10.34 g	10 mL	381828	11/08/23 18:28	KH3Z	EET CAL 4
Total/NA	Analysis	8015B	RA	1	10 mL	10 mL	387129	11/28/23 13:14	SP9M	EET CAL 4
	Instrument ID:	GC50								
Total/NA	Prep	3050B			1.98 g	50 mL	382315	11/10/23 06:55	GYR8	EET CAL 4
Total/NA	Analysis	6010B		5			382894	11/12/23 00:20	K1UV	EET CAL 4
	Instrument ID:	ICP11								
Total/NA	Prep	7471A			0.52 g	50 mL	384956	11/17/23 16:05	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			386126	11/21/23 20:05	CS5Z	EET CAL 4
	Instrument ID:	HG8								

Client Sample ID: B-19 @ 10'

Lab Sample ID: 570-159800-18
Date Collected: 11/01/23 14:32
Matrix: Solid
Date Received: 11/07/23 18:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			9.61 g	10 mL	381828	11/08/23 18:28	KH3Z	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	386171	11/22/23 05:15	SP9M	EET CAL 4
	Instrument ID:	GC50								
Total/NA	Prep	3050B			1.96 g	50 mL	382315	11/10/23 06:55	GYR8	EET CAL 4
Total/NA	Analysis	6010B		5			382894	11/12/23 00:22	K1UV	EET CAL 4
	Instrument ID:	ICP11								
Total/NA	Prep	7471A			0.53 g	50 mL	384956	11/17/23 16:05	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			386126	11/21/23 20:07	CS5Z	EET CAL 4
	Instrument ID:	HG8								

Lab Chronicle

Client Sample ID: B-18 @ 5'

Lab Sample ID: 570-159800-19

Date Collected: 11/02/23 07:51

Matrix: Solid

Date Received: 11/07/23 18:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			9.55 g	10 mL	381828	11/08/23 18:28	KH3Z	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	386171	11/22/23 06:20	SP9M	EET CAL 4
	Instrument ID:	GC50								
Total/NA	Prep	3050B			1.97 g	50 mL	382315	11/10/23 06:55	GYR8	EET CAL 4
Total/NA	Analysis	6010B		5			382894	11/12/23 00:25	K1UV	EET CAL 4
	Instrument ID:	ICP11								
Total/NA	Prep	7471A			0.52 g	50 mL	384956	11/17/23 16:05	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			386126	11/21/23 20:09	CS5Z	EET CAL 4
	Instrument ID:	HG8								

Client Sample ID: B-17 @ 10'

Lab Sample ID: 570-159800-20

Date Collected: 11/02/23 08:41

Matrix: Solid

Date Received: 11/07/23 18:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			9.52 g	10 mL	381828	11/08/23 18:28	KH3Z	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	386171	11/22/23 06:42	SP9M	EET CAL 4
	Instrument ID:	GC50								
Total/NA	Prep	3050B			2.03 g	50 mL	382315	11/10/23 06:55	GYR8	EET CAL 4
Total/NA	Analysis	6010B		5			382894	11/12/23 00:27	K1UV	EET CAL 4
	Instrument ID:	ICP11								
Total/NA	Prep	7471A			0.49 g	50 mL	384957	11/17/23 16:08	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			386126	11/21/23 18:31	CS5Z	EET CAL 4
	Instrument ID:	HG8								

Client Sample ID: B-16 @ 5'

Lab Sample ID: 570-159800-21

Date Collected: 11/02/23 09:27

Matrix: Solid

Date Received: 11/07/23 18:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			9.59 g	10 mL	381828	11/08/23 18:28	KH3Z	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	386171	11/22/23 07:04	SP9M	EET CAL 4
	Instrument ID:	GC50								
Total/NA	Prep	3050B			2.00 g	50 mL	382317	11/10/23 07:17	GYR8	EET CAL 4
Total/NA	Analysis	6010B		5			382892	11/11/23 19:49	K1UV	EET CAL 4
	Instrument ID:	ICP11								
Total/NA	Prep	7471A			0.47 g	50 mL	384956	11/17/23 16:05	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			386126	11/21/23 19:19	CS5Z	EET CAL 4
	Instrument ID:	HG8								

## Client Sample ID: B-15 @ 10'	Lab Sample ID: 570-159800-22

Date Collected: 11/02/23 10:20	**Matrix: Solid**

Date Received: 11/07/23 18:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			9.60 g	10 mL	381828	11/08/23 18:28	KH3Z	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	386171	11/22/23 07:25	SP9M	EET CAL 4
	Instrument ID: GC50									
Total/NA	Prep	3050B			1.99 g	50 mL	382317	11/10/23 07:17	GYR8	EET CAL 4
Total/NA	Analysis	6010B		5			382892	11/11/23 20:03	K1UV	EET CAL 4
	Instrument ID: ICP11									
Total/NA	Prep	7471A			0.52 g	50 mL	384957	11/17/23 16:08	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			386126	11/21/23 18:33	CS5Z	EET CAL 4
	Instrument ID: HG8									

## Client Sample ID: B-22 @ 5'	Lab Sample ID: 570-159800-23

Date Collected: 11/02/23 12:52	**Matrix: Solid**

Date Received: 11/07/23 18:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			10.30 g	10 mL	381828	11/08/23 18:28	KH3Z	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	386171	11/22/23 07:47	SP9M	EET CAL 4
	Instrument ID: GC50									
Total/NA	Prep	3050B			1.97 g	50 mL	382317	11/10/23 07:17	GYR8	EET CAL 4
Total/NA	Analysis	6010B		5			382892	11/11/23 20:05	K1UV	EET CAL 4
	Instrument ID: ICP11									
Total/NA	Prep	7471A			0.51 g	50 mL	384957	11/17/23 16:08	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			386126	11/21/23 18:35	CS5Z	EET CAL 4
	Instrument ID: HG8									

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: NOVA Services
Project/Site: Euclid Ave. Downtown Recycled Water Proj.,UT 1072

Job ID: 570-159800-1

Laboratory: Eurofins Calscience

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	3082	07-31-24
Oregon	NELAP	4175	02-02-24

Method Summary

Client: NOVA Services

Job ID: 570-159800-1

Project/Site: Euclid Ave. Downtown Recycled Water Proj.,UT 1072

Method	Method Description	Protocol	Laboratory
8015B	Diesel Range Organics (DRO) (GC)	SW846	EET CAL 4
6010B	Metals (ICP)	SW846	EET CAL 4
7471A	Mercury (CVAA)	SW846	EET CAL 4
3050B	Preparation, Metals	SW846	EET CAL 4
3550C	Ultrasonic Extraction	SW846	EET CAL 4
7471A	Preparation, Mercury	SW846	EET CAL 4

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Sample Summary

Client: NOVA Services

Job ID: 570-159800-1

Project/Site: Euclid Ave. Downtown Recycled Water Proj.,UT 1072

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-159800-1	B-14 @ 5'	Solid	10/25/23 11:11	11/07/23 18:50
570-159800-2	B-13 @ 10'	Solid	10/25/23 12:49	11/07/23 18:50
570-159800-3	B-11 @ 10'	Solid	10/25/23 15:15	11/07/23 18:50
570-159800-4	B-12 @ 5'	Solid	10/26/23 09:04	11/07/23 18:50
570-159800-5	B-7 @ 10'	Solid	10/26/23 10:30	11/07/23 18:50
570-159800-6	B-10 @ 5'	Solid	10/26/23 11:45	11/07/23 18:50
570-159800-7	B-9 @ 10'	Solid	10/26/23 14:25	11/07/23 18:50
570-159800-8	B-30 @ 5'	Solid	10/27/23 08:35	11/07/23 18:50
570-159800-9	B-28 @ 10'	Solid	10/27/23 10:10	11/07/23 18:50
570-159800-10	B-29 @ 10'	Solid	10/27/23 11:22	11/07/23 18:50
570-159800-11	B-27 @ 5'	Solid	10/27/23 12:36	11/07/23 18:50
570-159800-12	B-26 @ 5'	Solid	10/27/23 14:52	11/07/23 18:50
570-159800-13	B-25 @ 10'	Solid	11/01/23 07:57	11/07/23 18:50
570-159800-14	B-24 @ 5'	Solid	11/01/23 08:35	11/07/23 18:50
570-159800-15	B-23 @ 10'	Solid	11/01/23 09:37	11/07/23 18:50
570-159800-16	B-21 @ 10'	Solid	11/01/23 11:23	11/07/23 18:50
570-159800-17	B-20 @ 5'	Solid	11/01/23 12:27	11/07/23 18:50
570-159800-18	B-19 @ 10'	Solid	11/01/23 14:32	11/07/23 18:50
570-159800-19	B-18 @ 5'	Solid	11/02/23 07:51	11/07/23 18:50
570-159800-20	B-17 @ 10'	Solid	11/02/23 08:41	11/07/23 18:50
570-159800-21	B-16 @ 5'	Solid	11/02/23 09:27	11/07/23 18:50
570-159800-22	B-15 @ 10'	Solid	11/02/23 10:20	11/07/23 18:50
570-159800-23	B-22 @ 5'	Solid	11/02/23 12:52	11/07/23 18:50

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7440 Lincoln Way, Garden Grove, CA 92841-1427 (714) 895-5494

570-159800 Chain of Custody

Loc: 570
159800

CHAIN OF CUSTODY RECORD

DATE: 11/7/2023

PAGE: 1 OF 3

LABORATORY CLIENT: NOVA Services, Inc.

ADDRESS: 4373 Viewridge Avenue, Suite B

CITY: San Diego STATE: CA ZIP: 92123

TEL: 619-922-6889 FAX: E-MAIL: anuehaus@usa-nova.com

CLIENT PROJECT NAME / NUMBER: Euclid Avenue Downtown Recycled Water Project, UT 1072 / 2023168

P.O. NO.:

PROJECT CONTACT: Andrew Neuhaus

LAB CONTACT OR QUOTE NO.:

SAMPLER(S): (SIGNATURE) Giovanni Norman

LAB USE ONLY ☐☐-☐☐☐☐

TURNAROUND TIME:

☐ SAME DAY ☐ 24 HR 48 HR ☐ 72 HR ☐ 5 DAYS ☒ STANDARD

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)

☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ___/___/___

SPECIAL INSTRUCTIONS:

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	LOCATION / DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	TPH (C8-C40) (8015 Modified)	CAM 17 Total Metals by EPA Methods 6010B and 7471A
1	B-14 @ 5'		10/25/23	11:11	Soil	1	/	/
2	B-13 @ 10		10/25/23	12:49	Soil	1	/	/
3	B-11 @10		10/25/23	15:15	Soil	1	/	/
4	B-12 @ 5		10/26/23	9:04	Soil	1	/	/
5	B-7 @ 10		10/26/23	10:30	Soil	1	/	/
6	B-10 @ 5		10/26/23	11:45	Soil	1	/	/
7	B-9 @ 10		10/26/23	14:25	Soil	1	/	/
8	B-30 @ 5		10/27/23	8:35	Soil	1	/	/
9	B-28 @ 10		10/27/23	10:10	Soil	1	/	/
10	B-29 @ 10		10/27/23	11:22	Soil	1	/	/

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
	William Rivera	11.7.23	12:35
William Rivera	Daniel Perez EC	11/7/23	1850

1.2°/1.5° SC14

02/24/10 Revision

159800

eurofins | Calscience

7440 Lincoln Way, Garden Grove, CA 92841-1427 (714) 895-5494

CHAIN OF CUSTODY RECORD

DATE: 11/7/2023

PAGE: 2 OF 3

LABORATORY CLIENT: NOVA Services, Inc.

ADDRESS: 4373 Viewridge Avenue, Suite B

CITY: San Diego STATE: CA ZIP: 92123

TEL: 619-922-6889 FAX: E-MAIL: anuehaus@usa-nova.com

CLIENT PROJECT NAME / NUMBER: Euclid Avenue Downtown Recycled Water Project, UT 1072 / 2023168

P.O. NO.:

PROJECT CONTACT: Andrew Neuhaus

LAB CONTACT OR QUOTE NO.:

SAMPLER(S): (SIGNATURE) Giovanni Norman

LAB USE ONLY ☐☐-☐☐☐☐

TURNAROUND TIME:
☐ SAME DAY ☐ 24 HR 48 HR ☐ 72 HR ☐ 5 DAYS ☒ STANDARD

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)
☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ____ / ____ / ____

SPECIAL INSTRUCTIONS:

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	LOCATION / DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	TPH (C8-C40) (8015 Modified)	CAM 17 Total Metals by EPA Methods 6010B and 7471A
11	B-27 @ 5		10/27/23	12:36	Soil	1	/	/
12	B-26 @ 5		10/27/23	14:52	Soil	1	/	/
13	B-25 @ 10		11/1/23	7:57	Soil	1	/	/
14	B-24 @ 5		11/1/23	8:35	Soil	1	/	/
15	B-23 @ 10		11/1/23	9:37	Soil	1	/	/
16	B-21 @ 10		11/1/23	11:23	Soil	1	/	/
17	B-20 @ 5		11/1/23	12:27	Soil	1	/	/
18	B-19 @ 10		11/1/23	14:32	Soil	1	/	/
19	B-18 @ 5		11/2/23	7:51	Soil	1	/	/
20	B-17@ 10		11/2/23	8:41	Soil	1	/	/

Relinquished by: (Signature)	Received by: (Signature) William Rivera	Date: 11.7.23	Time: 12:35
Relinquished by: (Signature) William Rivera	Received by: (Signature) Daniel D	Date: 11/7/23	Time: 1850
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

02/24/10 Revision

159800

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7440 Lincoln Way, Garden Grove, CA 92841-1427 (714) 895-5494

CHAIN OF CUSTODY RECORD

DATE: 11/7/2023
PAGE: 3 OF 1

LABORATORY CLIENT: NOVA Services, Inc.
ADDRESS: 4373 Viewridge Avenue, Suite B
CITY: San Diego STATE: CA ZIP: 92123
TEL: 619-922-6889 FAX: E-MAIL: anuehaus@usa-nova.com

CLIENT PROJECT NAME / NUMBER: Euclid Avenue Downtown Recycled Water Project, UT 1072 / 2023168
P.O. NO.:
PROJECT CONTACT: Andrew Neuhaus
LAB CONTACT OR QUOTE NO.:
SAMPLER(S): (SIGNATURE) Giovanni Norman
LAB USE ONLY ☐☐-☐☐☐☐

TURNAROUND TIME:
☐ SAME DAY ☐ 24 HR 48 HR ☐ 72 HR ☐ 5 DAYS ☒ STANDARD

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)
☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ____/____/____

SPECIAL INSTRUCTIONS:

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	LOCATION / DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	TPH (C8-C40) (8015 Modified)	CAM 17 Total Metals by EPA Methods 6010B and 7471A
21	B-16 @ 5		11/2/23	9:27	Soil	1		
22	B-15 @ 10		11/2/23	10:20	Soil	1		
23	B-22 @ 5		11/2/23	12:52	Soil	1		

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
	William Rivera	11.7.23	12:35
William Rivera	Daniel	11/7/23	1850

02/24/10 Revision

Login Sample Receipt Checklist

Client: NOVA Services

Job Number: 570-159800-1

Login Number: 159800

List Number: 1

Creator: Vitente, Precy

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Andrew K Neuhaus
NOVA Services
4373 Viewridge Avenue, Suite B
San Diego, California 92123

Generated 1/30/2024 10:22:53 PM

JOB DESCRIPTION

Euclid Ave. Downtown Recycled Water Project
UT 1072 / 2023168

JOB NUMBER

570-168610-1

Eurofins Calscience
2841 Dow Avenue, Suite 100
Tustin CA 92780

See page two for job notes and contact information.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization

Terri Chang

Authorized for release by
Terri Chang, Project Manager I
Terri.Chang@et.eurofinsus.com
(657)210-6295

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1/30/2024 10:22:53 PM

Table of Contents

Definitions/Glossary

Client: NOVA Services
Project/Site: Euclid Ave. Downtown Recycled Water Project

Job ID: 570-168610-1
SDG: UT 1072 / 2023168

Qualifiers

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Job ID: 570-168610-1 Eurofins Calscience

Job Narrative
570-168610-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 1/18/2024 7:12 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.8°C

Diesel Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals
Method 6010B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 570-404513 and analytical batch 570-405171 were outside control limits for Antimony. See QC Sample Results for detail. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery is within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Detection Summary

Client: NOVA Services
Project/Site: Euclid Ave. Downtown Recycled Water Project

Job ID: 570-168610-1
SDG: UT 1072 / 2023168

Client Sample ID: B-8 @ 10 — Lab Sample ID: 570-168610-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
C8-C40	12		4.8		mg/Kg	1		8015B	Total/NA
Barium	14.3		2.99		mg/Kg	5		6010B	Total/NA
Chromium	6.14		0.995		mg/Kg	5		6010B	Total/NA
Cobalt	2.96		0.995		mg/Kg	5		6010B	Total/NA
Copper	7.49		1.99		mg/Kg	5		6010B	Total/NA
Lead	2.28		1.99		mg/Kg	5		6010B	Total/NA
Nickel	4.34		1.99		mg/Kg	5		6010B	Total/NA
Vanadium	13.0		0.995		mg/Kg	5		6010B	Total/NA
Zinc	18.9		4.98		mg/Kg	5		6010B	Total/NA

Client Sample ID: B-6 @ 5 — Lab Sample ID: 570-168610-2

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
C8-C40	7.0		4.9		mg/Kg	1		8015B	Total/NA
Barium	25.3		2.97		mg/Kg	5		6010B	Total/NA
Chromium	13.9		0.990		mg/Kg	5		6010B	Total/NA
Cobalt	4.65		0.990		mg/Kg	5		6010B	Total/NA
Copper	10.7		1.98		mg/Kg	5		6010B	Total/NA
Lead	2.29		1.98		mg/Kg	5		6010B	Total/NA
Nickel	11.0		1.98		mg/Kg	5		6010B	Total/NA
Vanadium	19.6		0.990		mg/Kg	5		6010B	Total/NA
Zinc	25.2		4.95		mg/Kg	5		6010B	Total/NA

Client Sample ID: B-5 @ 10 — Lab Sample ID: 570-168610-3

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Barium	26.7		2.97		mg/Kg	5		6010B	Total/NA
Chromium	9.60		0.990		mg/Kg	5		6010B	Total/NA
Cobalt	5.98		0.990		mg/Kg	5		6010B	Total/NA
Copper	68.9		1.98		mg/Kg	5		6010B	Total/NA
Lead	3.51		1.98		mg/Kg	5		6010B	Total/NA
Nickel	8.33		1.98		mg/Kg	5		6010B	Total/NA
Vanadium	21.9		0.990		mg/Kg	5		6010B	Total/NA
Zinc	58.0		4.95		mg/Kg	5		6010B	Total/NA

Client Sample ID: B-4 @ 5 — Lab Sample ID: 570-168610-4

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
C11-C12	8.4		4.8		mg/Kg	1		8015B	Total/NA
C13-C14	33		4.8		mg/Kg	1		8015B	Total/NA
C21-C22	5.8		4.8		mg/Kg	1		8015B	Total/NA
C23-C24	17		4.8		mg/Kg	1		8015B	Total/NA
C25-C28	48		4.8		mg/Kg	1		8015B	Total/NA
C29-C32	26		4.8		mg/Kg	1		8015B	Total/NA
C33-C36	7.8		4.8		mg/Kg	1		8015B	Total/NA
C8-C40	150		4.8		mg/Kg	1		8015B	Total/NA
Barium	26.2		3.00		mg/Kg	5		6010B	Total/NA
Chromium	9.90		1.00		mg/Kg	5		6010B	Total/NA
Cobalt	4.70		1.00		mg/Kg	5		6010B	Total/NA
Copper	12.9		2.00		mg/Kg	5		6010B	Total/NA
Lead	2.98		2.00		mg/Kg	5		6010B	Total/NA
Nickel	7.20		2.00		mg/Kg	5		6010B	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: NOVA Services
Job ID: 570-168610-1
Project/Site: Euclid Ave. Downtown Recycled Water Project
SDG: UT 1072 / 2023168

Client Sample ID: B-4 @ 5 (Continued)

Lab Sample ID: 570-168610-4

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Vanadium	19.8		1.00		mg/Kg	5		6010B	Total/NA
Zinc	30.9		5.00		mg/Kg	5		6010B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Method: SW846 8015B - Diesel Range Organics (DRO) (GC)

Client Sample ID: B-8 @ 10
Date Collected: 01/17/24 10:38
Date Received: 01/18/24 19:12
Lab Sample ID: 570-168610-1
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		4.8		mg/Kg		01/22/24 10:25	01/23/24 07:35	1
C9-C10	ND		4.8		mg/Kg		01/22/24 10:25	01/23/24 07:35	1
C11-C12	ND		4.8		mg/Kg		01/22/24 10:25	01/23/24 07:35	1
C13-C14	ND		4.8		mg/Kg		01/22/24 10:25	01/23/24 07:35	1
C15-C16	ND		4.8		mg/Kg		01/22/24 10:25	01/23/24 07:35	1
C17-C18	ND		4.8		mg/Kg		01/22/24 10:25	01/23/24 07:35	1
C19-C20	ND		4.8		mg/Kg		01/22/24 10:25	01/23/24 07:35	1
C21-C22	ND		4.8		mg/Kg		01/22/24 10:25	01/23/24 07:35	1
C23-C24	ND		4.8		mg/Kg		01/22/24 10:25	01/23/24 07:35	1
C25-C28	ND		4.8		mg/Kg		01/22/24 10:25	01/23/24 07:35	1
C29-C32	ND		4.8		mg/Kg		01/22/24 10:25	01/23/24 07:35	1
C33-C36	ND		4.8		mg/Kg		01/22/24 10:25	01/23/24 07:35	1
C37-C40	ND		4.8		mg/Kg		01/22/24 10:25	01/23/24 07:35	1
C8-C40	**12**		4.8		mg/Kg		01/22/24 10:25	01/23/24 07:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*107*		*60 - 138*	*01/22/24 10:25*	*01/23/24 07:35*	*1*

Client Sample ID: B-6 @ 5
Date Collected: 01/17/24 12:15
Date Received: 01/18/24 19:12
Lab Sample ID: 570-168610-2
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 08:38	1
C9-C10	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 08:38	1
C11-C12	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 08:38	1
C13-C14	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 08:38	1
C15-C16	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 08:38	1
C17-C18	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 08:38	1
C19-C20	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 08:38	1
C21-C22	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 08:38	1
C23-C24	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 08:38	1
C25-C28	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 08:38	1
C29-C32	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 08:38	1
C33-C36	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 08:38	1
C37-C40	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 08:38	1
C8-C40	**7.0**		4.9		mg/Kg		01/22/24 10:25	01/23/24 08:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*107*		*60 - 138*	*01/22/24 10:25*	*01/23/24 08:38*	*1*

Client Sample ID: B-5 @ 10
Date Collected: 01/17/24 13:43
Date Received: 01/18/24 19:12
Lab Sample ID: 570-168610-3
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 09:00	1
C9-C10	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 09:00	1
C11-C12	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 09:00	1
C13-C14	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 09:00	1
C15-C16	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 09:00	1
C17-C18	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 09:00	1

Client Sample Results

Method: SW846 8015B - Diesel Range Organics (DRO) (GC) (Continued)

Client Sample ID: B-5 @ 10
Date Collected: 01/17/24 13:43
Date Received: 01/18/24 19:12

Lab Sample ID: 570-168610-3
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
C19-C20	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 09:00	1
C21-C22	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 09:00	1
C23-C24	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 09:00	1
C25-C28	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 09:00	1
C29-C32	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 09:00	1
C33-C36	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 09:00	1
C37-C40	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 09:00	1
C8-C40	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 09:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*106*		*60 - 138*	*01/22/24 10:25*	*01/23/24 09:00*	*1*

Client Sample ID: B-4 @ 5
Date Collected: 01/18/24 10:22
Date Received: 01/18/24 19:12

Lab Sample ID: 570-168610-4
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		4.8		mg/Kg		01/22/24 10:25	01/23/24 09:20	1
C9-C10	ND		4.8		mg/Kg		01/22/24 10:25	01/23/24 09:20	1
C11-C12	**8.4**		4.8		mg/Kg		01/22/24 10:25	01/23/24 09:20	1
C13-C14	**33**		4.8		mg/Kg		01/22/24 10:25	01/23/24 09:20	1
C15-C16	ND		4.8		mg/Kg		01/22/24 10:25	01/23/24 09:20	1
C17-C18	ND		4.8		mg/Kg		01/22/24 10:25	01/23/24 09:20	1
C19-C20	ND		4.8		mg/Kg		01/22/24 10:25	01/23/24 09:20	1
C21-C22	**5.8**		4.8		mg/Kg		01/22/24 10:25	01/23/24 09:20	1
C23-C24	**17**		4.8		mg/Kg		01/22/24 10:25	01/23/24 09:20	1
C25-C28	**48**		4.8		mg/Kg		01/22/24 10:25	01/23/24 09:20	1
C29-C32	**26**		4.8		mg/Kg		01/22/24 10:25	01/23/24 09:20	1
C33-C36	**7.8**		4.8		mg/Kg		01/22/24 10:25	01/23/24 09:20	1
C37-C40	ND		4.8		mg/Kg		01/22/24 10:25	01/23/24 09:20	1
C8-C40	**150**		4.8		mg/Kg		01/22/24 10:25	01/23/24 09:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*108*		*60 - 138*	*01/22/24 10:25*	*01/23/24 09:20*	*1*

Method: SW846 6010B - Metals (ICP)

Client Sample ID: B-8 @ 10
Date Collected: 01/17/24 10:38
Date Received: 01/18/24 19:12

Lab Sample ID: 570-168610-1
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND	F1	9.95		mg/Kg		01/26/24 10:32	01/26/24 19:06	5
Arsenic	ND		2.99		mg/Kg		01/26/24 10:32	01/26/24 19:06	5
Barium	**14.3**		2.99		mg/Kg		01/26/24 10:32	01/26/24 19:06	5
Beryllium	ND		0.498		mg/Kg		01/26/24 10:32	01/26/24 19:06	5
Cadmium	ND		0.498		mg/Kg		01/26/24 10:32	01/26/24 19:06	5
Chromium	**6.14**		0.995		mg/Kg		01/26/24 10:32	01/26/24 19:06	5
Cobalt	**2.96**		0.995		mg/Kg		01/26/24 10:32	01/26/24 19:06	5
Copper	**7.49**		1.99		mg/Kg		01/26/24 10:32	01/26/24 19:06	5
Lead	**2.28**		1.99		mg/Kg		01/26/24 10:32	01/26/24 19:06	5
Molybdenum	ND		1.99		mg/Kg		01/26/24 10:32	01/26/24 19:06	5
Nickel	**4.34**		1.99		mg/Kg		01/26/24 10:32	01/26/24 19:06	5
Selenium	ND		2.99		mg/Kg		01/26/24 10:32	01/26/24 19:06	5
Silver	ND		1.49		mg/Kg		01/26/24 10:32	01/26/24 19:06	5
Thallium	ND		9.95		mg/Kg		01/26/24 10:32	01/26/24 19:06	5
Vanadium	**13.0**		0.995		mg/Kg		01/26/24 10:32	01/26/24 19:06	5
Zinc	**18.9**		4.98		mg/Kg		01/26/24 10:32	01/26/24 19:06	5

Client Sample ID: B-6 @ 5
Date Collected: 01/17/24 12:15
Date Received: 01/18/24 19:12

Lab Sample ID: 570-168610-2
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		9.90		mg/Kg		01/26/24 10:32	01/26/24 20:47	5
Arsenic	ND		2.97		mg/Kg		01/26/24 10:32	01/26/24 20:47	5
Barium	**25.3**		2.97		mg/Kg		01/26/24 10:32	01/26/24 20:47	5
Beryllium	ND		0.495		mg/Kg		01/26/24 10:32	01/26/24 20:47	5
Cadmium	ND		0.495		mg/Kg		01/26/24 10:32	01/26/24 20:47	5
Chromium	**13.9**		0.990		mg/Kg		01/26/24 10:32	01/26/24 20:47	5
Cobalt	**4.65**		0.990		mg/Kg		01/26/24 10:32	01/26/24 20:47	5
Copper	**10.7**		1.98		mg/Kg		01/26/24 10:32	01/26/24 20:47	5
Lead	**2.29**		1.98		mg/Kg		01/26/24 10:32	01/26/24 20:47	5
Molybdenum	ND		1.98		mg/Kg		01/26/24 10:32	01/26/24 20:47	5
Nickel	**11.0**		1.98		mg/Kg		01/26/24 10:32	01/26/24 20:47	5
Selenium	ND		2.97		mg/Kg		01/26/24 10:32	01/26/24 20:47	5
Silver	ND		1.49		mg/Kg		01/26/24 10:32	01/26/24 20:47	5
Thallium	ND		9.90		mg/Kg		01/26/24 10:32	01/26/24 20:47	5
Vanadium	**19.6**		0.990		mg/Kg		01/26/24 10:32	01/26/24 20:47	5
Zinc	**25.2**		4.95		mg/Kg		01/26/24 10:32	01/26/24 20:47	5

Client Sample ID: B-5 @ 10
Date Collected: 01/17/24 13:43
Date Received: 01/18/24 19:12

Lab Sample ID: 570-168610-3
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		9.90		mg/Kg		01/26/24 10:32	01/26/24 20:50	5
Arsenic	ND		2.97		mg/Kg		01/26/24 10:32	01/26/24 20:50	5
Barium	**26.7**		2.97		mg/Kg		01/26/24 10:32	01/26/24 20:50	5
Beryllium	ND		0.495		mg/Kg		01/26/24 10:32	01/26/24 20:50	5
Cadmium	ND		0.495		mg/Kg		01/26/24 10:32	01/26/24 20:50	5
Chromium	**9.60**		0.990		mg/Kg		01/26/24 10:32	01/26/24 20:50	5
Cobalt	**5.98**		0.990		mg/Kg		01/26/24 10:32	01/26/24 20:50	5
Copper	**68.9**		1.98		mg/Kg		01/26/24 10:32	01/26/24 20:50	5

Method: SW846 6010B - Metals (ICP) (Continued)

Client Sample ID: B-5 @ 10
Date Collected: 01/17/24 13:43
Date Received: 01/18/24 19:12
Lab Sample ID: 570-168610-3
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Lead	**3.51**		1.98		mg/Kg		01/26/24 10:32	01/26/24 20:50	5
Molybdenum	ND		1.98		mg/Kg		01/26/24 10:32	01/26/24 20:50	5
Nickel	**8.33**		1.98		mg/Kg		01/26/24 10:32	01/26/24 20:50	5
Selenium	ND		2.97		mg/Kg		01/26/24 10:32	01/26/24 20:50	5
Silver	ND		1.49		mg/Kg		01/26/24 10:32	01/26/24 20:50	5
Thallium	ND		9.90		mg/Kg		01/26/24 10:32	01/26/24 20:50	5
Vanadium	**21.9**		0.990		mg/Kg		01/26/24 10:32	01/26/24 20:50	5
Zinc	**58.0**		4.95		mg/Kg		01/26/24 10:32	01/26/24 20:50	5

Client Sample ID: B-4 @ 5
Date Collected: 01/18/24 10:22
Date Received: 01/18/24 19:12
Lab Sample ID: 570-168610-4
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		10.0		mg/Kg		01/26/24 10:32	01/26/24 20:52	5
Arsenic	ND		3.00		mg/Kg		01/26/24 10:32	01/26/24 20:52	5
Barium	**26.2**		3.00		mg/Kg		01/26/24 10:32	01/26/24 20:52	5
Beryllium	ND		0.500		mg/Kg		01/26/24 10:32	01/26/24 20:52	5
Cadmium	ND		0.500		mg/Kg		01/26/24 10:32	01/26/24 20:52	5
Chromium	**9.90**		1.00		mg/Kg		01/26/24 10:32	01/26/24 20:52	5
Cobalt	**4.70**		1.00		mg/Kg		01/26/24 10:32	01/26/24 20:52	5
Copper	**12.9**		2.00		mg/Kg		01/26/24 10:32	01/26/24 20:52	5
Lead	**2.98**		2.00		mg/Kg		01/26/24 10:32	01/26/24 20:52	5
Molybdenum	ND		2.00		mg/Kg		01/26/24 10:32	01/26/24 20:52	5
Nickel	**7.20**		2.00		mg/Kg		01/26/24 10:32	01/26/24 20:52	5
Selenium	ND		3.00		mg/Kg		01/26/24 10:32	01/26/24 20:52	5
Silver	ND		1.50		mg/Kg		01/26/24 10:32	01/26/24 20:52	5
Thallium	ND		10.0		mg/Kg		01/26/24 10:32	01/26/24 20:52	5
Vanadium	**19.8**		1.00		mg/Kg		01/26/24 10:32	01/26/24 20:52	5
Zinc	**30.9**		5.00		mg/Kg		01/26/24 10:32	01/26/24 20:52	5

Method: SW846 7471A - Mercury (CVAA)

Client Sample ID: B-8 @ 10
Lab Sample ID: 570-168610-1
Date Collected: 01/17/24 10:38
Matrix: Solid
Date Received: 01/18/24 19:12

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0786		mg/Kg		01/24/24 15:11	01/25/24 13:45	1

Client Sample ID: B-6 @ 5
Lab Sample ID: 570-168610-2
Date Collected: 01/17/24 12:15
Matrix: Solid
Date Received: 01/18/24 19:12

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0817		mg/Kg		01/24/24 15:11	01/25/24 13:47	1

Client Sample ID: B-5 @ 10
Lab Sample ID: 570-168610-3
Date Collected: 01/17/24 13:43
Matrix: Solid
Date Received: 01/18/24 19:12

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0850		mg/Kg		01/24/24 15:11	01/25/24 13:49	1

Client Sample ID: B-4 @ 5
Lab Sample ID: 570-168610-4
Date Collected: 01/18/24 10:22
Matrix: Solid
Date Received: 01/18/24 19:12

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0817		mg/Kg		01/24/24 15:11	01/25/24 13:51	1

Surrogate Summary

Client: NOVA Services
Project/Site: Euclid Ave. Downtown Recycled Water Project

Job ID: 570-168610-1
SDG: UT 1072 / 2023168

Method: 8015B - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	**Client Sample ID**	**OTCSN1** **(60-138)**
570-168610-1	B-8 @ 10	107
570-168610-2	B-6 @ 5	107
570-168610-3	B-5 @ 10	106
570-168610-4	B-4 @ 5	108
LCS 570-403145/2-A	Lab Control Sample	105
LCSD 570-403145/3-A	Lab Control Sample Dup	104
MB 570-403145/1-A	Method Blank	100

Surrogate Legend

OTCSN = n-Octacosane (Surr)

Method: 8015B - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 570-403145/1-A
Matrix: Solid
Analysis Batch: 403421

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 403145

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		5.0		mg/Kg		01/22/24 10:25	01/23/24 03:02	1
C9-C10	ND		5.0		mg/Kg		01/22/24 10:25	01/23/24 03:02	1
C11-C12	ND		5.0		mg/Kg		01/22/24 10:25	01/23/24 03:02	1
C13-C14	ND		5.0		mg/Kg		01/22/24 10:25	01/23/24 03:02	1
C15-C16	ND		5.0		mg/Kg		01/22/24 10:25	01/23/24 03:02	1
C17-C18	ND		5.0		mg/Kg		01/22/24 10:25	01/23/24 03:02	1
C19-C20	ND		5.0		mg/Kg		01/22/24 10:25	01/23/24 03:02	1
C21-C22	ND		5.0		mg/Kg		01/22/24 10:25	01/23/24 03:02	1
C23-C24	ND		5.0		mg/Kg		01/22/24 10:25	01/23/24 03:02	1
C25-C28	ND		5.0		mg/Kg		01/22/24 10:25	01/23/24 03:02	1
C29-C32	ND		5.0		mg/Kg		01/22/24 10:25	01/23/24 03:02	1
C33-C36	ND		5.0		mg/Kg		01/22/24 10:25	01/23/24 03:02	1
C37-C40	ND		5.0		mg/Kg		01/22/24 10:25	01/23/24 03:02	1
C8-C40	ND		5.0		mg/Kg		01/22/24 10:25	01/23/24 03:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*100*		*60 - 138*	*01/22/24 10:25*	*01/23/24 03:02*	*1*

Lab Sample ID: LCS 570-403145/2-A
Matrix: Solid
Analysis Batch: 403421

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 403145

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			400	429.3		mg/Kg		107	80 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Octacosane (Surr)	*105*		*60 - 138*

Lab Sample ID: LCSD 570-403145/3-A
Matrix: Solid
Analysis Batch: 403421

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 403145

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]			400	419.9		mg/Kg		105	80 - 130	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
n-Octacosane (Surr)	*104*		*60 - 138*

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 570-404513/1-A ^5
Matrix: Solid
Analysis Batch: 405171

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 404513

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		10.1		mg/Kg		01/26/24 10:32	01/26/24 18:35	5

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: MB 570-404513/1-A ^5
Matrix: Solid
Analysis Batch: 405171

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 404513

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		3.02		mg/Kg		01/26/24 10:32	01/26/24 18:35	5
Barium	ND		3.02		mg/Kg		01/26/24 10:32	01/26/24 18:35	5
Beryllium	ND		0.503		mg/Kg		01/26/24 10:32	01/26/24 18:35	5
Cadmium	ND		0.503		mg/Kg		01/26/24 10:32	01/26/24 18:35	5
Chromium	ND		1.01		mg/Kg		01/26/24 10:32	01/26/24 18:35	5
Cobalt	ND		1.01		mg/Kg		01/26/24 10:32	01/26/24 18:35	5
Copper	ND		2.01		mg/Kg		01/26/24 10:32	01/26/24 18:35	5
Lead	ND		2.01		mg/Kg		01/26/24 10:32	01/26/24 18:35	5
Molybdenum	ND		2.01		mg/Kg		01/26/24 10:32	01/26/24 18:35	5
Nickel	ND		2.01		mg/Kg		01/26/24 10:32	01/26/24 18:35	5
Selenium	ND		3.02		mg/Kg		01/26/24 10:32	01/26/24 18:35	5
Silver	ND		1.51		mg/Kg		01/26/24 10:32	01/26/24 18:35	5
Thallium	ND		10.1		mg/Kg		01/26/24 10:32	01/26/24 18:35	5
Vanadium	ND		1.01		mg/Kg		01/26/24 10:32	01/26/24 18:35	5
Zinc	ND		5.03		mg/Kg		01/26/24 10:32	01/26/24 18:35	5

Lab Sample ID: LCS 570-404513/2-A ^5
Matrix: Solid
Analysis Batch: 405171

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 404513

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Antimony			49.3	48.29		mg/Kg		98	80 - 120		
Arsenic			49.3	46.67		mg/Kg		95	80 - 120		
Barium			49.3	46.95		mg/Kg		95	80 - 120		
Beryllium			49.3	46.50		mg/Kg		94	80 - 120		
Cadmium			49.3	46.66		mg/Kg		95	80 - 120		
Chromium			49.3	47.03		mg/Kg		95	80 - 120		
Cobalt			49.3	46.50		mg/Kg		94	80 - 120		
Copper			49.3	47.48		mg/Kg		96	80 - 120		
Lead			49.3	46.60		mg/Kg		95	80 - 120		
Molybdenum			49.3	48.00		mg/Kg		97	80 - 120		
Nickel			49.3	47.19		mg/Kg		96	80 - 120		
Selenium			49.3	44.98		mg/Kg		91	80 - 120		
Silver			24.6	23.40		mg/Kg		95	80 - 120		
Thallium			49.3	47.46		mg/Kg		96	80 - 120		
Vanadium			49.3	45.83		mg/Kg		93	80 - 120		
Zinc			49.3	45.89		mg/Kg		93	80 - 120		

Lab Sample ID: LCSD 570-404513/3-A ^5
Matrix: Solid
Analysis Batch: 405171

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 404513

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony			49.8	48.54		mg/Kg		98	80 - 120	1	20
Arsenic			49.8	46.16		mg/Kg		93	80 - 120	1	20
Barium			49.8	47.06		mg/Kg		95	80 - 120	0	20
Beryllium			49.8	46.63		mg/Kg		94	80 - 120	0	20
Cadmium			49.8	46.72		mg/Kg		94	80 - 120	0	20
Chromium			49.8	47.35		mg/Kg		95	80 - 120	1	20

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: LCSD 570-404513/3-A ^5
Matrix: Solid
Analysis Batch: 405171

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 404513

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cobalt			49.8	46.87		mg/Kg		94	80 - 120	1	20
Copper			49.8	47.26		mg/Kg		95	80 - 120	0	20
Lead			49.8	47.59		mg/Kg		96	80 - 120	2	20
Molybdenum			49.8	47.82		mg/Kg		96	80 - 120	0	20
Nickel			49.8	47.09		mg/Kg		95	80 - 120	0	20
Selenium			49.8	45.57		mg/Kg		92	80 - 120	1	20
Silver			24.9	23.52		mg/Kg		95	80 - 120	1	20
Thallium			49.8	47.30		mg/Kg		95	80 - 120	0	20
Vanadium			49.8	46.03		mg/Kg		93	80 - 120	0	20
Zinc			49.8	46.13		mg/Kg		93	80 - 120	1	20

Lab Sample ID: 570-168610-1 MS
Matrix: Solid
Analysis Batch: 405171

Client Sample ID: B-8 @ 10
Prep Type: Total/NA
Prep Batch: 404513

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	ND	F1	49.0	29.89	F1	mg/Kg		61	75 - 125
Arsenic	ND		49.0	45.78		mg/Kg		93	75 - 125
Barium	14.3		49.0	60.56		mg/Kg		94	75 - 125
Beryllium	ND		49.0	45.17		mg/Kg		92	75 - 125
Cadmium	ND		49.0	43.62		mg/Kg		89	75 - 125
Chromium	6.14		49.0	51.63		mg/Kg		93	75 - 125
Cobalt	2.96		49.0	46.09		mg/Kg		88	75 - 125
Copper	7.49		49.0	52.65		mg/Kg		92	75 - 125
Lead	2.28		49.0	45.98		mg/Kg		89	75 - 125
Molybdenum	ND		49.0	45.32		mg/Kg		92	75 - 125
Nickel	4.34		49.0	47.44		mg/Kg		88	75 - 125
Selenium	ND		49.0	43.17		mg/Kg		88	75 - 125
Silver	ND		24.5	22.40		mg/Kg		91	75 - 125
Thallium	ND		49.0	44.23		mg/Kg		90	75 - 125
Vanadium	13.0		49.0	58.70		mg/Kg		93	75 - 125
Zinc	18.9		49.0	60.92		mg/Kg		86	75 - 125

Lab Sample ID: 570-168610-1 MSD
Matrix: Solid
Analysis Batch: 405171

Client Sample ID: B-8 @ 10
Prep Type: Total/NA
Prep Batch: 404513

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony	ND	F1	49.8	30.29	F1	mg/Kg		61	75 - 125	1	20
Arsenic	ND		49.8	46.39		mg/Kg		93	75 - 125	1	20
Barium	14.3		49.8	63.73		mg/Kg		99	75 - 125	5	20
Beryllium	ND		49.8	46.23		mg/Kg		93	75 - 125	2	20
Cadmium	ND		49.8	44.45		mg/Kg		89	75 - 125	2	20
Chromium	6.14		49.8	54.53		mg/Kg		97	75 - 125	5	20
Cobalt	2.96		49.8	47.35		mg/Kg		89	75 - 125	3	20
Copper	7.49		49.8	53.74		mg/Kg		93	75 - 125	2	20
Lead	2.28		49.8	46.77		mg/Kg		89	75 - 125	2	20
Molybdenum	ND		49.8	46.47		mg/Kg		93	75 - 125	3	20
Nickel	4.34		49.8	49.60		mg/Kg		91	75 - 125	4	20

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: 570-168610-1 MSD
Client Sample ID: B-8 @ 10
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 405171
Prep Batch: 404513

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Selenium	ND		49.8	43.42		mg/Kg		87	75 - 125	1	20
Silver	ND		24.9	22.97		mg/Kg		92	75 - 125	3	20
Thallium	ND		49.8	44.91		mg/Kg		90	75 - 125	2	20
Vanadium	13.0		49.8	60.67		mg/Kg		96	75 - 125	3	20
Zinc	18.9		49.8	64.27		mg/Kg		91	75 - 125	5	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 570-404231/1-A
Client Sample ID: Method Blank
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 404621
Prep Batch: 404231

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0786		mg/Kg		01/24/24 15:11	01/25/24 13:23	1

Lab Sample ID: LCS 570-404231/2-A
Client Sample ID: Lab Control Sample
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 404888
Prep Batch: 404231

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			0.377	0.4368		mg/Kg		116	80 - 120		

Lab Sample ID: LCSD 570-404231/3-A
Client Sample ID: Lab Control Sample Dup
Matrix: Solid
Prep Type: Total/NA
Analysis Batch: 404888
Prep Batch: 404231

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury			0.385	0.4234		mg/Kg		110	80 - 120	3	10

QC Association Summary

GC Semi VOA

Prep Batch: 403145

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-168610-1	B-8 @ 10	Total/NA	Solid	3550C	
570-168610-2	B-6 @ 5	Total/NA	Solid	3550C	
570-168610-3	B-5 @ 10	Total/NA	Solid	3550C	
570-168610-4	B-4 @ 5	Total/NA	Solid	3550C	
MB 570-403145/1-A	Method Blank	Total/NA	Solid	3550C	
LCS 570-403145/2-A	Lab Control Sample	Total/NA	Solid	3550C	
LCSD 570-403145/3-A	Lab Control Sample Dup	Total/NA	Solid	3550C	

Analysis Batch: 403421

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-168610-1	B-8 @ 10	Total/NA	Solid	8015B	403145
570-168610-2	B-6 @ 5	Total/NA	Solid	8015B	403145
570-168610-3	B-5 @ 10	Total/NA	Solid	8015B	403145
570-168610-4	B-4 @ 5	Total/NA	Solid	8015B	403145
MB 570-403145/1-A	Method Blank	Total/NA	Solid	8015B	403145
LCS 570-403145/2-A	Lab Control Sample	Total/NA	Solid	8015B	403145
LCSD 570-403145/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B	403145

Metals

Prep Batch: 404231

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-168610-1	B-8 @ 10	Total/NA	Solid	7471A	
570-168610-2	B-6 @ 5	Total/NA	Solid	7471A	
570-168610-3	B-5 @ 10	Total/NA	Solid	7471A	
570-168610-4	B-4 @ 5	Total/NA	Solid	7471A	
MB 570-404231/1-A	Method Blank	Total/NA	Solid	7471A	
LCS 570-404231/2-A	Lab Control Sample	Total/NA	Solid	7471A	
LCSD 570-404231/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	

Prep Batch: 404513

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-168610-1	B-8 @ 10	Total/NA	Solid	3050B	
570-168610-2	B-6 @ 5	Total/NA	Solid	3050B	
570-168610-3	B-5 @ 10	Total/NA	Solid	3050B	
570-168610-4	B-4 @ 5	Total/NA	Solid	3050B	
MB 570-404513/1-A ^5	Method Blank	Total/NA	Solid	3050B	
LCS 570-404513/2-A ^5	Lab Control Sample	Total/NA	Solid	3050B	
LCSD 570-404513/3-A ^5	Lab Control Sample Dup	Total/NA	Solid	3050B	
570-168610-1 MS	B-8 @ 10	Total/NA	Solid	3050B	
570-168610-1 MSD	B-8 @ 10	Total/NA	Solid	3050B	

Analysis Batch: 404621

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-168610-1	B-8 @ 10	Total/NA	Solid	7471A	404231
570-168610-2	B-6 @ 5	Total/NA	Solid	7471A	404231
570-168610-3	B-5 @ 10	Total/NA	Solid	7471A	404231
570-168610-4	B-4 @ 5	Total/NA	Solid	7471A	404231
MB 570-404231/1-A	Method Blank	Total/NA	Solid	7471A	404231

QC Association Summary

Client: NOVA Services
Project/Site: Euclid Ave. Downtown Recycled Water Project

Job ID: 570-168610-1
SDG: UT 1072 / 2023168

Metals

Analysis Batch: 404888

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 570-404231/2-A	Lab Control Sample	Total/NA	Solid	7471A	404231
LCSD 570-404231/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	404231

Analysis Batch: 405171

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-168610-1	B-8 @ 10	Total/NA	Solid	6010B	404513
570-168610-2	B-6 @ 5	Total/NA	Solid	6010B	404513
570-168610-3	B-5 @ 10	Total/NA	Solid	6010B	404513
570-168610-4	B-4 @ 5	Total/NA	Solid	6010B	404513
MB 570-404513/1-A ^5	Method Blank	Total/NA	Solid	6010B	404513
LCS 570-404513/2-A ^5	Lab Control Sample	Total/NA	Solid	6010B	404513
LCSD 570-404513/3-A ^5	Lab Control Sample Dup	Total/NA	Solid	6010B	404513
570-168610-1 MS	B-8 @ 10	Total/NA	Solid	6010B	404513
570-168610-1 MSD	B-8 @ 10	Total/NA	Solid	6010B	404513

Client Sample ID: B-8 @ 10

Lab Sample ID: 570-168610-1

Date Collected: 01/17/24 10:38

Matrix: Solid

Date Received: 01/18/24 19:12

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			10.52 g	10 mL	403145	01/22/24 10:25	E5RH	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	403421	01/23/24 07:35	SP9M	EET CAL 4
	Instrument ID:	GC48								
Total/NA	Prep	3050B			2.01 g	50 mL	404513	01/26/24 10:32	GYR8	EET CAL 4
Total/NA	Analysis	6010B		5			405171	01/26/24 19:06	P1R	EET CAL 4
	Instrument ID:	ICP11								
Total/NA	Prep	7471A			0.53 g	50 mL	404231	01/24/24 15:11	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			404621	01/25/24 13:45	ECX6	EET CAL 4
	Instrument ID:	HG8								

Client Sample ID: B-6 @ 5

Lab Sample ID: 570-168610-2

Date Collected: 01/17/24 12:15

Matrix: Solid

Date Received: 01/18/24 19:12

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			10.17 g	10 mL	403145	01/22/24 10:25	E5RH	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	403421	01/23/24 08:38	SP9M	EET CAL 4
	Instrument ID:	GC48								
Total/NA	Prep	3050B			2.02 g	50 mL	404513	01/26/24 10:32	GYR8	EET CAL 4
Total/NA	Analysis	6010B		5			405171	01/26/24 20:47	P1R	EET CAL 4
	Instrument ID:	ICP11								
Total/NA	Prep	7471A			0.51 g	50 mL	404231	01/24/24 15:11	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			404621	01/25/24 13:47	ECX6	EET CAL 4
	Instrument ID:	HG8								

Client Sample ID: B-5 @ 10

Lab Sample ID: 570-168610-3

Date Collected: 01/17/24 13:43

Matrix: Solid

Date Received: 01/18/24 19:12

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			10.28 g	10 mL	403145	01/22/24 10:25	E5RH	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	403421	01/23/24 09:00	SP9M	EET CAL 4
	Instrument ID:	GC48								
Total/NA	Prep	3050B			2.02 g	50 mL	404513	01/26/24 10:32	GYR8	EET CAL 4
Total/NA	Analysis	6010B		5			405171	01/26/24 20:50	P1R	EET CAL 4
	Instrument ID:	ICP11								
Total/NA	Prep	7471A			0.49 g	50 mL	404231	01/24/24 15:11	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			404621	01/25/24 13:49	ECX6	EET CAL 4
	Instrument ID:	HG8								

Lab Chronicle

Client: NOVA Services
Project/Site: Euclid Ave. Downtown Recycled Water Project

Job ID: 570-168610-1
SDG: UT 1072 / 2023168

Client Sample ID: B-4 @ 5

Date Collected: 01/18/24 10:22
Date Received: 01/18/24 19:12

Lab Sample ID: 570-168610-4

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			10.35 g	10 mL	403145	01/22/24 10:25	E5RH	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	403421	01/23/24 09:20	SP9M	EET CAL 4
	Instrument ID:	GC48								
Total/NA	Prep	3050B			2.00 g	50 mL	404513	01/26/24 10:32	GYR8	EET CAL 4
Total/NA	Analysis	6010B		5			405171	01/26/24 20:52	P1R	EET CAL 4
	Instrument ID:	ICP11								
Total/NA	Prep	7471A			0.51 g	50 mL	404231	01/24/24 15:11	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			404621	01/25/24 13:51	ECX6	EET CAL 4
	Instrument ID:	HG8								

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: NOVA Services
Project/Site: Euclid Ave. Downtown Recycled Water Project

Job ID: 570-168610-1
SDG: UT 1072 / 2023168

Laboratory: Eurofins Calscience

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	3082	07-31-24
Oregon	NELAP	4175	02-02-24

Method Summary

Client: NOVA Services
Project/Site: Euclid Ave. Downtown Recycled Water Project

Job ID: 570-168610-1
SDG: UT 1072 / 2023168

Method	Method Description	Protocol	Laboratory
8015B	Diesel Range Organics (DRO) (GC)	SW846	EET CAL 4
6010B	Metals (ICP)	SW846	EET CAL 4
7471A	Mercury (CVAA)	SW846	EET CAL 4
3050B	Preparation, Metals	SW846	EET CAL 4
3550C	Ultrasonic Extraction	SW846	EET CAL 4
7471A	Preparation, Mercury	SW846	EET CAL 4

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Sample Summary

Client: NOVA Services
Project/Site: Euclid Ave. Downtown Recycled Water Project

Job ID: 570-168610-1
SDG: UT 1072 / 2023168

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-168610-1	B-8 @ 10	Solid	01/17/24 10:38	01/18/24 19:12
570-168610-2	B-6 @ 5	Solid	01/17/24 12:15	01/18/24 19:12
570-168610-3	B-5 @ 10	Solid	01/17/24 13:43	01/18/24 19:12
570-168610-4	B-4 @ 5	Solid	01/18/24 10:22	01/18/24 19:12

Loc: 570
168610

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7440 Lincoln Way, Garden Grove, CA 92841-1427 (714) 895-5494

CHAIN OF CUSTODY RECORD

DATE: 1/18/2024

PAGE: 1 OF 1

LABORATORY CLIENT: NOVA Services, Inc.

ADDRESS: 4373 Viewridge Avenue, Suite B

CITY: San Diego STATE: CA ZIP: 92123

TEL: 619-922-6889 FAX: E-MAIL: anuehaus@usa-nova.com

CLIENT PROJECT NAME / NUMBER: Euclid Avenue Downtown Recycled Water Project, UT 1072 / 2023168

P.O. NO.:

PROJECT CONTACT: Andrew Neuhaus

LAB CONTACT OR QUOTE NO.:

SAMPLER(S): (SIGNATURE) Giovanni Norman

LAB USE ONLY: ☐☐-☐☐☐☐

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR 48 HR ☐ 72 HR ☐ 5 DAYS ☒ STANDARD

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)

☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ___/___/___

SPECIAL INSTRUCTIONS:

570-168610 Chain of Custody

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	LOCATION / DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	TPH (C8-C40) (8015 Modified)	CAM 17 Total Metals by EPA Methods 6010B and 7471A	VOCs Method 8260B/5035	SVOCs by EPA Method 8270D
	B-8 @10		1.17.24	1038	Soil	1	/	/		
	B-6 @ 5		1.17.24	1215	Soil	1	/	/		
	B-5@10		1.17.24	1343	Soil	1	/	/		
	B-4 @ 5		1.18.24	1022	Soil	1	/	/		
					Soil	1				
					Soil	1				
					Soil	1				

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
	William Rivera	1/18/24	12:09
William Rivera	Daniel	1/18/24	1912

1.8°/1.8° SC12

02/24/10 Revision

Login Sample Receipt Checklist

Client: NOVA Services

Job Number: 570-168610-1
SDG Number: UT 1072 / 2023168

Login Number: 168610
List Number: 1
Creator: Le, Sunny

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Andrew K Neuhaus
NOVA Services
4373 Viewridge Avenue, Suite B
San Diego, California 92123

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JOB DESCRIPTION

Euclid Ave. Downtown Recycled Water Project
UT1072 / 2023168

JOB NUMBER

570-168839-1

Eurofins Calscience
2841 Dow Avenue, Suite 100
Tustin CA 92780

See page two for job notes and contact information.

myEOL

Eurofins Calscience

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

Authorization

Terri Chang

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Authorized for release by
Terri Chang, Project Manager I
Terri.Chang@et.eurofinsus.com
(657)210-6295

Table of Contents

Definitions/Glossary

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: NOVA Services Job ID: 570-168839-1
Project: Euclid Ave. Downtown Recycled Water Project

Job Narrative
570-168839-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 1/19/2024 5:27 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.0°C

Diesel Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Detection Summary

Client: NOVA Services
Project/Site: Euclid Ave. Downtown Recycled Water Project

Job ID: 570-168839-1
SDG: UT1072 / 2023168

Client Sample ID: B-3 @ 10

Lab Sample ID: 570-168839-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
C8-C40	9.2		4.8		mg/Kg	1		8015B	Total/NA
Barium	27.6		3.03		mg/Kg	5		6010B	Total/NA
Chromium	15.7		1.01		mg/Kg	5		6010B	Total/NA
Cobalt	4.22		1.01		mg/Kg	5		6010B	Total/NA
Copper	19.0		2.02		mg/Kg	5		6010B	Total/NA
Lead	2.71		2.02		mg/Kg	5		6010B	Total/NA
Nickel	10.3		2.02		mg/Kg	5		6010B	Total/NA
Vanadium	16.8		1.01		mg/Kg	5		6010B	Total/NA
Zinc	28.3		5.05		mg/Kg	5		6010B	Total/NA

Client Sample ID: B-2 @ 5

Lab Sample ID: 570-168839-2

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
C8-C40	7.5		4.9		mg/Kg	1		8015B	Total/NA
Barium	19.2		3.02		mg/Kg	5		6010B	Total/NA
Chromium	10.5		1.01		mg/Kg	5		6010B	Total/NA
Cobalt	4.01		1.01		mg/Kg	5		6010B	Total/NA
Copper	13.5		2.01		mg/Kg	5		6010B	Total/NA
Lead	2.58		2.01		mg/Kg	5		6010B	Total/NA
Nickel	6.60		2.01		mg/Kg	5		6010B	Total/NA
Vanadium	19.4		1.01		mg/Kg	5		6010B	Total/NA
Zinc	21.1		5.03		mg/Kg	5		6010B	Total/NA

This Detection Summary does not include radiochemical test results.

Method: SW846 8015B - Diesel Range Organics (DRO) (GC)

Client Sample ID: B-3 @ 10
Date Collected: 01/18/24 12:27
Date Received: 01/19/24 17:27

Lab Sample ID: 570-168839-1
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		4.8		mg/Kg		01/22/24 10:25	01/23/24 18:18	1
C9-C10	ND		4.8		mg/Kg		01/22/24 10:25	01/23/24 18:18	1
C11-C12	ND		4.8		mg/Kg		01/22/24 10:25	01/23/24 18:18	1
C13-C14	ND		4.8		mg/Kg		01/22/24 10:25	01/23/24 18:18	1
C15-C16	ND		4.8		mg/Kg		01/22/24 10:25	01/23/24 18:18	1
C17-C18	ND		4.8		mg/Kg		01/22/24 10:25	01/23/24 18:18	1
C19-C20	ND		4.8		mg/Kg		01/22/24 10:25	01/23/24 18:18	1
C21-C22	ND		4.8		mg/Kg		01/22/24 10:25	01/23/24 18:18	1
C23-C24	ND		4.8		mg/Kg		01/22/24 10:25	01/23/24 18:18	1
C25-C28	ND		4.8		mg/Kg		01/22/24 10:25	01/23/24 18:18	1
C29-C32	ND		4.8		mg/Kg		01/22/24 10:25	01/23/24 18:18	1
C33-C36	ND		4.8		mg/Kg		01/22/24 10:25	01/23/24 18:18	1
C37-C40	ND		4.8		mg/Kg		01/22/24 10:25	01/23/24 18:18	1
C8-C40	**9.2**		4.8		mg/Kg		01/22/24 10:25	01/23/24 18:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*110*		*60 - 138*	*01/22/24 10:25*	*01/23/24 18:18*	*1*

Client Sample ID: B-2 @ 5
Date Collected: 01/18/24 13:45
Date Received: 01/19/24 17:27

Lab Sample ID: 570-168839-2
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 18:39	1
C9-C10	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 18:39	1
C11-C12	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 18:39	1
C13-C14	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 18:39	1
C15-C16	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 18:39	1
C17-C18	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 18:39	1
C19-C20	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 18:39	1
C21-C22	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 18:39	1
C23-C24	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 18:39	1
C25-C28	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 18:39	1
C29-C32	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 18:39	1
C33-C36	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 18:39	1
C37-C40	ND		4.9		mg/Kg		01/22/24 10:25	01/23/24 18:39	1
C8-C40	**7.5**		4.9		mg/Kg		01/22/24 10:25	01/23/24 18:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*107*		*60 - 138*	*01/22/24 10:25*	*01/23/24 18:39*	*1*

Client Sample Results

Method: SW846 6010B - Metals (ICP)

Client Sample ID: B-3 @ 10
Date Collected: 01/18/24 12:27
Date Received: 01/19/24 17:27
Lab Sample ID: 570-168839-1
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		10.1		mg/Kg		01/31/24 07:31	02/01/24 18:41	5
Arsenic	ND		3.03		mg/Kg		01/31/24 07:31	02/01/24 18:41	5
Barium	**27.6**		3.03		mg/Kg		01/31/24 07:31	02/01/24 18:41	5
Beryllium	ND		0.505		mg/Kg		01/31/24 07:31	02/01/24 18:41	5
Cadmium	ND		0.505		mg/Kg		01/31/24 07:31	02/01/24 18:41	5
Chromium	**15.7**		1.01		mg/Kg		01/31/24 07:31	02/01/24 18:41	5
Cobalt	**4.22**		1.01		mg/Kg		01/31/24 07:31	02/01/24 18:41	5
Copper	**19.0**		2.02		mg/Kg		01/31/24 07:31	02/01/24 18:41	5
Lead	**2.71**		2.02		mg/Kg		01/31/24 07:31	02/01/24 18:41	5
Molybdenum	ND		2.02		mg/Kg		01/31/24 07:31	02/01/24 18:41	5
Nickel	**10.3**		2.02		mg/Kg		01/31/24 07:31	02/01/24 18:41	5
Selenium	ND		3.03		mg/Kg		01/31/24 07:31	02/01/24 18:41	5
Silver	ND		1.52		mg/Kg		01/31/24 07:31	02/01/24 18:41	5
Thallium	ND		10.1		mg/Kg		01/31/24 07:31	02/01/24 18:41	5
Vanadium	**16.8**		1.01		mg/Kg		01/31/24 07:31	02/01/24 18:41	5
Zinc	**28.3**		5.05		mg/Kg		01/31/24 07:31	02/01/24 18:41	5

Client Sample ID: B-2 @ 5
Date Collected: 01/18/24 13:45
Date Received: 01/19/24 17:27
Lab Sample ID: 570-168839-2
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		10.1		mg/Kg		01/31/24 07:31	02/01/24 18:45	5
Arsenic	ND		3.02		mg/Kg		01/31/24 07:31	02/01/24 18:45	5
Barium	**19.2**		3.02		mg/Kg		01/31/24 07:31	02/01/24 18:45	5
Beryllium	ND		0.503		mg/Kg		01/31/24 07:31	02/01/24 18:45	5
Cadmium	ND		0.503		mg/Kg		01/31/24 07:31	02/01/24 18:45	5
Chromium	**10.5**		1.01		mg/Kg		01/31/24 07:31	02/01/24 18:45	5
Cobalt	**4.01**		1.01		mg/Kg		01/31/24 07:31	02/01/24 18:45	5
Copper	**13.5**		2.01		mg/Kg		01/31/24 07:31	02/01/24 18:45	5
Lead	**2.58**		2.01		mg/Kg		01/31/24 07:31	02/01/24 18:45	5
Molybdenum	ND		2.01		mg/Kg		01/31/24 07:31	02/01/24 18:45	5
Nickel	**6.60**		2.01		mg/Kg		01/31/24 07:31	02/01/24 18:45	5
Selenium	ND		3.02		mg/Kg		01/31/24 07:31	02/01/24 18:45	5
Silver	ND		1.51		mg/Kg		01/31/24 07:31	02/01/24 18:45	5
Thallium	ND		10.1		mg/Kg		01/31/24 07:31	02/01/24 18:45	5
Vanadium	**19.4**		1.01		mg/Kg		01/31/24 07:31	02/01/24 18:45	5
Zinc	**21.1**		5.03		mg/Kg		01/31/24 07:31	02/01/24 18:45	5

Method: SW846 7471A - Mercury (CVAA)

Client Sample ID: B-3 @ 10
Date Collected: 01/18/24 12:27
Date Received: 01/19/24 17:27

Lab Sample ID: 570-168839-1
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0801		mg/Kg		01/26/24 15:23	01/29/24 19:30	1

Client Sample ID: B-2 @ 5
Date Collected: 01/18/24 13:45
Date Received: 01/19/24 17:27

Lab Sample ID: 570-168839-2
Matrix: Solid

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0801		mg/Kg		01/26/24 15:23	01/29/24 19:32	1

Surrogate Summary

Method: 8015B - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	**Client Sample ID**	**OTCSN1 (60-138)**
570-168839-1	B-3 @ 10	110
570-168839-2	B-2 @ 5	107
LCS 570-403145/2-A	Lab Control Sample	105
LCSD 570-403145/3-A	Lab Control Sample Dup	104
MB 570-403145/1-A	Method Blank	100

Surrogate Legend

OTCSN = n-Octacosane (Surr)

QC Sample Results

Client: NOVA Services
Project/Site: Euclid Ave. Downtown Recycled Water Project

Job ID: 570-168839-1
SDG: UT1072 / 2023168

Method: 8015B - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 570-403145/1-A
Matrix: Solid
Analysis Batch: 403421

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 403145

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
C8 as C8	ND		5.0		mg/Kg		01/22/24 10:25	01/23/24 03:02	1
C9-C10	ND		5.0		mg/Kg		01/22/24 10:25	01/23/24 03:02	1
C11-C12	ND		5.0		mg/Kg		01/22/24 10:25	01/23/24 03:02	1
C13-C14	ND		5.0		mg/Kg		01/22/24 10:25	01/23/24 03:02	1
C15-C16	ND		5.0		mg/Kg		01/22/24 10:25	01/23/24 03:02	1
C17-C18	ND		5.0		mg/Kg		01/22/24 10:25	01/23/24 03:02	1
C19-C20	ND		5.0		mg/Kg		01/22/24 10:25	01/23/24 03:02	1
C21-C22	ND		5.0		mg/Kg		01/22/24 10:25	01/23/24 03:02	1
C23-C24	ND		5.0		mg/Kg		01/22/24 10:25	01/23/24 03:02	1
C25-C28	ND		5.0		mg/Kg		01/22/24 10:25	01/23/24 03:02	1
C29-C32	ND		5.0		mg/Kg		01/22/24 10:25	01/23/24 03:02	1
C33-C36	ND		5.0		mg/Kg		01/22/24 10:25	01/23/24 03:02	1
C37-C40	ND		5.0		mg/Kg		01/22/24 10:25	01/23/24 03:02	1
C8-C40	ND		5.0		mg/Kg		01/22/24 10:25	01/23/24 03:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*100*		*60 - 138*	*01/22/24 10:25*	*01/23/24 03:02*	*1*

Lab Sample ID: LCS 570-403145/2-A
Matrix: Solid
Analysis Batch: 403421

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 403145

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			400	429.3		mg/Kg		107	80 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Octacosane (Surr)	*105*		*60 - 138*

Lab Sample ID: LCSD 570-403145/3-A
Matrix: Solid
Analysis Batch: 403421

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 403145

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]			400	419.9		mg/Kg		105	80 - 130	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
n-Octacosane (Surr)	*104*		*60 - 138*

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 570-406166/1-A ^5
Matrix: Solid
Analysis Batch: 406921

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 406166

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		9.80		mg/Kg		01/31/24 07:31	02/01/24 18:06	5

QC Sample Results

Client: NOVA Services
Project/Site: Euclid Ave. Downtown Recycled Water Project

Job ID: 570-168839-1
SDG: UT1072 / 2023168

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: MB 570-406166/1-A ^5
Matrix: Solid
Analysis Batch: 406921

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 406166

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		2.94		mg/Kg		01/31/24 07:31	02/01/24 18:06	5
Barium	ND		2.94		mg/Kg		01/31/24 07:31	02/01/24 18:06	5
Beryllium	ND		0.490		mg/Kg		01/31/24 07:31	02/01/24 18:06	5
Cadmium	ND		0.490		mg/Kg		01/31/24 07:31	02/01/24 18:06	5
Chromium	ND		0.980		mg/Kg		01/31/24 07:31	02/01/24 18:06	5
Cobalt	ND		0.980		mg/Kg		01/31/24 07:31	02/01/24 18:06	5
Copper	ND		1.96		mg/Kg		01/31/24 07:31	02/01/24 18:06	5
Lead	ND		1.96		mg/Kg		01/31/24 07:31	02/01/24 18:06	5
Molybdenum	ND		1.96		mg/Kg		01/31/24 07:31	02/01/24 18:06	5
Nickel	ND		1.96		mg/Kg		01/31/24 07:31	02/01/24 18:06	5
Selenium	ND		2.94		mg/Kg		01/31/24 07:31	02/01/24 18:06	5
Silver	ND		1.47		mg/Kg		01/31/24 07:31	02/01/24 18:06	5
Thallium	ND		9.80		mg/Kg		01/31/24 07:31	02/01/24 18:06	5
Vanadium	ND		0.980		mg/Kg		01/31/24 07:31	02/01/24 18:06	5
Zinc	ND		4.90		mg/Kg		01/31/24 07:31	02/01/24 18:06	5

Lab Sample ID: LCS 570-406166/2-A ^5
Matrix: Solid
Analysis Batch: 406921

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 406166

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Antimony			49.8	55.32		mg/Kg		111	80 - 120		
Arsenic			49.8	51.94		mg/Kg		104	80 - 120		
Barium			49.8	52.96		mg/Kg		106	80 - 120		
Beryllium			49.8	53.03		mg/Kg		107	80 - 120		
Cadmium			49.8	51.84		mg/Kg		104	80 - 120		
Chromium			49.8	53.08		mg/Kg		107	80 - 120		
Cobalt			49.8	52.74		mg/Kg		106	80 - 120		
Copper			49.8	52.24		mg/Kg		105	80 - 120		
Lead			49.8	52.92		mg/Kg		106	80 - 120		
Molybdenum			49.8	53.81		mg/Kg		108	80 - 120		
Nickel			49.8	52.48		mg/Kg		105	80 - 120		
Selenium			49.8	49.70		mg/Kg		100	80 - 120		
Silver			24.9	26.19		mg/Kg		105	80 - 120		
Thallium			49.8	51.94		mg/Kg		104	80 - 120		
Vanadium			49.8	52.11		mg/Kg		105	80 - 120		
Zinc			49.8	51.44		mg/Kg		103	80 - 120		

Lab Sample ID: LCSD 570-406166/3-A ^5
Matrix: Solid
Analysis Batch: 406921

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 406166

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Antimony			49.3	55.20		mg/Kg		112	80 - 120	0	20
Arsenic			49.3	50.87		mg/Kg		103	80 - 120	2	20
Barium			49.3	51.70		mg/Kg		105	80 - 120	2	20
Beryllium			49.3	51.75		mg/Kg		105	80 - 120	2	20
Cadmium			49.3	50.74		mg/Kg		103	80 - 120	2	20
Chromium			49.3	51.79		mg/Kg		105	80 - 120	2	20

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: LCSD 570-406166/3-A ^5
Matrix: Solid
Analysis Batch: 406921
Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 406166

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cobalt			49.3	50.94		mg/Kg		103	80 - 120	3	20
Copper			49.3	51.13		mg/Kg		104	80 - 120	2	20
Lead			49.3	51.77		mg/Kg		105	80 - 120	2	20
Molybdenum			49.3	52.80		mg/Kg		107	80 - 120	2	20
Nickel			49.3	51.17		mg/Kg		104	80 - 120	3	20
Selenium			49.3	48.33		mg/Kg		98	80 - 120	3	20
Silver			24.6	25.67		mg/Kg		104	80 - 120	2	20
Thallium			49.3	51.65		mg/Kg		105	80 - 120	1	20
Vanadium			49.3	50.68		mg/Kg		103	80 - 120	3	20
Zinc			49.3	50.67		mg/Kg		103	80 - 120	2	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 570-405016/1-A
Matrix: Solid
Analysis Batch: 405785
Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 405016

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0801		mg/Kg		01/26/24 15:23	01/29/24 18:54	1

Lab Sample ID: LCS 570-405016/2-A
Matrix: Solid
Analysis Batch: 405785
Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 405016

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			0.377	0.3705		mg/Kg		98	80 - 120		

Lab Sample ID: LCSD 570-405016/3-A
Matrix: Solid
Analysis Batch: 405785
Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 405016

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury			0.385	0.3627		mg/Kg		94	80 - 120	2	10

QC Association Summary

Client: NOVA Services
Project/Site: Euclid Ave. Downtown Recycled Water Project

Job ID: 570-168839-1
SDG: UT1072 / 2023168

GC Semi VOA

Prep Batch: 403145

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-168839-1	B-3 @ 10	Total/NA	Solid	3550C	
570-168839-2	B-2 @ 5	Total/NA	Solid	3550C	
MB 570-403145/1-A	Method Blank	Total/NA	Solid	3550C	
LCS 570-403145/2-A	Lab Control Sample	Total/NA	Solid	3550C	
LCSD 570-403145/3-A	Lab Control Sample Dup	Total/NA	Solid	3550C	

Analysis Batch: 403421

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-403145/1-A	Method Blank	Total/NA	Solid	8015B	403145
LCS 570-403145/2-A	Lab Control Sample	Total/NA	Solid	8015B	403145
LCSD 570-403145/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B	403145

Analysis Batch: 403692

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-168839-1	B-3 @ 10	Total/NA	Solid	8015B	403145
570-168839-2	B-2 @ 5	Total/NA	Solid	8015B	403145

Metals

Prep Batch: 405016

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-168839-1	B-3 @ 10	Total/NA	Solid	7471A	
570-168839-2	B-2 @ 5	Total/NA	Solid	7471A	
MB 570-405016/1-A	Method Blank	Total/NA	Solid	7471A	
LCS 570-405016/2-A	Lab Control Sample	Total/NA	Solid	7471A	
LCSD 570-405016/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	

Analysis Batch: 405785

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-168839-1	B-3 @ 10	Total/NA	Solid	7471A	405016
570-168839-2	B-2 @ 5	Total/NA	Solid	7471A	405016
MB 570-405016/1-A	Method Blank	Total/NA	Solid	7471A	405016
LCS 570-405016/2-A	Lab Control Sample	Total/NA	Solid	7471A	405016
LCSD 570-405016/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	405016

Prep Batch: 406166

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-168839-1	B-3 @ 10	Total/NA	Solid	3050B	
570-168839-2	B-2 @ 5	Total/NA	Solid	3050B	
MB 570-406166/1-A ^5	Method Blank	Total/NA	Solid	3050B	
LCS 570-406166/2-A ^5	Lab Control Sample	Total/NA	Solid	3050B	
LCSD 570-406166/3-A ^5	Lab Control Sample Dup	Total/NA	Solid	3050B	

Analysis Batch: 406921

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-168839-1	B-3 @ 10	Total/NA	Solid	6010B	406166
570-168839-2	B-2 @ 5	Total/NA	Solid	6010B	406166
MB 570-406166/1-A ^5	Method Blank	Total/NA	Solid	6010B	406166
LCS 570-406166/2-A ^5	Lab Control Sample	Total/NA	Solid	6010B	406166
LCSD 570-406166/3-A ^5	Lab Control Sample Dup	Total/NA	Solid	6010B	406166

Lab Chronicle

Client: NOVA Services
Project/Site: Euclid Ave. Downtown Recycled Water Project

Job ID: 570-168839-1
SDG: UT1072 / 2023168

Client Sample ID: B-3 @ 10

Lab Sample ID: 570-168839-1

Date Collected: 01/18/24 12:27
Date Received: 01/19/24 17:27
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			10.38 g	10 mL	403145	01/22/24 10:25	E5RH	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	403692	01/23/24 18:18	SP9M	EET CAL 4
	Instrument ID:	GC48								
Total/NA	Prep	3050B			1.98 g	50 mL	406166	01/31/24 07:31	GYR8	EET CAL 4
Total/NA	Analysis	6010B		5			406921	02/01/24 18:41	P1R	EET CAL 4
	Instrument ID:	ICP10								
Total/NA	Prep	7471A			0.52 g	50 mL	405016	01/26/24 15:23	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			405785	01/29/24 19:30	Y2WS	EET CAL 4
	Instrument ID:	HG8								

Client Sample ID: B-2 @ 5

Lab Sample ID: 570-168839-2

Date Collected: 01/18/24 13:45
Date Received: 01/19/24 17:27
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3550C			10.19 g	10 mL	403145	01/22/24 10:25	E5RH	EET CAL 4
Total/NA	Analysis	8015B		1	10 mL	10 mL	403692	01/23/24 18:39	SP9M	EET CAL 4
	Instrument ID:	GC48								
Total/NA	Prep	3050B			1.99 g	50 mL	406166	01/31/24 07:31	GYR8	EET CAL 4
Total/NA	Analysis	6010B		5			406921	02/01/24 18:45	P1R	EET CAL 4
	Instrument ID:	ICP10								
Total/NA	Prep	7471A			0.52 g	50 mL	405016	01/26/24 15:23	EV3M	EET CAL 4
Total/NA	Analysis	7471A		1			405785	01/29/24 19:32	Y2WS	EET CAL 4
	Instrument ID:	HG8								

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: NOVA Services
Project/Site: Euclid Ave. Downtown Recycled Water Project

Job ID: 570-168839-1
SDG: UT1072 / 2023168

Laboratory: Eurofins Calscience

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	3082	07-31-24
Oregon	NELAP	4175	02-02-24

Method Summary

Client: NOVA Services
Project/Site: Euclid Ave. Downtown Recycled Water Project

Job ID: 570-168839-1
SDG: UT1072 / 2023168

Method	Method Description	Protocol	Laboratory
8015B	Diesel Range Organics (DRO) (GC)	SW846	EET CAL 4
6010B	Metals (ICP)	SW846	EET CAL 4
7471A	Mercury (CVAA)	SW846	EET CAL 4
3050B	Preparation, Metals	SW846	EET CAL 4
3550C	Ultrasonic Extraction	SW846	EET CAL 4
7471A	Preparation, Mercury	SW846	EET CAL 4

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-168839-1	B-3 @ 10	Solid	01/18/24 12:27	01/19/24 17:27
570-168839-2	B-2 @ 5	Solid	01/18/24 13:45	01/19/24 17:27

eurofins | Calscience

7440 Lincoln Way, Garden Grove, CA 92841-1427 (714) 895-5494

570-168839 Chain of Custody

Loc: 570
168839
MWN9

CHAIN OF CUSTODY RECORD

DATE: 1/19/2024
PAGE: 1 OF 1

LABORATORY CLIENT: NOVA Services, Inc.
ADDRESS: 4373 Viewridge Avenue, Suite B
CITY: San Diego STATE: CA ZIP: 92123
TEL: 619-922-6889 FAX: E-MAIL: anuehaus@usa-nova.com

CLIENT PROJECT NAME / NUMBER: Euclid Avenue Downtown Recycled Water Project, UT 1072 / 2023168
P.O. NO.:
PROJECT CONTACT: Andrew Neuhaus
LAB CONTACT OR QUOTE NO.:
SAMPLER(S): (SIGNATURE) Giovanni Norman
LAB USE ONLY ☐☐-☐☐☐☐

TURNAROUND TIME:
☐ SAME DAY ☐ 24 HR 48 HR ☐ 72 HR ☐ 5 DAYS ☒ STANDARD

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)
☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ____ / ____ / ____

SPECIAL INSTRUCTIONS:

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	LOCATION / DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	TPH (C8-C40) (8015 Modified)	CAM 17 Total Metals by EPA Methods 6010B and 7471A	VOCs Method 8260B/5035	SVOCs by EPA Method 8270D
1.	B-3 @ 10		1/18/24	12:27	Soil	1	/	/		
2.	B-2 @ 5		1/18/24	13:45	Soil	1	/	/		

Relinquished by: (Signature) G NORMAN NOVA	Received by: (Signature) William Rivera	Date: 1.19.24	Time: 13 30
Relinquished by: (Signature) William Rivera	Received by: (Signature) Daniel EC	Date: 1/19/24	Time: 1727
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

1.0°/1.0° SC12

02/24/10 Revision

Login Sample Receipt Checklist

Client: NOVA Services

Job Number: 570-168839-1
SDG Number: UT1072 / 2023168

Login Number: 168839
List Number: 1
Creator: Perez Solis, Daniel

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

APPENDIX F

Noise Technical Memorandum
Ganddini Group Inc December 23, 2024

ganddini

transportation ▪ noise ▪ air quality | GANDDINI GROUP

February 21, 2024

Ms. Lori Trottier
ARDURRA GROUP, INC.
3737 Birch Street, Suite 250
Newport Beach, California 92660

RE: UT1072 Downtown Recycled Water Pipeline Project Noise Technical Memorandum
Project No. 19702

Dear Ms. Trottier:

Ganddini Group, Inc. is pleased to provide this noise technical memorandum for the proposed UT1072 Downtown Recycled Water Pipeline project. The project is located in the City of Ontario, San Bernadino County, California. The proposed project includes Segment 1 Euclid Avenue between E Holt Blvd to 4th Street (~5,450 linear feet); Segment 2 F Street between the east side of Euclid Avenue to Vine Street (~2,000 linear feet), Vine Street between F Street and Flora Street (~400 linear feet), and Flora Street between Vine Street and the northwestern corner of James Bryant Dog Park (~400 linear feet); Segment 3 C Street between Euclid Avenue and west of Lemon Street (~500 linear feet); and Segment 4 Riverside Drive between Euclid Avenue and Cucamonga Creek (~16,000 linear feet). A vicinity map showing the project location is provided on Figure 1.

PROJECT DESCRIPTION

The Proposed Project will construct approximately 24,950 linear feet of City-owned and operated recycled water mains from connections at nearby Inland Empire Utilities Agency (IEUA) recycled water mains. The Project is proposed within public rights-of-way for Euclid Avenue; F Street; Vine Street; Flora Street; C Street; and Riverside Drive. These street segments are collectively referred to as the “Project Alignment”. The Project has distinct northern and southern portions. The Northern Portion of the Project is located within the City of Ontario’s downtown district along Euclid Avenue and includes portions of F Street, Vine Street, C Street and Flora Street. The northern portion of the Project will be connected to an existing IEUA 30-inch recycled water main at 4th street and Euclid Avenue which serves as a mixed-used transportation corridor and CALTRANS Right-of-way. The Northern Portion of the Project includes F Street, Vine Street, and Flora Street, which are two- lane collector streets, and C Street, a local roadway. The Northern Portion is surrounded by residential, mixed-use, and public facilities. The Southern Portion of the Project (near Old Model Colony) consists of Riverside Drive, a 6-lane minor arterial and is surrounded by residential, commercial, and open spaces, reference. Project components are summarized in Table 1 and shown on Figure 2.

The project is anticipated to be operational for a minimum of 50 years from completion of initial construction. The City will operate and manage the project similar to existing conditions since the project will install new laterals to existing irrigation along the Euclid Avenue center median, James Bryant Park, the Civic Center, and Town Square Park. Therefore, the City of Ontario does not anticipate additional staffing needs for long-term operation and maintenance of the proposed project. Monthly worker trips over the lifetime of the proposed project will be required to conduct routine inspections and ensure proper long-term maintenance.

Table 1
Project Components

Segment No.	Proposed Structure	Public ROW and Direction of Pipeline Construction	Pipe Size and Length	Area of Temporary Disturbance
1	New Recycled Water Main	**Public ROW:** Euclid Avenue (CALTRANS ROW; mixed-use corridor)	**Size:** 12” diameter	**Open Trenching:** 30-inches wide x 72-inches deep for ~5,300 linear feet
		Direction: North from Holt Blvd to 4th Street; connection existing 30” IEUA pipeline at 4th Street	**Length:** ~ 5,300 linear feet	**Construction Area:** Full width 24-feet
	Recycled Water Lateral	**Public ROW:** Euclid Avenue (CALTRANS ROW; mixed-use corridor) center median between G Street and C Street	Existing irrigation system **Length:** ~20 linear feet	**Trenching:** 2 ft wide x 2 ft deep for ~ 20 linear feet
		Public ROW: Euclid Avenue (CALTRANS ROW; mixed-use corridor) center median between C Street and Holt Boulevard	Existing irrigation system **Length:** ~15 linear feet	**Trenching:** 2 ft wide x 2 ft deep for ~15 linear feet
2	New Recycled Water Main	**Public ROW:** F Street (Collector Street) **Direction:** West from Euclid Avenue to Vine Street	**Size:** 8” diameter **Length:** ~1,500 linear feet	**Open Trenching:** 26-inches wide x 68-inch deep **Construction Area:** Full width 24-feet
	New Recycled Water Main	**Public ROW:** Vine Street (Collector Street) **Direction:** South from F Street to Flora Street	**Size:** 8” diameter **Length:** ~200 linear feet	**Open Trenching:** 26-inches wide x 68-inch deep **Construction Area:** Full width 24-feet
	New Recycled Water Main	**Public ROW:** Flora Street (Collector Street) **Direction:** East from Vine Street to James Bryant Park	**Size:** 8” diameter **Length:** ~1,300 linear feet	**Open Trenching:** 26-inches wide x 68-inch deep **Construction Area:** Full width 24-feet
	Recycled Water Lateral	James Bryant Park	Existing irrigation system **Length:** ~20 linear feet	**Trenching:** 2 ft wide x 2 ft deep
3	New Recycled Water Main	**Public ROW:** C Street **Direction:** East from Euclid Avenue and west of Lemon Street	**Size:** 8’ diameter **Length:** ~300 linear feet	**Open Trenching:** 26-inches wide x 68-inch deep for ~300 feet **Construction Area:** Full width 24-feet
	Recycled Water Lateral	**Public ROW:** C Street City Civic Center buildings (City Hall/ Senior Center) Conservation Park	Existing irrigation system Existing irrigation system	**Trenching:** 2 ft wide x 2 ft deep **Trenching:** 2 ft wide x 2 ft deep
	Convert existing 8-inch potable water pipeline to recycled water	Civic Center area along B Street and Lemon Street	**Size:** 8” diameter **Length:** ~2,340 linear feet	None Proposed
4	New Recycled Water Main	**Public ROW:** Riverside Drive (6-lane Minor Arterial) **Direction:** West from Cucamonga Creek (channel) to Euclid Avenue	**Size:** 24” diameter **Length:** ~15,400 linear feet	**Open Trenching:** 42-inches wide x 84-inch deep for ~15,400 feet **Construction Area:** Full width 24-feet
	Recycled Water Lateral	Euclid Avenue center median between SR-60 and Riverside Avenue	Existing irrigation system **Size:** 8" diameter **Length:** ~100 linear feet	**Trenching:** 2 ft wide x 2 ft deep for ~100 linear feet

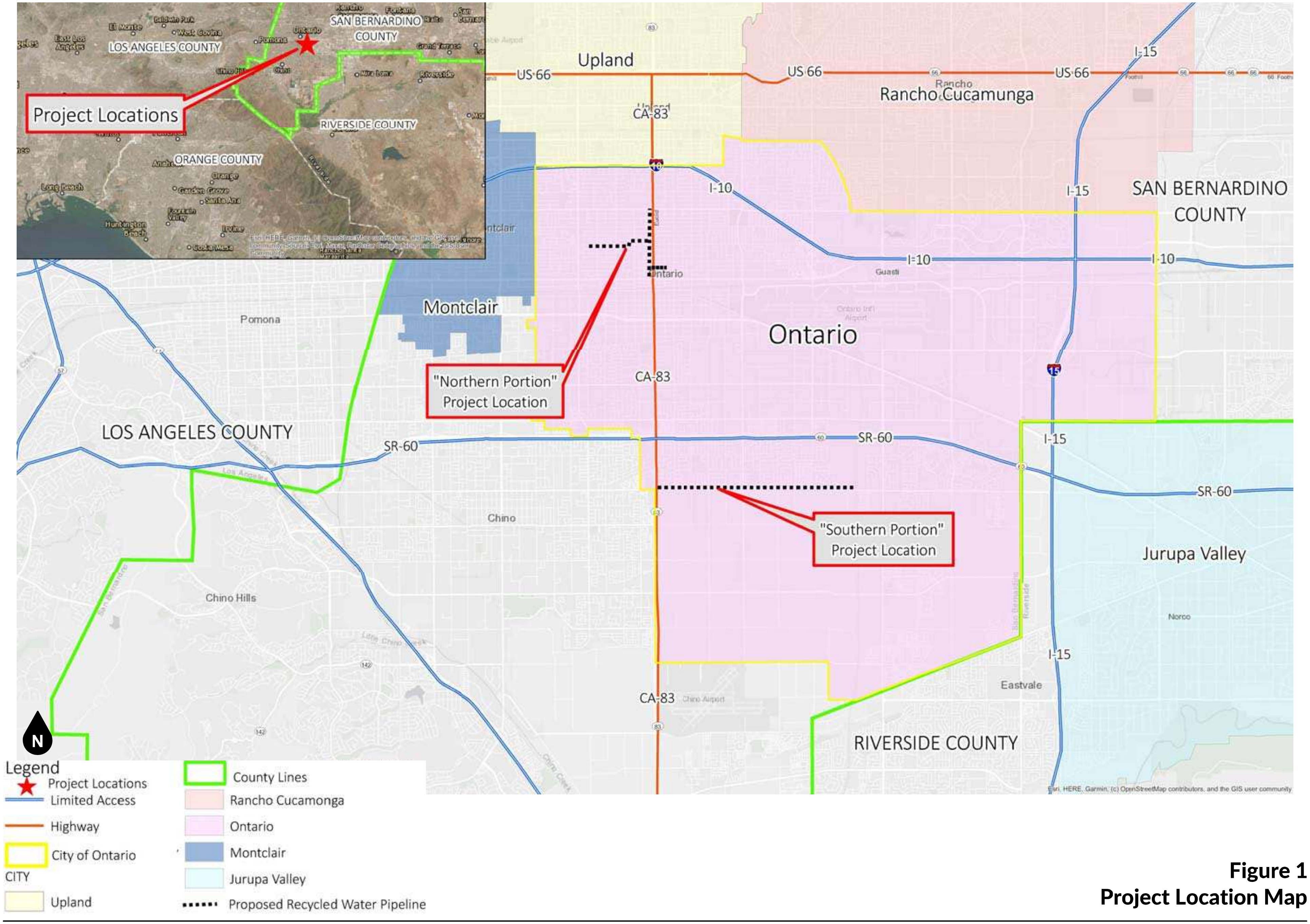


Figure 1
Project Location Map

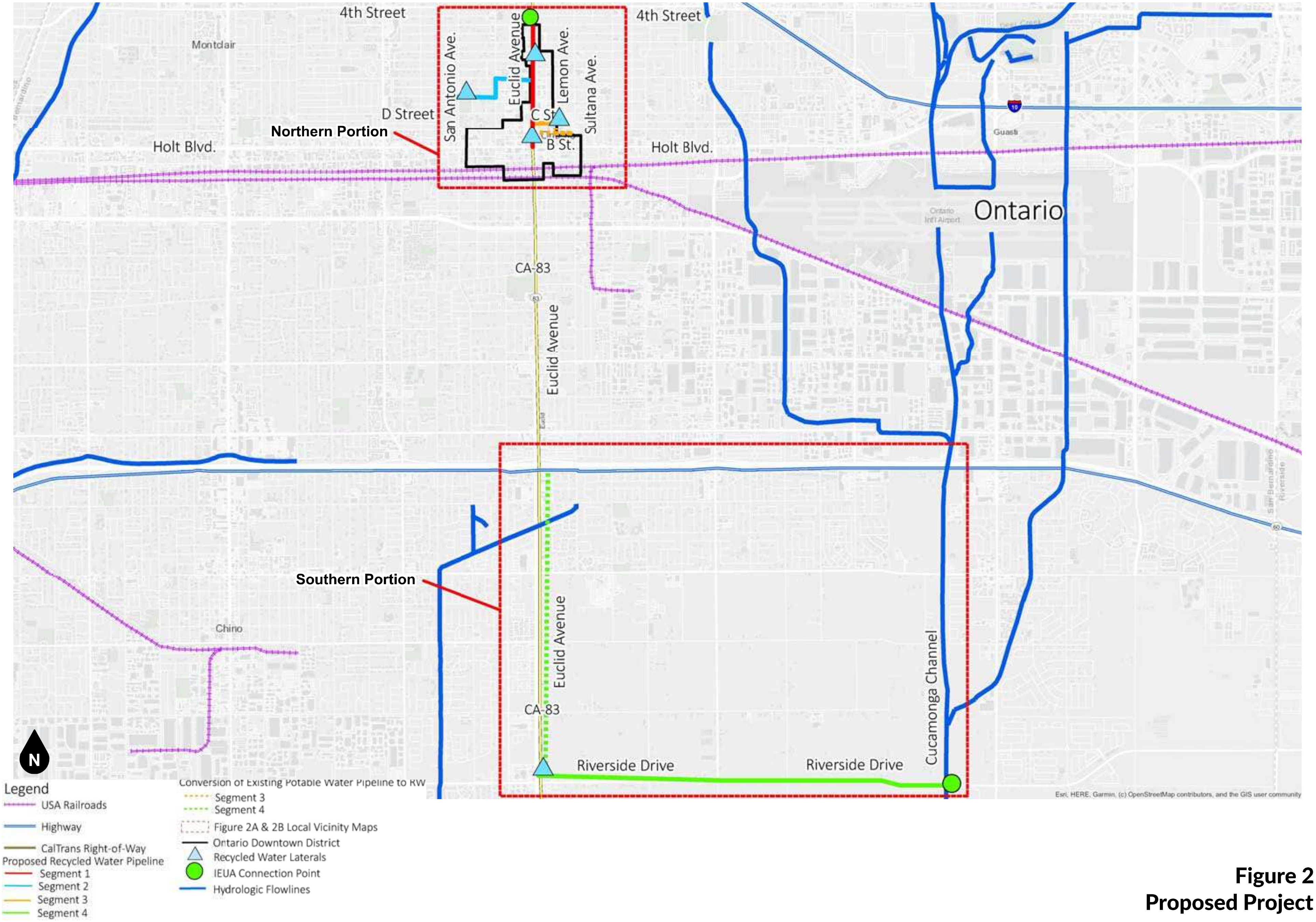


Figure 2
Proposed Project

EXISTING NOISE ENVIRONMENT

Existing Land Uses and Sensitive Receptors

The State of California defines sensitive receptors as those land uses that require serenity or are otherwise adversely affected by noise events or conditions. Schools, libraries, churches, hospitals, single and multiple-family residential, including transient lodging, motels and hotel uses make up the majority of these areas.

Sensitive land uses that may be affected by project noise include existing residential uses located adjacent or near to the proposed project alignment along Euclid Avenue; F Street; Vine Street; Flora Street; C Street; and Riverside Drive. In addition, other than nearby residential receptors, sensitive receptors near Segment 1 also include Chaffey High School and Vina Danks Middle School, located approximately 0.1 miles from the portion of the project alignment along 4th Street, Champions at Euclid Elementary, the American Inn, First United Methodist Church, First Lutheran Church Ontario, and the Central Language Academy, located approximately 0.1 miles from project alignment along Euclid Avenue, and the St. George School and St. George Catholic Church, located approximately 0.2 miles from project alignment along Euclid Avenue; near Segment 3 also include San Antonion School, located approximately 0.2 miles from project alignment along Euclid Avenue; and near Segment 4 also include Woodcrest Junior High School and Liberty Elementary School, located approximately 0.4 miles from project alignment along Riverside Drive, Heavenly Care Daycare, Banal Na Pag Aral, and Preschool School and Sunrise Children Center, located approximately 0.1 miles from project alignment along Riverside Drive, and Live Oak Preschool, located approximately 0.2 miles from project alignment along Riverside Drive.

Ambient Noise Measurements

An American National Standards Institute (ANSI Section S1.4 2014 Class 1) Larson Davis model LxT sound level meter was used to document existing ambient noise levels. In order to document existing ambient noise levels in the project area, eleven (11) 15-minute daytime noise measurements were taken between 12:40 PM and 7:55 PM on January 31, 2024. Figure 3 shows the noise measurement location map. Field worksheets and noise measurement worksheets are provided in Appendix A.

As shown on Figure 3, the noise meter was placed at the following locations:

NM1: represents the existing noise environment of the daycare and residential uses located to the north of Segment 4 of the project site along E Riverside Drive (2049 E Riverside Drive and 2945 S Spyglass Court, Ontario). The noise meter was placed near the southwestern property line of the daycare just north of E Riverside Drive.

NM2: represents the existing noise environment of the single-family residences located to the north of Segment 4 of the project site along E Riverside Drive (2945 S Pinehurst Court, Ontario). The noise meter was placed near the northern side of E Riverside Drive near the southern property line of the single-family residences.

NM3: represents the existing noise environment of the daycare and church uses located to the south of Segment 4 of the project site along E Riverside Drive (1030 E Riverside Drive, Ontario). The noise meter was placed near the southern side of E Riverside Drive near the northern property line of the daycare and church uses.

NM4: represents the existing noise environment of the multi-family residences located to the north of Segment 4 of the project site along E Riverside Drive (451 E Riverside Drive, Ontario). The noise meter was placed near the northern side of E Riverside Drive near the southern property line of the multi-family residences.

NM5: represents the existing noise environment of the park uses located to the south of Segment 3 of the project site along C Street (127 E C Street, Ontario). The noise meter was placed near the southern side of E C Street just north of the park use.

NM6: represents the existing noise environment of the single-family residences and park uses located to the north and south of Segment 2 of the project site along W Flora Street (457 N Beverly Square, Ontario). The noise meter was placed near the southern side of W Flora Street just north of the property line of the residential use.

NM7: represents the existing noise environment of the single-family residences located to the east and west of Segment 2 of the project site along N Vine Avenue (522 Vine Avenue, Ontario). The noise meter was placed near the eastern side of N Vine Avenue just west of the property line of the residential use.

NM8: represents the existing noise environment of the residential and commercial uses located to the north and south of Segment 2 of the project site along W F Street (312 W F Street, Ontario). The noise meter was placed near the northern side of W F Street just south of the property line of the residential use.

NM9: represents the existing noise environment of the motel use located to the west of Segment 1 of the project site along N Euclid Avenue (755 N Euclid Avenue, Ontario). The noise meter was placed near the western side of N Euclid Avenue just east of the property line of the motel use.

NM10: represents the existing noise environment of the residential uses located to the east of Segment 1 of the project site along N Euclid Avenue (940 N Euclid Avenue, Ontario). The noise meter was placed near the eastern side of N Euclid Avenue just west of the property line of the residential use.

NM11: represents the existing noise environment of the school use located to the northwest of Segment 1 of the project site along N Euclid Avenue (1181 N Euclid Avenue, Ontario). The noise meter was placed just northwest of the intersection of N Euclid Avenue and 4th Street.

Table 2 provides a summary of the short-term ambient noise data. Measured short-term ambient noise levels ranged between 51.6 and 74.7 dBA L_{eq}. The dominant noise source was vehicle traffic associated with E Riverside Drive, E C Street, W Flora Avenue, N Vine Avenue, W F Street, N Euclid Avenue, 4th Street, and other surrounding roadways, emergency vehicles, air traffic, and residential activity.

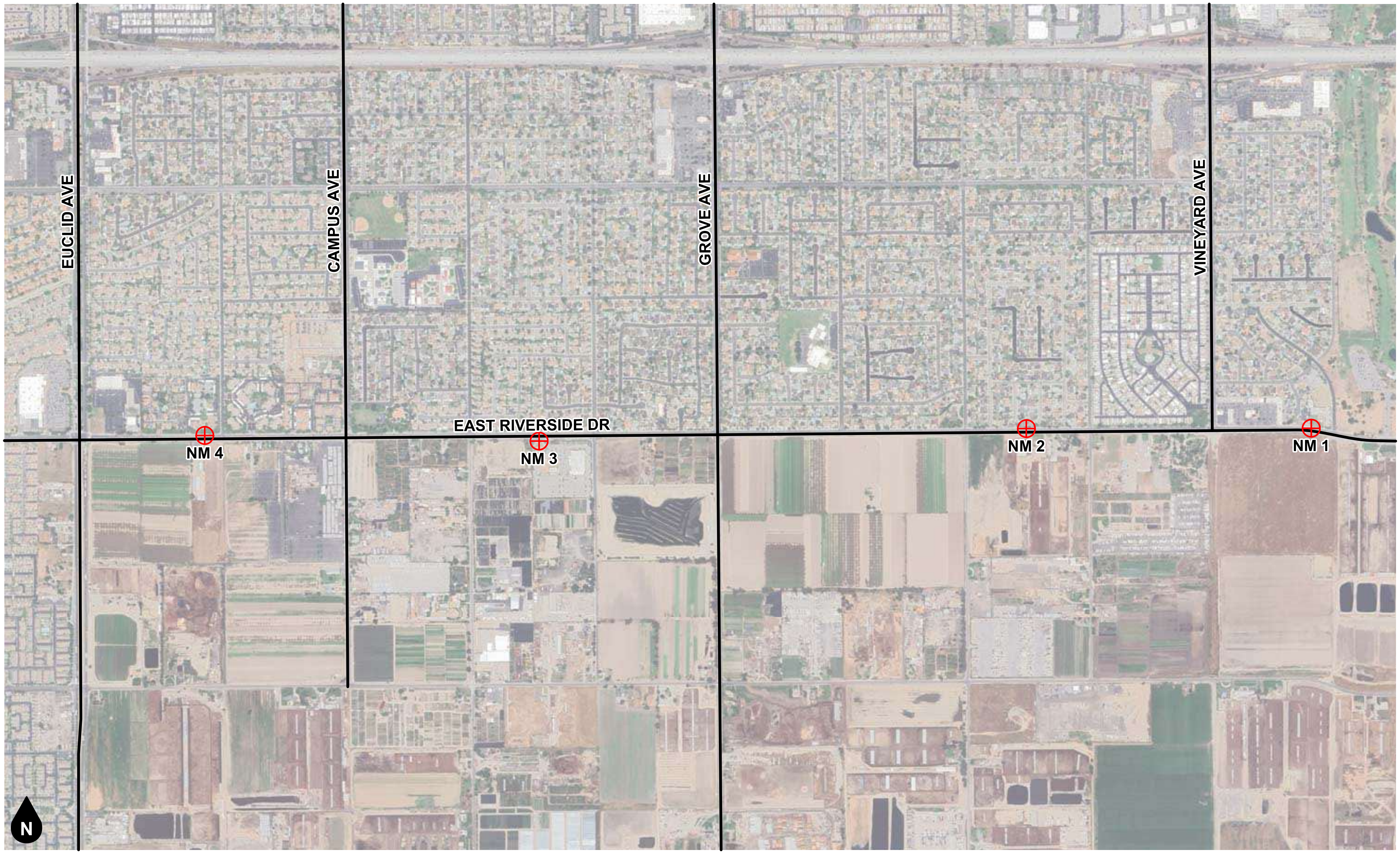
Table 2
Short-Term Noise Measurement Summary (dBA)

Daytime Measurements[1,2]								
Site Location	Time Started	Leq	Lmax	Lmin	L(2)	L(8)	L(25)	L(50)
NM1	12:40 PM	72.8	85.8	49.2	79.1	76.8	73.8	70.6
NM2	1:17 PM	74.7	89.4	50.2	82.8	79.5	75.3	70.0
NM3	1:56 PM	71.8	85.3	46.3	77.3	75.7	73.6	70.0
NM4	2:29 PM	72.3	83.8	54.2	78.4	76.4	73.8	70.7
NM5	3:20 PM	58.9	74.2	51.1	66.2	62.8	58.6	56.1
NM6	3:59 PM	51.6	67.2	43.4	61.0	54.5	50.5	48.0
NM7	4:30 PM	59.9	70.6	42.8	67.2	65.0	61.0	55.8
NM8	4:59 PM	55.5	72.1	43.3	65.0	59.5	52.6	49.5
NM9	5:34 PM	69.4	86.0	46.8	76.1	73.9	70.0	64.5
NM10	7:04 PM	69.6	89.5	48.3	75.7	73.1	69.2	63.4
NM11	7:40 PM	70.1	94.2	50.5	74.1	70.3	66.4	62.4

Notes:

(1) See Figure 3 for noise measurement locations. Each noise measurement was performed over a 10-minute duration.

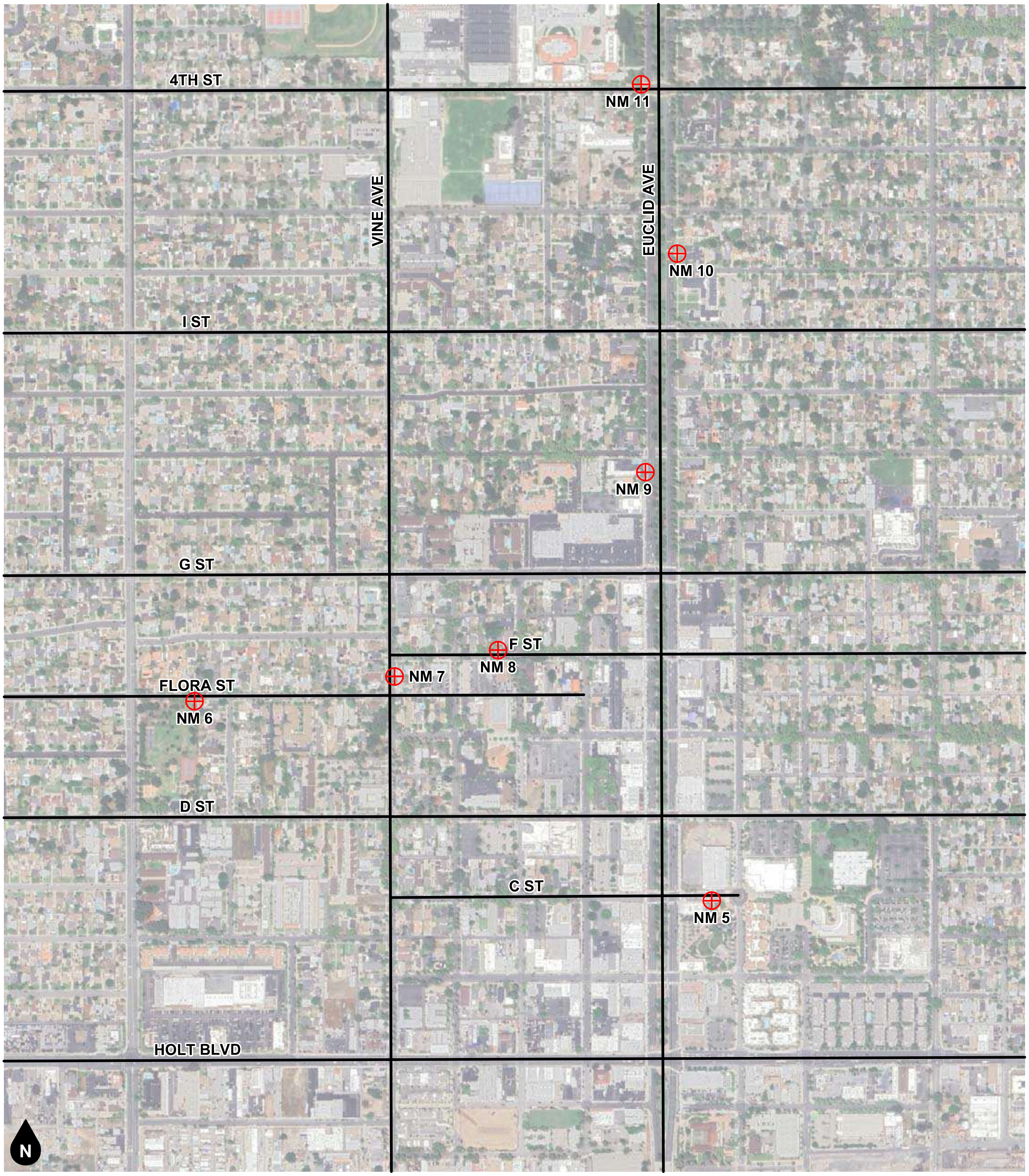
(2) Noise measurements performed on January 31, 2024.



Legend

⊕ Noise Measurement Location
NM 1

Figure 3a
Noise Measurement Location Map



Legend

⊕ Noise Measurement Location

NM 1

Figure 3b
Noise Measurement Location Map

APPLICABLE REGULATION

City of Ontario Policy Plan

The City of Ontario Policy Plan states long-term goals, principles, and policies for achieving Ontario's Vision. The Policy Plan serves as the City's General Plan. It guides growth and development to achieve optimum results from the City's physical, economic, environmental, and human resources. The noise related goal and policies from the Policy Plan applicable to the proposed project are provided below.

Goal S-4 An environment where noise does not adversely affect the public's health, safety, and welfare.

S-4.1 Noise Mitigation. We utilize the City's Noise Ordinance, building codes, and subdivision and development codes to mitigate noise impacts.

S-4.4 Truck Traffic. We manage truck traffic to minimize noise impacts on sensitive land uses.

City of Ontario Municipal Code

Section 5-29.04 Exterior Noise Standards

Project construction noise is exempt from the Exterior Noise Standards per Section 5-29-06 (d) "noise sources associated with construction, repair, remodeling, demolition or grading of any real property. Such activities shall instead be subject to the provisions of Section 5-20.09."

Section 5-29.09 Construction Activity Noise Regulations

a) No person, while engaged in construction, remodeling, digging, grading, demolition, or any other related building activity, shall operate any tool, equipment or machine in a manner that produces loud noise that disturbs a person of normal sensitivity who works or resides in the vicinity, or a Police or Code Enforcement Officer, on any weekday except between the hours of 7:00 AM and 6:00 PM or on Saturday or Sunday between the hours of 9:00 AM and 6:00 PM.

b) No landowner, construction company owner, contractor, subcontractor, or employer shall permit or allow any person or persons working under their direction and control to operate any tool, equipment, or machine in violation of the provisions of this section.

(c) Exceptions:

  (1) The provisions of this section shall not apply to emergency construction work performed by a private party when authorized by the City Manager or his or her designee.

  (2) The maintenance, repair or improvement of any public work or facility by public employees, by any person or persons acting pursuant to a public works contract, or by any person or persons performing such work or pursuant to the direction of, or on behalf of, any public agency; provided, however, this exception shall not apply to the City, or its employees, contractors or agents, unless:

    (i) The City Manager or a department head determines that the maintenance, repair or improvement is immediately necessary to maintain public services,

    (ii) The maintenance, repair or improvement is of a nature that cannot feasibly be conducted during normal business hours, or

(iii) The City Council has approved project specifications, contract provisions, or an environmental document that specifically authorizes construction during hours of the day that would otherwise be prohibited pursuant to this section; and

(3) Any construction that complies with the noise limits specified in Section 5-29.04 or 5-29.05.

Section 5-29.10. Other public agency exceptions.

The provisions of this chapter shall not be construed to prohibit any work at different hours by or under the direction of any other public agency or public or private utility companies in cases of necessity or emergency.

ANALYSIS AND FINDINGS

Construction Noise (On-Site Sources)

Construction Noise Standards

Construction noise is regulated within Section 5-29.09 of the City of Ontario Municipal Code which exempts construction noise from the City's noise standards between the hours of 7:00 AM and 6:00 PM on weekdays or on Saturday or Sunday between the hours of 9:00 AM and 6:00 PM.

All "public work" is exempt from the City's stationary noise standards and exempt from the compliance with the allowed hours for construction activity presented above. The project would be considered "public work".

For discussion purposes and in an effort to minimize construction noise, construction noise has also been analyzed in light of Federal Transit Administration (FTA) construction noise criteria.[1] For residential uses, the daytime noise threshold is 80 dBA L_{eq} averaged over an 8-hour period ($L_{eq\ (8\text{-}hr)}$; and the nighttime noise threshold is 70 dBA $L_{eq\ (8\text{-}hr)}$. For commercial uses, the daytime and nighttime noise threshold is 85 dBA $L_{eq\ (8\text{-}hr)}$.

Construction Noise Modeling

Construction noise associated with the proposed project was calculated at the sensitive receptor locations utilizing methodology presented in the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (2018) together with several key construction parameters, including: distance to each sensitive receiver, equipment usage, percent usage factor, and baseline parameters for the project site. The equipment used to calculate the construction noise levels for each phase were based on the assumptions provided by the project applicant as well as the CalEEMod modeling provided in the Air Quality, Greenhouse Gas, and Energy Technical Memorandum prepared for the proposed project (Ganddini Group Inc., 2024). For construction noise purposes, the distance measured from the project site to sensitive receptors was assumed to be the acoustical center of the construction work area to the property line of residential properties with existing residential buildings. Sound emission levels associated with typical construction equipment as well as typical usage factors are provided in Table 3. Construction noise assumptions and worksheets are provided in Appendix B.

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[1] Federal Transit Administration Transit Noise and Vibration Impact Assessment Manual. Sept. 2018

Table 3 (1 of 2)
CA/T Equipment Noise Emissions and Acoustical Usage Factor Database

Equipment Description	Impact Device?	Acoustical Use Factor (%)	Spec. Lmax @ 50ft (dBA, slow)	Actual Measured Lmax @ 50ft (dBA, slow)	No. of Actual Data Samples (Count)
All Other Equipment > 5 HP	No	50	85	-N/A-	0
Auger Drill Rig	No	20	85	84	36
Backhoe	No	40	80	78	372
Bar Bender	No	20	80	-N/A-	0
Blasting	Yes	-N/A-	94	-N/A-	0
Boring Jack Power Unit	No	50	80	83	1
Chain Saw	No	20	85	84	46
Clam Shovel (dropping)	Yes	20	93	87	4
Compactor (ground)	No	20	80	83	57
Compressor (air)	No	40	80	78	18
Concrete Batch Plant	No	15	83	-N/A-	0
Concrete Mixer Truck	No	40	85	79	40
Concrete Pump Truck	No	20	82	81	30
Concrete Saw	No	20	90	90	55
Crane	No	16	85	81	405
Dozer	No	40	85	82	55
Drill Rig Truck	No	20	84	79	22
Drum Mixer	No	50	80	80	1
Dump Truck	No	40	84	76	31
Excavator	No	40	85	81	170
Flat Bed Truck	No	40	84	74	4
Forklift[2,3]	No	50	n/a	61	n/a
Front End Loader	No	40	80	79	96
Generator	No	50	82	81	19
Generator (<25KVA, VMS signs)	No	50	70	73	74
Gradall	No	40	85	83	70
Grader	No	40	85	-N/A-	0
Grapple (on backhoe)	No	40	85	87	1
Horizontal Boring Hydr. Jack	No	25	80	82	6
Hydra Break Ram	Yes	10	90	-N/A-	0
Impact Pile Driver	Yes	20	95	101	11
Jackhammer	Yes	20	85	89	133
Man Lift	No	20	85	75	23
Mounted Impact hammer (hoe ram)	Yes	20	90	90	212
Pavement Scarafier	No	20	85	90	2
Paver	No	50	85	77	9
Pickup Truck	No	50	85	77	9
Paving Equipment	No	50	85	77	9
Pneumatic Tools	No	50	85	85	90

Table 3 (2 of 2)
CA/T Equipment Noise Emissions and Acoustical Usage Factor Database

Equipment Description	Impact Device?	Acoustical Use Factor (%)	Spec. Lmax @ 50ft (dBA, slow)	Actual Measured Lmax @ 50ft (dBA, slow)	No. of Actual Data Samples (Count)
Pumps	No	50	77	81	17
Refrigerator Unit	No	100	82	73	3
Rivit Buster/chipping gun	Yes	20	85	79	19
Rock Drill	No	20	85	81	3
Roller	No	20	85	80	16
Sand Blasting (Single Nozzle)	No	20	85	96	9
Scraper	No	40	85	84	12
Shears (on backhoe)	No	40	85	96	5
Slurry Plant	No	100	78	78	1
Slurry Trenching Machine	No	50	82	80	75
Soil Mix Drill Rig	No	50	80	-N/A-	0
Tractor	No	40	84	-N/A-	0
Vacuum Excavator (Vac-truck)	No	40	85	85	149
Vacuum Street Sweeper	No	10	80	82	19
Ventilation Fan	No	100	85	79	13
Vibrating Hopper	No	50	85	87	1
Vibratory Concrete Mixer	No	20	80	80	1
Vibratory Pile Driver	No	20	95	101	44
Warning Horn	No	5	85	83	12
Welder/Torch	No	40	73	74	5

Notes:

(1) Source: FHWA Roadway Construction Noise Model User's Guide January 2006.

(2) Warehouse & Forklift Noise Exposure - NoiseTesting.info Carl Stautins, November 4, 2014
http://www.noisetesting.info/blog/carl-strautins/page-3/

(3) Data provided Leq as measured at the operator. Sound Level at 50 feet is calculated using Inverse Square Law.

Construction activities include the construction of approximately 24,255 linear feet of recycled water main; 2,340 linear feet of potable water irrigation converted to recycled water main. The entire alignment will be buried underground using open trench construction and potholing prior to project construction to avoid direct impacts to existing utilities and structures. Temporary areas of disturbance from trenching are anticipated to be approximately 30-inches wide by 72-inches deep for 12-inch diameter pipeline (along approximately 5,450 linear feet); 26-inches wide x 68-inch deep for 8-inch diameter pipeline (along approximately 3,000 linear feet); and 42-inches wide x 84-inch deep for 24-inch pipeline (along approximately 15,400 linear feet); and 2 feet wide by 2 feet deep for laterals (approximately 15-20 feet long). As a result, approximately 11.8 acres of temporary disturbance is anticipated during project construction. Per the project applicant, construction equipment is to include: two (2) scrapers, one (1) tractors/ loaders/ backhoes, two (2) off-highway trucks, two (2) plate compactors, two (2) excavators, two (2) other material handling equipment, two (2) paving equipment, two (2) other construction equipment, four (4) pumps, two (2) skid steer loaders, two (2) surfacing equipment, two (2) rubber tired dozers, and two (2) cranes. Construction is anticipated to begin no sooner than Fall 2024 and being completed Fall 2025, taking approximately eleven months to complete. The installation rate of the recycled water mains is expected to average 60 to 80 linear feet per day. Because it is highly unlikely that 6

Sensitive Receptors

Sensitive land uses that may be affected by project noise include the existing residential, school, daycare, and church uses located adjacent or near to the proposed project alignment along Euclid Avenue, F Street, Vine Street, Flora Street, C Street, and Riverside Drive. Therefore, for modeling purposes and to provide a conservative analysis, representative receptors along each of the four project segments have been modeled. These modeled representative sensitive receptors are listed below.

Segment 1 [Euclid Avenue between E Holt Blvd to 4th Street (~5,450 linear feet)]:

- American Inn (755 N Euclid Avenue)
- Residential (938 Euclid Avenue)
- Chaffey High School (1245 N Euclid Avenue)

Segment 2 [F Street between the east side of Euclid Avenue to N Vine Street (~2,000 linear feet), Vine Street between F Street and Flora Street (~400 linear feet), Flora Street between N Vine Street and northwestern corner of James Bryant Dog Park (~400 linear feet)]:

- Residential (457 Beverly) and James R Bryant Park
- Residential (526 N Vine Avenue)
- Residential (312 W F Street)

Segment 3 [C Street between Euclid Avenue and west of Lemon Street (~500 linear feet) and East B Street between Euclid Avenue and W Lemon Street]:

- Ontario Town Square (24 N Euclid Avenue)

Segment 4 [Riverside Drive between Euclid Avenue and Cucamonga Creek (~16,000 linear feet)]:

- Sunrise Children Center (2049 E Riverside Drive)
- Residential (2944 S Meadowbrook Place and 2945 S Pinehurst Court)
- Heavenly Care Daycare & Preschool (1030 Riverside Drive)

- Harris Place Apartments (451 E Riverside Drive)

Construction Noise Findings

As stated previously, project construction noise levels at nearby sensitive receptors were calculated using the FTA methodology. Construction noise modeling worksheets for each phase are provided in Appendix B. Anticipated noise levels during each construction phase are presented in Table 4. As stated previously, project construction is exempt from the City of Ontario noise ordinance standards. Therefore, project generated construction noise was evaluated in light of FTA standards for discussion purposes and development of reasonable noise reduction measures.

As shown in Table 4, modeled construction noise levels reach up to 89.3 dBA L_{eq} at the property line of the nearest receptors along Segment 1, 93.0 dBA L_{eq} at the property line of the nearest receptors along Segment 2, 93.3. dBA L_{eq} at the property line of the nearest receptors along Segment 3, and 90.7 dBA L_{eq} at the property line of the nearest receptors along Segment 4 of the project site. In addition, modeled construction noise levels reach up to 84.2 dBA L_{eq} at the nearest structures along Segment 1, 91.8 dBA L_{eq} at the nearest structures along Segment 2, 92.2 dBA L_{eq} at the nearest structures along Segment 3, and 89.0 dBA L_{eq} at the nearest structures along Segment 4 of the project site.

Based on the modeled construction noise levels (see Table 4), construction noise levels are anticipated to exceed the FTA residential (80 dBA L_{eq}) and commercial (85 dBA L_{eq}) threshold at various receptors along the project alignment. Therefore, the project would exceed the FTA standards relating to construction noise and mitigation is required.

However, as shown in Table 5, project construction is expected to move approximately 70 feet each day. Therefore, project construction noise levels would be 3-11 dB L_{eq} lower (76.5-83.3 dBA L_{eq} at property lines) depending on the location and would be even lower on the third day. With implementation of mitigation measures 1 through 10 project construction noise levels would not exceed the FTA residential (80 dBA L_{eq}) and commercial (85 dBA L_{eq}) thresholds. Therefore, the impact is not expected to last more than two days at any particular receptor. Furthermore, best management practices presented below can be implemented to reduce construction noise levels to below FTA construction noise standards. The project impact is less than significant.

Best Management Practices

There are several combinations of measures that can be implemented in order to keep construction noise levels below FTA thresholds, including use of alternative equipment that can do the same job but with a lower sound level than used in this analysis. Another method would be to install a temporary barrier blocking the line of sight between the construction equipment and the receiver. The sound reduction provided by a barrier depends on the material and thickness of the barrier. A ten-foot barrier will provide at least 10 dB of sound reduction. After 10-feet, every additional 1 foot in height provides approximately 1 dB of reduction. Mufflers can be designed to provide up to 30 dB of sound reduction. For ease of implementation, the following best management practices (BMPs) were designed to achieve acceptable noise levels at the most impacted receptor [Residential and Park uses along Segment 2 (457 Beverly, Ontario and James R Bryant Park]. The following BMPs shall be provided on project plans and in contract specifications to minimize construction noise emanating from the proposed project:

Table 4
Construction Noise Levels (dBA L_{eq}) In Light of FTA Thresholds

Phase	Noise Measurement Location[2]	Project Segment	Existing Use	Receptor Location	Existing Ambient Noise Levels (dBA Leq)[2]	Construction Noise Levels (dBA Leq)		Applicable FTA Threshold[3]	Exceeds Threshold?	Needed Reduction (dB)[4]	Construction Noise Levels with Reduction?[5]		Exceeds Threshold?
						At property line	At Dwelling/ Structure				At property line	At Dwelling/ Structure	
Site Preparation[6]	NM1	4	Daycare	Sunrise Children Center, 2049 E Riverside Dr	72.8	90.1	78.3	85	Yes/No	5.1	85.0	73.2	No
	NM2	4	Residential	2944 S Meadowbrook Place & 2945 S Pinehurst Crt	74.7	90.7	89.0	80	Yes/Yes	10.7	80.0	78.3	No
	NM3	4	Daycare/School	Heavenly Care Daycare & Preschool, 1030 Riverside Dr	71.8	89.1	86.9	85	Yes/Yes	4.1	85.0	82.8	No
	NM4	4	Residential	Harris Place Apartments, 451 E Riverside Dr	72.3	90.3	83.8	80	Yes/Yes	10.3	80.0	73.5	No
	NM5	3	Commercial/Park	Ontario Town Square, 24 N Euclid Ave	58.9	93.3	92.2	85	Yes/Yes	8.3	85.0	83.9	No
	NM6	2	Residential/Park	457 Beverly & James R Bryant Park	51.6	94.2	90.5	80	Yes/Yes	14.2	80.0	76.3	No
	NM7	2	Residential	526 N Vine Ave	59.9	93.0	91.8	80	Yes/Yes	13.0	80.0	78.8	No
	NM8	2	Residential	312 W F Street	55.5	93.0	87.0	87.5	Yes/Yes	5.5	87.5	81.5	No
	NM9	1	Transient Lodging	American Inn, 755 N Euclid Ave	69.4	79.9	79.5	80	No/No	-	-	-	No
	NM10	1	Residential	938 Euclid Ave	69.6	89.3	84.2	80	Yes/Yes	9.3	80.0	74.9	No
	NM11	1	School	Chaffey High School, 1245 N Euclid Ave	70.1	79.9	74.8	85	No/No	-	-	-	No

Notes:

(1) Construction noise worksheets are provided in Appendix D.

(2) Per measured existing ambient noise levels (see Table 2).

(3) The FTA residential daytime noise threshold is 80 dBA Leq averaged over an 8-hour period (Leq (8-hr) and the commercial daytime threshold is 85 dBA Leq (8-hr). In compliance with the City's Code, construction would not occur during

(4) Mitigation meaurse can include, but not be limited to, the use of alternative equipment, muffled equipment, and temporary barriers.

(5) As the project was modeled as one phase (site preparation), the reduction is based on the highest needed reduction of ~17 dB for the residential and park uses along Segment 2 (457 Beverly, Ontario and James R Bryant Park).

(6) As construction is not anticipated to be phased, to provide a conservative scenario, the entirety of the project has been analyzed as occurring in one construction phase (site preparation) with all proposed equipment in operation

Table 5
Construction Noise Levels (dBA L_{eq}) In Light of FTA Thresholds - Second Day

Phase	Noise Measurement Location[2]	Project Segment	Existing Use	Receptor Location	Existing Ambient Noise Levels (dBA Leq)[2]	Construction Noise Levels (dBA Leq)		Applicable FTA Threshold[3]	Exceeds Threshold?	Needed Reduction (dB)[4]	Construction Noise Levels with Reduction?[5]		Exceeds Threshold?
						At property line	At Dwelling/ Structure				At property line	At Dwelling/ Structure	
Site Preparation[6]	NM1	4	Daycare	Sunrise Children Center, 2049 E Riverside Dr	72.8	81.9	75.3	85	No/No	-	-	-	No
	NM2	4	Residential	2944 S Meadowbrook Place & 2945 S Pinehurst Crt	74.7	82.1	81.5	80	Yes/Yes	2.1	80.0	79.4	No
	NM3	4	Daycare/School	Heavenly Care Daycare & Preschool, 1030 Riverside Dr	71.8	81.5	80.5	85	No/No	-	-	-	No
	NM4	4	Residential	Harris Place Apartments, 451 E Riverside Dr	72.3	82.0	78.9	80	Yes/Yes	2.0	80.0	76.9	No
	NM5	3	Commercial/Park	Ontario Town Square, 24 N Euclid Ave	58.9	83.0	82.7	85	No/No	-	-	-	No
	NM6	2	Residential/Park	457 Beverly & James R Bryant Park	51.6	83.3	82.1	80	Yes/Yes	3.3	80.0	78.8	No
	NM7	2	Residential	526 N Vine Ave	59.9	83.0	82.5	80	Yes/Yes	3.0	80.0	79.5	No
	NM8	2	Residential	312 W F Street	55.5	83.0	80.6	87.5	No/No	-	-	-	No
	NM9	1	Transient Lodging	American Inn, 755 N Euclid Ave	69.4	76.5	76.2	80	No/No	-	-	-	No
	NM10	1	Residential	938 Euclid Ave	69.6	81.6	79.1	80	Yes/Yes	1.6	80.0	77.5	No
	NM11	1	School	Chaffey High School, 1245 N Euclid Ave	70.1	76.5	72.8	85	No/No	-	-	-	No

Notes:

(1) Construction noise worksheets are provided in Appendix D.

(2) Per measured existing ambient noise levels (see Table 2).

(3) The FTA residential daytime noise threshold is 80 dBA Leq averaged over an 8-hour period (Leq (8-hr) and the commercial daytime threshold is 85 dBA Leq (8-hr). In compliance with the City's Code, construction would not occur during

(4) Mitigation meaurse can include, but not be limited to, the use of alternative equipment, muffled equipment, and temporary barriers.

(5) As the project was modeled as one phase (site preparation), the reduction is based on the highest needed reduction of ~17 dB for the residential and park uses along Segment 2 (457 Beverly, Ontario and James R Bryant Park).

(6) As construction is not anticipated to be phased, to provide a conservative scenario, the entirety of the project has been analyzed as occurring in one construction phase (site preparation) with all proposed equipment in operation

1. At least one of the following BMPs will be utilized during the operation of construction equipment:[2]

    - Use an alternative piece of equipment that does not exceed a noise level of 80 dB at a distance of 28 feet; or
    - Install a muffler that lowers full operational power to 80 dB or less (a reduction of 17 dB).
    - Surround equipment with at least 8-foot-high solid barriers that can be made of 1-inch plywood or sound blankets during use. The goal is to provide at least 17 dB in noise reduction. The barrier must reach to the ground and be without any holes or cracks.

2. No construction activities shall occur during the hours of 6 PM through 7 AM, Monday through Saturday and at no time shall construction activities occur on Sundays or holidays, unless required by CALTRANS permit, or a declared emergency exists.

3. A noise complaint response program shall be established to respond to any noise complaints received for this project by measuring noise levels at the affected receptor site. If the noise level exceeds an 80 dBA L_{eq} at a residential receptor or 85 dBA L_{eq} at a commercial receptor, the applicant will implement adequate measures (which may include portable sound attenuation walls, use of quieter equipment, shift of construction schedule to avoid the presence of sensitive receptors, etc.) to reduce noise levels to the greatest extent feasible.

4. All equipment, whether fixed or mobile, will be equipped with properly operating and maintained mufflers, consistent with manufacturer standards. Enforcement will be accomplished by random field inspections by applicant personnel during construction activities.

5. As applicable, all equipment shall be shut off and not left in idle when not in use.

6. Equipment shall be maintained and operated such that loads are secured from rattling or banging.

7. Where available, electric-powered equipment shall be used rather than diesel equipment and hydraulic-powered equipment shall be used instead of pneumatic power.

8. No radios or other sound equipment shall be used at the Project Site unless required for emergency response by the contractor.

9. Public notice shall be given prior to initiating construction. This notice shall be provided to all property owners/residents within 300 feet of the project site and shall be provided to property owners/residents at least one week prior to initiating construction. The notice shall identify the dates of construction and the name and phone number of a construction supervisor (contact person) in case of complaints. One contact person shall be assigned to the project. The public notice shall encourage the adjacent residents to contact the supervisor in the case of a complaint. Residents would be informed if there is a change in the construction schedule. The supervisor shall be available 24/7 throughout construction by mobile phone. If a complaint is received, the contact person shall take all feasible steps to remove the sound source causing the complaint.

10. Construction employees shall be trained in the proper operation and use of equipment consistent with the above-listed mitigation measures, including no unnecessary revving of equipment.

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[2] As the project was modeled as one phase (site preparation), the reduction is based on the highest needed reduction of ~17 dB for the residential and park uses along Segment 2 (457 Beverly, Ontario and James R Bryant Park). The property line of these receptors is located as close as approximately 28 feet from the centerline of the roadway associated with Segment 2 of the project alignment.

Construction Noise (Off-Site Sources)

It is widely accepted that the average healthy human ear can barely perceive changes of 3 dBA in an outdoor environment and that a change of 5 dBA is readily perceptible.[3] Accordingly, the project would result in a significant impact if the addition of project trips on surrounding roadways causes noise levels to increase by:

- The addition of project trips on surrounding roadways causes noise levels to increase by:
  - 5 dBA where the existing ambient noise level is less than or equal to a CNEL of 60 dBA; or,
  - 3 dBA where the existing ambient noise level is a CNEL of 60 dBA to 65 dBA; or
  - 1.5 dBA where the existing ambient noise level is greater than or equal to a 65 dBA CNEL.

Construction truck trips would occur throughout the construction period. Given the project site's proximity to both the Interstate 10 and State Route 60 Freeways, it is anticipated that vendor and/or haul truck traffic would take the most direct routes to the appropriate freeway ramps. For Segment 4 of the proposed project, the most direct route is assumed to be from Riverside Drive north on Euclid Avenue to the Interstate 10 Freeway, whereas, for project Segments 1 through 3, the most direct route is assumed to be north or south on Euclid Avenue to either the Interstate 10 or State Route 60 freeway ramps.

Riverside Drive currently handles approximately 12,467 average daily vehicle trips (ADTs) and Euclid Avenue currently handles approximately 2,753 ADTs in the vicinity of the project site.[4] According to the assumptions found in the California Emissions Estimator Model (CalEEMod) modeling data provided in the Air Quality, Greenhouse Gas, and Energy Technical Memorandum prepared for the proposed project (Ganddini Group Inc., 2024), the greatest number of construction-related vehicle trips per day would be up to 32 worker trips 2 vendor trips, and 2 haul truck trips for a total of 36 construction-related vehicle trips per day. Worst case project construction vehicle trips were added to existing daily trips in order to estimate the increase in noise levels along affected roadways due to project construction vehicles. Because construction trip distribution is not known, this analysis assumed all trips traveled on all modeled roadways. Construction off-site traffic noise worksheets which are provided in Appendix C, show that project generated vehicle traffic, assuming 32 automobiles and 4 heavy trucks, could result in a 0.02 dBA CNEL increase in ambient noise levels along Riverside Drive and a 0.1 dBA CNEL increase in ambient noise levels along Euclid Avenue. As stated above, these calculations assume 100 percent of construction trips on both roadways, which in reality, is not likely to happen, but this assumption provides a worst-case scenario.

Therefore, project construction generated vehicle noise is nominal relative to existing roadway volumes and would not result in the doubling of traffic volume necessary to increase noise levels by 3 dBA. The project impact is less than significant; no mitigation is required.

CONCLUSION

Project construction is not anticipated to take place outside of the hours specified in Section 5-29.09 of the City of Ontario Municipal Code. Therefore, project construction is exempt from the City's noise regulation standards. However, construction noise levels are anticipated to exceed the FTA residential (80 dBA L_{eq}) and commercial (85 dBA L_{eq}) thresholds at various receptors along the project alignment. With implementation of BMPs 1 through 10 project construction noise levels would no longer exceed the FTA thresholds. In addition, project construction generated vehicle noise is nominal relative to existing roadway volumes and would not result in the doubling of traffic volume necessary to increase noise levels by 3 dBA. Therefore, with

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[3] California Department of Transportation's Technical Noise Supplement to the Traffic Noise Analysis Protocol (2013)

[4] Existing average daily traffic volume for Riverside Drive and Euclid Avenue obtained from the San Bernardino Countywide Plan Transportation Existing Conditions Report (March 2017). The segment of Riverside Drive east of Reservoir Street and Euclid Avenue south of Vista Drive were utilized.

implementation of the BMPs, the project would not exceed established standards relating to construction noise. This technical memorandum found that noise impacts are considered to be less than significant.

It has been a pleasure to assist you on this project. Should you have any questions or if we can be of further assistance, please do not hesitate to call at (714) 795-3100.

Respectfully submitted,
GANDDINI GROUP, INC.

Roma Stromberg, INCE/MS
Senior Noise Analyst

APPENDIX A

NOISE MEASUREMENT FIELD WORKSHEETS

Noise Measurement
Field Data

Project Name: UT1072 Downtown Recycled Water Pipeline Project, Ontario **Date:** January 31, 2024

Project #: 19702

Noise Measurement #: NM1 15 minunte noise measurement (1 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 2945 S Spyglass Ct, Ontario, CA 91761

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: Near southwestern corner of children's daycare and just north of E Riverside Drive. Adjacent: Children's day care center to northeast, single-family residential to north, and E Riverside Dr (running E-W) to south with vacant land further south.

Weather: <30% cloud, filtered sunshine. Sunset 5:20 PM **Settings:** [✓ SLOW] FAST

Temperature: 69 deg F **Wind:** 4 mph **Humidity:** 40% **Terrain:** Flat

Start Time: 12:40 PM **End Time:** 12:55 PM **Run Time:**

Leq: 72.8 dB **Primary Noise Source:** Traffic noise from the 312 vehicles passing NM1 microphone, traveling along E Riverside Dr.

Lmax 85.8 dB

L2 79.1 dB **Secondary Noise Sources:** Overhead air traffic from Ontario Airport. Traffic ambiance from other roads. Some residential ambiance.

L8 76.8 dB

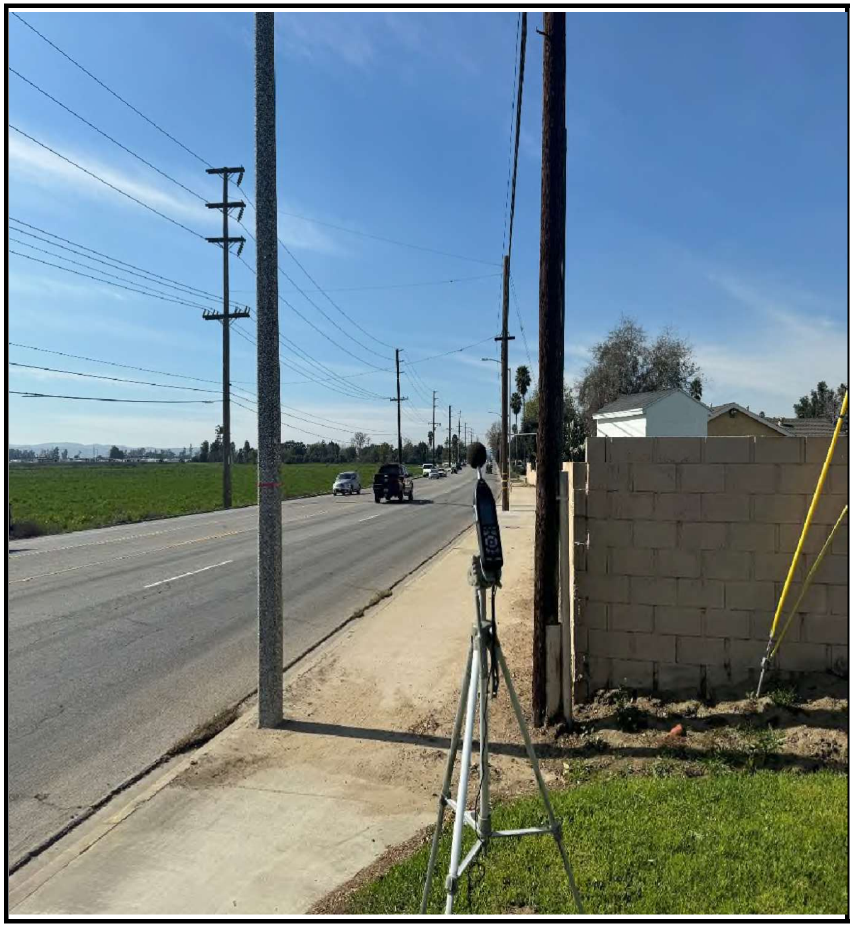
L25 73.8 dB

L50 70.6 dB

NOISE METER:	SoundTrack LXT Class 1	**CALIBRATOR:**	Larson Davis CA 200
MAKE:	Larson Davis	**MAKE:**	Larson Davis
MODEL:	LXT1	**MODEL:**	CA 200
SERIAL NUMBER:	3855	**SERIAL NUMBER:**	11178
FACTORY CALIBRATION DATE:	3/31/2021	**FACTORY CALIBRATION DATE:**	11/18/2021
FIELD CALIBRATION DATE:	1/31/2024		

Noise Measurement
Field Data

PHOTOS:



NM1 looking WSW across E Riverside Dr. SE corner to backyard/wall to residence 2945 S Spyglass Ct, Ontario on the right

NM1 looking ESE along E Riverside Dr towards South Whispering Lakes Lane intersection (~240' ESE). Children's daycare center, 2049 E Riverside Dr on the left.

Summary

File Name on Meter	LxT_Data.010.s
File Name on PC	LxT_0003855-20240131 124005-LxT_Data.010.l
Serial Number	0003855
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	NM1 34° 1'10.90"N 117°36'26.85"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project 19702 UT1072 Downtown Recycled Water Pipeline Project, City of Ontario.

Measurement

Start	2024-01-31 12:40:05
Stop	2024-01-31 12:55:05
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2024-01-31 12:39:35
Post-Calibration	None

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	A Weighting
OBA Max Spectrum	Bin Max
Overload	145.2 dB

Results

LAeq	72.8	
LAE	102.3	
EA	1.898 mPa²h	
EA8	60.746 mPa²h	
EA40	303.731 mPa²h	
LApeak (max)	2024-01-31 12:46:30	111.8 dB
LASmax	2024-01-31 12:46:30	85.8 dB
LASmin	2024-01-31 12:43:21	49.2 dB

LCeq	76.8 dB
LAeq	72.8 dB
LCeq - LAeq	4.0 dB
LAIeq	74.7 dB
LAeq	72.8 dB
LAIeq - LAeq	1.9 dB
Overload Count	0
Overload Duration	0.0 s

Statistics

LA2.00	79.1 dB
LA8.00	76.8 dB
LA25.00	73.8 dB
LA50.00	70.6 dB
LA66.60	68.7 dB
LA90.00	63.7 dB

Measurement Report

Report Summary

Meter's File Name	LxT_Data.010.s	Computer's File Name	LxT_0003855-20240131 124005-LxT_Data.010.l
Meter	LxT1 0003855		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM1 34° 1'10.90"N 117°36'26.85"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	Ganddini Project 19702 UT1072 Downtown Recycled Water Pipeline Project, City of Ontario.		

Start Time	2024-01-31 12:40:05	Duration	0:15:00.0		
End Time	2024-01-31 12:55:05	Run Time	0:15:00.0	Pause Time	0:00:00.0

Results

Overall Metrics

LA$_{eq}$	72.8 dB		
LAE	102.3 dB	SEA	--- dB
EA	1.9 mPa²h	LAFTM5	77.7 dB
EA8	60.7 mPa²h		
EA40	303.7 mPa²h		

LA$_{peak}$	111.8 dB	2024-01-31 12:46:30
LAS$_{max}$	85.8 dB	2024-01-31 12:46:30
LAS$_{min}$	49.2 dB	2024-01-31 12:43:21

LA$_{eq}$	72.8 dB		
LC$_{eq}$	76.8 dB	LC$_{eq}$ - LA$_{eq}$	4.0 dB
LAI$_{eq}$	74.7 dB	LAI$_{eq}$ - LA$_{eq}$	1.9 dB

Exceedances	Count	Duration
LAS > 65.0 dB	15	0:13:28.8
LAS > 85.0 dB	1	0:00:01.6
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight	
	--- dB	--- dB	0.0 dB	
	LDEN	LDay	LEve	LNight
	--- dB	--- dB	--- dB	--- dB

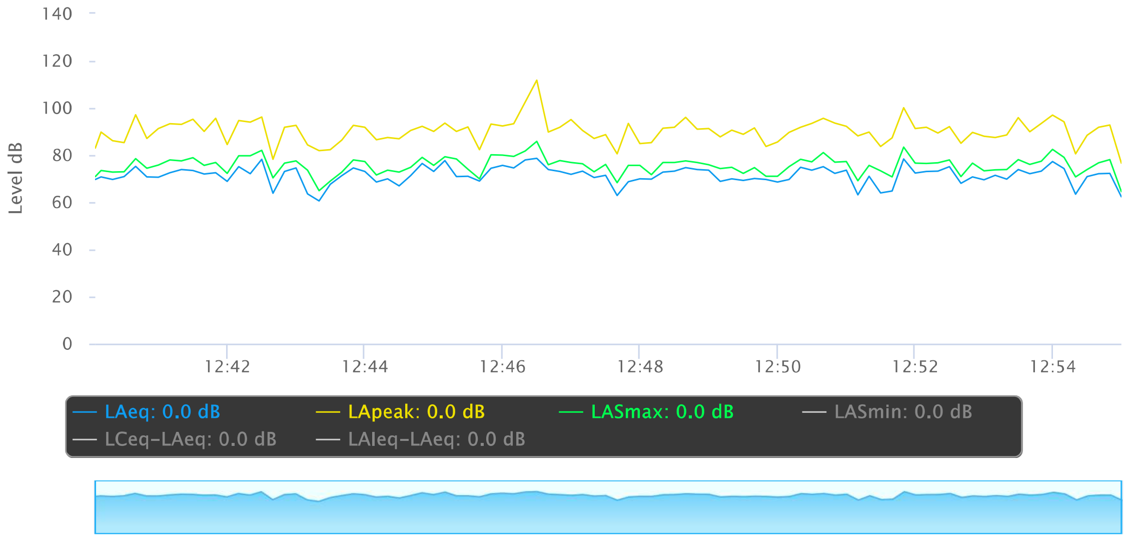
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L$_{eq}$	72.8 dB		76.8 dB		--- dB	
Ls$_{(max)}$	85.8 dB	2024-01-31 12:46:30	--- dB		--- dB	
LS$_{(min)}$	49.2 dB	2024-01-31 12:43:21	--- dB		--- dB	
L$_{Peak(max)}$	111.8 dB	2024-01-31 12:46:30	--- dB		--- dB	

Overloads	Count	Duration	OBA Count	OBA Duration
	0	0:00:00.0	0	0:00:00.0

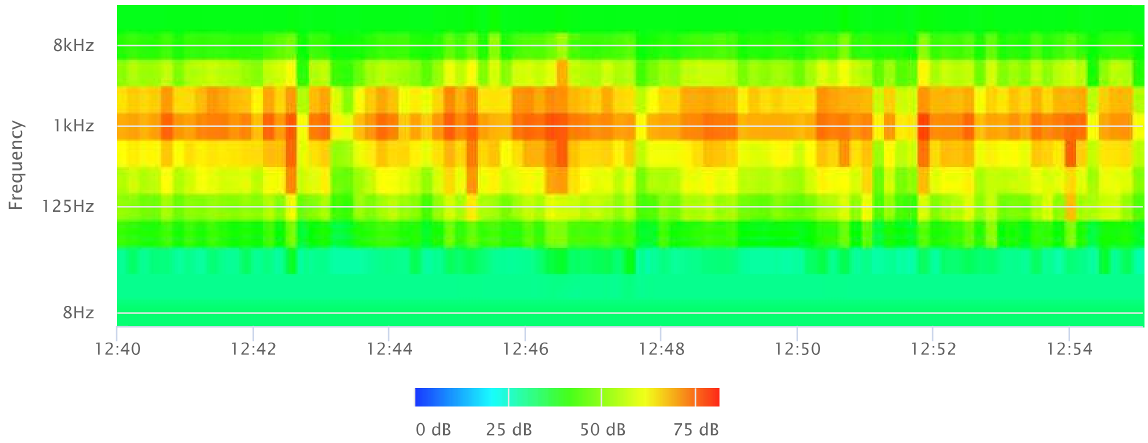
Statistics

LAS 2.0	79.1 dB
LAS 8.0	76.8 dB
LAS 25.0	73.8 dB
LAS 50.0	70.6 dB
LAS 66.6	68.7 dB
LAS 90.0	63.7 dB

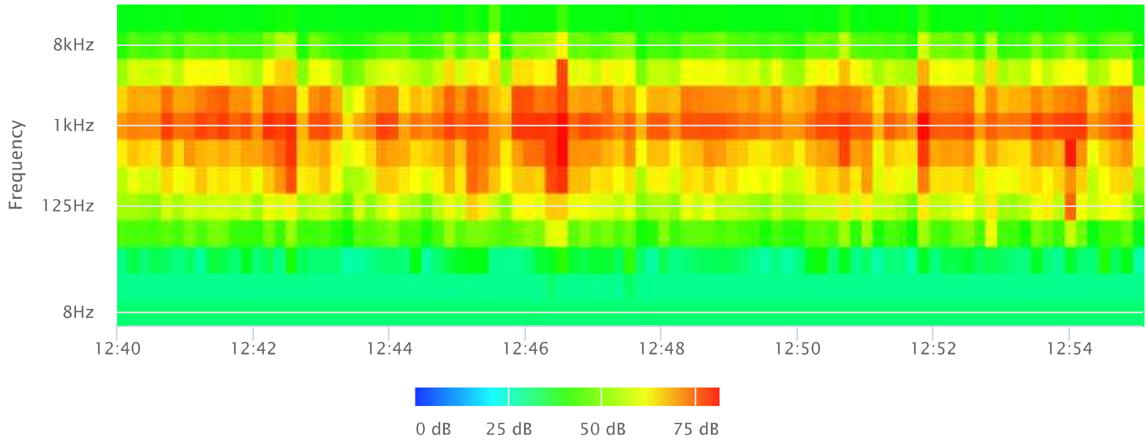
Time History



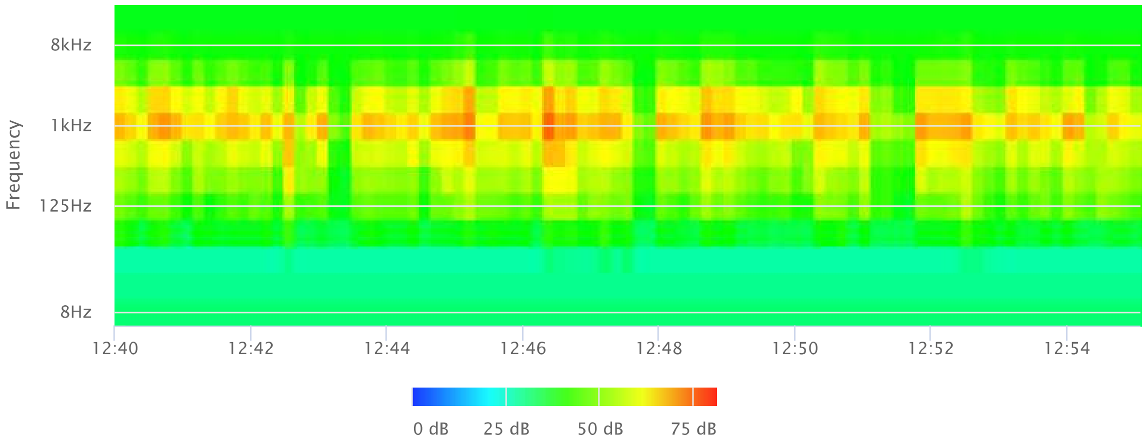
OBA 1/1 Leq



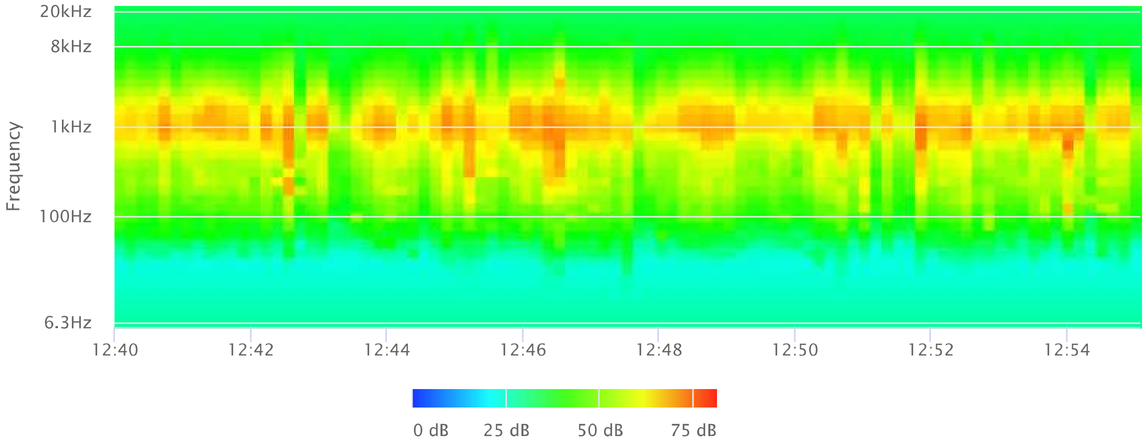
OBA 1/1 Lmax



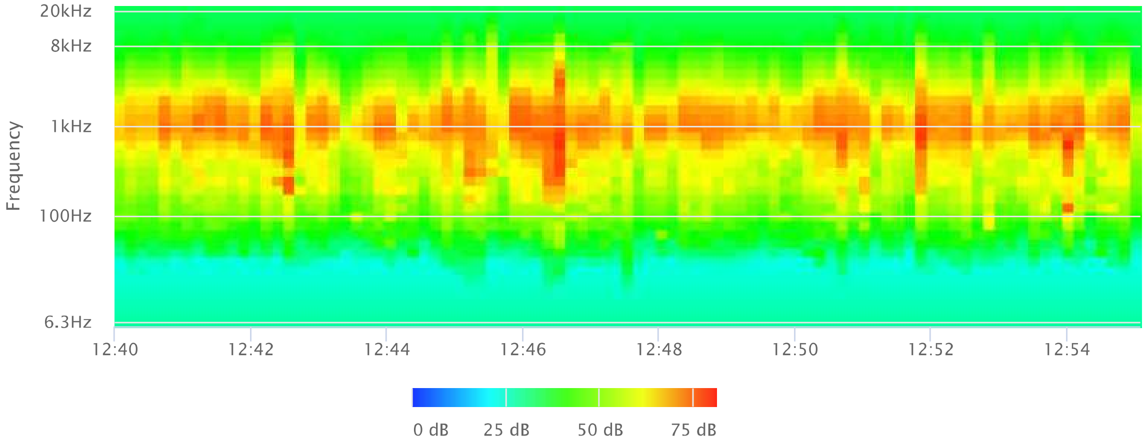
OBA 1/1 Lmin



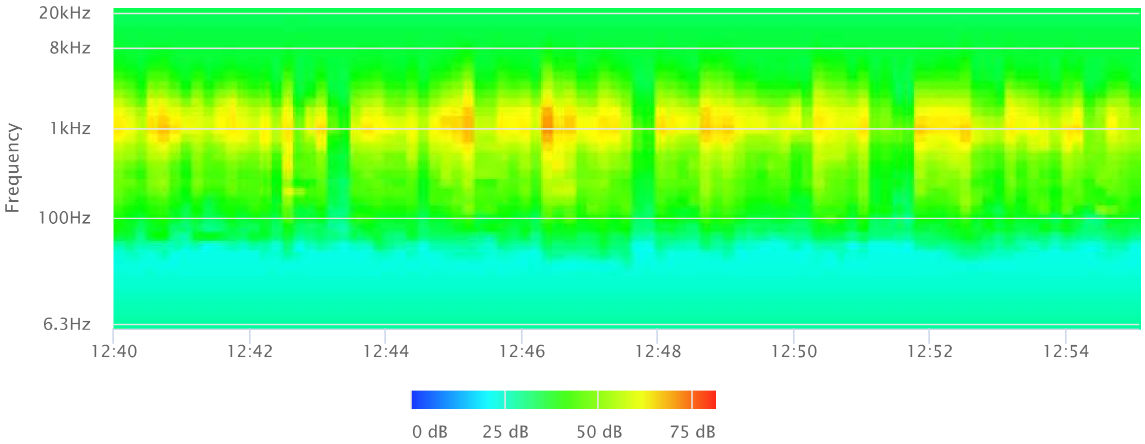
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin


20kHz
8kHz
1kHz
Frequency
100Hz
6.3Hz
12:40
12:42
12:44
12:46
12:48
12:50
12:52
12:54
0 dB
25 dB
50 dB
75 dB

Noise Measurement
Field Data

Project Name: UT1072 Downtown Recycled Water Pipeline Project, Ontario **Date:** January 31, 2024

Project #: 19702

Noise Measurement #: NM2 15 minunte noise measurement (1 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 2945 S Pinehurst Ct, Ontario, CA 91761

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: Just south of residential use along Pinehurst Court and north of E Riverside Drive. Adjacent: Sinlge-family residential to north, and E Riverside Dr (running E-W) to south with residential and farmland further south.

Weather: <30% cloud, filtered sunshine. Sunset 5:20 PM **Settings:** [✓ SLOW] FAST

Temperature: 69 deg F **Wind:** 4 mph **Humidity:** 40% **Terrain:** Flat

Start Time: 1:17 PM **End Time:** 1:32 PM **Run Time:**

Leq: 74.7 dB

Lmax 89.4 dB

L2 82.8 dB

L8 79.5 dB

L25 75.3 dB

L50 70.0 dB

Primary Noise Source: Traffic noise from the 280 vehicles passing NM2 microphone, traveling along E Riverside Dr.

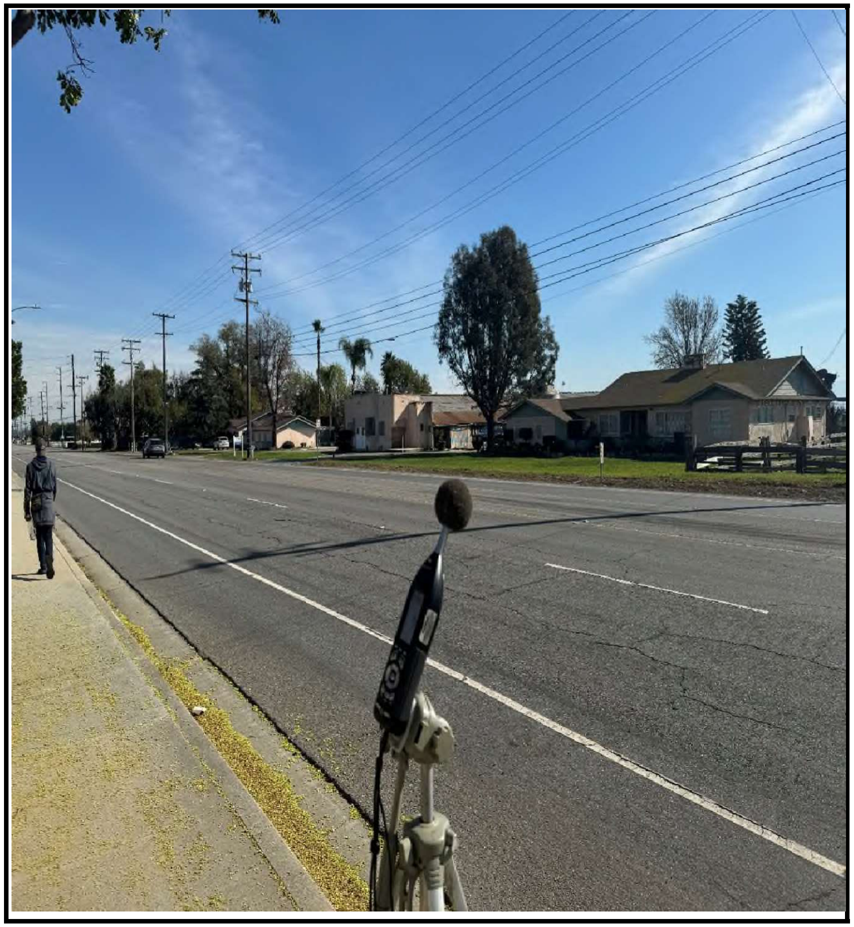
Secondary Noise Sources: Overhead air traffic from Ontario Airport. Traffic ambiance from other roads. Some residential ambiance.

NOISE METER: SoundTrack LXT Class 1
MAKE: Larson Davis
MODEL: LXT1
SERIAL NUMBER: 3855
FACTORY CALIBRATION DATE: 3/31/2021
FIELD CALIBRATION DATE: 1/31/2024

CALIBRATOR: Larson Davis CA 200
MAKE: Larson Davis
MODEL: CA 200
SERIAL NUMBER: 11178
FACTORY CALIBRATION DATE: 11/18/2021

Noise Measurement
Field Data

PHOTOS:



NM2 looking SE across E Riverside Dr towards residence 8625 E Riverside Dr, Ontario.

NM2 looking NW towards 6' high cinderblock wall to back yard of residence 2945 S Pinehurst Ct, Ontario.

Summary

File Name on Meter	LxT_Data.011.s
File Name on PC	LxT_0003855-20240131 131751-LxT_Data.011.ldbi
Serial Number	3855
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	NM2 34° 1'10.72"N 117°37'2.92"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project 19702 UT1072 Downtown Recycled Water Pipeline Project, City of Ontario.

Measurement

Start	2024-01-31 13:17:51
Stop	2024-01-31 13:32:51
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2024-01-31 13:17:34
Post-Calibration	None

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	A Weighting
OBA Max Spectrum	Bin Max
Overload	145.4 dB

Results

LAeq	74.7	
LAE	104.3	
EA	2.976564 mPa^2h	
EA8	95.25006 mPa^2h	
EA40	476.2503 mPa^2h	
LApeak (max)	2024-01-31 13:23:02	110.0 dB
LASmax	2024-01-31 13:23:03	89.4 dB
LASmin	2024-01-31 13:31:05	50.2 dB

LCeq	79.6 dB
LAeq	74.7 dB
LCeq - LAeq	4.8 dB
LAIeq	76.6 dB
LAeq	74.7 dB
LAIeq - LAeq	1.9 dB
Overload Count	0
Overload Duration	0.0 s

Statistics

LA2.00	82.8 dB
LA8.00	79.5 dB
LA25.00	75.3 dB
LA50.00	70.0 dB
LA66.60	66.2 dB
LA90.00	59.1 dB

Measurement Report

Report Summary

Meter's File Name	LxT_Data.011.s	Computer's File Name	LxT_0003855-20240131 131751-LxT_Data.011.l
Meter	LxT1 0003855		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM2 34° 1'10.72"N 117°37'2.92"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	Ganddini Project 19702 UT1072 Downtown Recycled Water Pipeline Project, City of Ontario.		

Start Time	2024-01-31 13:17:51	Duration	0:15:00.0		
End Time	2024-01-31 13:32:51	Run Time	0:15:00.0	Pause Time	0:00:00.0

Results

Overall Metrics

LA_{eq}	74.7 dB		
LAE	104.3 dB	SEA	--- dB
EA	3.0 mPa²h	LAFTM5	79.4 dB
EA8	95.3 mPa²h		
EA40	476.3 mPa²h		

LA_{peak}	110.0 dB	2024-01-31 13:23:02
LAS_{max}	89.4 dB	2024-01-31 13:23:03
LAS_{min}	50.2 dB	2024-01-31 13:31:05

LA_{eq}	74.7 dB		
LC_{eq}	79.6 dB	LC_{eq} - LA_{eq}	4.8 dB
LAI_{eq}	76.6 dB	LAI_{eq} - LA_{eq}	1.9 dB

Exceedances	Count	Duration
LAS > 65.0 dB	28	0:11:23.3
LAS > 85.0 dB	2	0:00:06.9
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight	
	--- dB	--- dB	0.0 dB	
	LDEN	LDay	LEve	LNight
	--- dB	--- dB	--- dB	--- dB

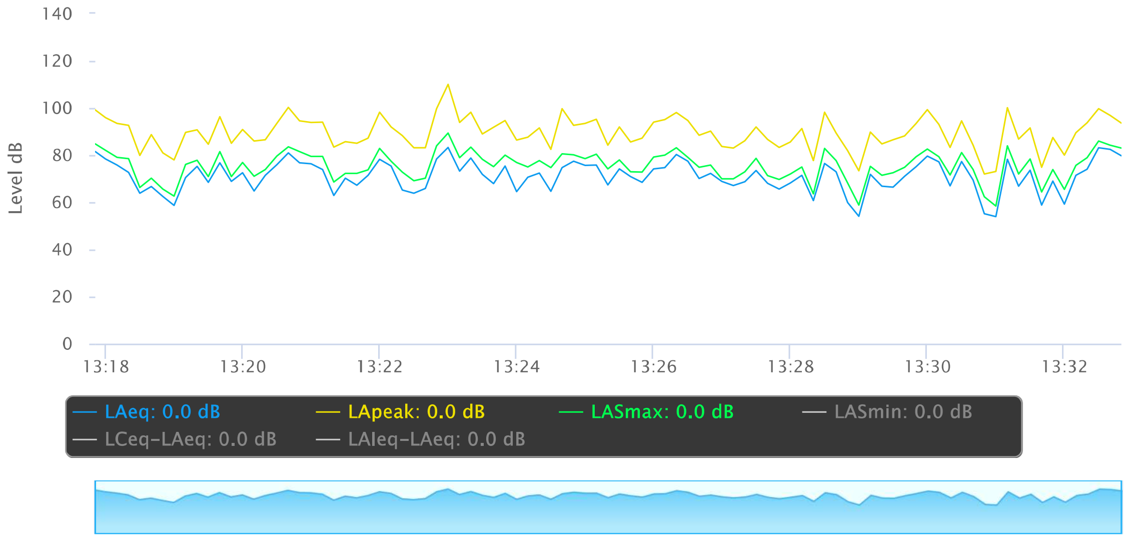
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	74.7 dB		79.6 dB		--- dB	
$Ls_{(max)}$	89.4 dB	2024-01-31 13:23:03	--- dB		--- dB	
$LS_{(min)}$	50.2 dB	2024-01-31 13:31:05	--- dB		--- dB	
$L_{Peak(max)}$	110.0 dB	2024-01-31 13:23:02	--- dB		--- dB	

Overloads	Count	Duration	OBA Count	OBA Duration
	0	0:00:00.0	0	0:00:00.0

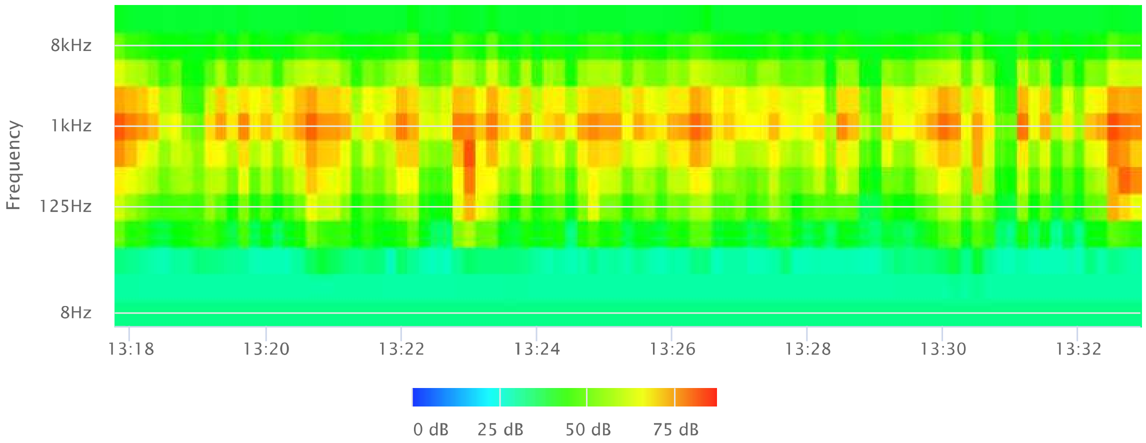
Statistics

LAS 2.0	82.8 dB
LAS 8.0	79.5 dB
LAS 25.0	75.3 dB
LAS 50.0	70.0 dB
LAS 66.6	66.2 dB
LAS 90.0	59.1 dB

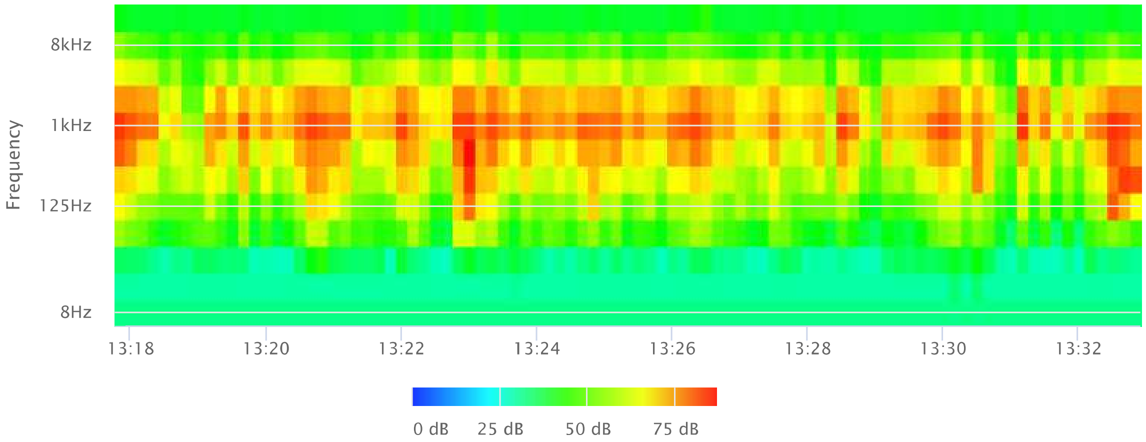
Time History



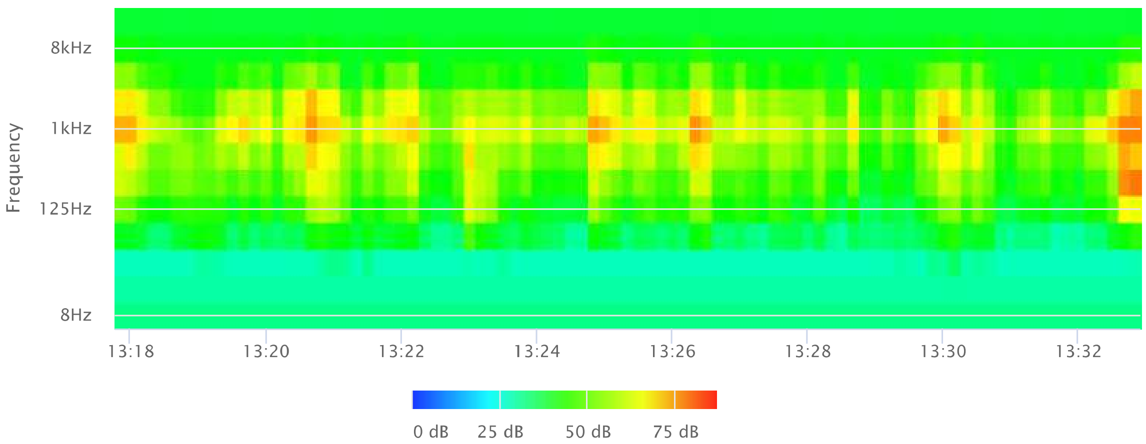
OBA 1/1 Leq



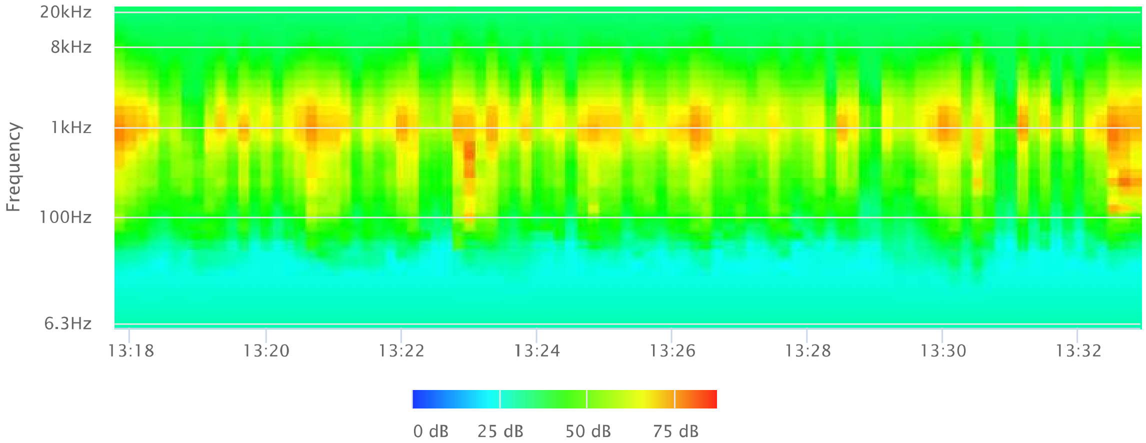
OBA 1/1 Lmax



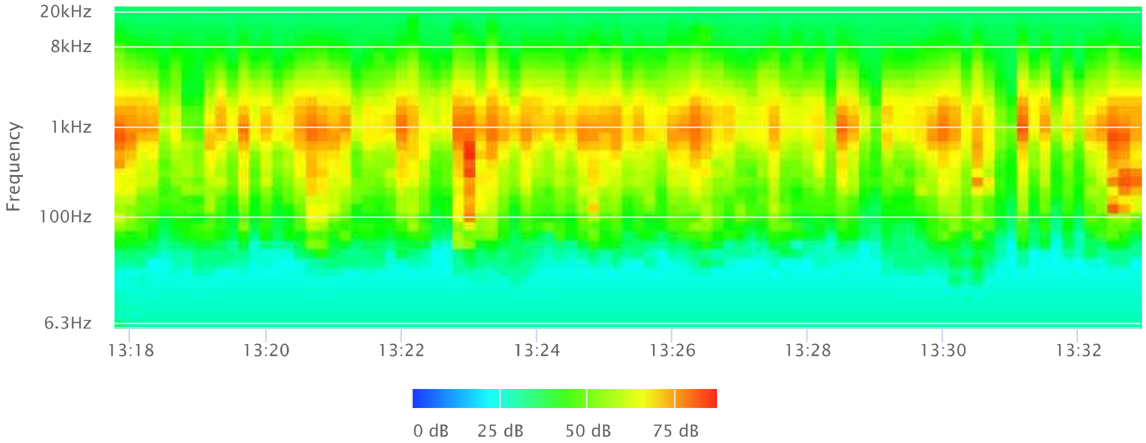
OBA 1/1 Lmin



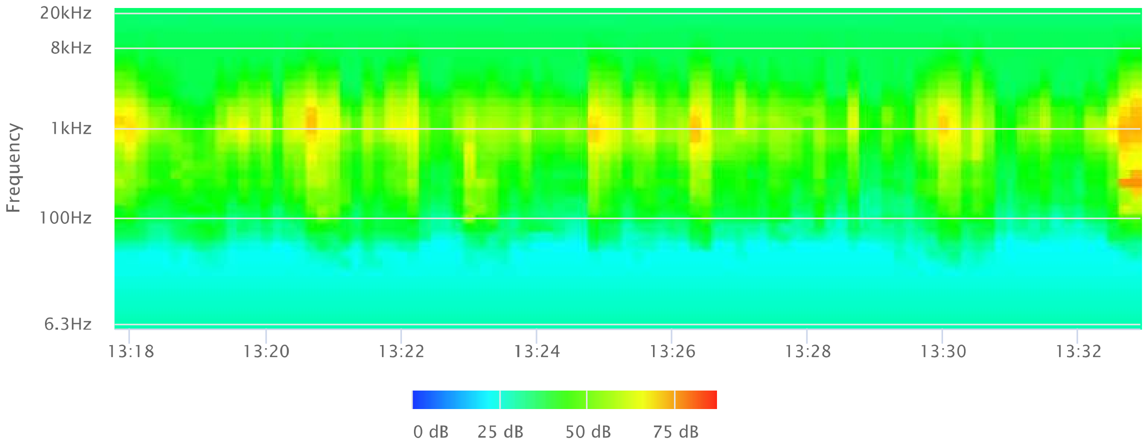
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin



20kHz
8kHz
1kHz
100Hz
6.3Hz
Frequency
13:18
13:20
13:22
13:24
13:26
13:28
13:30
13:32
0 dB
25 dB
50 dB
75 dB

Noise Measurement
Field Data

Project Name: UT1072 Downtown Recycled Water Pipeline Project, Ontario **Date:** January 31, 2024

Project #: 19702

Noise Measurement #: NM3 15 minunte noise measurement (1 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 1030 E Riverside Dr, Ontario, CA 91761

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: Just north of Church and Daycare center and south of E Riverside Drive. Adjacent: E Riverside Dr (running E-W) to north with single-family residential further nort and children's day care center and church uses to the south.

Weather: <30% cloud, filtered sunshine. Sunset 5:20 PM **Settings:** [✓ SLOW] FAST

Temperature: 69 deg F **Wind:** 4 mph **Humidity:** 40% **Terrain:** Flat

Start Time: 1:56 PM **End Time:** 2:11 PM **Run Time:**

Leq: 71.8 dB **Primary Noise Source:** Traffic noise from the 220 vehicles passing NM3 microphone, traveling along E Riverside Dr.

Lmax 85.3 dB

L2 77.3 dB **Secondary Noise Sources:** Overhead air traffic from Ontario Airport. Traffic ambiance from other roads. Some residential ambiance. Occassional pedestrian.

L8 75.7 dB

L25 73.6 dB

L50 70.0 dB

NOISE METER:	SoundTrack LXT Class 1	**CALIBRATOR:**	Larson Davis CA 200
MAKE:	Larson Davis	**MAKE:**	Larson Davis
MODEL:	LXT1	**MODEL:**	CA 200
SERIAL NUMBER:	3855	**SERIAL NUMBER:**	11178
FACTORY CALIBRATION DATE:	3/31/2021	**FACTORY CALIBRATION DATE:**	11/18/2021
FIELD CALIBRATION DATE:	1/31/2024		

Noise Measurement
Field Data

PHOTOS:

NM3 looking N across E Riverside Dr towards residence 1003 E Riverside Dr on the left & 1009 E Riverside Dr on the right.

NM3 looking S through fence toward child day care center, 1030 E Riverside Drive.

Summary

File Name on Meter	LxT_Data.012.s
File Name on PC	LxT_0003855-20240131 135622-LxT_Data.012.ldbin
Serial Number	3855
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	NM3 34° 1'9.37"N 117°38'4.71"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project 19702 UT1072 Downtown Recycled Water Pipeline Project, City of Ontario.

Measurement

Start	2024-01-31 13:56:22
Stop	2024-01-31 14:11:22
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2024-01-31 13:55:48
Post-Calibration	None

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	A Weighting
OBA Max Spectrum	Bin Max
Overload	145.3 dB

Results

LAeq	71.8	
LAE	101.4	
EA	1.523764 mPa²h	
EA8	48.76043 mPa²h	
EA40	243.8021 mPa²h	
LApeak (max)	2024-01-31 13:56:59	98.7 dB
LASmax	2024-01-31 13:57:00	85.3 dB
LASmin	2024-01-31 14:08:07	46.3 dB

		Statistics	
LCeq	75.6 dB	**LA2.00**	77.3 dB
LAeq	71.8 dB	**LA8.00**	75.7 dB
LCeq - LAeq	3.8 dB	**LA25.00**	73.6 dB
LAIeq	73.0 dB	**LA50.00**	70.0 dB
LAeq	71.8 dB	**LA66.60**	67.1 dB
LAIeq - LAeq	1.1 dB	**LA90.00**	56.9 dB
Overload Count	0		
Overload Duration	0.0 s		

Measurement Report

Report Summary

Meter's File Name	LxT_Data.012.s		Computer's File Name	LxT_0003855-20240131 135622-LxT_Data.012.l	
Meter	LxT1	0003855			
Firmware	2.404				
User	Ian Edward Gallagher			Location	NM3 34° 1'9.37"N 117°38'4.71"W
Job Description	15 minute noise measurement (1 x 15 minutes)				
Note	Ganddini Project 19702 UT1072 Downtown Recycled Water Pipeline Project, City of Ontario.				

Start Time	2024-01-31 13:56:22	Duration	0:15:00.0		
End Time	2024-01-31 14:11:22	Run Time	0:15:00.0	Pause Time	0:00:00.0

Results

Overall Metrics

LA_{eq}	71.8 dB		
LAE	101.4 dB	SEA	--- dB
EA	1.5 mPa²h	LAFTM5	75.7 dB
EA8	48.8 mPa²h		
EA40	243.8 mPa²h		

LA_{peak}	98.7 dB	2024-01-31 13:56:59
LAS_{max}	85.3 dB	2024-01-31 13:57:00
LAS_{min}	46.3 dB	2024-01-31 14:08:07

LA_{eq}	71.8 dB		
LC_{eq}	75.6 dB	LC_{eq} - LA_{eq}	3.8 dB
LAI_{eq}	73.0 dB	LAI_{eq} - LA_{eq}	1.1 dB

Exceedances	Count	Duration
LAS > 65.0 dB	19	0:11:53.2
LAS > 85.0 dB	1	0:00:01.4
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight	
	--- dB	--- dB	0.0 dB	
	LDEN	LDay	LEve	LNight
	--- dB	--- dB	--- dB	--- dB

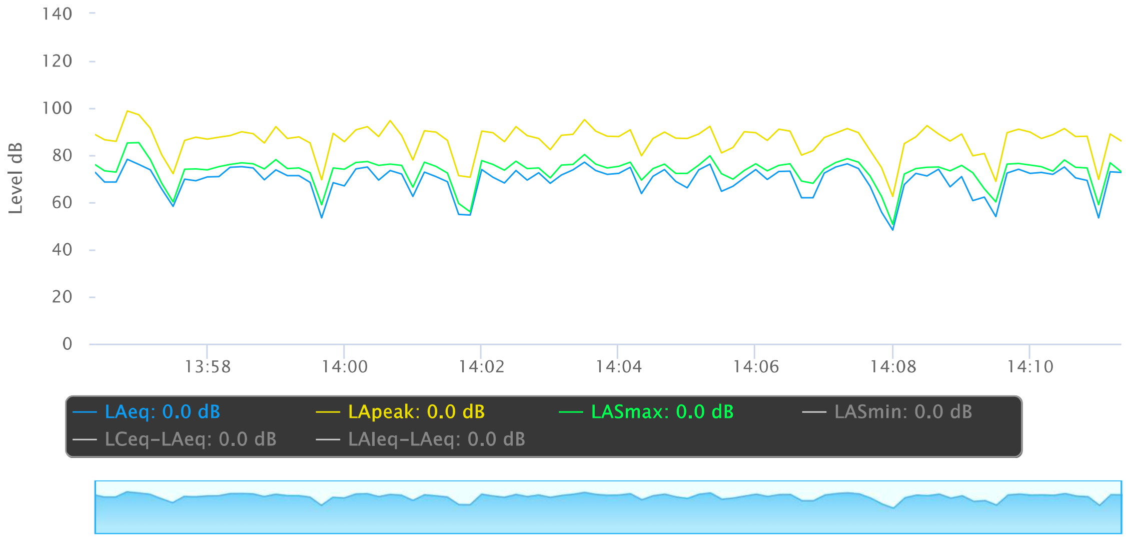
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	71.8 dB		75.6 dB		--- dB	
$Ls_{(max)}$	85.3 dB	2024-01-31 13:57:00	--- dB		--- dB	
$LS_{(min)}$	46.3 dB	2024-01-31 14:08:07	--- dB		--- dB	
$L_{Peak(max)}$	98.7 dB	2024-01-31 13:56:59	--- dB		--- dB	

Overloads	Count	Duration	OBA Count	OBA Duration
	0	0:00:00.0	0	0:00:00.0

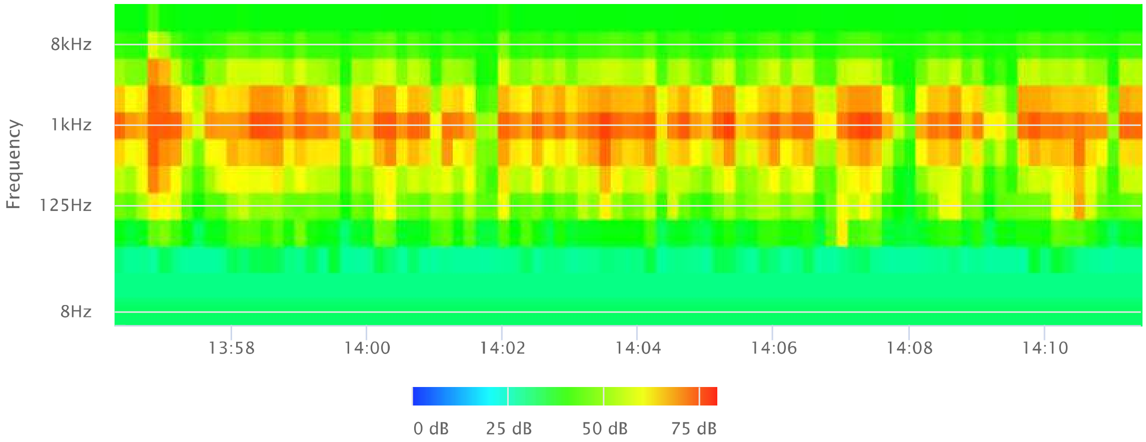
Statistics

LAS 2.0	77.3 dB
LAS 8.0	75.7 dB
LAS 25.0	73.6 dB
LAS 50.0	70.0 dB
LAS 66.6	67.1 dB
LAS 90.0	56.9 dB

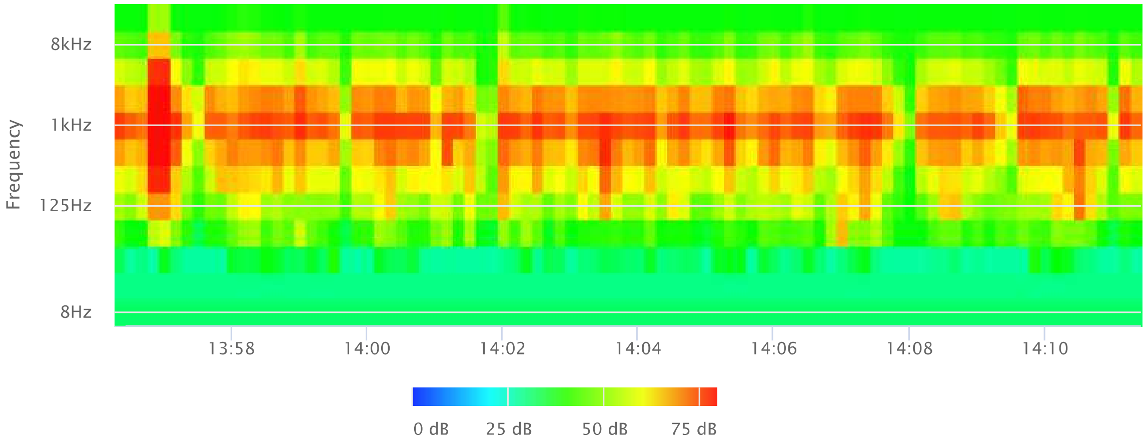
Time History



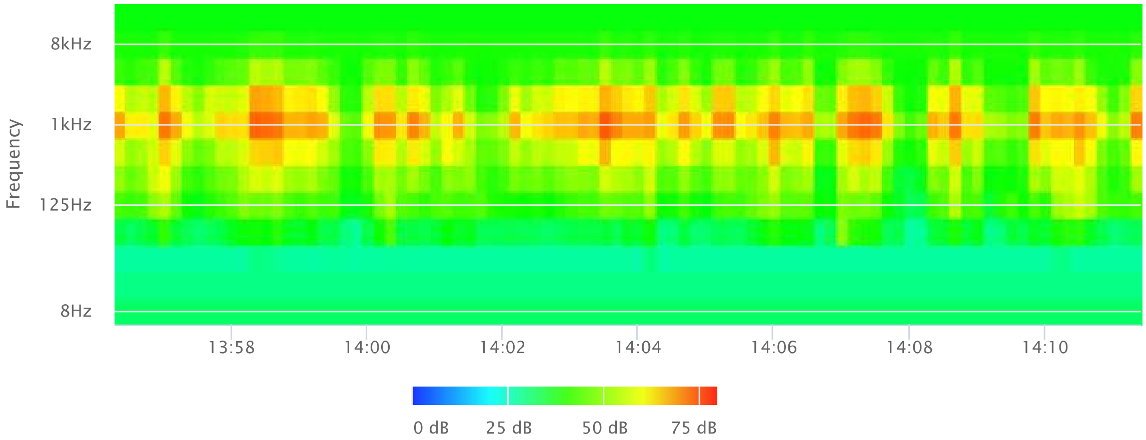
OBA 1/1 Leq



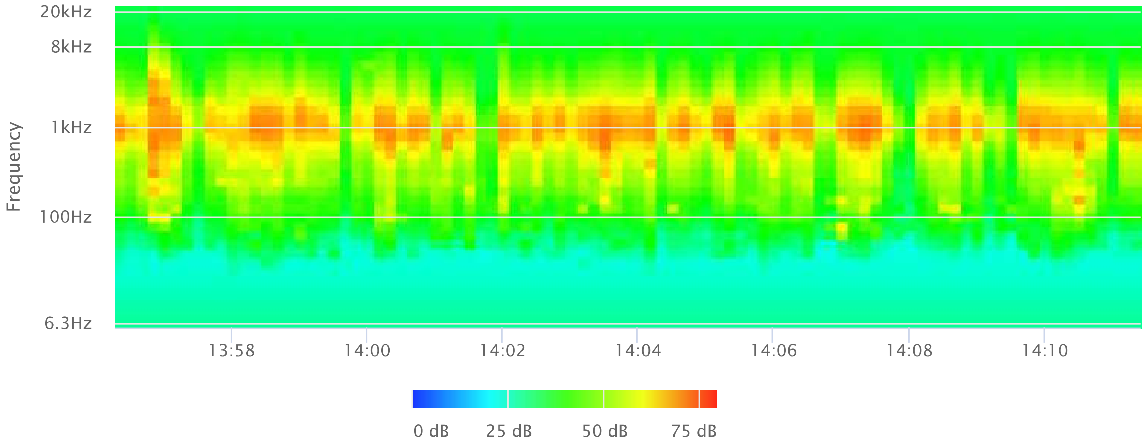
OBA 1/1 Lmax



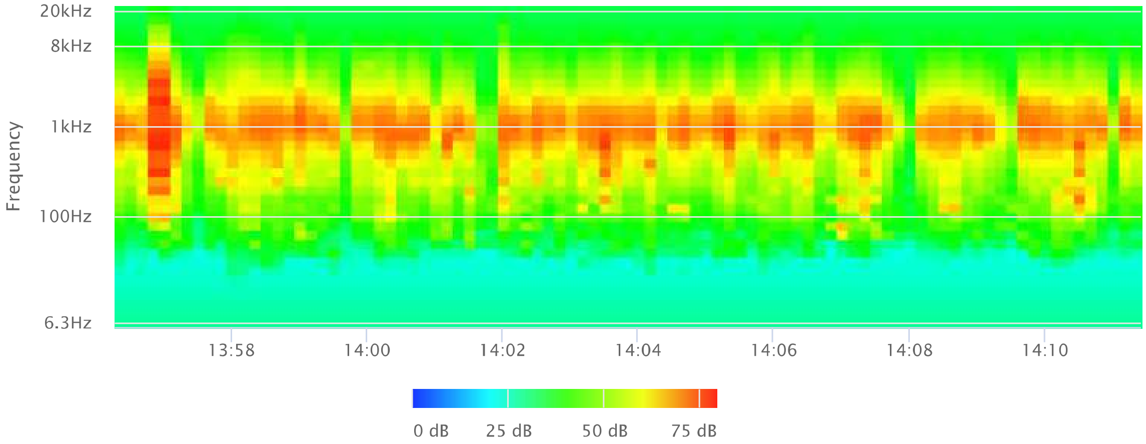
OBA 1/1 Lmin



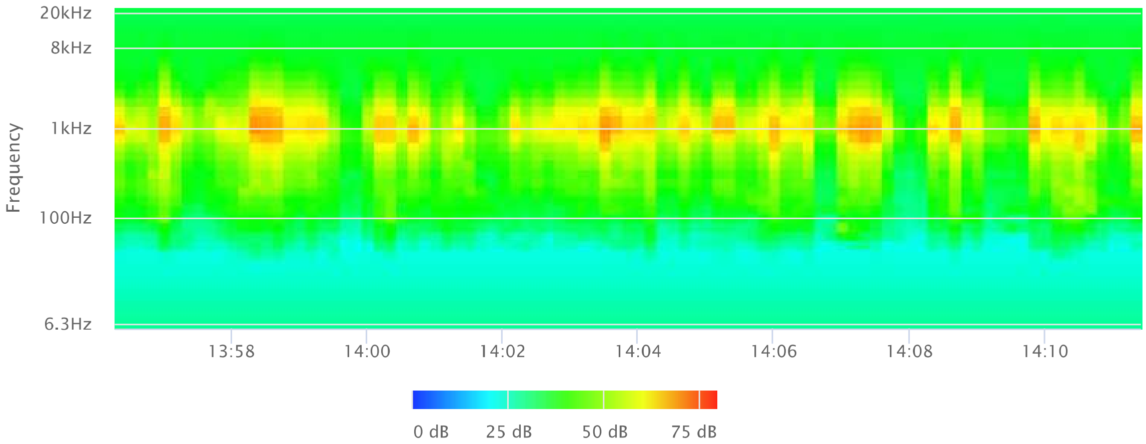
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin


20kHz
8kHz
1kHz
Frequency
100Hz
6.3Hz
13:58
14:00
14:02
14:04
14:06
14:08
14:10
0 dB
25 dB
50 dB
75 dB

Noise Measurement
Field Data

Project Name: UT1072 Downtown Recycled Water Pipeline Project, Ontario **Date:** January 31, 2024

Project #: 19702

Noise Measurement #: NM4 15 minunte noise measurement (1 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 451 E Riverside Dr, Ontario, CA 91761

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: Just south of multi-family residential use and north of E Riverside Drive. Adjacent: Multi-family residential to north, E Riverside Dr (running E-W) to south with residential and vacant land further south.

Weather: <30% cloud, filtered sunshine. Sunset 5:20 PM **Settings:** [✓ SLOW] FAST

Temperature: 69 deg F **Wind:** 4 mph **Humidity:** 40% **Terrain:** Flat

Start Time: 2:29 PM **End Time:** 2:44 PM **Run Time:**

Leq: 72.3 dB

Lmax 83.8 dB

L2 78.4 dB

L8 76.4 dB

L25 73.8 dB

L50 70.7 dB

Primary Noise Source: Traffic noise from the 268 vehicles passing NM4 microphone, traveling along E Riverside Dr.

Secondary Noise Sources: Overhead air traffic from Ontario Airport. Traffic ambiance from other roads. Some residential ambiance. Occassional pedestrian.

NOISE METER: SoundTrack LXT Class 1

MAKE: Larson Davis

MODEL: LXT1

SERIAL NUMBER: 3855

FACTORY CALIBRATION DATE: 3/31/2021

FIELD CALIBRATION DATE: 1/31/2024

CALIBRATOR: Larson Davis CA 200

MAKE: Larson Davis

MODEL: CA 200

SERIAL NUMBER: 11178

FACTORY CALIBRATION DATE: 11/18/2021

Noise Measurement
Field Data

PHOTOS:

NM4 looking E along E Riverside Drive towards S Sultana Ave intersection (~140' E).

NM4 looking N towards multi-family residence 451 E Riverside Dr, Ontario.

Summary

File Name on Meter	LxT_Data.013.s
File Name on PC	LxT_0003855-20240131 142946-LxT_Data.013.ldbin
Serial Number	0003855
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	NM4 34° 1'10.06"N 117°38'46.59"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project 19702 UT1072 Downtown Recycled Water Pipeline Project, City of Ontario.

Measurement

Start	2024-01-31 14:29:46
Stop	2024-01-31 14:44:46
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2024-01-31 14:29:29
Post-Calibration	None

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	A Weighting
OBA Max Spectrum	Bin Max
Overload	145.2 dB

Results

LAeq	72.3	
LAE	101.9	
EA	1.713 mPa²h	
EA8	54.832 mPa²h	
EA40	274.159 mPa²h	
LApeak (max)	2024-01-31 14:43:00	99.1 dB
LASmax	2024-01-31 14:32:33	83.8 dB
LASmin	2024-01-31 14:33:47	54.2 dB

		Statistics	
LCeq	79.1 dB	**LA2.00**	78.4 dB
LAeq	72.3 dB	**LA8.00**	76.4 dB
LCeq - LAeq	6.7 dB	**LA25.00**	73.8 dB
LAIeq	73.7 dB	**LA50.00**	70.7 dB
LAeq	72.3 dB	**LA66.60**	67.8 dB
LAIeq - LAeq	1.3 dB	**LA90.00**	59.6 dB
Overload Count	0		
Overload Duration	0.0 s		

Measurement Report

Report Summary

Meter's File Name	LxT_Data.013.s	Computer's File Name	LxT_0003855-20240131 142946-LxT_Data.013.l
Meter	LxT1 0003855		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM4 34° 1'10.06"N 117°38'46.59"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	Ganddini Project 19702 UT1072 Downtown Recycled Water Pipeline Project, City of Ontario.		

Start Time	2024-01-31 14:29:46	Duration	0:15:00.0		
End Time	2024-01-31 14:44:46	Run Time	0:15:00.0	Pause Time	0:00:00.0

Results

Overall Metrics

LA_{eq}	72.3 dB		
LAE	101.9 dB	SEA	--- dB
EA	1.7 mPa²h	LAFTM5	76.3 dB
EA8	54.8 mPa²h		
EA40	274.2 mPa²h		

LA_{peak}	99.1 dB	2024-01-31 14:43:00
LAS_{max}	83.8 dB	2024-01-31 14:32:33
LAS_{min}	54.2 dB	2024-01-31 14:33:47

LA_{eq}	72.3 dB		
LC_{eq}	79.1 dB	LC_{eq} - LA_{eq}	6.7 dB
LAI_{eq}	73.7 dB	LAI_{eq} - LA_{eq}	1.3 dB

Exceedances	Count	Duration
LAS > 65.0 dB	25	0:12:12.1
LAS > 85.0 dB	0	0:00:00.0
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight	
	--- dB	--- dB	0.0 dB	
	LDEN	LDay	LEve	LNight
	--- dB	--- dB	--- dB	--- dB

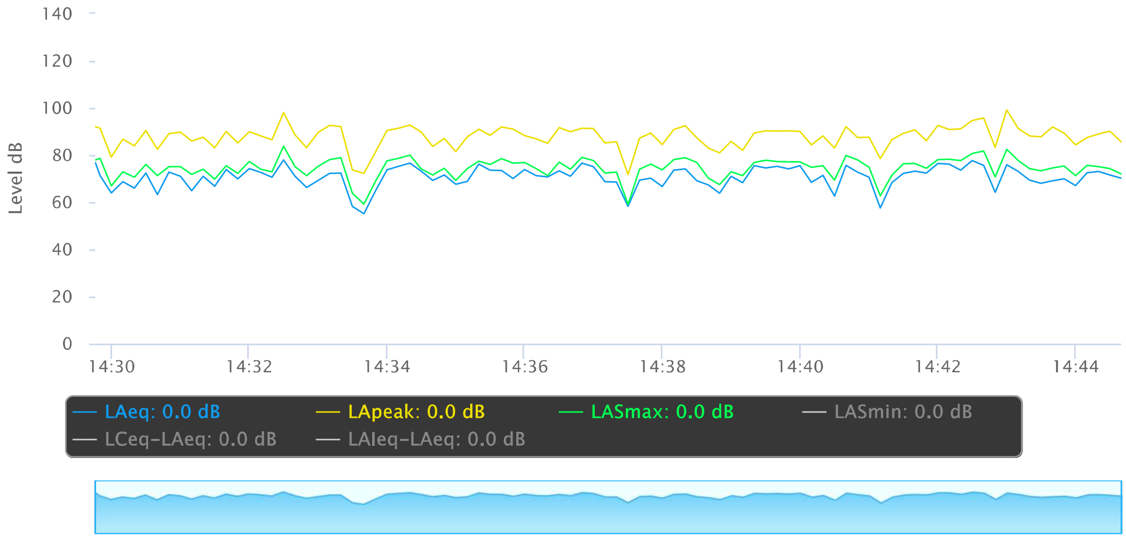
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	72.3 dB		79.1 dB		--- dB	
$Ls_{(max)}$	83.8 dB	2024-01-31 14:32:33	--- dB		--- dB	
$LS_{(min)}$	54.2 dB	2024-01-31 14:33:47	--- dB		--- dB	
$L_{Peak(max)}$	99.1 dB	2024-01-31 14:43:00	--- dB		--- dB	

Overloads	Count	Duration	OBA Count	OBA Duration
	0	0:00:00.0	0	0:00:00.0

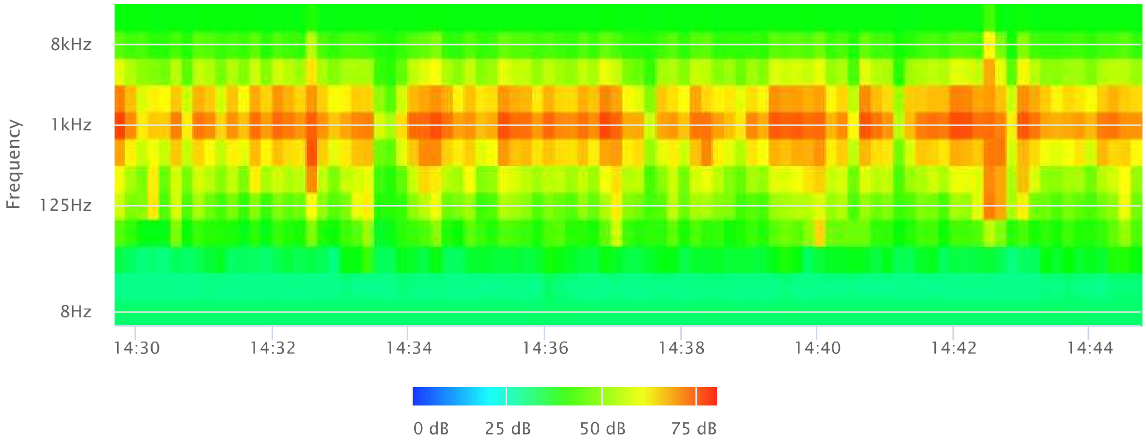
Statistics

LAS 2.0	78.4 dB
LAS 8.0	76.4 dB
LAS 25.0	73.8 dB
LAS 50.0	70.7 dB
LAS 66.6	67.8 dB
LAS 90.0	59.6 dB

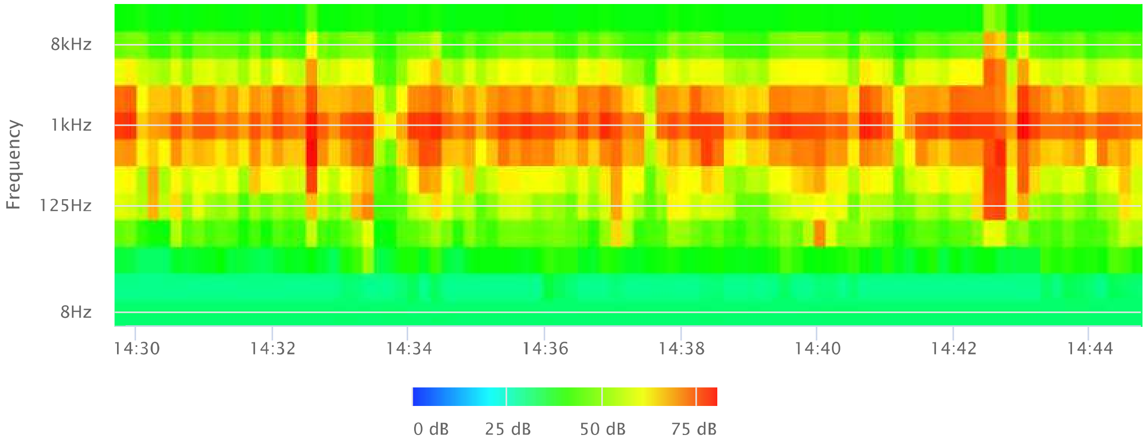
Time History



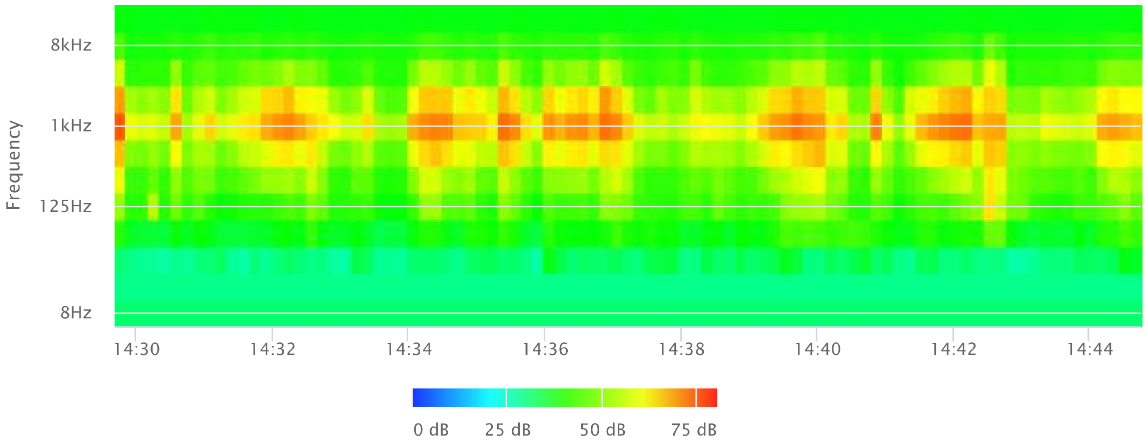
OBA 1/1 Leq



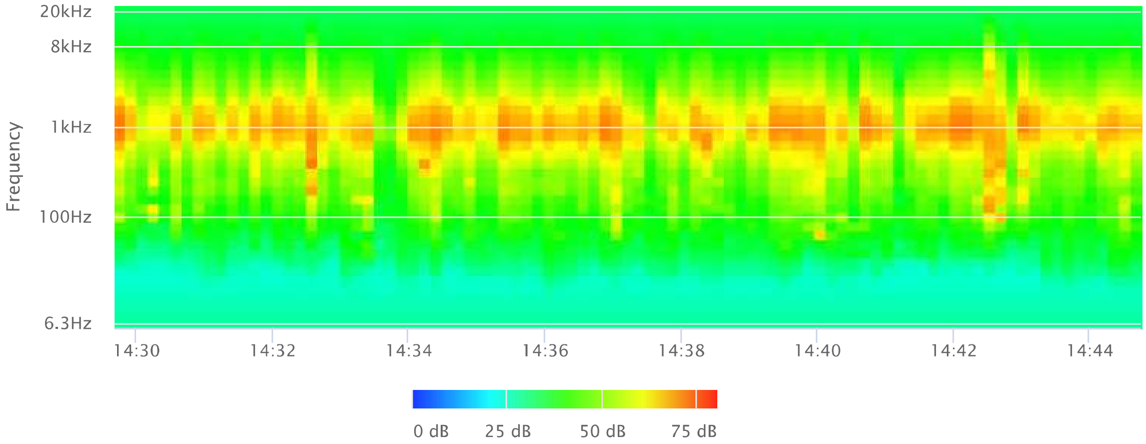
OBA 1/1 Lmax



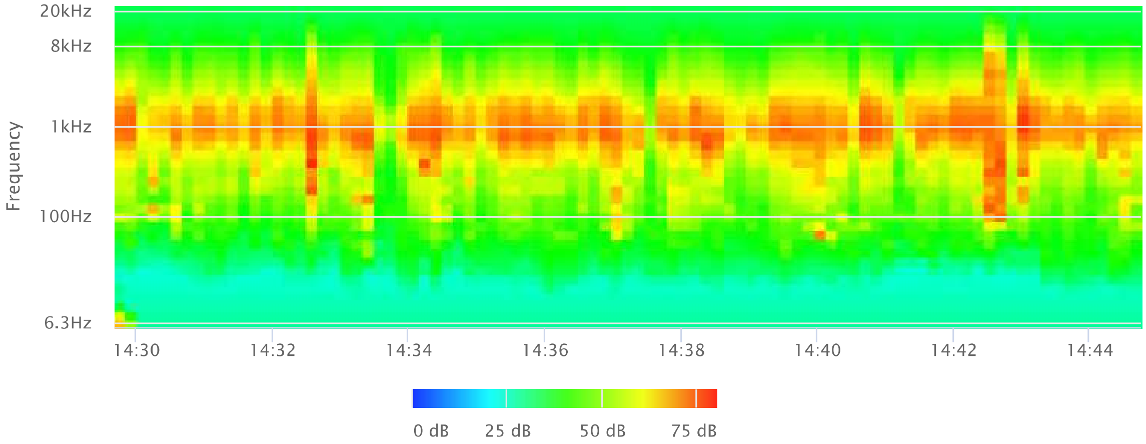
OBA 1/1 Lmin



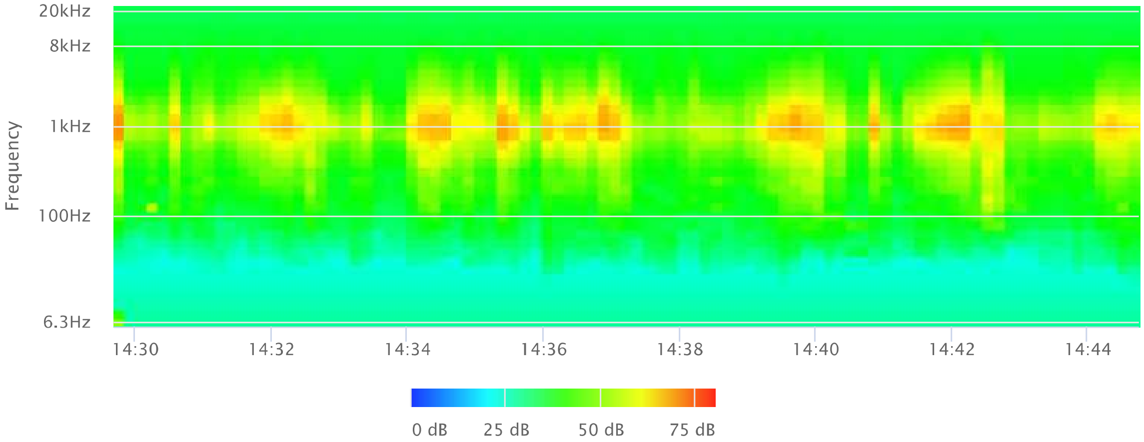
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin



20kHz
8kHz
1kHz
Frequency
100Hz
6.3Hz
14:30
14:32
14:34
14:36
14:38
14:40
14:42
14:44
0 dB
25 dB
50 dB
75 dB

Noise Measurement
Field Data

Project Name: UT1072 Downtown Recycled Water Pipeline Project, Ontario **Date:** January 31, 2024

Project #: 19702

Noise Measurement #: NM5 15 minunte noise measurement (1 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 127 E C Streer, Ontario, CA 91764

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: Just south of E C Street and north of Ontario Town Square.

Adjacent: Bank to the west, multi-story parking to the north, public park (Ontario Town Square) to the south, and various businessesin surrouding area.

Weather: <30% cloud, filtered sunshine. Sunset 5:20 PM **Settings:** [✓ SLOW] FAST

Temperature: 69 deg F **Wind:** 4 mph **Humidity:** 40% **Terrain:** Flat

Start Time: 3:20 PM **End Time:** 3:35 PM **Run Time:**

Leq: 58.9 dB

Lmax 74.2 dB

L2 66.2 dB

L8 62.8 dB

L25 58.6 dB

L50 56.1 dB

Primary Noise Source: Traffic noise from the 15 vehicles passing NM5 microphone, traveling along E C Street.

Secondary Noise Sources: Overhead air traffic from Ontario Airport. Traffic ambiance from other roads. Residential, general city & parking lot ambiance. Pedestrians.

NOISE METER: SoundTrack LXT Class 1

MAKE: Larson Davis

MODEL: LXT1

SERIAL NUMBER: 3855

FACTORY CALIBRATION DATE: 3/31/2021

FIELD CALIBRATION DATE: 1/31/2024

CALIBRATOR: Larson Davis CA 200

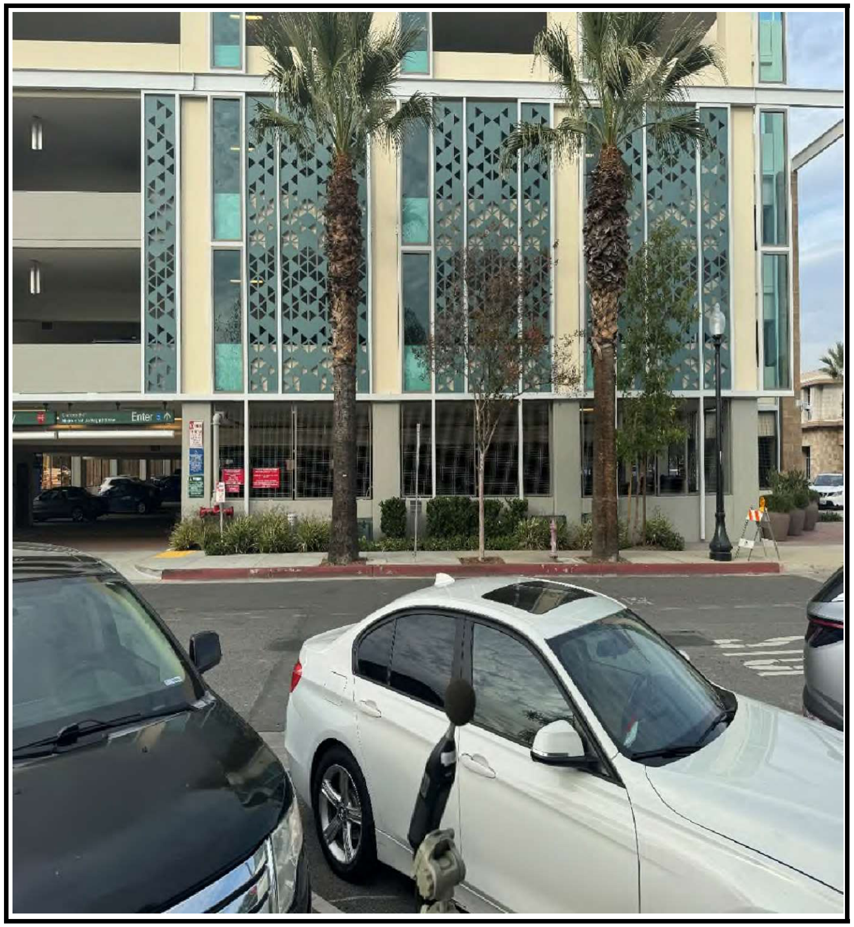
MAKE: Larson Davis

MODEL: CA 200

SERIAL NUMBER: 11178

FACTORY CALIBRATION DATE: 11/18/2021

PHOTOS:



NM5 looking N across E C Street towards multistory parking lot 127 E C Street.

NM5 looking W down E C Street towards bank 240 N Euclid Ave, Ontario. N Euclid Ave intersection with E C Street ~210' W of NM5.

Summary

File Name on Meter	LxT_Data.014.s
File Name on PC	LxT_0003855-20240131 152025-LxT_Data.014.ldbin
Serial Number	3855
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	NM5 34° 3'56.64"N 117°39'0.14"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project 19702 UT1072 Downtown Recycled Water Pipeline Project, City of Ontario.

Measurement

Start	2024-01-31 15:20:25
Stop	2024-01-31 15:35:25
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2024-01-31 15:20:02
Post-Calibration	None

Overall Settings

RMS Weight	A Weighting	
Peak Weight	A Weighting	
Detector	Slow	
Preamplifier	PRMLxT1	
Microphone Correction	Off	
Integration Method	Linear	
OBA Range	Normal	
OBA Bandwidth	1/1 and 1/3	
OBA Frequency Weighting	A Weighting	
OBA Max Spectrum	Bin Max	
Overload	145.3	dB

Results

LAeq	58.9		
LAE	88.5		
EA	77.97208	µPa^{2}h	
EA8	2.495107	mPa^{2}h	
EA40	12.47553	mPa^{2}h	
LApeak (max)	2024-01-31 15:31:23	98.7	dB
LASmax	2024-01-31 15:34:28	74.2	dB
LASmin	2024-01-31 15:22:29	51.1	dB

LCeq	72.9	dB
LAeq	58.9	dB
LCeq - LAeq	14.0	dB
LAIeq	62.8	dB
LAeq	58.9	dB
LAIeq - LAeq	3.9	dB
Overload Count	0	
Overload Duration	0.0	s

Statistics

LA2.00	66.2	dB
LA8.00	62.8	dB
LA25.00	58.6	dB
LA50.00	56.1	dB
LA66.60	54.8	dB
LA90.00	52.9	dB

Measurement Report

Report Summary

Meter's File Name	LxT_Data.014.s	Computer's File Name	LxT_0003855-20240131 152025-LxT_Data.014.l
Meter	LxT1 0003855		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM5 34° 3'56.64"N 117°39'0.14"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	Ganddini Project 19702 UT1072 Downtown Recycled Water Pipeline Project, City of Ontario.		

Start Time	2024-01-31 15:20:25	Duration	0:15:00.0		
End Time	2024-01-31 15:35:25	Run Time	0:15:00.0	Pause Time	0:00:00.0

Results

Overall Metrics

LA_{eq}	58.9 dB		
LAE	88.5 dB	SEA	--- dB
EA	78.0 µPa²h	LAFTM5	64.8 dB
EA8	2.5 mPa²h		
EA40	12.5 mPa²h		
LA_{peak}	98.7 dB	2024-01-31 15:31:23	
LAS_{max}	74.2 dB	2024-01-31 15:34:28	
LAS_{min}	51.1 dB	2024-01-31 15:22:29	
LA_{eq}	58.9 dB		
LC_{eq}	72.9 dB	LC_{eq} - LA_{eq}	14.0 dB
LAI_{eq}	62.8 dB	LAI_{eq} - LA_{eq}	3.9 dB

Exceedances	Count	Duration
LAS > 65.0 dB	14	0:00:43.9
LAS > 85.0 dB	0	0:00:00.0
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight	
	--- dB	--- dB	0.0 dB	
	LDEN	LDay	LEve	LNight
	--- dB	--- dB	--- dB	--- dB

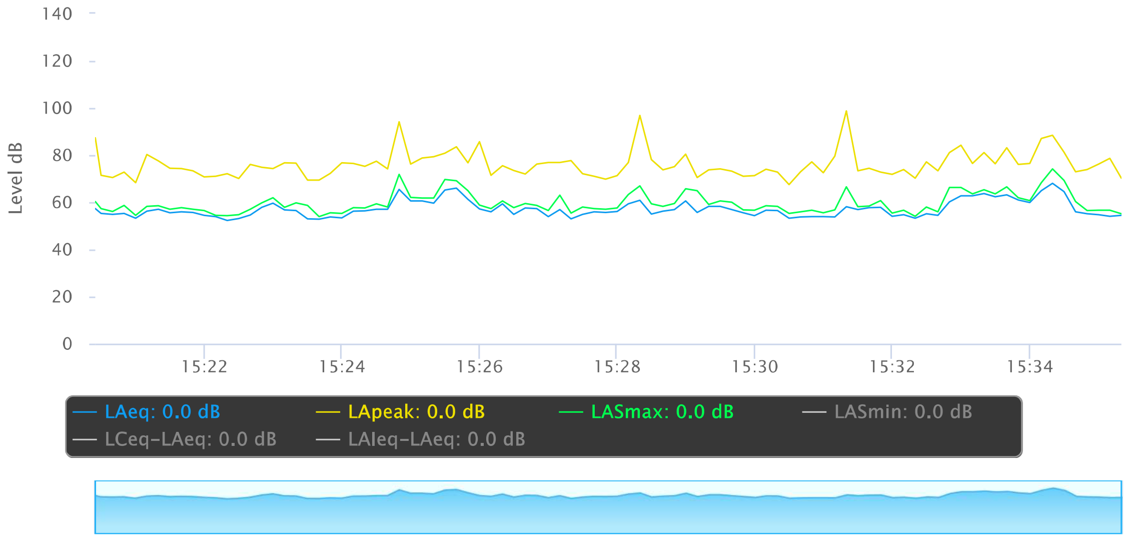
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	58.9 dB		72.9 dB		--- dB	
$Ls_{(max)}$	74.2 dB	2024-01-31 15:34:28	--- dB		--- dB	
$LS_{(min)}$	51.1 dB	2024-01-31 15:22:29	--- dB		--- dB	
$L_{Peak(max)}$	98.7 dB	2024-01-31 15:31:23	--- dB		--- dB	

Overloads	Count	Duration	OBA Count	OBA Duration
	0	0:00:00.0	0	0:00:00.0

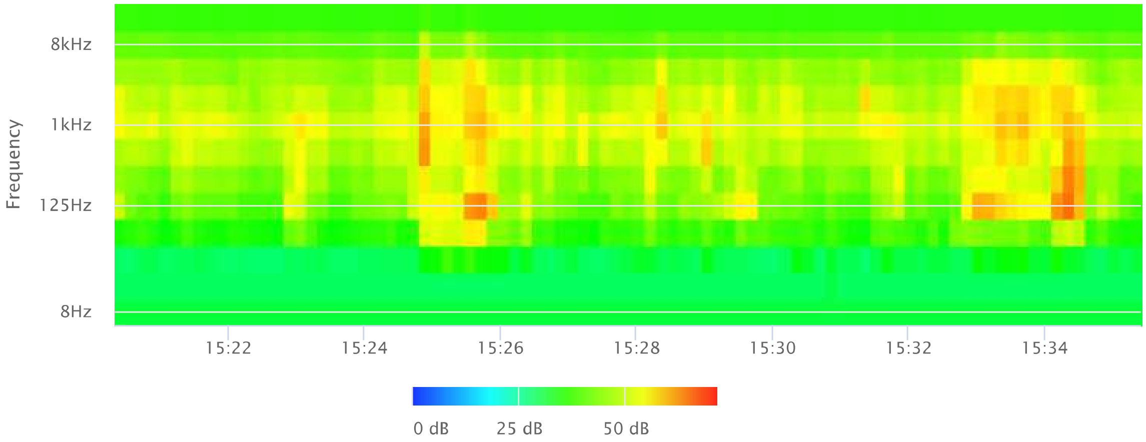
Statistics

LAS 2.0	66.2 dB
LAS 8.0	62.8 dB
LAS 25.0	58.6 dB
LAS 50.0	56.1 dB
LAS 66.6	54.8 dB
LAS 90.0	52.9 dB

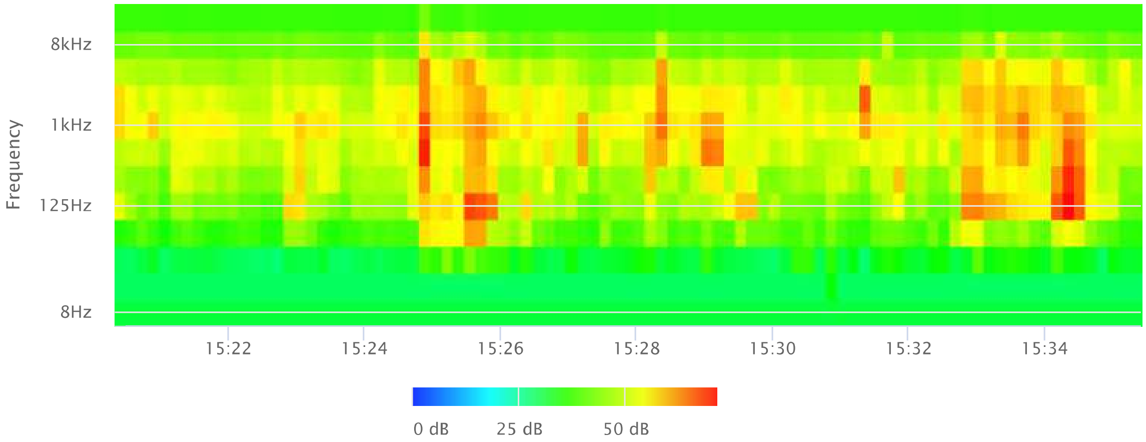
Time History



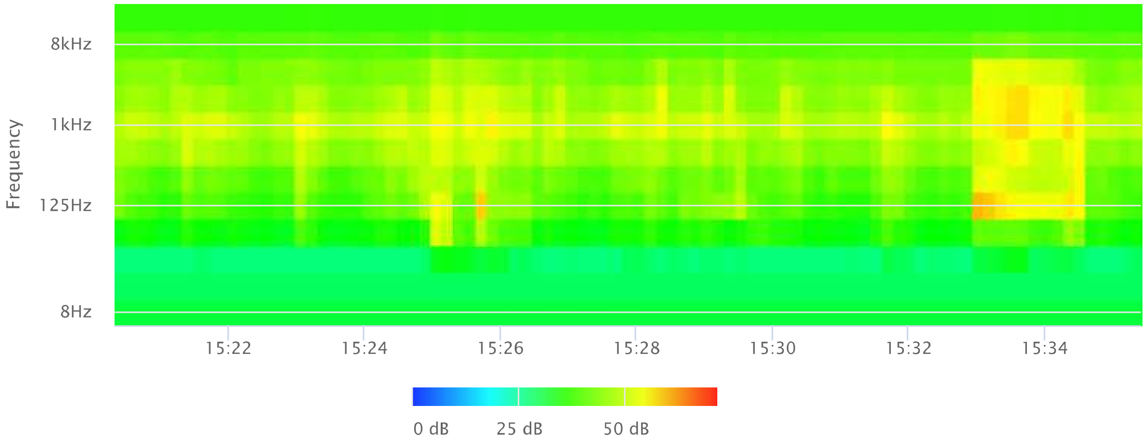
OBA 1/1 Leq



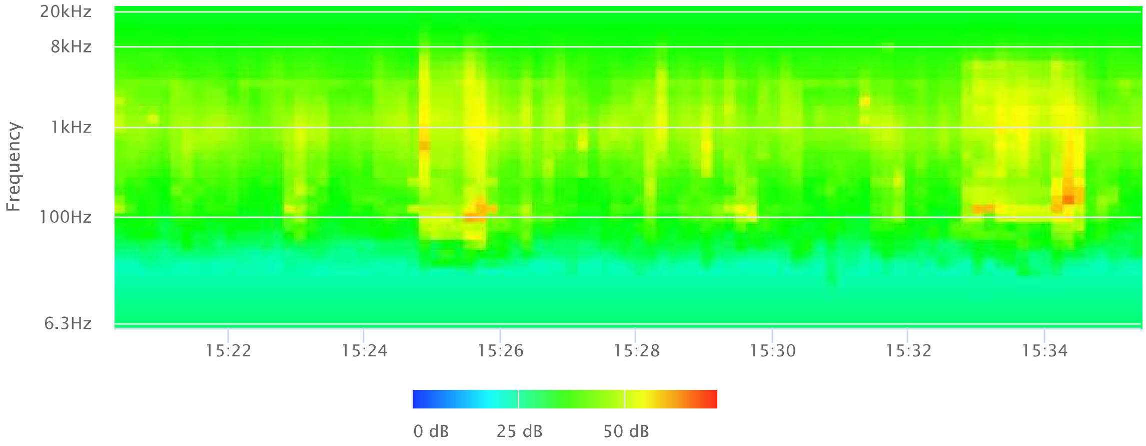
OBA 1/1 Lmax



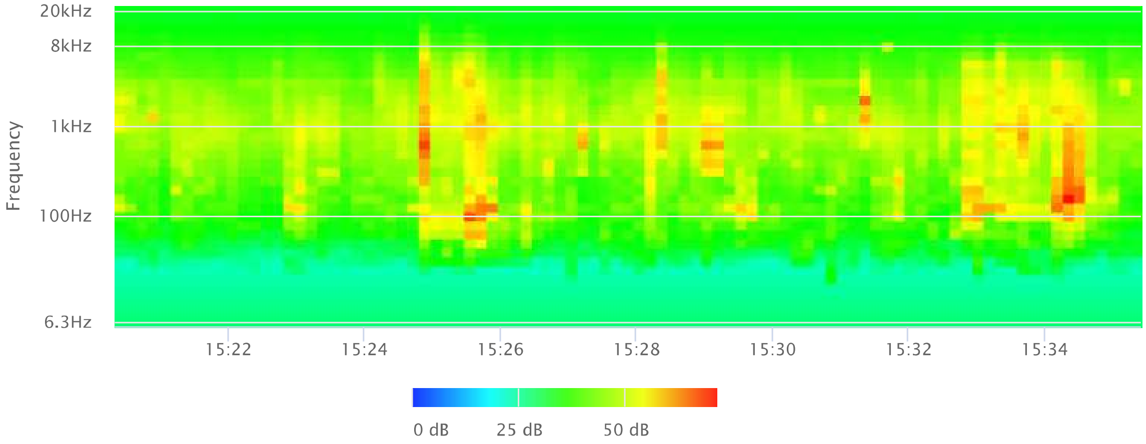
OBA 1/1 Lmin



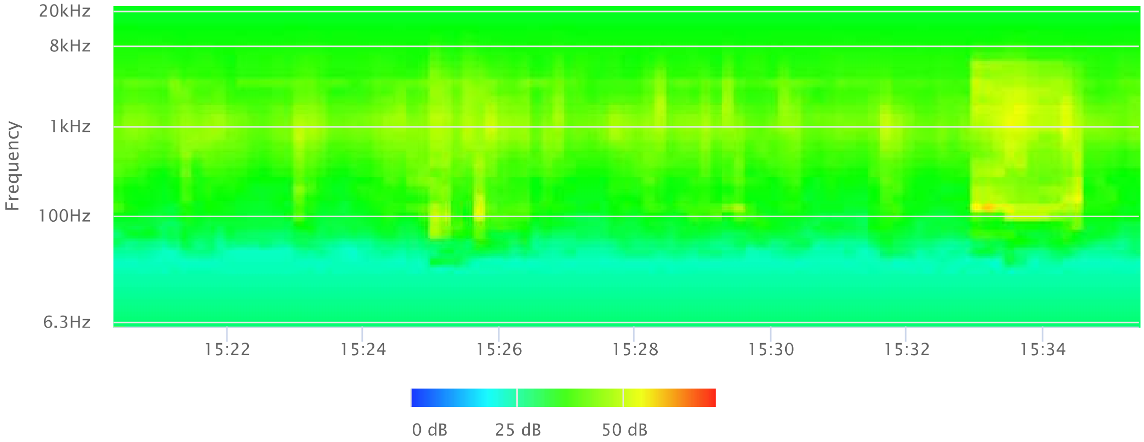
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin


20kHz
8kHz
1kHz
100Hz
6.3Hz
Frequency
15:22
15:24
15:26
15:28
15:30
15:32
15:34
0 dB
25 dB
50 dB

Noise Measurement
Field Data

Project Name: UT1072 Downtown Recycled Water Pipeline Project, Ontario **Date:** January 31, 2024

Project #: 19702

Noise Measurement #: NM6 15 minunte noise measurement (1 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 457 N Beverly Square, Ontario, CA 91762

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: South of W Flora St and just north of residential use. Adjacent: Public park & dog park to the southwest, residential to south, and W Flora St to north with residential further north. N San Antonio Ave (running N-S) ~370' W of NM6.

Weather: <30% cloud, filtered sunshine. Sunset 5:20 PM **Settings:** [✓ SLOW] FAST

Temperature: 69 deg F **Wind:** 4 mph **Humidity:** 40% **Terrain:** Flat

Start Time: 3:59 PM **End Time:** 4:14 PM **Run Time:**

Leq: 51.6 dB **Primary Noise Source:** Traffic noise from the 10 vehicles passing NM6 microphone, traveling along

Lmax 67.2 dB W Flora Ave during 15 minute measurement.

L2 61.0 dB **Secondary Noise Sources:** Overhead air traffic from Ontario Airport. Traffic ambiance from other roads.

L8 54.5 dB Residential, general city & park ambiance. Pedestrians.

L25 50.5 dB

L50 48.0 dB

NOISE METER: SoundTrack LXT Class 1 **CALIBRATOR:** Larson Davis CA 200

MAKE: Larson Davis **MAKE:** Larson Davis

MODEL: LXT1 **MODEL:** CA 200

SERIAL NUMBER: 3855 **SERIAL NUMBER:** 11178

FACTORY CALIBRATION DATE: 3/31/2021 **FACTORY CALIBRATION DATE:** 11/18/2021

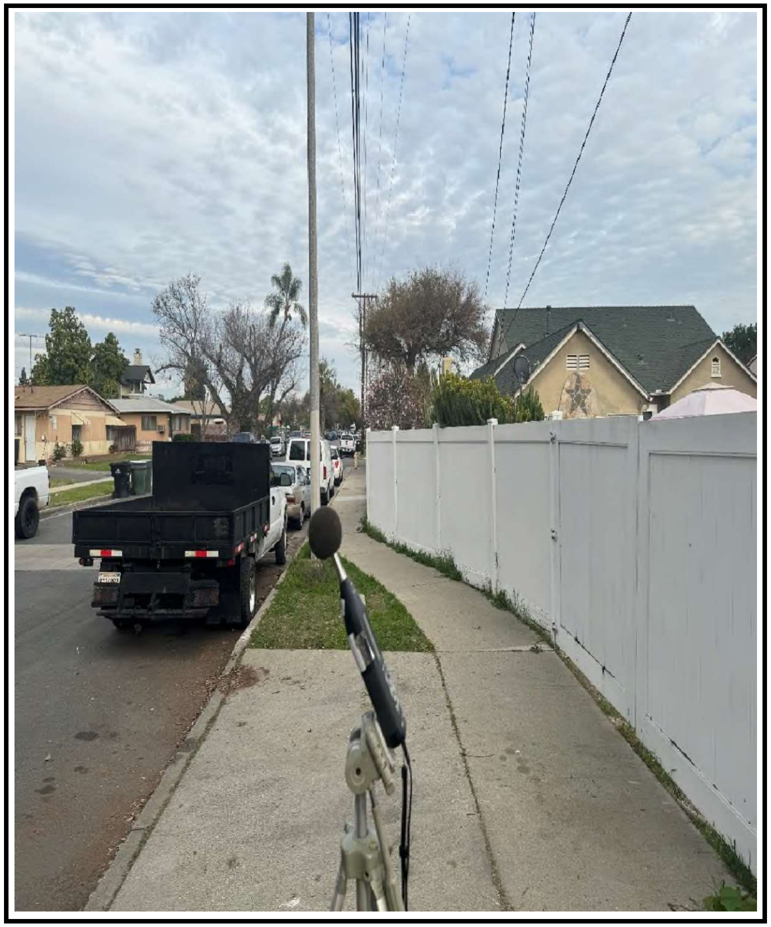
FIELD CALIBRATION DATE: 1/31/2024

ganddini

Noise Measurement
Field Data

PHOTOS:

NM6 looking N across W Flora St towards residence 636 W Flora St on the left & residence 630 W Flora St on the right.



NM6 looking E down W Flora Street towards Beverly intersection (~140' E). Residence 457 N Beverly Square on the right (other side of white wooden fence).

Summary

File Name on Meter	LxT_Data.015.s
File Name on PC	LxT_0003855-20240131 155944-LxT_Data.015.ld
Serial Number	3855
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	NM6 34° 4'7.50"N 117°39'33.61"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project 19702 UT1072 Downtown Recycled Water Pipeline Project, City of Ontario.

Measurement

Start	2024-01-31 15:59:44
Stop	2024-01-31 16:14:44
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2024-01-31 15:59:30
Post-Calibration	None

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	A Weighting
OBA Max Spectrum	Bin Max
Overload	145.3 dB

Results

LAeq	51.6	
LAE	81.1	
EA	14.38377 µPa²h	
EA8	460.2806 µPa²h	
EA40	2.301403 mPa²h	
LApeak (max)	2024-01-31 16:10:07	91.8 dB
LASmax	2024-01-31 16:03:11	67.2 dB
LASmin	2024-01-31 16:07:18	43.4 dB

LCeq	63.1 dB
LAeq	51.6 dB
LCeq - LAeq	11.5 dB
LAIeq	56.7 dB
LAeq	51.6 dB
LAIeq - LAeq	5.1 dB
Overload Count	0
Overload Duration	0.0 s

Statistics

LA2.00	61.0 dB
LA8.00	54.5 dB
LA25.00	50.5 dB
LA50.00	48.0 dB
LA66.60	47.1 dB
LA90.00	45.6 dB

Measurement Report

Report Summary

Meter's File Name	LxT_Data.015.s	Computer's File Name	LxT_0003855-20240131 155944-LxT_Data.015.l
Meter	LxT1 0003855		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM6 34° 4'7.50"N 117°39'33.61"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	Ganddini Project 19702 UT1072 Downtown Recycled Water Pipeline Project, City of Ontario.		

Start Time	2024-01-31 15:59:44	Duration	0:15:00.0		
End Time	2024-01-31 16:14:44	Run Time	0:15:00.0	Pause Time	0:00:00.0

Results

Overall Metrics

LA_{eq}	51.6 dB		
LAE	81.1 dB	SEA	--- dB
EA	14.4 µPa²h	LAFTM5	57.4 dB
EA8	460.3 µPa²h		
EA40	2.3 mPa²h		
LA_{peak}	91.8 dB	2024-01-31 16:10:07	
LAS_{max}	67.2 dB	2024-01-31 16:03:11	
LAS_{min}	43.4 dB	2024-01-31 16:07:18	
LA_{eq}	51.6 dB		
LC_{eq}	63.1 dB	LC_{eq} - LA_{eq}	11.5 dB
LAI_{eq}	56.7 dB	LAI_{eq} - LA_{eq}	5.1 dB

Exceedances	Count	Duration
LAS > 65.0 dB	1	0:00:02.5
LAS > 85.0 dB	0	0:00:00.0
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight	
	--- dB	--- dB	0.0 dB	
	LDEN	**LDay**	**LEve**	**LNight**
	--- dB	--- dB	--- dB	--- dB

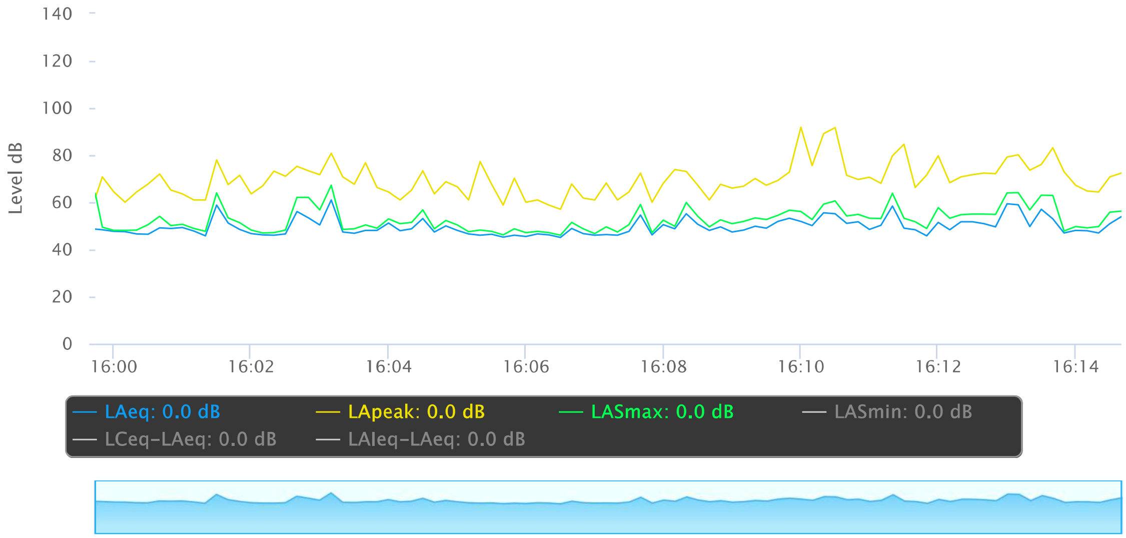
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	51.6 dB		63.1 dB		--- dB	
$Ls_{(max)}$	67.2 dB	2024-01-31 16:03:11	--- dB		--- dB	
$LS_{(min)}$	43.4 dB	2024-01-31 16:07:18	--- dB		--- dB	
$L_{Peak(max)}$	91.8 dB	2024-01-31 16:10:07	--- dB		--- dB	

Overloads	Count	Duration	OBA Count	OBA Duration
	0	0:00:00.0	0	0:00:00.0

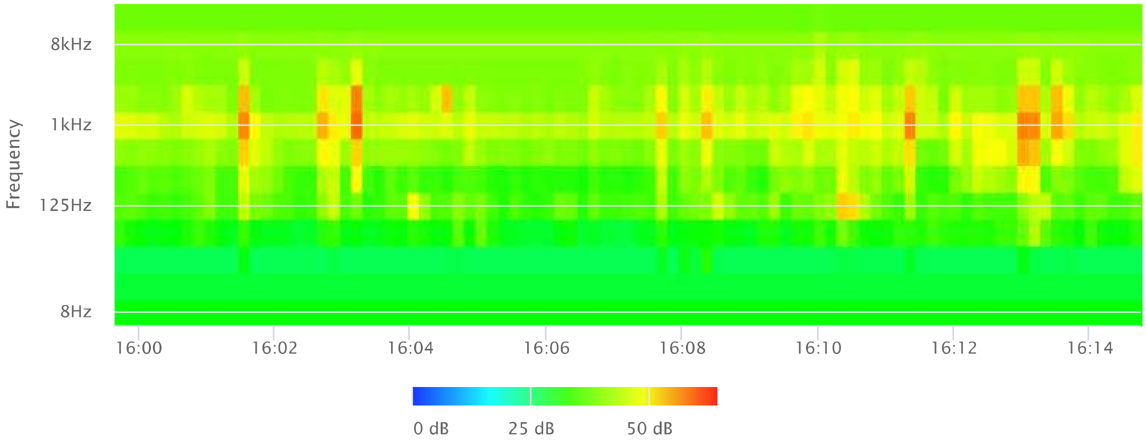
Statistics

LAS 2.0	61.0 dB
LAS 8.0	54.5 dB
LAS 25.0	50.5 dB
LAS 50.0	48.0 dB
LAS 66.6	47.1 dB
LAS 90.0	45.6 dB

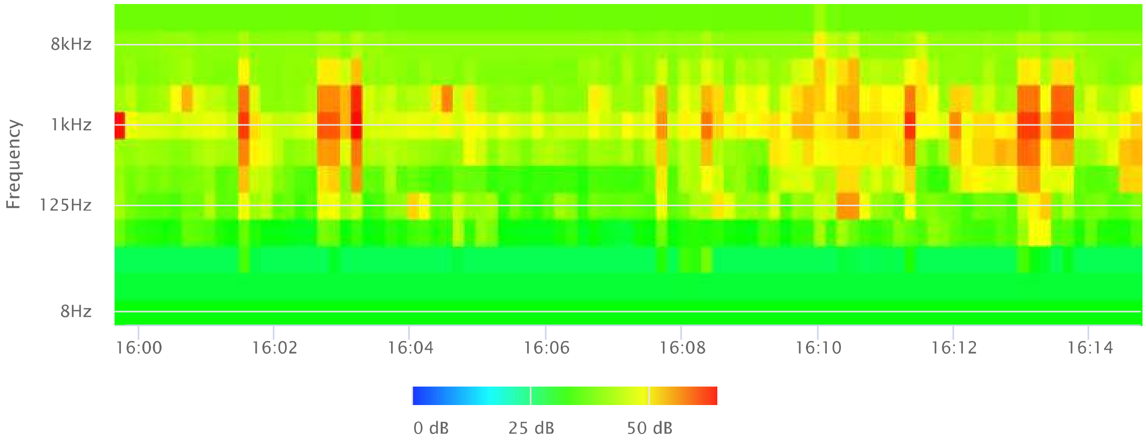
Time History



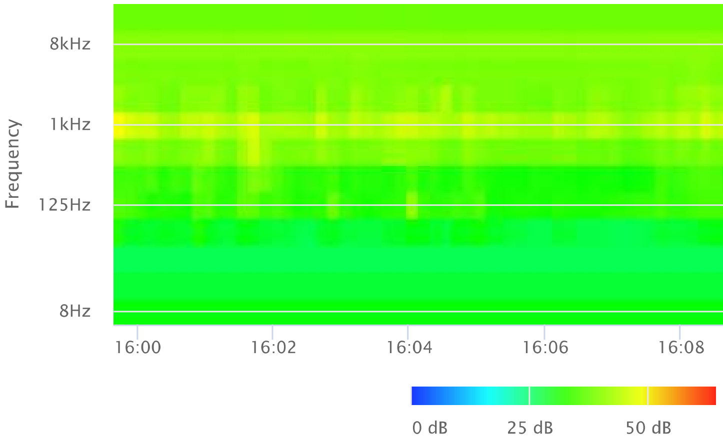
OBA 1/1 Leq



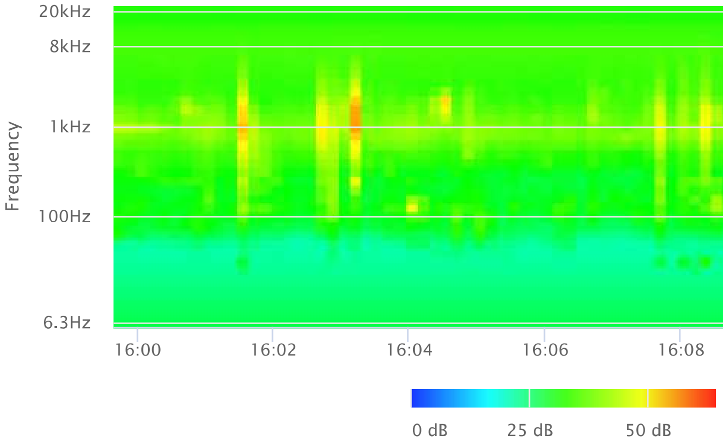
OBA 1/1 Lmax



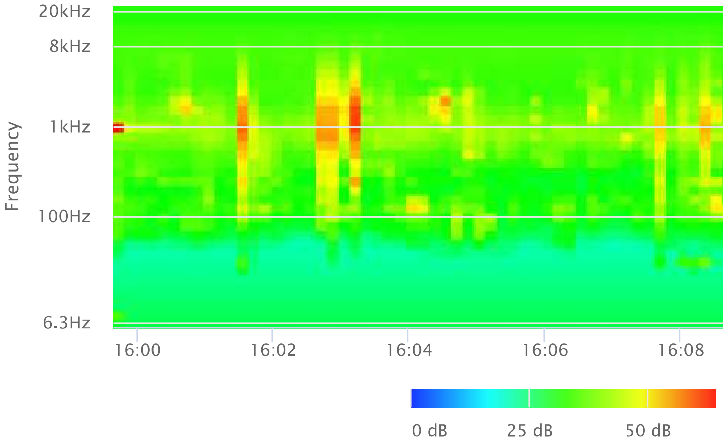
OBA 1/1 Lmin



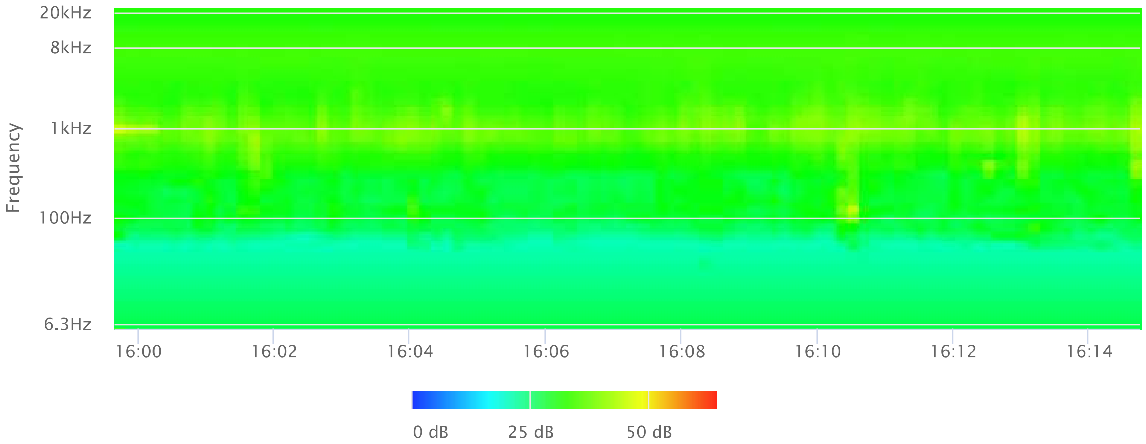
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin


20kHz
8kHz
1kHz
100Hz
6.3Hz
Frequency
16:00
16:02
16:04
16:06
16:08
16:10
16:12
16:14
0 dB
25 dB
50 dB

Noise Measurement
Field Data

Project Name: UT1072 Downtown Recycled Water Pipeline Project, Ontario **Date:** January 31, 2024

Project #: 19702

Noise Measurement #: NM7 15 minunte noise measurement (1 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 522 Vine Avenue, Ontario, CA 91762

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: Eastern side of N Vine Ave and just west of residential use.

Adjacent: Single family residences in all directions. Vine Ave (running N-S)just W of NM7.

Weather: <30% cloud, filtered sunshine. Sunset 5:20 PM **Settings:** [✓ SLOW] FAST

Temperature: 69 deg F **Wind:** 4 mph **Humidity:** 40% **Terrain:** Flat

Start Time: 4:30 PM **End Time:** 4:45 PM **Run Time:**

Leq: 59.9 dB

Lmax 70.6 dB

L2 67.2 dB

L8 65.0 dB

L25 61.0 dB

L50 55.8 dB

Primary Noise Source: Traffic noise from the 68 vehicles passing NM7 microphone, traveling along N Vine Ave during 15 minute measurement.

Secondary Noise Sources: Overhead air traffic from Ontario Airport. Traffic ambiance from other roads.

NOISE METER: SoundTrack LXT Class 1

MAKE: Larson Davis

MODEL: LXT1

SERIAL NUMBER: 3855

FACTORY CALIBRATION DATE: 3/31/2021

FIELD CALIBRATION DATE: 1/31/2024

CALIBRATOR: Larson Davis CA 200

MAKE: Larson Davis

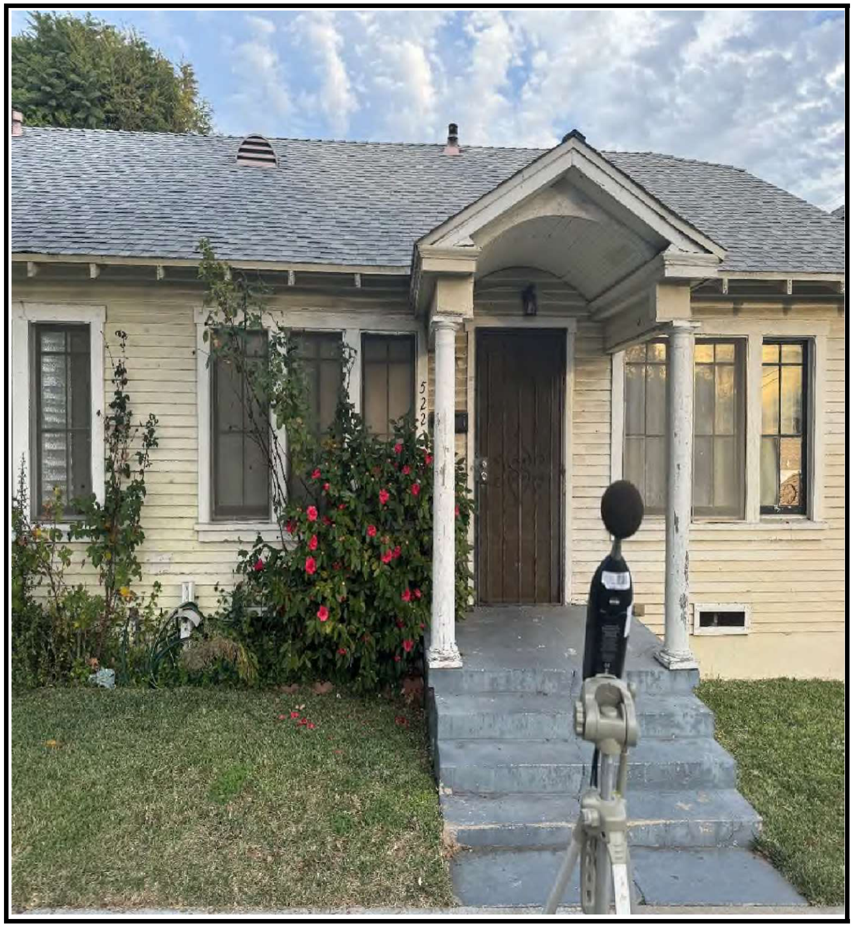
MODEL: CA 200

SERIAL NUMBER: 11178

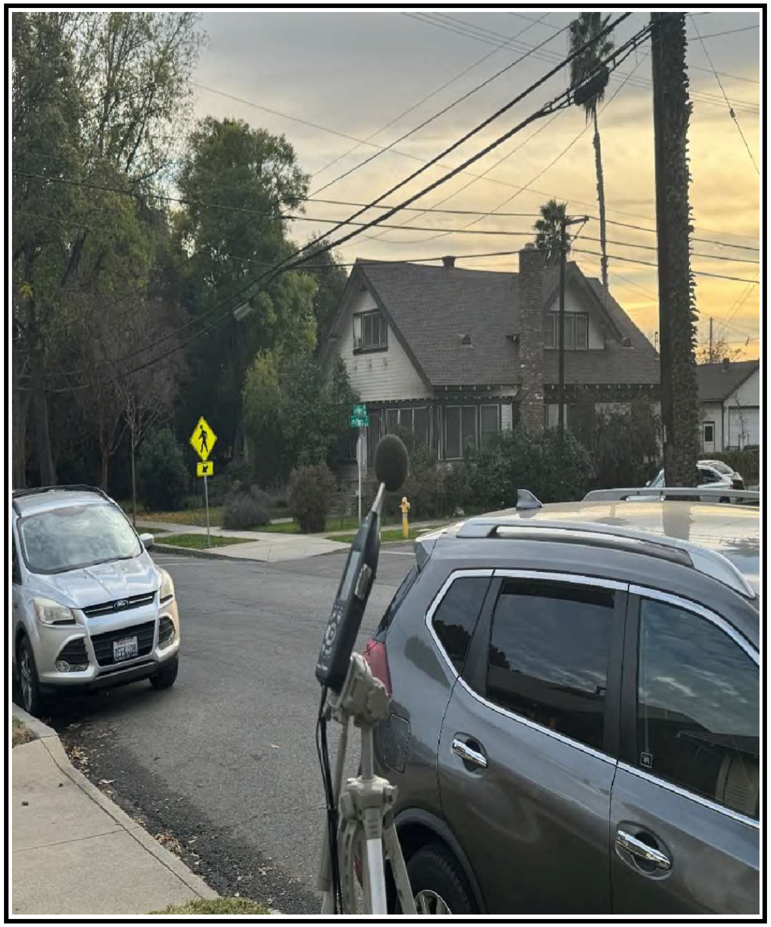
FACTORY CALIBRATION DATE: 11/18/2021

Noise Measurement
Field Data

PHOTOS:



NM7 looking E towards residence 522 N Vine Ave, Ontario.



NM7 looking SW across N Vine Ave & Flora St intersection towards residence 515 N Vine Ave, Ontario.

Summary

File Name on Meter	LxT_Data.016.s
File Name on PC	LxT_0003855-20240131 163056-LxT_Data.016.ldbin
Serial Number	3855
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	NM7 34° 4'8.54"N 117°39'21.22"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project 19702 UT1072 Downtown Recycled Water Pipeline Project, City of Ontario.

Measurement

Start	2024-01-31 16:30:56
Stop	2024-01-31 16:45:56
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2024-01-31 16:30:35
Post-Calibration	None

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	A Weighting
OBA Max Spectrum	Bin Max
Overload	145.2 dB

Results

LAeq	59.9	
LAE	89.4	
EA	97.74664 µPa²h	
EA8	3.127892 mPa²h	
EA40	15.63946 mPa²h	
LApeak (max)	2024-01-31 16:41:33	92.1 dB
LASmax	2024-01-31 16:45:22	70.6 dB
LASmin	2024-01-31 16:45:02	42.8 dB

LCeq	67.7 dB
LAeq	59.9 dB
LCeq - LAeq	7.8 dB
LAIeq	62.4 dB
LAeq	59.9 dB
LAIeq - LAeq	2.5 dB
Overload Count	0
Overload Duration	0.0 s

Statistics

LA2.00	67.2 dB
LA8.00	65.0 dB
LA25.00	61.0 dB
LA50.00	55.8 dB
LA66.60	52.3 dB
LA90.00	47.1 dB

Measurement Report

Report Summary

Meter's File Name	LxT_Data.016.s	Computer's File Name	LxT_0003855-20240131 163056-LxT_Data.016.l
Meter	LxT1 0003855		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM7 34° 4'8.54"N 117°39'21.22"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	Ganddini Project 19702 UT1072 Downtown Recycled Water Pipeline Project, City of Ontario.		

Start Time	2024-01-31 16:30:56	Duration	0:15:00.0		
End Time	2024-01-31 16:45:56	Run Time	0:15:00.0	Pause Time	0:00:00.0

Results

Overall Metrics

LA_{eq}	59.9 dB		
LAE	89.4 dB	SEA	--- dB
EA	97.7 μPa^{2}h	LAFTM5	65.1 dB
EA8	3.1 mPa^{2}h		
EA40	15.6 mPa^{2}h		
LA_{peak}	92.1 dB	2024-01-31 16:41:33	
LAS_{max}	70.6 dB	2024-01-31 16:45:22	
LAS_{min}	42.8 dB	2024-01-31 16:45:02	
LA_{eq}	59.9 dB		
LC_{eq}	67.7 dB	LC_{eq} - LA_{eq}	7.8 dB
LAI_{eq}	62.4 dB	LAI_{eq} - LA_{eq}	2.5 dB

Exceedances	Count	Duration
LAS > 65.0 dB	30	0:01:45.3
LAS > 85.0 dB	0	0:00:00.0
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 140.0 dB	0	0:00:00.0

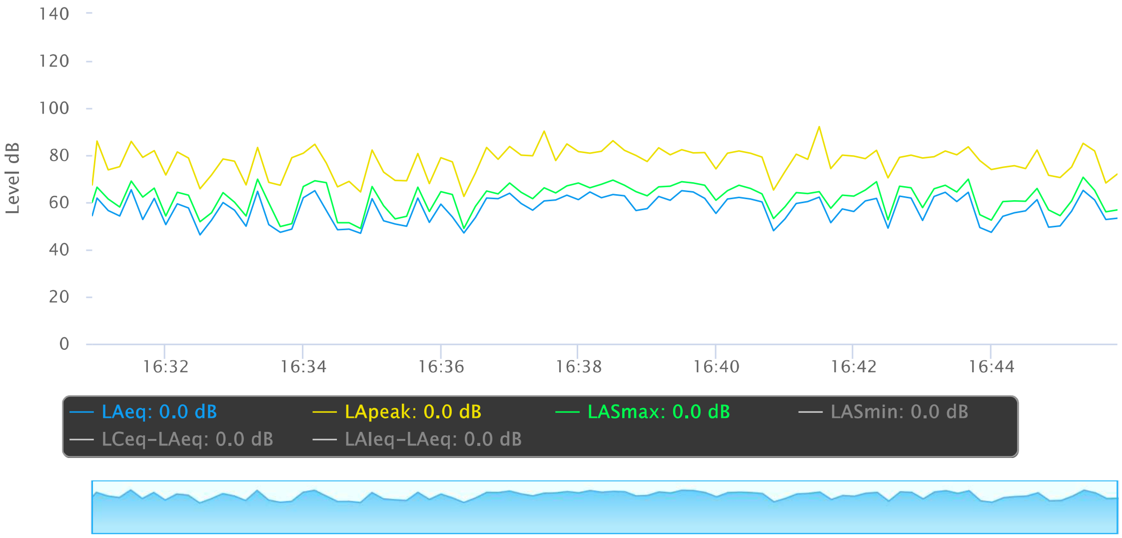
Community Noise	LDN	LDay	LNight	
	--- dB	--- dB	0.0 dB	
	LDEN	LDay	LEve	LNight
	--- dB	--- dB	--- dB	--- dB

Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	59.9 dB		67.7 dB		--- dB	
$Ls_{(max)}$	70.6 dB	2024-01-31 16:45:22	--- dB		--- dB	
$LS_{(min)}$	42.8 dB	2024-01-31 16:45:02	--- dB		--- dB	
$L_{Peak(max)}$	92.1 dB	2024-01-31 16:41:33	--- dB		--- dB	

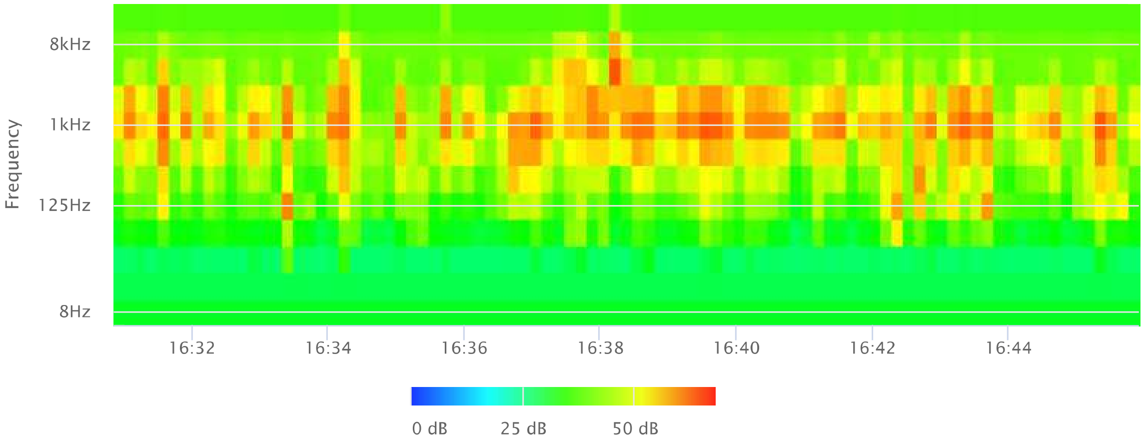
Overloads	Count	Duration	OBA Count	OBA Duration
	0	0:00:00.0	0	0:00:00.0

Statistics	
LAS 2.0	67.2 dB
LAS 8.0	65.0 dB
LAS 25.0	61.0 dB
LAS 50.0	55.8 dB
LAS 66.6	52.3 dB
LAS 90.0	47.1 dB

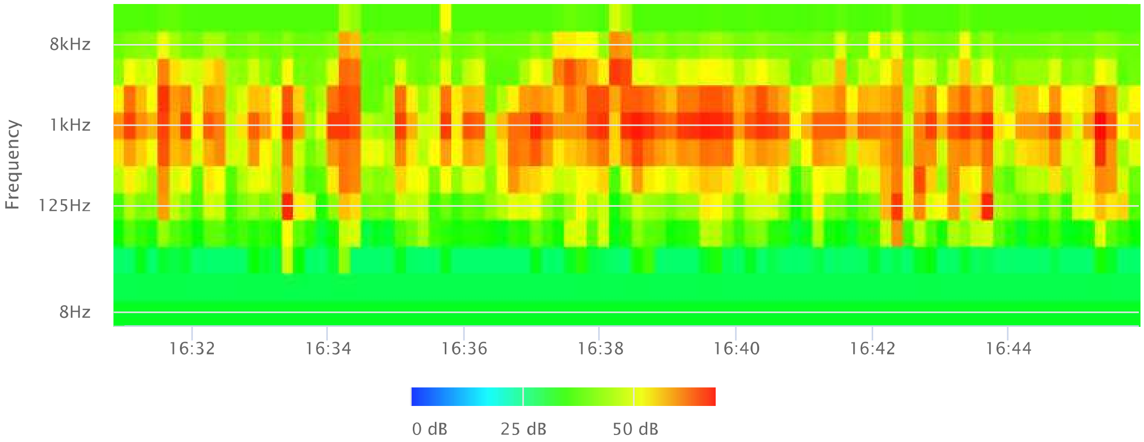
Time History



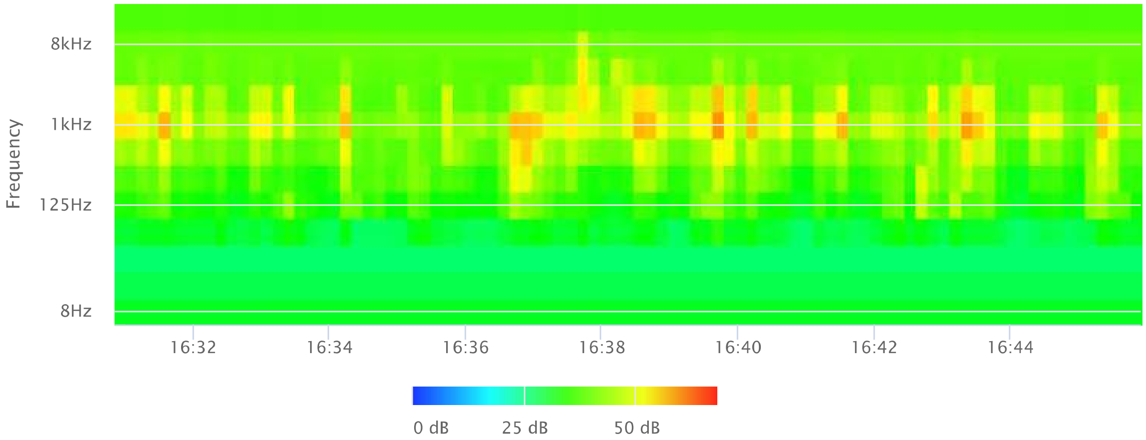
OBA 1/1 Leq



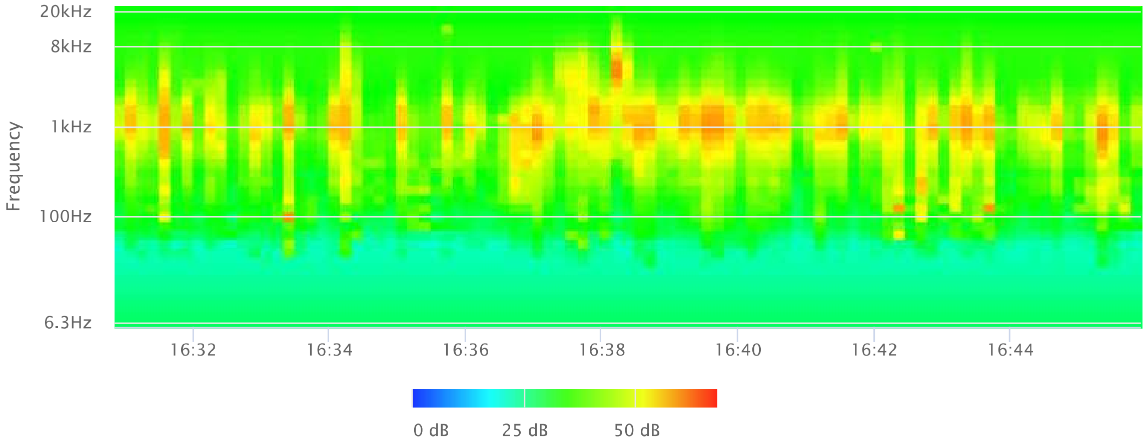
OBA 1/1 Lmax



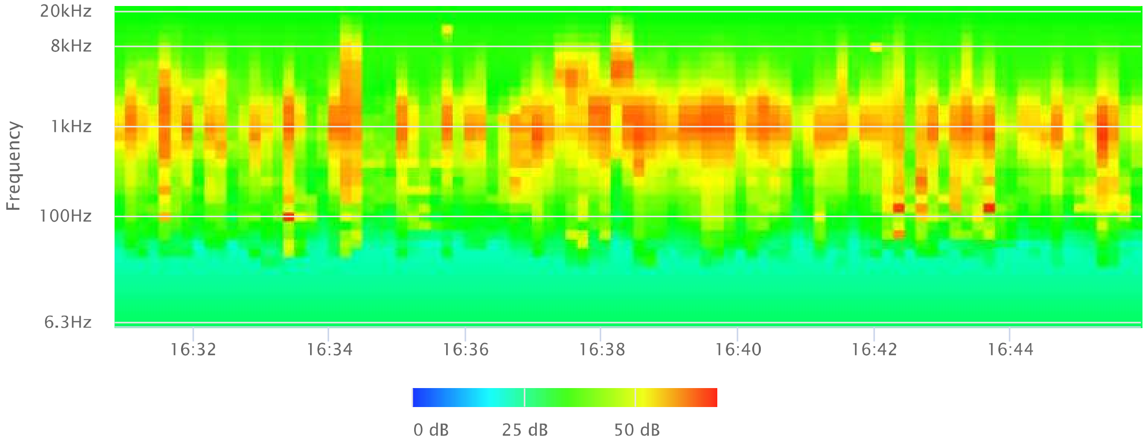
OBA 1/1 Lmin



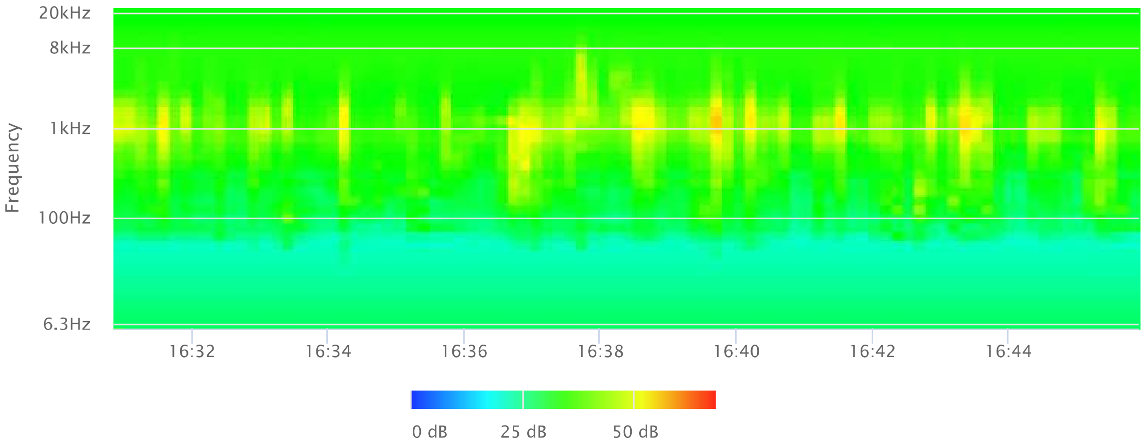
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin



20kHz
8kHz
1kHz
100Hz
6.3Hz
Frequency
16:32
16:34
16:36
16:38
16:40
16:42
16:44
0 dB
25 dB
50 dB

Noise Measurement
Field Data

Project Name: UT1072 Downtown Recycled Water Pipeline Project, Ontario **Date:** January 31, 2024

Project #: 19702

Noise Measurement #: NM8 15 minunte noise measurement (1 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 312 W F Street, Ontario, CA 91762

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: Just north of W F Street and south of residential use.

Adjacent: Single family residences to the north and W F Street (running E-W) to south with small businesses further south.

Weather: <30% cloud, filtered sunshine. Sunset 5:20 PM **Settings:** [✓ SLOW] FAST

Temperature: 69 deg F **Wind:** 4 mph **Humidity:** 40% **Terrain:** Flat

Start Time: 4:59 PM **End Time:** 5:14 PM **Run Time:**

Leq: 55.5 dB

Lmax 72.1 dB

L2 65.0 dB

L8 59.5 dB

L25 52.6 dB

L50 49.5 dB

Primary Noise Source: Traffic noise from the 18 vehicles passing NM8 microphone, traveling along W F Street during 15 minute measurement.

Secondary Noise Sources: Overhead air traffic from Ontario Airport. Traffic ambiance from other roads.

NOISE METER: SoundTrack LXT Class 1

MAKE: Larson Davis

MODEL: LXT1

SERIAL NUMBER: 3855

FACTORY CALIBRATION DATE: 3/31/2021

FIELD CALIBRATION DATE: 1/31/2024

CALIBRATOR: Larson Davis CA 200

MAKE: Larson Davis

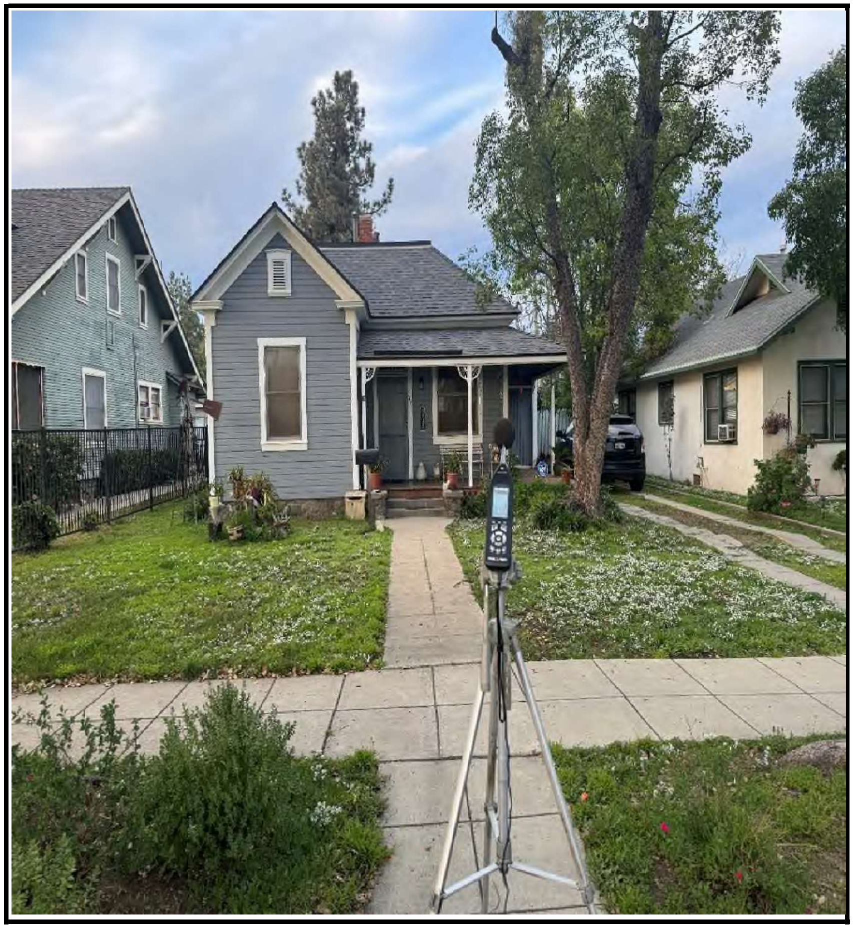
MODEL: CA 200

SERIAL NUMBER: 11178

FACTORY CALIBRATION DATE: 11/18/2021

gandini

PHOTOS:



NM8 looking N towards front yard of residence 312 W F Street, Ontario.

NM8 looking S across W F Street towards building 313 W F Street, Ontario.

Summary

File Name on Meter	LxT_Data.017.s
File Name on PC	LxT_0003855-20240131 165908-LxT_Data.017.ldbi
Serial Number	3855
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	NM8 34° 4'10.17"N 117°39'14.76"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project 19702 UT1072 Downtown Recycled Water Pipeline Project, City of Ontario.

Measurement

Start	2024-01-31 16:59:08
Stop	2024-01-31 17:14:08
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2024-01-31 16:58:43
Post-Calibration	None

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	A Weighting
OBA Max Spectrum	Bin Max
Overload	145.3 dB

Results

LAeq	55.5	
LAE	85.1	
EA	35.60659 µPa²h	
EA8	1.139411 mPa²h	
EA40	5.697054 mPa²h	
LApeak (max)	2024-01-31 17:09:55	89.5 dB
LASmax	2024-01-31 17:01:19	72.1 dB
LASmin	2024-01-31 17:13:31	43.3 dB

LCeq	66.3 dB
LAeq	55.5 dB
LCeq - LAeq	10.8 dB
LAIeq	58.2 dB
LAeq	55.5 dB
LAIeq - LAeq	2.7 dB
Overload Count	0
Overload Duration	0.0 s

Statistics

LA2.00	65.0 dB
LA8.00	59.5 dB
LA25.00	52.6 dB
LA50.00	49.5 dB
LA66.60	47.8 dB
LA90.00	44.9 dB

Measurement Report

Report Summary

Meter's File Name	LxT_Data.017.s	Computer's File Name	LxT_0003855-20240131 165908-LxT_Data.017.lc
Meter	LxT1 0003855		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM8 34° 4'10.17"N 117°39'14.76"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	Ganddini Project 19702 UT1072 Downtown Recycled Water Pipeline Project, City of Ontario.		

Start Time	2024-01-31 16:59:08	Duration	0:15:00.0		
End Time	2024-01-31 17:14:08	Run Time	0:15:00.0	Pause Time	0:00:00.0

Results

Overall Metrics

LA_{eq}	55.5 dB		
LAE	85.1 dB	SEA	--- dB
EA	35.6 µPa²h	LAFTM5	61.1 dB
EA8	1.1 mPa²h		
EA40	5.7 mPa²h		
LA_{peak}	89.5 dB	2024-01-31 17:09:55	
LAS_{max}	72.1 dB	2024-01-31 17:01:19	
LAS_{min}	43.3 dB	2024-01-31 17:13:31	
LA_{eq}	55.5 dB		
LC_{eq}	66.3 dB	LC_{eq} - LA_{eq}	10.8 dB
LAI_{eq}	58.2 dB	LAI_{eq} - LA_{eq}	2.7 dB

Exceedances	Count	Duration
LAS > 65.0 dB	8	0:00:24.4
LAS > 85.0 dB	0	0:00:00.0
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight	
	--- dB	--- dB	0.0 dB	
	LDEN	LDay	LEve	LNight
	--- dB	--- dB	--- dB	--- dB

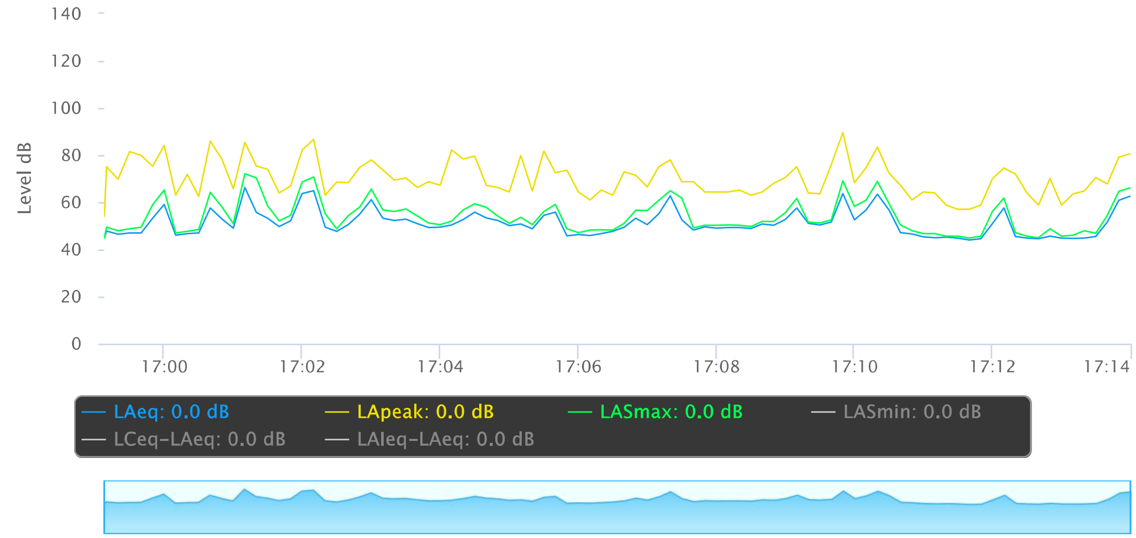
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	55.5 dB		66.3 dB		--- dB	
$Ls_{(max)}$	72.1 dB	2024-01-31 17:01:19	--- dB		--- dB	
$LS_{(min)}$	43.3 dB	2024-01-31 17:13:31	--- dB		--- dB	
$L_{Peak(max)}$	89.5 dB	2024-01-31 17:09:55	--- dB		--- dB	

Overloads	Count	Duration	OBA Count	OBA Duration
	0	0:00:00.0	0	0:00:00.0

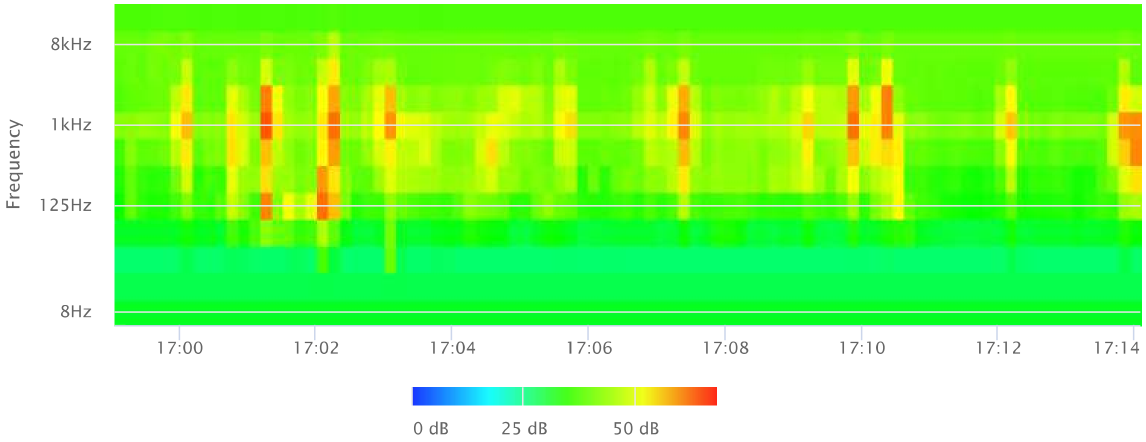
Statistics

LAS 2.0	65.0 dB
LAS 8.0	59.5 dB
LAS 25.0	52.6 dB
LAS 50.0	49.5 dB
LAS 66.6	47.8 dB
LAS 90.0	44.9 dB

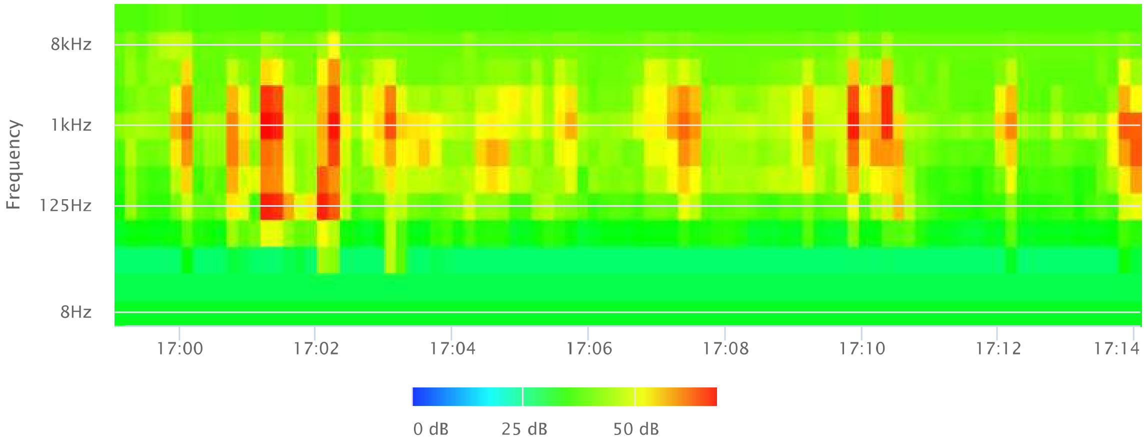
Time History



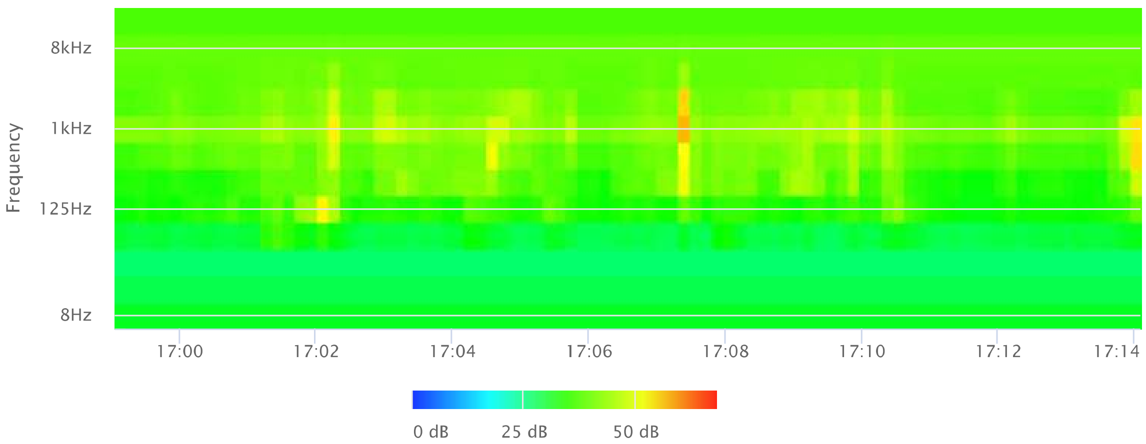
OBA 1/1 Leq



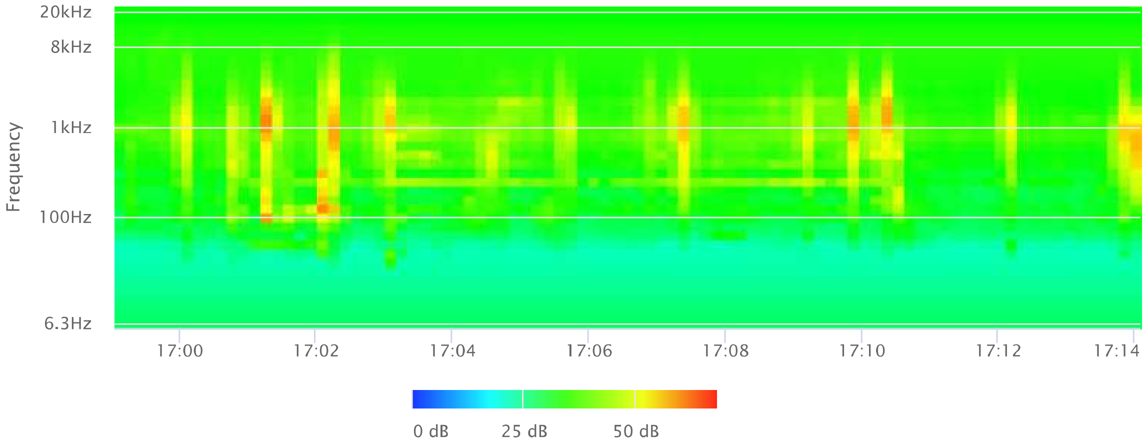
OBA 1/1 Lmax



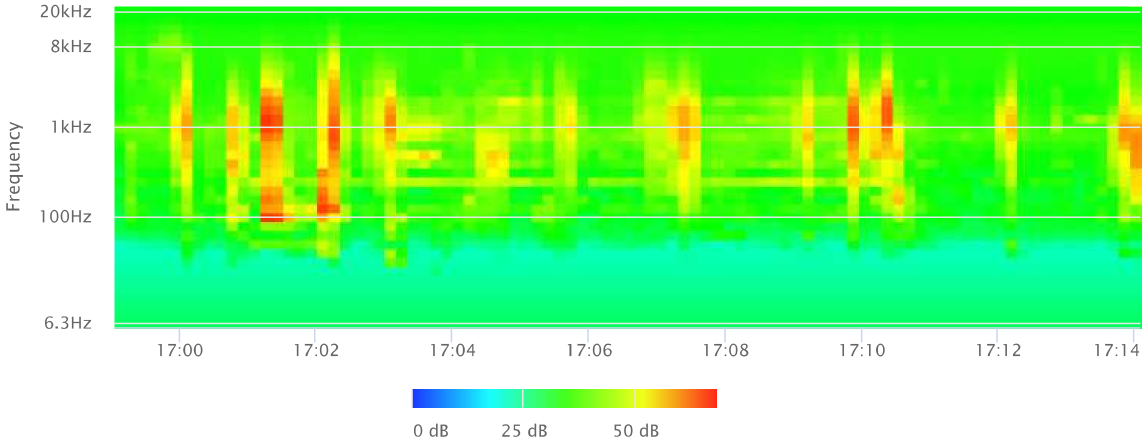
OBA 1/1 Lmin



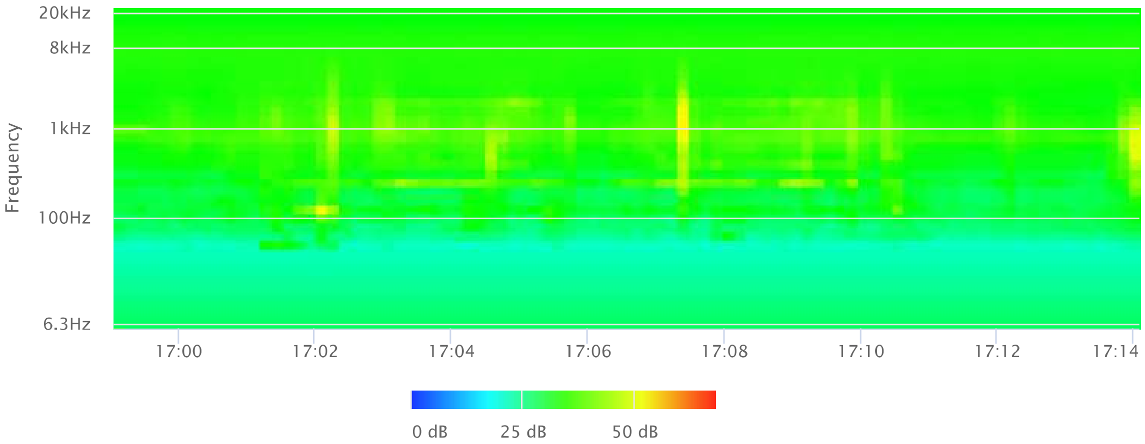
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin


20kHz
8kHz
1kHz
Frequency
100Hz
6.3Hz
17:00
17:02
17:04
17:06
17:08
17:10
17:12
17:14
0 dB
25 dB
50 dB

Noise Measurement
Field Data

Project Name: UT1072 Downtown Recycled Water Pipeline Project, Ontario

Date: January 31, 2024

Project #: 19702

Noise Measurement #: NM9 15 minunte noise measurement (1 x 15 minutes)

Technician: Ian Edward Gallagher

Nearest Address or Cross Street: 755 N Euclid Ave, Ontario, CA 91762

Site Description (Type of Existing Land Use and any other notable features): Meaurement Site: Just west of Euclid Avenue and east of American Inn.

Adjacent: Motel & associated parking immediately west and N Euclid Ave (running N-S) immediately east. Residential and various businesses in surrounding area.

Weather: <30% cloud. Sunset 5:20 PM

Settings: [✓ SLOW] FAST

Temperature: 69 deg F

Wind: 4 mph

Humidity: 40%

Terrain: Flat

Start Time: 5:34 PM

End Time: 5:49 PM

Run Time:

Leq: 69.4 dB

Lmax 86 dB

L2 76.1 dB

L8 73.9 dB

L25 70.0 dB

L50 64.5 dB

Primary Noise Source: Traffic noise from the 532 vehicles passing NM9 microphone, traveling along N Euclid Ave during 15 minute measurement.

Secondary Noise Sources: Overhead air traffic from Ontario Airport. Traffic ambiance from other roads. General city ambiance. Pedestrians.

NOISE METER: SoundTrack LXT Class 1

MAKE: Larson Davis

MODEL: LXT1

SERIAL NUMBER: 3855

FACTORY CALIBRATION DATE: 3/31/2021

FIELD CALIBRATION DATE: 1/31/2024

CALIBRATOR: Larson Davis CA 200

MAKE: Larson Davis

MODEL: CA 200

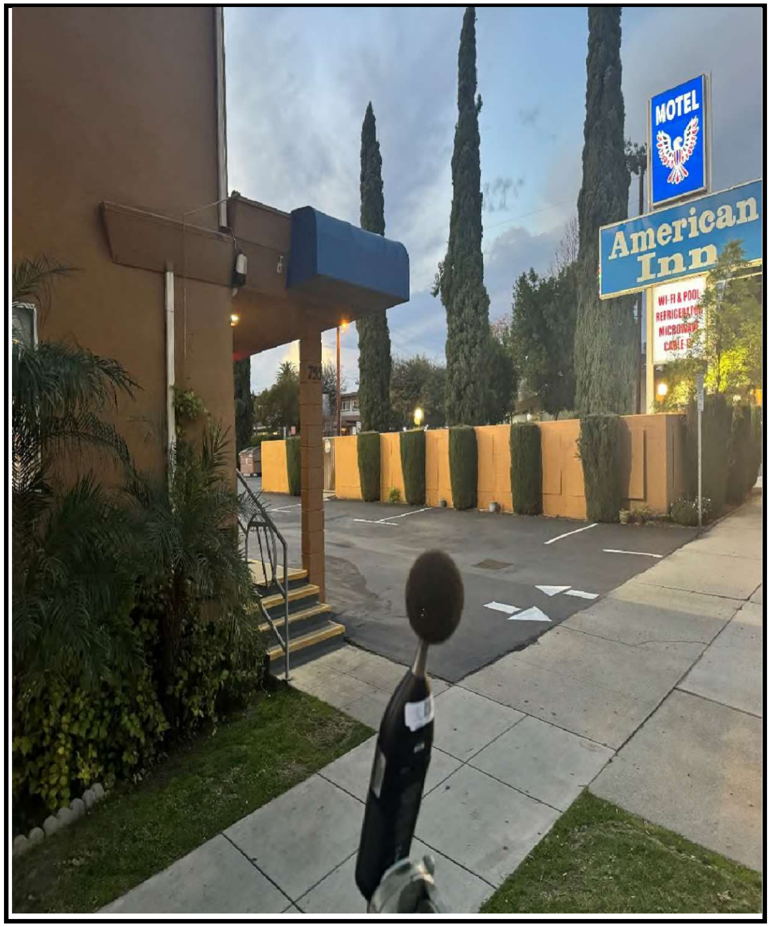
SERIAL NUMBER: 11178

FACTORY CALIBRATION DATE: 11/18/2021

Noise Measurement
Field Data

PHOTOS:

NM9 looking E across Euclid Ave traveling N & S (separated by grassy island) with 3 lanes in each direction. 750 N Euclid Ave on other side of avenue.



NM9 looking NNW towards motel sign of building 755 N Euclid Ave, Ontario.

Summary

File Name on Meter	LxT_Data.018.s
File Name on PC	LxT_0003855-20240131 173452-LxT_Data.018.l
Serial Number	3855
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	NM9 34° 4'19.87"N 117°39'4.80"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project 19702 UT1072 Downtown Recycled Water Pipeline Project, City of Ontario.

Measurement

Start	2024-01-31 17:34:52
Stop	2024-01-31 17:49:52
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2024-01-31 17:34:34
Post-Calibration	None

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	A Weighting
OBA Max Spectrum	Bin Max
Overload	145.2 dB

Results

LAeq	69.4		
LAE	98.9		
EA	869.8885 µPa²h		
EA8	27.83644 mPa²h		
EA40	139.1822 mPa²h		
LApeak (max)	2024-01-31 17:38:53	102.5	dB
LASmax	2024-01-31 17:38:53	86.0	dB
LASmin	2024-01-31 17:49:33	46.8	dB

LCeq	77.0 dB
LAeq	69.4 dB
LCeq - LAeq	7.6 dB
LAIeq	71.1 dB
LAeq	69.4 dB
LAIeq - LAeq	1.7 dB
Overload Count	0
Overload Duration	0.0 s

Statistics

LA2.00	76.1 dB
LA8.00	73.9 dB
LA25.00	70.0 dB
LA50.00	64.5 dB
LA66.60	60.1 dB
LA90.00	54.0 dB

Measurement Report

Report Summary

Meter's File Name	LxT_Data.018.s	Computer's File Name	LxT_0003855-20240131 173452-LxT_Data.018.l
Meter	LxT1 0003855		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM9 34° 4'19.87"N 117°39'4.80"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	Ganddini Project 19702 UT1072 Downtown Recycled Water Pipeline Project, City of Ontario.		

Start Time	2024-01-31 17:34:52	Duration	0:15:00.0		
End Time	2024-01-31 17:49:52	Run Time	0:15:00.0	Pause Time	0:00:00.0

Results

Overall Metrics

LA_{eq}	69.4 dB		
LAE	98.9 dB	SEA	--- dB
EA	869.9 µPa²h	LAFTM5	73.9 dB
EA8	27.8 mPa²h		
EA40	139.2 mPa²h		

LA_{peak}	102.5 dB	2024-01-31 17:38:53
LAS_{max}	86.0 dB	2024-01-31 17:38:53
LAS_{min}	46.8 dB	2024-01-31 17:49:33

LA_{eq}	69.4 dB		
LC_{eq}	77.0 dB	LC_{eq} - LA_{eq}	7.6 dB
LAI_{eq}	71.1 dB	LAI_{eq} - LA_{eq}	1.7 dB

Exceedances	Count	Duration
LAS > 65.0 dB	34	0:08:00.8
LAS > 85.0 dB	1	0:00:01.7
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight	
	--- dB	--- dB	0.0 dB	
	LDEN	LDay	LEve	LNight
	--- dB	--- dB	--- dB	--- dB

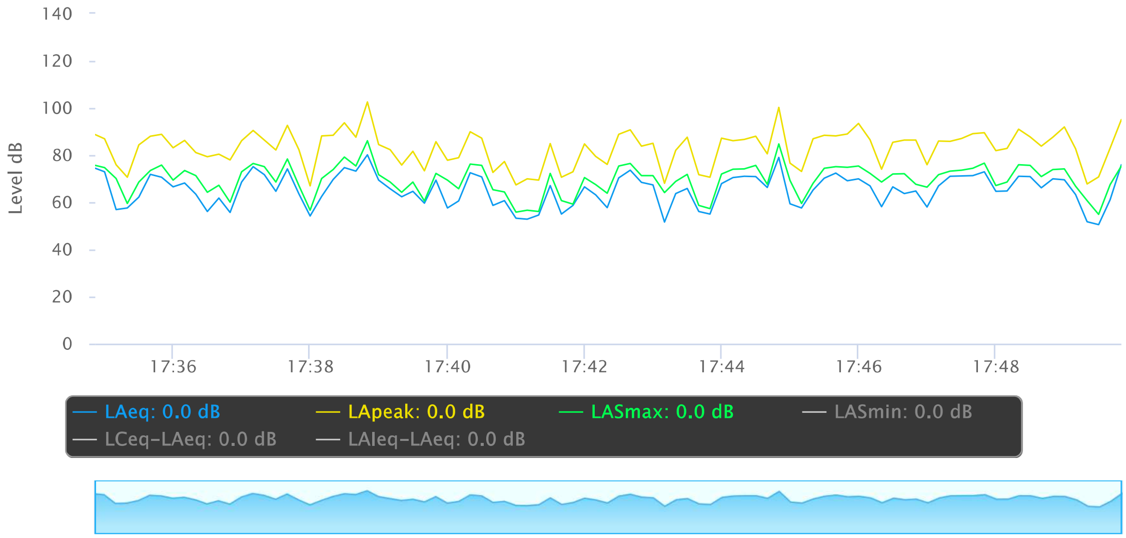
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	69.4 dB		77.0 dB		--- dB	
$Ls_{(max)}$	86.0 dB	2024-01-31 17:38:53	--- dB		--- dB	
$LS_{(min)}$	46.8 dB	2024-01-31 17:49:33	--- dB		--- dB	
$L_{Peak(max)}$	102.5 dB	2024-01-31 17:38:53	--- dB		--- dB	

Overloads	Count	Duration	OBA Count	OBA Duration
	0	0:00:00.0	0	0:00:00.0

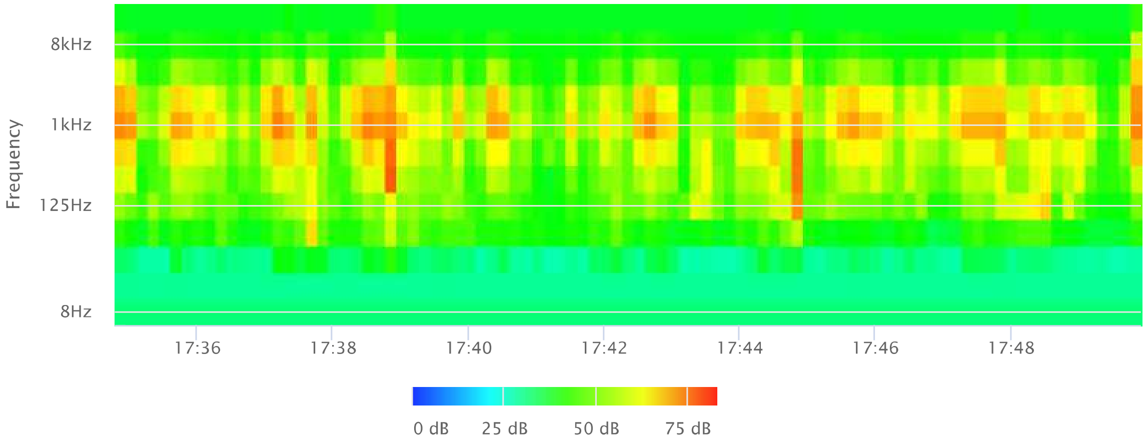
Statistics

LAS 2.0	76.1 dB
LAS 8.0	73.9 dB
LAS 25.0	70.0 dB
LAS 50.0	64.5 dB
LAS 66.6	60.1 dB
LAS 90.0	54.0 dB

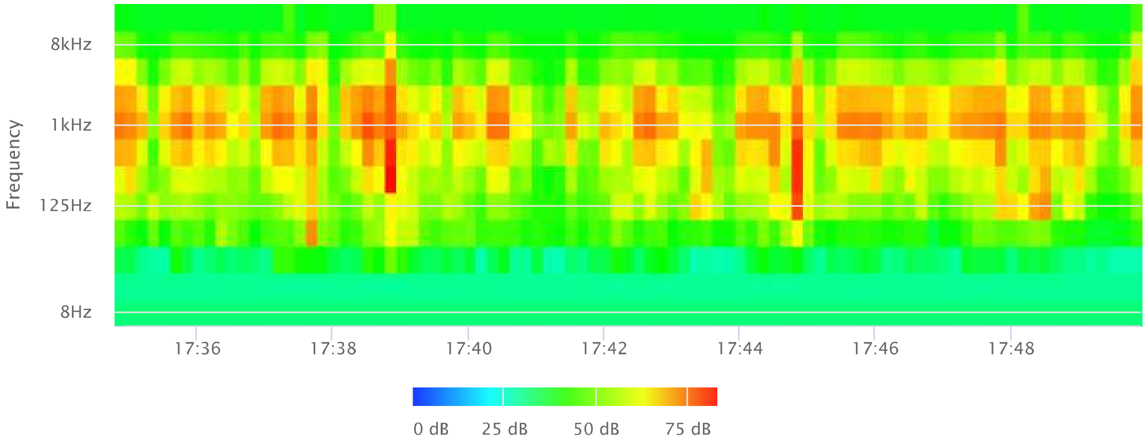
Time History



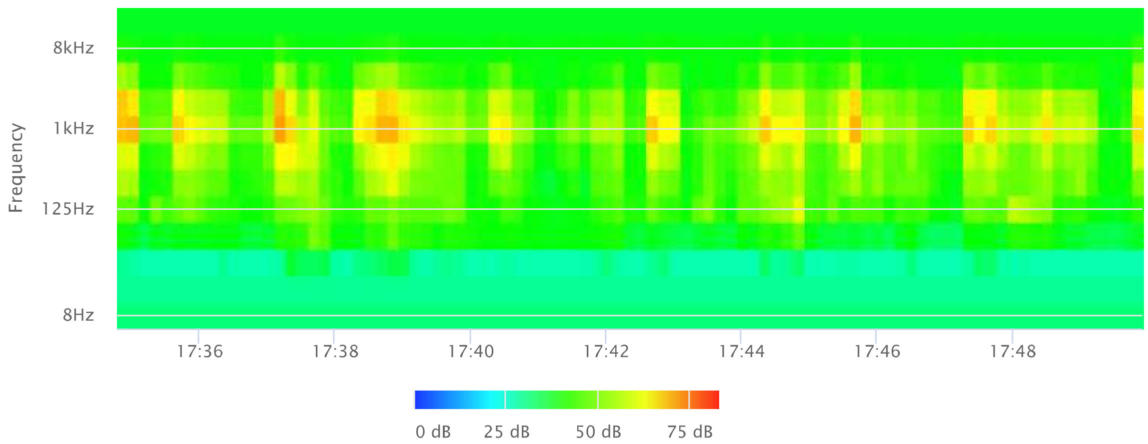
OBA 1/1 Leq



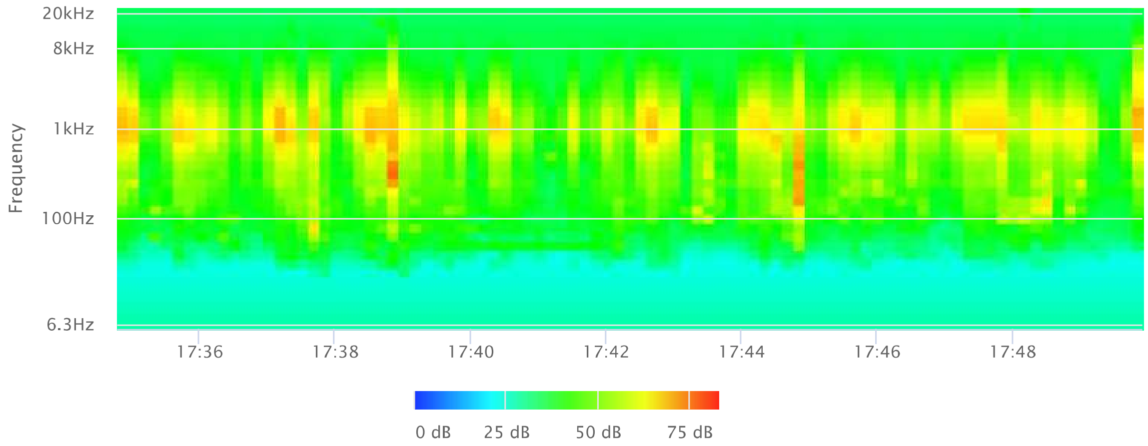
OBA 1/1 Lmax



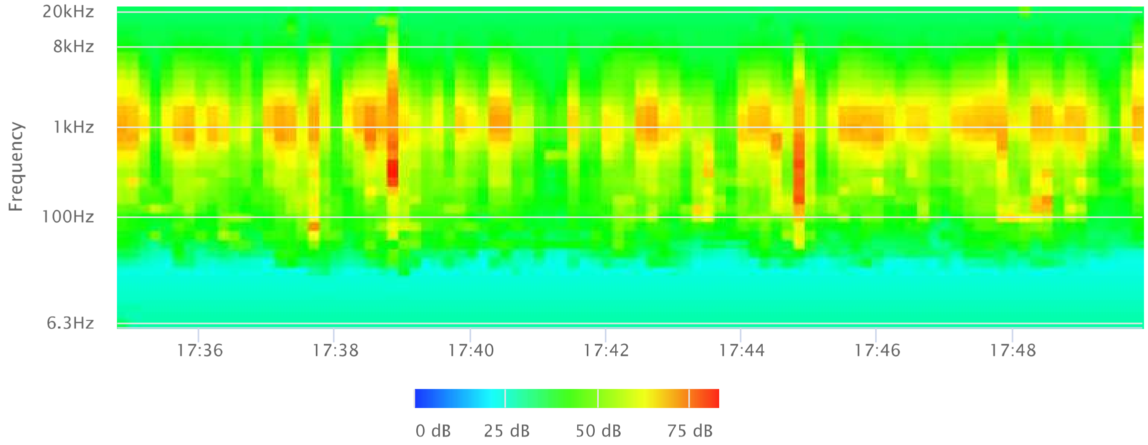
OBA 1/1 Lmin



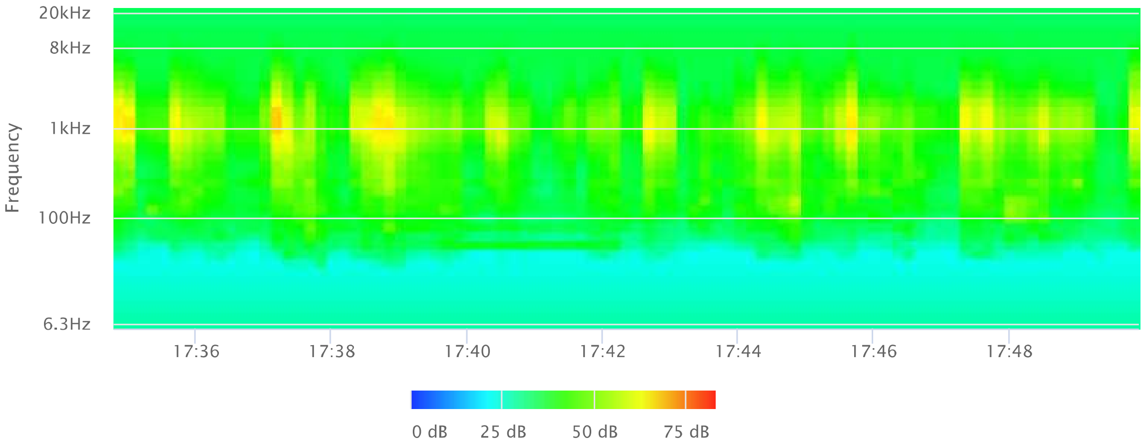
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin


20kHz
8kHz
1kHz
100Hz
6.3Hz
Frequency
17:36
17:38
17:40
17:42
17:44
17:46
17:48
0 dB
25 dB
50 dB
75 dB

Noise Measurement
Field Data

Project Name: UT1072 Downtown Recycled Water Pipeline Project, Ontario **Date:** January 31, 2024

Project #: 19702

Noise Measurement #: NM10 15 minunte noise measurement (1 x 15 minutes) **Technician:** Ian Edward Gallagher

Nearest Address or Cross Street: 940 N Euclid Ave, Ontario, CA 91762

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: Just east of northbound side of Euclid Ave and west of residential uses. Adjacent: N Euclid Ave (running N-S) immediately W with mostly residential in all directions.

Weather: <30% cloud. Sunset 5:20 PM **Settings:** [✓ SLOW] FAST

Temperature: 69 deg F **Wind:** 4 mph **Humidity:** 40% **Terrain:** Flat

Start Time: 7:04 PM **End Time:** 7:19 PM **Run Time:**

Leq: 69.6 dB

Lmax 89.5 dB

L2 75.7 dB

L8 73.1 dB

L25 69.2 dB

L50 63.4 dB

Primary Noise Source: Traffic noise from the 307 vehicles passing NM10 microphone, traveling along N Euclid Ave during 15 minute measurement. S bound emergency vehicle at 7:13PM.

Secondary Noise Sources: Overhead air traffic from Ontario Airport. Traffic ambiance from other roads. General city ambiance. Pedestrians.

NOISE METER: SoundTrack LXT Class 1

MAKE: Larson Davis

MODEL: LXT1

SERIAL NUMBER: 3855

FACTORY CALIBRATION DATE: 3/31/2021

FIELD CALIBRATION DATE: 1/31/2024

CALIBRATOR: Larson Davis CA 200

MAKE: Larson Davis

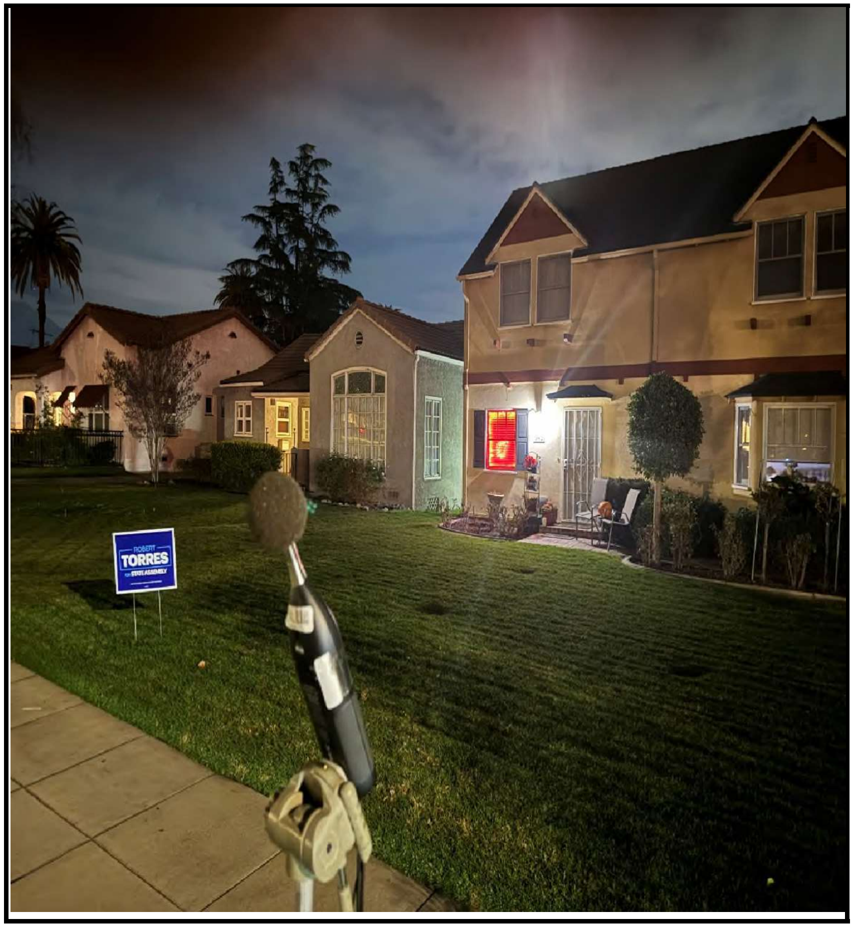
MODEL: CA 200

SERIAL NUMBER: 11178

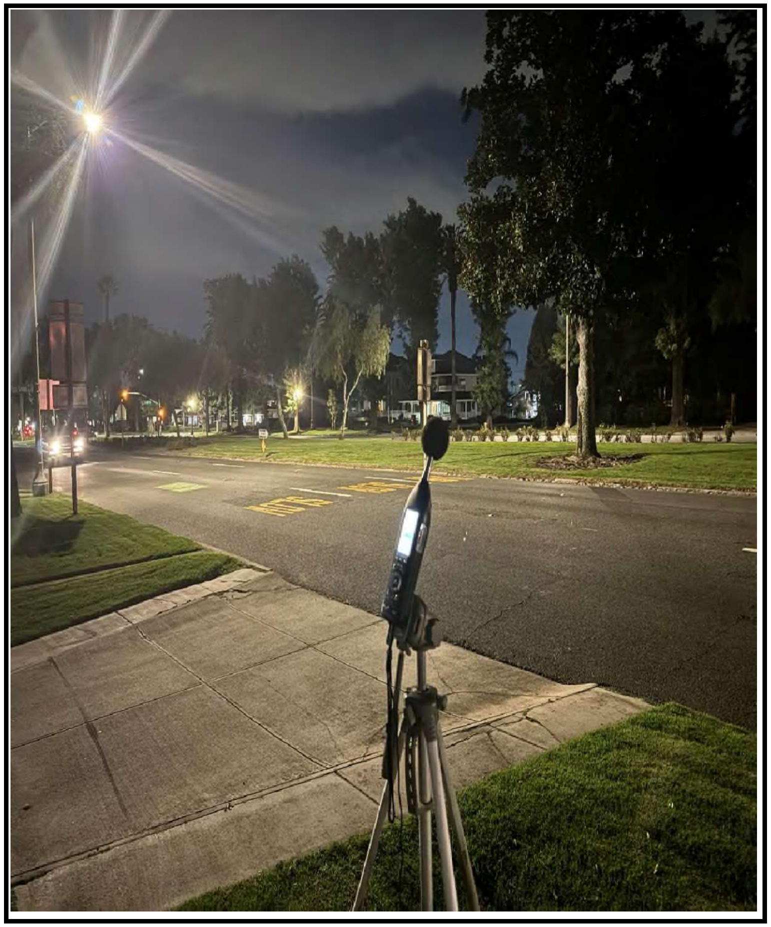
FACTORY CALIBRATION DATE: 11/18/2021

Noise Measurement
Field Data

PHOTOS:



NM10 looking ENE towards residence 940 N Euclid Ave, Ontario.



NM10 looking SW across N Euclid Ave towards I Street intersection (traffic lights, ~470' SSW).

Summary

File Name on Meter	LxT_Data.019.s
File Name on PC	LxT_0003855-20240131 190448-LxT_Data.019.ldl
Serial Number	3855
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	NM10 34° 4'31.79"N 117°39'2.83"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project 19702 UT1072 Downtown Recycled Water Pipeline Project, City of Ontario.

Measurement

Start	2024-01-31 19:04:48
Stop	2024-01-31 19:19:48
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2024-01-31 19:01:00
Post-Calibration	None

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	A Weighting
OBA Max Spectrum	Bin Max
Overload	145.2 dB

Results

LAeq	69.6	
LAE	99.1	
EA	906.3886 µPa²h	
EA8	29.00444 mPa²h	
EA40	145.0222 mPa²h	
LApeak (max)	2024-01-31 19:13:29	101.5 dB
LASmax	2024-01-31 19:13:30	89.5 dB
LASmin	2024-01-31 19:15:41	48.3 dB

LCeq	74.8 dB
LAeq	69.6 dB
LCeq - LAeq	5.2 dB
LAIeq	72.4 dB
LAeq	69.6 dB
LAIeq - LAeq	2.8 dB
Overload Count	0
Overload Duration	0.0 s

Statistics

LA2.00	75.7 dB
LA8.00	73.1 dB
LA25.00	69.2 dB
LA50.00	63.4 dB
LA66.60	59.5 dB
LA90.00	54.5 dB

Measurement Report

Report Summary

Meter's File Name	LxT_Data.019.s	Computer's File Name	LxT_0003855-20240131 190448-LxT_Data.019.l
Meter	LxT1 0003855		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM10 34° 4'31.79"N 117°39'2.83"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	Ganddini Project 19702 UT1072 Downtown Recycled Water Pipeline Project, City of Ontario.		

Start Time	2024-01-31 19:04:48	Duration	0:15:00.0		
End Time	2024-01-31 19:19:48	Run Time	0:15:00.0	Pause Time	0:00:00.0

Results

Overall Metrics

LA_{eq}	69.6 dB		
LAE	99.1 dB	SEA	--- dB
EA	906.4 µPa²h	LAFTM5	75.1 dB
EA8	29.0 mPa²h		
EA40	145.0 mPa²h		
LA_{peak}	101.5 dB	2024-01-31 19:13:29	
LAS_{max}	89.5 dB	2024-01-31 19:13:30	
LAS_{min}	48.3 dB	2024-01-31 19:15:41	
LA_{eq}	69.6 dB		
LC_{eq}	74.8 dB	LC_{eq} - LA_{eq}	5.2 dB
LAI_{eq}	72.4 dB	LAI_{eq} - LA_{eq}	2.8 dB

Exceedances	Count	Duration
LAS > 65.0 dB	39	0:07:23.8
LAS > 85.0 dB	1	0:00:04.1
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight	
	--- dB	--- dB	0.0 dB	
	LDEN	LDay	LEve	LNight
	--- dB	--- dB	--- dB	--- dB

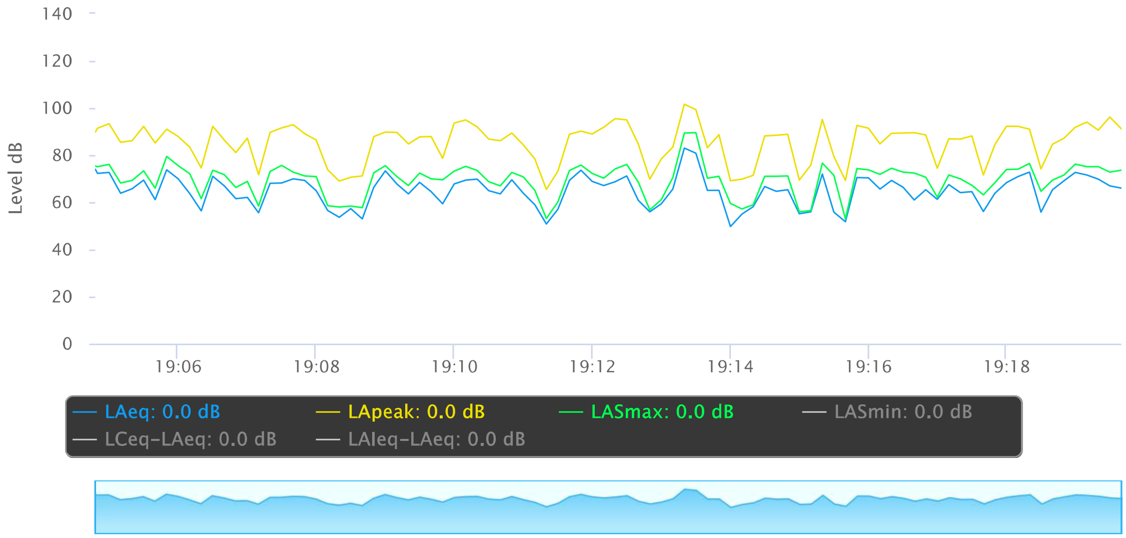
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	69.6 dB		74.8 dB		--- dB	
$Ls_{(max)}$	89.5 dB	2024-01-31 19:13:30	--- dB		--- dB	
$LS_{(min)}$	48.3 dB	2024-01-31 19:15:41	--- dB		--- dB	
$L_{Peak(max)}$	101.5 dB	2024-01-31 19:13:29	--- dB		--- dB	

Overloads	Count	Duration	OBA Count	OBA Duration
	0	0:00:00.0	0	0:00:00.0

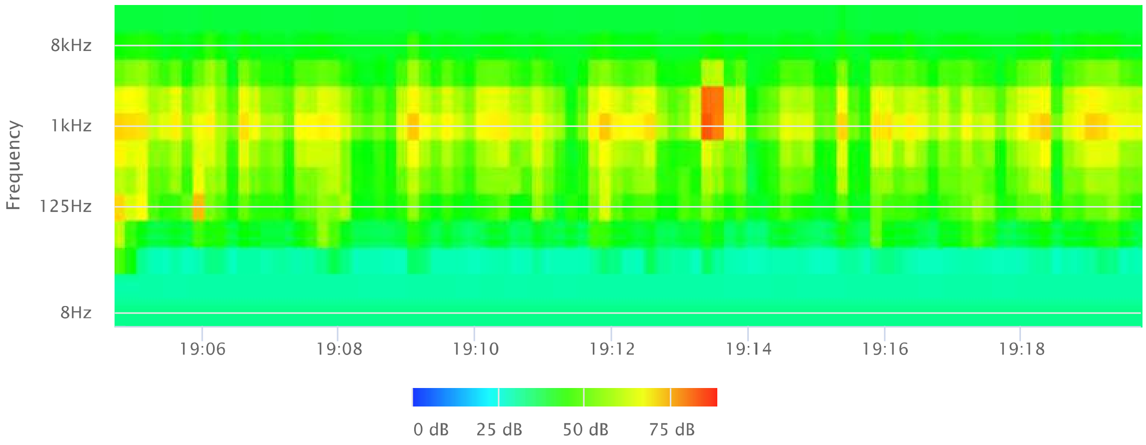
Statistics

LAS 2.0	75.7 dB
LAS 8.0	73.1 dB
LAS 25.0	69.2 dB
LAS 50.0	63.4 dB
LAS 66.6	59.5 dB
LAS 90.0	54.5 dB

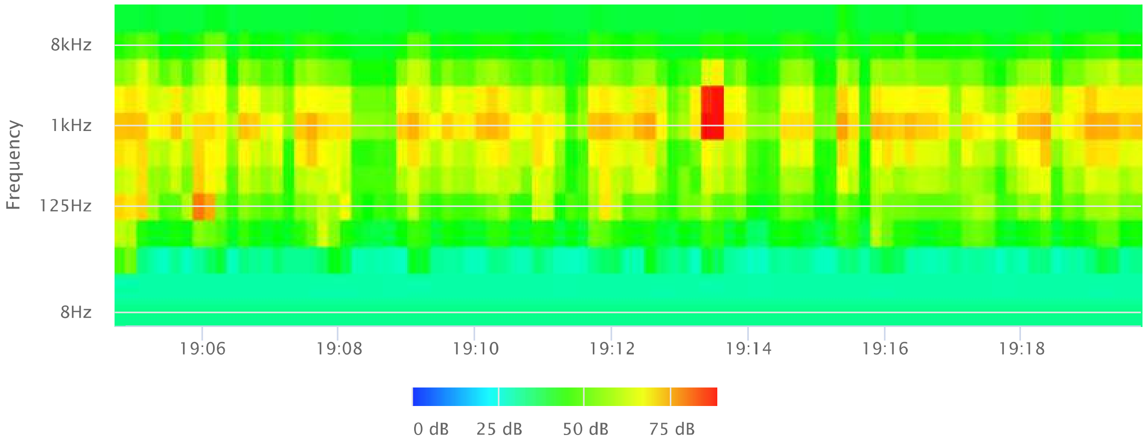
Time History



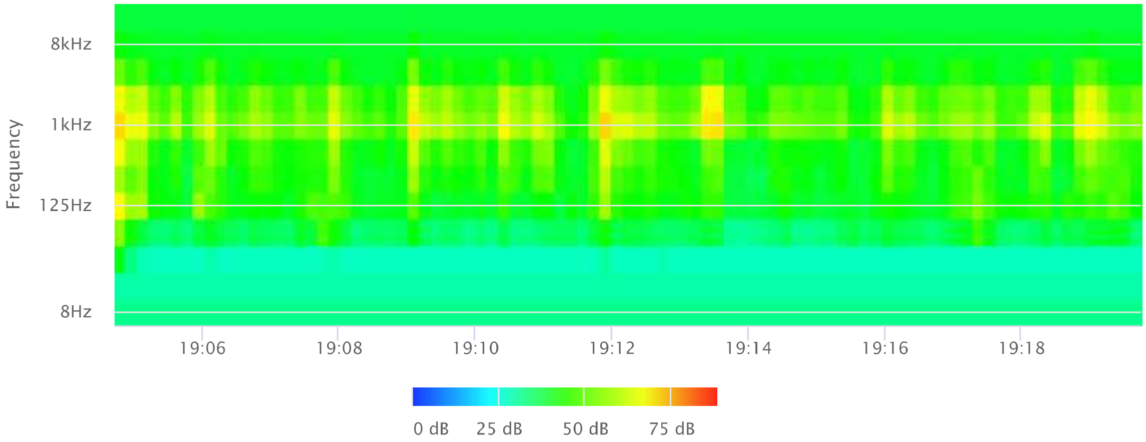
OBA 1/1 Leq



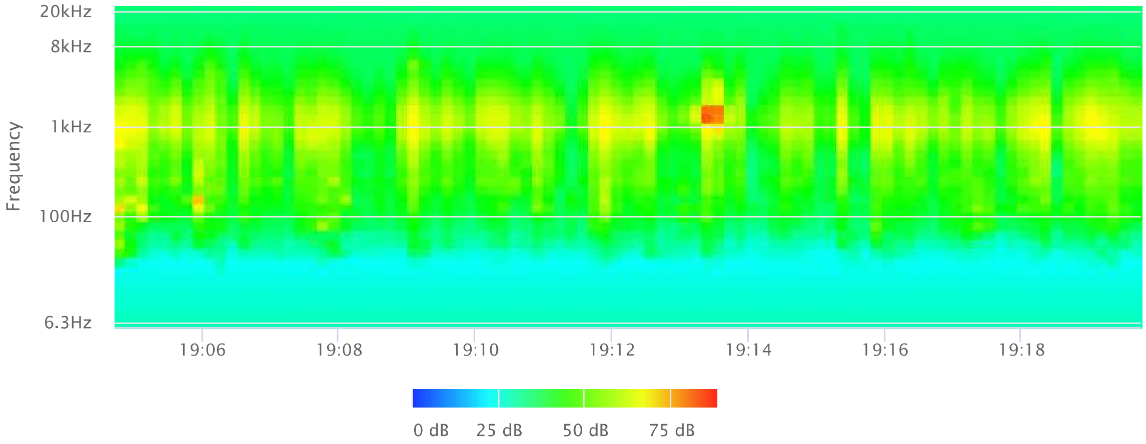
OBA 1/1 Lmax



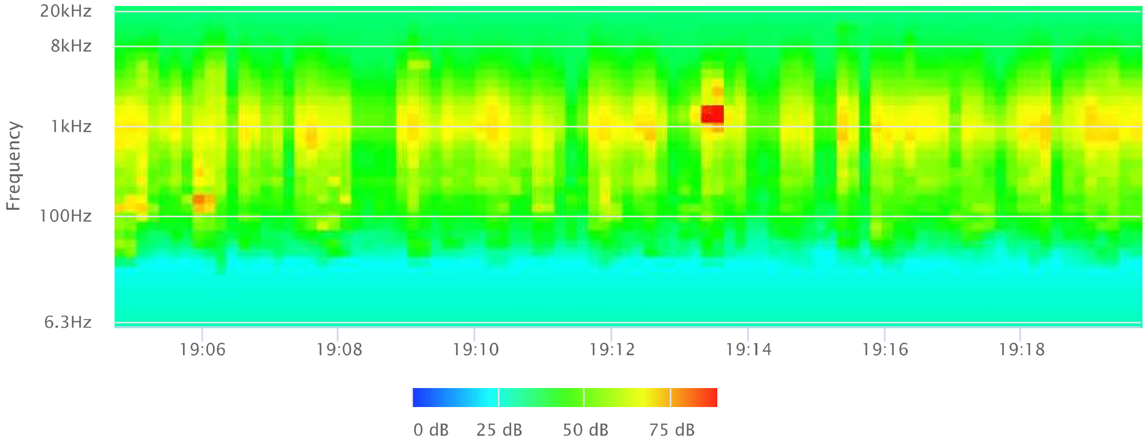
OBA 1/1 Lmin



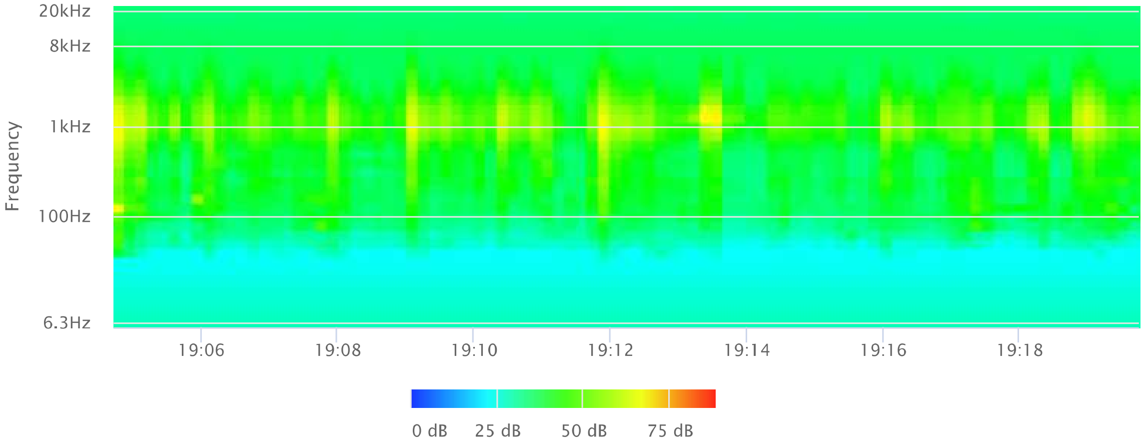
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin


20kHz
8kHz
1kHz
100Hz
6.3Hz
Frequency
19:06
19:08
19:10
19:12
19:14
19:16
19:18
0 dB
25 dB
50 dB
75 dB

Noise Measurement
Field Data

Project Name: UT1072 Downtown Recycled Water Pipeline Project, Ontario

Date: January 31, 2024

Project #: 19702

Noise Measurement #: NM11 15 minunte noise measurement (1 x 15 minutes)

Technician: Ian Edward Gallagher

Nearest Address or Cross Street: 1181 N Euclid Ave, Ontario, CA 91762

Site Description (Type of Existing Land Use and any other notable features): Measurement Site: Just northwest of Euclid Ave and 4th St intersection.

Adjacent: N Euclid Ave (running N-S) immediately east, 4th St (running E-W) immediately S, school use to northwest, and residential within surrounding area.

Weather: <30% cloud. Sunset 5:20 PM

Settings: [✓ SLOW] FAST

Temperature: 69 deg F

Wind: 4 mph

Humidity: 40%

Terrain: Flat

Start Time: 7:40 PM

End Time: 7:55 PM

Run Time:

Leq: 70.1 dB

Lmax 94.2 dB

L2 74.1 dB

L8 70.3 dB

L25 66.4 dB

L50 62.4 dB

Primary Noise Source: Traffic noise from the 322 vehicles passing NM10 microphone, traveling through N Euclid Ave & 4th St intersection. N bound emergency vehicle at 7:48PM.

Secondary Noise Sources: Overhead air traffic from Ontario Airport. Traffic ambiance from other roads. General city ambiance. Pedestrians.

NOISE METER: SoundTrack LXT Class 1

MAKE: Larson Davis

MODEL: LXT1

SERIAL NUMBER: 3855

FACTORY CALIBRATION DATE: 3/31/2021

FIELD CALIBRATION DATE: 1/31/2024

CALIBRATOR: Larson Davis CA 200

MAKE: Larson Davis

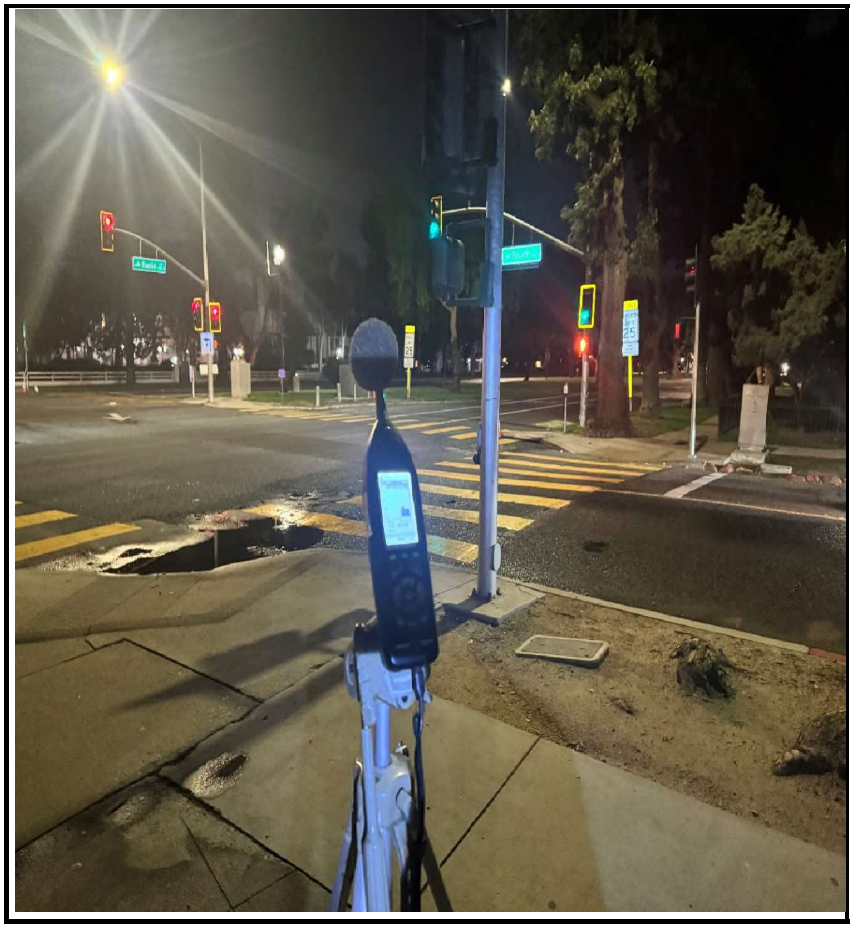
MODEL: CA 200

SERIAL NUMBER: 11178

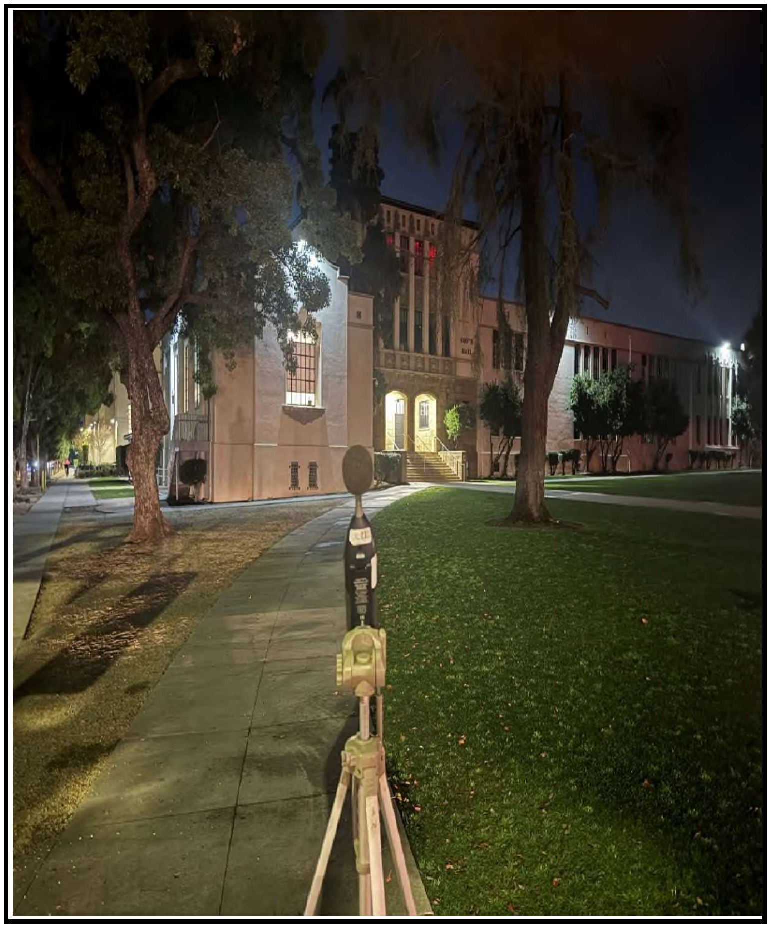
FACTORY CALIBRATION DATE: 11/18/2021

Noise Measurement
Field Data

PHOTOS:



NM11 looking SE across N Euclid Ave & 4th St intersection.



NM11 looking NW towards South Hall building 1181 N Euclid Ave, Ontario.

Summary

File Name on Meter	LxT_Data.020.s
File Name on PC	LxT_0003855-20240131 194040-LxT_Data.020.ld
Serial Number	3855
Model	SoundTrack LxT®
Firmware Version	2.404
User	Ian Edward Gallagher
Location	NM11 34° 4'40.87"N 117°39'4.97"W
Job Description	15 minute noise measurement (1 x 15 minutes)
Note	Ganddini Project 19702 UT1072 Downtown Recycled Water Pipeline Project, City of Ontario.

Measurement

Start	2024-01-31 19:40:40
Stop	2024-01-31 19:55:40
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2024-01-31 19:40:18
Post-Calibration	None

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamplifier	PRMLxT1
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	A Weighting
OBA Max Spectrum	Bin Max
Overload	145.3 dB

Results

LAeq	70.1	
LAE	99.7	
EA	1.030517 mPa²h	
EA8	32.97655 mPa²h	
EA40	164.8828 mPa²h	
LApeak (max)	2024-01-31 19:49:22	103.1 dB
LASmax	2024-01-31 19:49:23	94.2 dB
LASmin	2024-01-31 19:51:56	50.5 dB

LCeq	75.9 dB
LAeq	70.1 dB
LCeq - LAeq	5.7 dB
LAIeq	73.1 dB
LAeq	70.1 dB
LAIeq - LAeq	3.0 dB
Overload Count	0
Overload Duration	0.0 s

Statistics

LA2.00	74.1 dB
LA8.00	70.3 dB
LA25.00	66.4 dB
LA50.00	62.4 dB
LA66.60	60.3 dB
LA90.00	57.1 dB

Measurement Report

Report Summary

Meter's File Name	LxT_Data.020.s	Computer's File Name	LxT_0003855-20240131 194040-LxT_Data.020.l
Meter	LxT1 0003855		
Firmware	2.404		
User	Ian Edward Gallagher	Location	NM11 34° 4'40.87"N 117°39'4.97"W
Job Description	15 minute noise measurement (1 x 15 minutes)		
Note	Ganddini Project 19702 UT1072 Downtown Recycled Water Pipeline Project, City of Ontario.		

Start Time	2024-01-31 19:40:40	Duration	0:15:00.0		
End Time	2024-01-31 19:55:40	Run Time	0:15:00.0	Pause Time	0:00:00.0

Results

Overall Metrics

LA_{eq}	70.1 dB		
LAE	99.7 dB	SEA	--- dB
EA	1.0 mPa²h	LAFTM5	75.6 dB
EA8	33.0 mPa²h		
EA40	164.9 mPa²h		

LA_{peak}	103.1 dB	2024-01-31 19:49:22
LAS_{max}	94.2 dB	2024-01-31 19:49:23
LAS_{min}	50.5 dB	2024-01-31 19:51:56

LA_{eq}	70.1 dB		
LC_{eq}	75.9 dB	LC_{eq} - LA_{eq}	5.7 dB
LAI_{eq}	73.1 dB	LAI_{eq} - LA_{eq}	3.0 dB

Exceedances	Count	Duration
LAS > 65.0 dB	30	0:05:57.4
LAS > 85.0 dB	1	0:00:04.5
LApeak > 135.0 dB	0	0:00:00.0
LApeak > 137.0 dB	0	0:00:00.0
LApeak > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight	
	--- dB	--- dB	0.0 dB	
	LDEN	LDay	LEve	LNight
	--- dB	--- dB	--- dB	--- dB

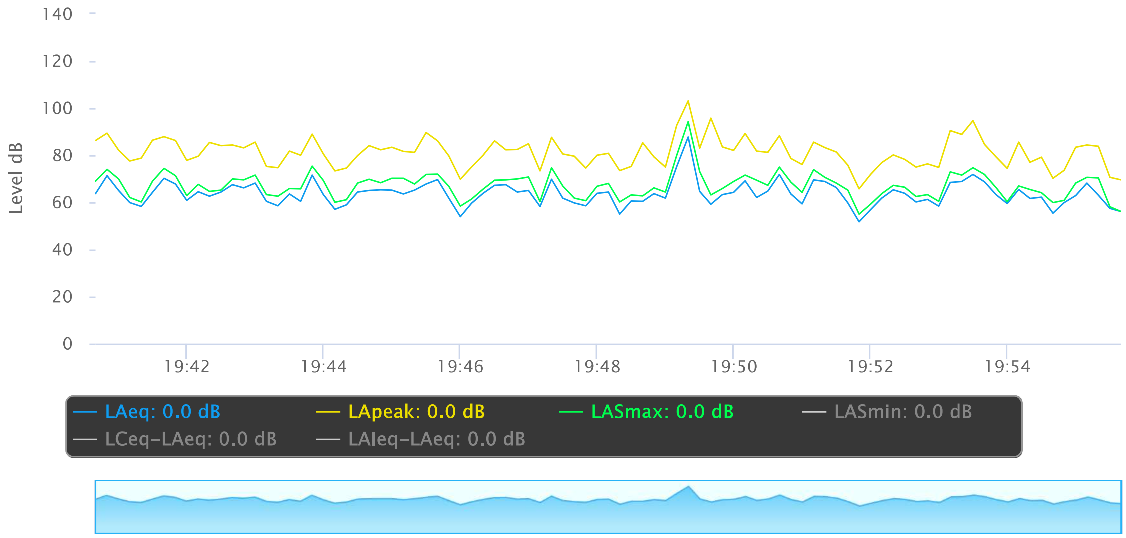
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	70.1 dB		75.9 dB		--- dB	
$Ls_{(max)}$	94.2 dB	2024-01-31 19:49:23	--- dB		--- dB	
$LS_{(min)}$	50.5 dB	2024-01-31 19:51:56	--- dB		--- dB	
$L_{Peak(max)}$	103.1 dB	2024-01-31 19:49:22	--- dB		--- dB	

Overloads	Count	Duration	OBA Count	OBA Duration
	0	0:00:00.0	0	0:00:00.0

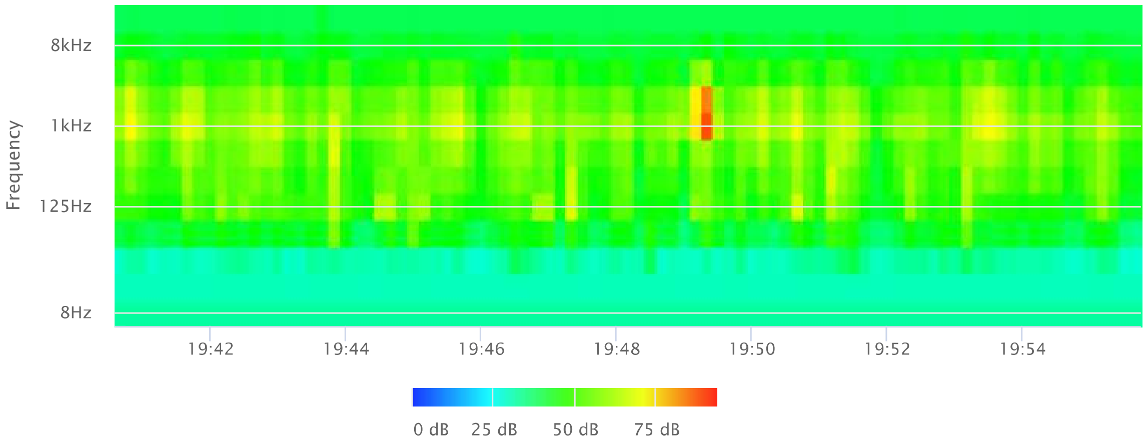
Statistics

LAS 2.0	74.1 dB
LAS 8.0	70.3 dB
LAS 25.0	66.4 dB
LAS 50.0	62.4 dB
LAS 66.6	60.3 dB
LAS 90.0	57.1 dB

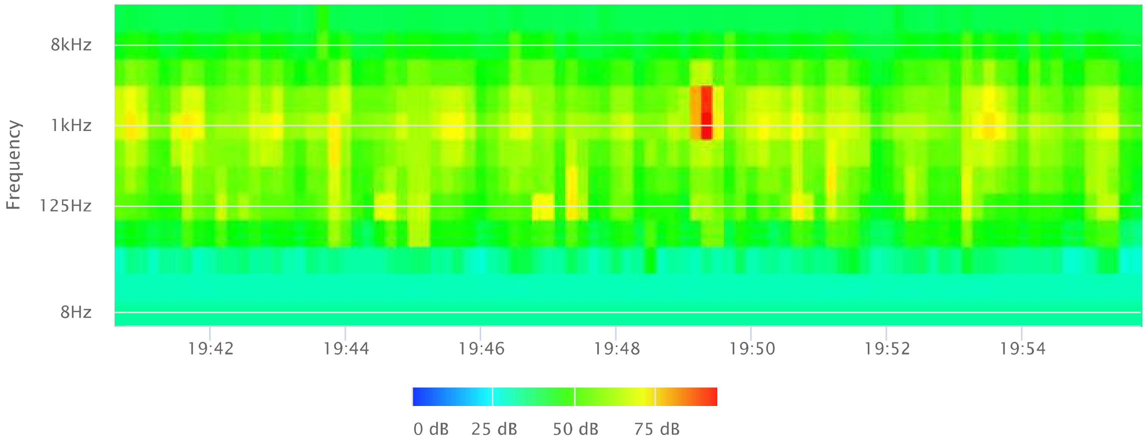
Time History



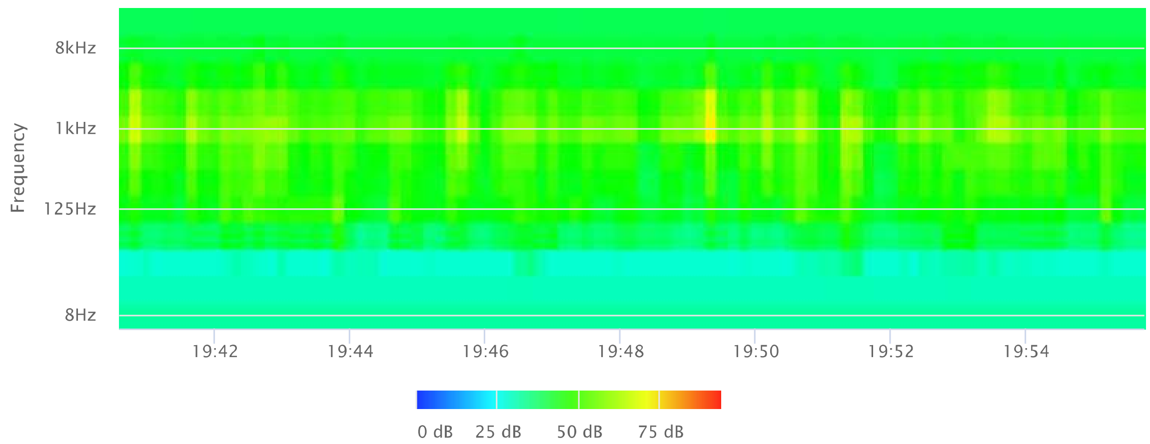
OBA 1/1 Leq



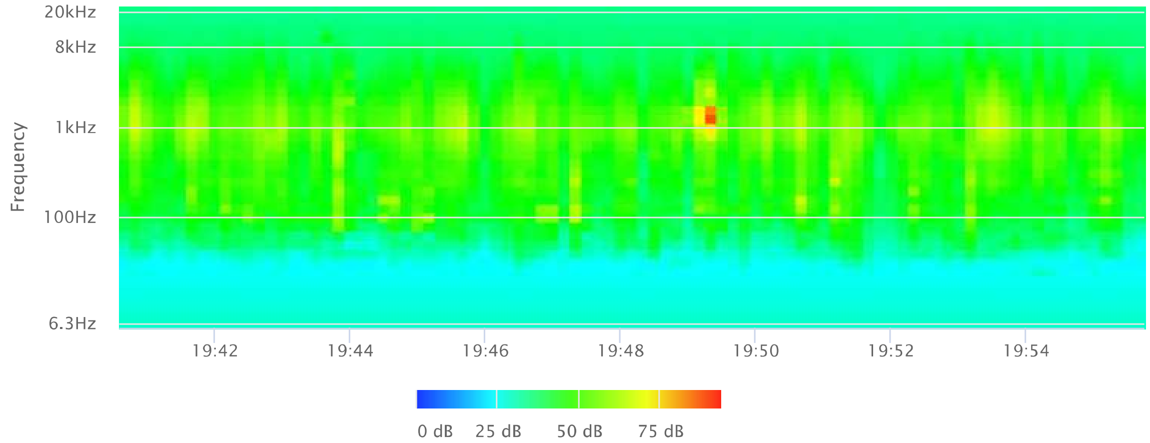
OBA 1/1 Lmax



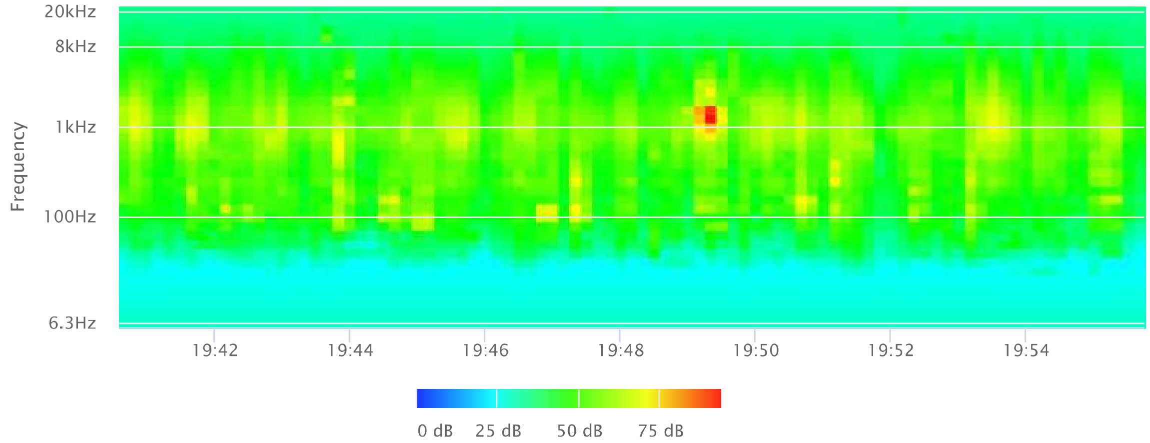
OBA 1/1 Lmin



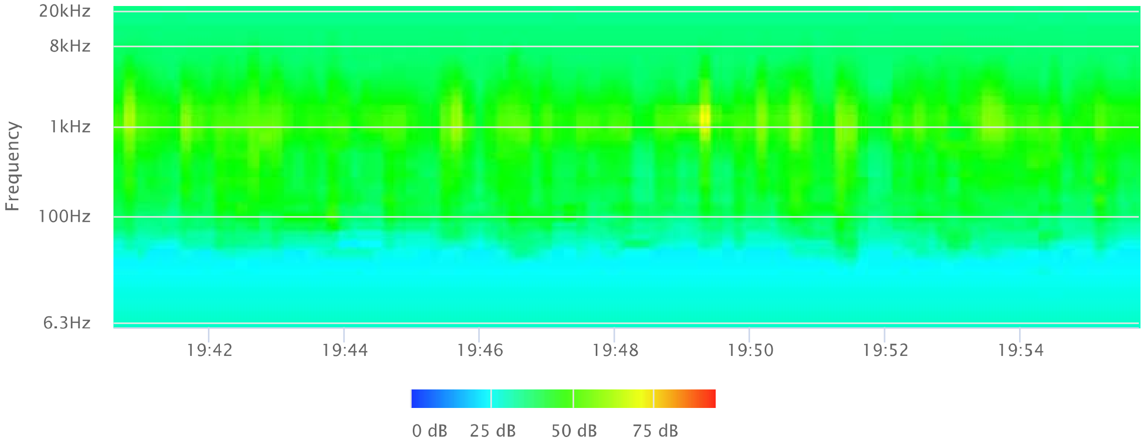
OBA 1/3 Leq



OBA 1/3 Lmax



OBA 1/3 Lmin


20kHz
8kHz
1kHz
100Hz
6.3Hz
Frequency
19:42
19:44
19:46
19:48
19:50
19:52
19:54
0 dB
25 dB
50 dB
75 dB

APPENDIX B

CONSTRUCTION NOISE MODELING

Receptor - Daycare along Segment 4 (Sunrise Children Center, 2049 E Riverside Drive, Ontario)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[2]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Needed BMP Reduction	Provided BMP Reduction[4]	With BMPs Implemented	Recommended BMP(s)[4]
Site Preparation [3]													
At Property Line													
Rubber Tired Dozers	1	82	45	40	0.40	0.9	-4.0	82.9	78.9		5.1	73.8	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	45	40	0.40	0.9	-4.0	84.9	80.9		5.1	75.8	Alternative Equipment, Muffler
Scraper	1	84	45	40	0.40	0.9	-4.0	84.9	80.9		5.1	75.8	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	45	20	0.20	0.9	-7.0	81.9	74.9		5.1	69.8	Alternative Equipment, Muffler
Plate Compactor	1	83	45	20	0.20	0.9	-7.0	83.9	76.9		5.1	71.8	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	45	40	0.40	0.9	-4.0	81.9	77.9		5.1	72.8	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	45	20	0.20	0.9	-7.0	80.9	73.9		5.1	68.8	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	45	50	0.50	0.9	-3.0	77.9	74.9		5.1	69.8	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	45	50	0.50	0.9	-3.0	80.9	77.9		5.1	72.8	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	45	50	1.00	0.9	0.0	81.9	81.9		5.1	76.8	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	45	20	0.20	0.9	-7.0	90.9	83.9		5.1	78.8	Alternative Equipment, Temporary Solid Barrier
Crane	1	81	45	16	0.16	0.9	-8.0	81.9	74.0		5.1	68.9	Alternative Equipment, Muffler
								Log Sum	90.1	5.1		85.0	
At Daycare Building													
Rubber Tired Dozers	1	82	175	40	0.40	-10.9	-4.0	71.1	67.1		5.1	62.0	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	175	40	0.40	-10.9	-4.0	73.1	69.1		5.1	64.0	Alternative Equipment, Muffler
Scraper	1	84	175	40	0.40	-10.9	-4.0	73.1	69.1		5.1	64.0	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	175	20	0.20	-10.9	-7.0	70.1	63.1		5.1	58.0	Alternative Equipment, Muffler
Plate Compactor	1	83	175	20	0.20	-10.9	-7.0	72.1	65.1		5.1	60.0	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	175	40	0.40	-10.9	-4.0	70.1	66.1		5.1	61.0	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	175	20	0.20	-10.9	-7.0	69.1	62.1		5.1	57.0	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	175	50	0.50	-10.9	-3.0	66.1	63.1		5.1	58.0	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	175	50	0.50	-10.9	-3.0	69.1	66.1		5.1	61.0	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	175	50	1.00	-10.9	0.0	70.1	70.1		5.1	65.0	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	175	20	0.20	-10.9	-7.0	79.1	72.1		5.1	67.0	Alternative Equipment, Temporary Solid Barrier
Crane	1	81	175	16	0.16	-10.9	-8.0	70.1	62.2		5.1	57.1	Alternative Equipment, Muffler
								Log Sum	78.3	-6.7		73.2	

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006).

(2) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

(3) As construction is not anticipated to be phased, to provide a conservative scenario, the entirety of the project has been analyzed as occurring in one construction phase (site preparation) with all proposed equipment in operation simultaneously.

(4) Alternative Equipment would be equipment that does the same job but with a lower sound level. A ten-foot barrier will provide at least 10 dB of sound reduction. After 10-feet, every additional 1 foot in height provides approximately 1 dB of reduction. Mufflers can be designed to provide up to 30 dB of sound reduction. As the project was modeled as one phase (site preparation), the needed BMP reduction was based on the receptor with the highest noise level above the threshold [Residential and Park uses along Segment 2 (457 Beverly, Ontario and James R Bryant Park].

Receptor - Residential along Segment 4 (2944 S Meadowbrook Place & 2945 S Pinehurst Court, Ontario)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[2]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Needed BMP Reduction	Provided BMP Reduction[4]	With BMPs Implemented	Recommended BMP(s)[4]
Site Preparation [3]													
At Property Line													
Rubber Tired Dozers	1	82	42	40	0.40	1.5	-4.0	83.5	79.5		10.7	68.8	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	42	40	0.40	1.5	-4.0	85.5	81.5		10.7	70.8	Alternative Equipment, Muffler
Scraper	1	84	42	40	0.40	1.5	-4.0	85.5	81.5		10.7	70.8	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	42	20	0.20	1.5	-7.0	82.5	75.5		10.7	64.8	Alternative Equipment, Muffler
Plate Compactor	1	83	42	20	0.20	1.5	-7.0	84.5	77.5		10.7	66.8	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	42	40	0.40	1.5	-4.0	82.5	78.5		10.7	67.8	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	42	20	0.20	1.5	-7.0	81.5	74.5		10.7	63.8	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	42	50	0.50	1.5	-3.0	78.5	75.5		10.7	64.8	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	42	50	0.50	1.5	-3.0	81.5	78.5		10.7	67.8	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	42	50	1.00	1.5	0.0	82.5	82.5		10.7	71.8	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	42	20	0.20	1.5	-7.0	91.5	84.5		10.7	73.8	Alternative Equipment, Muffler
Crane	1	81	42	16	0.16	1.5	-8.0	82.5	74.6		10.7	63.9	Alternative Equipment, Muffler
								Log Sum	90.7	10.7		80.0	
At Dwelling Unit													
Rubber Tired Dozers	1	82	51	40	0.40	-0.2	-4.0	81.8	77.8		10.7	67.1	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	51	40	0.40	-0.2	-4.0	83.8	79.8		10.7	69.1	Alternative Equipment, Muffler
Scraper	1	84	51	40	0.40	-0.2	-4.0	83.8	79.8		10.7	69.1	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	51	20	0.20	-0.2	-7.0	80.8	73.8		10.7	63.1	Alternative Equipment, Muffler
Plate Compactor	1	83	51	20	0.20	-0.2	-7.0	82.8	75.8		10.7	65.1	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	51	40	0.40	-0.2	-4.0	80.8	76.8		10.7	66.1	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	51	20	0.20	-0.2	-7.0	79.8	72.8		10.7	62.1	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	51	50	0.50	-0.2	-3.0	76.8	73.8		10.7	63.1	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	51	50	0.50	-0.2	-3.0	79.8	76.8		10.7	66.1	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	51	50	1.00	-0.2	0.0	80.8	80.8		10.7	70.1	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	51	20	0.20	-0.2	-7.0	89.8	82.8		10.7	72.1	Alternative Equipment, Temporary Solid Barrier
Crane	1	81	51	16	0.16	-0.2	-8.0	80.8	72.9		10.7	62.2	Alternative Equipment, Muffler
								Log Sum	89.0	9.0		78.3	

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006).

(2) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

(3) As construction is not anticipated to be phased, to provide a conservative scenario, the entirety of the project has been analyzed as occurring in one construction phase (site preparation) with all proposed equipment in operation simultaneously.

(4) Alternative Equipment would be equipment that does the same job but with a lower sound level. A ten-foot barrier will provide at least 10 dB of sound reduction. After 10-feet, every additional 1 foot in height provides approximately 1 dB of reduction. Mufflers can be designed to provide up to 30 dB of sound reduction. As the project was modeled as one phase (site preparation), the needed BMP reduction was based on the receptor with the highest noise level above the threshold [Residential and Park uses along Segment 2 (457 Beverly, Ontario and James R Bryant Park].

Receptor - Daycare along Segment 4 (Heavenly Care Daycare and Preschool, 1030 Riverside Dr, Ontario)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[2]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Needed BMP Reduction	Provided BMP Reduction[4]	With BMPs Implemented	Recommended BMP(s)[4]
Site Preparation [3]													
At Property Line													
Rubber Tired Dozers	1	82	50	40	0.40	0.0	-4.0	82.0	78.0		4.1	73.9	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	50	40	0.40	0.0	-4.0	84.0	80.0		4.1	75.9	Alternative Equipment, Muffler
Scraper	1	84	50	40	0.40	0.0	-4.0	84.0	80.0		4.1	75.9	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	50	20	0.20	0.0	-7.0	81.0	74.0		4.1	69.9	Alternative Equipment, Muffler
Plate Compactor	1	83	50	20	0.20	0.0	-7.0	83.0	76.0		4.1	71.9	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	50	40	0.40	0.0	-4.0	81.0	77.0		4.1	72.9	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	50	20	0.20	0.0	-7.0	80.0	73.0		4.1	68.9	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	50	50	0.50	0.0	-3.0	77.0	74.0		4.1	69.9	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	50	50	0.50	0.0	-3.0	80.0	77.0		4.1	72.9	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	50	50	1.00	0.0	0.0	81.0	81.0		4.1	76.9	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	50	20	0.20	0.0	-7.0	90.0	83.0		4.1	78.9	Alternative Equipment, Muffler
Crane	1	81	50	16	0.16	0.0	-8.0	81.0	73.0		4.1	68.9	Alternative Equipment, Muffler
								Log Sum	89.1	4.1		85.0	
At Daycare Building													
Rubber Tired Dozers	1	82	65	40	0.40	-2.3	-4.0	79.7	75.7		4.1	71.6	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	65	40	0.40	-2.3	-4.0	81.7	77.7		4.1	73.6	Alternative Equipment, Muffler
Scraper	1	84	65	40	0.40	-2.3	-4.0	81.7	77.7		4.1	73.6	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	65	20	0.20	-2.3	-7.0	78.7	71.7		4.1	67.6	Alternative Equipment, Muffler
Plate Compactor	1	83	65	20	0.20	-2.3	-7.0	80.7	73.7		4.1	69.6	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	65	40	0.40	-2.3	-4.0	78.7	74.7		4.1	70.6	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	65	20	0.20	-2.3	-7.0	77.7	70.7		4.1	66.6	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	65	50	0.50	-2.3	-3.0	74.7	71.7		4.1	67.6	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	65	50	0.50	-2.3	-3.0	77.7	74.7		4.1	70.6	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	65	50	1.00	-2.3	0.0	78.7	78.7		4.1	74.6	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	65	20	0.20	-2.3	-7.0	87.7	80.7		4.1	76.6	Alternative Equipment, Temporary Solid Barrier
Crane	1	81	65	16	0.16	-2.3	-8.0	78.7	70.8		4.1	66.7	Alternative Equipment, Muffler
								Log Sum	86.9	1.9		82.8	

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006).

(2) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

(3) As construction is not anticipated to be phased, to provide a conservative scenario, the entirety of the project has been analyzed as occurring in one construction phase (site preparation) with all proposed equipment in operation simultaneously.

(4) Alternative Equipment would be equipment that does the same job but with a lower sound level. A ten-foot barrier will provide at least 10 dB of sound reduction. After 10-feet, every additional 1 foot in height provides approximately 1 dB of reduction. Mufflers can be designed to provide up to 30 dB of sound reduction. As the project was modeled as one phase (site preparation), the needed BMP reduction was based on the receptor with the highest noise level above the threshold [Residential and Park uses along Segment 2 (457 Beverly, Ontario and James R Bryant Park].

Receptor - Residential along Segment 4 (Harris Place Apartments, 451 E Riverside Drive, Ontario)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[2]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Needed BMP Reduction	Provided BMP Reduction[4]	With BMPs Implemented	Recommended BMP(s)[4]
Site Preparation [3]													
At Property Line													
Rubber Tired Dozers	1	82	44	40	0.40	1.1	-4.0	83.1	79.1		10.3	68.8	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	44	40	0.40	1.1	-4.0	85.1	81.1		10.3	70.8	Alternative Equipment, Muffler
Scraper	1	84	44	40	0.40	1.1	-4.0	85.1	81.1		10.3	70.8	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	44	20	0.20	1.1	-7.0	82.1	75.1		10.3	64.8	Alternative Equipment, Muffler
Plate Compactor	1	83	44	20	0.20	1.1	-7.0	84.1	77.1		10.3	66.8	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	44	40	0.40	1.1	-4.0	82.1	78.1		10.3	67.8	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	44	20	0.20	1.1	-7.0	81.1	74.1		10.3	63.8	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	44	50	0.50	1.1	-3.0	78.1	75.1		10.3	64.8	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	44	50	0.50	1.1	-3.0	81.1	78.1		10.3	67.8	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	44	50	1.00	1.1	0.0	82.1	82.1		10.3	71.8	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	44	20	0.20	1.1	-7.0	91.1	84.1		10.3	73.8	Alternative Equipment, Muffler
Crane	1	81	44	16	0.16	1.1	-8.0	82.1	74.2		10.3	63.9	Alternative Equipment, Muffler
								Log Sum	90.3	10.3		80.0	
At Dwelling Unit													
Rubber Tired Dozers	1	82	92	40	0.40	-5.3	-4.0	76.7	72.7		10.3	62.4	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	92	40	0.40	-5.3	-4.0	78.7	74.7		10.3	64.4	Alternative Equipment, Muffler
Scraper	1	84	92	40	0.40	-5.3	-4.0	78.7	74.7		10.3	64.4	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	92	20	0.20	-5.3	-7.0	75.7	68.7		10.3	58.4	Alternative Equipment, Muffler
Plate Compactor	1	83	92	20	0.20	-5.3	-7.0	77.7	70.7		10.3	60.4	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	92	40	0.40	-5.3	-4.0	75.7	71.7		10.3	61.4	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	92	20	0.20	-5.3	-7.0	74.7	67.7		10.3	57.4	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	92	50	0.50	-5.3	-3.0	71.7	68.7		10.3	58.4	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	92	50	0.50	-5.3	-3.0	74.7	71.7		10.3	61.4	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	92	50	1.00	-5.3	0.0	75.7	75.7		10.3	65.4	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	92	20	0.20	-5.3	-7.0	84.7	77.7		10.3	67.4	Alternative Equipment, Temporary Solid Barrier
Crane	1	81	92	16	0.16	-5.3	-8.0	75.7	67.7		10.3	57.4	Alternative Equipment, Muffler
								Log Sum	83.8	3.8		73.5	

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006).

(2) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

(3) As construction is not anticipated to be phased, to provide a conservative scenario, the entirety of the project has been analyzed as occurring in one construction phase (site preparation) with all proposed equipment in operation simultaneously.

(4) Alternative Equipment would be equipment that does the same job but with a lower sound level. A ten-foot barrier will provide at least 10 dB of sound reduction. After 10-feet, every additional 1 foot in height provides approximately 1 dB of reduction. Mufflers can be designed to provide up to 30 dB of sound reduction. As the project was modeled as one phase (site preparation), the needed BMP reduction was based on the receptor with the highest noise level above the threshold [Residential and Park uses along Segment 2 (457 Beverly, Ontario and James R Bryant Park].

Receptor - Town Square & Commercial Uses along Segment 3 (Ontario Town Square, 24 N Euclid Avenue, Ontario)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[2]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Needed BMP Reduction	Provided BMP Reduction[4]	With BMPs Implemented	Recommended BMP(s)[4]
Site Preparation [3]													
At Property Line													
Rubber Tired Dozers	1	82	31	40	0.40	4.2	-4.0	86.2	82.2		8.3	73.9	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	31	40	0.40	4.2	-4.0	88.2	84.2		8.3	75.9	Alternative Equipment, Muffler
Scraper	1	84	31	40	0.40	4.2	-4.0	88.2	84.2		8.3	75.9	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	31	20	0.20	4.2	-7.0	85.2	78.2		8.3	69.9	Alternative Equipment, Muffler
Plate Compactor	1	83	31	20	0.20	4.2	-7.0	87.2	80.2		8.3	71.9	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	31	40	0.40	4.2	-4.0	85.2	81.2		8.3	72.9	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	31	20	0.20	4.2	-7.0	84.2	77.2		8.3	68.9	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	31	50	0.50	4.2	-3.0	81.2	78.1		8.3	69.8	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	31	50	0.50	4.2	-3.0	84.2	81.1		8.3	72.8	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	31	50	1.00	4.2	0.0	85.2	85.2		8.3	76.9	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	31	20	0.20	4.2	-7.0	94.2	87.2		8.3	78.9	Alternative Equipment, Muffler
Crane	1	81	31	16	0.16	4.2	-8.0	85.2	77.2		8.3	68.9	Alternative Equipment, Muffler
								Log Sum	93.3	8.3		85.0	
At Closest Building (along Segement 3)													
Rubber Tired Dozers	1	82	35	40	0.40	3.1	-4.0	85.1	81.1		8.3	72.8	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	35	40	0.40	3.1	-4.0	87.1	83.1		8.3	74.8	Alternative Equipment, Muffler
Scraper	1	84	35	40	0.40	3.1	-4.0	87.1	83.1		8.3	74.8	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	35	20	0.20	3.1	-7.0	84.1	77.1		8.3	68.8	Alternative Equipment, Muffler
Plate Compactor	1	83	35	20	0.20	3.1	-7.0	86.1	79.1		8.3	70.8	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	35	40	0.40	3.1	-4.0	84.1	80.1		8.3	71.8	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	35	20	0.20	3.1	-7.0	83.1	76.1		8.3	67.8	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	35	50	0.50	3.1	-3.0	80.1	77.1		8.3	68.8	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	35	50	0.50	3.1	-3.0	83.1	80.1		8.3	71.8	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	35	50	1.00	3.1	0.0	84.1	84.1		8.3	75.8	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	35	20	0.20	3.1	-7.0	93.1	86.1		8.3	77.8	Alternative Equipment, Temporary Solid Barrier
Crane	1	81	35	16	0.16	3.1	-8.0	84.1	76.1		8.3	67.8	Alternative Equipment, Muffler
								Log Sum	92.2	7.2		83.9	

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006).

(2) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

(3) As construction is not anticipated to be phased, to provide a conservative scenario, the entirety of the project has been analyzed as occurring in one construction phase (site preparation) with all proposed equipment in operation simultaneously.

(4) Alternative Equipment would be equipment that does the same job but with a lower sound level. A ten-foot barrier will provide at least 10 dB of sound reduction. After 10-feet, every additional 1 foot in height provides approximately 1 dB of reduction. Mufflers can be designed to provide up to 30 dB of sound reduction. As the project was modeled as one phase (site preparation), the needed BMP reduction was based on the receptor with the highest noise level above the threshold [Residential and Park uses along Segment 2 (457 Beverly, Ontario and James R Bryant Park].

Receptor - Residential and Park uses along Segment 2 (457 Beverly, Ontario and James R Bryant Park)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[2]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Needed BMP Reduction	Provided BMP Reduction[4]	With BMPs Implemented	Recommended BMP(s)[4]
Site Preparation [3]													
At Property Line													
Rubber Tired Dozers	1	82	28	40	0.40	5.0	-4.0	87.0	83.1		14.2	68.9	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	28	40	0.40	5.0	-4.0	89.0	85.1		14.2	70.9	Alternative Equipment, Muffler
Scraper	1	84	28	40	0.40	5.0	-4.0	89.0	85.1		14.2	70.9	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	28	20	0.20	5.0	-7.0	86.0	79.0		14.2	64.8	Alternative Equipment, Muffler
Plate Compactor	1	83	28	20	0.20	5.0	-7.0	88.0	81.0		14.2	66.8	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	28	40	0.40	5.0	-4.0	86.0	82.1		14.2	67.9	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	28	20	0.20	5.0	-7.0	85.0	78.0		14.2	63.8	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	28	50	0.50	5.0	-3.0	82.0	79.0		14.2	64.8	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	28	50	0.50	5.0	-3.0	85.0	82.0		14.2	67.8	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	28	50	1.00	5.0	0.0	86.0	86.0		14.2	71.8	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	28	20	0.20	5.0	-7.0	95.0	88.0		14.2	73.8	Alternative Equipment, Muffler
Crane	1	81	28	16	0.16	5.0	-8.0	86.0	78.1		14.2	63.9	Alternative Equipment, Muffler
								Log Sum	94.2	14.2		80.0	
At Dwelling Unit													
Rubber Tired Dozers	1	82	43	40	0.40	1.3	-4.0	83.3	79.3		14.2	65.1	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	43	40	0.40	1.3	-4.0	85.3	81.3		14.2	67.1	Alternative Equipment, Muffler
Scraper	1	84	43	40	0.40	1.3	-4.0	85.3	81.3		14.2	67.1	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	43	20	0.20	1.3	-7.0	82.3	75.3		14.2	61.1	Alternative Equipment, Muffler
Plate Compactor	1	83	43	20	0.20	1.3	-7.0	84.3	77.3		14.2	63.1	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	43	40	0.40	1.3	-4.0	82.3	78.3		14.2	64.1	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	43	20	0.20	1.3	-7.0	81.3	74.3		14.2	60.1	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	43	50	0.50	1.3	-3.0	78.3	75.3		14.2	61.1	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	43	50	0.50	1.3	-3.0	81.3	78.3		14.2	64.1	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	43	50	1.00	1.3	0.0	82.3	82.3		14.2	68.1	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	43	20	0.20	1.3	-7.0	91.3	84.3		14.2	70.1	Alternative Equipment, Temporary Solid Barrier
Crane	1	81	43	16	0.16	1.3	-8.0	82.3	74.4		14.2	60.2	Alternative Equipment, Muffler
								Log Sum	90.5	10.5		76.3	

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006).

(2) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

(3) As construction is not anticipated to be phased, to provide a conservative scenario, the entirety of the project has been analyzed as occurring in one construction phase (site preparation) with all proposed equipment in operation simultaneously.

(4) Alternative Equipment would be equipment that does the same job but with a lower sound level. A ten-foot barrier will provide at least 10 dB of sound reduction. After 10-feet, every additional 1 foot in height provides approximately 1 dB of reduction. Mufflers can be designed to provide up to 30 dB of sound reduction. As the project was modeled as one phase (site preparation), the needed BMP reduction was based on the receptor with the highest noise level above the threshold [Residential and Park uses along Segment 2 (457 Beverly, Ontario and James R Bryant Park].

Receptor - Residential uses along Segment 2 (526 N Vine Avenue, Ontario)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[2]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Needed BMP Reduction	Provided BMP Reduction[4]	With BMPs Implemented	Recommended BMP(s)[4]
Site Preparation [3]													
At Property Line													
Rubber Tired Dozers	1	82	32	40	0.40	3.9	-4.0	85.9	81.9		13.0	68.9	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	32	40	0.40	3.9	-4.0	87.9	83.9		13.0	70.9	Alternative Equipment, Muffler
Scraper	1	84	32	40	0.40	3.9	-4.0	87.9	83.9		13.0	70.9	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	32	20	0.20	3.9	-7.0	84.9	77.9		13.0	64.9	Alternative Equipment, Muffler
Plate Compactor	1	83	32	20	0.20	3.9	-7.0	86.9	79.9		13.0	66.9	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	32	40	0.40	3.9	-4.0	84.9	80.9		13.0	67.9	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	32	20	0.20	3.9	-7.0	83.9	76.9		13.0	63.9	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	32	50	0.50	3.9	-3.0	80.9	77.9		13.0	64.9	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	32	50	0.50	3.9	-3.0	83.9	80.9		13.0	67.9	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	32	50	1.00	3.9	0.0	84.9	84.9		13.0	71.9	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	32	20	0.20	3.9	-7.0	93.9	86.9		13.0	73.9	Alternative Equipment, Muffler
Crane	1	81	32	16	0.16	3.9	-8.0	84.9	76.9		13.0	63.9	Alternative Equipment, Muffler
								Log Sum	93.0	13.0		80.0	
At Dwelling Unit													
Rubber Tired Dozers	1	82	37	40	0.40	2.6	-4.0	84.6	80.6		13.0	67.6	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	37	40	0.40	2.6	-4.0	86.6	82.6		13.0	69.6	Alternative Equipment, Muffler
Scraper	1	84	37	40	0.40	2.6	-4.0	86.6	82.6		13.0	69.6	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	37	20	0.20	2.6	-7.0	83.6	76.6		13.0	63.6	Alternative Equipment, Muffler
Plate Compactor	1	83	37	20	0.20	2.6	-7.0	85.6	78.6		13.0	65.6	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	37	40	0.40	2.6	-4.0	83.6	79.6		13.0	66.6	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	37	20	0.20	2.6	-7.0	82.6	75.6		13.0	62.6	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	37	50	0.50	2.6	-3.0	79.6	76.6		13.0	63.6	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	37	50	0.50	2.6	-3.0	82.6	79.6		13.0	66.6	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	37	50	1.00	2.6	0.0	83.6	83.6		13.0	70.6	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	37	20	0.20	2.6	-7.0	92.6	85.6		13.0	72.6	Alternative Equipment, Temporary Solid Barrier
Crane	1	81	37	16	0.16	2.6	-8.0	83.6	75.7		13.0	62.7	Alternative Equipment, Muffler
								Log Sum	91.8	11.8		78.8	

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006).

(2) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

(3) As construction is not anticipated to be phased, to provide a conservative scenario, the entirety of the project has been analyzed as occurring in one construction phase (site preparation) with all proposed equipment in operation simultaneously.

(4) Alternative Equipment would be equipment that does the same job but with a lower sound level. A ten-foot barrier will provide at least 10 dB of sound reduction. After 10-feet, every additional 1 foot in height provides approximately 1 dB of reduction. Mufflers can be designed to provide up to 30 dB of sound reduction. As the project was modeled as one phase (site preparation), the needed BMP reduction was based on the receptor with the highest noise level above the threshold [Residential and Park uses along Segment 2 (157 Beverly, Ontario and James R Bryant Park].

Receptor - Residential uses along Segment 2 (312 W F Street, Ontario)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[2]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Needed BMP Reduction	Provided BMP Reduction[4]	With BMPs Implemented	Recommended BMP(s)[4]
Site Preparation [3]													
At Property Line													
Rubber Tired Dozers	1	82	32	40	0.40	3.9	-4.0	85.9	81.9		5.5	76.4	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	32	40	0.40	3.9	-4.0	87.9	83.9		5.5	78.4	Alternative Equipment, Muffler
Scraper	1	84	32	40	0.40	3.9	-4.0	87.9	83.9		5.5	78.4	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	32	20	0.20	3.9	-7.0	84.9	77.9		5.5	72.4	Alternative Equipment, Muffler
Plate Compactor	1	83	32	20	0.20	3.9	-7.0	86.9	79.9		5.5	74.4	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	32	40	0.40	3.9	-4.0	84.9	80.9		5.5	75.4	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	32	20	0.20	3.9	-7.0	83.9	76.9		5.5	71.4	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	32	50	0.50	3.9	-3.0	80.9	77.9		5.5	72.4	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	32	50	0.50	3.9	-3.0	83.9	80.9		5.5	75.4	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	32	50	1.00	3.9	0.0	84.9	84.9		5.5	79.4	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	32	20	0.20	3.9	-7.0	93.9	86.9		5.5	81.4	Alternative Equipment, Muffler
Crane	1	81	32	16	0.16	3.9	-8.0	84.9	76.9		5.5	71.4	Alternative Equipment, Muffler
								Log Sum	93.0	5.5		87.5	
At Dwelling Unit													
Rubber Tired Dozers	1	82	64	40	0.40	-2.1	-4.0	79.9	75.9		5.5	70.4	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	64	40	0.40	-2.1	-4.0	81.9	77.9		5.5	72.4	Alternative Equipment, Muffler
Scraper	1	84	64	40	0.40	-2.1	-4.0	81.9	77.9		5.5	72.4	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	64	20	0.20	-2.1	-7.0	78.9	71.9		5.5	66.4	Alternative Equipment, Muffler
Plate Compactor	1	83	64	20	0.20	-2.1	-7.0	80.9	73.9		5.5	68.4	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	64	40	0.40	-2.1	-4.0	78.9	74.9		5.5	69.4	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	64	20	0.20	-2.1	-7.0	77.9	70.9		5.5	65.4	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	64	50	0.50	-2.1	-3.0	74.9	71.8		5.5	66.3	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	64	50	0.50	-2.1	-3.0	77.9	74.8		5.5	69.3	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	64	50	1.00	-2.1	0.0	78.9	78.9		5.5	73.4	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	64	20	0.20	-2.1	-7.0	87.9	80.9		5.5	75.4	Alternative Equipment, Temporary Solid Barrier
Crane	1	81	64	16	0.16	-2.1	-8.0	78.9	70.9		5.5	65.4	Alternative Equipment, Muffler
								Log Sum	87.0	-0.5		81.5	

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006).

(2) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

(3) As construction is not anticipated to be phased, to provide a conservative scenario, the entirety of the project has been analyzed as occurring in one construction phase (site preparation) with all proposed equipment in operation simultaneously.

(4) Alternative Equipment would be equipment that does the same job but with a lower sound level. A ten-foot barrier will provide at least 10 dB of sound reduction. After 10-feet, every additional 1 foot in height provides approximately 1 dB of reduction. Mufflers can be designed to provide up to 30 dB of sound reduction. As the project was modeled as one phase (site preparation), the needed BMP reduction was based on the receptor with the highest noise level above the threshold [Residential and Park uses along Segment 2 (157 Beverly, Ontario and James R Bryant Park].

Receptor - Transient Lodging uses along Segment 1 (American Inn, 755 N Euclid Avenue, Ontario)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[2]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Needed BMP Reduction	Provided BMP Reduction[4]	With BMPs Implemented	Recommended BMP(s)[4]
Site Preparation [3]													
At Property Line													
Rubber Tired Dozers	1	82	145	40	0.40	-9.2	-4.0	72.8	68.8		0.0	68.8	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	145	40	0.40	-9.2	-4.0	74.8	70.8		0.0	70.8	Alternative Equipment, Muffler
Scraper	1	84	145	40	0.40	-9.2	-4.0	74.8	70.8		0.0	70.8	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	145	20	0.20	-9.2	-7.0	71.8	64.8		0.0	64.8	Alternative Equipment, Muffler
Plate Compactor	1	83	145	20	0.20	-9.2	-7.0	73.8	66.8		0.0	66.8	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	145	40	0.40	-9.2	-4.0	71.8	67.8		0.0	67.8	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	145	20	0.20	-9.2	-7.0	70.8	63.8		0.0	63.8	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	145	50	0.50	-9.2	-3.0	67.8	64.7		0.0	64.7	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	145	50	0.50	-9.2	-3.0	70.8	67.7		0.0	67.7	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	145	50	1.00	-9.2	0.0	71.8	71.8		0.0	71.8	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	145	20	0.20	-9.2	-7.0	80.8	73.8		0.0	73.8	Alternative Equipment, Muffler
Crane	1	81	145	16	0.16	-9.2	-8.0	71.8	63.8		0.0	63.8	Alternative Equipment, Muffler
								Log Sum	79.9	-0.1		79.9	
At Motel Building													
Rubber Tired Dozers	1	82	152	40	0.40	-9.7	-4.0	72.3	68.4		0.0	68.4	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	152	40	0.40	-9.7	-4.0	74.3	70.4		0.0	70.4	Alternative Equipment, Muffler
Scraper	1	84	152	40	0.40	-9.7	-4.0	74.3	70.4		0.0	70.4	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	152	20	0.20	-9.7	-7.0	71.3	64.4		0.0	64.4	Alternative Equipment, Muffler
Plate Compactor	1	83	152	20	0.20	-9.7	-7.0	73.3	66.4		0.0	66.4	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	152	40	0.40	-9.7	-4.0	71.3	67.4		0.0	67.4	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	152	20	0.20	-9.7	-7.0	70.3	63.4		0.0	63.4	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	152	50	0.50	-9.7	-3.0	67.3	64.3		0.0	64.3	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	152	50	0.50	-9.7	-3.0	70.3	67.3		0.0	67.3	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	152	50	1.00	-9.7	0.0	71.3	71.3		0.0	71.3	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	152	20	0.20	-9.7	-7.0	80.3	73.4		0.0	73.4	Alternative Equipment, Temporary Solid Barrier
Crane	1	81	152	16	0.16	-9.7	-8.0	71.3	63.4		0.0	63.4	Alternative Equipment, Muffler
								Log Sum	79.5	-0.5		79.5	

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006).

(2) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

(3) As construction is not anticipated to be phased, to provide a conservative scenario, the entirety of the project has been analyzed as occurring in one construction phase (site preparation) with all proposed equipment in operation simultaneously.

(4) Alternative Equipment would be equipment that does the same job but with a lower sound level. A ten-foot barrier will provide at least 10 dB of sound reduction. After 10-feet, every additional 1 foot in height provides approximately 1 dB of reduction. Mufflers can be designed to provide up to 30 dB of sound reduction. As the project was modeled as one phase (site preparation), the needed BMP reduction was based on the receptor with the highest noise level above the threshold [Residential and Park uses along Segment 2 (457 Beverly, Ontario and James R Bryant Park].

Receptor - Residential uses along Segment 1 (938 Euclid Avenue, Ontario)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[2]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Needed BMP Reduction	Provided BMP Reduction[4]	With BMPs Implemented	Recommended BMP(s)[4]
***Site Preparation* [3]**													
At Property Line													
Rubber Tired Dozers	1	82	49	40	0.40	0.2	-4.0	82.2	78.2		9.3	68.9	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	49	40	0.40	0.2	-4.0	84.2	80.2		9.3	70.9	Alternative Equipment, Muffler
Scraper	1	84	49	40	0.40	0.2	-4.0	84.2	80.2		9.3	70.9	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	49	20	0.20	0.2	-7.0	81.2	74.2		9.3	64.9	Alternative Equipment, Muffler
Plate Compactor	1	83	49	20	0.20	0.2	-7.0	83.2	76.2		9.3	66.9	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	49	40	0.40	0.2	-4.0	81.2	77.2		9.3	67.9	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	49	20	0.20	0.2	-7.0	80.2	73.2		9.3	63.9	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	49	50	0.50	0.2	-3.0	77.2	74.2		9.3	64.9	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	49	50	0.50	0.2	-3.0	80.2	77.2		9.3	67.9	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	49	50	1.00	0.2	0.0	81.2	81.2		9.3	71.9	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	49	20	0.20	0.2	-7.0	90.2	83.2		9.3	73.9	Alternative Equipment, Muffler
Crane	1	81	49	16	0.16	0.2	-8.0	81.2	73.2		9.3	63.9	Alternative Equipment, Muffler
								Log Sum	89.3	9.3		80.0	
At Dwelling Unit													
Rubber Tired Dozers	1	82	88	40	0.40	-4.9	-4.0	77.1	73.1		9.3	63.8	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	88	40	0.40	-4.9	-4.0	79.1	75.1		9.3	65.8	Alternative Equipment, Muffler
Scraper	1	84	88	40	0.40	-4.9	-4.0	79.1	75.1		9.3	65.8	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	88	20	0.20	-4.9	-7.0	76.1	69.1		9.3	59.8	Alternative Equipment, Muffler
Plate Compactor	1	83	88	20	0.20	-4.9	-7.0	78.1	71.1		9.3	61.8	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	88	40	0.40	-4.9	-4.0	76.1	72.1		9.3	62.8	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	88	20	0.20	-4.9	-7.0	75.1	68.1		9.3	58.8	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	88	50	0.50	-4.9	-3.0	72.1	69.1		9.3	59.8	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	88	50	0.50	-4.9	-3.0	75.1	72.1		9.3	62.8	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	88	50	1.00	-4.9	0.0	76.1	76.1		9.3	66.8	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	88	20	0.20	-4.9	-7.0	85.1	78.1		9.3	68.8	Alternative Equipment, Temporary Solid Barrier
Crane	1	81	88	16	0.16	-4.9	-8.0	76.1	68.1		9.3	58.8	Alternative Equipment, Muffler
								Log Sum	84.2	4.2		74.9	

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006).

(2) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

(3) As construction is not anticipated to be phased, to provide a conservative scenario, the entirety of the project has been analyzed as occurring in one construction phase (site preparation) with all proposed equipment in operation simultaneously.

(4) Alternative Equipment would be equipment that does the same job but with a lower sound level. A ten-foot barrier will provide at least 10 dB of sound reduction. After 10-feet, every additional 1 foot in height provides approximately 1 dB of reduction. Mufflers can be designed to provide up to 30 dB of sound reduction. As the project was modeled as one phase (site preparation), the needed BMP reduction was based on the receptor with the highest noise level above the threshold [Residential and Park uses along Segment 2 (157 Beverly, Ontario and James R Bryant Park].

Receptor - School uses along Segment 1 (Chaffey High School, 1245 N Euclid Avenue, Ontario)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[2]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Needed BMP Reduction	Provided BMP Reduction[4]	With BMPs Implemented	Recommended BMP(s)[4]
Site Preparation [3]													
At Property Line													
Rubber Tired Dozers	1	82	145	40	0.40	-9.2	-4.0	72.8	68.8		0.0	68.8	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	145	40	0.40	-9.2	-4.0	74.8	70.8		0.0	70.8	Alternative Equipment, Muffler
Scraper	1	84	145	40	0.40	-9.2	-4.0	74.8	70.8		0.0	70.8	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	145	20	0.20	-9.2	-7.0	71.8	64.8		0.0	64.8	Alternative Equipment, Muffler
Plate Compactor	1	83	145	20	0.20	-9.2	-7.0	73.8	66.8		0.0	66.8	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	145	40	0.40	-9.2	-4.0	71.8	67.8		0.0	67.8	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	145	20	0.20	-9.2	-7.0	70.8	63.8		0.0	63.8	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	145	50	0.50	-9.2	-3.0	67.8	64.7		0.0	64.7	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	145	50	0.50	-9.2	-3.0	70.8	67.7		0.0	67.7	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	145	50	1.00	-9.2	0.0	71.8	71.8		0.0	71.8	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	145	20	0.20	-9.2	-7.0	80.8	73.8		0.0	73.8	Alternative Equipment, Muffler
Crane	1	81	145	16	0.16	-9.2	-8.0	71.8	63.8		0.0	63.8	Alternative Equipment, Muffler
								Log Sum	79.9	-5.1		79.9	
At Closest School Building													
Rubber Tired Dozers	1	82	260	40	0.40	-14.3	-4.0	67.7	63.7		0.0	63.7	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	260	40	0.40	-14.3	-4.0	69.7	65.7		0.0	65.7	Alternative Equipment, Muffler
Scraper	1	84	260	40	0.40	-14.3	-4.0	69.7	65.7		0.0	65.7	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	260	20	0.20	-14.3	-7.0	66.7	59.7		0.0	59.7	Alternative Equipment, Muffler
Plate Compactor	1	83	260	20	0.20	-14.3	-7.0	68.7	61.7		0.0	61.7	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	260	40	0.40	-14.3	-4.0	66.7	62.7		0.0	62.7	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	260	20	0.20	-14.3	-7.0	65.7	58.7		0.0	58.7	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	260	50	0.50	-14.3	-3.0	62.7	59.7		0.0	59.7	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	260	50	0.50	-14.3	-3.0	65.7	62.7		0.0	62.7	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	260	50	1.00	-14.3	0.0	66.7	66.7		0.0	66.7	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	260	20	0.20	-14.3	-7.0	75.7	68.7		0.0	68.7	Alternative Equipment, Temporary Solid Barrier
Crane	1	81	260	16	0.16	-14.3	-8.0	66.7	58.7		0.0	58.7	Alternative Equipment, Muffler
								Log Sum	74.8	-10.2		74.8	

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006).

(2) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

(3) As construction is not anticipated to be phased, to provide a conservative scenario, the entirety of the project has been analyzed as occurring in one construction phase (site preparation) with all proposed equipment in operation simultaneously.

(4) Alternative Equipment would be equipment that does the same job but with a lower sound level. A ten-foot barrier will provide at least 10 dB of sound reduction. After 10-feet, every additional 1 foot in height provides approximately 1 dB of reduction. Mufflers can be designed to provide up to 30 dB of sound reduction. As the project was modeled as one phase (site preparation), the needed BMP reduction was based on the receptor with the highest noise level above the threshold [Residential and Park uses along Segment 2 (457 Beverly, Ontario and James R Bryant Park].

Receptor - Daycare along Segment 4 (Sunrise Children Center, 2049 E Riverside Drive, Ontario) (Second Day)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[2]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Needed BMP Reduction	Provided BMP Reduction[4]	With BMPs Implemented	Recommended BMP(s)[4]
***Site Preparation* [3]**													
At Property Line													
Rubber Tired Dozers	1	82	115	40	0.40	-7.2	-4.0	74.8	70.8		5.6	65.2	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	115	40	0.40	-7.2	-4.0	76.8	72.8		5.6	67.2	Alternative Equipment, Muffler
Scraper	1	84	115	40	0.40	-7.2	-4.0	76.8	72.8		5.6	67.2	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	115	20	0.20	-7.2	-7.0	73.8	66.8		5.6	61.2	Alternative Equipment, Muffler
Plate Compactor	1	83	115	20	0.20	-7.2	-7.0	75.8	68.8		5.6	63.2	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	115	40	0.40	-7.2	-4.0	73.8	69.8		5.6	64.2	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	115	20	0.20	-7.2	-7.0	72.8	65.8		5.6	60.2	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	115	50	0.50	-7.2	-3.0	69.8	66.8		5.6	61.2	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	115	50	0.50	-7.2	-3.0	72.8	69.8		5.6	64.2	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	115	50	1.00	-7.2	0.0	73.8	73.8		5.6	68.2	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	115	20	0.20	-7.2	-7.0	82.8	75.8		5.6	70.2	Alternative Equipment, Temporary Solid Barrier
Crane	1	81	115	16	0.16	-7.2	-8.0	73.8	65.8		5.6	60.2	Alternative Equipment, Muffler
								Log Sum	81.9	-3.1		76.3	
At Daycare Building													
Rubber Tired Dozers	1	82	245	40	0.40	-13.8	-4.0	68.2	64.2		5.6	58.6	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	245	40	0.40	-13.8	-4.0	70.2	66.2		5.6	60.6	Alternative Equipment, Muffler
Scraper	1	84	245	40	0.40	-13.8	-4.0	70.2	66.2		5.6	60.6	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	245	20	0.20	-13.8	-7.0	67.2	60.2		5.6	54.6	Alternative Equipment, Muffler
Plate Compactor	1	83	245	20	0.20	-13.8	-7.0	69.2	62.2		5.6	56.6	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	245	40	0.40	-13.8	-4.0	67.2	63.2		5.6	57.6	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	245	20	0.20	-13.8	-7.0	66.2	59.2		5.6	53.6	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	245	50	0.50	-13.8	-3.0	63.2	60.2		5.6	54.6	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	245	50	0.50	-13.8	-3.0	66.2	63.2		5.6	57.6	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	245	50	1.00	-13.8	0.0	67.2	67.2		5.6	61.6	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	245	20	0.20	-13.8	-7.0	76.2	69.2		5.6	63.6	Alternative Equipment, Temporary Solid Barrier
Crane	1	81	245	16	0.16	-13.8	-8.0	67.2	59.2		5.6	53.6	Alternative Equipment, Muffler
								Log Sum	75.3	-9.7		69.7	

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006).

(2) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

(3) As construction is not anticipated to be phased, to provide a conservative scenario, the entirety of the project has been analyzed as occurring in one construction phase (site preparation) with all proposed equipment in operation simultaneously.

(4) Alternative Equipment would be equipment that does the same job but with a lower sound level. A ten-foot barrier will provide at least 10 dB of sound reduction. After 10-feet, every additional 1 foot in height provides approximately 1 dB of reduction. Mufflers can be designed to provide up to 30 dB of sound reduction. As the project was modeled as one phase (site preparation), the needed BMP reduction was based on the receptor with the highest noise level above the threshold [Residential and Park uses along Segment 2 (457 Beverly, Ontario and James R Bryant Park].

Receptor - Daycare along Segment 4 (Sunrise Children Center, 2049 E Riverside Drive, Ontario) (Second Day)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[2]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Needed BMP Reduction	Provided BMP Reduction[4]	With BMPs Implemented	Recommended BMP(s)[4]
Site Preparation [3]													
At Property Line													
Rubber Tired Dozers	1	82	112	40	0.40	-7.0	-4.0	75.0	71.0		11.2	59.8	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	112	40	0.40	-7.0	-4.0	77.0	73.0		11.2	61.8	Alternative Equipment, Muffler
Scraper	1	84	112	40	0.40	-7.0	-4.0	77.0	73.0		11.2	61.8	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	112	20	0.20	-7.0	-7.0	74.0	67.0		11.2	55.8	Alternative Equipment, Muffler
Plate Compactor	1	83	112	20	0.20	-7.0	-7.0	76.0	69.0		11.2	57.8	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	112	40	0.40	-7.0	-4.0	74.0	70.0		11.2	58.8	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	112	20	0.20	-7.0	-7.0	73.0	66.0		11.2	54.8	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	112	50	0.50	-7.0	-3.0	70.0	67.0		11.2	55.8	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	112	50	0.50	-7.0	-3.0	73.0	70.0		11.2	58.8	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	112	50	1.00	-7.0	0.0	74.0	74.0		11.2	62.8	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	112	20	0.20	-7.0	-7.0	83.0	76.0		11.2	64.8	Alternative Equipment, Muffler
Crane	1	81	112	16	0.16	-7.0	-8.0	74.0	66.0		11.2	54.8	Alternative Equipment, Muffler
								Log Sum	82.1	2.1		70.9	
At Dwelling Unit													
Rubber Tired Dozers	1	82	121	40	0.40	-7.7	-4.0	74.3	70.3		11.2	59.1	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	121	40	0.40	-7.7	-4.0	76.3	72.3		11.2	61.1	Alternative Equipment, Muffler
Scraper	1	84	121	40	0.40	-7.7	-4.0	76.3	72.3		11.2	61.1	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	121	20	0.20	-7.7	-7.0	73.3	66.3		11.2	55.1	Alternative Equipment, Muffler
Plate Compactor	1	83	121	20	0.20	-7.7	-7.0	75.3	68.3		11.2	57.1	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	121	40	0.40	-7.7	-4.0	73.3	69.3		11.2	58.1	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	121	20	0.20	-7.7	-7.0	72.3	65.3		11.2	54.1	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	121	50	0.50	-7.7	-3.0	69.3	66.3		11.2	55.1	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	121	50	0.50	-7.7	-3.0	72.3	69.3		11.2	58.1	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	121	50	1.00	-7.7	0.0	73.3	73.3		11.2	62.1	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	121	20	0.20	-7.7	-7.0	82.3	75.3		11.2	64.1	Alternative Equipment, Temporary Solid Barrier
Crane	1	81	121	16	0.16	-7.7	-8.0	73.3	65.4		11.2	54.2	Alternative Equipment, Muffler
								Log Sum	81.5	1.5		70.3	

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006).

(2) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

(3) As construction is not anticipated to be phased, to provide a conservative scenario, the entirety of the project has been analyzed as occurring in one construction phase (site preparation) with all proposed equipment in operation simultaneously.

(4) Alternative Equipment would be equipment that does the same job but with a lower sound level. A ten-foot barrier will provide at least 10 dB of sound reduction. After 10-feet, every additional 1 foot in height provides approximately 1 dB of reduction. Mufflers can be designed to provide up to 30 dB of sound reduction. As the project was modeled as one phase (site preparation), the needed BMP reduction was based on the receptor with the highest noise level above the threshold [Residential and Park uses along Segment 2 (457 Beverly, Ontario and James R Bryant Park].

Receptor - Daycare along Segment 4 (Sunrise Children Center, 2049 E Riverside Drive, Ontario) (Second Day)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[2]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Needed BMP Reduction	Provided BMP Reduction[4]	With BMPs Implemented	Recommended BMP(s)[4]
Site Preparation [3]													
At Property Line													
Rubber Tired Dozers	1	82	120	40	0.40	-7.6	-4.0	74.4	70.4		4.6	65.8	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	120	40	0.40	-7.6	-4.0	76.4	72.4		4.6	67.8	Alternative Equipment, Muffler
Scraper	1	84	120	40	0.40	-7.6	-4.0	76.4	72.4		4.6	67.8	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	120	20	0.20	-7.6	-7.0	73.4	66.4		4.6	61.8	Alternative Equipment, Muffler
Plate Compactor	1	83	120	20	0.20	-7.6	-7.0	75.4	68.4		4.6	63.8	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	120	40	0.40	-7.6	-4.0	73.4	69.4		4.6	64.8	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	120	20	0.20	-7.6	-7.0	72.4	65.4		4.6	60.8	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	120	50	0.50	-7.6	-3.0	69.4	66.4		4.6	61.8	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	120	50	0.50	-7.6	-3.0	72.4	69.4		4.6	64.8	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	120	50	1.00	-7.6	0.0	73.4	73.4		4.6	68.8	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	120	20	0.20	-7.6	-7.0	82.4	75.4		4.6	70.8	Alternative Equipment, Muffler
Crane	1	81	120	16	0.16	-7.6	-8.0	73.4	65.4		4.6	60.8	Alternative Equipment, Muffler
								Log Sum	81.5	-3.5		76.9	
At Daycare Building													
Rubber Tired Dozers	1	82	135	40	0.40	-8.6	-4.0	73.4	69.4		4.6	64.8	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	135	40	0.40	-8.6	-4.0	75.4	71.4		4.6	66.8	Alternative Equipment, Muffler
Scraper	1	84	135	40	0.40	-8.6	-4.0	75.4	71.4		4.6	66.8	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	135	20	0.20	-8.6	-7.0	72.4	65.4		4.6	60.8	Alternative Equipment, Muffler
Plate Compactor	1	83	135	20	0.20	-8.6	-7.0	74.4	67.4		4.6	62.8	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	135	40	0.40	-8.6	-4.0	72.4	68.4		4.6	63.8	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	135	20	0.20	-8.6	-7.0	71.4	64.4		4.6	59.8	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	135	50	0.50	-8.6	-3.0	68.4	65.4		4.6	60.8	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	135	50	0.50	-8.6	-3.0	71.4	68.4		4.6	63.8	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	135	50	1.00	-8.6	0.0	72.4	72.4		4.6	67.8	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	135	20	0.20	-8.6	-7.0	81.4	74.4		4.6	69.8	Alternative Equipment, Temporary Solid Barrier
Crane	1	81	135	16	0.16	-8.6	-8.0	72.4	64.4		4.6	59.8	Alternative Equipment, Muffler
								Log Sum	80.5	-4.5		75.9	

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006).

(2) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

(3) As construction is not anticipated to be phased, to provide a conservative scenario, the entirety of the project has been analyzed as occurring in one construction phase (site preparation) with all proposed equipment in operation simultaneously.

(4) Alternative Equipment would be equipment that does the same job but with a lower sound level. A ten-foot barrier will provide at least 10 dB of sound reduction. After 10-feet, every additional 1 foot in height provides approximately 1 dB of reduction. Mufflers can be designed to provide up to 30 dB of sound reduction. As the project was modeled as one phase (site preparation), the needed BMP reduction was based on the receptor with the highest noise level above the threshold [Residential and Park uses along Segment 2 (457 Beverly, Ontario and James R Bryant Park].

Receptor - Daycare along Segment 4 (Sunrise Children Center, 2049 E Riverside Drive, Ontario) (Second Day)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[2]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Needed BMP Reduction	Provided BMP Reduction[4]	With BMPs Implemented	Recommended BMP(s)[4]
***Site Preparation* [3]**													
At Property Line													
Rubber Tired Dozers	1	82	114	40	0.40	-7.2	-4.0	74.8	70.9		10.8	60.1	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	114	40	0.40	-7.2	-4.0	76.8	72.9		10.8	62.1	Alternative Equipment, Muffler
Scraper	1	84	114	40	0.40	-7.2	-4.0	76.8	72.9		10.8	62.1	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	114	20	0.20	-7.2	-7.0	73.8	66.9		10.8	56.1	Alternative Equipment, Muffler
Plate Compactor	1	83	114	20	0.20	-7.2	-7.0	75.8	68.9		10.8	58.1	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	114	40	0.40	-7.2	-4.0	73.8	69.9		10.8	59.1	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	114	20	0.20	-7.2	-7.0	72.8	65.9		10.8	55.1	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	114	50	0.50	-7.2	-3.0	69.8	66.8		10.8	56.0	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	114	50	0.50	-7.2	-3.0	72.8	69.8		10.8	59.0	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	114	50	1.00	-7.2	0.0	73.8	73.8		10.8	63.0	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	114	20	0.20	-7.2	-7.0	82.8	75.9		10.8	65.1	Alternative Equipment, Muffler
Crane	1	81	114	16	0.16	-7.2	-8.0	73.8	65.9		10.8	55.1	Alternative Equipment, Muffler
								Log Sum	82.0	2.0		71.2	
At Dwelling Unit													
Rubber Tired Dozers	1	82	162	40	0.40	-10.2	-4.0	71.8	67.8		10.8	57.0	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	162	40	0.40	-10.2	-4.0	73.8	69.8		10.8	59.0	Alternative Equipment, Muffler
Scraper	1	84	162	40	0.40	-10.2	-4.0	73.8	69.8		10.8	59.0	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	162	20	0.20	-10.2	-7.0	70.8	63.8		10.8	53.0	Alternative Equipment, Muffler
Plate Compactor	1	83	162	20	0.20	-10.2	-7.0	72.8	65.8		10.8	55.0	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	162	40	0.40	-10.2	-4.0	70.8	66.8		10.8	56.0	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	162	20	0.20	-10.2	-7.0	69.8	62.8		10.8	52.0	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	162	50	0.50	-10.2	-3.0	66.8	63.8		10.8	53.0	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	162	50	0.50	-10.2	-3.0	69.8	66.8		10.8	56.0	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	162	50	1.00	-10.2	0.0	70.8	70.8		10.8	60.0	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	162	20	0.20	-10.2	-7.0	79.8	72.8		10.8	62.0	Alternative Equipment, Temporary Solid Barrier
Crane	1	81	162	16	0.16	-10.2	-8.0	70.8	62.8		10.8	52.0	Alternative Equipment, Muffler
								Log Sum	78.9	-1.1		68.1	

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006).

(2) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

(3) As construction is not anticipated to be phased, to provide a conservative scenario, the entirety of the project has been analyzed as occurring in one construction phase (site preparation) with all proposed equipment in operation simultaneously.

(4) Alternative Equipment would be equipment that does the same job but with a lower sound level. A ten-foot barrier will provide at least 10 dB of sound reduction. After 10-feet, every additional 1 foot in height provides approximately 1 dB of reduction. Mufflers can be designed to provide up to 30 dB of sound reduction. As the project was modeled as one phase (site preparation), the needed BMP reduction was based on the receptor with the highest noise level above the threshold [Residential and Park uses along Segment 2 (457 Beverly, Ontario and James R Bryant Park].

Receptor - Daycare along Segment 4 (Sunrise Children Center, 2049 E Riverside Drive, Ontario) (Second Day)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[2]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Needed BMP Reduction	Provided BMP Reduction[4]	With BMPs Implemented	Recommended BMP(s)[4]
Site Preparation [3]													
At Property Line													
Rubber Tired Dozers	1	82	101	40	0.40	-6.1	-4.0	75.9	71.9		8.8	63.1	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	101	40	0.40	-6.1	-4.0	77.9	73.9		8.8	65.1	Alternative Equipment, Muffler
Scraper	1	84	101	40	0.40	-6.1	-4.0	77.9	73.9		8.8	65.1	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	101	20	0.20	-6.1	-7.0	74.9	67.9		8.8	59.1	Alternative Equipment, Muffler
Plate Compactor	1	83	101	20	0.20	-6.1	-7.0	76.9	69.9		8.8	61.1	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	101	40	0.40	-6.1	-4.0	74.9	70.9		8.8	62.1	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	101	20	0.20	-6.1	-7.0	73.9	66.9		8.8	58.1	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	101	50	0.50	-6.1	-3.0	70.9	67.9		8.8	59.1	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	101	50	0.50	-6.1	-3.0	73.9	70.9		8.8	62.1	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	101	50	1.00	-6.1	0.0	74.9	74.9		8.8	66.1	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	101	20	0.20	-6.1	-7.0	83.9	76.9		8.8	68.1	Alternative Equipment, Muffler
Crane	1	81	101	16	0.16	-6.1	-8.0	74.9	66.9		8.8	58.1	Alternative Equipment, Muffler
								Log Sum	83.0	-2.0		74.2	
At Closest Building (along Segement 3)													
Rubber Tired Dozers	1	82	105	40	0.40	-6.4	-4.0	75.6	71.6		8.8	62.8	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	105	40	0.40	-6.4	-4.0	77.6	73.6		8.8	64.8	Alternative Equipment, Muffler
Scraper	1	84	105	40	0.40	-6.4	-4.0	77.6	73.6		8.8	64.8	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	105	20	0.20	-6.4	-7.0	74.6	67.6		8.8	58.8	Alternative Equipment, Muffler
Plate Compactor	1	83	105	20	0.20	-6.4	-7.0	76.6	69.6		8.8	60.8	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	105	40	0.40	-6.4	-4.0	74.6	70.6		8.8	61.8	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	105	20	0.20	-6.4	-7.0	73.6	66.6		8.8	57.8	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	105	50	0.50	-6.4	-3.0	70.6	67.5		8.8	58.7	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	105	50	0.50	-6.4	-3.0	73.6	70.5		8.8	61.7	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	105	50	1.00	-6.4	0.0	74.6	74.6		8.8	65.8	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	105	20	0.20	-6.4	-7.0	83.6	76.6		8.8	67.8	Alternative Equipment, Temporary Solid Barrier
Crane	1	81	105	16	0.16	-6.4	-8.0	74.6	66.6		8.8	57.8	Alternative Equipment, Muffler
								Log Sum	82.7	-2.3		73.9	

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006).

(2) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

(3) As construction is not anticipated to be phased, to provide a conservative scenario, the entirety of the project has been analyzed as occurring in one construction phase (site preparation) with all proposed equipment in operation simultaneously.

(4) Alternative Equipment would be equipment that does the same job but with a lower sound level. A ten-foot barrier will provide at least 10 dB of sound reduction. After 10-feet, every additional 1 foot in height provides approximately 1 dB of reduction. Mufflers can be designed to provide up to 30 dB of sound reduction. As the project was modeled as one phase (site preparation), the needed BMP reduction was based on the receptor with the highest noise level above the threshold [Residential and Park uses along Segment 2 (457 Beverly, Ontario and James R Bryant Park].

Receptor - Daycare along Segment 4 (Sunrise Children Center, 2049 E Riverside Drive, Ontario) (Second Day)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[2]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Needed BMP Reduction	Provided BMP Reduction[4]	With BMPs Implemented	Recommended BMP(s)[4]
Site Preparation [3]													
At Property Line													
Rubber Tired Dozers	1	82	98	40	0.40	-5.8	-4.0	76.2	72.2		14.7	57.5	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	98	40	0.40	-5.8	-4.0	78.2	74.2		14.7	59.5	Alternative Equipment, Muffler
Scraper	1	84	98	40	0.40	-5.8	-4.0	78.2	74.2		14.7	59.5	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	98	20	0.20	-5.8	-7.0	75.2	68.2		14.7	53.5	Alternative Equipment, Muffler
Plate Compactor	1	83	98	20	0.20	-5.8	-7.0	77.2	70.2		14.7	55.5	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	98	40	0.40	-5.8	-4.0	75.2	71.2		14.7	56.5	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	98	20	0.20	-5.8	-7.0	74.2	67.2		14.7	52.5	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	98	50	0.50	-5.8	-3.0	71.2	68.1		14.7	53.4	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	98	50	0.50	-5.8	-3.0	74.2	71.1		14.7	56.4	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	98	50	1.00	-5.8	0.0	75.2	75.2		14.7	60.5	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	98	20	0.20	-5.8	-7.0	84.2	77.2		14.7	62.5	Alternative Equipment, Muffler
Crane	1	81	98	16	0.16	-5.8	-8.0	75.2	67.2		14.7	52.5	Alternative Equipment, Muffler
								Log Sum	83.3	3.3		68.6	
At Dwelling Unit													
Rubber Tired Dozers	1	82	113	40	0.40	-7.1	-4.0	74.9	70.9		14.7	56.2	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	113	40	0.40	-7.1	-4.0	76.9	72.9		14.7	58.2	Alternative Equipment, Muffler
Scraper	1	84	113	40	0.40	-7.1	-4.0	76.9	72.9		14.7	58.2	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	113	20	0.20	-7.1	-7.0	73.9	66.9		14.7	52.2	Alternative Equipment, Muffler
Plate Compactor	1	83	113	20	0.20	-7.1	-7.0	75.9	68.9		14.7	54.2	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	113	40	0.40	-7.1	-4.0	73.9	69.9		14.7	55.2	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	113	20	0.20	-7.1	-7.0	72.9	65.9		14.7	51.2	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	113	50	0.50	-7.1	-3.0	69.9	66.9		14.7	52.2	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	113	50	0.50	-7.1	-3.0	72.9	69.9		14.7	55.2	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	113	50	1.00	-7.1	0.0	73.9	73.9		14.7	59.2	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	113	20	0.20	-7.1	-7.0	82.9	75.9		14.7	61.2	Alternative Equipment, Temporary Solid Barrier
Crane	1	81	113	16	0.16	-7.1	-8.0	73.9	66.0		14.7	51.3	Alternative Equipment, Muffler
								Log Sum	82.1	2.1		67.4	

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006).

(2) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

(3) As construction is not anticipated to be phased, to provide a conservative scenario, the entirety of the project has been analyzed as occurring in one construction phase (site preparation) with all proposed equipment in operation simultaneously.

(4) Alternative Equipment would be equipment that does the same job but with a lower sound level. A ten-foot barrier will provide at least 10 dB of sound reduction. After 10-feet, every additional 1 foot in height provides approximately 1 dB of reduction. Mufflers can be designed to provide up to 30 dB of sound reduction. As the project was modeled as one phase (site preparation), the needed BMP reduction was based on the receptor with the highest noise level above the threshold [Residential and Park uses along Segment 2 (457 Beverly, Ontario and James R Bryant Park].

Receptor - Daycare along Segment 4 (Sunrise Children Center, 2049 E Riverside Drive, Ontario) (Second Day)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[2]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Needed BMP Reduction	Provided BMP Reduction[4]	With BMPs Implemented	Recommended BMP(s)[4]
Site Preparation [3]													
At Property Line													
Rubber Tired Dozers	1	82	102	40	0.40	-6.2	-4.0	75.8	71.8		13.5	58.3	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	102	40	0.40	-6.2	-4.0	77.8	73.8		13.5	60.3	Alternative Equipment, Muffler
Scraper	1	84	102	40	0.40	-6.2	-4.0	77.8	73.8		13.5	60.3	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	102	20	0.20	-6.2	-7.0	74.8	67.8		13.5	54.3	Alternative Equipment, Muffler
Plate Compactor	1	83	102	20	0.20	-6.2	-7.0	76.8	69.8		13.5	56.3	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	102	40	0.40	-6.2	-4.0	74.8	70.8		13.5	57.3	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	102	20	0.20	-6.2	-7.0	73.8	66.8		13.5	53.3	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	102	50	0.50	-6.2	-3.0	70.8	67.8		13.5	54.3	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	102	50	0.50	-6.2	-3.0	73.8	70.8		13.5	57.3	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	102	50	1.00	-6.2	0.0	74.8	74.8		13.5	61.3	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	102	20	0.20	-6.2	-7.0	83.8	76.8		13.5	63.3	Alternative Equipment, Muffler
Crane	1	81	102	16	0.16	-6.2	-8.0	74.8	66.8		13.5	53.3	Alternative Equipment, Muffler
								Log Sum	83.0	3.0		69.5	
At Dwelling Unit													
Rubber Tired Dozers	1	82	107	40	0.40	-6.6	-4.0	75.4	71.4		13.5	57.9	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	107	40	0.40	-6.6	-4.0	77.4	73.4		13.5	59.9	Alternative Equipment, Muffler
Scraper	1	84	107	40	0.40	-6.6	-4.0	77.4	73.4		13.5	59.9	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	107	20	0.20	-6.6	-7.0	74.4	67.4		13.5	53.9	Alternative Equipment, Muffler
Plate Compactor	1	83	107	20	0.20	-6.6	-7.0	76.4	69.4		13.5	55.9	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	107	40	0.40	-6.6	-4.0	74.4	70.4		13.5	56.9	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	107	20	0.20	-6.6	-7.0	73.4	66.4		13.5	52.9	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	107	50	0.50	-6.6	-3.0	70.4	67.4		13.5	53.9	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	107	50	0.50	-6.6	-3.0	73.4	70.4		13.5	56.9	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	107	50	1.00	-6.6	0.0	74.4	74.4		13.5	60.9	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	107	20	0.20	-6.6	-7.0	83.4	76.4		13.5	62.9	Alternative Equipment, Temporary Solid Barrier
Crane	1	81	107	16	0.16	-6.6	-8.0	74.4	66.4		13.5	52.9	Alternative Equipment, Muffler
								Log Sum	82.5	2.5		69.0	

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006).

(2) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

(3) As construction is not anticipated to be phased, to provide a conservative scenario, the entirety of the project has been analyzed as occurring in one construction phase (site preparation) with all proposed equipment in operation simultaneously.

(4) Alternative Equipment would be equipment that does the same job but with a lower sound level. A ten-foot barrier will provide at least 10 dB of sound reduction. After 10-feet, every additional 1 foot in height provides approximately 1 dB of reduction. Mufflers can be designed to provide up to 30 dB of sound reduction. As the project was modeled as one phase (site preparation), the needed BMP reduction was based on the receptor with the highest noise level above the threshold [Residential and Park uses along Segment 2 (157 Beverly, Ontario and James R Bryant Park].

Receptor - Daycare along Segment 4 (Sunrise Children Center, 2049 E Riverside Drive, Ontario) (Second Day)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[2]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Needed BMP Reduction	Provided BMP Reduction[4]	With BMPs Implemented	Recommended BMP(s)[4]
Site Preparation [3]													
At Property Line													
Rubber Tired Dozers	1	82	102	40	0.40	-6.2	-4.0	75.8	71.8		6.0	65.8	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	102	40	0.40	-6.2	-4.0	77.8	73.8		6.0	67.8	Alternative Equipment, Muffler
Scraper	1	84	102	40	0.40	-6.2	-4.0	77.8	73.8		6.0	67.8	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	102	20	0.20	-6.2	-7.0	74.8	67.8		6.0	61.8	Alternative Equipment, Muffler
Plate Compactor	1	83	102	20	0.20	-6.2	-7.0	76.8	69.8		6.0	63.8	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	102	40	0.40	-6.2	-4.0	74.8	70.8		6.0	64.8	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	102	20	0.20	-6.2	-7.0	73.8	66.8		6.0	60.8	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	102	50	0.50	-6.2	-3.0	70.8	67.8		6.0	61.8	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	102	50	0.50	-6.2	-3.0	73.8	70.8		6.0	64.8	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	102	50	1.00	-6.2	0.0	74.8	74.8		6.0	68.8	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	102	20	0.20	-6.2	-7.0	83.8	76.8		6.0	70.8	Alternative Equipment, Muffler
Crane	1	81	102	16	0.16	-6.2	-8.0	74.8	66.8		6.0	60.8	Alternative Equipment, Muffler
								Log Sum	83.0	-4.5		77.0	
At Dwelling Unit													
Rubber Tired Dozers	1	82	134	40	0.40	-8.6	-4.0	73.4	69.5		13.5	56.0	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	134	40	0.40	-8.6	-4.0	75.4	71.5		13.5	58.0	Alternative Equipment, Muffler
Scraper	1	84	134	40	0.40	-8.6	-4.0	75.4	71.5		13.5	58.0	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	134	20	0.20	-8.6	-7.0	72.4	65.4		13.5	51.9	Alternative Equipment, Muffler
Plate Compactor	1	83	134	20	0.20	-8.6	-7.0	74.4	67.4		13.5	53.9	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	134	40	0.40	-8.6	-4.0	72.4	68.5		13.5	55.0	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	134	20	0.20	-8.6	-7.0	71.4	64.4		13.5	50.9	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	134	50	0.50	-8.6	-3.0	68.4	65.4		13.5	51.9	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	134	50	0.50	-8.6	-3.0	71.4	68.4		13.5	54.9	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	134	50	1.00	-8.6	0.0	72.4	72.4		13.5	58.9	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	134	20	0.20	-8.6	-7.0	81.4	74.4		13.5	60.9	Alternative Equipment, Temporary Solid Barrier
Crane	1	81	134	16	0.16	-8.6	-8.0	72.4	64.5		13.5	51.0	Alternative Equipment, Muffler
								Log Sum	80.6	-6.9		67.1	

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006).

(2) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

(3) As construction is not anticipated to be phased, to provide a conservative scenario, the entirety of the project has been analyzed as occurring in one construction phase (site preparation) with all proposed equipment in operation simultaneously.

(4) Alternative Equipment would be equipment that does the same job but with a lower sound level. A ten-foot barrier will provide at least 10 dB of sound reduction. After 10-feet, every additional 1 foot in height provides approximately 1 dB of reduction. Mufflers can be designed to provide up to 30 dB of sound reduction. As the project was modeled as one phase (site preparation), the needed BMP reduction was based on the receptor with the highest noise level above the threshold [Residential and Park uses along Segment 2 (457 Beverly, Ontario and James R Bryant Park].

Receptor - Daycare along Segment 4 (Sunrise Children Center, 2049 E Riverside Drive, Ontario) (Second Day)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[2]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Needed BMP Reduction	Provided BMP Reduction[4]	With BMPs Implemented	Recommended BMP(s)[4]
Site Preparation [3]													
At Property Line													
Rubber Tired Dozers	1	82	215	40	0.40	-12.7	-4.0	69.3	65.4		0.0	65.4	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	215	40	0.40	-12.7	-4.0	71.3	67.4		0.0	67.4	Alternative Equipment, Muffler
Scraper	1	84	215	40	0.40	-12.7	-4.0	71.3	67.4		0.0	67.4	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	215	20	0.20	-12.7	-7.0	68.3	61.3		0.0	61.3	Alternative Equipment, Muffler
Plate Compactor	1	83	215	20	0.20	-12.7	-7.0	70.3	63.3		0.0	63.3	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	215	40	0.40	-12.7	-4.0	68.3	64.4		0.0	64.4	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	215	20	0.20	-12.7	-7.0	67.3	60.3		0.0	60.3	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	215	50	0.50	-12.7	-3.0	64.3	61.3		0.0	61.3	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	215	50	0.50	-12.7	-3.0	67.3	64.3		0.0	64.3	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	215	50	1.00	-12.7	0.0	68.3	68.3		0.0	68.3	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	215	20	0.20	-12.7	-7.0	77.3	70.3		0.0	70.3	Alternative Equipment, Muffler
Crane	1	81	215	16	0.16	-12.7	-8.0	68.3	60.4		0.0	60.4	Alternative Equipment, Muffler
								Log Sum	76.5	-3.5		76.5	
At Motel Building													
Rubber Tired Dozers	1	82	222	40	0.40	-12.9	-4.0	69.1	65.1		0.0	65.1	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	222	40	0.40	-12.9	-4.0	71.1	67.1		0.0	67.1	Alternative Equipment, Muffler
Scraper	1	84	222	40	0.40	-12.9	-4.0	71.1	67.1		0.0	67.1	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	222	20	0.20	-12.9	-7.0	68.1	61.1		0.0	61.1	Alternative Equipment, Muffler
Plate Compactor	1	83	222	20	0.20	-12.9	-7.0	70.1	63.1		0.0	63.1	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	222	40	0.40	-12.9	-4.0	68.1	64.1		0.0	64.1	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	222	20	0.20	-12.9	-7.0	67.1	60.1		0.0	60.1	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	222	50	0.50	-12.9	-3.0	64.1	61.0		0.0	61.0	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	222	50	0.50	-12.9	-3.0	67.1	64.0		0.0	64.0	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	222	50	1.00	-12.9	0.0	68.1	68.1		0.0	68.1	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	222	20	0.20	-12.9	-7.0	77.1	70.1		0.0	70.1	Alternative Equipment, Temporary Solid Barrier
Crane	1	81	222	16	0.16	-12.9	-8.0	68.1	60.1		0.0	60.1	Alternative Equipment, Muffler
								Log Sum	76.2	-3.8		76.2	

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006).

(2) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

(3) As construction is not anticipated to be phased, to provide a conservative scenario, the entirety of the project has been analyzed as occurring in one construction phase (site preparation) with all proposed equipment in operation simultaneously.

(4) Alternative Equipment would be equipment that does the same job but with a lower sound level. A ten-foot barrier will provide at least 10 dB of sound reduction. After 10-feet, every additional 1 foot in height provides approximately 1 dB of reduction. Mufflers can be designed to provide up to 30 dB of sound reduction. As the project was modeled as one phase (site preparation), the needed BMP reduction was based on the receptor with the highest noise level above the threshold [Residential and Park uses along Segment 2 (457 Beverly, Ontario and James R Bryant Park].

Receptor - Daycare along Segment 4 (Sunrise Children Center, 2049 E Riverside Drive, Ontario) (Second Day)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[2]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Needed BMP Reduction	Provided BMP Reduction[4]	With BMPs Implemented	Recommended BMP(s)[4]
***Site Preparation* [3]**													
At Property Line													
Rubber Tired Dozers	1	82	119	40	0.40	-7.5	-4.0	74.5	70.5		9.8	60.7	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	119	40	0.40	-7.5	-4.0	76.5	72.5		9.8	62.7	Alternative Equipment, Muffler
Scraper	1	84	119	40	0.40	-7.5	-4.0	76.5	72.5		9.8	62.7	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	119	20	0.20	-7.5	-7.0	73.5	66.5		9.8	56.7	Alternative Equipment, Muffler
Plate Compactor	1	83	119	20	0.20	-7.5	-7.0	75.5	68.5		9.8	58.7	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	119	40	0.40	-7.5	-4.0	73.5	69.5		9.8	59.7	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	119	20	0.20	-7.5	-7.0	72.5	65.5		9.8	55.7	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	119	50	0.50	-7.5	-3.0	69.5	66.5		9.8	56.7	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	119	50	0.50	-7.5	-3.0	72.5	69.5		9.8	59.7	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	119	50	1.00	-7.5	0.0	73.5	73.5		9.8	63.7	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	119	20	0.20	-7.5	-7.0	82.5	75.5		9.8	65.7	Alternative Equipment, Muffler
Crane	1	81	119	16	0.16	-7.5	-8.0	73.5	65.5		9.8	55.7	Alternative Equipment, Muffler
								Log Sum	81.6	1.6		71.8	
At Dwelling Unit													
Rubber Tired Dozers	1	82	158	40	0.40	-10.0	-4.0	72.0	68.0		9.8	58.2	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	158	40	0.40	-10.0	-4.0	74.0	70.0		9.8	60.2	Alternative Equipment, Muffler
Scraper	1	84	158	40	0.40	-10.0	-4.0	74.0	70.0		9.8	60.2	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	158	20	0.20	-10.0	-7.0	71.0	64.0		9.8	54.2	Alternative Equipment, Muffler
Plate Compactor	1	83	158	20	0.20	-10.0	-7.0	73.0	66.0		9.8	56.2	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	158	40	0.40	-10.0	-4.0	71.0	67.0		9.8	57.2	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	158	20	0.20	-10.0	-7.0	70.0	63.0		9.8	53.2	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	158	50	0.50	-10.0	-3.0	67.0	64.0		9.8	54.2	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	158	50	0.50	-10.0	-3.0	70.0	67.0		9.8	57.2	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	158	50	1.00	-10.0	0.0	71.0	71.0		9.8	61.2	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	158	20	0.20	-10.0	-7.0	80.0	73.0		9.8	63.2	Alternative Equipment, Temporary Solid Barrier
Crane	1	81	158	16	0.16	-10.0	-8.0	71.0	63.0		9.8	53.2	Alternative Equipment, Muffler
								Log Sum	79.1	-0.9		69.3	

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006).

(2) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

(3) As construction is not anticipated to be phased, to provide a conservative scenario, the entirety of the project has been analyzed as occurring in one construction phase (site preparation) with all proposed equipment in operation simultaneously.

(4) Alternative Equipment would be equipment that does the same job but with a lower sound level. A ten-foot barrier will provide at least 10 dB of sound reduction. After 10-feet, every additional 1 foot in height provides approximately 1 dB of reduction. Mufflers can be designed to provide up to 30 dB of sound reduction. As the project was modeled as one phase (site preparation), the needed BMP reduction was based on the receptor with the highest noise level above the threshold [Residential and Park uses along Segment 2 (157 Beverly, Ontario and James R Bryant Park].

Receptor - Daycare along Segment 4 (Sunrise Children Center, 2049 E Riverside Drive, Ontario) (Second Day)

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Distance to Receptor[2]	Item Usage Percent	Usage Factor	Dist. Correction dB	Usage Adj. dB	Receptor Item Lmax, dBA	Receptor Item Leq, dBA	Needed BMP Reduction	Provided BMP Reduction[4]	With BMPs Implemented	Recommended BMP(s)[4]
Site Preparation [3]													
At Property Line													
Rubber Tired Dozers	1	82	215	40	0.40	-12.7	-4.0	69.3	65.4		0.0	65.4	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	215	40	0.40	-12.7	-4.0	71.3	67.4		0.0	67.4	Alternative Equipment, Muffler
Scraper	1	84	215	40	0.40	-12.7	-4.0	71.3	67.4		0.0	67.4	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	215	20	0.20	-12.7	-7.0	68.3	61.3		0.0	61.3	Alternative Equipment, Muffler
Plate Compactor	1	83	215	20	0.20	-12.7	-7.0	70.3	63.3		0.0	63.3	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	215	40	0.40	-12.7	-4.0	68.3	64.4		0.0	64.4	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	215	20	0.20	-12.7	-7.0	67.3	60.3		0.0	60.3	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	215	50	0.50	-12.7	-3.0	64.3	61.3		0.0	61.3	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	215	50	0.50	-12.7	-3.0	67.3	64.3		0.0	64.3	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	215	50	1.00	-12.7	0.0	68.3	68.3		0.0	68.3	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	215	20	0.20	-12.7	-7.0	77.3	70.3		0.0	70.3	Alternative Equipment, Muffler
Crane	1	81	215	16	0.16	-12.7	-8.0	68.3	60.4		0.0	60.4	Alternative Equipment, Muffler
								Log Sum	76.5	-8.5		76.5	
At Closest School Building													
Rubber Tired Dozers	1	82	330	40	0.40	-16.4	-4.0	65.6	61.6		0.0	61.6	Alternative Equipment, Muffler
Tractors/Loaders/Backhoes/Skid Steer	1	84	330	40	0.40	-16.4	-4.0	67.6	63.6		0.0	63.6	Alternative Equipment, Muffler
Scraper	1	84	330	40	0.40	-16.4	-4.0	67.6	63.6		0.0	63.6	Alternative Equipment, Muffler
Off Highway Truck (concrete pump truck)	1	81	330	20	0.20	-16.4	-7.0	64.6	57.6		0.0	57.6	Alternative Equipment, Muffler
Plate Compactor	1	83	330	20	0.20	-16.4	-7.0	66.6	59.6		0.0	59.6	Alternative Equipment, Temporary Solid Barrier
Excavator	1	81	330	40	0.40	-16.4	-4.0	64.6	60.6		0.0	60.6	Alternative Equipment, Muffler
Other material handling (Vibratory Concrete Mixer)	1	80	330	20	0.20	-16.4	-7.0	63.6	56.6		0.0	56.6	Alternative Equipment, Temporary Solid Barrier
Paving equipment (Paver)	1	77	330	50	0.50	-16.4	-3.0	60.6	57.6		0.0	57.6	Alternative Equipment, Muffler
Other construction (slurry trenching machine)	1	80	330	50	0.50	-16.4	-3.0	63.6	60.6		0.0	60.6	Alternative Equipment, Temporary Solid Barrier
Pumps	2	81	330	50	1.00	-16.4	0.0	64.6	64.6		0.0	64.6	Alternative Equipment, Temporary Solid Barrier
Surfacing equipment (Pavement Scarifier)	1	90	330	20	0.20	-16.4	-7.0	73.6	66.6		0.0	66.6	Alternative Equipment, Temporary Solid Barrier
Crane	1	81	330	16	0.16	-16.4	-8.0	64.6	56.7		0.0	56.7	Alternative Equipment, Muffler
								Log Sum	72.8	-12.2		72.8	

Notes:

(1) Source: Referenced noise levels from the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual (September 2018) and the FHWA Roadway Construction Noise Model User's Guide (January 2006).

(2) Distance to receptor calculated from center of site. Construction noise projected from the center of the project site to nearest sensitive use (property line).

(3) As construction is not anticipated to be phased, to provide a conservative scenario, the entirety of the project has been analyzed as occurring in one construction phase (site preparation) with all proposed equipment in operation simultaneously.

(4) Alternative Equipment would be equipment that does the same job but with a lower sound level. A ten-foot barrier will provide at least 10 dB of sound reduction. After 10-feet, every additional 1 foot in height provides approximately 1 dB of reduction. Mufflers can be designed to provide up to 30 dB of sound reduction. As the project was modeled as one phase (site preparation), the needed BMP reduction was based on the receptor with the highest noise level above the threshold [Residential and Park uses along Segment 2 (457 Beverly, Ontario and James R Bryant Park].

APPENDIX C

PROJECT CONSTRUCTION GENERATED TRIPS FHWA WORKSHEETS

FHWA Traffic Noise Prediction Model FHWA-RD-77-108

Existing Traffic Noise

Project: **19702 UT1072 Downtown Recycled Water Pipeline**
Road: **Riverside Drive**
Segment: **In Vicnity of Project Site**

		DAYTIME			EVENING			NIGHTTIME		ADT	12467.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	50.00
--	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	-----------------------	DISTANCE	32.00
INPUT PARAMETERS											
Vehicles per hour	722.05	14.96	24.93	536.08	2.49	4.16	132.98	20.78	34.63	% A	92
Speed in MPH	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	3
NOISE CALCULATIONS											
Reference levels	71.12	78.79	83.02	71.12	78.79	83.02	71.12	78.79	83.02	% HT	5
ADJUSTMENTS											
Flow	21.29	4.45	6.67	20.00	-3.33	-1.11	13.94	5.88	8.10		
Distance	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	76.50
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	71.47
LEQ	69.28	60.12	66.56	67.98	52.33	58.78	61.93	61.54	67.99	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	71.47		EVENING LEQ	68.58		NIGHT LEQ	69.67		Use hour?	no
										GRADE dB	0.00
		CNEL	**76.50**								

FHWA Traffic Noise Prediction Model FHWA-RD-77-108

Existing Plus Project Traffic Noise

Project: **19702 UT1072 Downtown Recycled Water Pipeline**
Road: **Riverside Drive**
Segment: **In Vicnity of Project Site**

		DAYTIME			EVENING			NIGHTTIME		ADT	12503.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	50.00
										DISTANCE	32.00
INPUT PARAMETERS											
Vehicles per hour	724.06	14.96	25.09	537.58	2.49	4.18	133.35	20.78	34.85	% A	91.99
Speed in MPH	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	2.99
NOISE CALCULATIONS											
Reference levels	71.12	78.79	83.02	71.12	78.79	83.02	71.12	78.79	83.02	% HT	5.02
ADJUSTMENTS											
Flow	21.30	4.45	6.70	20.01	-3.33	-1.08	13.95	5.88	8.13		
Distance	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	1.87	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	76.52
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	71.49
LEQ	69.29	60.12	66.59	68.00	52.33	58.81	61.94	61.54	68.02	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	71.49		EVENING LEQ	68.60		NIGHT LEQ	69.70		Use hour?	no
										GRADE dB	0.00
		CNEL	**76.52**								

FHWA Traffic Noise Prediction Model FHWA-RD-77-108

Existing Traffic Noise

Project: **19702 UT1072 Downtown Recycled Water Pipeline**
Road: **Euclid Avenue**
Segment: **In Vicnity of Project Site**

		DAYTIME			EVENING			NIGHTTIME		ADT	2753.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	35.00
										DISTANCE	100.00
INPUT PARAMETERS											
Vehicles per hour	159.44	3.30	5.51	118.38	0.55	0.92	29.37	4.59	7.65	% A	92
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	3
NOISE CALCULATIONS											
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05	% HT	5
ADJUSTMENTS											
Flow	16.28	-0.56	1.66	14.99	-8.34	-6.12	8.93	0.87	3.09		
Distance	-3.08	-3.08	-3.08	-3.08	-3.08	-3.08	-3.08	-3.08	-3.08	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	62.76
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	56.87
LEQ	53.31	46.19	53.63	52.02	38.41	45.85	45.96	47.62	55.05	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	56.87		EVENING LEQ	53.11		NIGHT LEQ	56.21		Use hour?	no
										GRADE dB	0.00
		CNEL	**62.76**								

FHWA Traffic Noise Prediction Model FHWA-RD-77-108

Existing Plus Project Traffic Noise

Project: **19702 UT1072 Downtown Recycled Water Pipeline**
Road: **Euclid Avenue**
Segment: **In Vicnity of Project Site**

		DAYTIME			EVENING			NIGHTTIME		ADT	2789.00
	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	AUTOS	M.TRUCKS	H.TRUCKS	SPEED	35.00
										DISTANCE	100.00
INPUT PARAMETERS											
Vehicles per hour	161.46	3.30	5.67	119.87	0.55	0.94	29.74	4.59	7.87	% A	91.96
Speed in MPH	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00		
Left angle	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00	-90.00		
Right angle	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	% MT	2.96
NOISE CALCULATIONS											
Reference levels	65.11	74.83	80.05	65.11	74.83	80.05	65.11	74.83	80.05	% HT	5.08
ADJUSTMENTS											
Flow	16.33	-0.56	1.79	15.04	-8.34	-6.00	8.99	0.87	3.21		
Distance	-3.08	-3.08	-3.08	-3.08	-3.08	-3.08	-3.08	-3.08	-3.08	LEFT	-90.00
Finite Roadway	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	RIGHT	90.00
Barrier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	CNEL	62.86
Constant	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	-25.00	DAY LEQ	56.95
LEQ	53.36	46.19	53.75	52.07	38.41	45.97	46.02	47.62	55.18	Day hour	89.00
										Absorbtive?	no
	DAY LEQ	56.95		EVENING LEQ	53.17		NIGHT LEQ	56.31		Use hour?	no
										GRADE dB	0.00
		CNEL	**62.86**								