Appendix A

Air Quality, Greenhouse Gas and Energy Impact Study,
Wonder Valley, CA

MD Acoustics, LLC

August 18, 2022

Wonder Inn

Air Quality, Greenhouse Gas, and Energy Impact Study

Wonder Valley, CA

Prepared for:

Ms. Julie Gilbert
ELMT Consulting, Inc.
2201 N Grand Ave, Ste #10098
Santa Ana, CA 92711

Prepared by:

MD Acoustics, LLC
Tyler Klassen, EIT
1197 Los Angeles Ave, Ste C-256
Simi Valley, CA 93065

Date: 8/18/2022

MD ACOUSTICS
Sound Solutions for Planning and Design

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GLOSSARY OF TERMS

AQMP	Air Quality Management Plan
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
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
GHG	Greenhouse gas
HFCs	Hydrofluorocarbons
MDAB	Mojave Desert Air Basin
MDAQMD	Mojave Desert Air Quality Management District
$MTCO_2e$	Metric tons of carbon dioxide equivalent
$MMTCO_2e$	Million metric tons of carbon dioxide equivalent
NAAQS	National Ambient Air Quality Standards
NOx	Nitrogen Oxides
NO_2	Nitrogen dioxide
N_2O	Nitrous oxide
O_3	Ozone
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
SF_6	Sulfur hexafluoride
SIP	State Implementation Plan
SOx	Sulfur Oxides
SRA	Source/Receptor Area
TAC	Toxic air contaminants
VOC	Volatile organic compounds
WRCC	Western Regional Climate Center

1.0 Introduction

1.1 Purpose of Analysis and Study Objectives

This air quality and greenhouse gas (GHG) analysis was prepared to evaluate whether the estimated criteria pollutants and GHG emissions generated from the project would cause a significant impact to the air resources in the project area. This assessment was conducted within the context of the California Environmental Quality Act (CEQA, California Public Resources Code Sections 21000, et seq.). The assessment is consistent with the methodology and emission factors endorsed by Mojave Desert Air Quality Management District (MDAQMD), California Air Resource Board (CARB), and the United States Environmental Protection Agency (US EPA).

1.2 Project Summary

1.2.1 Site Location

The project site is on 25 acres of a 134.6 acres site located at 78201 Amboy Road bounded on the west by Via Arenosa, on the north by Amboy Road, on the East by Gammel Road, and on the south by vacant land, in Wonder Valley, California, as shown in Exhibit A. The site has a current land use and zoning designation of Service Commercial (CS) for 3.18 acres of the site with the remainder currently zoned as Rural Living Residential (RL-5) in the County of San Bernardino General Plan Land Use Plan. The project will include General Plan Amendment (PROJ-2021-00163) to change the Rural Living Residential zoned portion of the site to Commercial Service. The project's proposed use is a hotel.

1.2.2 Project Description

The Project proposes to develop the site with 42,120 square feet (sf) of 106 pre-manufactured hotel rooms and an additional four (4) pre-manufactured buildings for administration, storage, event pre-function and restrooms, pool restrooms and spa locker rooms and restrooms.

Construction activities within the Project area will consist of site preparation, on-site grading, building, paving, and architectural coating. Table 1 summarizes the land use description for the Project Site.

Table 1: Land Use Summary

Land Use	Unit Amount	Size Metric
Hotel	106	Rooms
Parking Lot	205.00	Spaces
Other Non-Asphalt Surfaces	19.63	Acres

1.2.3 Sensitive Receptors

Sensitive receptors are considered land uses or other types of population groups that are more sensitive to air pollution than others due to their exposure. Sensitive population groups include children, the elderly, the acutely and chronically ill, and those with cardio-respiratory diseases. For CEQA purposes, a sensitive receptor would be a location where a sensitive individual could remain for 24-hours or longer, such as residencies, hospitals, and schools (etc.).

The closest existing sensitive receptors (to the site area) are the residential land uses located approximately 2,300 feet northwest across Amboy Road.

1.3 Executive Summary of Findings and Mitigation Measures

The following is a summary of the analysis results:

Construction-Source Emissions
Project construction-source emissions would not exceed applicable regional thresholds of significance established by the MDAQMD.

As discussed herein, the project will comply with all applicable MDAQMD construction-source emission reduction rules and guidelines. Project construction source emissions would not cause or substantively contribute to violation of the California Ambient Air Quality Standards (CAAQS) or National Ambient Air Quality Standards (NAAQS).

Established requirements addressing construction equipment operations, and construction material use, storage, and disposal requirements act to minimize odor impacts that may result from construction activities. Moreover, construction-source odor emissions would be temporary, short-term, and intermittent in nature and would not result in persistent impacts that would affect substantial numbers of people. Potential construction-source odor impacts are therefore considered less-than-significant.

Operational-Source Emissions
The project's emissions meet MDAQMD regional thresholds and will not result in a significant cumulative impact. The project does not propose any such uses or activities that would result in potentially significant operational-source odor impacts. Potential operational-source odor impacts are therefore considered less-than significant.

Project-related GHG emissions meet the MDAQMD and County of San Bernardino thresholds and are also considered to be less than significant. The project also complies with the goals of the CARB Scoping Plan, AB-32, SB-32 and County of San Bernardino Greenhouse Gas Emissions Reduction Plan.

Mitigation Measures

A. <u>Construction Measures</u>

The project applicant shall ensure that all applicable MDAQMD Rules and Regulations are complied with during construction.

No construction measures are required.

B. Operational Measures to Reduce GHG Emissions

No operational measures are required.

Exhibit A

Location Map

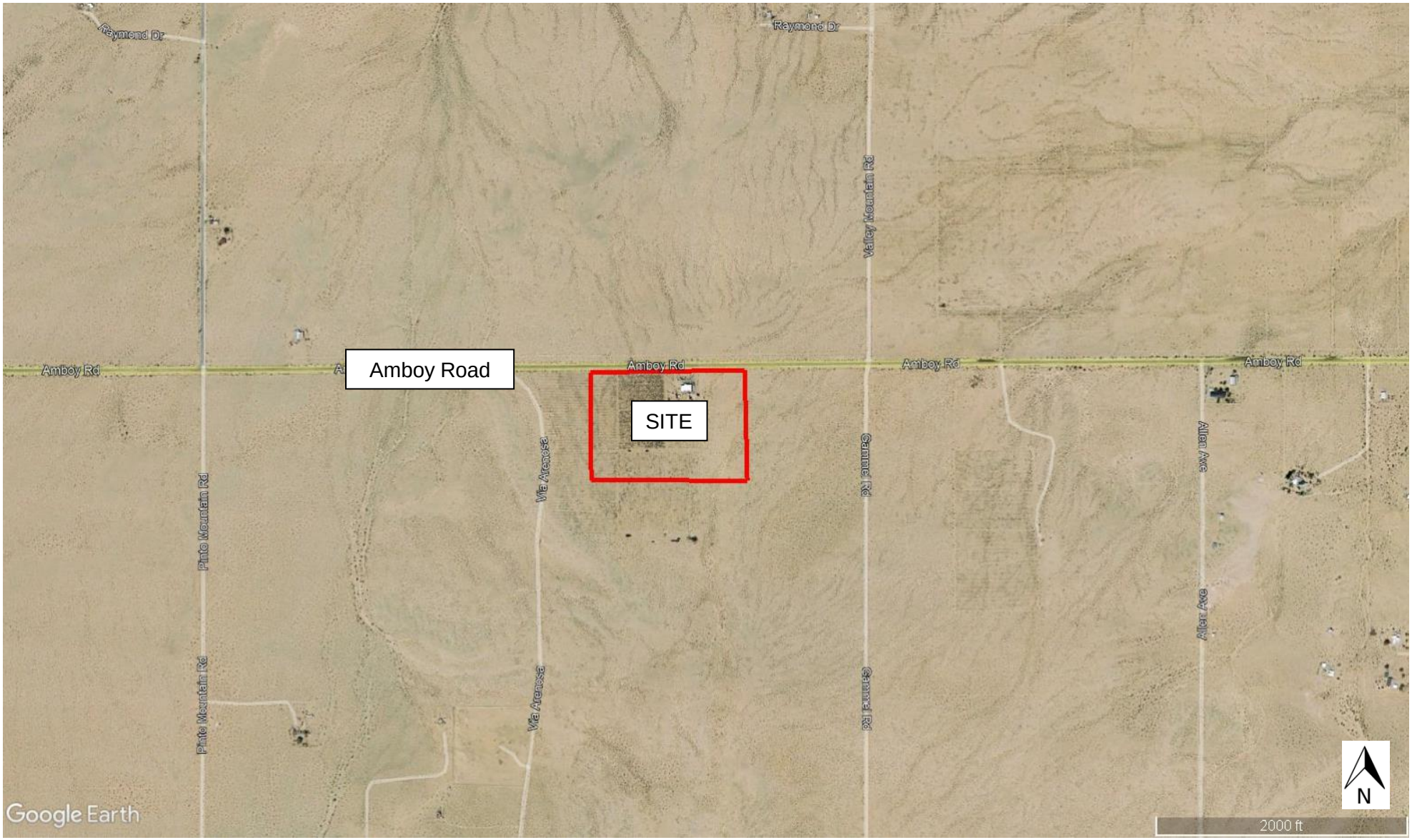
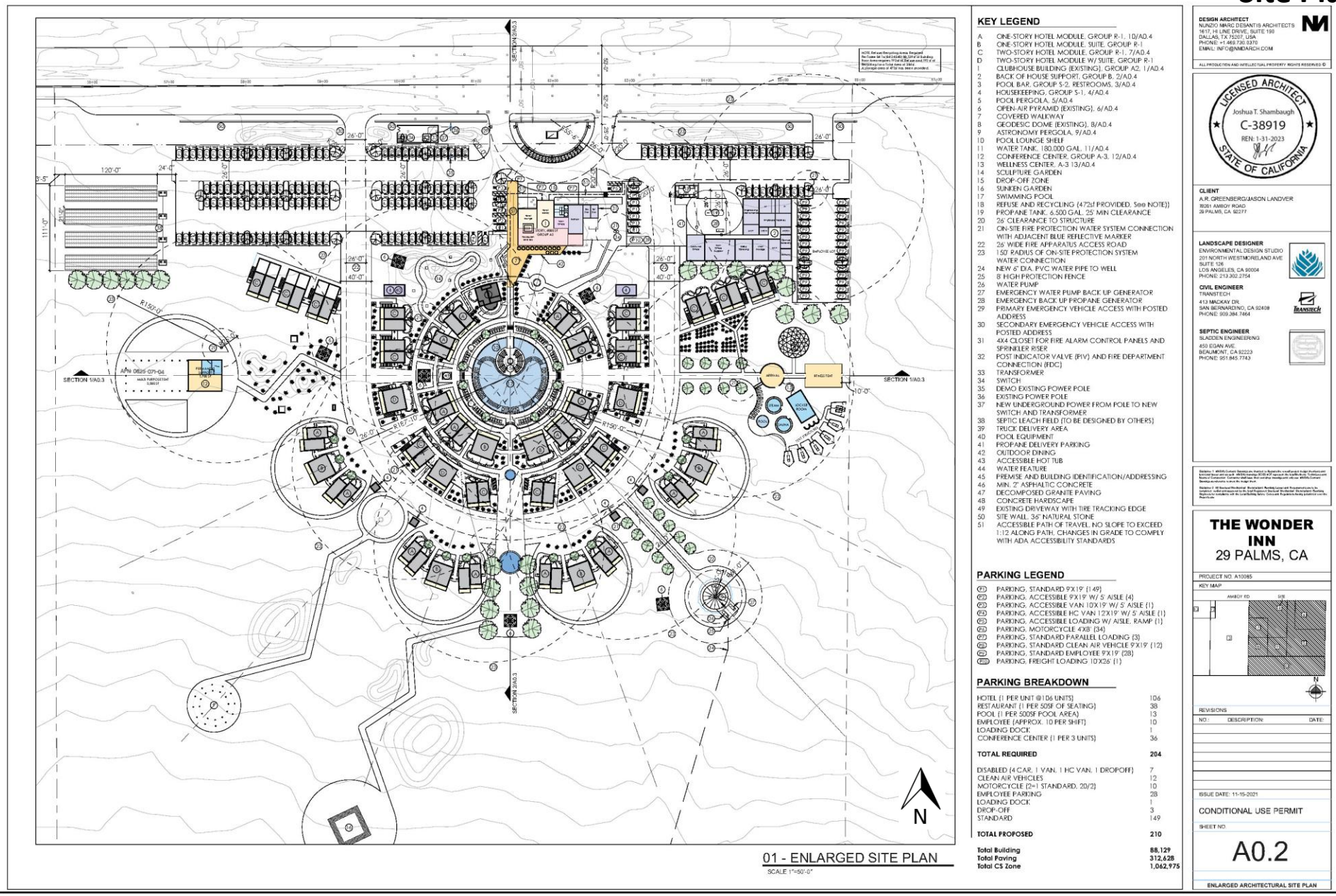


Exhibit B

Site Plan



2.0 Regulatory Framework and Background

2.1 Air Quality Regulatory Setting

Air pollutants are regulated at the national, state, and air basin level; each agency has a different level of regulatory responsibility. The United States Environmental Protection Agency (EPA) regulates at the national level. The California Air Resources Board (ARB) regulates at the state level. The Mojave Desert Air Quality Management District (MDAQMD) regulates at the air basin level.

2.1.1 National and State

The EPA is responsible for global, international, and interstate air pollution issues and policies. The EPA sets national vehicle and stationary source emission standards, oversees approval of all State Implementation Plans, provides research and guidance for air pollution programs, and sets National Air Quality Standards, also known as federal standards. There are six common air pollutants, called criteria pollutants, which were identified from the provisions of the Clean Air Act of 1970.

- Ozone
- Nitrogen Dioxide
- Lead
- Particulate Matter (PM10 and PM2.5)
- Carbon Monoxide
- Particulate Matter
- Sulfur Dioxide

The federal standards were set to protect public health, including that of sensitive individuals; thus, the standards continue to change as more medical research is available regarding the health effects of the criteria pollutants. Primary federal standards are the levels of air quality necessary, with an adequate margin of safety, to project the public health.

A State Implementation Plan is a document prepared by each state describing existing air quality conditions and measures that will be followed to attain and maintain federal standards. The State Implementation Plan for the State of California is administered by the ARB, which has overall responsibility for statewide air quality maintenance and air pollution prevention. California's State Implementation Plan incorporates individual federal attainment plans for regional air districts—air district prepares their federal attainment plan, which sent to ARB to be approved and incorporated into the California State Implementation Plan. Federal attainment plans include the technical foundation for understanding air quality (e.g., emission inventories and air quality monitoring), control measures and strategies, and enforcement mechanisms. See http://www.arb.ca.gov/research/aaqs/aaqs.htm for additional information on criteria pollutants and air quality standards.

The federal and state ambient air quality standards are summarized in Table 2 and can also be found at http://www.arb.ca.gov/research/aaqs/aaqs2.pdf.

Table 2: Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		National Standards[2]		
		Concentrations[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone (O3)	1-Hour	0.09 ppm	Ultraviolet Photometry	- -	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.070 ppm		0.070 ppm (147 µg/m³)		
Respirable Particulate Matter (PM10)[8]	24-Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µ/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		- -		
Fine Particulate Matter (PM2.5)[8]	24-Hour	- -	- -	35 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	12 µg/m³	15 µg/m³	
Carbon Monoxide (CO)	1-Hour	20 ppm (23 µg/m³)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 µg/m³)	- -	Non-Dispersive Infrared Photometry (NDIR)
	8-Hour	9.0 ppm (10 µg/m³)		9 ppm (10 µg/m³)	- -	
	8-Hour (Lake Tahoe)	6 ppm (7 µg/m³)		- -	- -	
Nitrogen Dioxide (NO_2)[9]	1-Hour	0.18 ppm (339 µg/m³)	Gas Phase Chemiluminescence	100 ppb (188 µg/m³)	- -	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (357 µg/m³)		0.053 ppm (100 µg/m³)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[10]	1-Hour	0.25 ppm (655 µg/m³)	Ultraviolet Fluorescence	75 ppb (196 µg/m³)	- -	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3-Hour	- -		- -	0.5 ppm (1300 mg/m³)	
	24-Hour	0.04 ppm (105 µg/m³)		0.14 ppm (for certain areas)[10]	- -	
	Annual Arithmetic Mean	- -		0.130ppm (for certain areas)[10]	- -	
Lead[11,12]	30 Day Average	1.5 µg/m³	Atomic Absorption	- -		
	Calendar Qrtr	- -		1.5 µg/m³ (for certain areas)[12]	Same as Primary Standard	High Volume Sampler and Atomic Absorption
	Rolling 3-Month Average	- -		0.15 µg/m³		
Visibility Reducing Particles[13]	8-Hour	See footnote 13	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24-Hour	25 µg/m³	Ion Chromatography			
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride[11]	24-Hour	0.01 ppm (26 µg/m³)	Gas Chromatography			

Notes:

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

8. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 µg/m^3 to 12.0 µg/m^3. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standard of 15 µg/m^3. The existing 24-hour PM10 standards (primary and secondary) of 150 µg/m^3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

9. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

10. On June 2, 2010, a new 1-hour SO2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

    Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

11. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

12. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m^3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

13. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Several pollutants listed in Table 2 are not addressed in this analysis. Analysis of lead is not included in this report because the project is not anticipated to emit lead. Visibility-reducing particles are not explicitly addressed in this analysis because particulate matter is addressed. The project is not expected to generate or be exposed to vinyl chloride because proposed project uses do not utilize the chemical processes that create this pollutant and there are no such uses in the project vicinity. The proposed project is not expected to cause exposure to hydrogen sulfide because it would not generate hydrogen sulfide in any substantial quantity.

2.1.2 Mojave Desert Air Quality Management District

The 1976 Lewis Air Quality Management Act established the MDAQMD and other air districts throughout the State. The federal CAA Amendments of 1977 required that each state adopt an implementation plan outlining pollution control measures to attain the federal standards in nonattainment areas of the state.

The ARB is responsible for incorporating air quality management plans for local air basins into a State Implementation Plan (SIP) for EPA approval. Significant authority for air quality control within them has been given to local air districts that regulate stationary source emissions and develop local nonattainment plans.

California is divided geographically into air basins for the purpose of managing the air resources of the State on a regional basis. An air basin generally has similar meteorological and geographic conditions throughout. The State is currently divided into 15 air basins. The proposed project site is located within

the Mojave Desert Air Basin (MDAB). The MDAQMD includes the desert portion of the San Bernardino County. The MDAQMD is responsible for controlling emissions primarily from stationary sources within the MDAQMD and also maintains air quality monitoring stations to document historical and current levels of air quality within the District. The MDAQMD is also responsible for developing, updating, and implementing the Ozone Attainment Plan (MDAQMD 2004) which establishes a plan to implement, maintain, and enforce a program of emission control measures to attain and maintain the federal ozone air quality standards. Attainment plans prepared by the various air pollution control districts throughout the state are used to develop the SIP for the State of California. The proposed project is located within the MDAQMD and, thus, is subject to the rules and regulations of the MDAQMD.

The MDAQMD and SCAG are responsible for formulating and implementing the air quality attainment plan (AQAP) for the Basin. Regional AQAPs were adopted in 1991, 1994, and 1997. The following SIP and AQAP are the currently approved plans for the Basin region:

- 1997 SIP for O_3, PM10, and NO_2
- 1995 Mojave Desert Planning Area Federal PM10 Attainment Plan; no formal action by the EPA

The MDAQMD completed the MDAQMD 2004 Ozone Attainment Plan (State and federal) in April 2004, which has been approved by the EPA.

The MDAQMD is downwind of the Los Angeles basin and the San Joaquin Valley. Prevailing winds transport ozone and ozone precursors from both regions into and through the MDAB during the summer ozone season. These transport couplings have been officially recognized by the CARB. Local MDAQMD emissions contribute to exceedances of both the NAAQS and CAAQS for ozone, but photochemical ozone modeling conducted by the MDAQMD and CARB indicates that the MDAB would be in attainment of both standards without the influence of this transported air pollution from upwind regions. Therefore, emissions reductions in the upwind area are critical to the attainment demonstration.

The following includes, but is not limited to, the MDAQMD rules that are applicable to the proposed project:

Rule 201 (Permit to Construct) requires written authorization to build, erect, install, alter, or replace any equipment, the use of which may cause the issuance of air contaminants or the use of which may eliminate, reduce, or control the issuance of air contaminants. With respect to the proposed project, this rule would apply to any stationary equipment that is not otherwise exempt from this rule as an insignificant source of air pollutants (see Rule 219).

Rule 203 (Permit to Operate) requires written authorization to operate any equipment, the use of which may cause the issuance of air pollutants, or the use of which may reduce or control the issuance of air contaminants. With respect to the proposed project, this rule would apply to any stationary equipment that is not otherwise exempt from this rule as an insignificant source of air pollutants (see Rule 219).

Rule 219 (Equipment Not Requiring A Written Permit Pursuant to Regulation II) specifies stationary sources that the MDAQMD considers to be insignificant sources of air pollutants that are exempt from

Rules 201 and 202. With respect to the proposed project, the following sources would be exempt from permit requirements:

- Comfort air conditioning or ventilating systems which are not designed or used to remove air contaminants generated by, or released from, specific equipment units;
- Space heaters;
- Equipment used exclusively for steam cleaning;

Rule 402 (Nuisance). This rule specifies that a person may not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

Rule 403.2 (Fugitive Dust Control for the Mojave Desert Planning Area). This rule requires owners or operators of a construction or demolition fugitive dust source to implement the fugitive dust control measures listed in Rule 403.2. These measures include periodic watering for short-term stabilization of disturbed surface area to minimize visible dust emissions, stabilization of graded surfaces if no development is planned within 30 days, reducing non-essential earth moving activity under high wind conditions, and more. In addition, for sites over 100 acres such as the proposed project, the control measures in Rule 403.2 must also be implemented. The additional control measures include preparing and submitting a dust control plan to the MDAQMD prior to commencing earth-moving activities. The dust control plan must describe all applicable dust control measures that will be implemented at the project site. Other additional control measures to minimize visible fugitive dust for sites over 100 acres include stabilizing access routes, maintaining natural topography to the extent possible, and constructing paved roads and parking lots first where feasible.

Rule 1113 (Architectural Coatings). This rule requires manufacturers, distributors, and end-users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories.

Rule 1160 (Internal Combustion Engines). This rule establishes limits for VOC, NOx, and CO emissions associated with stationary internal combustion engines. However, the provisions of the rule do not apply to the following engines:

- All internal combustion engines rated at less than 500 brake horsepower;
- All internal combustion engines operated less than 100 hours within any continuous four consecutive calendar quarter period; and
- Emergency internal combustion engines.

Regulation XIII (New Source Review). For new and modified stationary sources subject to permitting requirements (see Rule 201), this series of rules prescribes the use of Best Available Control Technology and the provision of emission offsets (i.e., mitigation) for equipment whose emissions exceed specified

thresholds. The applicability of these requirements would be determined upon submittal of an application for permit to construct under Rule 201.

2.1.3 County of San Bernardino

County of San Bernardino General Plan

Local jurisdictions, such as the County of San Bernardino, have the authority and responsibility to reduce air pollution through its police power and decision-making authority. Specifically, the County is responsible for the assessment and mitigation of air emissions resulting from its land use decisions. The County is also responsible for the implementation of transportation control measures as outlined in the 2016 AQMP and MDAQMD Attainment Plans. Examples of such measures include bus turnouts, energy-efficient streetlights, and synchronized traffic signals. In accordance with CEQA requirements and the CEQA review process, the County assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation.

In accordance with the CEQA requirements, the County does not, however, have the expertise to develop plans, programs, procedures, and methodologies to ensure that air quality within the County and region will meet federal and state standards. Instead, the County relies on the expertise of the SCAQMD and MDAQMD and utilizes the SCAQMD CEQA Handbook and MDAQMD California Environmental Quality Act (CEQA) And Federal Conformity Guidelines (depending on the location/jurisdiction of the project) as guidance documents for the environmental review of plans and development proposals within its jurisdiction.

The County of San Bernardino General Plan contains the following air quality-related goals and policies that are applicable to the proposed project:

Goal CO 4 The County will ensure good air quality for its residents, businesses, and visitors to reduce impacts on human health and the economy.

CO 4.1 Because developments can add to the wind hazard (due to increased dust, the removal of wind breaks, and other factors), the County will require either as mitigation measures in the appropriate environmental analysis required by the County for the development proposal or as conditions of approval if no environmental document is required, that developments in areas identified as susceptible to wind hazards to address site-specific analysis of:

a. Grading restrictions and/or controls on the basis of soil types, topography or season.
b. Landscaping methods, plant varieties, and scheduling to maximize successful revegetation.

c. Dust-control measures during grading, heavy truck travel, and other dust generating activities.

CO 4.2 Coordinate air quality improvement technologies with the South Coast Air Quality Management District (SCAQMD) and the Mojave Desert Air Quality Management District (MDAQMD) to improve air quality through reductions in pollutants from the region.

CO 4.4 Because congestion resulting from growth is expected to result in a significant increase in the air quality degradation, the County may manage growth by insuring the timely provision of infrastructure to serve new development.

Programs

1. Consistent with the land use designations in the Land Use Policy Map (see the Land Use Element) that will improve growth management at a sub-regional level in relation to major activity centers, review new development to encourage new intensified development around transit nodes and along transit corridors.

2. Locate and design new development in a manner that will minimize direct and indirect emission of air contaminants through such means as:

    a. Promoting mixed-use development to reduce the length and frequency of vehicle trips;
    b. Providing for increased intensity of development along existing and proposed transit corridors; and
    c. Providing for the location of ancillary employee services (including but not limited to child care, restaurants, banking facilities, convenience markets) at major employment centers for the purpose of reducing midday vehicle trips.
    d. The County shall comply, to the extent feasible, with the recommendations on siting new sensitive land uses, as recommended in California Air Resources Board's Air Quality and Land Use Handbook: A Community Health Perspective, which includes the following:

    Notable siting recommendations include avoiding siting new sensitive land uses within:

    - 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day;

- 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units per day, or where transport refrigeration units exceed 300 hours per week);
- 1,000 feet of a chrome plater;
- 300 feet of any dry cleaning operation; and 300 feet of a large gas station (defined as a facility with a through put of 3.6 million gallons per year or greater); a 50 foot separation is recommended for typical gas dispensing facilities.

3. Incorporate phasing policies and requirements in the General Plan and development plans to achieve timely provision of infrastructure (particularly transportation facilities) to serve development through:

    a. Tying growth to Level of Service (LOS) standards; and
    b. Using phasing areas to manage growth.

County of San Bernardino Development Code

83.01.040 - Air Quality.

(a) **Equipment permit and Inspection Requirements.** Required permits shall be obtained from either the Mojave Air Pollution Management District or the South Coast Air Quality Management District depending on the location of the subject property and equipment for equipment that may cause air pollution. Before the equipment may be constructed, plans and specifications shall be submitted to the appropriate District for approval.

(b) **Permits from Air Quality Management Districts.** Permits shall be obtained from either the Mojave Air Pollution Management District or the South Coast Air Quality Management District depending on the location of the subject property and equipment. If requested by the Director, uses, activities, or processes that require Air Quality Management District approval to operate shall file a copy of the permit with the Department within 30 days of its approval.

(c) **Diesel Exhaust Emissions Control Measures.** The following emissions control measures shall apply to all discretionary land use projects approved by the County on or after January 15, 2009:

1. **On-Road Diesel Vehicles.** On-road diesel vehicles are regulated by the State of California Air Resources Board.

2. **Off-Road Diesel Vehicle/Equipment Operations.** All business establishments and contractors that use off-road diesel vehicle/equipment as part of their normal business

operations shall adhere to the following measures during their operations in order to reduce diesel particulate matter emissions from diesel fueled engines:

a. Off-road vehicles/equipment shall not be left idling on site for periods in excess of five minutes. The idling limit does not apply to:

    i. Idling when queuing,
    ii. Idling to verify that the vehicle is in safe operating condition,
    iii. Idling for testing, servicing, repairing, or diagnostic purposes,
    iv. Idling necessary to accomplish work for which the vehicle was designed (such as operating a crane),
    v. Idling required to bring the machine system to operating temperature, and
    vi. Idling necessary to ensure safe operation of the vehicle

b. Use reformulated ultra-low sulfur diesel fuel in equipment and use equipment certified by the U.S. Environmental Protection Agency (EPA) or that pre-dates EPA regulations.
c. Maintain engines in good working order to reduce emissions.
d. Signs shall be posted requiring vehicle drivers to turn off engines when parked.
e. Any requirements or standards subsequently adopted by the South Coast Air Quality Management District, the Mojave Air Quality Management District, or the California Air Resources Board.
f. Provide temporary traffic control during all phases of construction.
g. Onsite electrical power connections shall be provided for electric construction tools to eliminate the need for diesel-powered electric generators, where feasible.
h. Maintain construction equipment engines in good working order to reduce emissions. The developer shall have each contractor certify that all construction equipment is properly serviced and maintained in good operating condition.
i. Contractors shall use ultra-low sulfur diesel fuel for stationary construction equipment as required by Air Quality Management District (AQMD) Rules 431.1 and 431.2 to reduce the release of undesirable emissions.
j. Substitute electric and gasoline-powered equipment for diesel-powered equipment, where feasible.

2. **Project Design.** Distribution centers, warehouses, truck stops and other facilities with loading docks where diesel trucks may reside overnight or for periods in excess of three hours shall be designed to enable any vehicle using these facilities to utilize on-site electrical connections to power the heating and air conditioning of the cabs of such trucks, instead of operating the diesel engines and diesel refrigeration units of

such trucks and trailers for these purposes. This requirement shall also apply to Recreational Vehicle Parks (as defined in Section 810.01.200(k) of this title) and other development projects where diesel engines may reasonably be expected to operate on other than an occasional basis.

2.1.3 City of Twentynine Palms

City of Twentynine Palms General Plan

The City of Twentynine Palms is the nearest incorporated community to the project located approximately five miles west. The City of Twentynine Palms General Plan contains the following air quality-related goals and policies that are applicable to the proposed project:

CO-4.1 Require air quality analyses for all proposed development projects that have the potential to adversely affect air quality and identify and impose mitigation measures within their design. Projects shall be determined to have the potential to adversely affect air quality based on the significance thresholds established by the MDAQMD CEQA Guidelines.

CO-4.3 Develop regulations and procedures to comply with Federal attainment plans, adopted by the Mojave Desert Air Quality Management District, for Ozone and PM10.

CO-4.6 Require developers to phase and stage construction activities to reduce construction-related pollutant emission levels to the lowest level practical.

CO-4.7 Require developers to use water trucks and temporary irrigation systems, as well as other feasible measures, to limit fugitive dust emissions resulting from their activities in accordance with MDAQMD Rule 403.

CO-4.16 Require new air pollution point sources such as, but not limited to, industrial, manufacturing, and processing facilities, to be located an adequate distance from residential areas and sensitive receptors. Locate air pollution sensitive land uses (e.g., hospitals, convalescent homes, residences, schools) away from existing developed and undeveloped industrial sites in recognition that the potential exists for those sites to contain industrial processes that may emit toxic and hazardous pollutants at some future date.

CO-4.18 Future development shall be sited in accordance with the guidelines prepared by the California Air Resources Board in their latest Air Quality and Land Use Handbook.

2.2 Greenhouse Gas Regulatory Setting

2.2.1 International

Many countries around the globe have made an effort to reduce GHGs since climate change is a global issue.

Intergovernmental Panel on Climate Change. In 1988, the United Nations and the World Meteorological Organization established the Intergovernmental Panel on Climate Change to assess the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation.

United Nations. The United States participates in the United Nations Framework Convention on Climate Change (UNFCCC) (signed on March 21, 1994). Under the Convention, governments gather and share information on greenhouse gas emissions, national policies, and best practices; launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

The 2014 UN Climate Change Conference in Lima Peru provided a unique opportunity to engage all countries to assess how developed countries are implementing actions to reduce emissions.

Kyoto Protocol. The Kyoto Protocol is a treaty made under the UNFCCC and was the first international agreement to regulate GHG emissions. It has been estimated that if the commitments outlined in the Kyoto Protocol are met, global GHG emissions could be reduced by an estimated 5 percent from 1990 levels during the first commitment period of 2008 – 2012 (UNFCCC 1997). On December 8, 2012, the Doha Amendment to the Kyoto Protocol was adopted. The amendment includes: New commitments for Annex I Parties to the Kyoto Protocol who agreed to take on commitments in a second commitment period from 2013 – 2020; a revised list of greenhouse gases (GHG) to be reported on by Parties in the second commitment period; and Amendments to several articles of the Kyoto Protocol which specifically referenced issues pertaining to the first commitment period and which needed to be updated for the second commitment period.

The Paris Agreement. The Paris Agreement became effective on November 4, 2016. Thirty days after this date at least 55 Parties to the United Nations Framework Convention on Climate Change (Convention), accounting in total for at least an estimated 55 % of the total global greenhouse gas emissions, had deposited their instruments of ratification, acceptance, approval or accession with the Depositary.

The Paris Agreement built upon the Convention and – for the first time – attempted to bring all nations into a common cause to undertake ambitious efforts to combat climate change and adapt to its effects, with enhanced support to assist developing countries to do so. As such, it charts a new course in the global climate effort.

The Paris Agreement's central aim is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. Additionally, the agreement aims to strengthen the ability of countries to deal with the impacts of climate change. To reach these ambitious goals, appropriate financial flows, a new technology framework and an enhanced capacity building framework will be put in place, thus supporting action by developing countries and the most vulnerable countries, in line with their own national objectives. The Agreement also provides for enhanced transparency of action and support through a more robust transparency framework.

2.2.2 National

Greenhouse Gas Endangerment. On December 2, 2009, the EPA announced that GHGs threaten the public health and welfare of the American people. The EPA also states that GHG emissions from on-road vehicles contribute to that threat. The decision was based on *Massachusetts v. EPA* (Supreme Court Case 05-1120) which argued that GHGs are air pollutants covered by the Clean Air Act and that the EPA has authority to regulate those emissions.

Clean Vehicles. Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the United States. On April 1, 2010, the EPA and the Department of Transportation's National Highway Safety Administration announced a joint final rule establishing a national program that would reduce greenhouse gas emissions and improve fuel economy for new cars and trucks sold in the United States.

The first phase of the national program would apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this carbon dioxide level solely through fuel economy improvements. Together, these standards would cut carbon dioxide emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016). The second phase of the national program would involve proposing new fuel economy and greenhouse gas standards for model years 2017 – 2025 by September 1, 2011.

On October 25, 2010, the EPA and the U.S. Department of Transportation proposed the first national standards to reduce greenhouse gas emissions and improve fuel efficiency of heavy-duty trucks and buses. For combination tractors, the agencies are proposing engine and vehicle standards that begin in the 2014 model year and achieve up to a 20 percent reduction in carbon dioxide emissions and fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10 percent reduction for gasoline vehicles and 15 percent reduction for diesel vehicles by 2018 model year (12 and 17 percent respectively if accounting for air conditioning leakage). Lastly, for

vocational vehicles, the agencies are proposing engine and vehicle standards starting in the 2014 model year which would achieve up to a 10 percent reduction in fuel consumption and carbon dioxide emissions by 2018 model year.

Issued by NHTSA and EPA in March 2020 (published on April 30, 2020 and effective after June 29, 2020), the Safer Affordable Fuel-Efficient Vehicles Rule would maintain the CAFE and CO2 standards applicable in model year 2020 for model years 2021 through 2026. The estimated CAFE and CO2 standards for model year 2020 are 43.7 mpg and 204 grams of CO2 per mile for passenger cars and 31.3 mpg and 284 grams of CO2 per mile for light trucks, projecting an overall industry average of 37 mpg, as compared to 46.7 mpg under the standards issued in 2012. This Rule also excludes CO2- equivalent emission improvements associated with air conditioning refrigerants and leakage (and, optionally, offsets for nitrous oxide and methane emissions) after model year 2020.[1]

Mandatory Reporting of Greenhouse Gases. On January 1, 2010, the EPA started requiring large emitters of heat-trapping emissions to begin collecting GHG data under a new reporting system. Under the rule, suppliers of fossil fuels or industrial greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of greenhouse gas emissions are required to submit annual reports to the EPA.

Climate Adaption Plan. The EPA Plan identifies priority actions the Agency will take to incorporate considerations of climate change into its programs, policies, rules and operations to ensure they are effective under future climatic conditions. The following link provides more information on the EPA Plan: https://www.epa.gov/arc-x/planning-climate-change-adaptation

Energy Independence Security Act

The Energy Independence and Security Act of 2007 (EISA) facilitates the reduction of national GHG emissions by requiring the following:

- Increasing the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard (RFS) that requires fuel producers to use at least 36 billion gallons of biofuel in 2022;
- Prescribing or revising standards affecting regional efficiency for heating and cooling products, procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances;
- Requiring approximately 25 percent greater efficiency for light bulbs by phasing out incandescent light bulbs between 2012 and 2014; requiring approximately 200 percent greater efficiency for light bulbs, or similar energy savings, by 2020; and

[1] National Highway Traffic Safety Administration (NHTSA) and U.S. Environmental Protection Agency (USEPA), 2018. Federal Register / Vol. 83, No. 165 / Friday, August 24, 2018 / Proposed Rules, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks 2018. Available at: https://www.gpo.gov/fdsys/pkg/FR-2018-08-24/pdf/2018-16820.pdf.

- While superseded by the USEPA and NHTSA actions described above, (i) establishing miles per gallon targets for cars and light trucks and (ii) directing the NHTSA to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for trucks.
- Additional provisions of EISA address energy savings in government and public institutions, promote research for alternative energy, additional research in carbon capture, international energy programs, and the creation of green jobs.[2]

Executive Order 13432

In response to the Massachusetts v. Environmental Protection Agency ruling, the President signed Executive Order 13432 on May 14, 2007, directing the USEPA, along with the Departments of Transportation, Energy, and Agriculture, to initiate a regulatory process that responds to the Supreme Court's decision. Executive Order 13432 was codified into law by the 2009 Omnibus Appropriations Law signed on February 17, 2009. The order sets goals in the areas of energy efficiency, acquisition, renewable energy, toxics reductions, recycling, sustainable buildings, electronics stewardship, fleets, and water conservation. Light-Duty Vehicle Greenhouse Gas and Corporate Average Fuel Economy Standards.

On May 19, 2009, President Obama announced a national policy for fuel efficiency and emissions standards in the United States auto industry. The adopted federal standard applies to passenger cars and light-duty trucks for model years 2012 through 2016. The rule surpasses the prior Corporate Average Fuel Economy standards (CAFE)[3] and requires an average fuel economy standard of 35.5 miles per gallon (mpg) and 250 grams of CO2 per mile by model year 2016, based on USEPA calculation methods. These standards were formally adopted on April 1, 2010. In August 2012, standards were adopted for model year 2017 through 2025 for passenger cars and light-duty trucks. By 2025, vehicles are required to achieve 54.5 mpg (if GHG reductions are achieved exclusively through fuel economy improvements) and 163 grams of CO2 per mile. According to the USEPA, a model year 2025 vehicle would emit one-half of the GHG emissions from a model year 2010 vehicle.[4] In 2017, the USEPA recommended no change to the GHG standards for light-duty vehicles for model years 2022-2025.

In August 2018, the USEPA and NHTSA proposed the Safer Affordable Fuel-Efficient Vehicles Rule that would, if adopted, maintain the CAFE and CO2 standards applicable in model year 2020 for model years

[2] A green job, as defined by the United States Department of Labor, is a job in business that produces goods or provides services that benefit the environment or conserve natural resources.
[3] The Corporate Average Fuel Economy standards are regulations in the United States, first enacted by Congress in 1975, to improve the average fuel economy of cars and light trucks. The U.S Department of Transportation has delegated the National Highway Traffic Safety Administration as the regulatory agency for the Corporate Average Fuel Economy standards.

[4] United States Environmental Protection Agency, EPA and NHTSA Set Standards to Reduce Greenhouse Gases and Improve Fuel Economy for Model Years 2017-2025 Cars and Light Trucks, August 2012, https://nepis.epa.gov/ Exe/ZyPDF.cgi/P100EZ7C.PDF?Dockey=P100EZ7C.PDF.

2021 through 2026. The estimated CAFE and CO2 standards for model year 2020 are 43.7 mpg and 204 grams of CO2 per mile for passenger cars and 31.3 mpg and 284 grams of CO2 per mile for light trucks, projecting an overall industry average of 37 mpg, as compared to 46.7 mpg under the standards issued in 2012. The proposal, if adopted, would also exclude CO2- equivalent emission improvements associated with air conditioning refrigerants and leakage (and, optionally, offsets for nitrous oxide and methane emissions) after model year 2020.[5]

2.2.3 California

California Code of Regulations (CCR) Title 24, Part 6. CCR Title 24, Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24) were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. Although it was not originally intended to reduce GHG emissions, electricity production by fossil fuels results in GHG emissions and energy efficient buildings require less electricity. Therefore, increased energy efficiency results in decreased GHG emissions.

The Energy Commission adopted 2008 Standards on April 23, 2008 and Building Standards Commission approved them for publication on September 11, 2008. These updates became effective on August 1, 2009. 2013 and 2016 standards have been approved and became effective July 1, 2014 and January 1, 2016, respectively. 2019 standards were published July 1, 2019 and became effective January 1, 2020.

California Code of Regulations (CCR) Title 24, Part 11. All buildings for which an application for a building permit is submitted on or after January 1, 2020 must follow the 2019 standards.. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas emissions. The following links provide more information on Title 24, Part 11:
https://www.dgs.ca.gov/BSC/Codes
https://www.energy.ca.gov/sites/default/files/2020-03/Title_24_2019_Building_Standards_FAQ_ada.pdf

California Green Building Standards. On January 12, 2010, the State Building Standards Commission unanimously adopted updates to the California Green Building Standards Code, which went into effect on January 1, 2011. The Housing and Community Development (HCD) updated CALGreen through the 2015 Triennial Code Adoption Cycle, during the 2016 to 2017 fiscal year. During the 2019-2020 fiscal year, the Department of Housing and Community Development (HCD) updated CALGreen through the 2019 Triennial Code Adoption Cycle.

[5] National Highway Traffic Safety Administration (NHTSA) and U.S. Environmental Protection Agency (USEPA), 2018. Federal Register / Vol. 83, No. 165 / Friday, August 24, 2018 / Proposed Rules, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks 2018. Available at https://www.gpo.gov/fdsys/pkg/FR-2018-08-24/pdf/2018-16820.pdf.

The Code is a comprehensive and uniform regulatory code for all residential, commercial and school buildings. CCR Title 24, Part 11: California Green Building Standards (Title 24) became effective in 2001 in response to continued efforts to reduce GHG emissions associated with energy consumption. CCR Title 24, Part 11 now 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. One focus of CCR Title 24, Part 11 is water conservation measures, which reduce GHG emissions by reducing electrical consumption associated with pumping and treating water. CCR Title 24, Part 11 has approximately 52 nonresidential mandatory measures and an additional 130 provisions for optional use. Some key mandatory measures for commercial occupancies include specified parking for clean air vehicles, a 20 percent reduction of potable water use within buildings, a 50 percent construction waste diversion from landfills, use of building finish materials that emit low levels of volatile organic compounds, and commissioning for new, nonresidential buildings over 10,000 square feet.

The 2019 CalGreen Code includes the following changes and/or additional regulations:

Single-family homes built with the 2019 standards will use about 7 percent less energy due to energy efficiency measures versus those built under the 2016 standards. Once rooftop solar electricity generation is factored in, homes built under the 2019 standards will use about 53 percent less energy than those under the 2016 standards. Nonresidential buildings will use about 30 percent less energy due mainly to lighting upgrades[6].

HCD modified the best management practices for stormwater pollution prevention adding Section 5.106.2 for projects that disturb one or more acres of land. This section requires projects that disturb one acre or more of land or less than one acre of land but are part of a larger common plan of development or sale must comply with the post-construction requirement detailed in the applicable National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities issued by the State Water Resources Control Board. The NPDES permits require post-construction runoff (post-project hydrology) to match the preconstruction runoff pre-project hydrology) with installation of post-construction stormwater management measures.

HCD added sections 5.106.4.1.3 and 5.106.4.1.5 in regards to bicycle parking. Section 5.106.4.1.3 requires new buildings with tenant spaces that have 10 or more tenant-occupants, provide secure bicycle parking for 5 percent of the tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility. In addition, Section 5.106.4.1.5 states that acceptable bicycle parking facility for Sections 5.106.4.1.2 through 5.106.4.1.4 shall be convenient from the street and shall meeting one of the following: (1) covered, lockable enclosures with permanently anchored racks for bicycles; (2)

[6] https://ww2.energy.ca.gov/title24/2019standards/documents/2018_Title_24_2019_Building_Standards_FAQ.pdf

lockable bicycle rooms with permanently anchored racks; or (3) lockable, permanently anchored bicycle lockers.

HCD amended section 5.106.5.3.5 allowing future charging spaces to qualify as designated parking for clean air vehicles.

HCD updated section 5.303.3.3 in regards to showerhead flow rates. This update reduced the flow rate to 1.8 GPM.

HCD amended section 5.304.1 for outdoor potable water use in landscape areas and repealed sections 5.304.2 and 5.304.3. The update requires nonresidential developments to comply with a local water efficient landscape ordinance or the current California Department of Water Resource's' Model Water Efficient Landscape Ordinance (MWELO), whichever is more stringent. Some updates were also made in regards to the outdoor potable water use in landscape areas for public schools and community colleges.

HCD updated Section 5.504.5.3 in regards to the use of MERV filters in mechanically ventilated buildings. This update changed the filter use from MERV 8 to MERV 13.

The California Green Building Standards Code does not prevent a local jurisdiction from adopting a more stringent code as state law provides methods for local enhancements. The Code recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance, provided they provide a minimum 50-percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. State building code provides the minimum standard that buildings need to meet in order to be certified for occupancy. Enforcement is generally through the local building official. The following link provides more on CalGreen Building Standards:
http://www.bsc.ca.gov/Home/CALGreen.aspx

Executive Order S-3-05. California Governor issued Executive Order S-3-05, GHG Emission, in June 2005, which established the following targets:

- By 2010, California shall reduce greenhouse gas emissions to 2000 levels;
- By 2020, California shall reduce greenhouse gas emissions to 1990 levels.
- By 2050, California shall reduce greenhouse gas emissions to 80 percent below 1990 levels.

The executive order directed the secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. To comply with the Executive Order, the secretary of CalEPA created the California Climate Action Team (CAT), made up of members from various state agencies and commissions. The team released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of businesses, local governments, and communities and through State incentive and regulatory programs.

Executive Order S-01-07. Executive Order S-1-07 was issued in 2007 and proclaims that the transportation sector is the main source of GHG emissions in the State, since it generates more than 40 percent of the State's GHG emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in the State by at least ten percent by 2020. This Order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

On April 23, 2009 CARB approved the proposed regulation to implement the low carbon fuel standard and began implementation on January 1, 2011. The low carbon fuel standard is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. CARB approved some amendments to the LCFS in December 2011, which were implemented on January 1, 2013. In September 2015, the Board approved the re-adoption of the LCFS, which became effective on January 1, 2016, to address procedural deficiencies in the way the original regulation was adopted. In 2018, the Board approved amendments to the regulation, which included strengthening and smoothing the carbon intensity benchmarks through 2030 in-line with California's 2030 GHG emission reduction target enacted through SB 32, adding new crediting opportunities to promote zero emission vehicle adoption, alternative jet fuel, carbon capture and sequestration, and advanced technologies to achieve deep decarbonization in the transportation sector.

The LCFS is designed to encourage the use of cleaner low-carbon transportation fuels in California, encourage the production of those fuels, and therefore, reduce GHG emissions and decrease petroleum dependence in the transportation sector. Separate standards are established for gasoline and diesel fuels and the alternative fuels that can replace each. The standards are "back-loaded", with more reductions required in the last five years, than the first five years. This schedule allows for the development of advanced fuels that are lower in carbon than today's fuels and the market penetration of plug-in hybrid electric vehicles, battery electric vehicles, fuel cell vehicles, and flexible fuel vehicles. It is anticipated that compliance with the low carbon fuel standard will be based on a combination of both lower carbon fuels and more efficient vehicles.

Reformulated gasoline mixed with corn-derived ethanol at ten percent by volume and low sulfur diesel fuel represent the baseline fuels. Lower carbon fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel as appropriate. Compressed natural gas and liquefied natural gas also may be low carbon fuels. Hydrogen and electricity, when used in fuel cells or electric vehicles are also considered as low carbon fuels for the low carbon fuel standard.

SB 97. Senate Bill 97 (SB 97) was adopted August 2007 and acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. SB 97 directed the Governor's Office of Planning and Research (OPR), which is part of the State Resource Agency, to prepare, develop, and transmit to CARB guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, by July 1, 2009. The Resources Agency was required to certify and adopt those guidelines by January 1, 2010.

Pursuant to the requirements of SB 97 as stated above, on December 30, 2009 the Natural Resources Agency adopted amendments to the state CEQA guidelines that address GHG emissions. The CEQA Guidelines Amendments changed 14 sections of the CEQA Guidelines and incorporate GHG language throughout the Guidelines. However, no GHG emissions thresholds of significance are provided and no specific mitigation measures are identified. The GHG emission reduction amendments went into effect on March 18, 2010 and are summarized below:

- Climate action plans and other greenhouse gas reduction plans can be used to determine whether a project has significant impacts, based upon its compliance with the plan.
- Local governments are encouraged to quantify the greenhouse gas emissions of proposed projects, noting that they have the freedom to select the models and methodologies that best meet their needs and circumstances. The section also recommends consideration of several qualitative factors that may be used in the determination of significance, such as the extent to which the given project complies with state, regional, or local GHG reduction plans and policies. OPR does not set or dictate specific thresholds of significance. Consistent with existing CEQA Guidelines, OPR encourages local governments to develop and publish their own thresholds of significance for GHG impacts assessment.
- When creating their own thresholds of significance, local governments may consider the thresholds of significance adopted or recommended by other public agencies, or recommended by experts.
- New amendments include guidelines for determining methods to mitigate the effects of greenhouse gas emissions in Appendix F of the CEQA Guidelines.
- OPR is clear to state that "to qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project; general compliance with a plan, by itself, is not mitigation."
- OPR's emphasizes the advantages of analyzing GHG impacts on an institutional, programmatic level. OPR therefore approves tiering of environmental analyses and highlights some benefits of such an approach.
- Environmental impact reports (EIRs) must specifically consider a project's energy use and energy efficiency potential.

AB 32. The California State Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires that greenhouse gases emitted in California be reduced to 1990 levels by the year 2020. "Greenhouse gases" as defined under AB 32 include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. ARB is the state agency charged with monitoring and regulating sources of greenhouse gases. AB 32 states the following:

Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.

The ARB Board approved the 1990 greenhouse gas emissions level of 427 million metric tons of carbon dioxide equivalent (MMTCO2e) on December 6, 2007 (California Air Resources Board 2007). Therefore, emissions generated in California in 2020 are required to be equal to or less than 427 MMTCO2e. Emissions in 2020 in a "business as usual" scenario are estimated to be 596 MMTCO2e.

Under AB 32, the ARB published its Final Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California. Discrete early action measures are currently underway or are enforceable by January 1, 2010. The ARB has 44 early action measures that apply to the transportation, commercial, forestry, agriculture, cement, oil and gas, fire suppression, fuels, education, energy efficiency, electricity, and waste sectors. Of these early action measures, nine are considered discrete early action measures, as they are regulatory and enforceable by January 1, 2010. The ARB estimates that the 44 recommendations are expected to result in reductions of at least 42 MMTCO2e by 2020, representing approximately 25 percent of the 2020 target.

The ARB's Climate Change Scoping Plan (Scoping Plan) contains measures designed to reduce the State's emissions to 1990 levels by the year 2020 (California Air Resources Board 2008). The Scoping Plan identifies recommended measures for multiple greenhouse gas emission sectors and the associated emission reductions needed to achieve the year 2020 emissions target—each sector has a different emission reduction target. Most of the measures target the transportation and electricity sectors. As stated in the Scoping Plan, the key elements of the strategy for achieving the 2020 greenhouse gas target include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewables energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related greenhouse gas emissions for regions throughout California and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, Including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State's long-term commitment to AB 32 implementation.

In addition, the Scoping Plan differentiates between "capped" and "uncapped" strategies. "Capped" strategies are subject to the proposed cap-and-trade program. The Scoping Plan states that the inclusion of these emissions within the cap-and trade program will help ensure that the year 2020 emission targets are met despite some degree of uncertainty in the emission reduction estimates for any individual measure. Implementation of the capped strategies is calculated to achieve a sufficient amount of reductions by 2020 to achieve the emission target contained in AB 32. "Uncapped" strategies that will

not be subject to the cap-and-trade emissions caps and requirements are provided as a margin of safety by accounting for additional greenhouse gas emission reductions.[4]

Senate Bill 100. Senate Bill 100 (SB 100) requires 100 percent of total retail sales of electricity in California to come from eligible renewable energy resources and zero-carbon resources by December 31, 2045. SB 100 was adopted September 2018.

The interim thresholds from prior Senate Bills and Executive Orders would also remain in effect. These include Senate Bill 1078 (SB 1078), which requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. Senate Bill 107 (SB 107) which changed the target date to 2010. Executive Order S-14-08, which was signed on November 2008 and expanded the State's Renewable Energy Standard to 33 percent renewable energy by 2020. Executive Order S-21-09 directed the CARB to adopt regulations by July 31, 2010 to enforce S-14-08. Senate Bill X1-2 codifies the 33 percent renewable energy requirement by 2020.

Senate Bill 350. Signed into law October 7, 2015, SB 350 increases California's renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030. This will increase the use of Renewables Portfolio Standard (RPS) eligible resources, including solar, wind, biomass, geothermal, and others. In addition, SB 350 requires the state to double statewide energy efficiency savings in electricity and natural gas end uses by 2030. To help ensure these goals are met and the greenhouse gas emission reductions are realized, large utilities will be required to develop and submit Integrated Resource Plans (IRPs). These IRPs will detail how each entity will meet their customers resource needs, reduce greenhouse gas emissions and ramp up the deployment of clean energy resources.

SB 375. Senate Bill 375 (SB 375) was adopted September 2008 and aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPO) to adopt a sustainable communities strategy (SCS) or alternate planning strategy (APS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP). CARB, in consultation with each MPO, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's sustainable communities strategy or alternate planning strategy for consistency with its assigned targets.

The proposed project is located within the Southern California Association of Governments (SCAG), which has authority to develop the SCS or APS. For the SCAG region, the targets set by CARB are at eight percent below 2005 per capita GHG emissions levels by 2020 and 13 percent below 2005 per capita GHG emissions levels by 2035. On April 4, 2012, SCAG adopted the 2012-2035 Regional Transportation Plan / Sustainable Communities Strategy (RTP/SCS), which meets the CARB emission reduction requirements.

On September 3, 2020, SCAG's Regional Council approved and fully adopted the Connect SoCal (2020–2045 Regional Transportation Plan/Sustainable Communities Strategy), and the addendum to the Connect SoCal Program Environmental Impact Report. Connect SoCal is a long-range visioning plan that builds upon and expands land use and transportation strategies established over several planning cycles to increase mobility options and achieve a more sustainable growth pattern. Connect SoCal outlines more than $638 billion in transportation system investments through 2045. Connect SoCal is supported by a combination of transportation and land use strategies that help the region achieve state greenhouse gas emission reduction goals and federal Clean Air Act requirements, preserve open space areas, improve public health and roadway safety, support our vital goods movement industry and utilize resources more efficiently. By integrating the Forecasted Development Pattern with a suite of financially constrained transportation investments, Connect SoCal can reach the regional target of reducing greenhouse gases, or GHGs, from autos and light-duty trucks by 8 percent per capita by 2020, and 19 percent by 2035 (compared to 2005 levels).

City and County land use policies, including General Plans, are not required to be consistent with the RTP and associated SCS or APS. However, new provisions of CEQA would incentivize, through streamlining and other provisions, qualified projects that are consistent with an approved SCS or APS and categorized as "transit priority projects."

Senate Bill X7-7. Senate Bill X7-7 (SB X7-7), enacted on November 9, 2009, mandates water conservation targets and efficiency improvements for urban and agricultural water suppliers. SB X7-7 requires the Department of Water Resources (DWR) to develop a task force and technical panel to develop alternative best management practices for the water sector. In addition, SB X7-7 required the DWR to develop criteria for baseline uses for residential, commercial, and industrial uses for both indoor and landscaped area uses. The DWR was also required to develop targets and regulations that achieve a statewide 20 percent reduction in water usage.

Assembly Bill 939, Assembly Bill 341, and Senate Bill 1374. Assembly Bill 939 (AB 939) requires that each jurisdiction in California to divert at least 50 percent of its waste away from landfills, whether through waste reduction, recycling or other means. AB 341 requires at least 75 percent of generated waste be source reduced, recycled, or composted by the year 2020. Senate Bill 1374 (SB 1374) requires the California Integrated Waste Management Board to adopt a model ordinance by March 1, 2004 suitable for adoption by any local agency to require 50 to 75 percent diversion of construction and demolition of waste materials from landfills.

Executive Order S-13-08. Executive Order S-13-08 indicates that "climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures, thereby posing a serious threat to California's economy, to the health and welfare of its population and to its natural resources." Pursuant to the requirements in the order, the 2009 California Climate Adaptation Strategy (California Natural Resource Agency 2009) was adopted, which is the "… first statewide, multi-sector, region-specific, and information-based climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

Executive Order B-30-15. Executive Order B-30-15, establishing a new interim statewide greenhouse gas emission reduction target to reduce greenhouse gas emissions to 40 percent below 1990 levels by 2030, was signed by Governor Brown in April 2015.

Executive Order B-29-15. Executive Order B-29-15, mandates a statewide 25% reduction in potable water usage and was signed into law on April 1, 2015.

Executive Order B-37-16. Executive Order B-37-16, continuing the State's adopted water reduction, was signed into law on May 9, 2016. The water reduction builds off the mandatory 25% reduction called for in EO B-29-15.

Executive Order N-79-20. Executive Order N-79-20 was signed into law on September 23, 2020 and mandates 100 percent of in-state sales of new passenger cars and trucks be zero-emission by 2035; 100 percent of medium- and heavy-duty vehicles in the state be zero-emission vehicles by 2045 for all operations where feasible and by 2035 for drayage trucks; and to transition to 100 percent zero-emission off-road vehicles and equipment by 2035 where feasible.

SBX1 2. Signed into law in April 2011, SBX1 2, requires one-third of the State's electricity to come from renewable sources. The legislation increases California's current 20 percent renewables portfolio standard target in 2010 to a 33 percent renewables portfolio standard by December 31, 2020.

2.2.4 Mojave Desert Air Quality Management District

The project is within the MDAB, which is under the jurisdiction of the MDAQMD.

As shown in Table 3, the MDAQMD has identified thresholds of 100,000 tons per year or 548,000 pounds per day of CO2e emissions for individual projects.

Table 3: MDAQMD Air Quality Significance Thresholds

Pollutant	Annual Thresholds (tons/year)	Daily Thresholds (pounds/day)
NOx	25	137
VOC	25	137
PM10	15	82
PM2.5	15	82
SOx	25	137
CO	100	548
Lead	0.6	3
Greenhouse Gases (CO2e)	100,000	548,000

Source: http://www.mdaqmd.ca.gov/Modules/ShowDocument.aspx?documentid=2910

2.2.5 County of San Bernardino

County of San Bernardino Greenhouse Gas Emissions Reduction Plan

The County of San Bernardino adopted its "Greenhouse Gas Emissions Reduction Plan" in December 2011. The purpose of the GHG Reduction Plan is to reduce the County's internal and external GHG emissions by 15 percent below current (2011) levels by year 2020. The GHG Reduction Plan includes a two-tiered development review procedure to determine if a project could result in a significant impact related to greenhouse gas emissions or otherwise comply with the Plan pursuant to Section 15183.5 of the state CEQA Guidelines.

The initial screening procedure is to determine if a project will emit 3,000 metric tons of carbon dioxide equivalents (MTCO2e) per year or more. Projects that do not exceed this threshold require no further climate change analysis. Projects exceeding this threshold must meet a minimum 31 percent emissions reduction in order to garner a less than significant determination. This can be met by either (1) achieving 100 points from a menu of mitigation options provided in the GHG Plan or (2) quantifying proposed reduction measures. Projects failing to meet the 31 percent reduction threshold would have a potentially significant impact related to climate change and greenhouse gas emissions.

According to the *County of San Bernardino Greenhouse Gas Emissions Reduction Plan*, "all development projects, including those otherwise determined to be exempt from CEQA will be subject to applicable Development Code provisions, including the GHG performance standards, and state requirements, such as the California Building Code requirements for energy efficiency. With the application of the GHG performance standards, projects that are exempt from CEQA and small projects that do not exceed 3,000 MTCO2e per year will be considered to be consistent with the Plan and determined to have a less than significant individual and cumulative impact for GHG emissions." The Reduction Plan also states that "a review standard of 3,000 MTCO2e per year will be used to identify projects that require the use of Screening Tables or a project-specific technical analysis to quantify and mitigate project emissions." Furthermore, "for projects exceeding 3,000 MTCO2e per year of GHG emissions, the County will use Screening Tables as a tool to assist with calculating GHG reduction measures and the determination of a significance finding. Projects that garner a 100 or greater points would not require quantification of project specific GHG emissions. The point system was devised to ensure to Project compliance with the reduction measures in the GHG Plan such that the GHG emissions from new development, when considered together with those existing development, will allow the County to meet its 2020 target and support reductions in GHG emissions beyond 2020. Consistent with the CEQA Guidelines, such projects are consistent with the Plan and therefore will be determined to have a less than significant individual and cumulative impact for GHG emissions.

County of San Bernardino General Plan

The County of San Bernardino General Plan contains the following greenhouse gas related policies and programs that are applicable to the proposed project:

CO 4.5 Reduce emissions through reduced energy consumption.

Programs

1. Implement programs to phase in energy conservation improvements through the annual budget process.

CO 4.6 Provide incentives such as preferential parking for alternative-fuel vehicles (e.g., CNG or hydrogen).

CO 4.10 Support the development of alternative fuel infrastructure that is publicly accessible.

CO 4.12 Provide incentives to promote siting or use of clean air technologies (e.g., fuel cell technologies, renewable energy sources, UV coatings, and hydrogen fuel).

CO 4.13 Reduce Greenhouse Gas (GHG) emissions within the County boundaries.

Programs

1. Emission Inventories. The County will prepare GHG emissions inventories including emissions produced by: (1) the County's operational activities, services and facilities, over which the County has direct responsibility and control, and (2) private industry and development, that is located within the area subject to the County's discretionary land use authority.

    a. Establish an inventory of existing GHG emissions.
    b. Establish a projected inventory for year 2020.

2. GHG Emissions Reduction Plan. The County will adopt a GHG Emissions Reduction Plan that includes:

    a. Measures to reduce GHG emissions attributable to the County's operational activities, services and facilities, over which the County has direct responsibility and control; and,
    b. Measures to reduce GHG emissions produced by private industry and development that is located within the area subject to the County's discretionary land use authority and ministerial building permit authority; and,
    c. Implementation and monitoring procedures to provide periodic review of the plan's progress and allow for adjustments overtime to ensure fulfillment of the plan's objectives.

2.2.6 City of Twentynine Palms

City of Twentynine Palms General Plan

The City of Twentynine Palms General Plan contains the following greenhouse gas related policies and programs that are applicable to the proposed project:

Goal CO 4 Develop regulations and policies which reduce pollutants responsible for lowering the air quality within the City and for adding to the global climate change problem.

Implementation Policies

CO-4.1 Require air quality analyses for all proposed development projects that have the potential to adversely affect air quality and identify and impose mitigation measures within their design. Projects shall be determined to have the potential to adversely affect air quality based on the significance thresholds established by the MDAQMD CEQA Guidelines.

CO-4.10 Expand the use of CNG, electric powered and other non-gasoline vehicles for City activities.

CO-4.12 Cooperate with SCAG and SANBAG to develop a local climate action plan.

CO-4.13 Develop and implement greenhouse gas emissions reduction measures, including discrete, early-action greenhouse gas reducing measures that are technologically feasible and cost effective, for both public and private development projects.

CO-4.14 Ensure the use of alternative and/or renewable energy sources for all new City facilities. Where and when feasible and practical, retrofit existing City facilities for the use of alternative and/or renewable energy.

CO-4.15 Consult with the MDAQMD during CEQA review for all discretionary projects meeting or exceeding MDAQMD thresholds and previously reviewed by the MDAQMD.

CO-4.18 Future development shall be sited in accordance with the guidelines prepared by the California Air Resources Board in their latest Air Quality and Land Use Handbook.

3.0 Setting

3.1 Existing Physical Setting

The project site is located approximately two miles north of the unincorporated community of Sunfair in the southern central portion of the County of San Bernardino, which is part of the Mojave Desert Air Basin (MDAB) that includes the desert portion of San Bernardino County and the far eastern end of Riverside County

3.1.1 Local Climate and Meteorology

The MDAB is an assemblage of mountain ranges interspersed with long broad valleys that often contain dry lakes. Many of the lower mountains which dot the vast terrain rise from 1,000 to 4,000 feet above the valley floor. Prevailing winds in the MDAB are out of the west and southwest. These prevailing winds are due to the proximity of the MDAB to coastal and central regions and the blocking nature of the Sierra Nevada Mountains to the north; air masses pushed onshore in southern California by differential heating are channeled through the MDAB. The MDAB is separated from the southern California coastal and central California valley regions by mountains (highest elevation approximately 10,000 feet), whose passes form the main channels for these air masses. The Antelope Valley is bordered in the northwest by the Tehachapi Mountains, separated from the Sierra Nevada's in the north by the Tehachapi Pass (3,800-foot elevation). The Antelope Valley is bordered in the south by the San Gabriel Mountains, bisected by Soledad Canyon (3,300 feet). The Mojave Desert is bordered in the southwest by the San Bernardino Mountains, separated from the San Gabriel's by the Cajon Pass (4,200 feet). A lesser channel lies between the San Bernardino Mountains and the Little San Bernardino Mountains (the Morongo Valley).

The Palo Verde Valley portion of the Mojave Desert lies in the low desert, at the eastern end of a series of valleys (notably the Coachella Valley) whose primary channel is the San Gorgonio Pass (2,300 feet) between the San Bernardino and San Jacinto Mountains.

During the summer the MDAB is generally influenced by a Pacific Subtropical High cell that sits off the coast, inhibiting cloud formation and encouraging daytime solar heating. The MDAB is rarely influenced by cold air masses moving south from Canada and Alaska, as these frontal systems are weak and diffuse by the time the reach the desert. Most desert moisture arrives from infrequent warm, moist and unstable air masses from the south. The MDAB averages between three and seven inches of precipitation per year (from 16 to 30 days with at least 0.01 inches of precipitation). The MDAB is classified as a dry-hot desert climate (BWh), with portions classified as dry-very hot desert (BWhh), to indicate at least three months have maximum average temperatures over 100.4° F.

The temperature and precipitation levels for Joshua Tree, the closest monitoring station to the project site, are in Table 4. Table 4 shows that July is typically the warmest month and December is typically the coolest month. Rainfall in the project area varies considerably in both time and space. Almost all the annual rainfall comes from the fringes of mid-latitude storms from late November to early April, with summers being almost completely dry.

Table 4: Meteorological Summary

Month	Temperature (˚F)		Average Precipitation (inches)
	Average High	Average Low	
January	62.2	37.9	0.62
February	61.5	37.5	0.48
March	69.8	41.0	0.39
April	76.4	46.0	0.13
May	86.0	53.4	0.17
June	93.9	60.0	0.01
July	101.1	70.8	0.33
August	100.4	70.1	0.50
September	95.8	65.8	0.33
October	81.2	53.4	0.33
November	69.1	43.0	0.61
December	58.2	35.8	0.79
Annual Average	**79.6**	**51.2**	**4.7**

Notes:
[1] Source : https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca4405

3.1.2 Local Air Quality

The MDAQMD maintains an air-monitoring network that measures levels of several air pollutants throughout the air basin. Since not all air monitoring stations measure all of the tracked pollutants, the data from the following two monitoring stations, listed in the order of proximity to the project site have been used. The nearest air monitoring station to the project site is the Joshua Tree – National Monument monitoring station (Joshua Tree Station) located approximately 25.5 miles southwest of the project site. Table 5 presents the monitored pollutant levels within the vicinity. However, it should be noted that due to the air monitoring station distance from the project site, recorded air pollution levels at the air monitoring station reflect with varying degrees of accuracy, local air quality conditions at the project site.

<Table 5, next page>

Table 5: Local Area Air Quality Levels

Pollutant (Standard)[2]	Year		
	2018	2019	2020
Ozone:			
Maximum 1-Hour Concentration (ppm)	0.110	0.105	0.111
Days > CAAQS (0.09 ppm)	**11**	**2**	**4**
Maximum 8-Hour Concentration (ppm)	0.096	0.088	0.099
Days > NAAQS (0.07 ppm)	**65**	**39**	**34**
Days > CAAQS (0.070 ppm)	**71**	**40**	**39**
Carbon Monoxide:			
Maximum 8-Hour Concentration (ppm)	*	*	*
Days > NAAQS (9 ppm)	0	0	0
Nitrogen Dioxide:			
Maximum 1-Hour Concentration (ppm)	0.043	0.041	0.047
Days > NAAQS (0.25 ppm)	0	0	0
Inhalable Particulates (PM10):			
Maximum 24-Hour Concentration (µg/m^3)	422.3	75.6	129.8
Days > NAAQS (150 µg /m^3)	**2**	**0**	**0**
Days > CAAQS (50 µg /m^3)	**0**	**6**	**0**
Annual Average (ug/m^3)	22.9	20.8	23.2
Annual > NAAQS (50 µg /m^3)	No	No	No
Annual > CAAQS (20 µg /m^3)	**Yes**	**Yes**	**Yes**
Ultra-Fine Particulates (PM2.5):			
Maximum 24-Hour Concentration (µg /m^3)	30.2	15.5	23.9
Days > NAAQS (35 µg /m^3)	0	0	0
Annual Average (µg /m^3)	6.0	6.1	6.4
Annual > NAAQS (15 µg /m3)	No	No	No
Annual > CAAQS (12 µg /m^3)	No	No	No

[1.] Source: obtained from https://www.arb.ca.gov/adam/topfour/topfour1.php
[2] CAAQS = California Ambient Air Quality Standard; NAAQS = National Ambient Air Quality Standard; ppm = parts per million; µg/m^3 = micrograms/cubic meter
[3] No data available.

The monitoring data presented in Table 5 shows that ozone and particulate matter (PM10) are the air pollutants of primary concern in the project area, which are detailed below.

Ozone

During the 2018 to 2020 monitoring period, the State 1-hour concentration standard for ozone were exceeded between two and 11 days each year at the Joshua Tree Station. The State 8-hour ozone standard has been exceeded between 39 and 71 days each year over the past three years at the Joshua Tree Station. The Federal 8-hour ozone standard has been exceeded between 34 and 65 days each year of the past three years at the Joshua Tree Station.

Carbon Monoxide

CO is another important pollutant that is due mainly to motor vehicles. The Palm Springs Station did not record an exceedance of the state or federal 8-hour CO standards for the last three years.

Nitrogen Dioxide
The Palm Springs Station did not record an exceedance of the State or Federal NO_2 standards for the last three years.

Particulate Matter
During the 2018 to 2020 monitoring period, the State 24-hour concentration standard for PM10 was exceeded for six days in 2019 at the Palm Springs Station. Over the same time period the Federal 24-hour and annual standards for PM10 have been exceeded for two days in 2018 at the Palm Springs Station.

The Federal 24-hour standard for PM2.5 has not been exceeded over the last three years at the Palm Springs Station.

According to the EPA, some people are much more sensitive than others to breathing fine particles (PM10 and PM2.5). People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death due to breathing these fine particles. People with bronchitis can expect aggravated symptoms from breathing in fine particles. Children may experience decline in lung function due to breathing in PM10 and PM2.5. Other groups considered sensitive are smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive, because many breathe through their mouths during exercise.

3.1.3 Attainment Status

The EPA and the ARB designate air basins where ambient air quality standards are exceeded as "nonattainment" areas. If standards are met, the area is designated as an "attainment" area. If there is inadequate or inconclusive data to make a definitive attainment designation, they are considered "unclassified." National nonattainment areas are further designated as marginal, moderate, serious, severe, or extreme as a function of deviation from standards. Each standard has a different definition, or 'form' of what constitutes attainment, based on specific air quality statistics. For example, the Federal 8-hour CO standard is not to be exceeded more than once per year; therefore, an area is in attainment of the CO standard if no more than one 8-hour ambient air monitoring values exceeds the threshold per year. In contrast, the federal annual $PM_{2.5}$ standard is met if the three-year average of the annual average $PM_{2.5}$ concentration is less than or equal to the standard. Table 6 lists the attainment status for the criteria pollutants in the basin.

As indicated below in Table 3, the MDAB has been designated by the EPA as a non-attainment area for ozone (O3) and suspended particulates (PM10). Currently, the Basin is in attainment with the ambient air quality standards for carbon monoxide (CO), lead, sulfur dioxide (SO2), nitrogen dioxide (NO2) and particulate matter (PM2.5).

<Table 6, next page>

Table 6: Attainment Status of MDAQMD[1] – Portion of Mojave Desert Air Basin

Pollutant	Federal Designation	State Designation
1-Hour Ozone	--	Nonattainment
8-Hour Ozone	Nonattainment	Nonattainment
CO	Unclassified/Attainment	Attainment
PM10	Nonattainment	Nonattainment
PM2.5	Unclassified/Attainment	Nonattainment
Lead	Unclassified/Attainment	Attainment
SO2	Unclassified/Attainment	Attainment
NO2	Unclassified/Attainment	Attainment

Notes:

[1] MDAQMD = Mojave Desert Air Quality Management District

[2] Source: California Air Resources Board (2019) (https://ww2.arb.ca.gov/resources/documents/maps-state-and-federal-area-designations) and MDAQMD (https://www.mdaqmd.ca.gov/air-quality/mdaqmd-attaiment-status).

3.2 Greenhouse Gases

Constituent gases of the Earth's atmosphere, called atmospheric greenhouse gases (GHG), play a critical role in the Earth's radiation amount by trapping infrared radiation emitted from the Earth's surface, which otherwise would have escaped to space. Prominent greenhouse gases contributing to this process include carbon dioxide (CO_2), methane (CH_4), ozone, water vapor, nitrous oxide (N_2O), and chlorofluorocarbons (CFCs). This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable climate. Anthropogenic (caused or produced by humans) emissions of these greenhouse gases in excess of natural ambient concentrations are responsible for the enhancement of the Greenhouse Effect and have led to a trend of unnatural warming of the Earth's natural climate, known as global warming or climate change. Emissions of gases that induce global warming are attributable to human activities associated with industrial/manufacturing, agriculture, utilities, transportation, and residential land uses. Transportation is responsible for 41 percent of the State's greenhouse gas emissions, followed by electricity generation. Emissions of CO_2 and nitrous oxide (NO_2) are byproducts of fossil fuel combustion. Methane, a potent greenhouse gas, results from off-gassing associated with agricultural practices and landfills. Sinks of CO_2, where CO_2 is stored outside of the atmosphere, include uptake by vegetation and dissolution into the ocean. Table 7 provides a description of each of the greenhouse gases and their global warming potential.

Additional information is available: https://www.arb.ca.gov/cc/inventory/data/data.htm

<Table 7 on next page>

Table 7: Description of Greenhouse Gases

Greenhouse Gas	Description and Physical Properties	Sources
Nitrous oxide	Nitrous oxide (N_20), also known as laughing gas is a colorless gas. It has a lifetime of 114 years. Its global warming potential is 298.	Microbial processes in soil and water, fuel combustion, and industrial processes. In addition to agricultural sources, some industrial processes (nylon production, nitric acid production) also emit N_20.
Methane	Methane (CH_4) is a flammable gas and is the main component of natural gas. It has a lifetime of 12 years. Its global warming potential is 25.	A natural source of CH_4 is from the decay of organic matter. Methane is extracted from geological deposits (natural gas fields). Other sources are from the decay of organic material in landfills, fermentation of manure, and cattle farming.
Carbon dioxide	Carbon dioxide (CO_2) is an odorless, colorless, natural greenhouse gas. Carbon dioxide's global warming potential is 1. The concentration in 2005 was 379 parts per million (ppm), which is an increase of about 1.4 ppm per year since 1960.	Natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources are from burning coal, oil, natural gas, and wood.
Chlorofluorocarbons	CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). They are gases formed synthetically by replacing all hydrogen atoms in methane or methane with chlorine and/or fluorine atoms. Global warming potentials range from 3,800 to 8,100.	Chlorofluorocarbons were synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. They destroy stratospheric ozone; therefore, their production was stopped as required by the Montreal Protocol.
Hydrofluorocarbons	Hydrofluorocarbons (HFCs) are a group of greenhouse gases containing carbon, chlorine, and at least one hydrogen atom. Global warming potentials range from 140 to 11,700.	Hydrofluorocarbons are synthetic manmade chemicals used as a substitute for chlorofluorocarbons in applications such as automobile air conditioners and refrigerants.
Perfluorocarbons	Perfluorocarbons (PFCs) have stable molecular structures and only break down by ultraviolet rays about 60 kilometers above the Earth's surface. They have a lifetime 10,000 to 50,000 years. They have a global warming potential range of 6,200 to 9,500.	Two main sources of perfluorocarbons are primary aluminum production and semiconductor manufacturing.
Sulfur hexafluoride	Sulfur hexafluoride (SF_6) is an inorganic, odorless, colorless, and nontoxic, nonflammable gas. It has a lifetime of 3,200 years. It has a high global warming potential, 23,900.	This gas is manmade and used for insulation in electric power transmission equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

Notes:

1. Sources: Intergovernmental Panel on Climate Change 2014a and Intergovernmental Panel on Climate Change 2014b. https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html

4.0 Modeling Parameters and Assumptions

4.1 Construction

Emissions are estimated using the CalEEMod (Version 2020.4.0) software, which is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions from a variety of land use projects. CalEEMod was developed in collaboration with the air districts of California. Regional data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) have been provided by the various California air districts to account for local requirements and conditions. The model is considered to be an accurate and comprehensive tool for quantifying air quality and GHG impacts from land use projects throughout California.

The CalEEMod program uses the EMFAC2017 computer program to calculate the emission rates specific for the MDAQMD portion of San Bernardino County for construction-related employee vehicle trips and the OFFROAD2011 computer program to calculate emission rates for heavy truck operations. EMFAC2017 and OFFROAD2011 are computer programs generated by CARB that calculates composite emission rates for vehicles. Emission rates are reported by the program in grams per trip and grams per mile or grams per running hour. Using CalEEMod, the peak daily air pollutant emissions were calculated and presented below. These emissions represent the highest level of emissions for each of the construction phases in terms of air pollutant emissions.

The analysis assesses the emissions associated with the construction of the proposed project as indicated in Table 1. Per the site plan, the overall area to be disturbed during construction of the proposed project was estimated to be approximately 25 acres. Per the project applicant, the proposed project is to begin construction two to three years after the hotel is completed, with construction estimated at eight to ten months. This was conservatively estimated in CalEEMod as a six-month construction period beginning August 2021 and operation of the project beginning in 2023. The phases of the construction activities which have been analyzed below are: 1) site preparation, 2) grading, 3) building, 4) paving, and 5) architectural coating. For details on construction modeling and construction equipment for each phase, please see Appendix A.

4.2 Operations

Operational or long-term emissions occur over the life of the Project. Both mobile and area sources generate operational emissions. Area source emissions arise from consumer product usage, heaters that consume propane, gasoline-powered landscape equipment, and architectural coatings (painting). Mobile source emissions from motor vehicles are the largest single long-term source of air pollutants from the operation of the Project. Small amounts of emissions would also occur from area sources such as the consumption of propane for heating, hearths, from landscaping emissions, and consumer product usage. The operational emissions were estimated using the latest version of CalEEMod.

Mobile Sources

Mobile sources include emissions from the additional vehicle miles generated from the proposed project. Per the traffic assessment, the project will generate approximately 604 trips per day. The

program then applies the emission factors for each trip which is provided by the EMFAC2017 model to determine the vehicular traffic pollutant emissions. The CalEEMod default trip lengths were used in this analysis. Please see CalEEMod output comments sections in Appendix A and B for details.

Area Sources

Area sources include emissions from consumer products, landscape equipment and architectural coatings. Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers, as well as air compressors, generators, and pumps. As specifics were not known about the landscaping equipment fleet, CalEEMod defaults were used to estimate emissions from landscaping equipment.

Per MDAQMD Rule 1113 as amended on April 23, 2012, the architectural coatings that would be applied after January 1, 2013 will be limited to an average of 150 grams per liter or less.

Energy Usage

2020.4.0 CalEEMod defaults were utilized.

5.0 Thresholds of Significance

5.1 Air Quality Thresholds of Significance

5.1.1 CEQA Guidelines for Air Quality

The CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in the environment." To determine if a project would have a significant impact on air quality, the type, level, and impact of emissions generated by the project must be evaluated.

The following air quality significance thresholds are contained in Appendix G of the CEQA Guidelines. A significant impact would occur if the project would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable national or state ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations; or
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The CEQA Guidelines Section 15064.7 provides the significance criteria established by the applicable air quality management district or air pollution control district, when available, may be relied upon to make determinations of significance. The potential air quality impacts of the project are, therefore, evaluated according to thresholds developed by MDAQMD in their CEQA Guidelines.

5.1.2 Regional Significance Thresholds

According to the MDAQMD, a project is non-conforming if it conflicts with or delays implementation of any applicable attainment or maintenance plan. A project is conforming if it complies with all applicable MDAQMD rules and regulations, complies with all proposed control measures that are not yet adopted from the applicable plan(s), and it is consistent with the growth forecasts in the applicable plan(s) (or is directly included in the applicable plan).

Violation of Air Quality Standards or Substantial Contribution to Air Quality Violations. The MDAQMD currently recommends that projects with construction-related and/or operational emissions that exceed any of the following emissions thresholds should be considered significant:

- 25 tons per year or 137 pounds per day pounds per day of VOC
- 25 tons per year or 137 pounds per day of NOx
- 100 tons per year or 548 pounds per day of CO
- 25 tons per year or 137 pounds per day of Sox
- 15 tons per year or 82 pounds per day of PM10
- 12 tons per year or 65 pounds per day of PM2.5

For the purposes to this air quality impact analysis, a regional air quality impact would be considered significant if emissions exceed the MDAQMD significance thresholds identified above and in Table 5.

5.2 Greenhouse Gas Thresholds of Significance

5.2.1 CEQA Guidelines for Greenhouse Gas

CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in the environment." To determine if a project would have a significant impact on greenhouse gases, the type, level, and impact of emissions generated by the project must be evaluated.

The following greenhouse gas significance thresholds are contained in Appendix G of the CEQA Guidelines, which were amendments adopted into the Guidelines on March 18, 2010, pursuant to SB 97. A significant impact would occur if the project would:

(a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or

(b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

However, despite this, currently neither the CEQA statutes, OPR guidelines, nor the draft proposed changes to the CEQA Guidelines prescribe thresholds of significance or a particular methodology for performing an impact analysis; as with most environmental topics, significance criteria are left to the judgment and discretion of the Lead Agency. As previously discussed (see Section 2.2.4 of this report), MDAQMD has identified thresholds of 100,000 tons per year or 548,000 pounds per day of CO2e emissions for individual projects. The MDAQMD thresholds were used in this analysis.

The project's emissions will be compared to a screening threshold of 3,000 MTCO2e/year and the project is expected to comply with the performance standards for commercial uses, as detailed in the *County of San Bernardino Greenhouse Gas Emissions Reduction Plan.*

6.0 Air Quality Emissions Impact

6.1 Construction Air Quality Emissions Impact

The latest version of CalEEMod was used to estimate the onsite and offsite construction emissions. The emissions incorporate Rule 403.2. Rule 403.2 (fugitive dust) is not considered a mitigation measure as the project by default is required to incorporate this rule during construction.

6.1.1 Regional Construction Emissions

The construction emissions for the project would not exceed MDAQMD's daily or annual emissions thresholds as demonstrated in Table 8, and therefore would be considered less than significant.

Table 8: Regional Significance - Construction Emissions (pounds/day)

Activity	Pollutant Emissions (pounds/day)					
	VOC	**NOx**	**CO**	**SO_2**	**PM10**	**PM2.5**
Site Preparation						
On-Site[2]	3.17	33.08	19.70	0.04	9.28	5.42
Off-Site[3]	0.08	0.05	0.74	0.00	0.20	0.05
Total	**3.25**	**33.13**	**20.44**	**0.04**	**9.48**	**5.48**
Grading						
On-Site[2]	3.62	38.84	29.04	0.06	4.15	2.81
Off-Site[3]	0.08	0.06	0.82	0.00	0.22	0.06
Total	**3.71**	**38.90**	**29.87**	**0.06**	**4.37**	**2.87**
Building Construction						
On-Site[2]	1.71	15.62	16.36	0.03	0.81	0.76
Off-Site[3]	2.05	8.67	19.80	0.07	5.81	1.64
Total	**3.76**	**24.29**	**36.16**	**0.10**	**6.62**	**2.40**
Paving						
On-Site[2]	1.27	10.19	14.58	0.02	0.51	0.47
Off-Site[3]	0.06	0.04	0.57	0.00	0.17	0.05
Total	**1.33**	**10.23**	**15.15**	**0.02**	**0.68**	**0.51**
Architectural Coating						
On-Site[2]	39.33	1.30	1.81	0.00	0.07	0.07
Off-Site[3]	0.32	0.21	3.13	0.01	0.93	0.25
Total	**39.66**	**1.51**	**4.94**	**0.01**	**1.00**	**0.32**
Total of all phases	**51.70**	**108.06**	**106.56**	**0.24**	**22.16**	**11.59**
MDAQMD Thresholds	**137**	**137**	**548**	**137**	**82**	**65**
Exceeds Thresholds	No	No	No	No	No	No
Activity	**Pollutant Emissions (tons/year)**					
Annual Emissions	**0.72**	**2.51**	**3.05**	**0.01**	**0.58**	**0.24**
MDAQMD Annual Thresholds	**25**	**25**	**100**	**25**	**15**	**12**
Exceeds Threshold?	No	No	No	No	No	No

Notes:
[1] Source: CalEEMod Version 2020.4.0
[2] On-site emissions from equipment operated on-site that is not operated on public roads. On-site grading PM-10 and PM-2.5 emissions show mitigated values for fugitive dust for compliance with MDAQMD Rule 403.
[3] Off-site emissions from equipment operated on public roads.

6.1.3 Odors

Potential sources that may emit odors during construction activities include the application of materials such as asphalt pavement. The objectionable odors that may be produced during the construction process are of short-term in nature and the odor emissions are expected cease upon the drying or hardening of the odor producing materials. Diesel exhaust and VOCs would be emitted during construction of the project, which are objectionable to some; however, emissions would disperse rapidly from the project site and therefore should not reach an objectionable level at the nearest sensitive receptors. Due to the short-term nature and limited amounts of odor producing materials being utilized, no significant impact related to odors would occur during construction of the proposed project.

6.1.4 Construction-Related Toxic Air Contaminant Impact

The greatest potential for toxic air contaminant emissions would be related to diesel particulate emissions associated with heavy equipment operations during construction of the proposed project. The Office of Environmental Health Hazard Assessment (OEHHA) has issued the Air Toxic Hot Spots Program Risk Assessment Guidelines and Guidance Manual for the Preparation of Health Risk Assessments, February 2015 to provide a description of the algorithms, recommended exposure variates, cancer and noncancer health values, and the air modeling protocols needed to perform a health risk assessment (HRA) under the Air Toxics Hot Spots Information and Assessment Act of 1987. Hazard identification includes identifying all substances that are evaluated for cancer risk and/or non-cancer acute, 8-hour, and chronic health impacts. In addition, identifying any multi-pathway substances that present a cancer risk or chronic non-cancer hazard via non-inhalation routes of exposure.

Given the relatively limited number of heavy-duty construction equipment and construction schedule, the proposed project would not result in a long-term substantial source of toxic air containment emissions and corresponding individual cancer risk. Furthermore, construction-based particulate matter (PM) emissions (including diesel exhaust emissions) do not exceed any regional thresholds. Therefore, no significant short-term toxic air contaminant impacts would occur during construction of the proposed project.

6.2 Operational Air Quality Emissions Impact

6.2.1 Regional Operational Emissions

The operations-related criteria air quality impacts created by the proposed project have been analyzed through the use of CalEEMod model. The operating emissions were based on year 2023, which is a conservative estimate of the opening year for the project. The summer and winter emissions created by the proposed project's long-term operations were calculated and the highest emissions from either summer or winter are summarized in Table 9.

<Table 9, next page>

Table 9: Regional Significance - Operational Emissions (tons/year)

Activity	Pollutant Emissions (tons/year)[1]					
	VOC	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**
Area Sources[2]	1.66	0.00	0.03	0.00	0.00	0.00
Energy Usage[3]	0.10	0.90	0.76	0.01	0.07	0.07
Mobile Sources[4]	2.68	3.93	23.19	0.05	4.57	1.29
Total Emissions	**4.44**	**4.83**	**23.98**	**0.06**	**4.64**	**1.36**
MDAQMD Annual Thresholds	**25**	**25**	**100**	**25**	**15**	**12**
Exceeds Threshold?	No	No	No	No	No	No
Activity	**Pollutant Emissions (tons/year)1**					
Area Sources[2]	0.30	0.00	0.00	0.00	0.00	0.00
Energy Usage[3]	0.02	0.16	0.14	0.00	0.01	0.01
Mobile Sources[4]	0.39	0.57	3.67	0.01	0.77	0.21
Total Emissions	**0.72**	**0.73**	**3.82**	**0.01**	**0.78**	**0.22**
MDAQMD Annual Thresholds	**25**	**25**	**100**	**25**	**15**	**12**
Exceeds Threshold?	No	No	No	No	No	No

Notes:
[1] Source: CalEEMod Version 2020.4.0
[2] Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.
[3] Energy usage consists of emissions from on-site propane usage.
[4] Mobile sources consist of emissions from vehicles and road dust.

Table 9 provides the project's unmitigated operational emissions. Table 9 shows that the project does not exceed the MDAQMD regional emissions thresholds. Therefore, operational emissions are considered to be less than significant.

6.2.2 Operations-Related Toxic Air Contaminant Impacts

MDAQMD recommends avoiding siting new sensitive land uses such as residences, schools, daycare centers, playgrounds, or medical facilities within 1,000 feet of a major transportation project (50,000 or more vehicles per day).

The proposed project involves the construction of 106 hotel rooms and would be considered to be a sensitive receptor. However, the project is not considered a major transportation project and is over 10,000 feet north of the nearest major road, State Route 62, which has 18,900 average daily vehicle trips[7]. Per the traffic assessment, the project is only anticipated to generate approximately 604 daily vehicle trips (see Appendix A).

The closest existing sensitive receptors (to the site area) is the residential land use located approximately 2,300 feet northwest across Amboy Road.

[7] Source 2020 Caltrans Traffic Counts (https://dot.ca.gov/programs/traffic-operations/census)

Therefore, as the proposed project does not generate more than 50,000 vehicles per day and will not be exposed to roadways carrying 50,000 or more vehicles per day; a project-specific health risk assessment is not required or warranted. Impacts to nearby sensitive receptors are considered to be less than significant.

6.2.3 Operations-Related Odor Impacts

Potential sources that may emit odors during the on-going operations of the proposed project would include odor emissions from vehicular emissions and trash storage areas. As the project is a hotel and the nearest sensitive receptors are located approximately 2,300 feet from the project boundaries, no significant impact related to odors would occur during the on-going operations of the proposed project.

6.3 Cumulative Regional Air Quality Impacts

Cumulative projects include local development as well as general growth within the project area. However, as with most development, the greatest source of emissions is from mobile sources, which travel well out of the local area. Therefore, from an air quality standpoint, the cumulative analysis would extend beyond any local projects and when wind patterns are considered, would cover an even larger area. Accordingly, the cumulative analysis for the project's air quality must be generic by nature.

The project area is out of attainment for both ozone and particulate matter. Construction and operation of cumulative projects will further degrade the air quality of the Mojave Desert Air Basin. The greatest cumulative impact on the quality of regional air cell will be the incremental addition of pollutants mainly from increased traffic from residential, commercial, and industrial development and the use of heavy equipment and trucks associated with the construction of these projects. Air quality will be temporarily degraded during construction activities that occur separately or simultaneously. However, in accordance with the MDAQMD methodology, projects that do not exceed the MDAQMD criteria or can be mitigated to less than criteria levels are not significant and do not add to the overall cumulative impact.

Project operations would generate emissions of NOx, ROG, CO, PM10, and PM2.5, which would not exceed the MDAQMD regional thresholds and would not be expected to result in ground level concentrations that exceed the NAAQS or CAAQS. Therefore, operation of the project would not result in a cumulatively considerable net increase for non-attainment of criteria pollutants or ozone precursors. As a result, the project would result in a less than significant cumulative impact for operational emissions.

6.4 Air Quality Compliance

The California Environmental Quality Act (CEQA) requires a discussion of any inconsistencies between a proposed project and applicable General Plans and Regional Plans (CEQA Guidelines Section 15125). According to the MDAQMD, a project is non-conforming if it conflicts with or delays implementation of any applicable attainment or maintenance plan.

A project is conforming if it complies with all applicable District rules and regulations, complies with all proposed control measures that are not yet adopted from the applicable plan(s), and is consistent with the growth forecasts in the applicable plan(s) (or is directly included in the applicable plan). Conformity with growth forecasts can be established by demonstrating that the project is consistent with the land

use plan that was used to generate the growth forecast. An example of a non-conforming project would be one that increases the gross number of dwelling units, increases the number of trips, and/or increases the overall vehicle miles traveled in an affected area (relative to the applicable land use plan). The "one map approach" is employed by the County of San Bernardino, as it permits the use of a single map showing both General Plan land use designations and zoning classifications. The one-map approach assures that there will always be land use consistency between the County's General Plan and its Zoning Code.

The project site is located within unincorporated San Bernardino County. The proposed project will be a 106-room hotel. Per the County's Land Use Zoning District map, the current land use zoning district is Service Commercial (CS) for 3.18 acres of the site with the remainder currently zoned as Rural Living Residential (RL-5). The project will include General Plan Amendment (PROJ-2021-00163) to change the Rural Living Residential zoned portion of the site to Commercial Service. As shown by the results of this air analysis, the project's emissions do not exceed any MDAQMD thresholds during either short-term construction or long-term operation of the project. Therefore, as the project is a commercial use, the proposed project is not anticipated to exceed the Attainment Plan assumptions for the project site.

Based on the above, the proposed project would not conflict with implementation of the MDAQMD Attainment Plans, impacts are considered to be less than significant.

7.0 Greenhouse Gas Impact Analysis

7.1 Construction Greenhouse Gas Emissions Impact

The greenhouse gas emissions from project construction equipment and worker vehicles are shown in Table 10. The emissions are from all phases of construction. The total construction emissions amortized over a period of 30 years are estimated at 24.6 metric tons of CO_2e per year. Annual CalEEMod output calculations are provided in Appendix B.

Table 10: Construction Greenhouse Gas Emissions

Activity	Emissions ($MTCO_2e$)[1]		
	Onsite	Offsite	Total
Site Preparation	16.9	0.8	17.7
Grading	96.2	3.1	99.3
Building Construction	157.4	450.8	608.1
Paving	20.2	1.3	21.5
Coating	2.6	7.2	9.7
Total	276.3	462.3	738.7
Averaged over 30 years[2]	9.2	15.4	24.6

Notes:
1. $MTCO_2e$=metric tons of carbon dioxide equivalents (includes carbon dioxide, methane and nitrous oxide).
2. The emissions are averaged over 30 years because the average is added to the operational emissions, pursuant to SCAQMD.
* CalEEMod output (Appendix B)

7.2 Operational Greenhouse Gas Emissions Impact

Operational emissions occur over the life of the project. Table 11 below shows that the subtotal for the proposed project would result in annual emissions of 1,119.38 MT CO2e per year (see Appendix B CalEEMod Annual Output for details). The total emissions of 1,144.00 MTCO2e/year (including amortized construction emissions of 24.6 MT) would not exceed the San Bernardino County screening threshold of 3,000 metric tons per year of CO2e. As shown in Table 11, the project's total GHG emissions would also not exceed the MDAQMD annual threshold of 100,000 MTCO2e or the MDAQMD daily threshold of 548,000 pounds of CO2e.

According to the San Bernardino County thresholds of significance established above, a cumulative global climate change impact would occur if the GHG emissions created from the on-going operations would exceed 3,000 metric tons per year of CO2e. Therefore, as the project's total emissions do not exceed 3,000 metric tons per year of CO2e, operation of the proposed project would not create a significant cumulative impact to global climate change.

<Table 11, next page>

Table 11: Opening Year Project-Related Greenhouse Gas Emissions

	Greenhouse Gas Emissions (Metric Tons/Year)[1]						(lbs/day)
Category	**Bio-CO2**	**NonBio-CO_2**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**	CO2e
Area Sources[2]	0.00	0.01	0.01	0.00	0.00	0.01	0.08
Energy Usage[3]	0.00	358.15	358.15	0.02	0.01	360.14	1,085.99
Mobile Sources[4]	0.00	707.04	707.04	0.05	0.04	719.56	4,836.33
Solid Waste[5]	11.78	0.00	11.78	0.70	0.00	29.18	179.10
Water[6]	0.85	6.80	7.65	0.09	0.00	10.49	64.39
Construction[7]	0.00	24.77	24.77	0.00	0.00	24.62	**10,388.77**
Total Emissions	12.63	1,096.77	1,109.40	0.85	0.05	**1,144.00**	**6,165.89**
MDAQMD GHG Thresholds						**100,000**	**548,000**
County of San Bernardino GHG Emissions Reduction Plan Threshold						**3,000**	**-**
Exceeds Threshold?						**No**	**No**

Notes:
[1] Source: CalEEMod Version 2020.4.0
[2] Area sources consist of GHG emissions from consumer products, architectural coatings, and landscape equipment.
[3] Energy usage consist of GHG emissions from electricity and propane usage.
[4] Mobile sources consist of GHG emissions from vehicles.
[5] Solid waste includes the CO_2 and CH_4 emissions created from the solid waste placed in landfills.
[6] Water includes GHG emissions from electricity used for transport of water and processing of wastewater.
[7] Construction GHG emissions based on a 30 year amortization rate.

7.3 Greenhouse Gas Plan Consistency

The proposed project would 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.

According to the *County of San Bernardino Greenhouse Gas Emissions Reduction Plan*, "all development projects, including those otherwise determined to be exempt from CEQA will be subject to applicable Development Code provisions, including the GHG performance standards, and state requirements, such as the California Building Code requirements for energy efficiency. With the application of the GHG performance standards, projects that are exempt from CEQA and small projects that do not exceed 3,000 MTCO2e per year will be considered to be consistent with the Plan and determined to have a less than significant individual and cumulative impact for GHG emissions." The Reduction Plan also states that "the 3,000 MTCO2e per year value was chosen as the medial value and is used in defining small projects that must include the Performance Standards as described in Attachment B (of the *County of San Bernardino Greenhouse Gas Emissions Reduction Plan*), but do not need to use the Screening Tables or alternative GHG mitigation analysis described in Attachment D (of the *County of San Bernardino Greenhouse Gas Emissions Reduction Plan*)."

The project's total net operational GHG emissions do not exceed the County's screening threshold of 3,000 MTCO2e per year. Therefore, the project does not need to accrue points using the screening tables and is consistent with the GHG Plan, pursuant to Section 15183.5 of the State CEQA Guidelines. As mentioned above, the project is expected to comply with the performance standards for commercial

uses as detailed in the *County of San Bernardino Greenhouse Gas Emissions Reduction Plan* (see Appendix B for details on the performance standards for commercial projects). The proposed project will not result in substantial emissions of greenhouse gases and will not conflict with the Green County initiatives.

7.4 Cumulative Greenhouse Gas Impacts

Although the project is expected to emit GHGs, the emission of GHGs by a single project into the atmosphere is not itself necessarily an adverse environmental effect. Rather, it is the increased accumulation of GHG from more than one project and many sources in the atmosphere that may result in global climate change. Therefore, in the case of global climate change, the proximity of the project to other GHG emission generating activities is not directly relevant to the determination of a cumulative impact because climate change is a global condition. According to CAPCOA, "GHG impacts are exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective."[8] The resultant consequences of that climate change can cause adverse environmental effects. A project's GHG emissions typically would be very small in comparison to state or global GHG emissions and, consequently, they would, in isolation, have no significant direct impact on climate change.

The state has mandated a goal of reducing statewide emissions to 1990 levels by 2020, even though statewide population and commerce are predicted to continue to expand. In order to achieve this goal, CARB is in the process of establishing and implementing regulations to reduce statewide GHG emissions. Currently, the County of San Bernardino Greenhouse Gas Emissions Reduction Plan's initial screening procedure is to determine if a project will emit 3,000 metric tons of carbon dioxide equivalents (MTCO2E) per year or more. Projects that do not exceed this threshold require no further climate change analysis. Therefore, consistent with CEQA Guidelines Section 15064h(3),[9] the County, as lead agency, has determined that the project's contribution to cumulative GHG emissions and global climate change would be less than significant if the project is consistent with the applicable regulatory plans and policies to reduce GHG emissions.

As discussed in Section 7.3 above, the project is consistent with the goals and objectives of the County of San Bernardino Greenhouse Gas Emissions Reduction Plan. Therefore, the project's incremental contribution to greenhouse gas emissions and their effects on climate change would not be cumulatively considerable.

8 Source: California Air Pollution Control Officers Association, CEQA & Climate change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act, (2008).

9 The State CEQA Guidelines were amended in response to SB 97. In particular, the State CEQA Guidelines were amended to specify that compliance with a GHG emissions reduction program renders a cumulative impact insignificant. Per State CEQA Guidelines Section 15064(h)(3), a project's incremental contribution to a cumulative impact can be found not cumulatively considerable if the project will comply with an approved plan or mitigation program that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area of the project. To qualify, such a plan or program must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. Examples of such programs include a "water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plan, [and] plans or regulations for the reduction of greenhouse gas emissions."

County of San Bernardino GHG Screening Tables

The County of San Bernardino to established the following screening tables to determine the significance of the GHG emissions of a project. Points are assigned to the project for each mitigation or design features incorporated into the project, with project the garner 100 or more points determined to be less than significant. As shown in Table 12, the project has garnered 100 points and therefore will have a less than significant impact from GHG emissions.

Table 12: County of San Bernardino GHG Screening Tables

Feature	Description	Assigned Point Values	Project Points	Subtotal Category	Subtotal Category
Reduction Measure Energy: Exceed Energy Efficiency Standards in New Commercial Units					**70**
Building Envelope				27	
Insulation	• 2019 Title 24 Requirements (walls R-16; roof/attic R-32) • Modestly Enhanced Insulation (walls R-15, roof/attic R-38) • Enhanced Insulation (rigid wall insulation R-13, roof/attic R-38) • Greatly Enhanced Insulation (spray foam insulated walls R-18 or higher, roof/attic R-38 or higher)	0 points 9 points 11 points 12 points	9		
Windows	• 2019 Title 24 Windows (0.57 U-factor, 0.4 SHGC) • Modestly Enhanced Window Insulation (0.4 U-factor, 0.32 SHGC) • Enhanced Window Insulation (0.32 U-factor, 0.25 SHGC) • Greatly Enhanced Window Insulation (0.28 or less U-factor, 0.22 or less SHGC)	0 points 4 points 5 points 7 points	4		
Cool Roofs	• Enhanced Cool Roof (CRRC Rated 0.2 aged solar reflectance, 0.75 thermal emittance) • Greatly Enhanced Cool Roof (CRRC Rated 0.35 aged solar reflectance, 0.75 thermal emittance)	8 points 10 points	8		
Air Infiltration	Minimizing leaks in the building envelope is as important as the insulation properties of the building. Insulation does not work effectively if there is excess air leakage. • Air barrier applied to exterior walls, caulking, and visual inspection such as the HERS Verified Quality Insulation Installation (QII or equivalent) • Blower Door HERS Verified Envelope Leakage or equivalent	7 points 6 points	6		
Thermal Storage of Building	Thermal storage is a design characteristic that helps keep a constant temperature in the building. Common thermal storage devices include strategically placed water filled columns, water storage tanks, and thick masonry walls. • Modest Thermal Mass (10% of floor or 10% of walls 12" or more thick exposed concrete or masonry with no permanently installed floor covering such as carpet, linoleum, wood, or other insulating materials)	2 points 4 points 14 points	0		

	• Enhanced Thermal Mass (20% of floor or 20% of walls 12" or more thick exposed concrete or masonry with no permanently installed floor covering such as carpet, linoleum, wood, or other insulating materials) • Enhanced Thermal Mass (80% of floor or 80% of walls 12" or more thick exposed concrete or masonry with no permanently installed floor covering such as carpet, linoleum, wood, or other insulating materials)				
Indoor Space Efficiencies				37	
Heating/Cooling Distribution System	• Modest Duct insulation (R-6 required) • Enhanced Duct Insulation (R-8) • Distribution loss reduction with inspection (HERS Verified Duct Leakage or equivalent)	0 points 6 points 8 points	8		
Space Heating/ Cooling Equipment	• 2019 Title 24 Minimum HVAC Efficiency (SEER 13/75% AFUE or 7.7 HSPF) • Improved Efficiency HVAC (SEER 14/78% AFUE or 8 HSPF) • High Efficiency HVAC (SEER 15/80% AFUE or 8.5 HSPF) • Very High Efficiency HVAC (SEER 16/82% AFUE or 9 HSPF)	0 points 4 points 5 points 7 points	4		
Commercial Heat Recovery Systems	Heat recovery strategies employed with commercial laundry, cooking equipment, and other commercial heat sources for reuse in HVAC air intake or other appropriate heat recovery technology. Point values for these types of systems will be determined based upon design and engineering data documenting the energy savings.	TBD			
Water Heaters	• 2019 Title 24 Minimum Efficiency (0.57 Energy Factor) • Improved Efficiency Water Heater (0.675 Energy Factor) • High Efficiency Water Heater (0.72 Energy Factor) • Very High Efficiency Water Heater (0.92 Energy Factor) • Solar Pre-heat System (0.2 Net Solar Fraction) • Enhanced Solar Pre-heat System (0.35 Net Solar Fraction)	0 points 8 points 10 points 11 points 2 points 5 points	11		
Daylighting	Daylighting is the ability of each room within the building to provide outside light during the day reducing the need for artificial lighting during daylight hours. • All peripheral rooms within building have at least one window or skylight • All rooms within building have daylight (through use of windows, solar tubes, skylights, etc.) • All rooms daylighted	0 points 1 point 1 point	1		
Artificial Lighting	• Efficient Lights (25% of in-unit fixtures considered high efficiency. High efficiency is defined as 40 lumens/watt for 15 watt or less fixtures; 50 lumens/watt for 15-40 watt fixtures, 60 lumens/watt for fixtures >40 watt) • High Efficiency Lights (50% of in-unit fixtures are high efficiency) • Very High Efficiency Lights (100% of in-unit fixtures are high efficiency	5 points 7 points 8 points	7		

Appliances	• Energy Star Commercial Refrigerator (new) • Energy Star Commercial Dishwasher (new) • Energy Star Commercial Clothes Washer (new)	2 points 2 points 2 points	6		
Miscellaneous Commercial Building Efficiencies				6	
Building Placement	North/south alignment of building or other building placement such that the orientation of the buildings optimizes conditions for natural heating, cooling, and lighting.	4 points	0		
Shading	At least 90% of south-facing glazing will be shaded by vegetation or overhangs at noon on June 21st.	6 points	6		
Other	This allows innovation by the applicant to provide design features that increase the energy efficiency of the project not provided in the table. Note that engineering data will be required documenting the energy efficiency of innovative designs and point values given based upon the proven efficiency beyond Title 24 Energy Efficiency Standards.	TBD			
Existing Commercial Buildings Retrofits	The applicant may wish to provide energy efficiency retrofit projects to existing commercial buildings to further the point value of their project. Retrofitting existing commercial buildings within the County is a key reduction measure that is needed to reach the reduction goal. The potential for an applicant to take advantage of this program will be decided on a case-by-case basis and shall have the approval from the County of San Bernardino Planning Department. The decision to allow applicants to participate in this program will be evaluated based upon, but not limited to the following: • Will the energy efficiency retrofit project benefit low income or disadvantaged communities? • Does the energy efficiency retrofit project provide co-benefits important to the County? • Point value will be determined based upon engineering and design criteria of the energy efficiency retrofit project.	TBD			
Reduction Measure Energy: Exceed Energy Efficiency Standards in New Commercial Units					**18**
Commercial Irrigation and Landscaping				8	
Water Efficient Landscaping	• Eliminate conventional turf from landscaping • Only moderate water using plants • Only low water using plants • Only California Native landscape that requires no or only supplemental irrigation	0 point 2 points 3 points 5 points	5		
Water Efficient Irrigation Systems	• Low precipitation spray heads< 0.75”/hr or drip irrigation • Weather based irrigation control systems combined with drip irrigation (demonstrate 20% reduced water use)	1 point 3 points	3		
Storm Water Reuse Systems	Innovative on-site storm water collection, filtration, and reuse systems are being developed that provide supplemental irrigation water and provide vector control. These systems can greatly reduce the irrigation needs of a project. Point values	TBD			

	for these types of systems will be determined based upon design and engineering data documenting the water savings.				
Commercial Potable Water				10	
Showers	Water Efficient Showerheads (2.0 gpm)	2 points	2		
Toilets	• Water Efficient Toilets/Urinals (1.5 gpm) • Waterless Urinals (note that commercial buildings having both waterless urinals and high efficiency toilets will have a combined point value of 6 points)	3 points 3 points	6		
Faucets	Water Efficient faucets (1.28 gpm)	2 points	2		
Commercial Dishwashers	Water Efficient dishwashers (20% water savings)	2 points			
Commercial Laundry Washers	• Water Efficient laundry (15% water savings) • High Efficiency laundry equipment that captures and reuses rinse water (30% water savings)	2 points 4 points			
Commercial Water Operations Program	Establish an operational program to reduce water loss from pools, water features, etc., by covering pools, adjusting fountain operational hours, and using water treatment to reduce draw down and replacement of water. Point values for these types of plans will be determined based upon design and engineering data documenting the water savings.	TBD			
Increase Commercial/Industrial Reclaimed Water Use				0	
Recycled Water	Graywater (purple pipe) irrigation system on site	5 points			
Reduction Measure: Install Electric Vehicle Chargers					10
Worker and Customer Based Electric Vehicle Chargers	Installation of Electric Vehicle (EV) Chargers for passenger EVs: Level 2 240 volt AC Fast Chargers Level 3 480 volt DC Rapid Chargers (assumes 2 charging parking spaces)	5 points/ charger 8 points/ charger	10		
Electric Commercial Truck Chargers	Installation of electric chargers for medium duty and heavy duty trucks: Level 1 AC Chargers for EV Medium Duty Trucks Level 1 AC Chargers for EV Class 8 (Heavy Duty) Trucks Level 2 AC Chargers for EV Medium Duty Trucks Level 2 AC Chargers for EV Class 8 (Heavy Duty) Trucks Level 3 DC Fast Chargers for EV Class 8 (Heavy Duty) Trucks	3 points/ charger 5 points/ charger 8 points/ charger 12 points/ charger 16 points/ charger			
Reduction Measure: Reduce Waste to Landfills					2

Recycling	County initiated recycling program diverting 80% of waste requires coordination with commercial development to realize this goal. The following recycling features will help the County fulfill this goal: • Provide separated recycling bins within each commercial building/floor and provide large external recycling collection bins at central location for collection truck pick-up	2 points	2		
	• Provide commercial/industrial recycling programs that fulfills an on- site goal of 80% diversion of solid waste • Recycle construction waste	5 points 4 points			
Total Points Earned by Commercial/Industrial Project:					**100**

8.0 Energy Analysis

Information from the CalEEMod 2020.4.0 Daily and Annual Outputs contained in the air quality and greenhouse gas analyses above was utilized for this analysis. The CalEEMod outputs detail project related construction equipment, transportation energy demands, and facility energy demands.

8.1 Construction Energy Demand

8.1.1 Construction Equipment Electricity Usage Estimates

Electrical service will be provided by Southern California Edison (SCE). Based on the 2017 National Construction Estimator, Richard Pray (2017)[10], the typical power cost per 1,000 square feet of building construction per month is estimated to be $2.32. The project plans to develop the site with a 106-room hotel including 56,330 square feet of new buildings over the course of approximately 6 months. Based on Table 13, the total power cost of the on-site electricity usage during the construction of the proposed project is estimated to be approximately $784.11. As shown in Table 13, the total electricity usage from Project construction related activities is estimated to be approximately 14,257 kWh.[11]

Table 13: Project Construction Power Cost and Electricity Usage

Power Cost (per 1,000 square foot of building per month of construction)	Total Building Size (1,000 Square Foot)[1]	Construction Duration (months)	Total Project Construction Power Cost
$2.32	56	6	$784.11

Cost per kWh	Total Project Construction Electricity Usage (kWh)
$0.06	14,257

* Assumes the project will be under the GS-1 General Service rate under SCE.

[10] Pray, Richard. 2017 National Construction Estimator. Carlsbad: Craftsman Book Company, 2017.
[11] LADWP's Small Commercial & Multi-Family Service (A-1) is approximately $0.06 per kWh of electricity Southern California Edison (SCE). Rates & Pricing Choices: General Service/Industrial Rates. https://library.sce.com/content/dam/sce-doclib/public/regulatory/historical/electric/2020/schedules/general-service-&-industrial-rates/ELECTRIC_SCHEDULES_GS-1_2020.pdf

8.1.2 Construction Equipment Fuel Estimates

Using the CalEEMod data input, 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.[12] As presented in Table 14 below, project construction activities would consume an estimated 32,206 gallons of diesel fuel.

Table 14: Construction Equipment Fuel Consumption Estimates

Phase	Number of Days	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	HP hrs/ day	Total Fuel Consumption (gal diesel fuel)[1]
Site Preparation	10	Rubber Tired Dozers	3	8	247	0.4	2371	1282
	10	Tractors/Loaders/Backhoes	4	8	97	0.37	1148	621
Grading	35	Excavators	2	8	158	0.38	961	1,817
	35	Graders	1	8	187	0.41	613	1,160
	35	Rubber Tired Dozers	1	8	247	0.4	790	1,495
	35	Scrapers	2	8	367	0.48	2,819	5,332
	35	Tractors/Loaders/Backhoes	2	8	97	0.37	574	1,086
Building Construction	135	Cranes	1	7	231	0.29	469	3,422
	135	Forklifts	3	8	89	0.2	427	3,117
	135	Generator Sets	1	8	84	0.74	497	3,629
	135	Tractors/Loaders/Backhoes	3	7	97	0.37	754	5,500
	135	Welders	1	8	46	0.45	166	1,208
Paving	20	Pavers	2	8	130	0.42	874	944
	20	Paving Equipment	2	8	132	0.36	760	822
	20	Rollers	2	8	80	0.38	486	526
Architectural Coating	20	Air Compressors	1	6	78	0.48	225	243
CONSTRUCTION FUEL DEMAND (gallons of diesel fuel)								**32,206**

Notes:
[1]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)

[12] Aggregate fuel consumption rate for all equipment was estimated at 18.5 hp-hr/day (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).

8.1.3 Construction Worker Fuel Estimates

It is assumed that all construction worker trips are from light duty autos (LDA) along area roadways. With respect to estimated VMT, the construction worker trips would generate an estimated 869,285 VMT. Vehicle fuel efficiencies for construction workers were estimated in the air quality and greenhouse gas analysis using information generated using CARB's EMFAC model (see Appendix C for details). Table 15 shows that an estimated 28,807 gallons of fuel would be consumed for construction worker trips.

Table 15: 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	10	18	14.7	2646	30.95	85
Grading	35	20	14.7	10,290	30.95	332
Building Construction	135	417	14.7	827,537	30.95	26,738
Paving	20	15	14.7	4,410	30.95	142
Architectural Coating	20	83	14.7	24,402	30.95	788
Total Construction Worker Fuel Consumption						**28,087**

Notes:
[1]Assumptions for the worker trip length and vehicle miles traveled are consistent with CalEEMod 2020.4.0 defaults.

8.1.4 Construction Vendor/Hauling Fuel Estimates

Tables 16 and 17 show the estimated fuel consumption for vendor and hauling during building construction and architectural coating. With respect to estimated VMT, the vendor trips would generate an estimated 160,637 VMT. No hauling trips are anticipated for the site as there will be no demolition and the site will balance for grading. 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.[13] Tables 16 and 17 show that an estimated 23,281 gallons of fuel would be consumed for vendor and hauling trips.

<Tables 16 & 17, next page>

[13] Vendors delivering construction material or hauling debris from the site during grading would use medium to heavy duty vehicles with an average fuel consumption of 9.22 mpg for medium heavy-duty trucks and 6.74 mpg for heavy heavy-duty trucks (see Appendix C for details).

Table 16: Construction Vendor Fuel Consumption Estimates (MHD Trucks)[1]

Phase	Number of Days	Vendor Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Site Preparation	10	0	7.3	0	6.9	0
Grading	35	0	7.3	0	6.90	0
Building Construction	135	163	7.3	160,637	6.90	23,281
Paving	20	0	7.3	0	6.90	0
Architectural Coating	20	0	7.3	0	6.90	0
Total Vendor Fuel Consumption						**23,281**

Notes:
[1] Assumptions for the vendor trip length and vehicle miles traveled are consistent with CalEEMod 2020.4.0 defaults.

Table 17: Construction Hauling Fuel Consumption Estimates (HHD Trucks)[1]

Phase	Number of Days	Hauling Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Site Preparation	10	0	20	0	6.74	0
Grading	35	0	20	0	6.74	0
Building Construction	135	0	20	0	6.74	0
Paving	20	0	20	0	6.74	0
Architectural Coating	20	0	20	0	6.74	0
Total Construction Hauling Fuel Consumption						**0**

Notes:
[1]Assumptions for the hauling trip length and vehicle miles traveled are consistent with CalEEMod 2020.40 defaults.

8.1.5 Construction Energy Efficiency/Conservation Measures

Construction equipment used over the approximately 6-month construction phase would conform to CARB regulations and California emissions standards and is evidence of related fuel efficiencies. In addition, the CARB Airborne Toxic Control Measure limits idling times of construction vehicles to no more than five minutes, thereby minimizing unnecessary and wasteful consumption of fuel due to unproductive idling of construction equipment. Furthermore, the project has been designed in compliance with California's Energy Efficiency Standards and 2019 CALGreen Standards.

Construction of the proposed hotel development would require the typical use of energy resources. 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 construction of the project would therefore not result in inefficient wasteful, or unnecessary consumption of fuel.

8.2 Operational Energy Demand

Energy consumption in support of or related to project operations would include transportation energy demands (energy consumed by employee and patron vehicles accessing the project site) and facilities energy demands (energy consumed by building operations and site maintenance activities).

8.2.1 Transportation Fuel Consumption

The largest source of operational energy use would be vehicle operation of customers. The site is located in a rural area. Using the CalEEMod output, it is assumed that an average trip for autos were assumed to be 16.6 miles, light trucks were assumed to travel an average of 6.9 miles, and 3- 4-axle trucks were assumed to travel an average of 8.4 miles[14]. To show a worst-case analysis, as the proposed project is an office project, it was assumed that vehicles would operate 365 days per year. Table 18 shows the worst-case estimated annual fuel consumption for all classes of vehicles from autos to heavy-heavy trucks.[15] Table 18 shows that an estimated 99,836 gallons of fuel would be consumed per year for the operation of the proposed project.

Table 18: Estimated Vehicle Operations Fuel Consumption

Vehicle Type	Vehicle Mix	Number of Vehicles[1]	Average Trip (miles)[2]	Daily VMT	Average Fuel Economy (mpg)	Total Gallons per Day	Total Annual Fuel Consumption (gallons)
Light Auto	Automobile	336	16.6	5,571	31.82	175.08	63,905
Light Truck	Automobile	35	6.9	240	27.16	8.85	3,231
Light Truck	Automobile	108	6.9	742	25.6	28.99	10,581
Medium Truck	Automobile	87	6.9	599	20.81	28.76	10,498
Light Heavy Truck	2-Axle Truck	17	8.4	142	13.81	10.25	3,742
Light Heavy Truck 10,000 lbs +	2-Axle Truck	4	8.4	38	14.18	2.66	971
Medium Heavy Truck	3-Axle Truck	7	8.4	60	9.58	6.23	2,275
Heavy Heavy Truck	4-Axle Truck	11	8.4	91	7.14	12.69	4,632
Total		604	--	7,482	--	273.52	--
Total Annual Fuel Consumption							**99,836**

Notes:
[1] The trip generation assessment, the project is to generate 604 total net new trips after reduction of existing uses. Default CalEEMod vehicle fleet mix utilized.
[2] Based on the size of the site and relative location, trips were assumed to be local rather than regional.

[14] CalEEMod default distance for H-W (home-work) or C-W (commercial-work) is 16.6 miles; 6.9 miles for H-S (home-shop) or C-C (commercial-customer); and 8.4 miles for H-O (home-other) or C-O (commercial-other).
[15] Average fuel economy based on aggregate mileage calculated in EMFAC 2017 for 2023. See Appendix C for EMFAC output.

Trip generation generated by the proposed project are consistent with other similar commercial uses of similar scale and configuration as reflected in the CalEEMod output (Appendices A and B). That is, the proposed project does not propose uses or operations that would inherently result in excessive and wasteful vehicle trips, nor associated excess and wasteful vehicle energy consumption. Therefore, project transportation energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary.

8.2.2 Facility Energy Demands (Electricity and Propane)

The annual propane and electricity demands were provided per the CalEEMod output and are provided in Table 19.

Table 19: Project Unmitigated Annual Operational Energy Demand Summary[1]

Propane Demand	kBTU/year
Hotel	3,349,380
Total	3,349,380
Electricity Demand	**kWh/year**
Hotel	982,959
Parking Lot	28,700
Total	1,011,659

Notes:
[1]Taken from the CalEEMod 2020.4.0 annual output.

As shown in Table 19, the estimated electricity demand for the proposed project is approximately 1,011,659 kWh per year. In 2020, the non-residential sector of the County of San Bernardino consumed approximately 9,866 million kWh of electricity.[16] In addition, the estimated propane consumption for the proposed project is approximately 3,349,380 kBTU per year. In 2020, the non-residential sector of the County of San Bernardino consumed approximately 260 million therms of gas.[17] Therefore, the increase in both electricity and propane demand from the proposed project is insignificant compared to the County's 2020 demand.

8.3 Renewable Energy and Energy Efficiency Plan Consistency

Regarding federal transportation regulations, the project site is located in an already developed area. 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 because SCAG is not planning for intermodal facilities in the project area.

[16] California Energy Commission, Electricity Consumption by County. https://ecdms.energy.ca.gov/elecbycounty.aspx
[17] California Energy Commission, Gas Consumption by County. http://ecdms.energy.ca.gov/gasbycounty.aspx

Regarding the State's Energy Plan and compliance with Title 24 CCR energy efficiency standards, the applicant is required to comply with the California Green Building Standard Code requirements for energy efficient buildings and appliances as well as utility energy efficiency programs implemented by the SCE and Southern California Gas Company.

Regarding the State's Renewable Energy Portfolio Standards, 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.

9.0 References

The following references were used in the preparing this analysis.

California Air Pollution Control Officers Association
2009 Health Risk Assessments for Proposed Land Use Projects

California Air Resources Board
2008 Resolution 08-43

2008 Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act

2008 ARB Recommended Interim Risk Management Policy for Inhalation-Based Residential Cancer Risk – Frequently Asked Questions

2008 Climate Change Scoping Plan, a framework for change.

2011 Supplement to the AB 32 Scoping Plan Functional Equivalent Document

2013 Revised Emission Factors for Gasoline Marketing Operations at California Gasoline Dispensing Facilities

2014 First Update to the Climate Change Scoping Plan, Building on the Framework Pursuant to AB32, the California Global Warming Solutions Act of 2006. May.

2017 California's 2017 Climate Change Scoping Plan. November.

2020 Historical Air Quality, Top 4 Summary

County of San Bernardino
2011 County of San Bernardino Greenhouse Gas Emissions Reduction Plan. September.

2007 County of San Bernardino 2007 General Plan

2007 County of San Bernardino 2007 Development Code. March 13.

Governor's Office of Planning and Research
2008 CEQA and Climate: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review

2009 CEQA Guideline Sections to be Added or Amended

Mojave Desert Air Quality Management District (MDAQMD)
2016 California Environmental Quality Act (CEQA) And Federal Conformity Guidelines. August

Office of Environmental Health Hazard Assessment
2015 Air Toxics Hot Spots Program Risk Assessment Guidelines

Appendix A:

CalEEMod Daily Emissions Output

Wonder Inn - San Bernardino-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Wonder Inn

San Bernardino-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hotel	106.00	Room	3.53	56,330.00	0
Parking Lot	205.00	Space	1.84	82,000.00	0
Other Non-Asphalt Surfaces	19.63	Acre	19.63	855,082.80	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Hotel with 42,120 sf of 106 prebuilt rooms, 6,310 sf modular building, 5,000 sf event space, 2,900 sf wellness center, 205 parking spaces, and desert landscaping on 25 acres. An existing 4,407 sf building will be remodeled for hotel use.

Demolition -

Construction Phase - Construction anticipated to last from 8/1/2022 to 2/3/2023 with overlapping construction phases. Each phase has been modeled individually and maximum emissions from any overlap will be accounted for in the report.

Grading - The site is anticipated to balance and there will be 13.9 acres of grading per the applicant.

Construction Off-road Equipment Mitigation - Per Rule 1401

Waste Mitigation - Per AB-341

Wonder Inn - San Bernardino-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	370.00	135.00
tblConstructionPhase	PhaseEndDate	4/26/2024	6/2/2023
tblConstructionPhase	PhaseEndDate	3/1/2024	4/7/2023
tblConstructionPhase	PhaseEndDate	3/29/2024	5/5/2023
tblConstructionPhase	PhaseStartDate	3/30/2024	5/6/2023
tblConstructionPhase	PhaseStartDate	3/2/2024	4/8/2023
tblGrading	AcresOfGrading	105.00	13.90
tblLandUse	LandUseSquareFeet	153,912.00	56,330.00

2.0 Emissions Summary

Wonder Inn - San Bernardino-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.7564	38.8971	36.1616	0.1004	19.8582	1.6361	21.4718	10.1558	1.5052	11.6404	0.0000	10,192.1538	10,192.1538	1.9497	0.5915	10,388.7702
2023	39.6553	21.0861	34.3686	0.0977	5.7054	0.7657	6.4711	1.5369	0.7207	2.2576	0.0000	9,943.8341	9,943.8341	0.7914	0.5621	10,131.1364
Maximum	**39.6553**	**38.8971**	**36.1616**	**0.1004**	**19.8582**	**1.6361**	**21.4718**	**10.1558**	**1.5052**	**11.6404**	**0.0000**	**10,192.1538**	**10,192.1538**	**1.9497**	**0.5915**	**10,388.7702**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.7564	38.8971	36.1616	0.1004	7.8674	1.6361	9.4811	3.9933	1.5052	5.4779	0.0000	10,192.1538	10,192.1538	1.9497	0.5915	10,388.7702
2023	39.6553	21.0861	34.3686	0.0977	5.7054	0.7657	6.4711	1.5369	0.7207	2.2576	0.0000	9,943.8341	9,943.8341	0.7914	0.5621	10,131.1364
Maximum	**39.6553**	**38.8971**	**36.1616**	**0.1004**	**7.8674**	**1.6361**	**9.4811**	**3.9933**	**1.5052**	**5.4779**	**0.0000**	**10,192.1538**	**10,192.1538**	**1.9497**	**0.5915**	**10,388.7702**

Wonder Inn - San Bernardino-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	46.91	0.00	42.91	52.70	0.00	44.34	0.00	0.00	0.00	0.00	0.00	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.6648	3.1000e-004	0.0338	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0724	0.0724	1.9000e-004		0.0771
Energy	0.0990	0.8997	0.7557	5.4000e-003		0.0684	0.0684		0.0684	0.0684		1,079.5751	1,079.5751	0.0207	0.0198	1,085.9905
Mobile	2.6759	3.0227	22.3990	0.0462	4.4652	0.0360	4.5011	1.1909	0.0336	1.2246		4,760.0825	4,760.0825	0.2773	0.2326	4,836.3274
Total	**4.4397**	**3.9226**	**23.1885**	**0.0516**	**4.4652**	**0.1044**	**4.5696**	**1.1909**	**0.1021**	**1.2931**		**5,839.7300**	**5,839.7300**	**0.2982**	**0.2524**	**5,922.3950**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.6648	3.1000e-004	0.0338	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0724	0.0724	1.9000e-004		0.0771
Energy	0.0990	0.8997	0.7557	5.4000e-003		0.0684	0.0684		0.0684	0.0684		1,079.5751	1,079.5751	0.0207	0.0198	1,085.9905
Mobile	2.6759	3.0227	22.3990	0.0462	4.4652	0.0360	4.5011	1.1909	0.0336	1.2246		4,760.0825	4,760.0825	0.2773	0.2326	4,836.3274
Total	**4.4397**	**3.9226**	**23.1885**	**0.0516**	**4.4652**	**0.1044**	**4.5696**	**1.1909**	**0.1021**	**1.2931**		**5,839.7300**	**5,839.7300**	**0.2982**	**0.2524**	**5,922.3950**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	8/1/2022	8/12/2022	5	10	
2	Grading	Grading	8/13/2022	9/30/2022	5	35	
3	Building Construction	Building Construction	10/1/2022	4/7/2023	5	135	
4	Paving	Paving	4/8/2023	5/5/2023	5	20	
5	Architectural Coating	Architectural Coating	5/6/2023	6/2/2023	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 13.9

Acres of Paving: 21.47

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 84,495; Non-Residential Outdoor: 28,165; Striped Parking Area: 56,225 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cranes	1	7.00	231	0.29
Grading	Excavators	2	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	417.00	163.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	83.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836		3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**19.6570**	**1.6126**	**21.2696**	**10.1025**	**1.4836**	**11.5860**		**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0762	0.0483	0.7415	1.8600e-003	0.2012	1.0600e-003	0.2023	0.0534	9.7000e-004	0.0543		188.9222	188.9222	4.9100e-003	4.7000e-003	190.4461
Total	**0.0762**	**0.0483**	**0.7415**	**1.8600e-003**	**0.2012**	**1.0600e-003**	**0.2023**	**0.0534**	**9.7000e-004**	**0.0543**		**188.9222**	**188.9222**	**4.9100e-003**	**4.7000e-003**	**190.4461**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.6662	0.0000	7.6662	3.9400	0.0000	3.9400			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836	0.0000	3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**7.6662**	**1.6126**	**9.2788**	**3.9400**	**1.4836**	**5.4235**	**0.0000**	**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0762	0.0483	0.7415	1.8600e-003	0.2012	1.0600e-003	0.2023	0.0534	9.7000e-004	0.0543		188.9222	188.9222	4.9100e-003	4.7000e-003	190.4461
Total	**0.0762**	**0.0483**	**0.7415**	**1.8600e-003**	**0.2012**	**1.0600e-003**	**0.2023**	**0.0534**	**9.7000e-004**	**0.0543**		**188.9222**	**188.9222**	**4.9100e-003**	**4.7000e-003**	**190.4461**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.4433	0.0000	6.4433	3.3557	0.0000	3.3557			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**6.4433**	**1.6349**	**8.0782**	**3.3557**	**1.5041**	**4.8598**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0847	0.0537	0.8239	2.0600e-003	0.2236	1.1700e-003	0.2247	0.0593	1.0800e-003	0.0604		209.9136	209.9136	5.4600e-003	5.2200e-003	211.6067
Total	**0.0847**	**0.0537**	**0.8239**	**2.0600e-003**	**0.2236**	**1.1700e-003**	**0.2247**	**0.0593**	**1.0800e-003**	**0.0604**		**209.9136**	**209.9136**	**5.4600e-003**	**5.2200e-003**	**211.6067**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.5129	0.0000	2.5129	1.3087	0.0000	1.3087			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**2.5129**	**1.6349**	**4.1478**	**1.3087**	**1.5041**	**2.8128**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0847	0.0537	0.8239	2.0600e-003	0.2236	1.1700e-003	0.2247	0.0593	1.0800e-003	0.0604		209.9136	209.9136	5.4600e-003	5.2200e-003	211.6067
Total	**0.0847**	**0.0537**	**0.8239**	**2.0600e-003**	**0.2236**	**1.1700e-003**	**0.2247**	**0.0593**	**1.0800e-003**	**0.0604**		**209.9136**	**209.9136**	**5.4600e-003**	**5.2200e-003**	**211.6067**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2022

Unmitigated Construction On-Site

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

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2840	7.1378	2.6195	0.0304	1.0443	0.0849	1.1292	0.3007	0.0812	0.3820		3,261.1220	3,261.1220	0.0881	0.4826	3,407.1377
Worker	1.7661	1.1186	17.1787	0.0430	4.6611	0.0245	4.6856	1.2361	0.0225	1.2587		4,376.6983	4,376.6983	0.1138	0.1089	4,412.0002
Total	**2.0501**	**8.2563**	**19.7982**	**0.0734**	**5.7054**	**0.1094**	**5.8148**	**1.5369**	**0.1038**	**1.6406**		**7,637.8203**	**7,637.8203**	**0.2019**	**0.5915**	**7,819.1379**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2022

Mitigated Construction On-Site

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

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2840	7.1378	2.6195	0.0304	1.0443	0.0849	1.1292	0.3007	0.0812	0.3820		3,261.1220	3,261.1220	0.0881	0.4826	3,407.1377
Worker	1.7661	1.1186	17.1787	0.0430	4.6611	0.0245	4.6856	1.2361	0.0225	1.2587		4,376.6983	4,376.6983	0.1138	0.1089	4,412.0002
Total	**2.0501**	**8.2563**	**19.7982**	**0.0734**	**5.7054**	**0.1094**	**5.8148**	**1.5369**	**0.1038**	**1.6406**		**7,637.8203**	**7,637.8203**	**0.2019**	**0.5915**	**7,819.1379**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2023

Unmitigated Construction On-Site

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

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1908	5.7173	2.3991	0.0292	1.0443	0.0430	1.0873	0.3007	0.0411	0.3418		3,128.2663	3,128.2663	0.0818	0.4620	3,267.9742
Worker	1.6306	0.9839	15.7255	0.0416	4.6611	0.0230	4.6841	1.2361	0.0212	1.2573		4,260.3578	4,260.3578	0.1018	0.1002	4,292.7561
Total	**1.8214**	**6.7012**	**18.1246**	**0.0708**	**5.7054**	**0.0660**	**5.7714**	**1.5369**	**0.0623**	**1.5992**		**7,388.6242**	**7,388.6242**	**0.1835**	**0.5621**	**7,560.7303**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2023

Mitigated Construction On-Site

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

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1908	5.7173	2.3991	0.0292	1.0443	0.0430	1.0873	0.3007	0.0411	0.3418		3,128.2663	3,128.2663	0.0818	0.4620	3,267.9742
Worker	1.6306	0.9839	15.7255	0.0416	4.6611	0.0230	4.6841	1.2361	0.0212	1.2573		4,260.3578	4,260.3578	0.1018	0.1002	4,292.7561
Total	**1.8214**	**6.7012**	**18.1246**	**0.0708**	**5.7054**	**0.0660**	**5.7714**	**1.5369**	**0.0623**	**1.5992**		**7,388.6242**	**7,388.6242**	**0.1835**	**0.5621**	**7,560.7303**

Wonder Inn - San Bernardino-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.2410					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2738**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0587	0.0354	0.5657	1.5000e-003	0.1677	8.3000e-004	0.1685	0.0445	7.6000e-004	0.0452		153.2503	153.2503	3.6600e-003	3.6000e-003	154.4157
Total	**0.0587**	**0.0354**	**0.5657**	**1.5000e-003**	**0.1677**	**8.3000e-004**	**0.1685**	**0.0445**	**7.6000e-004**	**0.0452**		**153.2503**	**153.2503**	**3.6600e-003**	**3.6000e-003**	**154.4157**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.2410					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2738**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0587	0.0354	0.5657	1.5000e-003	0.1677	8.3000e-004	0.1685	0.0445	7.6000e-004	0.0452		153.2503	153.2503	3.6600e-003	3.6000e-003	154.4157
Total	**0.0587**	**0.0354**	**0.5657**	**1.5000e-003**	**0.1677**	**8.3000e-004**	**0.1685**	**0.0445**	**7.6000e-004**	**0.0452**		**153.2503**	**153.2503**	**3.6600e-003**	**3.6000e-003**	**154.4157**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	39.1391					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**39.3308**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.3246	0.1958	3.1300	8.2900e-003	0.9277	4.5800e-003	0.9323	0.2460	4.2200e-003	0.2503		847.9849	847.9849	0.0203	0.0199	854.4335
Total	**0.3246**	**0.1958**	**3.1300**	**8.2900e-003**	**0.9277**	**4.5800e-003**	**0.9323**	**0.2460**	**4.2200e-003**	**0.2503**		**847.9849**	**847.9849**	**0.0203**	**0.0199**	**854.4335**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	39.1391					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**39.3308**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.3246	0.1958	3.1300	8.2900e-003	0.9277	4.5800e-003	0.9323	0.2460	4.2200e-003	0.2503		847.9849	847.9849	0.0203	0.0199	854.4335
Total	**0.3246**	**0.1958**	**3.1300**	**8.2900e-003**	**0.9277**	**4.5800e-003**	**0.9323**	**0.2460**	**4.2200e-003**	**0.2503**		**847.9849**	**847.9849**	**0.0203**	**0.0199**	**854.4335**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.6759	3.0227	22.3990	0.0462	4.4652	0.0360	4.5011	1.1909	0.0336	1.2246		4,760.0825	4,760.0825	0.2773	0.2326	4,836.3274
Unmitigated	2.6759	3.0227	22.3990	0.0462	4.4652	0.0360	4.5011	1.1909	0.0336	1.2246		4,760.0825	4,760.0825	0.2773	0.2326	4,836.3274

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Hotel	886.16	868.14	630.70	2,021,305	2,021,305
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	886.16	868.14	630.70	2,021,305	2,021,305

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Hotel	0.537785	0.055838	0.172353	0.139003	0.027005	0.007196	0.011392	0.017285	0.000559	0.000254	0.025303	0.000954	0.005071
Other Non-Asphalt Surfaces	0.537785	0.055838	0.172353	0.139003	0.027005	0.007196	0.011392	0.017285	0.000559	0.000254	0.025303	0.000954	0.005071
Parking Lot	0.537785	0.055838	0.172353	0.139003	0.027005	0.007196	0.011392	0.017285	0.000559	0.000254	0.025303	0.000954	0.005071

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0990	0.8997	0.7557	5.4000e-003		0.0684	0.0684		0.0684	0.0684		1,079.5751	1,079.5751	0.0207	0.0198	1,085.9905
NaturalGas Unmitigated	0.0990	0.8997	0.7557	5.4000e-003		0.0684	0.0684		0.0684	0.0684		1,079.5751	1,079.5751	0.0207	0.0198	1,085.9905

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Hotel	9176.39	0.0990	0.8997	0.7557	5.4000e-003		0.0684	0.0684		0.0684	0.0684		1,079.5751	1,079.5751	0.0207	0.0198	1,085.9905
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0990**	**0.8997**	**0.7557**	**5.4000e-003**		**0.0684**	**0.0684**		**0.0684**	**0.0684**		**1,079.5751**	**1,079.5751**	**0.0207**	**0.0198**	**1,085.9905**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Hotel	9.17639	0.0990	0.8997	0.7557	5.4000e-003		0.0684	0.0684		0.0684	0.0684		1,079.5751	1,079.5751	0.0207	0.0198	1,085.9905
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0990**	**0.8997**	**0.7557**	**5.4000e-003**		**0.0684**	**0.0684**		**0.0684**	**0.0684**		**1,079.5751**	**1,079.5751**	**0.0207**	**0.0198**	**1,085.9905**

6.0 Area Detail

6.1 Mitigation Measures Area

Wonder Inn - San Bernardino-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.6648	3.1000e-004	0.0338	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0724	0.0724	1.9000e-004		0.0771
Unmitigated	1.6648	3.1000e-004	0.0338	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0724	0.0724	1.9000e-004		0.0771

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2145					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.4473					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.1300e-003	3.1000e-004	0.0338	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0724	0.0724	1.9000e-004		0.0771
Total	**1.6648**	**3.1000e-004**	**0.0338**	**0.0000**		**1.2000e-004**	**1.2000e-004**		**1.2000e-004**	**1.2000e-004**		**0.0724**	**0.0724**	**1.9000e-004**		**0.0771**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2145					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.4473					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.1300e-003	3.1000e-004	0.0338	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0724	0.0724	1.9000e-004		0.0771
Total	**1.6648**	**3.1000e-004**	**0.0338**	**0.0000**		**1.2000e-004**	**1.2000e-004**		**1.2000e-004**	**1.2000e-004**		**0.0724**	**0.0724**	**1.9000e-004**		**0.0771**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Wonder Inn - San Bernardino-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Wonder Inn

San Bernardino-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hotel	106.00	Room	3.53	56,330.00	0
Parking Lot	205.00	Space	1.84	82,000.00	0
Other Non-Asphalt Surfaces	19.63	Acre	19.63	855,082.80	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Hotel with 42,120 sf of 106 prebuilt rooms, 6,310 sf modular building, 5,000 sf event space, 2,900 sf wellness center, 205 parking spaces, and desert landscaping on 25 acres. An existing 4,407 sf building will be remodeled for hotel use.

Demolition -

Construction Phase - Construction anticipated to last from 8/1/2022 to 2/3/2023 with overlapping construction phases. Each phase has been modeled individually and maximum emissions from any overlap will be accounted for in the report.

Grading - The site is anticipated to balance and there will be 13.9 acres of grading per the applicant.

Construction Off-road Equipment Mitigation - Per Rule 1401

Waste Mitigation - Per AB-341

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	370.00	135.00
tblConstructionPhase	PhaseEndDate	4/26/2024	6/2/2023
tblConstructionPhase	PhaseEndDate	3/1/2024	4/7/2023
tblConstructionPhase	PhaseEndDate	3/29/2024	5/5/2023
tblConstructionPhase	PhaseStartDate	3/30/2024	5/6/2023
tblConstructionPhase	PhaseStartDate	3/2/2024	4/8/2023
tblGrading	AcresOfGrading	105.00	13.90
tblLandUse	LandUseSquareFeet	153,912.00	56,330.00

2.0 Emissions Summary

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.7062	38.8999	33.1864	0.0964	19.8582	1.6361	21.4718	10.1558	1.5052	11.6404	0.0000	9,783.0088	9,783.0088	1.9497	0.5959	9,980.9074
2023	39.6434	21.4583	31.6600	0.0939	5.7054	0.7659	6.4713	1.5369	0.7209	2.2577	0.0000	9,550.8386	9,550.8386	0.7909	0.5668	9,739.5150
Maximum	**39.6434**	**38.8999**	**33.1864**	**0.0964**	**19.8582**	**1.6361**	**21.4718**	**10.1558**	**1.5052**	**11.6404**	**0.0000**	**9,783.0088**	**9,783.0088**	**1.9497**	**0.5959**	**9,980.9074**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.7062	38.8999	33.1864	0.0964	7.8674	1.6361	9.4811	3.9933	1.5052	5.4779	0.0000	9,783.0088	9,783.0088	1.9497	0.5959	9,980.9074
2023	39.6434	21.4583	31.6600	0.0939	5.7054	0.7659	6.4713	1.5369	0.7209	2.2577	0.0000	9,550.8386	9,550.8386	0.7909	0.5668	9,739.5150
Maximum	**39.6434**	**38.8999**	**33.1864**	**0.0964**	**7.8674**	**1.6361**	**9.4811**	**3.9933**	**1.5052**	**5.4779**	**0.0000**	**9,783.0088**	**9,783.0088**	**1.9497**	**0.5959**	**9,980.9074**

Wonder Inn - San Bernardino-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	46.91	0.00	42.91	52.70	0.00	44.34	0.00	0.00	0.00	0.00	0.00	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.6648	3.1000e-004	0.0338	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0724	0.0724	1.9000e-004		0.0771
Energy	0.0990	0.8997	0.7557	5.4000e-003		0.0684	0.0684		0.0684	0.0684		1,079.5751	1,079.5751	0.0207	0.0198	1,085.9905
Mobile	2.2914	3.2104	20.3043	0.0429	4.4652	0.0360	4.5011	1.1909	0.0337	1.2246		4,419.9998	4,419.9998	0.2879	0.2387	4,498.3425
Total	**4.0552**	**4.1103**	**21.0937**	**0.0483**	**4.4652**	**0.1045**	**4.5696**	**1.1909**	**0.1022**	**1.2931**		**5,499.6473**	**5,499.6473**	**0.3088**	**0.2585**	**5,584.4101**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.6648	3.1000e-004	0.0338	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0724	0.0724	1.9000e-004		0.0771
Energy	0.0990	0.8997	0.7557	5.4000e-003		0.0684	0.0684		0.0684	0.0684		1,079.5751	1,079.5751	0.0207	0.0198	1,085.9905
Mobile	2.2914	3.2104	20.3043	0.0429	4.4652	0.0360	4.5011	1.1909	0.0337	1.2246		4,419.9998	4,419.9998	0.2879	0.2387	4,498.3425
Total	**4.0552**	**4.1103**	**21.0937**	**0.0483**	**4.4652**	**0.1045**	**4.5696**	**1.1909**	**0.1022**	**1.2931**		**5,499.6473**	**5,499.6473**	**0.3088**	**0.2585**	**5,584.4101**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	8/1/2022	8/12/2022	5	10	
2	Grading	Grading	8/13/2022	9/30/2022	5	35	
3	Building Construction	Building Construction	10/1/2022	4/7/2023	5	135	
4	Paving	Paving	4/8/2023	5/5/2023	5	20	
5	Architectural Coating	Architectural Coating	5/6/2023	6/2/2023	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 13.9

Acres of Paving: 21.47

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 84,495; Non-Residential Outdoor: 28,165; Striped Parking Area: 56,225 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cranes	1	7.00	231	0.29
Grading	Excavators	2	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	417.00	163.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	83.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836		3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**19.6570**	**1.6126**	**21.2696**	**10.1025**	**1.4836**	**11.5860**		**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0732	0.0508	0.6091	1.6800e-003	0.2012	1.0600e-003	0.2023	0.0534	9.7000e-004	0.0543		171.1060	171.1060	4.9000e-003	4.8500e-003	172.6750
Total	**0.0732**	**0.0508**	**0.6091**	**1.6800e-003**	**0.2012**	**1.0600e-003**	**0.2023**	**0.0534**	**9.7000e-004**	**0.0543**		**171.1060**	**171.1060**	**4.9000e-003**	**4.8500e-003**	**172.6750**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.6662	0.0000	7.6662	3.9400	0.0000	3.9400			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836	0.0000	3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**7.6662**	**1.6126**	**9.2788**	**3.9400**	**1.4836**	**5.4235**	**0.0000**	**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0732	0.0508	0.6091	1.6800e-003	0.2012	1.0600e-003	0.2023	0.0534	9.7000e-004	0.0543		171.1060	171.1060	4.9000e-003	4.8500e-003	172.6750
Total	**0.0732**	**0.0508**	**0.6091**	**1.6800e-003**	**0.2012**	**1.0600e-003**	**0.2023**	**0.0534**	**9.7000e-004**	**0.0543**		**171.1060**	**171.1060**	**4.9000e-003**	**4.8500e-003**	**172.6750**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.4433	0.0000	6.4433	3.3557	0.0000	3.3557			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**6.4433**	**1.6349**	**8.0782**	**3.3557**	**1.5041**	**4.8598**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0814	0.0564	0.6768	1.8700e-003	0.2236	1.1700e-003	0.2247	0.0593	1.0800e-003	0.0604		190.1178	190.1178	5.4400e-003	5.3900e-003	191.8611
Total	**0.0814**	**0.0564**	**0.6768**	**1.8700e-003**	**0.2236**	**1.1700e-003**	**0.2247**	**0.0593**	**1.0800e-003**	**0.0604**		**190.1178**	**190.1178**	**5.4400e-003**	**5.3900e-003**	**191.8611**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.5129	0.0000	2.5129	1.3087	0.0000	1.3087			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**2.5129**	**1.6349**	**4.1478**	**1.3087**	**1.5041**	**2.8128**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0814	0.0564	0.6768	1.8700e-003	0.2236	1.1700e-003	0.2247	0.0593	1.0800e-003	0.0604		190.1178	190.1178	5.4400e-003	5.3900e-003	191.8611
Total	**0.0814**	**0.0564**	**0.6768**	**1.8700e-003**	**0.2236**	**1.1700e-003**	**0.2247**	**0.0593**	**1.0800e-003**	**0.0604**		**190.1178**	**190.1178**	**5.4400e-003**	**5.3900e-003**	**191.8611**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2022

Unmitigated Construction On-Site

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

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2730	7.4931	2.7117	0.0305	1.0443	0.0852	1.1295	0.3007	0.0815	0.3822		3,264.7191	3,264.7191	0.0876	0.4834	3,410.9707
Worker	1.6966	1.1766	14.1112	0.0390	4.6611	0.0245	4.6856	1.2361	0.0225	1.2587		3,963.9562	3,963.9562	0.1135	0.1125	4,000.3045
Total	**1.9696**	**8.6697**	**16.8230**	**0.0694**	**5.7054**	**0.1097**	**5.8151**	**1.5369**	**0.1040**	**1.6409**		**7,228.6753**	**7,228.6753**	**0.2011**	**0.5959**	**7,411.2752**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2022

Mitigated Construction On-Site

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

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2730	7.4931	2.7117	0.0305	1.0443	0.0852	1.1295	0.3007	0.0815	0.3822		3,264.7191	3,264.7191	0.0876	0.4834	3,410.9707
Worker	1.6966	1.1766	14.1112	0.0390	4.6611	0.0245	4.6856	1.2361	0.0225	1.2587		3,963.9562	3,963.9562	0.1135	0.1125	4,000.3045
Total	**1.9696**	**8.6697**	**16.8230**	**0.0694**	**5.7054**	**0.1097**	**5.8151**	**1.5369**	**0.1040**	**1.6409**		**7,228.6753**	**7,228.6753**	**0.2011**	**0.5959**	**7,411.2752**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2023

Unmitigated Construction On-Site

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

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1775	6.0389	2.4731	0.0292	1.0443	0.0431	1.0874	0.3007	0.0413	0.3420		3,135.8527	3,135.8527	0.0811	0.4634	3,275.9719
Worker	1.5707	1.0345	12.9429	0.0377	4.6611	0.0230	4.6841	1.2361	0.0212	1.2573		3,859.7759	3,859.7759	0.1019	0.1034	3,893.1371
Total	**1.7482**	**7.0735**	**15.4160**	**0.0670**	**5.7054**	**0.0662**	**5.7716**	**1.5369**	**0.0625**	**1.5993**		**6,995.6286**	**6,995.6286**	**0.1830**	**0.5668**	**7,169.1090**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2023

Mitigated Construction On-Site

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

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1775	6.0389	2.4731	0.0292	1.0443	0.0431	1.0874	0.3007	0.0413	0.3420		3,135.8527	3,135.8527	0.0811	0.4634	3,275.9719
Worker	1.5707	1.0345	12.9429	0.0377	4.6611	0.0230	4.6841	1.2361	0.0212	1.2573		3,859.7759	3,859.7759	0.1019	0.1034	3,893.1371
Total	**1.7482**	**7.0735**	**15.4160**	**0.0670**	**5.7054**	**0.0662**	**5.7716**	**1.5369**	**0.0625**	**1.5993**		**6,995.6286**	**6,995.6286**	**0.1830**	**0.5668**	**7,169.1090**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.2410					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2738**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0565	0.0372	0.4656	1.3600e-003	0.1677	8.3000e-004	0.1685	0.0445	7.6000e-004	0.0452		138.8409	138.8409	3.6600e-003	3.7200e-003	140.0409
Total	**0.0565**	**0.0372**	**0.4656**	**1.3600e-003**	**0.1677**	**8.3000e-004**	**0.1685**	**0.0445**	**7.6000e-004**	**0.0452**		**138.8409**	**138.8409**	**3.6600e-003**	**3.7200e-003**	**140.0409**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.2410					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2738**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0565	0.0372	0.4656	1.3600e-003	0.1677	8.3000e-004	0.1685	0.0445	7.6000e-004	0.0452		138.8409	138.8409	3.6600e-003	3.7200e-003	140.0409
Total	**0.0565**	**0.0372**	**0.4656**	**1.3600e-003**	**0.1677**	**8.3000e-004**	**0.1685**	**0.0445**	**7.6000e-004**	**0.0452**		**138.8409**	**138.8409**	**3.6600e-003**	**3.7200e-003**	**140.0409**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	39.1391					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**39.3308**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.3126	0.2059	2.5762	7.5100e-003	0.9277	4.5800e-003	0.9323	0.2460	4.2200e-003	0.2503		768.2528	768.2528	0.0203	0.0206	774.8930
Total	**0.3126**	**0.2059**	**2.5762**	**7.5100e-003**	**0.9277**	**4.5800e-003**	**0.9323**	**0.2460**	**4.2200e-003**	**0.2503**		**768.2528**	**768.2528**	**0.0203**	**0.0206**	**774.8930**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	39.1391					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**39.3308**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.3126	0.2059	2.5762	7.5100e-003	0.9277	4.5800e-003	0.9323	0.2460	4.2200e-003	0.2503		768.2528	768.2528	0.0203	0.0206	774.8930
Total	**0.3126**	**0.2059**	**2.5762**	**7.5100e-003**	**0.9277**	**4.5800e-003**	**0.9323**	**0.2460**	**4.2200e-003**	**0.2503**		**768.2528**	**768.2528**	**0.0203**	**0.0206**	**774.8930**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.2914	3.2104	20.3043	0.0429	4.4652	0.0360	4.5011	1.1909	0.0337	1.2246		4,419.9998	4,419.9998	0.2879	0.2387	4,498.3425
Unmitigated	2.2914	3.2104	20.3043	0.0429	4.4652	0.0360	4.5011	1.1909	0.0337	1.2246		4,419.9998	4,419.9998	0.2879	0.2387	4,498.3425

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Hotel	886.16	868.14	630.70	2,021,305	2,021,305
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	886.16	868.14	630.70	2,021,305	2,021,305

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Hotel	0.537785	0.055838	0.172353	0.139003	0.027005	0.007196	0.011392	0.017285	0.000559	0.000254	0.025303	0.000954	0.005071
Other Non-Asphalt Surfaces	0.537785	0.055838	0.172353	0.139003	0.027005	0.007196	0.011392	0.017285	0.000559	0.000254	0.025303	0.000954	0.005071
Parking Lot	0.537785	0.055838	0.172353	0.139003	0.027005	0.007196	0.011392	0.017285	0.000559	0.000254	0.025303	0.000954	0.005071

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0990	0.8997	0.7557	5.4000e-003		0.0684	0.0684		0.0684	0.0684		1,079.5751	1,079.5751	0.0207	0.0198	1,085.9905
NaturalGas Unmitigated	0.0990	0.8997	0.7557	5.4000e-003		0.0684	0.0684		0.0684	0.0684		1,079.5751	1,079.5751	0.0207	0.0198	1,085.9905

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Hotel	9176.39	0.0990	0.8997	0.7557	5.4000e-003		0.0684	0.0684		0.0684	0.0684		1,079.5751	1,079.5751	0.0207	0.0198	1,085.9905
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0990**	**0.8997**	**0.7557**	**5.4000e-003**		**0.0684**	**0.0684**		**0.0684**	**0.0684**		**1,079.5751**	**1,079.5751**	**0.0207**	**0.0198**	**1,085.9905**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Hotel	9.17639	0.0990	0.8997	0.7557	5.4000e-003		0.0684	0.0684		0.0684	0.0684		1,079.5751	1,079.5751	0.0207	0.0198	1,085.9905
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0990**	**0.8997**	**0.7557**	**5.4000e-003**		**0.0684**	**0.0684**		**0.0684**	**0.0684**		**1,079.5751**	**1,079.5751**	**0.0207**	**0.0198**	**1,085.9905**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.6648	3.1000e-004	0.0338	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0724	0.0724	1.9000e-004		0.0771
Unmitigated	1.6648	3.1000e-004	0.0338	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0724	0.0724	1.9000e-004		0.0771

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2145					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.4473					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.1300e-003	3.1000e-004	0.0338	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0724	0.0724	1.9000e-004		0.0771
Total	**1.6648**	**3.1000e-004**	**0.0338**	**0.0000**		**1.2000e-004**	**1.2000e-004**		**1.2000e-004**	**1.2000e-004**		**0.0724**	**0.0724**	**1.9000e-004**		**0.0771**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2145					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.4473					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.1300e-003	3.1000e-004	0.0338	0.0000		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004		0.0724	0.0724	1.9000e-004		0.0771
Total	**1.6648**	**3.1000e-004**	**0.0338**	**0.0000**		**1.2000e-004**	**1.2000e-004**		**1.2000e-004**	**1.2000e-004**		**0.0724**	**0.0724**	**1.9000e-004**		**0.0771**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix B:

CalEEMod Annual Emissions Output

Wonder Inn - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Wonder Inn

San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hotel	106.00	Room	3.53	56,330.00	0
Parking Lot	205.00	Space	1.84	82,000.00	0
Other Non-Asphalt Surfaces	19.63	Acre	19.63	855,082.80	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Hotel with 42,120 sf of 106 prebuilt rooms, 6,310 sf modular building, 5,000 sf event space, 2,900 sf wellness center, 205 parking spaces, and desert landscaping on 25 acres. An existing 4,407 sf building will be remodeled for hotel use.

Demolition -

Construction Phase - Construction anticipated to last from 8/1/2022 to 2/3/2023 with overlapping construction phases. Each phase has been modeled individually and maximum emissions from any overlap will be accounted for in the report.

Grading - The site is anticipated to balance and there will be 13.9 acres of grading per the applicant.

Construction Off-road Equipment Mitigation - Per Rule 1401

Waste Mitigation - Per AB-341

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	370.00	135.00
tblConstructionPhase	PhaseEndDate	4/26/2024	6/2/2023
tblConstructionPhase	PhaseEndDate	3/1/2024	4/7/2023
tblConstructionPhase	PhaseEndDate	3/29/2024	5/5/2023
tblConstructionPhase	PhaseStartDate	3/30/2024	5/6/2023
tblConstructionPhase	PhaseStartDate	3/2/2024	4/8/2023
tblGrading	AcresOfGrading	105.00	13.90
tblLandUse	LandUseSquareFeet	153,912.00	56,330.00

2.0 Emissions Summary

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1965	1.6381	1.7216	4.4700e-003	0.3979	0.0666	0.4644	0.1596	0.0619	0.2215	0.0000	406.7282	406.7282	0.0604	0.0178	413.5377
2023	0.5218	0.8694	1.3245	3.6600e-003	0.2068	0.0327	0.2394	0.0557	0.0307	0.0864	0.0000	336.5181	336.5181	0.0320	0.0183	342.7757
Maximum	**0.5218**	**1.6381**	**1.7216**	**4.4700e-003**	**0.3979**	**0.0666**	**0.4644**	**0.1596**	**0.0619**	**0.2215**	**0.0000**	**406.7282**	**406.7282**	**0.0604**	**0.0183**	**413.5377**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1965	1.6381	1.7216	4.4700e-003	0.2691	0.0666	0.3357	0.0930	0.0619	0.1549	0.0000	406.7279	406.7279	0.0604	0.0178	413.5375
2023	0.5218	0.8694	1.3245	3.6600e-003	0.2068	0.0327	0.2394	0.0557	0.0307	0.0864	0.0000	336.5180	336.5180	0.0320	0.0183	342.7756
Maximum	**0.5218**	**1.6381**	**1.7216**	**4.4700e-003**	**0.2691**	**0.0666**	**0.3357**	**0.0930**	**0.0619**	**0.1549**	**0.0000**	**406.7279**	**406.7279**	**0.0604**	**0.0183**	**413.5375**

Wonder Inn - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**21.29**	**0.00**	**18.29**	**30.94**	**0.00**	**21.64**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**8-1-2022**	**10-31-2022**	1.2111	1.2111
2	**11-1-2022**	**1-31-2023**	0.8835	0.8835
3	**2-1-2023**	**4-30-2023**	0.6783	0.6783
4	**5-1-2023**	**7-31-2023**	0.4322	0.4322
		Highest	1.2111	1.2111

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3037	4.0000e-005	4.2200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.2100e-003	8.2100e-003	2.0000e-005	0.0000	8.7400e-003
Energy	0.0181	0.1642	0.1379	9.9000e-004		0.0125	0.0125		0.0125	0.0125	0.0000	358.1489	358.1489	0.0186	5.1100e-003	360.1366
Mobile	0.3939	0.5688	3.6741	7.5700e-003	0.7622	6.2500e-003	0.7684	0.2036	5.8500e-003	0.2095	0.0000	707.0353	707.0353	0.0459	0.0382	719.5573
Waste						0.0000	0.0000		0.0000	0.0000	11.7796	0.0000	11.7796	0.6962	0.0000	29.1834
Water						0.0000	0.0000		0.0000	0.0000	0.8531	6.7979	7.6509	0.0882	2.1400e-003	10.4929
Total	**0.7156**	**0.7330**	**3.8163**	**8.5600e-003**	**0.7622**	**0.0188**	**0.7809**	**0.2036**	**0.0184**	**0.2220**	**12.6326**	**1,071.9902**	**1,084.6228**	**0.8489**	**0.0454**	**1,119.3790**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3037	4.0000e-005	4.2200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.2100e-003	8.2100e-003	2.0000e-005	0.0000	8.7400e-003
Energy	0.0181	0.1642	0.1379	9.9000e-004		0.0125	0.0125		0.0125	0.0125	0.0000	358.1489	358.1489	0.0186	5.1100e-003	360.1366
Mobile	0.3939	0.5688	3.6741	7.5700e-003	0.7622	6.2500e-003	0.7684	0.2036	5.8500e-003	0.2095	0.0000	707.0353	707.0353	0.0459	0.0382	719.5573
Waste						0.0000	0.0000		0.0000	0.0000	2.9449	0.0000	2.9449	0.1740	0.0000	7.2958
Water						0.0000	0.0000		0.0000	0.0000	0.8531	6.7979	7.6509	0.0882	2.1400e-003	10.4929
Total	**0.7156**	**0.7330**	**3.8163**	**8.5600e-003**	**0.7622**	**0.0188**	**0.7809**	**0.2036**	**0.0184**	**0.2220**	**3.7980**	**1,071.9902**	**1,075.7882**	**0.3267**	**0.0454**	**1,097.4914**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**69.94**	**0.00**	**0.81**	**61.51**	**0.00**	**1.96**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	8/1/2022	8/12/2022	5	10	
2	Grading	Grading	8/13/2022	9/30/2022	5	35	
3	Building Construction	Building Construction	10/1/2022	4/7/2023	5	135	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4	Paving	Paving	4/8/2023	5/5/2023	5	20	
5	Architectural Coating	Architectural Coating	5/6/2023	6/2/2023	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 13.9

Acres of Paving: 21.47

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 84,495; Non-Residential Outdoor: 28,165; Striped Parking Area: 56,225 (Architectural Coating – sqft)

OffRoad Equipment

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

Trips and VMT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	417.00	163.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	83.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0983	0.0000	0.0983	0.0505	0.0000	0.0505	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0159	0.1654	0.0985	1.9000e-004		8.0600e-003	8.0600e-003		7.4200e-003	7.4200e-003	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	**0.0159**	**0.1654**	**0.0985**	**1.9000e-004**	**0.0983**	**8.0600e-003**	**0.1064**	**0.0505**	**7.4200e-003**	**0.0579**	**0.0000**	**16.7197**	**16.7197**	**5.4100e-003**	**0.0000**	**16.8549**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4000e-004	2.7000e-004	3.1900e-003	1.0000e-005	9.9000e-004	1.0000e-005	9.9000e-004	2.6000e-004	0.0000	2.7000e-004	0.0000	0.7916	0.7916	2.0000e-005	2.0000e-005	0.7989
Total	**3.4000e-004**	**2.7000e-004**	**3.1900e-003**	**1.0000e-005**	**9.9000e-004**	**1.0000e-005**	**9.9000e-004**	**2.6000e-004**	**0.0000**	**2.7000e-004**	**0.0000**	**0.7916**	**0.7916**	**2.0000e-005**	**2.0000e-005**	**0.7989**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0383	0.0000	0.0383	0.0197	0.0000	0.0197	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0159	0.1654	0.0985	1.9000e-004		8.0600e-003	8.0600e-003		7.4200e-003	7.4200e-003	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	**0.0159**	**0.1654**	**0.0985**	**1.9000e-004**	**0.0383**	**8.0600e-003**	**0.0464**	**0.0197**	**7.4200e-003**	**0.0271**	**0.0000**	**16.7197**	**16.7197**	**5.4100e-003**	**0.0000**	**16.8549**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4000e-004	2.7000e-004	3.1900e-003	1.0000e-005	9.9000e-004	1.0000e-005	9.9000e-004	2.6000e-004	0.0000	2.7000e-004	0.0000	0.7916	0.7916	2.0000e-005	2.0000e-005	0.7989
Total	**3.4000e-004**	**2.7000e-004**	**3.1900e-003**	**1.0000e-005**	**9.9000e-004**	**1.0000e-005**	**9.9000e-004**	**2.6000e-004**	**0.0000**	**2.7000e-004**	**0.0000**	**0.7916**	**0.7916**	**2.0000e-005**	**2.0000e-005**	**0.7989**

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1128	0.0000	0.1128	0.0587	0.0000	0.0587	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0634	0.6798	0.5082	1.0900e-003		0.0286	0.0286		0.0263	0.0263	0.0000	95.4356	95.4356	0.0309	0.0000	96.2072
Total	**0.0634**	**0.6798**	**0.5082**	**1.0900e-003**	**0.1128**	**0.0286**	**0.1414**	**0.0587**	**0.0263**	**0.0850**	**0.0000**	**95.4356**	**95.4356**	**0.0309**	**0.0000**	**96.2072**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3200e-003	1.0400e-003	0.0124	3.0000e-005	3.8400e-003	2.0000e-005	3.8600e-003	1.0200e-003	2.0000e-005	1.0400e-003	0.0000	3.0784	3.0784	9.0000e-005	9.0000e-005	3.1069
Total	**1.3200e-003**	**1.0400e-003**	**0.0124**	**3.0000e-005**	**3.8400e-003**	**2.0000e-005**	**3.8600e-003**	**1.0200e-003**	**2.0000e-005**	**1.0400e-003**	**0.0000**	**3.0784**	**3.0784**	**9.0000e-005**	**9.0000e-005**	**3.1069**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0440	0.0000	0.0440	0.0229	0.0000	0.0229	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0634	0.6798	0.5082	1.0900e-003		0.0286	0.0286		0.0263	0.0263	0.0000	95.4354	95.4354	0.0309	0.0000	96.2071
Total	**0.0634**	**0.6798**	**0.5082**	**1.0900e-003**	**0.0440**	**0.0286**	**0.0726**	**0.0229**	**0.0263**	**0.0492**	**0.0000**	**95.4354**	**95.4354**	**0.0309**	**0.0000**	**96.2071**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3200e-003	1.0400e-003	0.0124	3.0000e-005	3.8400e-003	2.0000e-005	3.8600e-003	1.0200e-003	2.0000e-005	1.0400e-003	0.0000	3.0784	3.0784	9.0000e-005	9.0000e-005	3.1069
Total	**1.3200e-003**	**1.0400e-003**	**0.0124**	**3.0000e-005**	**3.8400e-003**	**2.0000e-005**	**3.8600e-003**	**1.0200e-003**	**2.0000e-005**	**1.0400e-003**	**0.0000**	**3.0784**	**3.0784**	**9.0000e-005**	**9.0000e-005**	**3.1069**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0555	0.5075	0.5318	8.8000e-004		0.0263	0.0263		0.0247	0.0247	0.0000	75.3107	75.3107	0.0180	0.0000	75.7618
Total	**0.0555**	**0.5075**	**0.5318**	**8.8000e-004**		**0.0263**	**0.0263**		**0.0247**	**0.0247**	**0.0000**	**75.3107**	**75.3107**	**0.0180**	**0.0000**	**75.7618**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.0300e-003	0.2440	0.0865	9.9000e-004	0.0334	2.7600e-003	0.0362	9.6400e-003	2.6400e-003	0.0123	0.0000	96.1941	96.1941	2.5900e-003	0.0143	100.5041
Worker	0.0511	0.0401	0.4809	1.2900e-003	0.1486	8.0000e-004	0.1494	0.0395	7.3000e-004	0.0402	0.0000	119.1982	119.1982	3.4000e-003	3.4300e-003	120.3039
Total	**0.0601**	**0.2841**	**0.5674**	**2.2800e-003**	**0.1820**	**3.5600e-003**	**0.1856**	**0.0491**	**3.3700e-003**	**0.0525**	**0.0000**	**215.3923**	**215.3923**	**5.9900e-003**	**0.0177**	**220.8080**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0555	0.5075	0.5318	8.8000e-004		0.0263	0.0263		0.0247	0.0247	0.0000	75.3106	75.3106	0.0180	0.0000	75.7617
Total	**0.0555**	**0.5075**	**0.5318**	**8.8000e-004**		**0.0263**	**0.0263**		**0.0247**	**0.0247**	**0.0000**	**75.3106**	**75.3106**	**0.0180**	**0.0000**	**75.7617**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.0300e-003	0.2440	0.0865	9.9000e-004	0.0334	2.7600e-003	0.0362	9.6400e-003	2.6400e-003	0.0123	0.0000	96.1941	96.1941	2.5900e-003	0.0143	100.5041
Worker	0.0511	0.0401	0.4809	1.2900e-003	0.1486	8.0000e-004	0.1494	0.0395	7.3000e-004	0.0402	0.0000	119.1982	119.1982	3.4000e-003	3.4300e-003	120.3039
Total	**0.0601**	**0.2841**	**0.5674**	**2.2800e-003**	**0.1820**	**3.5600e-003**	**0.1856**	**0.0491**	**3.3700e-003**	**0.0525**	**0.0000**	**215.3923**	**215.3923**	**5.9900e-003**	**0.0177**	**220.8080**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0551	0.5035	0.5685	9.4000e-004		0.0245	0.0245		0.0230	0.0230	0.0000	81.1317	81.1317	0.0193	0.0000	81.6142
Total	**0.0551**	**0.5035**	**0.5685**	**9.4000e-004**		**0.0245**	**0.0245**		**0.0230**	**0.0230**	**0.0000**	**81.1317**	**81.1317**	**0.0193**	**0.0000**	**81.6142**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.4300e-003	0.2105	0.0852	1.0200e-003	0.0360	1.5100e-003	0.0375	0.0104	1.4400e-003	0.0118	0.0000	99.4285	99.4285	2.5900e-003	0.0147	103.8719
Worker	0.0509	0.0380	0.4749	1.3500e-003	0.1600	8.1000e-004	0.1608	0.0425	7.4000e-004	0.0432	0.0000	124.9855	124.9855	3.2800e-003	3.3900e-003	126.0781
Total	**0.0573**	**0.2484**	**0.5601**	**2.3700e-003**	**0.1960**	**2.3200e-003**	**0.1983**	**0.0529**	**2.1800e-003**	**0.0551**	**0.0000**	**224.4140**	**224.4140**	**5.8700e-003**	**0.0181**	**229.9500**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0551	0.5035	0.5685	9.4000e-004		0.0245	0.0245		0.0230	0.0230	0.0000	81.1316	81.1316	0.0193	0.0000	81.6141
Total	**0.0551**	**0.5035**	**0.5685**	**9.4000e-004**		**0.0245**	**0.0245**		**0.0230**	**0.0230**	**0.0000**	**81.1316**	**81.1316**	**0.0193**	**0.0000**	**81.6141**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.4300e-003	0.2105	0.0852	1.0200e-003	0.0360	1.5100e-003	0.0375	0.0104	1.4400e-003	0.0118	0.0000	99.4285	99.4285	2.5900e-003	0.0147	103.8719
Worker	0.0509	0.0380	0.4749	1.3500e-003	0.1600	8.1000e-004	0.1608	0.0425	7.4000e-004	0.0432	0.0000	124.9855	124.9855	3.2800e-003	3.3900e-003	126.0781
Total	**0.0573**	**0.2484**	**0.5601**	**2.3700e-003**	**0.1960**	**2.3200e-003**	**0.1983**	**0.0529**	**2.1800e-003**	**0.0551**	**0.0000**	**224.4140**	**224.4140**	**5.8700e-003**	**0.0181**	**229.9500**

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0269	20.0269	6.4800e-003	0.0000	20.1888
Paving	2.4100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0127**	**0.1019**	**0.1458**	**2.3000e-004**		**5.1000e-003**	**5.1000e-003**		**4.6900e-003**	**4.6900e-003**	**0.0000**	**20.0269**	**20.0269**	**6.4800e-003**	**0.0000**	**20.1888**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.2000e-004	3.9000e-004	4.8800e-003	1.0000e-005	1.6400e-003	1.0000e-005	1.6500e-003	4.4000e-004	1.0000e-005	4.4000e-004	0.0000	1.2845	1.2845	3.0000e-005	3.0000e-005	1.2958
Total	**5.2000e-004**	**3.9000e-004**	**4.8800e-003**	**1.0000e-005**	**1.6400e-003**	**1.0000e-005**	**1.6500e-003**	**4.4000e-004**	**1.0000e-005**	**4.4000e-004**	**0.0000**	**1.2845**	**1.2845**	**3.0000e-005**	**3.0000e-005**	**1.2958**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0268	20.0268	6.4800e-003	0.0000	20.1888
Paving	2.4100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0127**	**0.1019**	**0.1458**	**2.3000e-004**		**5.1000e-003**	**5.1000e-003**		**4.6900e-003**	**4.6900e-003**	**0.0000**	**20.0268**	**20.0268**	**6.4800e-003**	**0.0000**	**20.1888**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.2000e-004	3.9000e-004	4.8800e-003	1.0000e-005	1.6400e-003	1.0000e-005	1.6500e-003	4.4000e-004	1.0000e-005	4.4000e-004	0.0000	1.2845	1.2845	3.0000e-005	3.0000e-005	1.2958
Total	**5.2000e-004**	**3.9000e-004**	**4.8800e-003**	**1.0000e-005**	**1.6400e-003**	**1.0000e-005**	**1.6500e-003**	**4.4000e-004**	**1.0000e-005**	**4.4000e-004**	**0.0000**	**1.2845**	**1.2845**	**3.0000e-005**	**3.0000e-005**	**1.2958**

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3914					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	**0.3933**	**0.0130**	**0.0181**	**3.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.5000e-004**	**0.0000**	**2.5571**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8900e-003	2.1600e-003	0.0270	8.0000e-005	9.1000e-003	5.0000e-005	9.1500e-003	2.4200e-003	4.0000e-005	2.4600e-003	0.0000	7.1078	7.1078	1.9000e-004	1.9000e-004	7.1699
Total	**2.8900e-003**	**2.1600e-003**	**0.0270**	**8.0000e-005**	**9.1000e-003**	**5.0000e-005**	**9.1500e-003**	**2.4200e-003**	**4.0000e-005**	**2.4600e-003**	**0.0000**	**7.1078**	**7.1078**	**1.9000e-004**	**1.9000e-004**	**7.1699**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3914					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	**0.3933**	**0.0130**	**0.0181**	**3.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.5000e-004**	**0.0000**	**2.5571**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8900e-003	2.1600e-003	0.0270	8.0000e-005	9.1000e-003	5.0000e-005	9.1500e-003	2.4200e-003	4.0000e-005	2.4600e-003	0.0000	7.1078	7.1078	1.9000e-004	1.9000e-004	7.1699
Total	**2.8900e-003**	**2.1600e-003**	**0.0270**	**8.0000e-005**	**9.1000e-003**	**5.0000e-005**	**9.1500e-003**	**2.4200e-003**	**4.0000e-005**	**2.4600e-003**	**0.0000**	**7.1078**	**7.1078**	**1.9000e-004**	**1.9000e-004**	**7.1699**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3939	0.5688	3.6741	7.5700e-003	0.7622	6.2500e-003	0.7684	0.2036	5.8500e-003	0.2095	0.0000	707.0353	707.0353	0.0459	0.0382	719.5573
Unmitigated	0.3939	0.5688	3.6741	7.5700e-003	0.7622	6.2500e-003	0.7684	0.2036	5.8500e-003	0.2095	0.0000	707.0353	707.0353	0.0459	0.0382	719.5573

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Hotel	886.16	868.14	630.70	2,021,305	2,021,305
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	886.16	868.14	630.70	2,021,305	2,021,305

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Hotel	16.60	8.40	6.90	19.40	61.60	19.00	58	38	4
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Hotel	0.537785	0.055838	0.172353	0.139003	0.027005	0.007196	0.011392	0.017285	0.000559	0.000254	0.025303	0.000954	0.005071
Other Non-Asphalt Surfaces	0.537785	0.055838	0.172353	0.139003	0.027005	0.007196	0.011392	0.017285	0.000559	0.000254	0.025303	0.000954	0.005071

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Parking Lot	0.537785	0.055838	0.172353	0.139003	0.027005	0.007196	0.011392	0.017285	0.000559	0.000254	0.025303	0.000954	0.005071

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	179.4131	179.4131	0.0151	1.8400e-003	180.3387
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	179.4131	179.4131	0.0151	1.8400e-003	180.3387
NaturalGas Mitigated	0.0181	0.1642	0.1379	9.9000e-004		0.0125	0.0125		0.0125	0.0125	0.0000	178.7358	178.7358	3.4300e-003	3.2800e-003	179.7979
NaturalGas Unmitigated	0.0181	0.1642	0.1379	9.9000e-004		0.0125	0.0125		0.0125	0.0125	0.0000	178.7358	178.7358	3.4300e-003	3.2800e-003	179.7979

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Hotel	3.34938e+006	0.0181	0.1642	0.1379	9.9000e-004		0.0125	0.0125		0.0125	0.0125	0.0000	178.7358	178.7358	3.4300e-003	3.2800e-003	179.7979
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0181**	**0.1642**	**0.1379**	**9.9000e-004**		**0.0125**	**0.0125**		**0.0125**	**0.0125**	**0.0000**	**178.7358**	**178.7358**	**3.4300e-003**	**3.2800e-003**	**179.7979**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Hotel	3.34938e+006	0.0181	0.1642	0.1379	9.9000e-004		0.0125	0.0125		0.0125	0.0125	0.0000	178.7358	178.7358	3.4300e-003	3.2800e-003	179.7979
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0181**	**0.1642**	**0.1379**	**9.9000e-004**		**0.0125**	**0.0125**		**0.0125**	**0.0125**	**0.0000**	**178.7358**	**178.7358**	**3.4300e-003**	**3.2800e-003**	**179.7979**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Hotel	982959	174.3233	0.0147	1.7800e-003	175.2226
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	28700	5.0898	4.3000e-004	5.0000e-005	5.1161
Total		**179.4131**	**0.0151**	**1.8300e-003**	**180.3387**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Hotel	982959	174.3233	0.0147	1.7800e-003	175.2226
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	28700	5.0898	4.3000e-004	5.0000e-005	5.1161
Total		**179.4131**	**0.0151**	**1.8300e-003**	**180.3387**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3037	4.0000e-005	4.2200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.2100e-003	8.2100e-003	2.0000e-005	0.0000	8.7400e-003
Unmitigated	0.3037	4.0000e-005	4.2200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.2100e-003	8.2100e-003	2.0000e-005	0.0000	8.7400e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0391					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2641					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.9000e-004	4.0000e-005	4.2200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.2100e-003	8.2100e-003	2.0000e-005	0.0000	8.7400e-003
Total	**0.3037**	**4.0000e-005**	**4.2200e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**8.2100e-003**	**8.2100e-003**	**2.0000e-005**	**0.0000**	**8.7400e-003**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0391					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2641					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.9000e-004	4.0000e-005	4.2200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.2100e-003	8.2100e-003	2.0000e-005	0.0000	8.7400e-003
Total	**0.3037**	**4.0000e-005**	**4.2200e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**8.2100e-003**	**8.2100e-003**	**2.0000e-005**	**0.0000**	**8.7400e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	7.6509	0.0882	2.1400e-003	10.4929
Unmitigated	7.6509	0.0882	2.1400e-003	10.4929

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Hotel	2.68888 / 0.298764	7.6509	0.0882	2.1400e-003	10.4929
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**7.6509**	**0.0882**	**2.1400e-003**	**10.4929**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Hotel	2.68888 / 0.298764	7.6509	0.0882	2.1400e-003	10.4929
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**7.6509**	**0.0882**	**2.1400e-003**	**10.4929**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	2.9449	0.1740	0.0000	7.2958
Unmitigated	11.7796	0.6962	0.0000	29.1834

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Hotel	58.03	11.7796	0.6962	0.0000	29.1834
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**11.7796**	**0.6962**	**0.0000**	**29.1834**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Hotel	14.5075	2.9449	0.1740	0.0000	7.2958
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**2.9449**	**0.1740**	**0.0000**	**7.2958**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix C:

EMFAC2017 Output

Calendar Year: 2022
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Year	Vehicle Ca	Model Year	Speed	Fuel	Population	Trips	Fuel Consumption	Fuel Consumption	Total Fuel Consumption	VMT	Total VMT	Miles Per Gallon	Vehicle Class
South Coast AQMD	2022	HHDT	Aggregate	Aggregate	Gasoline	77.82251	1557.073	1.914672095	1914.672095	1984478.157	7970.981	13381402.09	**6.74**	HHD
South Coast AQMD	2022	HHDT	Aggregate	Aggregate	Diesel	108362	1118617	1982.563485	1982563.485		13373431			
South Coast AQMD	2022	LDA	Aggregate	Aggregate	Gasoline	6542832	30915701	8178.144259	8178144.259	8226568.36	2.52E+08	254602375.4	**30.95**	LDA
South Coast AQMD	2022	LDA	Aggregate	Aggregate	Diesel	58937.5	279973.4	48.42410045	48424.10045		2358230			
South Coast AQMD	2022	LDA	Aggregate	Aggregate	Electricity	127532.6	637025.4	0	0		5177709			
South Coast AQMD	2022	LDT1	Aggregate	Aggregate	Gasoline	736905.6	3399512	1031.447408	1031447.408	1031847.287	27300896	27309932.68	**26.47**	LDT1
South Coast AQMD	2022	LDT1	Aggregate	Aggregate	Diesel	387.1571	1348.408	0.39987912	399.8791198		9037.122			
South Coast AQMD	2022	LDT1	Aggregate	Aggregate	Electricity	5339.042	26794.47	0	0		221507.4			
South Coast AQMD	2022	LDT2	Aggregate	Aggregate	Gasoline	2246303	10535910	3436.155557	3436155.557	3453207.618	84740129	85348125.78	**24.72**	LDT2
South Coast AQMD	2022	LDT2	Aggregate	Aggregate	Diesel	14234.59	70193.22	17.05206088	17052.06088		607996.5			
South Coast AQMD	2022	LDT2	Aggregate	Aggregate	Electricity	22589.96	114302.6	0	0		734756.1			
South Coast AQMD	2022	LHDT1	Aggregate	Aggregate	Gasoline	175903.1	2620694	598.0685493	598068.5493	821513.5103	6298251	11115258.37	**13.53**	LHDT1
South Coast AQMD	2022	LHDT1	Aggregate	Aggregate	Diesel	119380.7	1501659	223.444961	223444.961		4817007			
South Coast AQMD	2022	LHDT2	Aggregate	Aggregate	Gasoline	30009.92	447103.1	113.5150695	113515.0695	209067.0531	1040649	2902289.397	**13.88**	LHDT2
South Coast AQMD	2022	LHDT2	Aggregate	Aggregate	Diesel	47335.63	595422.7	95.55198358	95551.98358		1861640			
South Coast AQMD	2022	MCY	Aggregate	Aggregate	Gasoline	295960.1	591920.2	56.92214589	56922.14589	56922.14589	2072370	2072370.126	**36.41**	MCY
South Coast AQMD	2022	MDV	Aggregate	Aggregate	Gasoline	1579640	7302407	2793.799561	2793799.561	2842944.316	55888916	57233722.8	**20.13**	MDV
South Coast AQMD	2022	MDV	Aggregate	Aggregate	Diesel	33348.92	163526.3	49.14475473	49144.75473		1344806			
South Coast AQMD	2022	MDV	Aggregate	Aggregate	Electricity	11658.48	59625.3	0	0		391944.3			
South Coast AQMD	2022	MH	Aggregate	Aggregate	Gasoline	35097.75	3511.179	64.70410395	64704.10395	76270.38211	333282.4	455641.5746	**5.97**	MH
South Coast AQMD	2022	MH	Aggregate	Aggregate	Diesel	12758.81	1275.881	11.56627815	11566.27815		122359.2			
South Coast AQMD	2022	MHDT	Aggregate	Aggregate	Gasoline	25445.41	509111.8	269.2842176	269284.2176	1009568.488	1367743	9307083.084	**9.22**	MHDT
South Coast AQMD	2022	MHDT	Aggregate	Aggregate	Diesel	123310	1231988	740.28427	740284.27		7939340			
South Coast AQMD	2022	OBUS	Aggregate	Aggregate	Gasoline	5959.443	119236.5	49.67589796	49675.89796	88138.04214	250653.5	576603.5972	**6.54**	OBUS
South Coast AQMD	2022	OBUS	Aggregate	Aggregate	Diesel	4274.499	41607.39	38.46214418	38462.14418		325950.1			
South Coast AQMD	2022	SBUS	Aggregate	Aggregate	Gasoline	2630.829	10523.32	11.7605267	11760.5267	39328.1885	107369.8	316915.9173	**8.06**	SBUS
South Coast AQMD	2022	SBUS	Aggregate	Aggregate	Diesel	6631.313	76524.43	27.5676618	27567.6618		209546.1			
South Coast AQMD	2022	UBUS	Aggregate	Aggregate	Gasoline	952.146	3808.584	18.40085629	18400.85629	18647.65249	89256	90734.08386	**4.87**	UBUS
South Coast AQMD	2022	UBUS	Aggregate	Aggregate	Diesel	14.14142	56.56567	0.246796198	246.7961984		1478.086			
South Coast AQMD	2022	UBUS	Aggregate	Aggregate	Electricity	17.11694	68.46776	0			1343.185			

Source: EMFAC2017 (v1.0.3) Emissions Inventory
Region Type: Air District
Region: South Coast AQMD
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Y	Vehicle Cat	Model Year	Speed	Fuel	Population	VMT	Trips	Fuel Consumption	Fuel Consumption	Total Fuel Consumption	VMT	Total VMT	Miles Per Gallon	Vehicle Class
South Coas	2023	HHDT	Aggregate	Aggregate	Gasoline	75.10442936	8265.097	1502.689	1.936286145	1936.286145	1913466.474	8265.097	13656273.03	7.14	**HHD**
South Coas	2023	HHDT	Aggregate	Aggregate	Diesel	109818.6753	13648008	1133618	1911.530188	1911530.188		13648008			
South Coas	2023	LDA	Aggregate	Aggregate	Gasoline	6635002.295	2.53E+08	31352477	7971.24403	7971244.03	8020635.698	2.53E+08	255180358.3	31.82	**LDA**
South Coas	2023	LDA	Aggregate	Aggregate	Diesel	62492.97958	2469816	297086.6	49.3916685	49391.6685		2469816			
South Coas	2023	LDA	Aggregate	Aggregate	Electricity	150700.3971	6237106	751566	0	0		6237106			
South Coas	2023	LDT1	Aggregate	Aggregate	Gasoline	758467.6481	27812996	3504563	1023.913006	1023913.006	1024279.466	27812996	27821405.09	27.16	**LDT1**
South Coas	2023	LDT1	Aggregate	Aggregate	Diesel	360.7799144	8408.618	1256.88	0.366459477	366.4594769		8408.618			
South Coas	2023	LDT1	Aggregate	Aggregate	Electricity	7122.93373	303507.5	35798.19	0	0		303507.5			
South Coas	2023	LDT2	Aggregate	Aggregate	Gasoline	2285150.139	85272416	10723315	3338.798312	3338798.312	3356536.438	85272416	85922778.34	25.60	**LDT2**
South Coas	2023	LDT2	Aggregate	Aggregate	Diesel	15594.68309	650362.8	76635.83	17.73812611	17738.12611		650362.8			
South Coas	2023	LDT2	Aggregate	Aggregate	Electricity	28809.63735	917592.8	145405.4	0	0		917592.8			
South Coas	2023	LHDT1	Aggregate	Aggregate	Gasoline	174910.3847	6216643	2605904	583.3851736	583385.1736	811563.1022	6216643	11211395.79	13.81	**LHDT1**
South Coas	2023	LHDT1	Aggregate	Aggregate	Diesel	125545.0822	4994753	1579199	228.1779285	228177.9285		4994753			
South Coas	2023	LHDT2	Aggregate	Aggregate	Gasoline	30102.75324	1034569	448486.2	111.5753864	111575.3864	209423.5025	1034569	2969599.008	14.18	**LHDT2**
South Coas	2023	LHDT2	Aggregate	Aggregate	Diesel	50003.13116	1935030	628976.5	97.84811618	97848.11618		1935030			
South Coas	2023	MCY	Aggregate	Aggregate	Gasoline	305044.5141	2104624	610089	57.849018	57849.018	57849.018	2104624	2104623.657	36.38	**MCY**
South Coas	2023	MDV	Aggregate	Aggregate	Gasoline	1589862.703	55684188	7354860	2693.883526	2693883.526	2744536.341	55684188	57109879.73	20.81	**MDV**
South Coas	2023	MDV	Aggregate	Aggregate	Diesel	36128.1019	1425691	176566.9	50.65281491	50652.81491		1425691			
South Coas	2023	MDV	Aggregate	Aggregate	Electricity	16376.67653	537591.7	83475.95	0	0		537591.7			
South Coas	2023	MH	Aggregate	Aggregate	Gasoline	34679.50542	330042.9	3469.338	63.26295123	63262.95123	74893.26955	330042.9	454344.9436	6.07	**MH**
South Coas	2023	MH	Aggregate	Aggregate	Diesel	13122.69387	124302	1312.269	11.63031832	11630.31832		124302			
South Coas	2023	MHDT	Aggregate	Aggregate	Gasoline	25624.3151	1363694	512691.3	265.2060557	265206.0557	989975.6425	1363694	9484317.768	9.58	**MHDT**
South Coas	2023	MHDT	Aggregate	Aggregate	Diesel	122124.488	8120623	1221858	724.7695868	724769.5868		8120623			
South Coas	2023	OBUS	Aggregate	Aggregate	Gasoline	5955.291639	245774	119153.5	48.07750689	48077.50689	86265.88761	245774	579743.8353	6.72	**OBUS**
South Coas	2023	OBUS	Aggregate	Aggregate	Diesel	4286.940093	333969.8	41558.29	38.18838072	38188.38072		333969.8			
South Coas	2023	SBUS	Aggregate	Aggregate	Gasoline	2783.643068	112189.6	11134.57	12.19474692	12194.74692	39638.85935	112189.6	323043.5203	8.15	**SBUS**
South Coas	2023	SBUS	Aggregate	Aggregate	Diesel	6671.825716	210853.9	76991.94	27.44411242	27444.11242		210853.9			
South Coas	2023	UBUS	Aggregate	Aggregate	Gasoline	957.7686184	89782.63	3831.074	17.62416327	17624.16327	17863.66378	89782.63	91199.2533	5.11	**UBUS**
South Coas	2023	UBUS	Aggregate	Aggregate	Diesel	13.00046095	1416.622	52.00184	0.239500509	239.5005093		1416.622			
South Coas	2023	UBUS	Aggregate	Aggregate	Electricity	16.11693886	1320.163	64.46776	0			1320.163			

Appendix B-1

Habitat Assessment for the Wonder Inn

ELMT Consulting

September 2022

HABITAT ASSESSMENT
THE WONDER INN

SAN BERNARDINO COUNTY, CALIFORNIA

Prepared For:

The Wonder Inn
78201 Amboy Road
Twentynine Palms, California 92277
Contact: *Phanessa Adams-Holt*

Prepared By:

ELMT Consulting, Inc.
2201 N. Grand Avenue #10098
Santa Ana, California 92711
Contact: *Travis J. McGill*
714.716.5050

September 2022

HABITAT ASSESSMENT
THE WONDER INN

SAN BERNARDINO COUNTY, CALIFORNIA
(Assessor Parcel Numbers 0625-071-04, -05, -07, -08, -09, -10 and -14, Totaling 134 acres)

The undersigned certify that the statements furnished in this report and exhibits present data and information required for this biological evaluation, and the facts, statements, and information presented is a complete and accurate account of the findings and conclusions to the best of our knowledge and beliefs.



Travis J. McGill
Director/Biologist



Thomas J. McGill, Ph.D.
Managing Director

September 2022

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APPENDIX

Appendix A Site Photographs
Appendix B Potentially Occurring Special-Status Biological Resources
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Section 1 Introduction

This report contains the findings of ELMT Consulting's (ELMT) habitat assessment for The Wonder Inn Joshua Tree Project (Project) located at 78201 Amboy Road in an unincorporated area of San Bernardino County near the City of Twentynine Palms, California. The site encompasses APNs 0625-071-04, 05, 07, 08, 09, 10 and 14 and totals 134 acres. ELMT biologists Travis J. McGill conducted a field survey and evaluated the condition of the habitat within the project site and surrounding areas (survey area) on March 25, 2021.

The habitat assessment was conducted to characterize existing site conditions and to assess the probability of occurrence of special-status[1] plant and wildlife species that could pose a constraint to project implementation. This report provides an in-depth assessment of the suitability of the on-site habitat to support special status wildlife species, in particular desert tortoise (*Gopherus agassizii*) and burrowing owl (*Athene cunicularia*) as well as other special-status plant identified by the California Natural Diversity Data Base (CNDDB), the California Native Plant Society's (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants of California, as well as other electronic databases to identify species with the potential for occurring in the vicinity of the Project site.

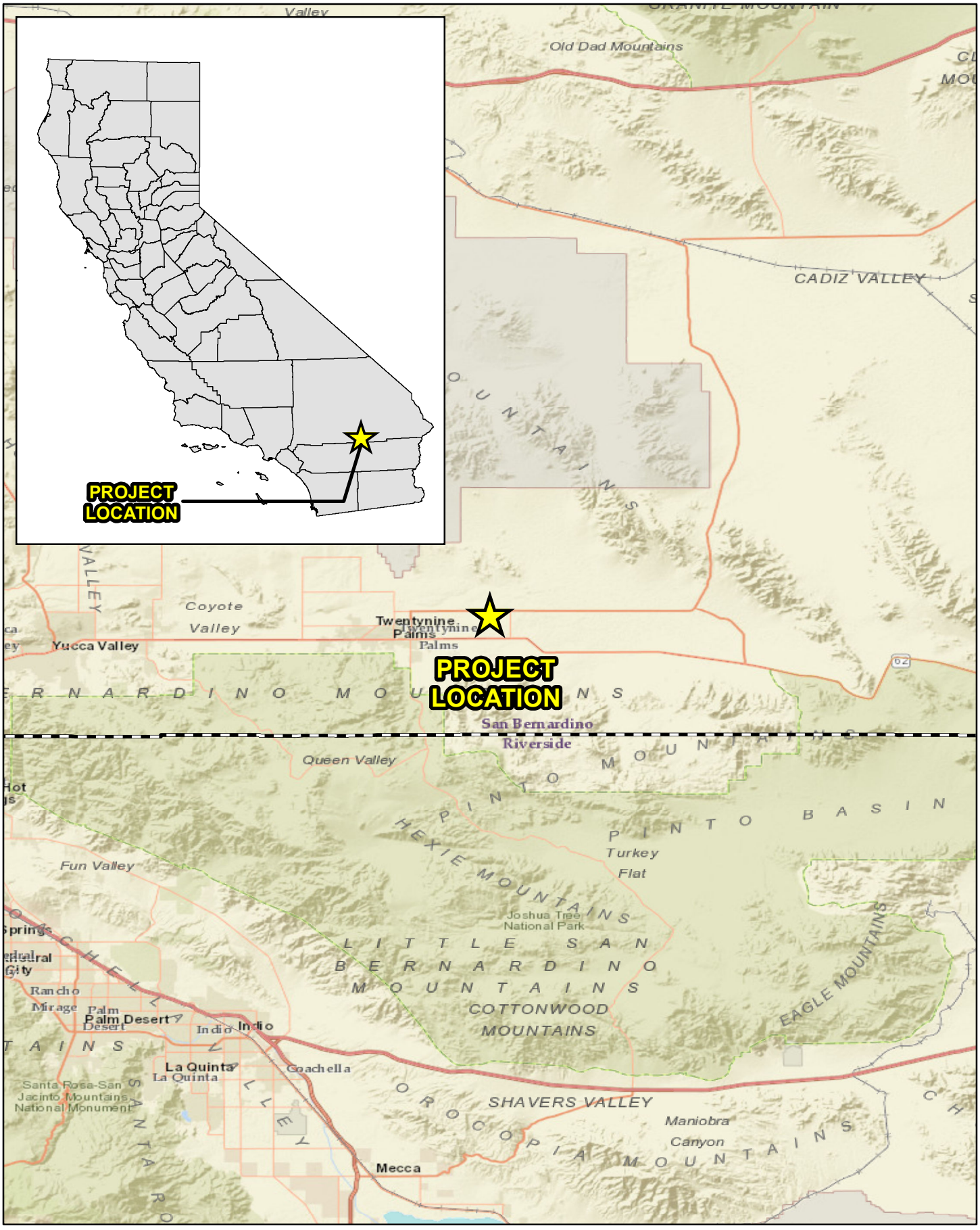
1.1 PROJECT LOCATION

The project site is generally located north of State Route 62, east of State Route 247, south of the Bullion Mountains, and west of United State Route 95 in the City of Twentynine Palms, San Bernardino County, California (Exhibit 1, *Regional Vicinity*). The project site is depicted on the Valley Mountain quadrangle of the United States Geological Survey's (USGS) 7.5-minute topographic map series within Section 20 of Township 1 North, Range 10 East (Exhibit 2, *Site Vicinity*). Specifically, the site is bounded to the north by Amboy Road, to the east by Gammel Road, and roughly to the west by Pinto Mountain Road at 78201 Amboy Road in an unincorporated area of San Bernardino County near the City of Twentynine Palms, California within Assessor Parcel Numbers (APNs) 0625-071-04, -05, -07, -08, -09, -10 and -14 (Exhibit 3, *Project Site*).

1.2 PROJECT DESCRIPTION

The proposed project consists of the development of a 106-bed destination resort hotel across 134 acres.

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



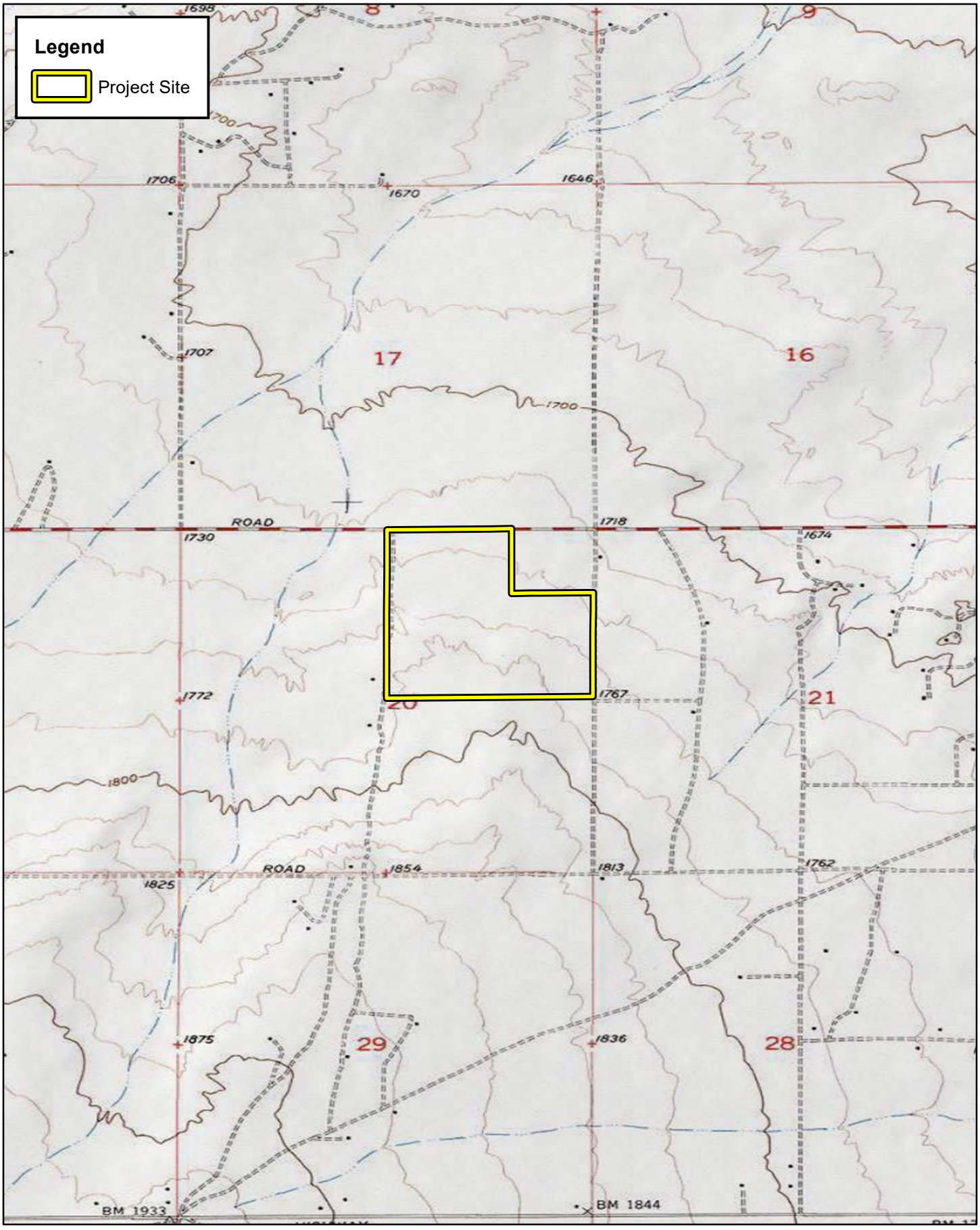
ELMT CONSULTING

Source: World Street Map, San Bernardino County

THE WONDER INN JOSHUA TREE
HABITAT ASSESSMENT

Regional Vicinity

Exhibit 1



THE WONDER INN JOSHUA TREE
HABITAT ASSESSMENT

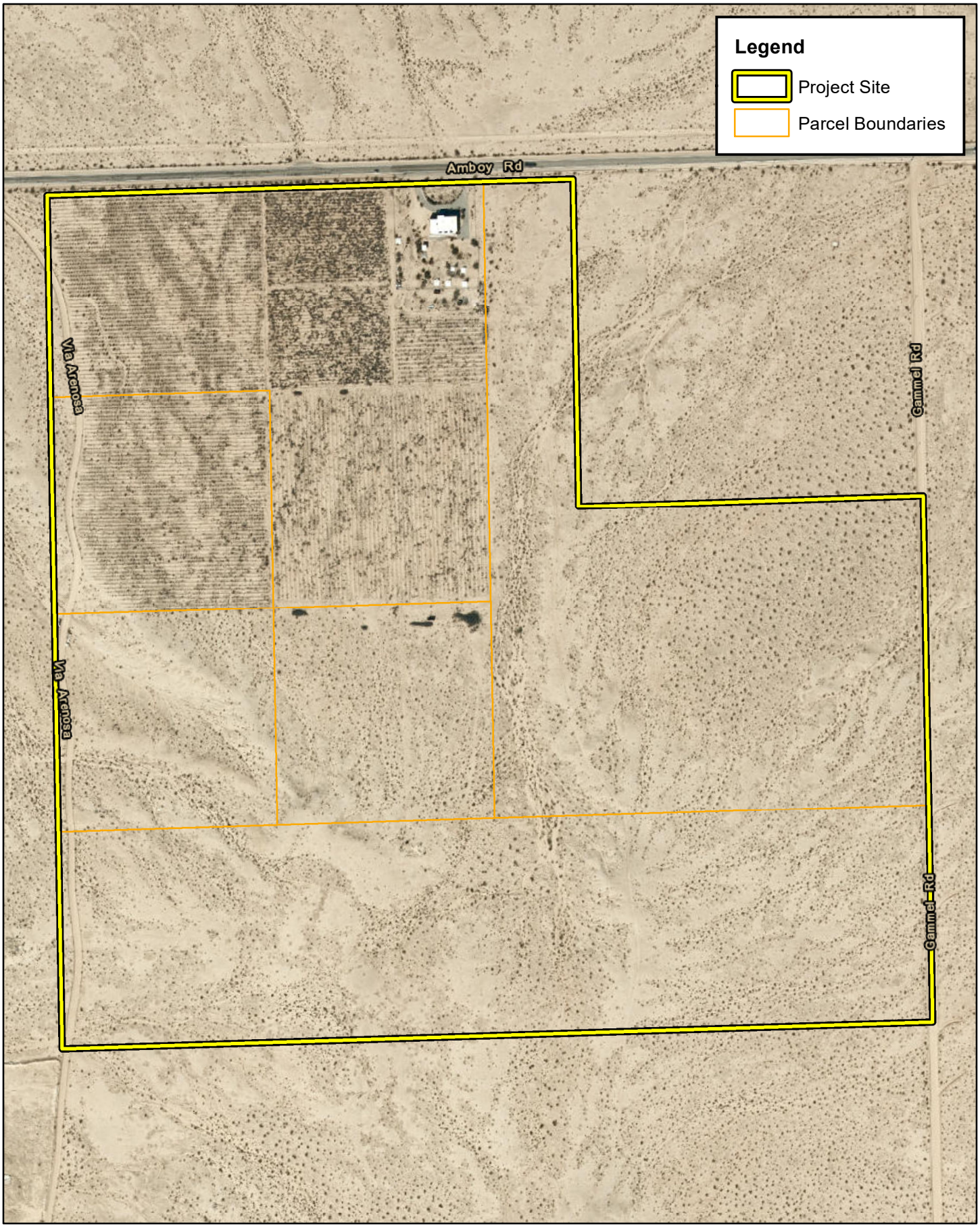
Site Vicinity

ELMT CONSULTING

0 1,000 2,000 4,000 Feet

Source: USA Topographic Map, San Bernardino County

Exhibit 2



THE WONDER INN JOSHUA TREE
HABITAT ASSESSMENT

Project Site

ELMT CONSULTING

0 250 500 1,000 Feet

Source: ESRI Aerial Imagery, San Bernardino County

Exhibit 3

Section 2 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. The field investigation was conducted to document existing conditions within the project site and assess the potential for special-status biological resources to occur.

2.1 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 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 were reviewed to understand existing site conditions and note the extent of any disturbances that have occurred on 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 (1985-2018);
- San Bernardino County General Plan;
- 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 National Wetlands Inventory (NWI).

The literature review provided a baseline from which to inventory the biological resources potentially occurring on the subject property. 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.

[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.

2.2 FIELD INVESTIGATION

ELMT biologist Travis J. McGill evaluated the extent and conditions of the plant communities found within the boundaries of the project site on March 25, 2021. Plant communities identified on aerial photographs during the literature review were verified in the field by walking meandering transects through the on-site plant communities and along boundaries between plant communities. The plant communities were evaluated for their potential to support special-status plant and wildlife species. In addition, field staff identified any natural corridors and linkages that may support the movement of wildlife through the area. Special attention was given to special-status habitats and/or undeveloped areas, which have higher potentials to support special-status plant and wildlife species.

All plant and wildlife species observed, as well as dominant plant species within each plant community, were recorded. Wildlife detections were made through observation of scat, trails, tracks, burrows, nests, and/or visual and aural observation. In addition, site characteristics such as soil condition, topography, hydrology, anthropogenic disturbances, indicator species, condition of on-site plant communities, and presence of potential jurisdictional drainage and/or wetland features were noted.

2.3 SOIL SERIES ASSESSMENT

On-site and adjoining soils were researched prior to the field survey using the USDA NRCS Soil Survey for San Bernardino County. 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.

2.4 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), CDFW (2010) and Holland (1986), delineated on an aerial photograph, and then digitized into ArcGIS. The ArcGIS application was used to compute the area of each plant community in acres.

2.5 PLANTS

Common plant species observed during the field survey 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).

2.6 WILDLIFE

Wildlife species detected during field surveys by sight, calls, tracks, scat, or other sign were recorded during surveys in a field notebook. Field guides were 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 fairly well standardized, scientific names are provided immediately following common names in this report (first reference only).

2.7 JURISDICTIONAL DRAINAGES AND WETLANDS

The project site was also evaluated for the presence of jurisdictional waters of the United States, waters of the State, and/or jurisdictional streambed. Prior to the field visit, aerial photographs of the site were viewed and compared with the surrounding USGS 7.5-minute topographic quadrangle maps to identify drainage features within the survey area as indicated from topographic changes, blue-line features, or visible drainage patterns. The EPA Water Program "My Waters" data layer was also reviewed to determine whether any hydrologic features had been documented within the vicinity of the site. Similarly, the USDA NRCS soil maps for San Bernardino County were used to identify the soil series in the area and to check these soils to determine whether they are regionally identified as hydric soils. The biologists carefully assessed the site for depressions, inundation, presence of hydrophytic vegetation, staining, cracked soil, ponding, and indicators of active surface flow and corresponding physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris. Suspected jurisdictional areas were checked for the presence of definable channels, soils, and hydrology.

Section 3 Existing Conditions

3.1 LOCAL CLIMATE

The Mojave Desert is found at elevations of 2,000 to 5,000 feet above mean sea level and is characterized by cool winter temperatures and warm summer temperatures, with its rainfall occurring almost entirely in the winter. Climatological data obtained for the nearby City of Twentynine Palms indicates the annual precipitation averages 4.46 inches per year. Almost all of the precipitation in the form of rain occurs in the months between July and April, with hardly any occurring between the months of May and June. The wettest month is August, with a monthly average total precipitation of 0.80 inches. The average minimum and maximum temperatures for the region are 39.7 and 102.7 degrees Fahrenheit (°F) respectively with December and January (monthly average 50.5° F) being the coldest months and July being the hottest (monthly average 89.4° F). Temperatures during the site visit were in the mid-70 to mid-80s (° F).

3.2 TOPOGRAPHY AND SOILS

On-site surface elevation ranges from approximately 1,720 to 1,770 feet above mean sea level. Topography on-site generally consists of shallow gently sloping hills and flat areas generally sloping south to north. Based on the NRCS USDA Web Soil Survey, the project site is not mapped. However, the greater area in the vicinity of the site is underlain by a Dune land-Cajon complex. The majority of soils within the survey area are relatively undisturbed, with the exception of those associated with roads and historic and ongoing disturbance.

3.3 SURROUNDING LAND USES

The survey area is located in a primarily undeveloped area, approximately 4.5 miles east of the City of Twentynine Palms and 9.1 miles south of the Bullion Mountains. Notable developments near the project site include Twentynine Palms Airport, which occurs approximately 1.5 miles to the south, and the Twentynine Palms Marine Corps Base, which occurs approximately 5.6 miles to the northeast. In addition, scattered residential, agricultural, commercial, and institutional developments occur throughout the area.

Section 4 Discussion

4.1 SITE CONDITIONS

The survey area supports a mixture of undeveloped, developed, and disturbed land. According to historic aerials and local records, the northern portion of the project site and existing development therein formerly supported a post office, a Southern California Edison substation, a jojoba farm, and most recently an artists' retreat and psychedelic meditation center. The remainder of the site supports undeveloped, vacant land. Refer to Appendix A, *Site Photographs*.

4.2 VEGETATION

During the field investigation one (1) plant community was observed within the boundary of the project site: creosote bush scrub (Exhibit 4, *Vegetation*). In addition, the site supports three (3) land cover types that would be classified as agricultural, disturbed and developed. The vegetation community and land cover types are described in further detail below.

4.2.1 Creosote Bush Scrub

The creosote bush scrub plant community occurs consistently throughout the site, with the exception of the northwest corner, where it occurs in patches. This plant community supports very rocky soils and is dominated by creosote (*Larrea tridentata*). Common plant species observed in this plant community include cryptantha (*Cryptantha* sp.), fringepod (*Thysanocarpus curvipes*), spineflower (*Chorizanthe rigida*), cotton thorn (*Tetradymia comosa*), Mojave suncup (*Camissonia campestris*), brown-eyed primrose (*Chylismia claviformes*), burro bush (*Ambrosia dumosa*), cheesebrush (*Ambrosia salsola*), golden cholla (*Cylindropuntia echinocarpa*), and California threeawn (*Aristida californica*).

4.2.2 Agricultural

The northern boundary of the project site, adjacent to the existing building, supports an existing jojoba (*Simmondsia chinensis*) farm. Existing water pipelines and drip systems were observed throughout this area that provided water to the jojoba plants. This agricultural area is dominated by existing jojoba plants, that are no longer actively cultivated.

4.2.3 Disturbed

Disturbed land generally refers to areas that have been subject to a high level of anthropogenic disturbances from farming activities, foot traffic, dumping, and activities associated with the former on-site artist retreat, and no longer comprise support a native plant community. Disturbed areas on-site include remnant jojoba fields, but are otherwise generally unvegetated or support ruderal/weedy plant species. Species observed in the disturbed areas of the site include jojoba, Mediterranean grass (*Schinus arabicus*), London Rocket (*Sisymbrium irio*), and Saharan mustard (*Brassica tournefortii*).



THE WONDER INN JOSHUA TREE
HABITAT ASSESSMENT

Vegetation

ELMT CONSULTING

0 250 500 1,000 Feet

Source: ESRI Aerial Imagery, San Bernardino County

Exhibit 4

4.2.4 Developed

Developed areas generally encompass all buildings/structures and associated landscaping, parks, and paved or otherwise impervious surfaces. Within the project footprint, developed areas are confined to the northeast portion of the site and include and existing building, ornamental landscaping, paved driveways and walkways, and various outdoor meditation structures and art installations. Plant species supported by developed areas include ornamental species and ruderal/weedy annuals.

4.3 WILDLIFE

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

4.3.1 Fish

No fish or hydrogeomorphic features (e.g., perennial creeks, ponds, lakes, reservoirs) with frequent sources of water that would provide suitable habitat for fish were observed on or immediately adjacent to the survey area. Therefore, no fish are expected to occur and are presumed absent from the project site.

4.3.2 Amphibians

No amphibians or hydrogeomorphic features (e.g., perennial creeks, ponds, lakes, reservoirs) that would provide suitable habitat for amphibian species were observed on or immediately adjacent to the survey area. Therefore, no amphibians are expected to occur on the project site and are presumed absent.

4.3.3 Reptiles

The creosote bush scrub plant community provides suitable foraging and nesting habitat for a variety of reptilian species adapted to conditions within the Mojave Desert. No reptilian species were observed during the field investigation. Common reptilian species that could be expected to occur include common side-blotched lizard (*Uta stansburiana elegans*), desert horned lizard (*Phrynosoma platyrhinos calidiarum*), Great Basin collard lizard (*Crotaphytus bicinctores*), Great Basin whiptail (*Aspidoscelis tigris tigris*), southwestern speckled rattlesnake (*Crotalus mitchellii pyrrhus*), northern Mohave rattlesnake (*Crotalus scutulatus scutulatus*) and Great Basin gopher snake (*Pituophis catenifer deserticola*).

4.3.4 Birds

The creosote bush scrub plant community provides suitable foraging and nesting habitat for a variety of resident and migrant bird species adapted to conditions within the Mojave Desert. Avian species observed during the field investigation include horned lark (*Eremophila alpestris*), mourning dove (*Zenaida macroura*), common raven (*Corvus corax*), and white-throated swift (*Aeronautes saxatalis*). Common avian species expected to occur on-site include lesser goldfinch (*Spinus psaltria*), Say's phoebe (*Sayornis*

saya), verdin (*Auripes flaviceps*), white-crowned sparrow (*Zonotrichia leucophrys*), and yellow-rumped warbler (*Setophaga coronata*).

4.3.5 Mammals

The creosote bush scrub plant community provides suitable foraging and nesting habitat for a variety of mammalian species adapted to conditions within the Mojave Desert. Most mammal species are nocturnal and are difficult to observe during a diurnal field visit. No mammalian species observed or detected during the field investigation. Common mammalian species that have the potential to occur on-site include black-tailed jackrabbit (*Lepus californicus*), white-tailed antelope ground squirrel (*Ammospermophilus leucurus*), coyote (*Canis latrans*), desert cottontail (*Sylvilagus audubonii*), kangaroo rat (*Dipodomys* sp.) and bats (*Myotis*, *Lasiurus*, and *Antrozous* sp.). While no rock faces or steep cliffs occur on the project site, the building and various structures in the northeast portion of the site provide suitable roosting opportunities for certain bat species that will roost in such conditions.

4.4 NESTING BIRDS

No active nests or nesting behaviors were observed during the field investigation. The creosote bush scrub plant community and various structures on-site provide suitable foraging and nesting habitat for year-round and seasonal avian residents, as well as migrating songbirds that have adapted to conditions in the Mojave Desert. A pre-construction nesting bird clearance survey shall be conducted within three (3) days prior to ground disturbance to ensure no nesting birds will be impacted from project implementaiton.

4.5 WILDLIFE CORRIDORS AND LINKAGES

Habitat linkages provide links between larger undeveloped 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 inadequate for others. Wildlife corridors are significant features for dispersal, seasonal migration, breeding, and foraging. 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. The open and natural habitats on and surrounding the project site allow for local wildlife to move from the project site into the undeveloped areas surrounding the project site in search of food, shelter, or nesting habitat. As designated by the San Bernardino County General Plan Open Space Element, the nearest major open space documented within the vicinity of the project site occurs approximately 4.5 miles northeast of the site, within the foothills of the Bullion Mountains beyond Amboy Road.

The project site occurs in a largely undeveloped area on the outskirts of the City of Twentynine Palms, with the Bullion Mountains to the north and the Pinto Mountains to the south. The area immediately surrounding the site consists largely of undeveloped land with scattered residential and agricultural developments. Due

to the openness of the habitats surrounding the site, it could be expected that the area supports wildlife movement between the Bullion and Pinto Mountains. However, the project footprint accounts for a minimal portion of the area and does not support riparian corridors or creeks or "stepping-stone" habitats commonly associated with wildlife movement. As such, implementation of the proposed project is not expected to have a significant impact to wildlife movement opportunities or prevent local wildlife movement through the area since there is ample habitat adjacent to the project site to support wildlife movement opportunities.

It should be noted that the Morongo Basin Wildlife Linkage is located west of the project site and encompasses undeveloped land north of Joshua Tree National Park in Yucca Valley. The project site is located east of the mapped Morongo Basin Wildlife Linkage areas and no impacts to this linkage will occur from project implementation.

4.6 STATE AND FEDERAL 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 and/or fill materials into "waters of the United States" 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 Regional Board regulates discharges into surface waters pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act and the CDFW regulates alterations to streambed and associated plant communities pursuant to Section 1602 of the California Fish and Game Code.

The USFWS NWI and the USGS National Hydrography Dataset were reviewed to determine if any blueline streams or riverine resources have been documented within or immediate surrounding the project site. Based on this review, one riverine resource was identified immediately west of the project site, outside of the proposed project boundary. However, based on the results of the Delineation of State and Federal Jurisdictional Waters Report, prepared under separate cover (ELMT Consulting 2021) several ephemeral jurisdictional drainage features were observed generally extending south to north across the project site. These features are ephemeral and follows onsite topography. Surface flows within with these features are only provided by direct precipitation from storm events. No surface water was observed during the field investigation.

The onsite drainage features do not have a surface hydrologic connection to downstream waters of the United States and would not be considered jurisdictional by the Corps. However, the onsite drainage features will fall under the regulatory authority of the Regional Board as waters of the State, and CDFW as jurisdictional streambed. Any impacts to onsite jurisdictional areas will require a Regional Board Report of Waste Discharge permit, and a CDFW Section 1602 Lake or Streambed Alteration Agreement prior to project implementation. Based on the proposed site plan, no impacts to these jurisdictional features will occur from project implementation.

4.7 SPECIAL-STATUS BIOLOGICAL RESOURCES

The CNDDB Rarefind 5, CNDDB Quickview Tool in BIOS 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 in the Twentynine Palms, Valley

Mountain, and East of Valley Mountain USGS 7.5-minute quadrangles. These three quadrangles were used due to the proximity of the project site to quadrangle boundaries and regional topography. 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 ten (10) special-status plant species, fifteen (15) special-status wildlife and one (1) special-status plant community as having the potential to occur within the Twentynine Palms, Valley Mountain, and East of Valley Mountain quadrangles. Special-status plant and wildlife species were evaluated for their potential to occur within the project boundaries 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 are presented in *Table B-1: Potentially Occurring Special-Status Biological Resources*, provide in Appendix B. Refer to Table B-1 for a determination regarding the potential occurrence of special-status plant and wildlife species within the project site.

4.7.1 Special-Status Plants

According to the CNDDB and CNPS, ten (10) special-status plant species have been recorded in Twentynine Palms, Valley Mountain, and East of Valley Mountain quadrangles (refer to Appendix B). No special-status plant species were observed on-site during the field investigation, which was conducted during the blooming period for some of the special-status plant species. Based on habitat requirements for the identified special-status species, and known distributions, it was determined that the support the creosote bush scrub plant community supported by the project site has a low potential to support Alverson's foxtail cactus (*Coryphantha alversonii*; CNPS Rare Plant Rank 4.3) and Utah vine milkweed (*Funastrum utahense*, CNPS Rare Plant Rank 4.3). Further, it was determined that the project site does not have potential to support any of the other special-status species documented as occurring within the vicinity of the project site.

None of the aforementioned special-status plant species are federally or State listed as endangered or threatened and have only been listed by the CNPS as Rare Plant Rank species. These species are not regulated under the federal or state Endangered Species Acts. In an effort to increase coverage for unlisted but regionally sensitive plants under the California Environmental Quality Act (CEQA), the CNPS began publishing sensitivity rankings for special-status plant species. These species, therefore, do not rise to the level of a species of concern under CEQA. Project impacts to the aforementioned species, if found, would therefore be less than significant, and no mitigation is required. No focused surveys are recommended.

4.7.2 Special-Status Wildlife

According to the CNDDB, fifteen (15) special-status wildlife species have been reported in the Twentynine Palms, Valley Mountain, and East of Valley Mountain quadrangles (refer to Appendix B). No special-status wildlife species were observed on-site during the habitat assessment. 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 moderate potential to support loggerhead shrike (*Lanius ludovicianus*) and a low potential to support burrowing owl, pallid bat (*Antrozous pallidus*), spotted bat (*Euderma maculatum*), prairie falcon (*Falco mexicanus*), desert tortoise (*Gopherus agassizii*), and LeConte's thrasher (*Toxostoma lecontei*). It

was further determined that the project site does not provide suitable habitat for any of the other special-status wildlife species known to occur in the vicinity of the site.

In order to ensure impacts to loggerhead shrike, prairie falcon, LeConte's thrasher pallid bat, spotted bat do not occur from implementation of the project, pre-construction nesting bird and bat clearance surveys shall be conducted prior to ground disturbance. With implementation of the pre-construction clearance surveys, impacts to these special-status species will be less than significant and no mitigation will be required.

Based on regional significance, the potential occurrence of burrowing owl and desert tortoise within the project site are described in further detail below.

Burrowing Owl

The burrowing owl is currently listed as a California Species of Special Concern. It is a grassland specialist distributed throughout western North America where it occupies open areas with short vegetation and bare ground within shrub, desert, and grassland environments. Burrowing owls use a wide variety of arid and semi-arid environments with well-drained, level to gently-sloping areas characterized by sparse vegetation and bare ground (Haug and Didiuk 1993; Dechant et al. 1999). Burrowing owls are dependent upon the presence of burrowing mammals (such as ground squirrels) whose burrows are used for roosting and nesting (Haug and Didiuk 1993). The presence or absence of colonial mammal burrows is often a major factor that limits the presence or absence of burrowing owls. Where mammal burrows are scarce, burrowing owls have been found occupying man-made cavities, such as buried and non-functioning drain pipes, stand-pipes, and dry culverts. Burrowing mammals may burrow beneath rocks and debris or large, heavy objects such as abandoned cars, concrete blocks, or concrete pads. They also require open vegetation allowing line-of-sight observation of the surrounding habitat to forage as well as watch for predators.

No burrowing owls or recent sign (i.e., pellets, feathers, castings, or whitewash) was observed during the field investigation. Portions of the project site are unvegetated and/or vegetated with a variety of low-growing plant species that allow for line-of-sight observation favored by burrowing owls. However, the project site lacks suitable burrows (>4 inches in diameter) capable of providing roosting and nesting opportunities. Further, the site is supports tall structures, electrical towers, and power lines which decrease the likelihood that burrowing owls would occur on the project site as these features provide perching opportunities for larger raptor species (i.e., red-tailed hawk [*Buteo jamaicensis*]) that prey on burrowing owls. Therefore, it was determined that the project site does not have potential to provide suitable habitat for burrowing owls and focused surveys are not recommended.

Desert Tortoise

The Mojave population of the desert tortoise was listed as Threatened on April 2, 1990 and a recovery plan was published in June 1994 (revised May 2011) to describe a strategy for recovering the Mojave population of the desert tortoise including the identification of five recovery units, recommendations for a system of Desert Wildlife Management Areas (DWMAs) within the recovery units, and development and implementation of specific recovery actions, especially within DWMAs. The establishment of recovery units and DWMAs was intended to facilitate an ecosystem approach to land management and desert tortoise recovery. Based on the 2018 Revised Recovery Plan, the survey area is located within the Western Mojave Recovery Unit, but is not located within any designated DWMAs. Additionally, the survey area is not

located within designated Critical Habitat for the desert tortoise and no desert tortoise have been recorded on the project site.

The Mojave population of the desert tortoise inhabits areas north and west of the Colorado River in the Mojave Desert of California, Nevada, Arizona, and southwestern Utah, and in the Sonoran Desert in California. Throughout the majority of the Mojave Desert, desert tortoises occur most commonly on gentle sloping soils characterized by an even mix of sand and gravel and sparsely vegetated low-growing vegetation where there is abundant inter-shrub space. Typical habitat for the Mojave desert tortoise has been characterized as creosote bush scrub below 5,500 feet in elevation with a high diversity of perennial and ephemeral plants. The dominant shrub commonly associated with desert tortoise habitat is creosote bush (*Larrea tridentata*); however, other shrubs including burrobush (*Ambrosia dumosa*), Mojave yucca (*Yucca schidigera*), cheesebush (*Ambrosia salsola*), and Mojave prickly-pear (*Opuntia mojavensis*) also provide suitable habitat. The desert tortoise spends 95 percent of its life underground and will opportunistically utilize burrows of various lengths, deep caves, rock and caliche crevices, or overhangs for cover. Therefore, a moderately friable soil is required to allow for burrow construction and ensure that burrows do not collapse.

The undeveloped portions of the project site are dominated by creosote bush scrub plant communities that have the potential to provide suitable habitat for desert tortoise. Despite a systematic search of the project site, no live tortoises, suitable burrows or signs was observed on the project site during the site investigation. Based on the results of the field investigation and lack of suitable burrows and no observed sign, desert tortoise was determined to have a low potential to occur onsite. However, out of an abundance of caution, a pre-construction desert tortoise clearance surveys shall be conducted prior to ground disturbing activities to ensure desert tortoise remain absent from the project site.

4.7.3 Special-Status Plant Communities

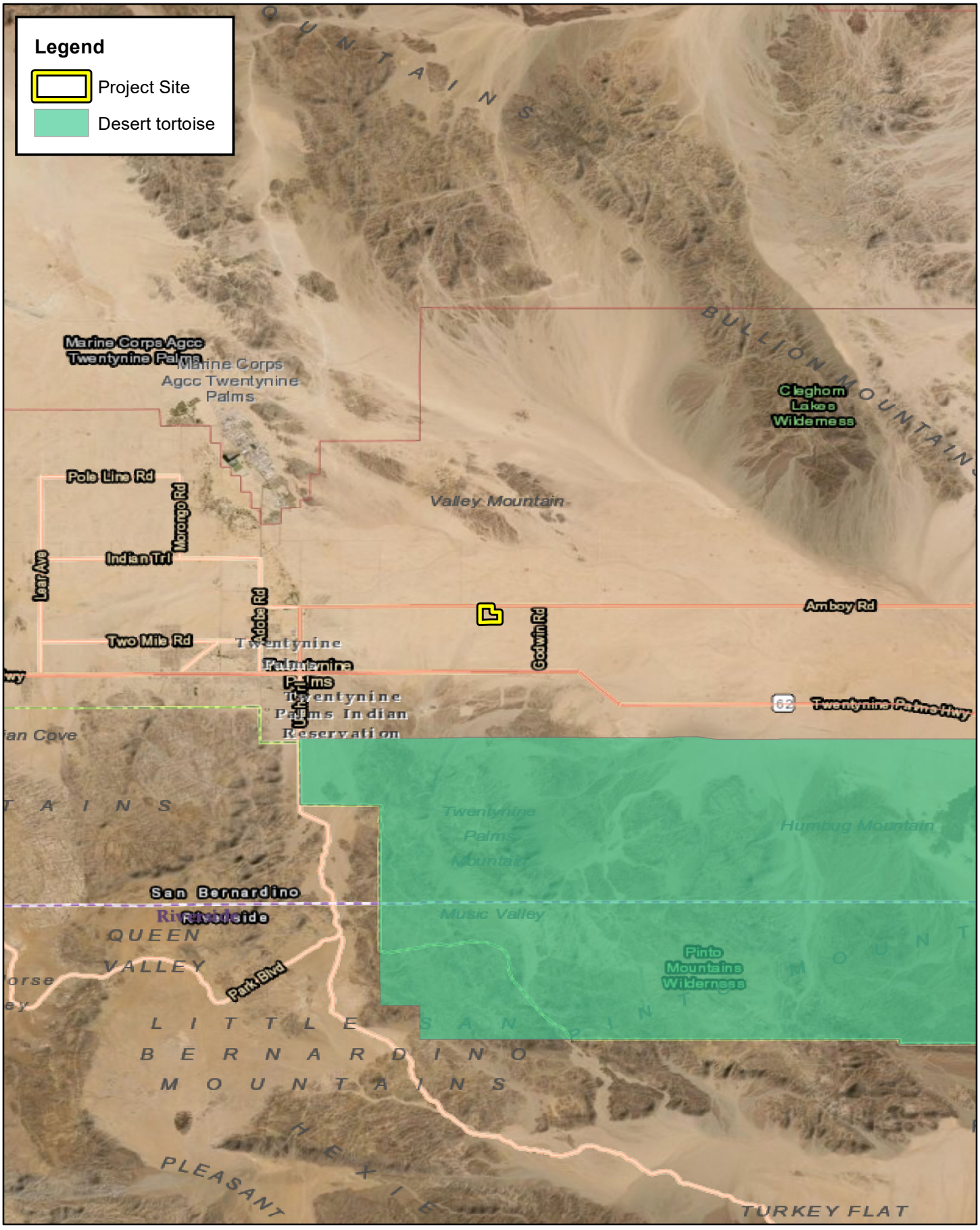
According to the CNDDB, one (1) special-status plant community has been reported in the Twentynine Palms, Valley Mountain, and East of Valley Mountain quadrangles (refer to Appendix B): Desert Fan Palm Oasis Woodland. Based on the results of the field investigation, no special-status plant communities were observed on-site. Therefore, no special-status plant communities will be impacted by implementation of the proposed project.

4.8 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 United States Fish and Wildlife Service (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 CWA Permit from the Corps). 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 within federally designated Critical Habitat. The nearest Critical Habitat designation is located approximately 3.5 miles south of the site for desert tortoise (Exhibit 5, *Critical Habitat*). Therefore, no loss or adverse modification of federally designated Critical Habitat will occur from implementation of the proposed project.



THE WONDER INN JOSHUA TREE
HABITAT ASSESSMENT

Critical Habitat

ELMT CONSULTING

0 1.25 2.5 5 Miles

Source: ESRI Aerial Imagery, USFWS Critical Habitat, San Bernardino County

Exhibit 5

Section 5 Conclusion and Recommendations

The project site is located at 78201 Amboy Road in an unincorporated area of San Bernardino County near the City of Twentynine Palms, California, encompassing APNs 0625-071-04, 05, 07, 08, 09, 10 and 14 and totals 134 acres. Areas surrounding the site consist of vacant, undeveloped land with scattered residential, commercial, agricultural, and institutional developments. The site is primarily undeveloped, with the exception of existing structures and paved driveways and walkways, and a jojoba farm in the northern portion. One (1) plant community and three (3) land cover types were observed onsite.

Special-Status Plant Species

No special-status plant species were observed on-site during the field investigation. Further, based on habitat requirements for the identified special-status species and known distributions, it was determined that the creosote bush scrub plant community has a low potential to support Alverson's foxtail cactus and Utah vine milkweed. Further, it was determined that the site does not have the potential to support any of the other special-status species documented as occurring within the vicinity of the project site are presumed absent.

None of the aforementioned special-status plant species are federally or State listed as endangered or threatened, and are not regulated under the federal or state Endangered Species Acts. They are only listed by the California Native Plant Society as a Rare Plant Rank 4 plant species, and impacts to this species do not rise to the level of a species of concern under CEQA and no mitigation would be required.

Special-Status Wildlife Species

No special-status wildlife species were observed on-site during the field investigation. Based on habitat requirements for specific species and the availability and quality of on-site habitats, it was determined that the proposed project site has a moderate potential to support loggerhead shrike, and a low potential to support burrowing owl pallid bat, spotted bat, prairie falcon, desert tortoise, and LeConte's thrasher. It was further determined that the project site does not provide suitable habitat for any of the other special-status wildlife species known to occur in the vicinity of the site.

Migratory Bird Treaty Act and Fish and Game Code Compliance

A pre-construction nesting bird clearance survey shall be conducted prior to ground disturbance. With implementation of the pre-construction clearance survey, impacts to loggerhead shrike, burrowing owl, prairie falcon, and LeConte's thrasher will be less than significant and no mitigation will be required.

BIO-1: Pre-Construction Nesting Bird Clearance Survey

All construction activities shall comply with the federal Migratory Bird Treaty Act of 1918 (MBTA) and California Fish and Game Code Sections 3503, 3511 and 3513. The MBTA governs the taking and killing of migratory birds, their eggs, parts, and nests and prohibits the take of any migratory bird, their eggs, parts, and nests. Compliance with the MBTA shall be accomplished by completing the following:

Construction activities involving vegetation removal shall be conducted between September 1 and January 31. If construction occurs inside the peak nesting season (between February 1 and August 31), a pre-construction survey by a qualified Biologist shall be conducted within 72 hours prior to construction activities to identify any active nesting locations. If the Biologist does not find any active nests, the construction work shall be allowed to proceed. The biologist conducting the clearance survey shall document a negative survey with a report indicating that no impacts to active avian nests shall occur.

If the Biologist finds an active nest within the pre-construction survey area and determines that the nest may be impacted, the Biologist shall delineate an appropriate buffer zone around the nest. The size of the buffer shall be determined by the Biologist and shall be based on the nesting species, its sensitivity to disturbance, expected types of disturbance, and location in relation to the construction activities. These buffers are typically 300 feet from the nests of non-listed species and 500 feet from the nests of raptors and listed species. Any active nests observed during the survey shall be mapped on an aerial photograph. Only construction activities (if any) that have been approved by a Biological Monitor shall take place within the buffer zone until the nest is vacated. The Biologist shall serve as a Construction Monitor when construction activities take place near active nest areas to ensure that no inadvertent impacts on these nests occur. Results of the pre-construction survey and any subsequent monitoring shall be provided to the Property Owner/Developer and the City. The monitoring report shall summarize the results of the nest monitoring, describe construction restrictions currently in place, and confirm that construction activities can proceed within the buffer area without jeopardizing the survival of the young birds.

Desert Tortoise

Out of abundance of caution and to ensure desert tortoise remain absent from the project stie, a pre-construction clearance survey be conducted prior to ground disturbance.

BIO-2: Pre-Construction Desert Tortoise Clearance Survey

A pre-construction clearance survey be conducted thirty (30) days prior to ground disturbing activities in undeveloped areas to confirm the absence of desert tortoise within the boundaries of the survey area. Survey transects should be spaced at 10-meter (33-foot) intervals throughout the undeveloped portions of the project area to provide 100 percent visual coverage and increase the likelihood of locating desert tortoise and/or sign. All burrows, if present, will be thoroughly inspected for the presence of desert tortoise or evidence of recent use using non-intrusive methods (i.e., mirror, digital camera). Burrow characteristics including class, shape, orientation, size, and evidence of deterioration will be recorded on field data sheets.

Although not anticipated, if desert tortoise are found onsite during the pre-construction clearance survey, coordination will need to occur with the USFWS and CDFW to determine if avoidance and minimization measures can be implemented to avoid any direct or indirect impacts to desert tortoise, or if “Take” permits will need to be obtained prepared and approved by the USFWS and CDFW.

Riparian Habitat and Special-Status Natural Communities

Several ephemeral jurisdictional drainage features were observed generally extending south to north across the project site. These features are ephemeral and follows onsite topography and flow immediately following storm events. The onsite drainage features do not have a surface hydrologic connection to downstream waters of the United States and would not be considered jurisdictional by the Corps. However, the onsite drainage features will fall under the regulatory authority of the Regional Board as waters of the State, and CDFW as jurisdictional streambed. Any impacts to onsite jurisdictional areas will require a Regional Board Report of Waste Discharge permit, and a CDFW Section 1602 Lake or Streambed Alteration Agreement prior to project implementation. Based on the proposed project footprint, no impacts to the onsite drainage features will occur from project implementation.

Further, no sensitive natural communities will be impacted from project implementation.

Wildlife Corridors

The site was not identified as occurring within or adjacent to a recognized wildlife corridor. The site occurs in a largely undeveloped area between the Bullion and Pinto Mountains that could be expected to support local wildlife movement; however, implementation of the proposed project is not expected to have a significant impact to wildlife movement opportunities or prevent local wildlife movement through the area since there is ample habitat adjacent to the project site to support wildlife movement opportunities. Due to the lack of any identified impacts to wildlife movement, migratory corridors or linkages or native wildlife nurseries, no mitigation is required.

Local, Regional, and State Plans

The project site is not located within an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state Habitat Conservation Plan. Therefore, impacts to any local, regional, or state habitat conservation plans are not expected to occur from development of the proposed project, and mitigation is not required.

Certain desert plant species (i.e. smoke trees, cacti. Mojave yuccas (*Yucca schidigera*)) are regulated pursuant to Section 88.01.060 of the San Bernardino County Development Code and Section 80073 of the California Desert Native Plant Act. Therefore, impacts to these species should be avoided in all instances. In the event that avoidance is not feasible, the project applicant will be required to obtain a Tree or Plant Removal Permit from the County of San Bernardino, prior to removal of any regulated tree or plant.

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Appendix A Site Photographs



Photograph 1: From the northeast corner of the project site looking south along the eastern boundary.



Photograph 2: From the northeast corner of the project site looking west along the northern boundary.



Photograph 3: Looking northeast towards various structures and developments in the northeast portion of the project site.



Photograph 4: From the middle of the eastern boundary of the project site looking south.



Photograph 5: From the southeast corner of the project site looking north along the eastern boundary.



Photograph 6: From the southeast corner of the project site looking west along the southern boundary.



Photograph 7: From the southwest corner of the project site looking east along the southern boundary.



Photograph 8: From the southwest corner of the project site looking north along the western boundary.



Photograph 9: From the northwest corner of the project site looking south along the western boundary.



Photograph 10: From the northwest corner of the project site looking east along the northern boundary.

Appendix B Potentially Occurring Special-Status Biological Resources

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

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
WILDLIFE SPECIES				
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	**Low** Suitable foraging habitat is present within the project site. On-site structures provide marginal roosting opportunities.
Athene cunicularia burrowing owl	Fed: None CA: SSC	Occurs in open, annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Dependent upon fossorial mammals for burrows, most notably ground squirrels.	No	**Low** The project site provides line-of-site opportunities favored by burrowing owls. However, the site does not support suitable burrows (>4 inches in diameter).
Chaetodipus fallax pallidus pallid 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** No suitable habitat is present within or adjacent to the project site.
Crotalus ruber red-diamond rattlesnake	Fed: None CA: SSC	It can be found from the desert, through dense chaparral in the foothills (it avoids the mountains above around 4,000 feet), to warm inland mesas and valleys, all the way to the cool ocean shore. It is most commonly associated with heavy brush with large rocks or boulders. Dense chaparral in the foothills, cactus or boulder associated coastal sage scrub, oak and pine woodlands, and desert slope scrub associations are known to carry populations of the northern red-diamond rattlesnake; however, chamise and red shank associations may offer better structural habitat for refuges and food resources for this species than other habitats.	No	**Presumed Absent** No suitable habitat is present within or adjacent to the project site.
Euderma maculatum spotted bat	Fed: None CA: SSC	Occurs in a range of habitats from arid desert and grasslands through mixed conifer forests. This species forages near open water. Known roosting habitat for this species consists of rock crevices, which naturally limit their distribution. Although more widespread in the deserts of Southern California, the range of the spotted bat includes parts of the coastal slope of the Transverse and Peninsular mountain ranges from Ventura County to San Diego County.	No	**Low** Suitable foraging habitat is present within the project site. On-site structures provide marginal roosting opportunities.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
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 3 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** No suitable habitat is 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	**Low** The open area in the southern portion of the site offers suitable foraging habitat. The Bullion Mountains to the north and Pinto Mountains to the south provide suitable nesting opportunities.
Gopherus agassizii desert tortoise	Fed: **THR** CA: **THR**	Widely distributed in the Mojave, Sonoran, and Colorado deserts from below sea level to 7,220 feet. Most common in desert scrub, desert wash, and Joshua tree habitats, but occurs in almost every desert habitat except those on the most precipitous slopes.	No	**Low** The uninterrupted creosote bush scrub in the southern portion of the project site provides suitable foraging habitat for this species; however, soils on-site are very rocky and tend to be unsuitable for burrow construction.. No desert tortoises or sign (i.e. scat, burrows, carapaces) were observed on-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	**Moderate** Suitable habitat is present within the 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** No suitable habitat is present within or adjacent to the project site.
Ovis canadensis nelsoni Peninsular bighorn sheep	Fed: None CA: FP	Preferred habitat is near mountainous terrain above the desert floor that is visually open, as well as steep and rocky. Most Mojave Desert mountain ranges satisfy these requirements well. Surface water is another element that is considered important to population health. Found mainly in the Peninsular Ranges.	No	**Presumed Absent** No suitable habitat is present within or adjacent to the project site.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Salvadora hexalepis virgultea coast patch-nosed snake	Fed: None CA: SSC	Found in brushy or shrubby vegetation along the coast and requires small mammal burrows for refuge and overwintering.	No	**Presumed Absent** No suitable habitat is present within or adjacent to the project site.
Toxostoma lecontei LeConte's thrasher	Fed: None CA: SSC	An uncommon to rare, local resident in southern California deserts from southern Mono Co. south to the Mexican border, and in western and southern San Joaquin Valley. Occurs primarily in open desert wash, desert scrub, alkali desert scrub, and desert succulent shrub habitats; also occurs in Joshua tree habitat with scattered shrubs.	No	**Low** Marginal habitat is present within the project site.
Uma scoparia Mojave fringe-toed lizard	Fed: None CA: SSC	Restricted to sparsely vegetated, windblown sand in dunes, flats, riverbanks and washes. It requires fine, loose sand for burrowing and lays its eggs in subsurface burrows. Vegetation is typically scant and often consists of creosote bush scrub or other scrub.	No	**Presumed Absent** No suitable habitat is present within or adjacent to the project site. The undisturbed portions of the project site supports rocky soils unsuitable for burrowing.
Xanthocephalus xanthocephalus yellow-headed blackbird	Fed: None CA: SSC	Occurs in freshwater emergent wetlands, and moist, open areas along croplands and mud flats of lacustrine habitats. Prefers to nest in dense wetland vegetation characterized by tules, cattails, or other similar plant species along the border of lakes and ponds.	No	**Presumed Absent** No suitable habitat is present within or adjacent to the project site.
PLANT SPECIES				
Allium parishii Parish's onion	Fed: None CA: None CNPS: 4.3	Occurs in rocky soils in Joshua tree woodland, Mojavean desert scrub, and pinyon and juniper woodland. Found at elevations ranging from 2,953 to 5,693 feet. Blooming period is from April to May.	No	**Presumed Absent** Marginal habitat is present; however, the project site occurs outside of the known elevation range for this species.
Calochortus striatus alkali mariposa-lily	Fed: None CA: None CNPS: 1B.2	Grows in seasonally moist alkaline soils in meadows, seeps, and ephemeral washes, especially within chaparral, chenopod scrub, and Mojavean desert scrub. Blooming period is from April to June. Grows in elevation from 230 to 5,233 feet.	No	**Presumed Absent** No suitable habitat is present within or adjacent to the project site.
Castilleja montigena Heckard's paintbrush	Fed: None CA: None CNPS: 4.3	Grows within lower montane coniferous forest, pinyon and juniper woodland, and upper montane coniferous forest habitats. Found at elevations ranging from 6,400 to 9,200 feet. Blooming period is from May to August.	No	**Presumed Absent** No suitable habitat is present within or adjacent to the project site. The project site occurs outside of the known elevation range for this species.

Scientific Name Common Name	**Status**	**Habitat**	**Observed On-site**	**Potential to Occur**
Coryphantha alversonii Alverson's foxtail cactus	Fed: None CA: None CNPS: 4.3	Occurs usually in granitic sandy and rocky soils within Mojavean desert scrub and Sonoran desert scrub. Found at elevations ranging from 250 to 5,000 feet above msl. Blooming period is from April to June.	No	**Low** Marginal habitat is present within the project site.
Funastrum utahense Utah vine milkweed	Fed: None CA: None CNPS: 4.2	Occurs in sandy or gravelly soil in Mojavean desert scrub and Sonoran desert scrub. Found at elevations ranging from 328 to 4,708 feet. Blooming period typically ranges from April to June but can begin as early as March and end as late as October.	No	**Low** Marginal habitat is present within the project site.
Johnstonella costata ribbed cryptantha	Fed: None CA: None CNPS: 4.3	Occurs in sandy soils within desert dunes and Mojavean and Sonoran desert scrub. Found at elevations ranging from -197 to 1,640 feet. Blooming period is from February to May.	No	**Presumed Absent** No suitable habitat is present within or adjacent to the project site. The project site occurs outside of the known elevation range for this species.
Lasthenia glabrata* ssp. *coulteri Coulter's goldfields	Fed: None CA: None CNPS: 1B.1	Prefers playas, vernal pools, and coastal salt marshes and swamps. Found at elevations ranging from 3 to 4,003 feet. Blooming period is from February to June.	No	**Presumed Absent** No suitable habitat is present within or adjacent to the project site.
Sidalcea neomexicana Salt Spring checkerbloom	Fed: None CA: None CNPS: 2B.2	Grows in alkaline and mesic soils within chaparral, coastal scrub, lower montane coniferous forest, playas, and Mojavean desert scrub habitats. Found at elevations ranging from 49 to 5,020 feet. Blooming period is from March to June.	No	**Presumed Absent** No suitable habitat is present within or adjacent to the project site.
Streptanthus bernardinus Laguna Mountains jewelflower	Fed: None CA: None CNPS: 4.3	Grows in chaparral and lower montane coniferous forest on clay or decomposed granite soils. It is sometimes found in disturbed areas such as streamsides or roadcuts. From 4,724 to 8,202 feet in elevation. Blooming period is from May to August.	No	**Presumed Absent** No suitable habitat is present within or adjacent to the project site. The project site occurs outside of the known elevation range for this species.
Wislizenia refracta* ssp. *refracta jackass-clover	Fed: None CA: None CNPS: 2B.2	Grows within desert dunes, Mojavean desert scrub, playas, and Sonoran desert scrub habitats. Found at elevations ranging from 1,970 to 2,620 feet. Blooming period is from April to November.	No	**Presumed Absent** Marginal habitat is present; however, the project site occurs outside of the known elevation range for this species.

PLANT COMMUNITIES				
Desert Fan Palm Oasis Woodland	CDFW Sensitive Habitat	Found within canyons and along the San Andreas Fault Zone, where water occurs naturally. Generally characterized by open to dense groves of native desert fan palms, which are the most massive native palm in North America, growing more than 66 feet.	No	**Absent**.

U.S. Fish and Wildlife Service (Fed) - Federal
END- Federal Endangered
THR- Federal Threatened

California Department of Fish and Wildlife (CA) - California
END- California Endangered
THR- California Threatened
Candidate- Candidate for listing under the California Endangered Species Act
FP- California Fully Protected
SSC- Species of Special Concern
WL- Watch List

California Native Plant Society (CNPS)
California Rare Plant Rank
1B Plants Rare, Threatened, or Endangered in California and Elsewhere
2B Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
3 Plants About Which More Information is Needed – A Review List
4 Plants of Limited Distribution – A Watch List

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

Appendix C 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).

Local Regulations

San Bernardino County Development Code

Section 88.01.060 of the County of San Bernardino Development Code provides regulations for the removal or harvesting of specified desert native plants in order to preserve and protect the plants and to provide for the conservation and wise use of desert resources. The provisions are intended to coincide with the Desert Native Plants Act (Food and Agricultural Code Section 8001 et seq.) and the State Department of Food and Agriculture to implement and enforce the Act.

Pursuant to Section 88.01.060 of the Development Code, the following desert native plants or any part of them, except the fruit, shall not be removed except under a Tree or Plant Removal Permit:

1) The following desert native plants with stems two inches or greater in diameter or six feet or greater in height:

   (A) *Dalea spinosa* (smoke tree)
   (B) All species of the genus *Prosopis* (mesquites)

2) All species of the family *Agavaceae* (century plants, nolinas, yuccas)

3) Creosote Rings, 10 feet or greater in diameter

4) All Joshua trees

5) Any part of any of the following species, whether living or dead:

   (A) *Olneya tesota* (desert ironwood)
   (B) All species of the genus *Prosopis* (mesquites)
   (C) All species of the genus *Cercidium* (palos verdes)

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 EPA have jointly regulated the filling of waters of the United States, including wetlands, pursuant to Section 404 of the 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, the placement of sand, rock, clay, construction debris, wood chips, and "materials used to create any structure or infrastructure in the waters of the United States."

In April of 2020, the Corps and the EPA provided a new definition for *waters of the United States* [Federal Register, Vol. 85, No. 77 (April 21, 2020)] which encompass:

- The territorial seas and traditional navigable waters;
- Perennial and intermittent tributaries that contribute surface water flow to such waters;
- Certain lakes, ponds, and impoundments of jurisdictional waters; and
- Wetlands adjacent to other jurisdictional waters.

Additionally, the new definition identifies 12 categories of those waters and features that are excluded from the definition of ''waters of the United State, such as features that only contain water in direct response to rainfall (e.g., ephemeral features), groundwater, many ditches, prior converted cropland, and waste treatment systems. The final rule excludes from the definition of ''waters of the United States'' all waters or features not mentioned above. In addition to this general exclusion, the final rule specifically clarifies that waters of the United States do not include the following:

- Groundwater, including groundwater drained through subsurface drainage systems;
- Ephemeral features that flow only indirect response to precipitation, including ephemeral streams, swales, gullies, rills, and pools;
- Diffuse stormwater runoff and directional sheet flow over upland;
- Ditches that are not traditional navigable waters, tributaries, or that are not constructed in adjacent wetlands, subject to certain limitations;
- Prior converted cropland;
- Artificially irrigated areas that would revert to upland if artificial irrigation ceases;
- Artificial lakes and ponds that are not jurisdictional impoundments and that are constructed or excavated in upland or non-jurisdictional waters;

- Water-filled depressions constructed or excavated in upland or in non-jurisdictional waters incidental to mining or construction activity, and pits excavated in upland or in non jurisdictional waters for the purpose of obtaining fill, sand, or gravel;
- Stormwater control features constructed or excavated in upland or in non-jurisdictional waters to convey, treat, infiltrate, or store stormwater runoff;
- Groundwater recharge, water reuse, and wastewater recycling structures constructed or excavated in upland or in non-jurisdictional waters; and
- Waste treatment systems.

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 B-2

Delineation of State and Federal Jurisdictional Waters
for the Wonder Inn

ELMT Consulting

September 2022

THE WONDER INN JOSHUA TREE

SAN BERNARDINO COUNTY, CALIFORNIA

Delineation of State and Federal Jurisdictional Waters

Prepared For:

The Wonder Inn Joshua Tree
78201 Amboy Road
Twentynine Palms, California 92277
Contact: *Phanessa Adams-Holt*

Prepared By:

ELMT Consulting, Inc.
2201 N. Grand Avenue #10098
Santa Ana, California 92711
Contact: *Travis J. McGill*
714.716.5050

September 2022

THE WONDER INN JOSHUA TREE

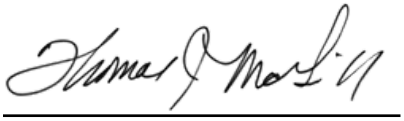
SAN BERNARDINO COUNTY, CALIFORNIA
(Assessor Parcel Numbers 0625-071-04, -05, -07, -08, -09, -10 and -14, Totaling 134 acres)

Delineation of State and Federal Jurisdictional Waters

The undersigned certify that the statements furnished in this report and exhibits present data and information required for this biological evaluation, and the facts, statements, and information presented is a complete and accurate account of the findings and conclusions to the best of our knowledge and beliefs.



Travis J. McGill
Biologist/Director



Thomas J. McGill, Ph.D.
Managing Director

September 2022

Executive Summary

ELMT Consulting (ELMT) has prepared this Delineation of State and Federal Jurisdictional Waters Report for The Wonder Inn Joshua Tree Project (Project) located at 78201 Amboy Road in an unincorporated area of San Bernardino County near the City of Twentynine Palms, California. The jurisdictional delineation documents the regulatory authority of the U.S. Army Corps of Engineers (Corps), the Regional Water Quality Control Board (Regional Board), and the California Department of Fish and Wildlife (CDFW) pursuant to Section 401 and 404 of the Federal Clean Water Act (CWA), the California Porter-Cologne Water Quality Control Act, and Sections 1600 *et. seq.* of the California Fish and Game Code.[1]

Twelve (12) unnamed ephemeral drainage features (Drainages 1-12) were observed within the boundaries of the project site during the field delineation. All of the onsite drainage features generally flow in a south to north across the project site. These features only convey surface flow in direct response to precipitation, and do not support riparian vegetation. All of the onsite drainage features, after flowing offsite, eventually infiltrate and flow into a larger drainage feature to the north that flows in a west to east direction, and ultimately flows into Dale Lake (a dry lake) southeast of the site. The onsite drainage features do not have a surface hydrologic connection to downstream waters of the United States; however, the onsite drainage will fall under the regulatory authority of the Regional Board as waters of the State, and, potentially, CDFW as jurisdictional streambed. Table ES-1, *Jurisdictional Areas*, identifies the onsite jurisdictional features within the boundaries of the survey area.

Table ES-1: Jurisdictional Areas

Jurisdictional Feature	Stream Flow	Cowardin Class	Class of Aquatic Resource	Regional Board Waters of the State		CDFW Streambed	
				On-Site Jurisdiction		On-Site Jurisdiction	
				Acreage	Linear Feet	Acreage	Linear Feet
Drainages 1-12	Ephemeral	Riverine	Non-Section 10 Non-Wetland	0.91	13,410	0.91	13,410
TOTALS				**0.91**	**13,410**	**0.91**	**13,410**

The onsite drainage features exhibit characteristics consistent with the Regional Board's methodology and would be considered jurisdictional waters of the State. Approximately 0.91 acre (13,410 linear feet) of non-wetland waters of the State occur onsite. Likewise, the onsite drainage features exhibit characteristics consistent with CDFW's methodology and would be considered CDFW streambed totaling 0.91 acre (13,410 linear feet) of CDFW jurisdiction was mapped within boundaries of the project site.

[1] The field surveys for this jurisdictional delineation were conducted on March 25, 2021 pursuant to the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0* (Corps 2008); and *Minimum Standards for Acceptance of Aquatic Resources Delineation Reports* (Corps 2017); *The MESA Field Guide: Mapping Episodic Stream Activity* (CDFW 2014); and a *Review of Stream Processes and Forms in Dryland Watersheds* (CDFW 2010).

Any impacts to on-site jurisdictional areas will likely require a Regional Board Report of Waste Discharge permit prior to project implementation, and a CDFW Section 1602 Lake or Streambed Alteration Agreement. Refer to Sections 1-7 for a detailed analysis of site conditions and regulatory requirements.

Based on the proposed project footprint, no impacts to any of the jurisdictional drainage features will occur from project implementation, and regulatory approval are not expected to be required.

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Section 1 Introduction

This delineation has been prepared for the proposed Wonder Inn Joshua Tree Project (project site or site) in order to document the potential jurisdictional authority of the U.S. Army Corps of Engineers (Corps), the Regional Water Quality Control Board (Regional Board), and the California Department of Fish and Wildlife (CDFW) pursuant to Section 401 and 404 of the Federal Clean Water Act (CWA), the California Porter-Cologne Water Quality Control Act and Sections 1600 *et seq.* of the California Fish and Game Code. The analysis presented in this report is supported by field surveys and verification of site conditions conducted on March 25, 2021.

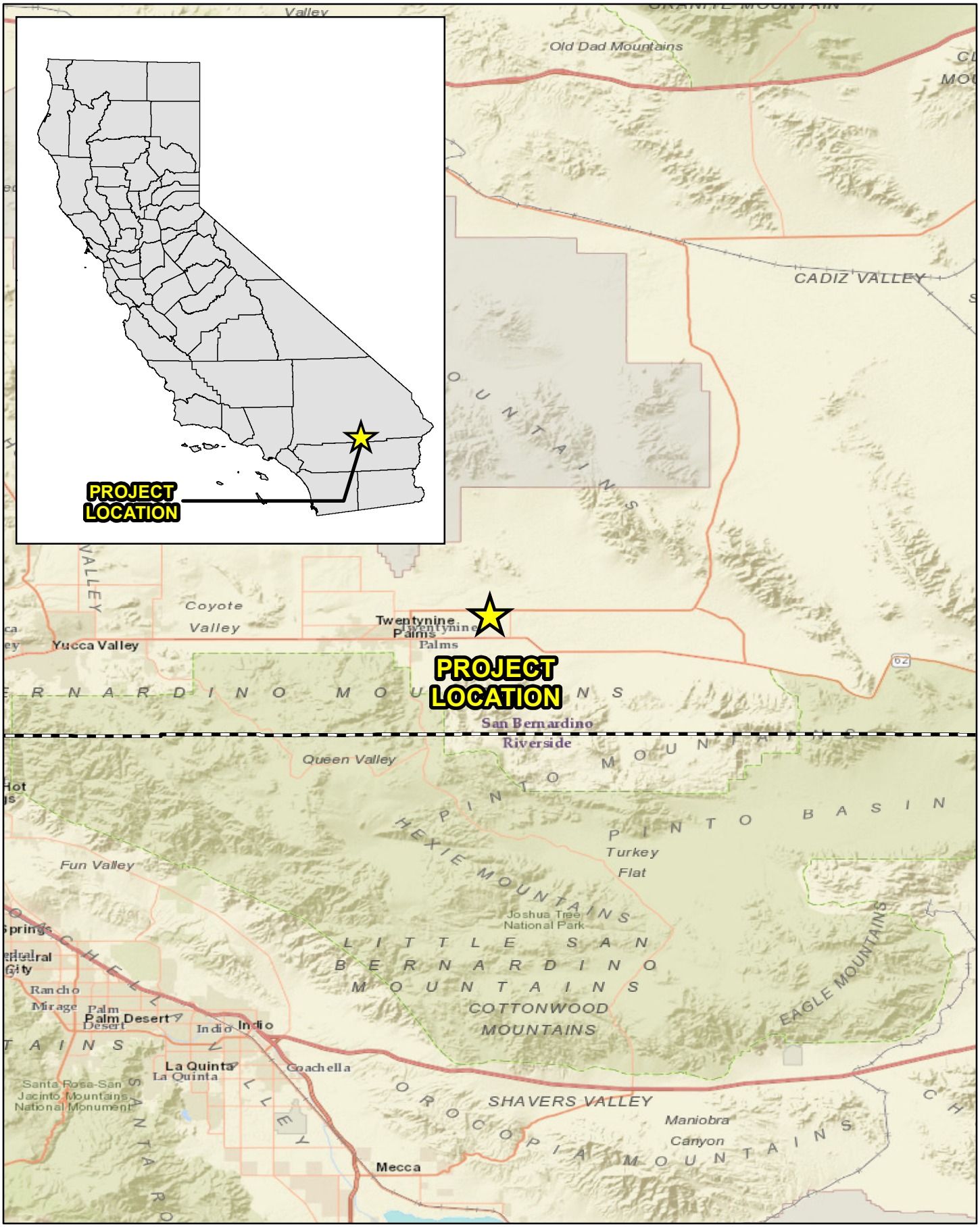
This jurisdictional delineation explains the methodology undertaken by ELMT Consulting (ELMT) to define the regulatory authority of the aforementioned regulatory agencies and documents the findings made by ELMT. This report documents the jurisdictional boundaries using the most up-to-date regulations, written policy, and guidance from the regulatory agencies.

1.1 PROJECT LOCATION

The project site is generally located north of State Route 62, east of State Route 247, south of the Bullion Mountains, and west of United State Route 95 in the City of Twentynine Palms, San Bernardino County, California (Exhibit 1, *Regional Vicinity*). The project site is depicted on the Valley Mountain quadrangle of the United States Geological Survey's (USGS) 7.5-minute topographic map series within Section 20 of Township 1 North, Range 10 East (Exhibit 2, *Site Vicinity*). Specifically, the site is bounded to the north by Amboy Road, to the east by Gammel Road, and roughly to the west by Pinto Mountain Road at 78201 Amboy Road in an unincorporated area of San Bernardino County near the City of Twentynine Palms, California within Assessor Parcel Numbers (APNs) 0625-071-04, -05, -07, -08, -09, -10 and -14 (Exhibit 3, *Project Site*).

1.2 PROJECT DESCRIPTION

The proposed project consists of the development of a 106-bed destination resort hotel across 134 acres.



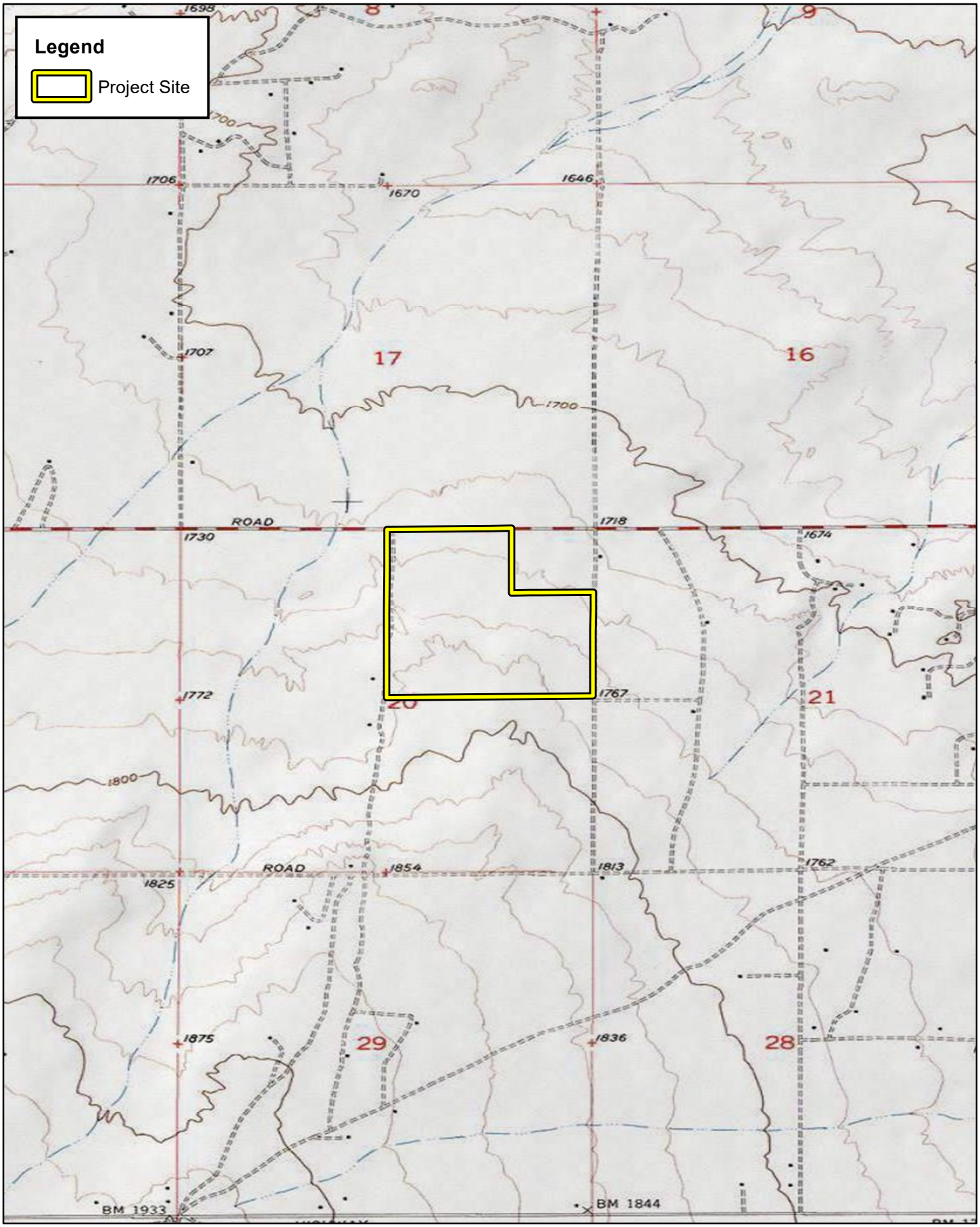
THE WONDER INN JOSHUA TREE
DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

Regional Vicinity

ELMT CONSULTING

Source: World Street Map, San Bernardino County

Exhibit 1



THE WONDER INN JOSHUA TREE
DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

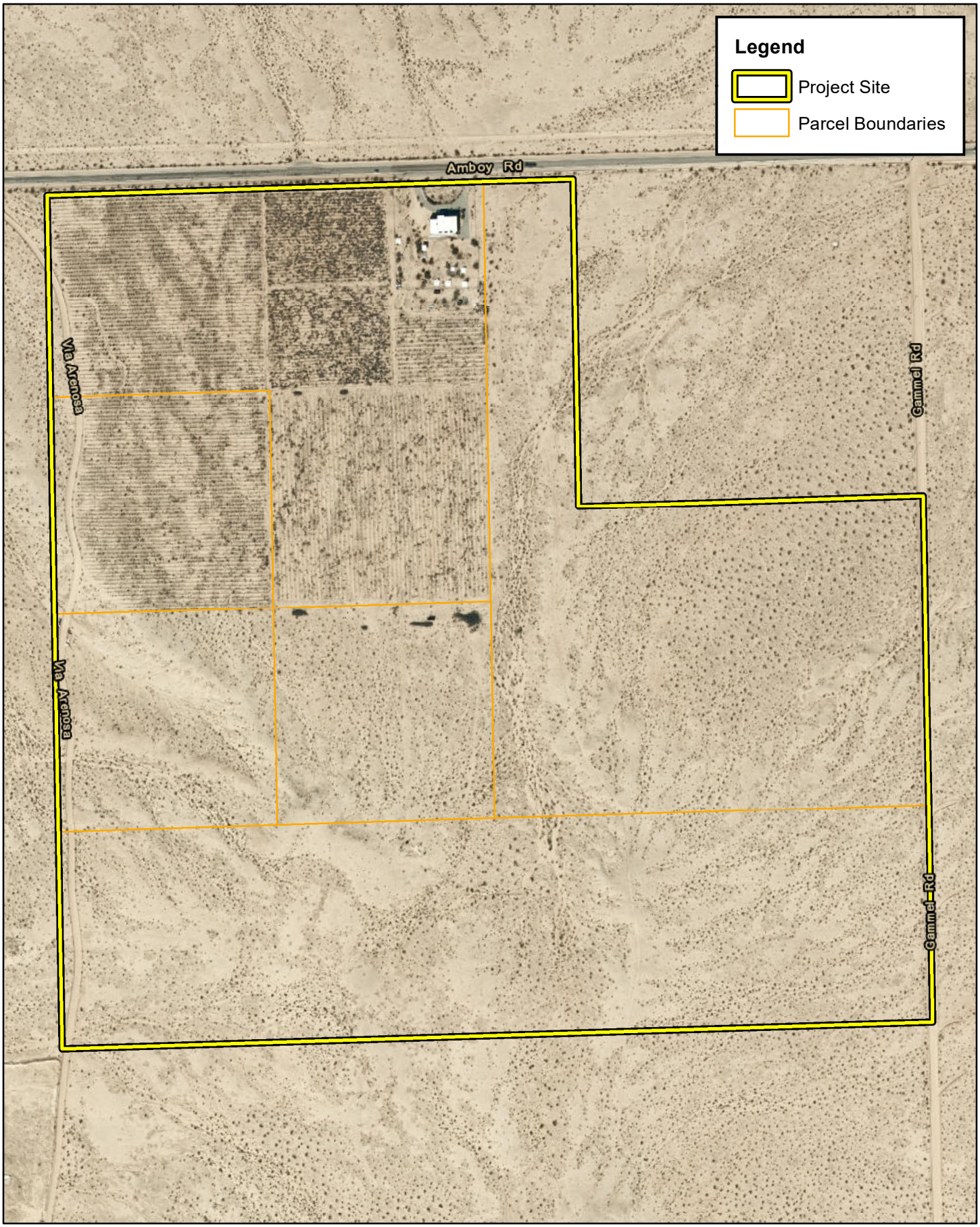
Site Vicinity

ELMT CONSULTING

0 1,000 2,000 4,000 Feet

Source: USA Topographic Map, San Bernardino County

Exhibit 2



THE WONDER INN JOSHUA TREE
DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

ELMT CONSULTING

0 250 500 1,000 Feet

Source: ESRI Aerial Imagery, San Bernardino County

Project Site

Exhibit 3

Section 2 Regulations

There are three key agencies that regulate activities within inland streams, wetlands, and riparian areas in California. The Corps Regulatory Division regulates activities pursuant to Section 404 of the CWA, Section 10 of the Rivers and Harbors Act, and Section 103 of the Marine Protection, Research, and Sanctuaries Act. The Regional Board regulates activities pursuant to Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act and the CDFW regulates activities under Sections 1600 *et seq*. of the California Fish and Game Code.

2.1 U.S. ARMY CORPS OF ENGINEERS

Since 1972, the Corps and U.S. Environmental Protection Agency (EPA) have jointly regulated the discharge of dredged or fill material into waters of the United States, including wetlands, pursuant to 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."

On April 21, 2020, the Environmental Protected Agency and Corps published a final rule defining the scope of waters subject to federal regulation under the Clean Water Act ("Navigable Waters Protection Rule"). The rule codifies the long-standing exclusion of "water-filled depressions constructed or excavated upland or in non-jurisdictional waters incidental to mining or construction activity, and pits excavated in upland or in non-jurisdictional waters for the purpose of obtaining fill, sand, or gravel." (33 CFR 328.3(b)(9); *see also* 85 FR 22252, 22323 (Apr. 21, 2020).)

2.2 REGIONAL WATER QUALITY CONTROL BOARD

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 Boards 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 (SWRCB) assumes this responsibility when a project has the potential to result in the discharge to waters within multiple Regional Boards.

Additionally, 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 Water Quality Control Act has become an important tool post *Solid Waste*

Agency of Northern Cook County vs. United States Corps of Engineers[2] (SWANCC) and *Rapanos v. United States*[3] (Rapanos) court cases with respect to the State's regulatory authority over isolated and insignificant waters. Generally, any applicant proposing to discharge waste into a water body 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 discharge of dredged and fill material into water bodies.

Under the State Water Resources Control Board Sate Wetland Definition, an area is a wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation.

2.3 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

Sections 1600 *et seq.* of the California Fish and Game Code establishes a fee-based process to ensure that projects conducted in and around lakes, rivers, or streams do not substantially adversely impact fish and wildlife resources, or, when adverse impacts cannot be avoided, ensures that adequate mitigation and/or compensation is provided. Pursuant to Section 1602 of the California Fish and Game Code, a notification must be submitted to the CDFW for any activity that will divert or obstruct the natural flow or alter the bed, channel, or bank (which may include associated biological resources) of a river or stream or use material from a streambed. One CDFW guidance document, although not a formally adopted rule or policy, requires notification for activities taking place within rivers or streams that flow perennially or episodically and that are defined by the area in which surface water currently flows, or has flowed, over a given course during the historic hydrologic regime, and where the width of its course can reasonably be identified by physical and biological indicators. If the project will not "substantially adversely affect an existing fish or wildlife resource," following notification to CDFW, the project may commence without an agreement with CDFW. (Fish & G. Code, § 1602(a)(4)(A)(i).)

[2] Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers, 531 U.S. 159 (2001)
[3] Rapanos v. United States, 547 U.S. 715 (2006)

Section 3 Methodology

The analysis presented in this report is supported by field surveys and verification of site conditions conducted on March 25, 2021. ELMT conducted a field delineation to determine the jurisdictional limits of "waters of the State" and jurisdictional streambed (including potential wetlands), located within the boundaries of the project site. While in the field, jurisdictional features were recorded on an aerial base map at a scale of 1" = 50' using topographic contours and visible landmarks as guidelines. Data points were obtained with a Garmin Map62 Global Positioning System to record and identify specific widths for ordinary high water mark (OHWM) indicators and the locations of photographs, soil pits, and other pertinent jurisdictional features, if present. This data was then transferred as a .shp file and added to the Project's jurisdictional exhibits. The jurisdictional exhibits were prepared using ESRI ArcInfo Version 10 software.

3.1 WATERS OF THE UNITED STATES

In the absence of adjacent wetlands, the limits of the Corps jurisdiction in non-tidal waters extend to the OHWM, which is defined as "*. . . that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.*"[4] Indicators of an OHWM are defined in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Corps 2008). An OHWM can be determined by the observation of a natural line impressed on the bank; shelving; changes in the character of the soil; destruction of terrestrial vegetation; presence of litter and debris; wracking; vegetation matted down, bent, or absent; sediment sorting; leaf litter disturbed or washed away; scour; deposition; multiple observed flow events; bed and banks; water staining; and/or change in plant community.

Pursuant to the Corps Wetland Delineation Manual (Corps 1987), the identification of wetlands is based on a three-parameter approach involving indicators of hydrophytic vegetation, hydric soils, and wetland hydrology. In order to qualify as a wetland, a feature must exhibit at least minimal characteristics within each of these three parameters. It should also be noted that both the Regional Board and CDFW follow the methods utilized by the Corps to identify wetlands. For this project location, Corps jurisdictional wetlands are delineated using the methods outlined in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0* (Corps 2008).

3.2 WATERS OF THE STATE

3.2.1 REGIONAL WATER QUALITY CONTROL BOARD

The California *Porter-Cologne Water Quality Control Act* gives the Regional Board very broad authority to regulate waters of the State, which are defined as any surface water or groundwater, including saline

[4] CWA regulations 33 CFR §328.3(e).

waters. The Regional Board shares the Corps' methodology for delineating the limits of jurisdiction based on the identification of OHWM indicators and utilizing the three parameter approach for wetlands.

3.2.2 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

Sections 1600 *et seq*. of the California Fish and Game Code applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the State. CDFW Regulations define "stream" as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and that supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation." (14 Cal. Code Regs., § 1.72.) For this project location, CDFW jurisdictional limits were delineated using this definition of "stream."

Section 4 Literature Review

ELMT conducted a thorough review of relevant literature and materials to preliminarily identify areas that may fall under the jurisdiction of the regulatory agencies. A summary of materials utilized during ELMT's literature review is provided below and in Appendix B. In addition, refer to Section 8 for a complete list of references used throughout the course of this delineation.

4.1 WATERSHED REVIEW

The project site is located within the Southern Mojave Watershed (HUC 18100100). The Southern Mojave Watershed is a large, closed basin in the Southern Mojave Desert that straddles the San Bernardino/Riverside County Line and drains an approximate total of 8,800 square miles. This watershed encompasses multiple mountain ranges and valleys and contains an array of ephemeral waterways and dry lakes. The Southern Mojave Watershed is roughly bounded by portions of the San Bernardino, San Jacinto, Turtle, and Sacramento Mountains. The central portion of the watershed supports the Bullion Mountains.

The project site is located south of the Bullion Mountains and north of the Pinto Mountains in the central portion of the Southern Mojave Watershed. Flows in vicinity of the site follow regional topography until being consolidated within Dale Lake to the east.

4.2 LOCAL CLIMATE

The Mojave Desert is found at elevations of 2,000 to 5,000 feet above mean sea level (msl) and is characterized by cool winter temperatures and warm summer temperatures, with its rainfall occurring almost entirely in the winter. Climatological data obtained from weather stations for nearby Twentynine Palms indicated the annual precipitation averages 4.46 inches per year. Almost all of the precipitation in the form of rain occurs in the months between July and April, with hardly any occurring between the months of May and June. The wettest month is August, with a monthly average total precipitation of 0.80 inches. The average minimum and maximum temperatures for the region are 39.7 and 102.7 degrees Fahrenheit (°F) respectively with December and January (monthly average 50.5° F) being the coldest months and July being the hottest (monthly average 89.4° F). Temperatures during the site visits were in the mid-50s to high-60s (degrees Fahrenheit) with light winds and no cloud cover.

4.3 USGS TOPOGRAPHIC QUADRANGLE

The USGS 7.5 Minute Series Topographic Quadrangle maps show geological formations and their characteristics, describing the physical setting of an area through contour lines and major surface features including lakes, rivers, streams, buildings, landmarks, and other factors that may fall under an agency's jurisdiction. Additionally, the maps depict topography through color and contour lines, which are helpful in determining elevations and latitude and longitude within the project site.

The project site is depicted on the Valley Mountain quadrangle of the United States Geological Survey's (USGS) 7.5-minute topographic map series within Section 20 of Township 1 North, Range 10 East. According to the topographic map, the project site consists entirely of vacant/undeveloped land

immediately south of Amboy Road and located least of the heart of the City of Twentynine Palms, west of Goodwin Road, and north of State Route 62.

On-site elevation ranges from approximately 1,720 to 1,770 feet above mean sea level. Topography on-site generally consists of shallow gently sloping hills and flat areas generally sloping south to north.

4.4 AERIAL PHOTOGRAPHS

Prior to conducting the field delineation, ELMT reviewed current and historical aerial photographs (1985-2018) of the project as available from Google Earth Pro Imaging. Aerial photographs can be useful during the delineation process, as they often indicate the presence of drainage features and riverine habitat within the boundaries of the project site, if any.

The project site is located north of the Pinto Mountains and south of Valley Mountain, with the remainder of the Bullion Mountains further north in a primarily undeveloped area in southern San Bernardino County. Minimal development occurs in proximity to the site, with various residential, commercial, agricultural, and institutional developments scattered throughout the area. Notable developments near the site include the Twentynine Palms airport approximately 2 miles to the south, the heart of the City of Twentynine Palms approximately 4.5 miles to the west, and the Twentynine Palms Marine Corps Base approximately 6.5 miles to the northwest.

The project site supports a mixture of undeveloped, developed, and disturbed land. According to historic aerials and local records, the northern portion of the project site and existing development therein formerly supported a post office, a Southern California Edison substation, a jojoba farm, and most recently an artists' retreat and psychedelic meditation center. The remainder of the site supports undeveloped, vacant land. Comprised of a creosote bush scrub plant community. Refer to Appendix A, *Site Photographs*.

4.5 SOILS

Soils within and adjacent to the Project site were researched prior to the field delineation using the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Custom Soil Resource Report for San Bernardino County, Southwestern Part. Soil surveys furnish soil maps and interpretations originally needed in providing technical assistance to farmers and ranchers; in guiding other decisions about soil selection, use, and management; and in planning, research, and disseminating the results of the research. In addition, soil surveys are now heavily utilized in order to obtain soil information with respect to potential wetland environments and jurisdictional areas (i.e., soil characteristics, drainage, and color).

Based on the NRCS USDA Web Soil Survey, the project site is not mapped. However, the greater area in the vicinity of the site is underlain by a Dune land-Cajon complex. The majority of soils within the survey area are relatively undisturbed, with the exception of those associated with roads and historic and ongoing disturbance.

4.6 HYDRIC SOILS LIST OF CALIFORNIA

ELMT reviewed the USDA NRCS Hydric Soils List of California in an effort to verify whether on-site soils are considered to be hydric[5]. It should be noted that lists of hydric soils along with soil survey maps provide off-site ancillary tools to assist in wetland determinations, but they are not a substitute for field investigations. The presence of hydric soils is initially investigated by comparing the mapped soil series for the site to the County list of hydric soils. According to the hydric soils list, none of the onsite soils have been listed as hydric in San Bernardino County Southwestern Part.

4.7 NATIONAL WETLANDS INVENTORY

ELMT reviewed the U.S. Fish and Wildlife Service's (USFWS) National Wetland Inventory maps. No resources have been mapped within the boundaries of the project site and. However, one (1) riverine resource is mapped immediately west of the project site, outside of the project footprint. Additionally, several riverine resources have been mapped in the general vicinity of the project site. Refer to Appendix B, *Documentation*.

4.8 FLOOD ZONE

The Federal Emergency Management Act (FEMA) website was searched for flood data for the project site. Based on Flood Insurance Rate Map No. 06071C8225H that project site is located within Zone X – areas with minimal flood risk of flooding. Refer to Appendix B, *Documentation*.

[5] A hydric soil is a soil that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part.

Section 5 Site Conditions

ELMT biologist Travis J. McGill conducted a field delineation on March 25, 2021 to verify existing site conditions and document the extent of potential jurisdictional areas within the boundaries of the project site. ELMT field staff encountered no limitations during the field delineation.

5.1 ON-SITE FEATURES

5.1.1 DRAINAGE FEATURES

Twelve (12) unnamed ephemeral drainage features (Drainages 1-12) were observed within the boundaries of the project site during the field delineation (Exhibit 4, *Jurisdictional Areas*). ELMT carefully assessed the site for depressions, inundation, presence of hydrophytic vegetation, staining, cracked soil, ponding, and indicators of active surface flow and corresponding physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris. Suspected jurisdictional areas were checked for the presence of definable channels, soils, and hydrology.

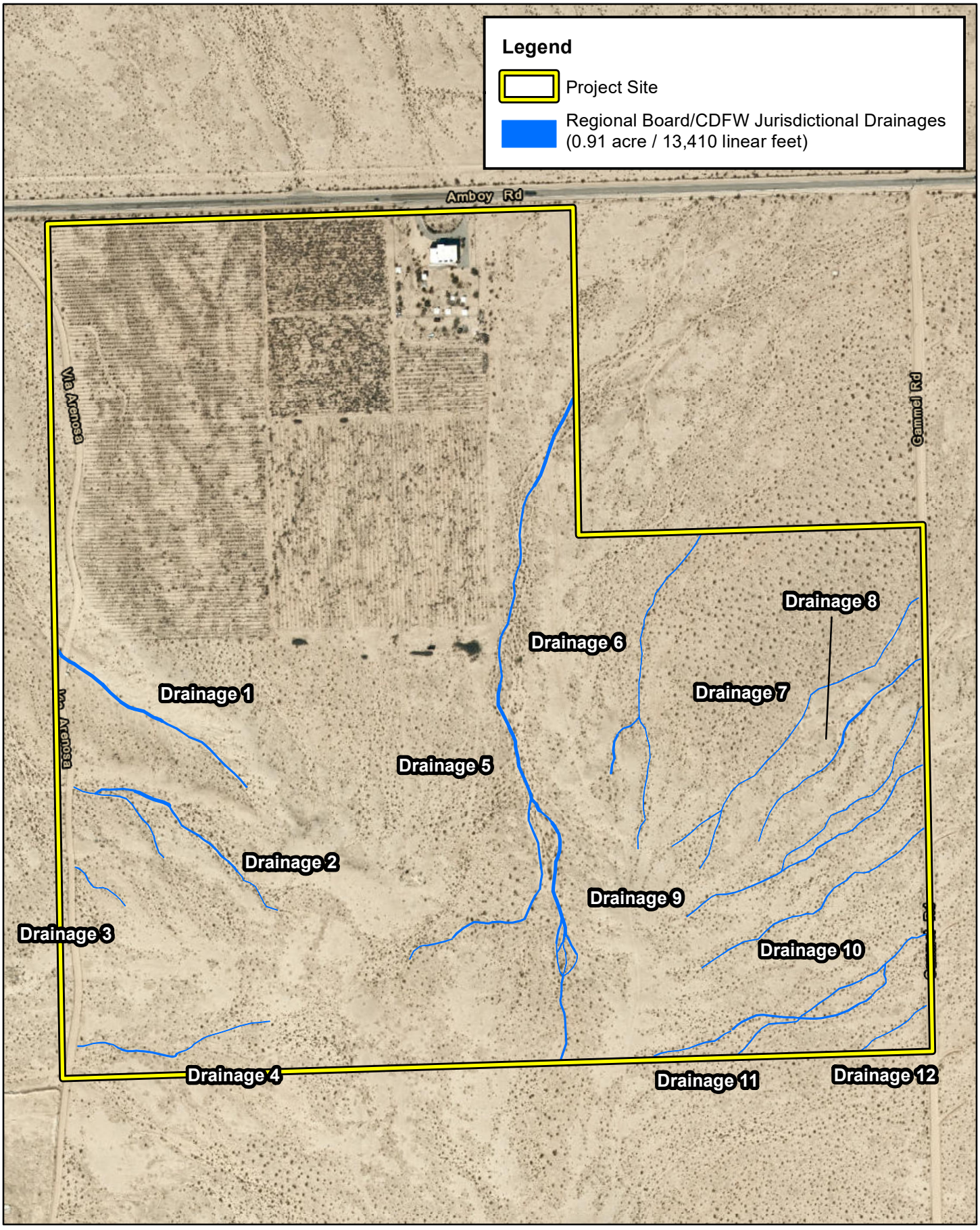
The onsite drainage features on the western boundary of the project site generally flow in a southeast to northeast direction, and the drainage features on the eastern boundary of the project site flow in a southwest to northeast direction. However, after flowing onsite, all of the drainage features, generally flow south to north. No surface water was present within the drainage during the site visit; however, evidence of an OHWM was observed via scour, changes in substrate, shelving, and lack of vegetation. Across all of the drainage features, the OWHM ranged from approximately 1-8 feet in width throughout the length of the drainages. The unnamed drainages generally originate at the top of their local watershed, originating on the slopes of the hills within the boundary of the site. These features only convey surface flow in direct response to precipitation, and the majority of the drainages do not support riparian vegetation.

All of the onsite drainage features, after flowing offsite, eventually infiltrate and flow into a larger drainage feature to the north that flows in a west to east direction, and ultimately flows into Dale Lake (a dry lake) southeast of the site. The onsite drainage features do not have a surface hydrologic connection to downstream waters of the United States; however, the onsite drainages will fall under the regulatory authority of the Regional Board as waters of the State, and CDFW as jurisdictional streambed.

The drainages feature, at the origin, primarily consisted of loose/sandy substrate with minimal vegetation. Where vegetated, the drainages supported upland scrub indicative of the surrounding area. Common plant species observed in association with the onsite drainages include creosote (*Larrea tridentata*), cryptantha (*Cryptantha* sp.), fringepod (*Thysanocarpus curvipes*), spineflower (*Chorizanthe rigida*), cotton thorn (*Tetradymia comosa*), Mojave suncup (*Camissonia campestris*), brown-eyed primrose (*Chylismia claviformes*), burro bush (*Ambrosia dumosa*), cheesebrush (*Ambrosia salsola*), golden cholla (*Cylindropuntia echinocarpa*), and California threeawn (*Aristida californica*). These plant species are common plant species and none are threatened, endangered, or have special status in California.

5.1.2 WETLAND FEATURES

In order to qualify as a wetland, a feature must exhibit all three wetland parameters (i.e., vegetation, soils, and hydrology) described in the Corps Arid West Regional Supplement. Although evidence of hydrology (i.e., scour, changes in substrate, shelving) was present within the onsite drainages, these areas were primarily dominated by upland plant species. Further, water does not persist long enough on the project site to create hydric soil (anaerobic) conditions, and none of the onsite drainages supported a dominance of hydrophytic vegetation. As a result, none of the onsite drainage features meet the Corps' or Regional Board's wetland definition to qualify as jurisdictional wetlands.



THE WONDER INN JOSHUA TREE
DELINEATION OF STATE AND FEDERAL JURISDICTIONAL WATERS

ELMT CONSULTING

0 250 500 1,000 Feet

Source: ESRI Aerial Imagery, San Bernardino County

Jurisdictional Areas

Exhibit 4

Section 6 Findings

This report presents ELMT's best effort at determining the extent of jurisdictional features using the most up-to-date regulations, written policy, and guidance from the regulatory agencies. Please refer to the following sections for a summary of jurisdictional areas within the project site and Tables 1 and 2.

6.1 U.S. ARMY CORPS OF ENGINEERS DETERMINATION

6.1.1 WATERS OF THE UNITED STATES DETERMINATION

Based on the Corps' April 2020 regulations, the three onsite drainage features are ephemeral features that flow only in direct response to precipitation, and are not considered perennial or intermittent tributaries that contribute surface water flows to downstream waters. Further, the onsite drainage features to no possess a surface hydrologic connection to downstream waters. As a result, the onsite drainage features do not fall under the regulatory authority of the Corps.

6.1.2 FEDERAL WETLAND DETERMINATION

An area must exhibit all three wetland parameters described in the Corps Arid West Regional Supplement to be considered a jurisdictional wetland. Based on the results of the field delineation, it was determined that no areas within the project site met all three wetland parameters. Therefore, no jurisdictional wetland features exist within the project site.

6.2 REGIONAL WATER QUALITY CONTROL BOARD

6.2.1 WATERS OF THE STATE DETERMINATION

The onsite drainage features exhibit characteristics consistent with the Regional Board's methodology and would be considered jurisdictional waters of the State. Approximately 0.91 acre (13,410 linear feet) of non-wetland waters of the State occur onsite. Refer to Exhibit 4, *Jurisdictional Areas*, for an illustration of the Regional Board waters of the State mapped onsite.

Table 1: Regional Board Jurisdictional Impacts

Jurisdictional Features	Regional Board Non-Wetland Waters
	On-Site Jurisdiction acreage (linear feet)
Drainages 1-12	0.91 (13,410)
TOTALS	**0.91 (13,410)**

6.2.2 STATE WETLAND DETERMINATION

Under the State Water Resources Control Board Sate Wetland Definition, an area is a wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation.

Based on the results of the field delineation, it was determined that no areas within the project site meet the State Wetland Definition. Therefore, no state wetland features exist within the project site.

6.3 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

The onsite drainage features exhibit characteristics consistent with CDFW's methodology and would be considered CDFW streambed. Approximately 0.91 acre (13,410 linear feet) of CDFW jurisdiction was mapped within boundaries of the project site. Refer to Exhibit 4, *Jurisdictional Areas*, for an illustration of CDFW jurisdictional streambed mapped onsite areas.

Table 2: CDFW Jurisdictional Impacts

Jurisdictional Features	**CDFW Jurisdictional Streambed**
	On-Site Jurisdiction acreage (linear feet)
Drainages 1-12	0.91 (13,410)
TOTALS	**0.91 (13,410)**

Section 7 Regulatory Approval Process

The following is a summary of the various permits, certifications, and agreements that may be necessary prior to construction and/or alteration within jurisdictional areas. Ultimately the regulatory agencies make the final determination of jurisdictional boundaries and permitting requirements.

7.1 REGIONAL WATER QUALITY CONTROL BOARD

In the absence of federal waters of the United States, the Regional Board regulates waters under the California Porter-Cologne Water Quality Control Act. Therefore, any impacts to onsite jurisdictional areas will require a Report of Waste Discharge permit from the Regional Board prior to project implementation. The application fee is based on the extent of project impacts and the permit will not be issued until all fees are paid to the Regional Board. It should also be noted that the Regional Board requires that California Environmental Quality Act (CEQA) compliance be obtained prior to issuance of the Report of Waste Discharge permit.

Based on the proposed project footprint, no impacts to Regional Board waters of the State will occur from project implementation, and a Report of Waste Discharge will not be required.

7.2 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

Pursuant to Section 1602 of the California Fish and Game Code, the CDFW regulates any activity that will divert or obstruct the natural flow or alter the bed, channel, or bank (which may include associated biological resources) of a river or stream. Therefore, any impacts to the on-site jurisdictional areas may require a Section 1602 Streambed Alteration Agreement from the CDFW prior to project implementation, if the project will have a substantial adverse impact on an existing fish or wildlife resource. The notification fee is based on the term and cost of a project. The Section 1602 Streambed Alteration Agreement (SAA) will not be issued until all fees are paid to the CDFW.

Based on the proposed project footprint, no impacts to CDFW jurisdictional streambed will occur from project implementation, and a Section 1602 SAA will not be required.

7.3 RECOMMENDATIONS

It is recommended that this delineation be forwarded to the regulatory agencies for their review and concurrence. The concurrence/receipt would solidify findings noted within this report.

Section 8 References

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Appendix A Site Photographs



Photograph 1: Looking at Drainage 5



Photograph 2: View of Drainage 5



Photograph 3: Looking east along Drainage 8.



Photograph 4: Looking at the beginning of Drainage 7.



Photograph 5: Looking at Drainage 10.



Photograph 6: Looking at Drainage 11.



Photograph 7: Looking at the end of Drainage 2 on the western boundary of the site.



Photograph 8: Looking at the southern portion of Drainage 5.



Photograph 9: Looking at Drainage 2.



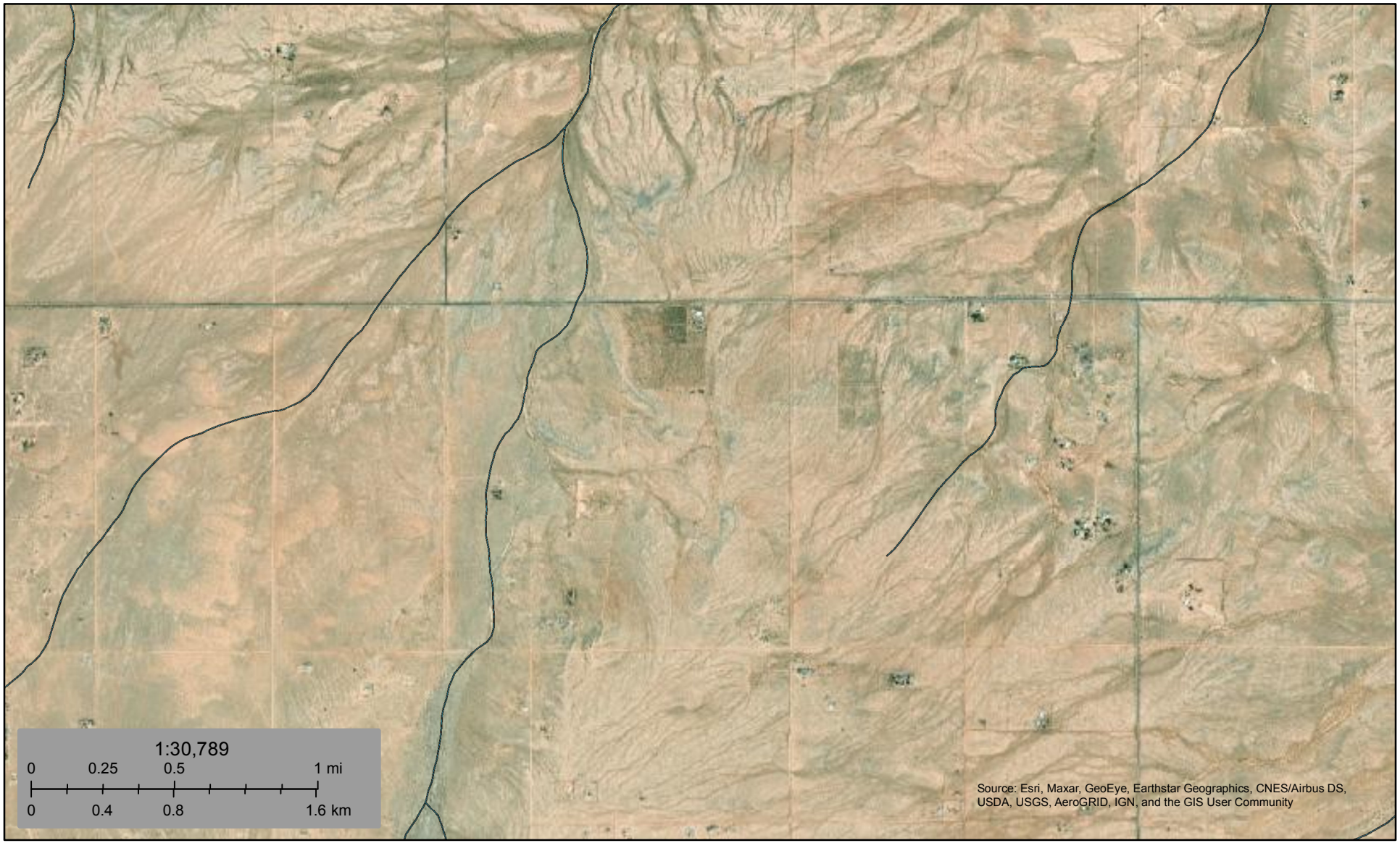
Photograph 10: Looking at Drainage 6.

Appendix B Documentation

U.S. Fish and Wildlife Service

National Wetlands Inventory

The Wonder Inn Joshua Tree



April 12, 2021

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

NOTES TO USERS

p is for use in administering the National Flood Insurance Program. It t necessarily identify all areas subject to flooding, particularly from local sources of small size. The **community map repository** should be d for possible updated or additional flood hazard information.

in more detailed information in areas where **Base Flood Elevations** and/or **floodways** have been determined, users are encouraged to consult d Profiles and Floodway Data and/or Summary of Stillwater Elevations ontained within the Flood Insurance Study (FIS) report that accompanies M. Users should be aware that BFEs shown on the FIRM represent whole-foot elevations. These BFEs are intended for flood insurance urposes only and should not be used as the sole source of flood n information. Accordingly, flood elevation data presented in the FIS should be utilized in conjunction with the FIRM for purposes of tion and/or floodplain management.

Base Flood Elevations shown on this map apply only landward of h American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should e that coastal flood elevations are also provided in the Summary of Elevations tables in the Flood Insurance Study report for this jurisdiction. s shown in the Summary of Stillwater Elevations tables should be used for tion and/or floodplain management purposes when they are higher than tions shown on this FIRM.

es of the **floodways** were computed at cross sections and interpolated cross sections. The floodways were based on hydraulic considerations ard to requirements of the National Flood Insurance Program. Floodway nd other pertinent floodway data are provided in the Flood Insurance port for this jurisdiction.

areas not in Special Flood Hazard Areas may be protected by **flood structures**. Refer to Section 2.4 "Flood Protection Measures" of the surance Study report for information on flood control structures for this on.

jection used in the preparation of this map was Universal Transverse (UTM) zone 11 North. The **horizontal datum** was NAD 83, GRS80 . Differences in datum, spheroid, projection or UTM zones used in the n of FIRMs for adjacent jurisdictions may result in slight positional es in map features across jurisdiction boundaries. These differences do t the accuracy of this FIRM.

evations on this map are referenced to the North American Vertical Datum These flood elevations must be compared to structure and ground s referenced to the same **vertical datum**. For information regarding on between the National Geodetic Vertical Datum of 1929 and the merican Vertical Datum of 1988, visit the National Geodetic Survey at http://www.ngs.noaa.gov or contact the National Geodetic Survey at wing address:

rmation Services
/NGS12
Geodetic Survey
, #9202
st-West Highway
ring, Maryland 20910-3282
3-3242

n current elevation, description, and/or location information for **bench** shown on this map, please contact the Information Services Branch National Geodetic Survey at **(301) 713-3242**, or visit its website at w.ngs.noaa.gov.

ap information shown on this FIRM was derived from digital tography collected by the U.S. Department of Agriculture Farm Service This imagery was flown in 2005 and was produced with a 1-meter ground istance.

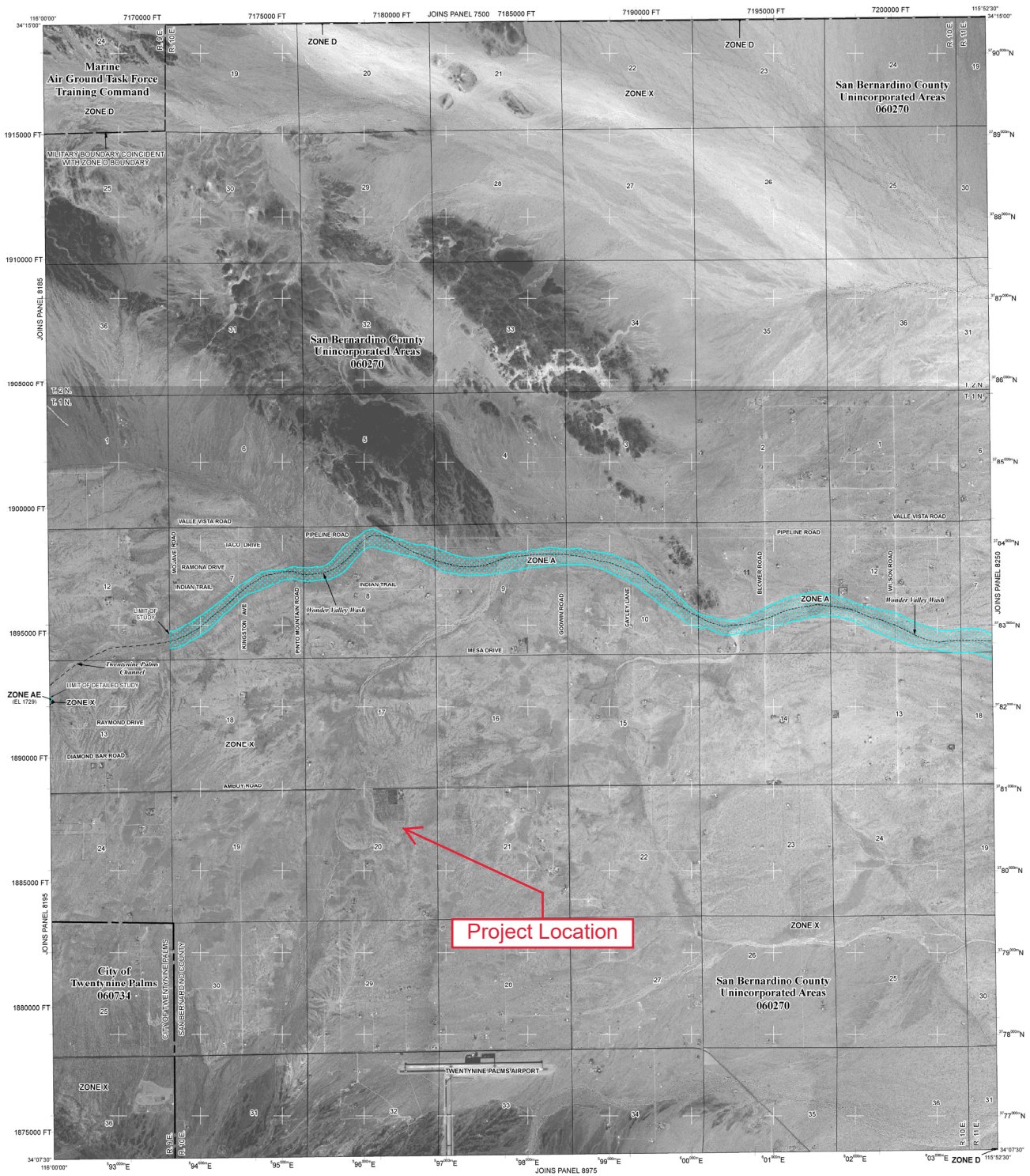
o may reflect more detailed and up-to-date stream channel configurations se shown on the previous FIRM for this jurisdiction. The floodplains and s that were transferred from the previous FIRM may have been adjusted m to these new stream channel configurations. As a result, the Flood and Floodway Data tables in the Flood Insurance Study Report (which authoritative hydraulic data) may reflect stream channel distances that m what is shown on this map.

te limits shown on this map are based on the best data available at the ublication. Because changes due to annexations or de-annexations may urred after this map was published, map users should contact appropriate ity officials to verify current corporate limit locations.

efer to the separately printed **Map Index** for an overview map of the howing the layout of map panels; community map repository addresses; sting of Communities table containing National Flood Insurance Program r each community as well as a listing of the panels on which each ity is located.

the **FEMA Map Service Center** at 1-800-358-9616 for information on products associated with this FIRM. Available products may include ly issued Letters of Map Change, a Flood Insurance Study report, and/or rsions of this map. The FEMA Map Service Center may also be reached 1-800-358-9620 and its website at http://msc.fema.gov/.

ve **questions about this map** or questions concerning the National Flood e Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or FEMA website at http://www.fema.gov.



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUND BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that h chance of being equaled or exceeded in any given year. The Special Flood Hazard Are area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water elevation of the 1% annual chance flood.

- **ZONE A** — No Base Flood Elevations determined.
- **ZONE AE** — Base Flood Elevations determined.
- **ZONE AH** — Flood depths of 1 to 3 feet (usually areas of ponding); Bas Elevations determined.
- **ZONE AO** — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); depths determined. For areas of alluvial fan flooding, velocit determined.
- **ZONE AR** — Special Flood Hazard Area formerly protected from the 1% annual flood by a flood control system that was subsequently decertified. indicates that the former flood control system is being restored to protection from the 1% annual chance or greater flood.
- **ZONE A99** — Area to be protected from 1% annual chance flood by a Feder protection system under construction; no Base Flood El determined.
- **ZONE V** — Coastal flood zone with velocity hazard (wave action); no Bas Elevations determined.
- **ZONE VE** — Coastal flood zone with velocity hazard (wave action); Bas Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be k of encroachment so that the 1% annual chance flood can be carried without substantial i in flood heights.

OTHER FLOOD AREAS

- **ZONE X** — Areas of 0.2% annual chance flood; areas of 1% annual chance flo average depths of less than 1 foot or with drainage areas le 1 square mile; and areas protected by levees from 1% annual chan

OTHER AREAS

- **ZONE X** — Areas determined to be outside the 0.2% annual chance floodplain.
- **ZONE D** — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAS)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Area

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zon boundary dividing Special Flood Hazard Areas of differe Flood Elevations, flood depths or flood velocities.
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; e in feet*

* Referenced to the North American Vertical Datum of 1988

- A–A — Cross section line
- 23–23 — Transect line
- 87°07'45", 32°22'30" — Geographic coordinates referenced to the North Ame Datum of 1983 (NAD 83), Western Hemisphere
- 3776000mN — 1000-meter Universal Transverse Mercator grid values, zo 11N
- 600000 FT — 5000-foot grid ticks: California State Plane coordinate system, zone V (FIPSZONE 0405), Lambert Conformal Co projection
- DX5510 — Bench mark (see explanation in Notes to Users section o FIRM panel)
- M1.5 — River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
March 18, 1996

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
August 28, 2008 - to update corporate limits, to change Base Flood Elevations and Special Hazard Areas, to update map format, to add roads and road names, and to incorporate pre issued Letters of Map Revision.

For community map revision history prior to countywide mapping, refer to the Com Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your I agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 2000'
1000 0 2000 4000 FEET
600 0 600 1200 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 8225H

FIRM
FLOOD INSURANCE RATE

SAN BERNARDINO COUNTY, CALIFORNIA AND INCORPORATED AREAS
PANEL 8225 OF 9400
(SEE MAP INDEX FOR FIRM PANEL LA

CONTAINS:

COMMUNITY	NUMBER	PANEL
SAN BERNARDINO COUNTY	060270	8225
TWENTYNINE PALMS, CITY OF	060734	8225

Notice to User: The **Map Number** shown below used when placing map orders; the **Communi** shown above should be used on insurance applica subject community.

MAP NU
06071C

MAP RE
AUGUST 2

Federal Emergency Management

Appendix C Methodology

WATERS OF THE UNITED STATES

Since 1972, the Corps and EPA have jointly regulated the filling of waters of the United States, including wetlands, pursuant to Section 404 of the 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, the placement of sand, rock, clay, construction debris, wood chips, and "materials used to create any structure or infrastructure in the waters of the United States."

In April of 2020, the Corps and the EPA provided a new definition for *waters of the United States* [Federal Register, Vol. 85, No. 77 (April 21, 2020)] which encompass:

- The territorial seas and traditional navigable waters;
- Perennial and intermittent tributaries that contribute surface water flow to such waters;
- Certain lakes, ponds, and impoundments of jurisdictional waters; and
- Wetlands adjacent to other jurisdictional waters.

Additionally, the new definition identifies 12 categories of those waters and features that are excluded from the definition of ''waters of the United State, such as features that only contain water in direct response to rainfall (e.g., ephemeral features), groundwater, many ditches, prior converted cropland, and waste treatment systems. The final rule excludes from the definition of ''waters of the United States'' all waters or features not mentioned above. In addition to this general exclusion, the final rule specifically clarifies that waters of the United States do not include the following:

- Groundwater, including groundwater drained through subsurface drainage systems;
- Ephemeral features that flow only indirect response to precipitation, including ephemeral streams, swales, gullies, rills, and pools;
- Diffuse stormwater runoff and directional sheet flow over upland;
- Ditches that are not traditional navigable waters, tributaries, or that are not constructed in adjacent wetlands, subject to certain limitations;
- Prior converted cropland;
- Artificially irrigated areas that would revert to upland if artificial irrigation ceases;
- Artificial lakes and ponds that are not jurisdictional impoundments and that are constructed or excavated in upland or non-jurisdictional waters;

- Water-filled depressions constructed or excavated in upland or in non-jurisdictional waters incidental to mining or construction activity, and pits excavated in upland or in non jurisdictional waters for the purpose of obtaining fill, sand, or gravel;
- Stormwater control features constructed or excavated in upland or in non-jurisdictional waters to convey, treat, infiltrate, or store stormwater runoff;
- Groundwater recharge, water reuse, and wastewater recycling structures constructed or excavated in upland or in non-jurisdictional waters; and
- Waste treatment systems.

WETLANDS

For this project location, Corps jurisdictional wetlands are delineated using the methods outlined in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0* (Corps 2008). This document is one of a series of Regional Supplements to the Corps Wetland Delineation Manual (Corps 1987). The identification of wetlands is based on a three-parameter approach involving indicators of hydrophytic vegetation, hydric soil, and wetland hydrology. In order to be considered a wetland, an area must exhibit at least minimal characteristics within these three (3) parameters. The Regional Supplement presents wetland indicators, delineation guidance, and other information that is specific to the Arid West Region. In the field, vegetation, soils, and evidence of hydrology are examined using the methodology listed below and documented on Corps wetland data sheets, when applicable. It should be noted that both the Regional Board and the CDFW jurisdictional wetlands encompass those of the Corps.

Vegetation

Nearly 5,000 plant types in the United States may occur in wetlands. These plants, often referred to as hydrophytic vegetation, are listed in regional publications by the U.S. Fish and Wildlife Service (USFWS). In general, hydrophytic vegetation is present when the plant community is dominated by species that can tolerate prolonged inundation or soil saturation during growing season. Hydrophytic vegetation decisions are based on the assemblage of plant species growing on a site, rather than the presence or absence of particular indicator species. Vegetation strata are sampled separately when evaluating indicators of hydrophytic vegetation. A stratum for sampling purposes is defined as having 5 percent or more total plant cover. The following vegetation strata are recommended for use across the Arid West:

- *Tree Stratum:* Consists of woody plants 3 inches or more in diameter at breast height (DBH), regardless of height;
- *Sapling/shrub stratum:* Consists of woody plants less than 3 inches DBH, regardless of height;
- *Herb stratum:* Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size; and,

- *Woody vines:* Consists of all woody vines, regardless of size.

The following indicator is applied per the test method below.[1] Hydrophytic vegetation is present if any of the indicators are satisfied.

Indicator 1 – Dominance Test

Cover of vegetation is estimated and is ranked according to their dominance. Species that contribute to a cumulative total of 50% of the total dominant coverage, plus any species that comprise at least 20% (also known as the "50/20 rule") of the total dominant coverage, are recorded on a wetland data sheet. Wetland indicator status in California (Region 0) is assigned to each species using the *National Wetland Plant List, version 2.4.0* (Corps 2012). If greater than 50% of the dominant species from all strata were Obligate, Facultative-wetland, or Facultative species, the criteria for wetland vegetation is considered to be met. Plant indicator status categories are described below:

- *Obligate Wetland (OBL):* Plants that almost always occur in wetlands;
- *Facultative Wetland (FACW):* Plants that usually occur in wetlands, but may occur in non-wetlands;
- *Facultative (FAC):* Plants that occur in wetlands and non-wetlands;
- *Facultative Upland (FACU):* Plants that usually occur in non-wetlands, but may occur in wetlands; and,
- *Obligate Upland (UPL):* Plants that almost never occur in wetlands.

Hydrology

Wetland hydrology indicators are presented in four (4) groups, which include:

Group A – Observation of Surface Water or Saturated Soils

Group A is based on the direct observation of surface water or groundwater during the site visit.

Group B – Evidence of Recent Inundation

Group B consists of evidence that the site is subject to flooding or ponding, although it may not be inundated currently. These indicators include water marks, drift deposits, sediment deposits, and similar features.

Group C – Evidence of Recent Soil Saturation

[1] Although the Dominance Test is utilized in the majority of wetland delineations, other indicator tests may be employed. If one indicator of hydric soil and one primary or two secondary indicators of wetland hydrology are present, then the Prevalence Test (Indicator 2) may be performed. If the plant community satisfies the Prevalence Test, then the vegetation is hydric. If the Prevalence Test fails, then the Morphological Adaptation Test may be performed, where the delineator analyzes the vegetation for potential morphological features.

Group C consists of indirect evidence that the soil was saturated recently. Some of these indicators, such as oxidized rhizospheres surrounding living roots and the presence of reduced iron or sulfur in the soil profile, indicate that the soil has been saturated for an extended period.

Group D – Evidence from Other Site Conditions or Data

Group D consists of vegetation and soil features that indicate contemporary rather than historical wet conditions, and include shallow aquitard and the FAC-neutral test.

If wetland vegetation criteria is met, the presence of wetland hydrology is evaluated at each transect by recording the extent of observed surface flows, depth of inundation, depth to saturated soils, and depth to free water in the soil test pits. The lateral extent of the hydrology indicators are used as a guide for locating soil pits for evaluation of hydric soils and jurisdictional areas. In portions of the stream where the flow is divided by multiple channels with intermediate sand bars, the entire area between the channels is considered within the OHWM and the wetland hydrology indicator is considered met for the entire area.

Soils

A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper 16-20 inches.[2] The concept of hydric soils includes soils developed under sufficiently wet conditions to support the growth and regeneration of hydrophytic vegetation. Soils that are sufficiently wet because of artificial measures are included in the concept of hydric soils. It should also be noted that the limits of wetland hydrology indicators are used as a guide for locating soil pits. If any hydric soil features are located, progressive pits are dug moving laterally away from the active channel until hydric features are no longer present within the top 20 inches of the soil profile.

Once in the field, soil characteristics are verified by digging soil pits along each transect to an excavation depth of 20 inches; in areas of high sediment deposition, soil pit depth may be increased. Soil pit locations are usually placed within the drainage invert or within adjoining vegetation. At each soil pit, the soil texture and color are recorded by comparison with standard plates within a *Munsell Soil Chart* (2009). Munsell Soil Charts aid in designating color labels to soils, based by degrees of three simple variables – hue, value, and chroma. Any indicators of hydric soils, such as organic accumulation, iron reduction, translocation, and accumulation, and sulfate reduction, are also recorded.

Hydric soil indicators are present in three groups, which include:

All Soils

"All soils" refers to soils with any United States Department of Agriculture (USDA) soil texture. Hydric soil indicators within this group include histosol, histic epipedon, black histic, hydrogen sulfide, stratified layers, 1 cm muck, depleted below dark surface, and thick dark surface.

[2] According to the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0 (Corps 2008), growing season dates are determined through on-site observations of the following indicators of biological activity in a given year: (1) above-ground growth and development of vascular plants, and/or (2) soil temperature.

Sandy Soils

"Sandy soils" refers to soil materials with a USDA soil texture of loamy fine sand and coarser. Hydric soil indicators within this group include sandy mucky mineral, sandy gleyed matrix, sandy redox, and stripped matrix.

Loamy and Clayey Soils

"Loamy and clayey soils" refers to soil materials with a USDA soil texture of loamy very fine sand and finer. Hydric soil indicators within this group include loamy mucky mineral, loamy gleyed matrix, depleted matrix, redox dark surface, depleted dark surface, redox depressions, and vernal pools.

SWANCC WATERS

The term "isolated waters" is generally applied to waters/wetlands that are not connected by surface water to a river, lake, ocean, or other body of water. In the presence of isolated conditions, the Regional Board and CDFW take jurisdiction through the application of the OHWM/streambed and/or the 3 parameter wetland methodology utilized by the Corps.

Appendix C

Cultural Resources Assessment, Wonder Inn Project

BCR Consulting

August 25, 2022

CULTURAL RESOURCES ASSESSMENT

Wonder Inn Project

APNs: 0625-071-04, 05, 07, 08, 09, 10 and 14; 132.98 Acres

Unincorporated San Bernardino County, California

Prepared for:

Julie Gilbert
ELMT Consulting
2201 North Grand Avenue #10098
Santa Ana, California 92711

Prepared by:

David Brunzell, M.A., RPA
Contributions by Kara Brunzell, M.A.
BCR Consulting LLC
505 West 8th Street
Claremont, California 91711

Project No. EMT2103

Data Base Information:
Type of Study: Cultural Resources Assessment/Inventory
Resources Recorded: 78201 Amboy Road
Keywords: Twenty Nine Palms, Amboy Road
USGS Quadrangle: 7.5-minute *Valley Mountain, California* (1954)

BCRCONSULTING LLC

August 25, 2022

MANAGEMENT SUMMARY

BCR Consulting LLC (BCR Consulting) is under contract to ELMT Consulting to conduct a Cultural Resources Assessment of the Wonder Inn Project (the project) located at 78201 Amboy Road in an unincorporated area of San Bernardino County, near the city of Twentynine Palms, California. The site encompasses APNs 0625-071-04, 05, 07, 08, 09, 10, and 14 and totals 132.98 acres. Tasks completed for the scope of work include a cultural resources records search, intensive-level pedestrian cultural resources survey, Sacred Lands File search with the Native American Heritage Commission, and paleontological resources overview. These tasks were performed in partial fulfillment of California Environmental Quality Act (CEQA) requirements. The records search revealed that three cultural resource studies have taken place within one mile of the project site, none of which assessed any portion of the project site. One cultural resource (a prehistoric lithic scatter) has been identified within a one-mile radius of the project site. No cultural resources have been previously recorded within or adjacent to its boundaries.

During the field survey one historic-period commercial/industrial building was identified within the project site boundaries. This resource is not recommended eligible for the California Register of Historical Resources (California Register), and is therefore not recommended a "historical resource" under CEQA. It does not warrant further consideration. No other cultural resources (including other architectural historical resources, prehistoric archaeological resources, or historic archaeological resources) were recorded. Due to a lack of historical resources located within the project site and vicinity combined with a high level of previous surface disturbance, BCR Consulting recommends that no additional cultural resources work or monitoring is necessary for any proposed project activities. However, if previously undocumented cultural resources are identified during earthmoving activities, a qualified archaeologist should be contacted to assess the nature and significance of the find, diverting construction excavation if necessary.

Findings were negative during the Sacred Lands File search with the NAHC. The results of the Sacred Lands File search are provided in Appendix D. 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 County 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 is available to answer questions and address concerns as necessary.

According to CEQA Guidelines, projects subject to CEQA must determine whether the project

would “directly or indirectly destroy a unique paleontological resource”. The appended Paleontological Overview provided in Appendix E has recommended that:

> The geologic units underlying this project are mapped entirely as alluvial silt, sand and gravel deposits dating from the Holocene period (Dibblee and Minch, 2003). While Holocene alluvial units are considered to be of high preservation value, 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 older alluvial sediments would increase. The Western Science Center does not have localities within the project area or within a 1 mile radius.
>
> 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 the undertaking, 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 Native American Heritage Commission (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 ELMT Consulting to conduct a Cultural Resources Assessment of the Wonder Inn Project (the project) located at 78201 Amboy Road in an unincorporated area of San Bernardino County, near the city of Twentynine Palms, California. The site encompasses APNs 0625-071-04, 05, 07, 08, 09, 10, and 14 and totals 132.98 acres. The project site is in Section 20 of Township 1 North, Range 10 East, San Bernardino Baseline and Meridian. It is depicted on the United States Geological Survey (USGS) *Valley Mountain, California* (1954) 7.5-minute topographic quadrangle (Figure 1).

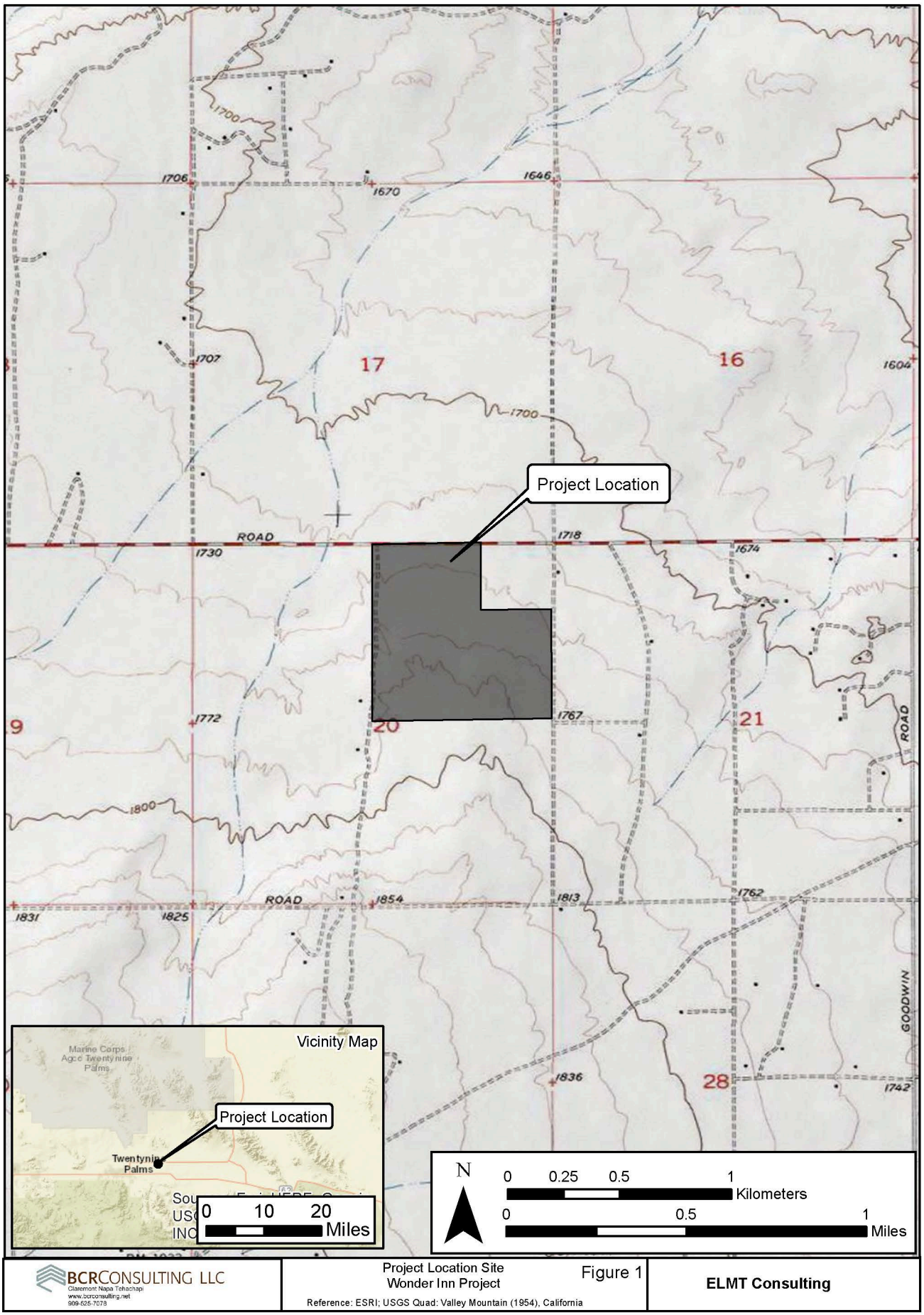
Regulatory Setting

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))

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 those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for the California Register. If an impact on 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 physical impact that the project will have on the resource.

Section 5024.1 of the Cal. Public Res. Code established the California Register. Generally, 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



BCR CONSULTING LLC Claremont Napa Tehachapi www.bcrconsulting.net 909-625-7078	Project Location Site Wonder Inn Project Reference: ESRI; USGS Quad: Valley Mountain (1954), California	Figure 1 **ELMT Consulting**

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 United States.
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.

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 County 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 provides guidance relative to significant impacts on paleontological resources, indicating 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 paleontological resources. CEQA documentation prepared for projects would be required to analyze paleontological resources as a condition of the CEQA process to disclose potential impacts. Please note that as of January 2018 paleontological resources are considered in the geological rather than cultural category. Therefore, paleontological resources are not summarized in the body of this report. A paleontological overview completed by the Western Science Center is provided as Appendix B.

NATURAL SETTING

The elevation of the project site is approximately 1720 to 1770 feet above mean sea level (AMSL). It has been subject to disturbances related to modern farming, and to grading and excavation associated with the construction of a commercial/industrial building. The project site sediments include Holocene period alluvial silt, sand, and gravel (see Appendix E). The current study has not yielded any evidence that such sediments have produced raw materials used in prehistoric tool manufacture. Local rainfall ranges from 2 to 5 inches annually (Jaeger and Smith 1971:36-37). The project is relatively flat, although water flows in a northerly

direction towards an unnamed intermittent drainage approximately one quarter-mile to the northwest. The mild climate of the late Pleistocene allowed piñon-juniper woodland to thrive throughout most of the Mojave (Van Devender et al. 1987). The vegetation and climate during this epoch attracted significant numbers of Rancholabrean fauna, including dire wolf, saber-toothed cat, short-faced bear, horse, camel, antelope, mammoth, as well as birds which included pelican, goose, duck, cormorant, and eagle (Reynolds 1988). The drier climate of the middle Holocene resulted in the local development of complementary flora and fauna, which remain largely intact to this day. Common native plants include creosote, cacti, rabbit bush, interior golden bush, cheesebush, species of sage, and various grasses. Common native animals include coyotes, cottontail and jackrabbits, rats, mice, desert tortoises, roadrunners, raptors, turkey vultures, and other bird species.

CULTURAL SETTING

Prehistoric Context

The local prehistoric cultural setting has been organized into many chronological frameworks (see Warren and Crabtree 1986; Bettinger and Taylor 1974; Lanning 1963; Hunt 1960; Wallace 1958, 1962, 1978; Campbell and Campbell 1935), although there is no definitive sequence for the region. The difficulties in establishing cultural chronologies for western San Bernardino County are a function of its enormous size and the small amount of archaeological excavations conducted there. Moreover, throughout prehistory many groups have occupied the area and their territories often overlap spatially and chronologically resulting in mixed artifact deposits. Due to dry climate and capricious geological processes, these artifacts rarely become integrated in-situ. Lacking a milieu hospitable to the preservation of cultural midden, local chronologies have relied upon temporally diagnostic artifacts, such as projectile points, or upon the presence/absence of other temporal indicators, such as groundstone. Such methods are instructive, but can be limited by prehistoric occupants' concurrent use of different artifact styles, or by artifact re-use or re-sharpening, as well as researchers' mistaken diagnosis, and other factors (see Flenniken 1985; Flenniken and Raymond 1986; Flenniken and Wilke 1989). Recognizing the shortcomings of comparative temporal indicators, this study recommends review of Warren and Crabree (1986), who have drawn upon this method to produce a commonly cited and relatively comprehensive chronology.

Ethnography

Serrano. The Uto-Aztecan "Serrano" people occupied the western Mojave Desert periphery. Kroeber (1925) applied the generic term "Serrano" to four groups, each with distinct territories: the Kitanemuk, Tataviam, Vanyume, and Serrano. Only one group, in the San Bernardino Mountains and West-Central Mojave Desert, ethnically claims the term Serrano. "The Serrano resided in an area that extended east of the Cajon Pass, located in the San Bernardino Mountains, to Twenty-nine Palms, the north foothills of the San Bernardino Mountains and south to include portions of the Yucaipa Valley" (Bean and Smith 1978:570). Both the Serrano and Cahuilla utilized the western Mojave region seasonally. Evidence for longer term/permanent Serrano settlement in the western Mojave most notably includes the Serrano-named village of Guapiabit in Summit Valley. Access to water determined where the Serrano

built their settlements/villages (Bean and Smith 1978). Most of the villages were located within the Sonoran life zone (Scrub Oak [*Quercus* sp.] and sagebrush [*Salvia* sp.]), or forest transition zone, (Ponderosa pine [*Pinus ponderosa*]) (Bean and Smith 1978; Kroeber 1925). Like many neighboring tribes, the Serrano and Cahuilla were Takic (Uto-Aztecan language family) speakers (Lightfoot and Parrish 2009:341). Serrano traded with their neighbors and actively participated in a shell bead exchange economy with the Cahuilla, Luiseno, and Gabrielino (McCawley 1996). Occasionally, villages were located in the desert, adjacent to permanent water sources. Structures for families were usually circular domes, constructed of willow frames and tule thatching. Individual family homes were used primarily for sleeping and storage. Families conducted many of their daily routines outside of their house or under a ramada. A ramada consisted of a thatched roof supported by vertical poles in the ground, which provided a shaded work area (Lightfoot and Parrish 2009:344). Other village structures included a ceremonial house, granaries and sweathouses. Subsistence strategies focused on hunting and gathering, occasionally supplemented by fishing. Food preparation varied and included a variety of cooking techniques. These ranged from baking in earth ovens to parching. Food processing utilities included scrapers, bowls, baskets, mortars, and metates (Bean and Smith 1978). A lineage leader, or kika, administered laws and ceremonies from a large ceremonial house centrally located in most villages. The size of lineages is a matter of some dispute, but most probably numbered between 70 and 120 individuals (Lightfoot and Parrish 2009). Serrano people were organized into clans affiliated with one of two exogamous moieties. Clans were led by a hereditary chief who occupied the village “big house” where ceremonies took place and shamans were initiated (Bean and Smith 1978:572; Strong 1929).

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 have continued to proliferate to this day (Beattie and Beattie 1974; Cleland 1941).

Local Sequence (see Appendix A for references). The project site is located to Twentynine Palms. The first recorded exploration of the Twentynine Palms area was made in 1855 by desert surveyor Colonel Henry Washington. On his exploration he found Native Americans, principally from the Chemeheuvi Tribe living in the area. The Native Americans lived in the surrounding hills and near the spring they called “Marrah” meaning “land of little water”. In the 1870’s, many prospectors arrived at Twentynine Palms in search of gold. The Oasis of Mara in Twentynine Palms area was a popular camping spot for prospectors to rest and replenish while they mined. The name Twentynine Palms was actually given to this land by prospectors. Mining partners McKenzie and Germain described this area as Twentynine Palms for the 29 Washingtonia Fillifera palm trees that surrounded the Oasis. Mining continued in this area until the early 20th century. After World War I, Twentynine Palms became the home for many veterans dealing with respiratory illnesses they had developed due to war. Doctor James B. Lucke from Pasadena referred veterans to Twentynine Palms because of the moderate elevation and clean air. Twentynine Palms was also accessible to large cities nearby. Veterans brought families with them and began homestead the 160-acre parcels that were made available to settlers at no cost by the federal government. Due to the population growth that had occurred in the area in the late 1920s and early 1930s construction of roads began. The first water system was introduced in 1938, which made life easier for homesteading. An increase in population occurred again after World War II. Twentynine Palms became a tourist destination in the 1960s and 1970s during the peace and love movement. It became a popular area for hippies to camp out and enjoy the clean air and views of the desert and stars. Twentynine Palms incorporated as a city on November 23rd, 1987.

PERSONNEL

David Brunzell, M.A., RPA acted as the Project Manager and Principal Investigator for the current study and compiled the technical report with contributions from Senior Architectural Historian/Historian, Kara Brunzell, M.A. Ms. Brunzell and BCR Consulting Staff Historian George Brentner, B.A. completed additional research and completed the California Department of Recreation (DPR) 523 forms. South Central Coastal Information Center (SCCIC) staff completed the archaeological records search. BCR Consulting Field Director

Joseph Orozco, M.A., RPA and Archaeological Crew Chief Nicholas Shepetuk, B.A. completed the pedestrian 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 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 defined project boundaries. The project site was examined using 15-meter transect intervals. This study is intended to determine whether cultural resources are located within the project boundaries, and whether any cultural resources are significant pursuant to the above-referenced regulations and standards. Tasks include:

- Cultural resources records search to review studies and archaeological/historical resources recorded within a one-mile radius of the project boundaries
- Systematic pedestrian survey of the entire project site
- California Register of Historical Resources (California Register) eligibility evaluation for any cultural 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.
- Vertebrate paleontology resources report through the Western Science Center

Records Search

Prior to fieldwork, an archaeological records search was conducted by the SCCIC. This included a review of all recorded historic and prehistoric cultural resources, as well as a review of known cultural resources, and survey and excavation reports generated from projects completed within one mile of the project site. In addition, a review was conducted of the National Register of Historic Places (National Register), the California Register of Historical Resources (California Register), and documents and inventories from the California Office of Historic Preservation including the lists of California Historical Landmarks, California Points of Historical Interest, Listing of National Register Properties, and Inventory of Historic Structures.

Field Survey

An archaeological pedestrian field survey of the project site was conducted on March 23 and 24, and April 5, 2021. The survey was conducted by walking parallel transects spaced approximately 15 meters apart across 100 percent of the project site. All soil exposures were carefully inspected for evidence of 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 (Appendix C)
- Hand-held Garmin Global Positioning systems for mapping purposes

- Digital photography at various points within the project site, and of all cultural resources (Appendix A and C).

RESULTS

Records Search

Data from the SCCIC revealed that three cultural resource studies have taken place within one mile of the project site, none off which assessed any portion of the project site. One cultural resource (a prehistoric lithic scatter) has been identified within a one-mile radius of the project site. No cultural resources have been previously recorded within its boundaries. The records search is summarized in Table A, and maps and bibliographies are provided in Appendix B.

Table A. Cultural Resources and Reports Located Within One Mile of the Project Site

USGS 7.5 Min. Quad.	Cultural Resources Within One Mile of Project Site	Studies Within One Mile of Project Site
Valley Mountaim, California (1954)	P-36-4286: Prehistoric lithic scatter (3/4 Mile North	SB-920, 1047, 1725

*Previously assessed a portion of the project site.

Additional Research (see Appendix A for references). The subject property was originally patented to George H. Albro from the State of California as part of a 160-acre grant issued on November 10th, 1930. Albro was a 29-year-old grocery store clerk who lived in Twentynine Palms with his parents in 1930. He later moved to Whittier; there is no indication he ever constructed any buildings or farmed the property, which was at the time located in an uninhabited area about 6 miles east of Twentynine Palms.

The current building on the property was constructed in 1962. No contemporaneous newspaper stories or building permits have confirmed its original use, but it appears on historic aerial photographs by 1970. News outlets and websites have circulated a story that the building was originally a post office designed by renowned Palm Springs architect Donald Wexler in 1962. Additional research, however, did not reveal any contemporaneous reporting on a post office in Wonder Valley or any building designed by Wexler east of Twentynine Palms. The placement of a post office in a remote location away from a population center is not consistent with typical US Postal Service practice, and the area was undeveloped desert in the middle decades of the twentieth century. Other local sources state that the building was a telephone exchange and/or a Southern California Edison substation; both plausible uses for a simple concrete masonry unit building in this location.

In 1981, the parcel of land was purchased by David Williams and his wife Priscilla. The couple developed the property as a jojoba, farm, a type of agriculture that became popular locally during the late 1970s and early 1980s. By the mid-1990s, aerial photographs show that the area around the building was under cultivation and its immediate vicinity was landscaped and appeared to be in use as a residence. They owned the property until 2001 when it was

transferred to the Williams Family 2000 Trust. In 2003, the High Desert Test Sites project was created by Andrea Zittel and Aurora Tang, bringing various artists to the Joshua Tree area. In 2005, Henry Ittleson and his wife Margot purchased the property. Margot Ittleson was a fashion designer from New York who transformed the interior of the building. She and her husband designed the pyramid structures that surround the building as well. It took over two years of intensive labor for their vision to come to reality. Henry and Margot Ittleson owned the property for 15 years until it was purchased by its current owners Alan R. Greenberg and Jason Landver on February 10th, 2020. Both Alan and Jason share the subject property today.

Field Survey

During the field survey, Mr. Orozco and Mr. Shepetuk carefully inspected the project site, and identified a historic-period commercial/industrial building. This resource is described in detail and evaluated for eligibility (i.e. CEQA significance) below. It has been temporarily designated 78201 Amboy Road. A permanent designation will be assigned when this report is submitted to the SCCIC. Surface visibility was 80 percent or better for the majority of the project area. Ground disturbances were severe and from modern farming, and disturbances related to construction of the commercial/industrial building and parking lot. Recent installations include pyramid-shaped sculptures, chain link fencing, modern irrigation facilities, and concrete supports for a cylindrical steel tank. Since these installations are not historic in age, they do not warrant further consideration.

78201 Amboy Road. The property at 78201 Amboy Road is occupied by a 4,226-square-foot building on 132 acres of commercially zoned land. The building is setback about 135 feet from Amboy Road and accessed via a semicircular gravel driveway. Landscaping is limited to native desert shrubs. It features a rectangular plan and flat roof. It is constructed of concrete masonry units with smooth plaster panels on the main (north) façade. An entry volume projects from the building right of center. A flat awning projects above its centered entrance, which is fitted with commercial-style fully-glazed aluminum doors with sidelights and transoms. The entrance is flanked by a decorative checkerboard pattern executed in concrete masonry units. A decorative concrete masonry unit screen wall at the east corner of the main façade is the only other ornamental feature of the building. The main façade lacks fenestration. There are aluminum sliding-sash windows on the east (side) and south (rear) elevations as well as two entrances fitted with metal doors. Just south of the main building are pyramid structures that were built around 2013. About 5 acres of the property is fenced around the building. There are two evaporative coolers on the roof.

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.

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, 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. The California Register evaluation of EMT2003-H-1 is provided below.

California Register Evaluations

78201 Amboy Road. The subject property was developed within the general context of postwar population growth in the Wonder Valley area. Considerable research, however has not revealed important associations between subject property and the history of the region. It is therefore not recommended eligible for the California Register under Criterion 1. Criterion 2: Research has not revealed any association between the property and persons important to our history. Criterion 3: The building is an ordinary example of a mid-century modern commercial/industrial building and is not architecturally significant. It is similar to many buildings designed during the era with utilitarian and cost-effectiveness as primary goals. It lacks the distinction of landmark examples of mid-century modern architecture. Therefore the property does not embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of an important creative individual or possess high artistic values. Criterion 4: Buildings can occasionally be important sources of information about building materials and techniques, however this building is an example of a well-understood property type and as such has limited potential to yield data.

RECOMMENDATIONS

During the field survey one historic-period commercial/industrial building was identified within the project site boundaries. This resource is not recommended eligible for the California Register, and is therefore not recommended a "historical resource" under CEQA. It does not warrant further consideration. No other cultural resources (including other architectural

historical resources, prehistoric archaeological resources, or historic archaeological resources) were identified. Due to a lack of historical resources located within the project site combined with a high level of disturbance, BCR Consulting recommends that no additional cultural resources work or monitoring is necessary for any proposed project activities. However, if previously undocumented cultural resources are identified during earthmoving activities, a qualified archaeologist should be contacted to assess the nature and significance of the find, diverting construction excavation if necessary.

Findings were negative during the Sacred Lands File search with the NAHC. The results of the Sacred Lands File search are provided in Appendix D. 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 County 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 is available to answer questions and address concerns as necessary.

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

> The geologic units underlying this project are mapped entirely as alluvial silt, sand and gravel deposits dating from the Holocene period (Dibblee and Minch, 2003). While Holocene alluvial units are considered to be of high preservation value, 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 older alluvial sediments would increase. The Western Science Center does not have localities within the project area or within a 1 mile radius.
>
> 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 the undertaking, 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 Native American Heritage Commission (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

PROJECT PHOTOGRAPHS



Photo 1: Project Site Overview (Northwest)



Photo 2: Project Site Overview (South)



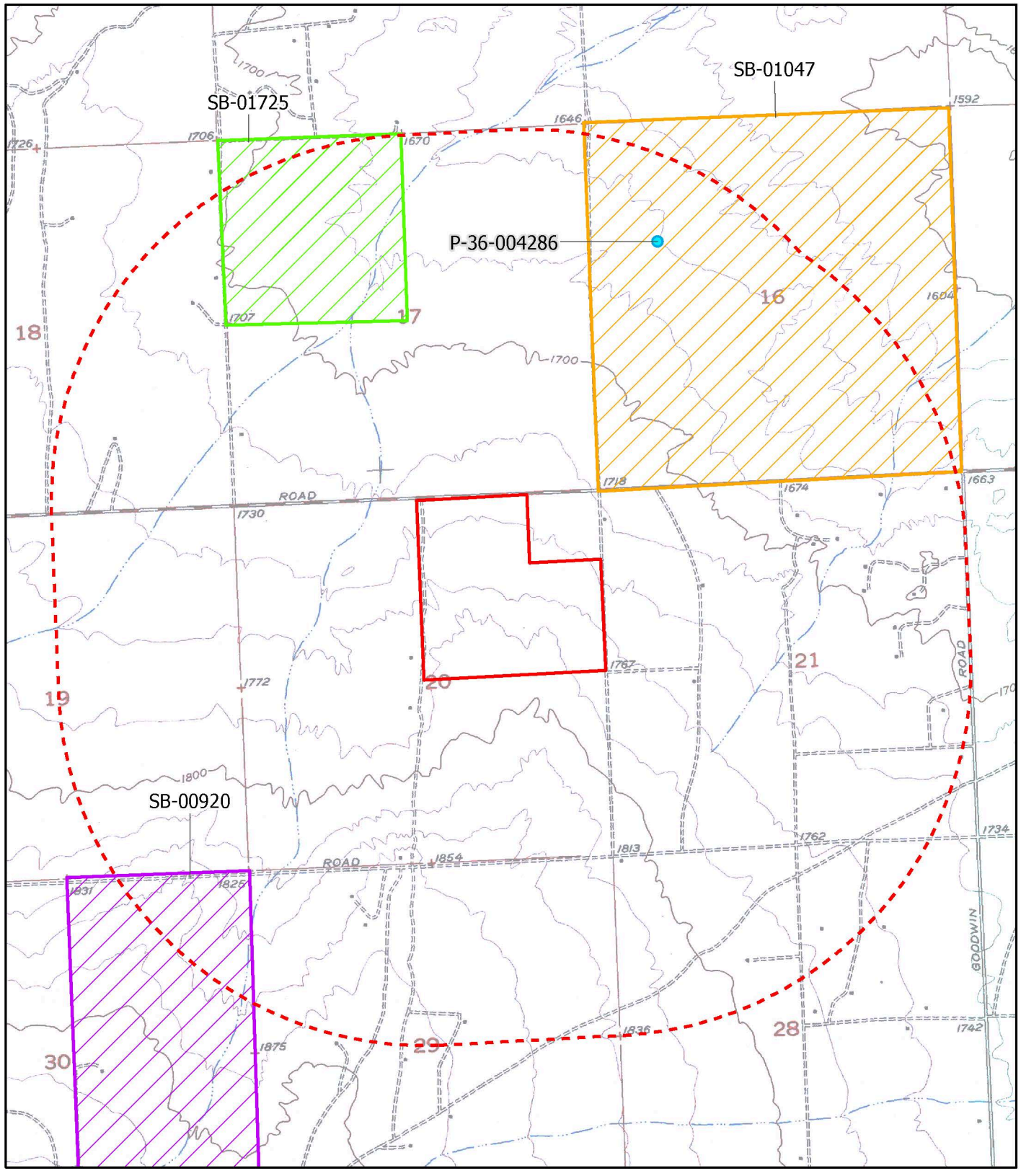
Photo 3: Recent Pyramid Sculptures (West)



Photo 4: Recent concrete tank supports, pyramid sculptures, and chain link fence (West)

APPENDIX B

CONFIDENTIAL RECORDS SEARCH RESULTS



N
W E
S

Miles
0 0.125 0.25 0.5

Resources within the project area: None
1 resource within a 1-mile radius
Reports within the project area: None
3 reports within a 1-mile radius

Valley Mtn, CA
USGS 7.5' PR: 1954
1:24,000
INV #22296
May 2021

South Central Coastal Information Center

May depict confidential cultural resource locations. Do not distribute.

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
SB-00920	NADB-R - 1060920; Voided - 80-2.3	1980	SUTTON, MARK Q.	CULTURAL RESOURCE ASSESSMENT, OIL AND GAS LEASE #CA-284		
SB-01047	NADB-R - 1061047; Voided - 80-11.2	1980	LEONARD, JOANNE C.	AN ARCHAEOLOGICAL EVALUATION FOR THE STATE LANDS COMMISSION, SEC. 16, T1N R10E, VALLEY MOUNTAIN QUAD	SAN BERNARDINO COUNTY MUSEUM ASSOCIATION	36-004286, 36-004287
SB-01725	NADB-R - 1061725; Voided - 87-9.4	1987	DE MUNCK, VICTOR C.	CULTURAL RESOURCE ASSESSMENT: OF 160 ACRES OF LAND DESIGNATED AS ASSESSORS PARCEL NO. 626-121-15 IN THE TWENTYNINE PALMS REGION OF SAN BERNARDINO COUNTY, CALIFORNIA	ARCHAEOLOGICAL AND ETHNOGRAPHIC FIELD ASSOCIATES	

The listed resource has NOT been previously verified by SCCIC staff.

Resource List

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-36-004286	CA-SBR-004286	Valley Mountain; SBCM-4707			AP02	1980 (N.Leonard)	SB-01047

APPENDIX C

DPR 523 FORMS

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

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code 6Z

Other Listings
Review Code | Reviewer | Date

 *Resource Name or #:78201 Amboy Road

P1. Other Identifier: 78201 Amboy Road

***P2. Location:** ☐ **Not for Publication** ☑ **Unrestricted** ***a. County:** San Bernardino

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad: Date:** 1981 **T**1N; **R**10E; **Section** 20**;** SBBM

c. Address: 78201 Amboy Road, Twentynine Palms, Ca, 92277

d. UTM: Zone: N/A mE/ Elevation: 800' AMSL

Locational Data: The subject property is located on the west side of Gammel Road and on the south side of Amboy Road.

***P3a. Description:**

The property at 78201 Amboy Road is a 4,226-square-foot building on 132 acres of commercially zoned land. The building is setback about 135 feet from Amboy Road and accessed via a semicircular gravel driveway. Landscaping is limited to native desert shrubs. Features a rectangular plan and flat roof. It is constructed of concrete masonry units with smooth plaster panels on the main (north) façade. An entry volume projects from the building right of center. A flat awning projects above its centered entrance, which is fitted with commercial-style fully-glazed aluminum doors with sidelights and transoms. The entrance is flanked by a decorative checkerboard pattern executed in concrete masonry units. A decorative concrete masonry unit screen wall at the east corner of the main façade is the only other ornamental feature of the building. The main façade lacks fenestration. There are aluminum sliding-sash windows on the east (side) and south (rear) elevations as well as two entrances fitted with metal doors. Just south of the main building are pyramid structures that were built around 2013. About 5 acres of the property is fenced around the building. There are two evaporative coolers on the roof.

***P3b. Resource Attributes:** HP3. Commercial Building

P5a. Photo or Drawing **(**Photo required for buildings, structures, and objects.)



***P4. Resources Present:**
☑ Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other

P5b. Description of Photo: (View, date, accession #) Photo 1: main façade (View Southwest)

***P6. Date Constructed/ Age and Sources:**
Constructed in 1962 (San Bernardino County Assessor 2021)
☑Historic (see page 2)
☐Prehistoric ☐Both

***P7. Owner and Address:**
Alan Greenberg and Jason Landver
78201 Amboy Road,
Twentynine Palms, CA, 92277

***P8. Recorded by:**
George Brentner and David Brunzell
BCR Consulting LLC
Claremont, California 91711

***P9. Date Recorded:**
4/15/2021

***P10. Survey Type:** Intensive.

***P11. Report Citation:**

***Attachments:** ☐NONE ☐ Location Map ☐ Sketch Map ☑ Continuation Sheet ☑Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐Other (List):

BUILDING, STRUCTURE, AND OBJECT RECORD

B1. Historic Name: N/A B2. Common Name: N/A
B3. Original Use: unknown B4. Present Use: Vacant
***B5. Architectural Style:** Mid-Century Modern

***B6. Construction History:** (Construction date, alterations, and date of alterations): c1962

***B7. Moved?** ☑**No** ☐**Yes** ☐**Unknown** **Date:** N/A **Original Location:** Yes ***B8. Related Features:** None
B9a. Architect: Unknown b. Builder: Unknown
***B10. Significance: Theme:** **Area:** **Applicable Criteria:** N/A
(Discuss importance in terms of historical/architectural context as defined by theme/period/geographic scope. Address integrity.)
History of Twentynine Palms
The first recorded exploration of the Twentynine Palms area was made in 1855 by desert surveyor Colonel Henry Washington. On his exploration he found Native Americans, principally from the Chemeheuvi Tribe living in the area. The Native Americans lived in the surrounding hills and near the spring they called "Marrah" meaning "land of little water". In the 1870's, many prospectors arrived at Twentynine Palms in search of gold. The Oasis of Mara in Twentynine Palms area was a popular camping spot for prospectors to rest and replenish while they mined the area for gold. The name Twentynine Palms was actually given to this land by prospectors who had mined the area for gold. Mining partners McKenzie and Germain described this area as Twentynine Palms for the 29 Washingtonia Fillifera palm trees that surrounded the Oasis. Mining continued in this area up until the early 20th century during the onset of World War I . (City of Twentynine Palms; Parker 1980: 86,87)
(Continued on Continuation Sheet, page 3.)
***B12. References:**
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William Grimes. "Donald Wexler, Architect Who Gave Shape to Palm Springs, Dies at 89." *The New York Times.* July 1, 2015.
United States Postal Service. "USPS Historic Context Survey: Postal Service Facilities Constructed or Occupied between 1940 and 1971." prepared by URS. October, 2012.

***B14. Evaluator:** Kara Brunzell
***Date of Evaluation** 6/23/21

(Sketch Map with north arrow required.)



B10. Significance [Continued from page 2]:
After World War I, Twentynine Palms became the home for many veterans dealing with respiratory illnesses they had developed due to war. Doctor James B. Lucke from Pasadena referred veterans to Twentynine Palms because of the moderate elevation and clean air. Twentynine Palms was also accessible to large cities nearby. Veterans brought families with them and began homestead the 160-acre parcels that were made available to settlers at no cost by the federal government. Due to the population growth that had occurred in the area in the late 1920s and early 1930s construction of roads began. The community in Twentynine Palms had introduced their first water system in 1938, which made life easier for homesteading purposes. An increase in population in Twentynine Palms occurred again after World War II. Twentynine Palms became a tourist destination in the 1960s and 1970s during the peace and love movement. It became a popular area for hippies to camp out and enjoy the clean air and views of the desert and stars. Twentynine Palms incorporated as a city on November 23rd, 1987(City of Twentynine Palms; Parker 1980: 88,89.)

Property History.
The subject property was originally patented to George H. Albro from the State of California as part of a 160-acre grant issued on November 10th, 1930 (General Land Office 1930). Albro was a 29-year-old grocery store clerk who lived in Twentynine Palms with his parents in 1930. He later moved to Whittier; there is no indication he ever constructed any buildings or farmed the property, which was at the time located in an uninhabited area about 6 miles east of Twentynine Palms (US Census records 1930, 1940).

The current building on the property was constructed in 1962. No contemporaneous newspaper stories or building permits have confirmed its original use, but it appears on historic aerial photographs by 1970. News outlets and websites have circulated a story that the building was originally a post office designed by renowned Palm Springs architect Donald Wexler in 1962 (Tewksbury 2013). Additional research, however, did not reveal any contemporaneous reporting on a post office in Wonder Valley or any building designed by Wexler east of Twentynine Palms. The placement of a post office in a remote location away from a population center is not consistent with typical US Postal Service practice, and the area was undeveloped desert in the middle decades of the twentieth century. Other local sources state that the building was a telephone exchange and/or a Southern California Edison substation; both plausible uses for a simple concrete masonry unit building in this location.

In 1981, the parcel of land was purchased by David Williams and his wife Priscilla. The couple developed the property as a jojoba, farm, a type of agriculture that became popular locally during the late 1970s and early 1980s. By the mid-1990s, aerial photographs show that the area around the building was under cultivation and its immediate vicinity was landscaped and appeared to be in use as a residence. They owned the property until 2001 when it was transferred to the Williams Family 2000 Trust. In 2003, the High Desert Test Sites project was created by Andrea Zittel and Aurora Tang, bringing various artists to the Joshua Tree area. In 2005, Henry Ittleson and his wife Margot purchased the property. Margot Ittleson was a fashion designer from New York who transformed the interior of the building. She and her husband designed the pyramid structures that surround the building as well. It took over two years of intensive labor for their vision to come to reality. Henry and Margot Ittleson owned the property for 15 years until it was purchased by its current owners Alan R. Greenberg and Jason Landver on February 10th, 2020. Both Alan and Jason share the subject property today. (San Bernardino County Assessor 2021; High Desert Testing Sites 2013).

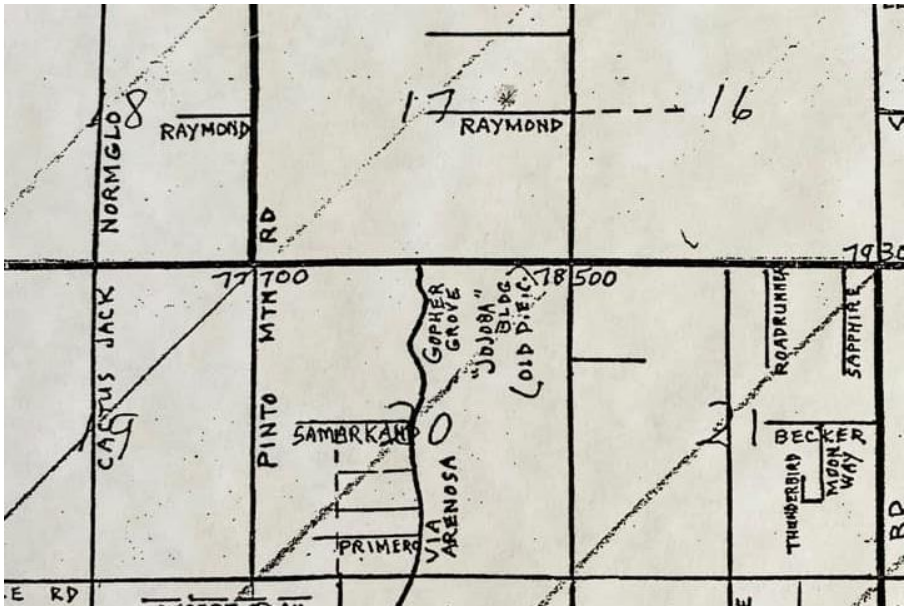


Figure 2: Map drawn by Ida Colaw showing subject property labeled Jojoba Building 1991-1993, (Wonder Valley Community Facebook Page)

California Register of Historical Resources Eligibility Evaluation

California Register of Historical Resources requires that a significance criterion (1-4) be met for a resource to be eligible. A resource is eligible if (1) it is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage; (2) it is associated with the lives of persons important in California's past; (3) it embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic value; or (4) it has yielded or is likely to yield information important in prehistory or history. The California Register also requires that sufficient time has passed since a resource's period of significance (normally 45 years) 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.

The subject property was developed within the general context of postwar population growth in the Wonder Valley area. Considerable research, however has not revealed important associations between subject property and the history of the region. It is therefore not recommended eligible for the California Register under Criterion 1. Criterion 2: Research has not revealed any association between the property and persons important to our history. Criterion 3: The building is an ordinary example of a mid-century modern commercial/industrial building and is not architecturally significant. It is similar to many buildings designed during the era with utilitarian and cost-effectiveness as primary goals. It lacks the distinction of landmark examples of mid-century modern architecture. Therefore the property does not embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of an important creative individual or possess high artistic values. Criterion 4: Buildings can occasionally be important sources of information about building materials and techniques, however this building is an example of a well-understood property type and as such has limited potential to yield data.

The subject property and its constituent historic-age buildings are therefore recommended not eligible under any of the four criteria for listing on the California Register, and as such the property is not recommended a historical resource under the California Environmental Quality Act (CEQA). Thus BCR Consulting recommends the National Register of Historic Places (NRHP) Status Code "6Z".



Photo 2: Main (North) façade (View Southeast)


Photo 32: Detail, main façade (View South)



Photo 4: East elevation (View west)


Photo 5: South elevation (View Northwest)


Photo 6: West elevation (View Southeast)


Photo 7: South and east elevations (View Northwest)

APPENDIX D

NATIVE AMERICAN HERITAGE COMMISSION COMMUNICATIONS

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Laura Miranda
Luiseño

VICE CHAIRPERSON
Reginald Pagaling
Chumash

SECRETARY
Merri Lopez-Keifer
Luiseño

PARLIAMENTARIAN
Russell Attebery
Karuk

COMMISSIONER
William Mungary
Paiute/White Mountain Apache

COMMISSIONER
Julie Tumamait-Stenslie
Chumash

COMMISSIONER
[**Vacant**]

COMMISSIONER
[**Vacant**]

COMMISSIONER
[**Vacant**]

EXECUTIVE SECRETARY
Christina Snider
Pomo

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

March 29, 2021

Joseph Orozco
BCR Consulting LLC

Via Email to: josephorozco513@gmail.com & david.brunzell@yahoo.com

Re: EMT2103 Wonder Inn Project, San Bernardino County

Dear Mr. Orozco:

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: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
San Bernardino County
3/29/2021

Agua Caliente Band of Cahuilla Indians
Patricia Garcia-Plotkin, Director
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264
Phone: (760) 699 - 6907
Fax: (760) 699-6924
ACBCI-THPO@aguacaliente.net

Agua Caliente Band of Cahuilla Indians
Jeff Grubbe, Chairperson
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264
Phone: (760) 699 - 6800
Fax: (760) 699-6919

Morongo Band of Mission Indians
Robert Martin, Chairperson
12700 Pumarra Road — Cahuilla
Banning, CA, 92220 — Serrano
Phone: (951) 849 - 8807
Fax: (951) 922-8146
dtorres@morongo-nsn.gov

Morongo Band of Mission Indians
Denisa Torres, Cultural Resources Manager
12700 Pumarra Road — Cahuilla
Banning, CA, 92220 — Serrano
Phone: (951) 849 - 8807
Fax: (951) 922-8146
dtorres@morongo-nsn.gov

Quechan Tribe of the Fort Yuma Reservation
Jill McCormick, Historic Preservation Officer
P.O. Box 1899 — Quechan
Yuma, AZ, 85366
Phone: (760) 572 - 2423
historicpreservation@quechantribe.com

Quechan Tribe of the Fort Yuma Reservation
Manfred Scott, Acting Chairman
Kw'ts'an Cultural Committee
P.O. Box 1899 — Quechan
Yuma, AZ, 85366
Phone: (928) 750 - 2516
scottmanfred@yahoo.com

San Manuel Band of Mission Indians
Jessica Mauck, Director of Cultural Resources
26569 Community Center Drive — Serrano
Highland, CA, 92346
Phone: (909) 864 - 8933
jmauck@sanmanuel-nsn.gov

Serrano Nation of Mission Indians
Wayne Walker, Co-Chairperson
P. O. Box 343 — Serrano
Patton, CA, 92369
Phone: (253) 370 - 0167
serranonation1@gmail.com

Serrano Nation of Mission Indians
Mark Cochrane, Co-Chairperson
P. O. Box 343 — Serrano
Patton, CA, 92369
Phone: (909) 528 - 9032
serranonation1@gmail.com

Twenty-Nine Palms Band of Mission Indians
Anthony Madrigal, Tribal Historic Preservation Officer
46-200 Harrison Place — Chemehuevi
Coachella, CA, 92236
Phone: (760) 775 - 3259
amadrigal@29palmsbomi-nsn.gov

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed EMT2103 Wonder Inn Project, San Bernardino County.

Twenty-Nine Palms Band of Mission Indians
Darrell Mike, Chairperson
46-200 Harrison Place
Coachella, CA, 92236
Phone: (760) 863 - 2444
Fax: (760) 863-2449
29chairman@29palmsbomi-nsn.gov

Chemehuevi

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed EMT2103 Wonder Inn Project, San Bernardino County.

APPENDIX E

PALEONTOLOGICAL OVERVIEW

WESTERN SCIENCE CENTER

BCR Consulting LLC
Joseph Orozco
505 West 8th Street
Claremont, CA 91711

March 29, 2021

Dear Mr. Orozco,

This letter presents the results of a record search conducted for the Wonder Inn Project in Twentynine Palms, Riverside County, California. The project site is located south of Amboy Road, west of Gammel Road, east of Pinto Mountain Road, and north of 2 Mile Road in Township 1 North, Range 10 East, Section 20 on the *Valley Mountain, CA* USGS 7.5 minute quadrangle.

The geologic units underlying this project are mapped entirely as alluvial silt, sand and gravel deposits dating from the Holocene period (Dibblee and Minch, 2003). While Holocene alluvial units are considered to be of high preservation value, 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 older alluvial sediments would increase. The Western Science Center does not have localities within the project area or within a 1 mile radius.

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 dradford@westerncentermuseum.org

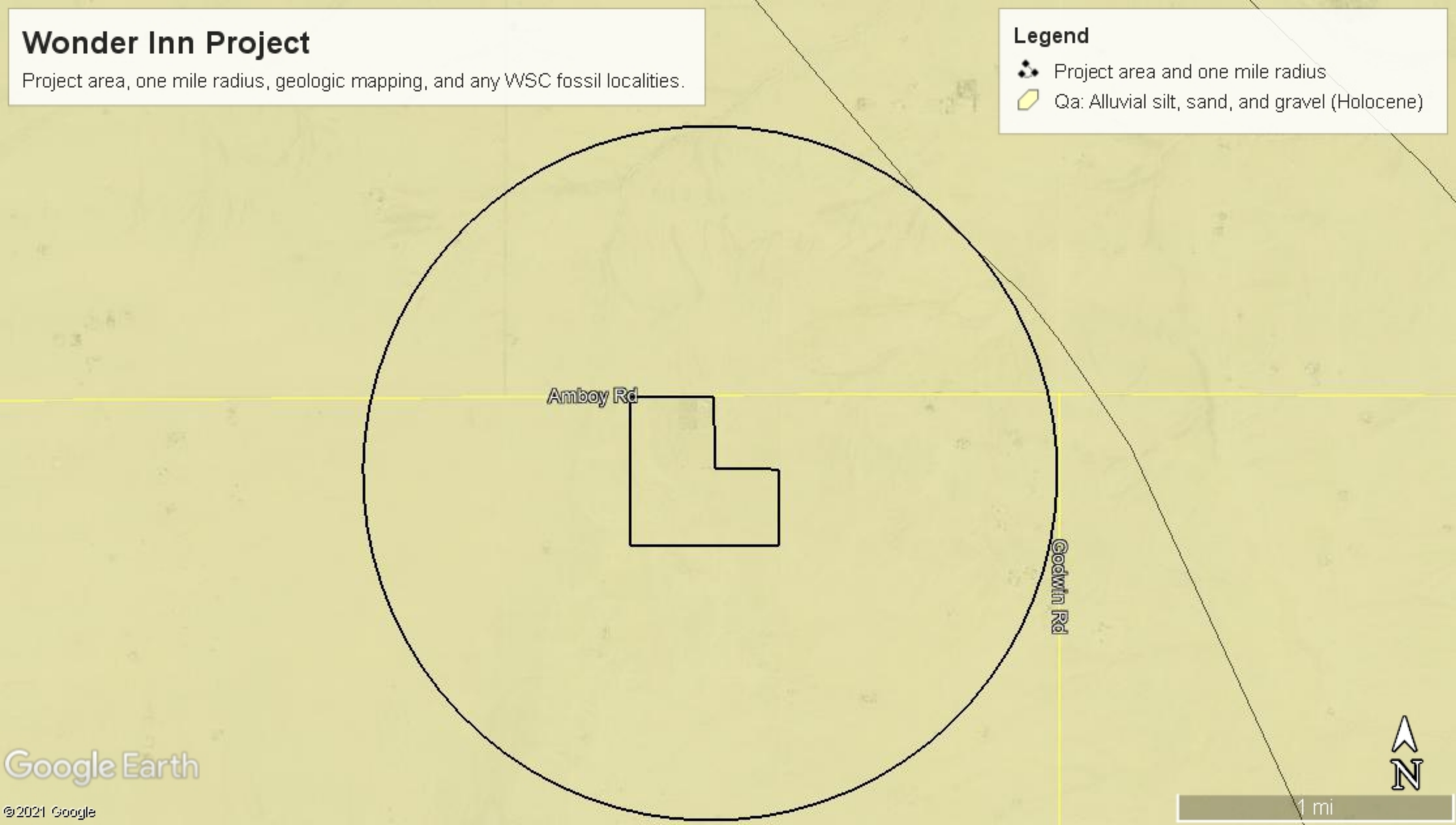
Sincerely,



Darla Radford
Collections Manager

Wonder Inn Project

Project area, one mile radius, geologic mapping, and any WSC fossil localities.



Appendix D-1

Limited Geotechnical Evaluation, The Wonder Inn

GeoTek

November 12, 2021

LIMITED GEOTECHNICAL EVALUATION
THE WONDER INN
78201 AMBOY ROAD
TWENTYNINE PALMS, SAN BERNARDINO COUNTY, CALIFORNIA

PREPARED FOR

THE WONDER INN
78201 AMBOY ROAD
TWENTYNINE PALMS, CALIFORNIA 92277

PREPARED BY

GEOTEK, INC.
1548 NORTH MAPLE STREET
CORONA, CALIFORNIA 92878

PROJECT NO. 2948-CR **NOVEMBER 12, 2021**

GEOTEK

GeoTek, Inc.
1548 North Maple Street, Corona, California 92878
(951) 710-1160 Office (951) 710-1167 Fax www.geotekusa.com

November 12, 2021
Project No. 2948-CR

The Wonder Inn
78201 Amboy Road
Twentynine Palms, California 92277

Attention: Ms. Phanessa Adams-Holt

Subject: **Limited Geotechnical Evaluation**
The Wonder Inn
78201 Amboy Road
Twentynine Palms, San Bernardino County, California

Dear Ms. Adams-Holt:

GeoTek, Inc. (GeoTek) is pleased to provide the results of this Limited Geotechnical Evaluation for the proposed project located in the Twentynine Palms area of San Bernardino County, California. This report presents the results of GeoTek's evaluation, discussion of findings, and provides geotechnical recommendations for foundation design and construction.

Based upon review and evaluation, site development appears feasible from a geotechnical viewpoint provided that the recommendations included in this report are incorporated into the design and construction phases of the project.

The opportunity to be of service is sincerely appreciated. If you should have any questions, please do not hesitate to contact GeoTek.

Respectfully
submitted,
GeoTek, Inc.





Bruce A. Hick
GE 2244, Exp. 12/31/22
Geotechnical Engineer

Edward H. LaMont
CEG 1892, Exp. 07/31/22
Principal Geologist

Anna M. Scott
Project Geologist

Distribution: (1) Addressee via email (one PDF file)

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Appendix B – Results of Laboratory Testing
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1. PURPOSE AND SCOPE OF SERVICES

The purpose of this study was to evaluate the geotechnical engineering and geologic conditions at the project site, as outlined in GeoTek's proposal P-1007221-CR, dated October 22, 2021. Services provided for this study included the following:

- Research and review of available geologic data and general information pertinent to the site,
- Site exploration consisting of the excavation, logging, and sampling of six (6) exploratory test borings extending to depths ranging from 19.0 to 21.5 feet below grade,
- Laboratory testing of soil samples collected during the field investigation,
- Review and evaluation of site seismicity, and
- Preparation of this geotechnical report which presents GeoTek's findings, conclusions, and recommendations for this site.

2. SITE DESCRIPTION AND PROPOSED DEVELOPMENT

2.1 SITE DESCRIPTION

The approximate 23.42-acre rectangular-shaped project site is located at 78201 Amboy Road, in the Twentynine Palms area of San Bernardino County, California (see Figure 1). Access to the site is available from Amboy, a paved, inmproved street located adjacent to the northern boundary boundary of the site. The site is surrounded by vacant land.

Topographically, the site slopes gently downward to the north at an appxoximate two (2) percent gradient. Elevation of the southern portion of the the site is approximately 1,750 feet with approximately 10 feet of elevation differential across the site.

An existing two-story building enclosed within a metal fence and associated improvements is located in the northeastern portion of the site. The property may have been utilized for

agriculatural purposes due to the "rowed" appearance of the property but is now vegetated with dense shrubs and grass and weeds.

2.2 PROJECT DESCRIPTION

Based upon review of the Enlarged Site Plan prepared by Nunzio Marc Desantis Architects (undated), GeoTek understands plans are to construct a 106-key hotel consisting of modular-type structures, a maintenance/office building, a conference center, an event space, a fitness area, a swimming pool, adjacent parking, hardscaping, landscaping and stormwater management system. It is anticipated that the buildings will be of pre-manufactured metal or wood frame construction and will be supported by conventional shallow foundations (continuous and isolated pad) and will incorporate a conventional slab on-grade floor system. For the purposes of this report, it is assumed maximum column and wall loads of about 50 kips and 2.5 kips per foot, respectively. Specific site development plans were not provided as of the date of this report. Once actual loads are known that information should be provided to GeoTek to determine if modifications to the recommendations presented in this report are warranted.

Based upon past experience, grading of the site will involve cuts and fills generally less than about 5 feet in height, not including any recommended remedial grading. Sewage disposal is anticipated to be be provided by an on-site sewage disposal system. If site development differs from the assumptions made herein, the recommendations included in this report should be subject to further review and evaluation. Site development plans should be reviewed by GeoTek when they become available.

3. FIELD EXPLORATION AND LABORATORY TESTING

3.1 FIELD EXPLORATION

The field exploration for this report was conducted on October 30, 2021 and consisted of excavating six (6) geotechnical exploratory test borings with a hollow-stem auger drill rig to depths ranging from about 19.0 to 21.5 feet below grade. The approximate locations of the GeoTek excavations are shown on the Boring Location Map (Figure 2). A geologist from GeoTek logged the excavations and collected soil samples for use in subsequent laboratory testing. The logs of the exploratory borings are included in Appendix A.

Relatively undisturbed soil samples were recovered at various intervals in the geotechnical borings with a California sampler. The California sampler is a 3-inch outside diameter, 2.5-inch inside diameter, split barrel sampler lined with brass rings. The sampler was 18 inches long. The sampler conformed to the requirements of ASTM D 3550. A 140-pound automatic trip hammer was utilized, dropping 30 inches for each blow. The relatively undisturbed samples, together with bulk samples of representative soil types, were returned to the laboratory for testing and evaluation. The California sampler test data are presented on the logs.

3.2 LABORATORY TESTING

Laboratory testing was performed on selected relatively undisturbed ring and bulk samples collected during the field exploration. The purpose of the laboratory testing was to confirm the field classification of the materials encountered and to evaluate their physical properties for use in the engineering design and analysis. Results of the laboratory testing program along with a brief description and relevant information regarding testing procedures are included on the exploratory borings logs included in Appendix A.

4. GEOLOGIC AND SOILS CONDITIONS

4.1 REGIONAL SETTING

The Site is situated in the Mojave Desert geomorphic province. The Mojave Desert province is a wedge-shaped area that is enclosed on the southwest by the San Andreas fault zone, the Transverse Ranges province and the Colorado Desert province, on the north and northeast by the Garlock fault zone, the Tehachapi Mountains and the Basin and Range province, and on the east by the Nevada and Arizona state lines, and the Colorado River. The area is dominated by broad alluviated basins that are mostly aggrading surfaces that are receiving non-marine continental deposits from the adjacent upland areas.

The primary fault zones of the area are found in the western half of the province and have a general northwest-southeast trend. These zones are the San Andreas, Helendale, Lenwood and Lockhart in the subject site vicinity. In addition to these major zones, there are numerous secondary fault zones in the area and many smaller fault zones in the eastern half of the province. Many of the secondary fault zones in the province have a general east-west trend.

More specific to the subject property, the site is in an area geologically mapped to be underlain by alluvium. (U.S. Geological Survey, 2013). No active faults are shown in the immediate site vicinity on the maps reviewed for the area.

4.2 GENERAL SOIL CONDITIONS

A brief description of the earth materials encountered is presented in the following section. Based on the site reconnaissance, the exploratory excavations and review of published geologic maps, the area investigated is locally underlain by undocumented fill that is locally overlain by alluvium.

4.2.1 Fill

While not encountered directly in the borings, artificial fill is anticipated to be present on the site in current building areas and developed areas of the project site. Fill may be present within unexplored areas of the site.

4.2.2 Alluvium

Alluvial soils were encountered in the borings beneath the fill soils and extended to the maximum depths explored (21.5 feet). As encountered in the borings, the alluvium consisted of interbedded layers of silty sands, relatively clean sands and sandy silts (SM, SP, ML) soil types based upon the Unified Soil Classification System.

Based on the laboratory test results, the near surface soils have a "very low" expansion index (ASTM D 4829). Based on the laboratory test results, the near surface soils have a soluble sulfate content of less than 0.1 percent (ASTM D 4327). The test results are provided in Appendix B.

4.3 SURFACE WATER AND GROUNDWATER

4.3.1 Surface Water

If encountered during earthwork operations, surface water on this site is likely the result of precipitation or possibly some minor surface run-off from the surrounding areas. Overall site area drainage varies due to the site topography and existing improvements. Provisions for surface drainage will need to be accounted for by the project civil engineer.

4.3.2 Groundwater

Groundwater was not encountered within any of the test borings drilled at the site. Based on review of available groundwater records, it is estimated that the depth to groundwater is greater than 100 feet below grade. Based on the results of the field exploration, review of site area geomorphology and geology, groundwater is not anticipated to adversely affect the proposed improvements.

4.4 FAULTING AND SEISMICITY

4.4.1 Faulting

The geologic structure of the entire California area is dominated mainly by northwest-trending faults associated with the San Andreas system. The site is in a seismically active region. However, the site is not situated within a State of California designated *"Alquist-Priolo"* Earthquake Fault Zone. The nearest known active fault is the Mesquite Lake fault located about 5 miles to the west.

4.4.2 Seismic Design Parameters

The site is located at approximately 34.1655 degrees West Latitude and -115.9543 degrees North Longitude. Site spectral accelerations (S_a and S_1) for 0.2 and 1.0 second periods for a Class "D" site, was determined from the SEAOC/OSHPD web interface that utilizes the USGS web services and retrieves the seismic design data and presents that information in a report format. Using the ASCE 7-16 option on the SEAOC/OSHPD website results in the values for S_{M1} and S_{D1} reported as "null-See Section 11.4.8" (of ASCE 7-16). As noted in ASCE 7-16, Section 11.4.8, a site-specific ground motion procedure is recommended for Site Class D when the value S_1 exceeds 0.2. The value S_1 for the subject site exceeds 0.2.

For a site Class D, an exception to performing a site-specific ground motion analysis is allowed in ASCE 7-16 where S_1 exceeds 0.2 provided the value of the seismic response coefficient, Cs, is conservatively calculated by Eq 12.8-2 of ASCE 7-16 for values of $T \leq 1.5T_s$ and taken as equal to 1.5 times the value computed in accordance with either Eq. 12.8-3 for $T_L \geq T > 1.5T_s$ or Eq. 12.8-4 for $T > T_L$.

The results, based on the 2015 NEHRP and the 2019 CBC, are presented in the following table assuming that the exception as allowed in ASCE 7-16 is applicable. If the exception is deemed not appropriate, a site-specific ground motion analysis will be required.

SITE SEISMIC PARAMETERS	
Mapped 0.2 sec Period Spectral Acceleration, S_S	1.402g
Mapped 1.0 sec Period Spectral Acceleration, S_1	0.512g
Site Coefficient for Site Class "D", F_a	1.0
Site Coefficient for Site Class "D", F_v	1.788
Maximum Considered Earthquake Spectral Response Acceleration for 0.2 Second, S_{MS}	1.402g
Maximum Considered Earthquake Spectral Response Acceleration for 1.0 Second, S_{M1}	0.915g
5% Damped Design Spectral Response Acceleration Parameter at 0.2 Second, S_{DS}	0.935
5% Damped Design Spectral Response Acceleration Parameter at 1 second, S_{D1}	0.61
Peak Ground Acceleration (PGA_M)	0.678g
Seismic Design Category	D

Final selection of the appropriate seismic design coefficients should be made by the project structural engineer based upon the local practices and ordinances, expected building response and desired level of conservatism.

4.5 LIQUEFACTION

Liquefaction describes a phenomenon in which cyclic stresses, produced by earthquake-induced ground motion, create excess pore pressures in relatively cohesionless and some low-plastic silt and clay soils. These soils may thereby acquire a high degree of mobility, which can lead to lateral movement, sliding, settlement of loose sediments, sand boils and other damaging deformations. This phenomenon occurs only below the water table, but, after liquefaction occurs, the liquefied soil/water matrix can propagate upward into overlying non-saturated soil as excess pore water dissipates.

The factors known to influence liquefaction potential include soil type and grain size, relative density, plasticity, groundwater level, confining pressures, and both intensity and duration of ground shaking. In general, materials that are susceptible to liquefaction are loose, saturated granular soils having low fines content under low confining pressures and some low plastic silts and clays.

Due to the lack of shallow groundwater at the project site and relatively dense nature of the subsurface soils, the liquefaction potential for this project is considered low.

Due to the dense to very dense nature of the subsurface soils, seismic induced ("dry sand") settlements are estimated to be minimal.

4.6 OTHER SEISMIC HAZARDS

Due to the general flat terrain, the potential for seismic induced landslides or lateral spreading is considered nil. The potential for secondary seismic hazards such as a seiche and tsunami is considered negligible due to site elevation and distance from an open body of water.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 GENERAL

Development of the site appears feasible from a geotechnical engineering viewpoint. The following recommendations should be incorporated into the design and construction phases of development.

5.2 EARTHWORK CONSIDERATIONS

5.2.1 General

Earthwork and grading should be performed in accordance with the applicable grading ordinances of the County of San Bernardino, the 2019 California Building Code (CBC) and recommendations contained in this report. The Grading Guidelines included in Appendix C outline general procedures and do not anticipate all site-specific situations. In the event of conflict, the recommendations presented in the text of this report should supersede those contained in Appendix C.

5.2.2 Site Clearing

Initial site preparation should commence with removal of debris, deleterious materials and vegetation within the limits of the planned improvements. These materials should be properly disposed of off-site. Voids resulting from removing any materials should be replaced with engineered fill materials with expansion characteristics similar to the onsite materials.

5.2.3 Site Preparation

After site clearing and lowering of site grades, where necessary, and prior to placement of new engineered fill or construction, it is recommended that the exposed subgrade soils within the new building areas be over-excavated to a depth of at least two (2) feet below existing grades or one (1) foot below the bottom of the planned footings and floor slabs, whichever is deeper. Removal bottoms should be relatively uniform in soil type which is not visibly porous and

having an in-place density of at least 85 percent of the soil's maximum dry density as determined by ASTM D 1557 test procedures. A representative of this firm should observe and approve the bottom of all remedial excavations. The recommended over-excavation should extend laterally at least 5 feet beyond all planned footings and beneath adjacent patio slabs.

The soils exposed at the base of the recommended over-excavation should be examined by a GeoTek representative to document that the exposed soils are suitable for support of the planned improvements. If unsuitable soil is observed, the over-excavation should be extended until suitable soil is observed. Once approved, the soils at the base of the over-excavation should be scarified to a depth of about 12 inches, moisture treated to slightly above the soil's optimum moisture content and then compacted to at least 90 percent of the soils' maximum dry density as determined by ASTM D-1557 test procedures. Excavations may then be backfilled to the planned finish grade elevations with properly compacted engineered fill.

5.2.4 Engineered Fill

The on-site soils are generally considered suitable for reuse as engineered fill provided they are free from vegetation, debris, oversized materials (~6 inches) and other deleterious material. All areas should be brought to final subgrade elevations with fill materials that are placed and compacted in general accordance with minimum project standards. Engineered fill should be placed in 6-to-8-inch loose lifts, moisture conditioned to slightly above the optimum moisture content and compacted to a minimum relative compaction of 90 percent as determined by ASTM D-1557 test procedures.

If wet soils are encountered during remedial grading, methods for drying soils such as stockpiling or mixing with dry soils may be required to bring the soils to the required moisture content for placement as engineered fill. Placement of engineered fill should be observed and tested on a full-time basis by a GeoTek representative during grading activities.

5.2.5 Transition Lot Condition

Building pads graded with a cut/fill transition should be undercut to reduce the potential for differential settlement. The cut portion of the cut/fill transition should be undercut to a depth of at least 3 feet or one (1) foot below the deepest proposed footing, whichever is deeper, and be backfilled with a properly compacted engineered fill. The bottom of the undercut should be sloped at a minimum of 1 percent toward the adjacent street/parking lot area.

5.2.6 Oversized Rock Disposal

Oversized cobbles, bounders and rock fragments may be encountered during rough grading and utility trench operations. On-site disposal of oversized materials is possible, provided the

oversized materials are placed as recommended on Plate 4 within Appendix C. Alternatively, over-sized materials can be exported from the site.

5.2.7 Excavation Characteristics

Excavations in the on-site older alluvium should be readily accomplished with heavy-duty earthmoving or excavating equipment in good operating condition. All excavations should be formed in accordance with current Cal-OSHA requirements.

5.2.8 Trench Excavations and Backfill

Temporary trench excavations within the on-site materials should be stable at a 1:1 inclination for short durations during construction and where cuts do not exceed 15 feet in height. Deeper temporary excavations should be reviewed by GeoTek prior to their planned excavation to determine if supplemental recommendations or analysis are warranted. It is anticipated that temporary cuts to a maximum height of 4 feet can be excavated vertically.

Trench excavations should conform to Cal-OSHA regulations. The contractor should have a competent person, per OSHA requirements, on site during construction to observe conditions and to make the appropriate recommendations.

Utility trench backfill should be compacted to at least 90 percent relative compaction (as determined by ASTM D-1557 test procedures). Under-slab trenches should also be compacted to project specifications. Where applicable, based on jurisdictional requirements, the top 12 inches of backfill below subgrade for road pavements should be compacted to at least 95 percent relative compaction. On-site materials may not be suitable for use as bedding material but should be suitable as backfill provided particles larger than 6 inches are removed.

Compaction should be achieved with a mechanical compaction device. Ponding or jetting of trench backfill is not recommended. If backfill soils have dried out, they should be properly moisture conditioned prior to placement in trenches.

5.2.9 Shrinkage and Bulking

For planning purposes, a shrinkage loss of about 5 to 15 percent is anticipated for excavations within the alluvium at the site. Several factors will impact earthwork balancing on the site, including shrinkage, trench spoil from utilities and footing excavations, as well as the accuracy of topography. Shrinkage and bulking are primarily dependent upon the degree of compactive effort achieved during construction, depth of fill and underlying site conditions.

A subsidence loss of up to about 0.1 foot is estimated for the site.

Site balance areas should be available in order to adjust project grades, depending on actual field conditions at the conclusion of earthwork construction.

5.2.10 Grading Plan Review

Upon completion of the site grading plans, it is recommended that those plans be provided to GeoTek for review. Based on that review, some modifications to the recommendations provided in this report or additional subsurface evaluations may be necessary.

5.3 DESIGN RECOMMENDATIONS

5.3.1 Foundation Design Criteria

Foundation design criteria for a conventional foundation system, in general conformance with the 2019 CBC, are presented herein. These are typical design criteria and are not intended to supersede the design by the structural engineer.

Based on the expansion index testing performed for this report and visual examination of the site soils, site soils possess a "very low" (0-20) expansion index (ASTM D4829). Therefore, it is GeoTek's opinion that conventional foundations supported by engineered fill may be used for this site.

A summary of GeoTek's preliminary foundation design recommendations is presented in the table below:

Design Parameter	"Very Low" Expansion Index (0≤EI≤20)
Foundation Depth or Minimum Perimeter Beam Depth (inches below lowest adjacent grade)	12-One & Two Story
Minimum Foundation Width (Inches)*	12
Minimum Slab Thickness (actual)	4 inches
Minimum Slab Reinforcing	6" x 6" – W1.4/W1.4 welded wire fabric placed in middle of slab or No. 3 bars at 24-inch centers.
Minimum Footing Reinforcement	Two No. 4 Reinforcing Bars, one top and one bottom
Presaturation of Subgrade Soil (Percent of Optimum)	Minimum 100% to a depth of 12 inches

*Code minimums per Table 1809.7 of the 2019 CBC.

It should be noted that the criteria provided are based on soil support characteristics only. The structural engineer should design the slab and beam reinforcement based on actual loading conditions.

The following criteria for design of foundations are preliminary and should be re-evaluated based on the results additional laboratory testing of samples obtained at/near finish pad grade.

5.3.1.1 An allowable bearing capacity of 2,000 pounds per square foot (psf) may be used for design of continuous and perimeter footings 12 inches deep and 12 inches wide, and pad footings 24 inches square and 12 inches deep. This allowable soil bearing capacity may be increased by 300 psf for each additional foot of footing depth and 300 psf for each additional foot of footing width to a maximum value of 4,000 psf. An increase of one-third may be applied when considering short-term live loads (e.g., seismic and wind loads).

5.3.1.2 Structural foundations should be designed in accordance with the 2019 CBC, and to withstand a total static settlement of 1 inch and maximum differential static settlement of one-half of the total settlement over a horizontal distance of 40 feet.

5.3.1.3 The passive earth pressure may be computed as an equivalent fluid having a density of 300 psf per foot of depth, to a maximum earth pressure of 3,000 psf for footings founded on engineered fill or competent native soil. A coefficient of friction between soil and concrete of 0.35 may be used with dead load forces. When combining passive pressure and frictional resistance, the passive pressure component should be reduced by one-third. The upper one foot of soil should be ignored in the passive pressure calculations unless the surface is covered with pavements.

5.3.1.4 A grade beam, a minimum of 12 inches wide and 12 inches deep, should be utilized across large entrances. The base of the grade beam should be at the same elevation as the bottom of the adjoining footings.

5.3.1.5 A moisture and vapor retarding system should be placed below slabs-on-grade where moisture migration through the slab is undesirable. Guidelines for these are provided in the 2019 California Green Building Standards Code (CALGreen) Section 4.505.2, the 2019 CBC Section 1907.1 and ACI 360R-10. The vapor retarder design and construction should also meet the requirements of ASTM E 1643. A portion of the vapor retarder design should be the implementation of a moisture vapor retardant membrane.

It should be realized that the effectiveness of the vapor retarding membrane can be adversely impacted as a result of construction related punctures (e.g., stake penetrations, tears, punctures from walking on the vapor retarder placed atop the underlying aggregate layer, etc.). These occurrences should be limited as much as possible during construction. Thicker membranes are generally more resistant to accidental puncture than thinner ones. Products specifically designed for use as moisture/vapor retarders may also be more puncture resistant. Although the CBC specifies a 6-mil vapor retarder membrane, it is GeoTek's opinion that a minimum 10 mil thick membrane with joints properly overlapped and sealed should be considered, unless otherwise specified by the slab design professional. The membrane should consist of Stego wrap or the equivalent.

Moisture and vapor retarding systems are intended to provide a certain level of resistance to vapor and moisture transmission through the concrete, but do not eliminate it. The acceptable level of moisture transmission through the slab is to a considerable extent based on the type of flooring used and environmental conditions. Ultimately, the vapor retarding system should be comprised of suitable elements to limited migration of water and reduce transmission of water vapor through the slab to acceptable levels. The selected elements should have suitable properties (i.e., thickness, composition, strength, and permeability) to achieve the desired performance level.

Moisture retarders can reduce, but not eliminate, moisture vapor rise from the underlying soils up through the slab. Moisture retarder systems should be designed and constructed in accordance with applicable American Concrete Institute, Portland Cement Association, Post-Tensioning Concrete Institute, ASTM and California Building Code requirements and guidelines.

GeoTek recommends that a qualified person, such as the flooring contractor, structural engineer, architect, and/or other experts specializing in moisture control within the building be consulted to evaluate the general and specific moisture and

vapor transmission paths and associated potential impact on the proposed construction. That person (or persons) should provide recommendations relative to the slab moisture and vapor retarder systems and for migration of potential adverse impact of moisture vapor transmission on various components of the structures, as deemed appropriate.

In addition, the recommendations in this report and GeoTek's services in general are not intended to address mold prevention; since GeoTek, along with geotechnical consultants in general, do not practice in the area of mold prevention. If specific recommendations addressing potential mold issues are desired, then a professional mold prevention consultant should be contacted.

5.3.1.6 It is recommended that control joints be placed in two directions spaced approximately 24 to 36 times the thickness of the slab in inches. These joints are a widely accepted means to control cracks and should be reviewed by the project structural engineer.

5.3.2 Miscellaneous Foundation Recommendations

5.3.2.1 To reduce moisture penetration beneath the slab on grade areas, utility trench excavations should be backfilled with engineered fill, lean concrete or concrete slurry where they intercept the perimeter footing or thickened slab edge.

5.3.2.2 Soils from the footing excavations should not be placed in the slab-on-grade areas unless properly compacted and tested. The excavations should be free of loose/sloughed materials and be neatly trimmed at the time of concrete placement.

5.3.3 Foundation Setbacks

Minimum setbacks for all foundations should comply with the 2019 CBC or City of Twentynine Palms requirements, whichever is more stringent. Improvements not conforming to these setbacks are subject to the increased likelihood of excessive lateral movements and/or differential settlements. If large enough, these movements can compromise the integrity of the improvements. The top outside edge of all footings should be set back a minimum of H/3 (where H is the slope height) from the face of any descending slope. The setback should be at least five feet and need not exceed 40 feet.

5.3.4 Soil Corrosivity

The soil resistivity at this site was tested in the laboratory on a sample collected during the field investigation. The results of the testing indicate that the on-site soils are considered "moderately corrosive" (8,040 ohm-cm) (Roberge, 2000) to buried ferrous metal in accordance with current standards used by corrosion engineers. It is recommended that a corrosion engineer be consulted to provide recommendations for the protection of buried ferrous metal at this site.

5.3.5 Soil Sulfate Content

The sulfate content was determined in the laboratory on a sample collected during the field investigation. The results indicate that the water-soluble sulfate result is less than 0.1 percent by weight, which is considered "negligible" as per Table 4.2.1 of ACI 318. Based on the test results and Table 4.3.1 of ACI 318, no special recommendations for concrete are required for this project due to soil sulfate exposure.

5.4 RETAINING AND GARDEN WALL DESIGN AND CONSTRUCTION

5.4.1.1 General Design Criteria

Recommendations presented in this report apply to typical masonry or concrete vertical retaining walls to a maximum height of up to six (6) feet. Additional review and recommendations should be requested for higher walls. These are typical design criteria and are not intended to supersede the design by the structural engineer.
Retaining wall foundations should be embedded a minimum of 18 inches into engineered fill. Retaining wall foundations should be designed in accordance with Section 5.3 of this report. Structural needs may govern and should be evaluated by the project structural engineer.

All earth retention structure plans, as applicable, should be reviewed by this office prior to finalization.

Earthwork considerations, site clearing and remedial earthwork for all earth retention structures should meet the requirements of this report, unless specifically provided otherwise, or more stringent requirements or recommendations are made by the designer. The backfill material placement for all earth retention structures should meet the requirement of Section 5.2.4 in this report.

In general, cantilever earth retention structures, which are designed to yield at least 0.001H, where H is equal to the height of the earth retention structure, may be designed using the

"active" condition. Rigid earth retention structures (including but not limited to rigid walls, and walls braced at top, such as typical basement walls) should be designed using the "at-rest" condition.

In addition to the design lateral forces due to retained earth, surcharges due to improvements, such as an adjacent building or traffic loading, should be considered in the design of the earth retention structures. Loads applied within a 1:1 (horizontal : vertical) projection from the surcharge on the stem of the earth retention structure should be considered in the design.

Final selection of the appropriate design parameters should be made by the designer of the earth retention structures.

5.4.1.2 Cantilevered Walls

The recommendations presented below are for cantilevered retaining walls up to six (6) feet high. Active earth pressure may be used for retaining wall design, provided the top of the wall is not restrained from minor deflections. An equivalent fluid pressure approach may be used to compute the horizontal pressure against the wall. Appropriate fluid unit weights are given below for specific slope gradients of the retained material. These do not include other superimposed loading conditions such as traffic, structures, seismic events, or adverse geologic conditions.

ACTIVE EARTH PRESSURES	
Surface Slope of Retained Materials (horizontal : vertical)	Equivalent Fluid Pressure (pcf) Select Backfill* and Native Soils
Level	37
2:1	65

*The design pressures assume the backfill material has an expansion index less than or equal to 20. Backfill zone includes area between back of the wall to a plane (1:1 horizontal : vertical) up from bottom of the wall foundation (on the backside of the wall) to the ground surface.

For walls with a retained height greater than 6 feet, an incremental seismic pressure should be included into the wall design. Where needed, it is recommended that an equivalent fluid pressure of 22 pcf be included into the wall design to account for seismic loading conditions. This pressure may be applied as a triangular distribution.

5.4.1.3 Retaining Wall Backfill and Drainage

The wall backfill should also include a minimum one (1) foot wide section of ¾- to 1-inch clean crushed rock (or an approved equivalent). The rock should be placed immediately adjacent to the back of the wall and extend up from a back drain to within approximately 24 inches of the finish grade. The upper 24 inches should consist of compacted on-site materials. The rock should be separated from the earth with filter fabric. The presence of other materials might necessitate revision to the parameters provided and modification of the wall designs. The backfill materials should be placed in lifts no greater than eight (8) inches in thickness and compacted to a minimum of 90% relative compaction as determined by ASTM D 1557 test procedures. Proper surface drainage needs to be provided and maintained.

As an alternative to the drain, rock and fabric, a pre-manufactured wall drainage product (example: Mira Drain 6000 or approved equivalent) may be used behind the retaining wall. The wall drainage product should extend from the base of the wall to within two (2) feet of the ground surface. The subdrain should be placed in direct contact with the wall drainage product.

Retaining walls should be provided with an adequate pipe and gravel back drain system to help prevent buildup of hydrostatic pressures. Backdrains should consist of a four (4)-inch diameter perforated collector pipe (Schedule 40, SDR 35, or approved equivalent) embedded in a minimum of one (1) cubic foot per linear foot of ¾- to 1-inch clean crushed rock or an approved equivalent, wrapped in filter fabric (Mirafi 140N or an approved equivalent). The drain system should be connected to a suitable outlet. Waterproofing of site walls should be performed where moisture migration through the walls is undesirable.

5.4.1.4 Restrained Retaining Walls

Retaining walls that will be restrained at the top that support level backfill or that have reentrant or male corners, should be designed for an equivalent at-rest fluid pressure of 55 pcf, plus any applicable surcharge loading. For areas of male or reentrant corners, the restrained wall design should extend a minimum distance of twice the height of the wall laterally from the corner, or a distance otherwise determined by the project structural engineer.

5.4.1.5 Other Design Considerations

- Wall design should consider the additional surcharge loads from superjacent slopes and/or footings, where appropriate.

- No backfill should be placed against concrete until minimum design strengths are evident by compression tests of cylinders.
- The retaining wall footing excavations, backcuts, and backfill materials should be approved by the project geotechnical engineer or their authorized representative.
- Positive separations should be provided in garden walls at horizontal distances not exceeding 20 feet.

5.5 PRELIMINARY PAVEMENT DESIGN RECOMMENDATIONS

Although planned final grades beneath the proposed parking, access roads and adjacent street improvements within the site are not yet known, the following preliminary pavement design recommendations are based on assumed Traffic Indexes of 5.0 for car parking areas and 6.0 for access drives. Preliminary pavement thickness design is based on the CalTrans Highway Design Manual (2018). An R-value of 40 has been assumed for the preliminary design of the project pavement sections. Once the traffic loading information becomes more defined, revision to the pavement design recommendations may be warranted. It is recommended that the final pavement design be based on R-value testing of the as-graded subgrade soils within the pavement areas.

Based on the assumptions noted above the following preliminary pavement recommendations are provided for the site:

PRELIMINARY MINIMUM PAVEMENT SECTION		
Traffic Index	Thickness of Asphalt Concrete (inches)	Thickness of Aggregate Base (inches)
5.0 (Car Parking Areas)	3.5	4
6.0 (Automobile Access Lanes)	3.5	4

Traffic Indices (TIs) used in the pavement design should provide a pavement life of approximately 20 years with a normal amount of flexible pavement maintenance. Irrigation adjacent to pavements, without a deep curb or other cutoff to separate landscaping from the paving may result in premature pavement failure. Traffic parameters used for design were selected based upon engineering judgment and not upon information furnished to us such as an equivalent wheel load analysis or a traffic study.

All base material and the upper 12 inches of subgrade should be compacted to at least 95 percent of the material's maximum dry density as determined by ASTM D 1557 test procedures. All materials and methods of construction should conform to the requirements of the County of San Bernardino.

5.6 CONCRETE CONSTRUCTION

5.6.1 General

Concrete construction should follow the 2019 CBC and ACI guidelines regarding design, mix placement and curing of the concrete. If desired, GeoTek could provide quality control testing of the concrete during construction.

5.6.2 Concrete Mix Design

As discussed in Section 5.3.5, no special recommendations for concrete are required for this project due to soil sulfate exposure. Additional testing should be performed during grading so that specific recommendations can be formulated based on the as-graded conditions.

5.6.3 Concrete Flatwork

Exterior concrete flatwork is often one of the most visible aspects of site development. They are typically given the least level of quality control, being considered "non-structural" components. Cracking of these features is common due to various factors. While cracking usually does not affect the structural performance of the concrete, it is unsightly. It is recommended that the same standards of care be applied to these features as to the structure itself.

Flatwork should consist of a minimum four-inch (actual) thick concrete and the use of temperature and shrinkage control reinforcement is suggested. The project structural engineer should provide final design recommendations.

5.6.4 Concrete Performance

Concrete cracks should be expected. These cracks can vary from sizes that are hairline to more than 1/8 inch in width. Most cracks in concrete while unsightly do not significantly impact long-term performance. While it is possible to take measures (proper concrete mix, placement, curing, control joints, etc.) to reduce the extent and size of cracks that occur, some cracking will occur despite the best efforts to minimize it. Concrete undergoes chemical processes that are dependent on a wide range of variables, which are difficult, at best, to control. Concrete, while seemingly a stable material, is subject to internal expansion and contraction due to external changes over time.

One of the simplest means to control cracking is to provide weakened control joints for cracking to occur along. These do not prevent cracks from developing; they simply provide a relief point for the stresses that develop. These joints are a widely accepted means to control cracks but are not always effective. Control joints are more effective the more closely spaced they are. GeoTek suggests that control joints be placed in two orthogonal directions and located a distance apart approximately equal to 24 to 36 times the slab thickness.

5.7 PLAN REVIEW AND CONSTRUCTION OBSERVATIONS

It is recommended that site grading, specifications, and foundation plans be reviewed by this office prior to construction to check for conformance with the recommendations of this report. It is also recommended that GeoTek representatives be present during site grading and foundation construction to observe and document for proper implementation of the geotechnical recommendations. The owner/developer should have GeoTek perform at least the following duties:

- Observe site clearing and grubbing operations for proper removal of all unsuitable materials.
- Observe and test bottom of removals prior to fill placement.
- Evaluate the suitability of on-site and import materials for fill placement and collect soil samples for laboratory testing where necessary.
- Observe the fill for uniformity during placement, including utility trench excavation backfill. Also, test the fill for density, relative compaction and moisture content.
- Observe and probe foundation excavations to confirm suitability of bearing materials with respect to density.

If requested, a construction observation and compaction report can be provided by GeoTek which can comply with the requirements of the governmental agencies having jurisdiction over the project. It is recommended that these agencies be notified prior to commencement of construction so that necessary grading permits can be obtained.

6. INTENT

It is the intent of this report to aid in the design and construction of the proposed development. Implementation of the advice presented in this report is intended to reduce risk associated with construction projects. The professional opinions and geotechnical advice

contained in this report are not intended to imply total performance of the project or guarantee that unusual or variable conditions will not be discovered during or after construction.

The scope of GeoTek's evaluation is limited to the area explored that is shown on the Boring Location Map (Figure 2). This evaluation does not and should in no way be construed to encompass any areas beyond the specific area of the proposed construction as indicated to GeoTek by the client. Further, no evaluation of any existing site improvements is included. The scope is based on GeoTek's understanding of the project and the client's needs, GeoTek's proposal (Proposal No. P-1007221-CR) dated October 22, 2021 and geotechnical engineering standards normally used on similar projects in this region.

7. LIMITATIONS

GeoTek's findings are based on site conditions observed and the stated sources. Thus, GeoTek's comments are professional opinions that are limited to the extent of the available data.

GeoTek has prepared this report in a manner consistent with that level of care and skill ordinarily exercised by members of the engineering at this time and location and science professions currently practicing under similar conditions in the jurisdiction in which the services are provided, subject to the time limits and physical constraints applicable to this report.

Since GeoTek's recommendations are based on the site conditions observed and encountered at the stated times and laboratory testing. Thus, GeoTek's conclusions and recommendations are professional opinions that are limited to the extent of the available data. Observations during construction are important to allow for any change in recommendations found to be warranted. These opinions have been derived in accordance with current standards of practice and no warranty of any kind is expressed or implied. Standards of care/practice are subject to change with time.

8. SELECTED REFERENCES

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GeoTek, Inc., In-house proprietary information.

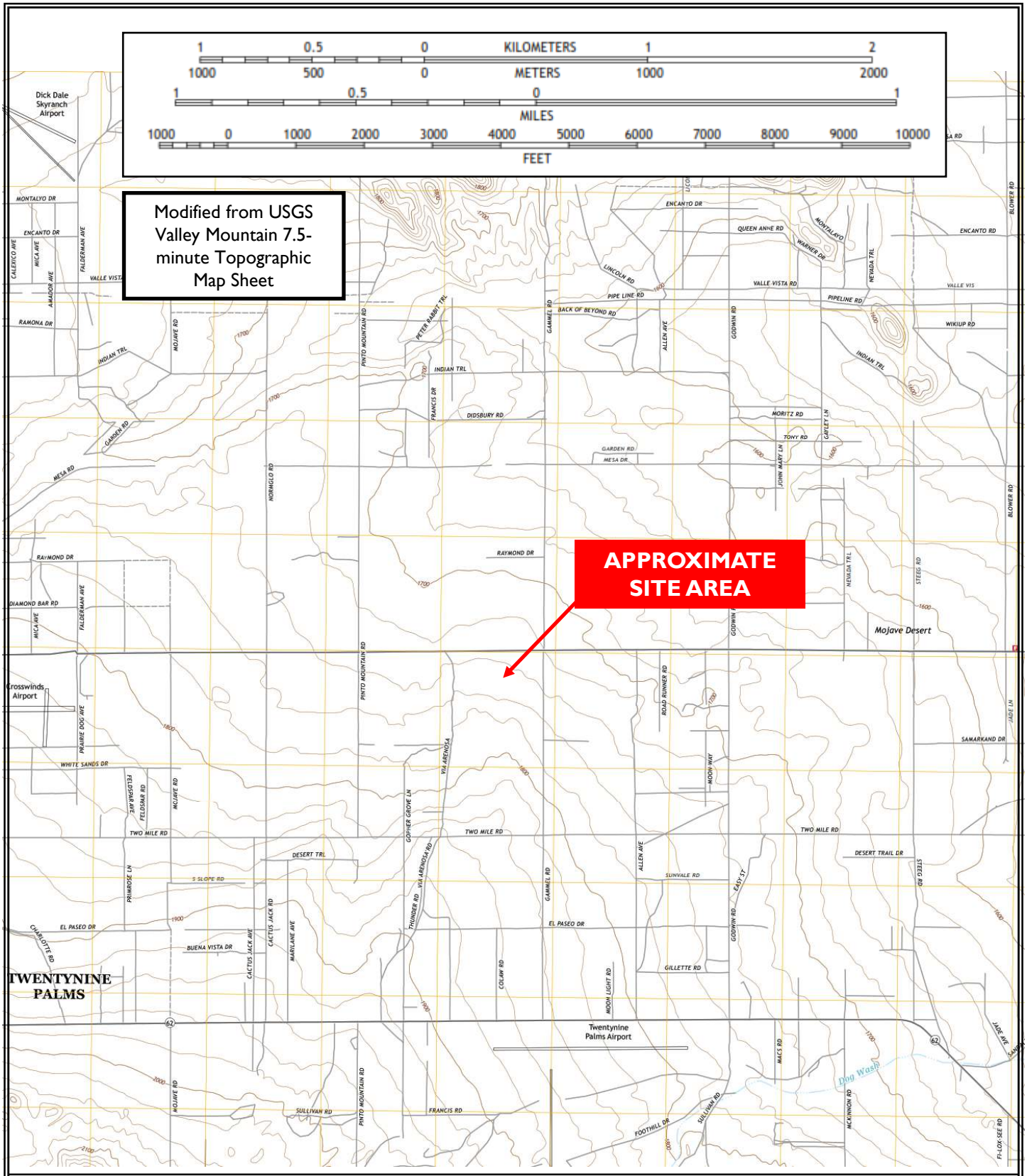
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The Wonder Inn
78201 Amboy Road
Twentynine Palms, San Bernardino County, California

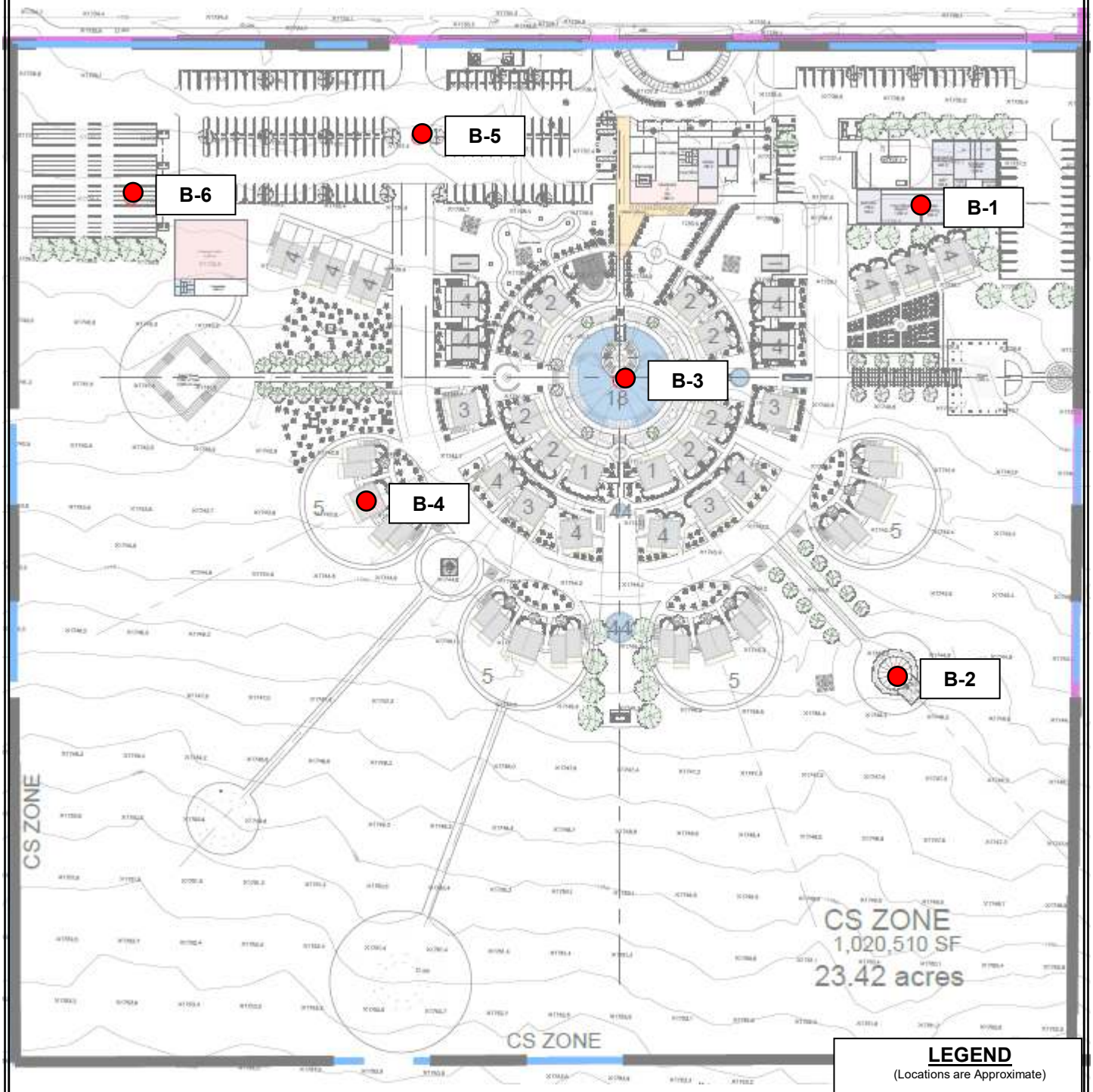
Project No. 2948-CR

NORTH

Figure 1

Site Location Map

GEOTEK



The Wonder Inn
The Wonder Inn Project
78201 Amboy Road
29 Palms, San Bernardino County, California

Project No. 2948-CR

NORTH

Figure 2

Boring Location Map

GEOTEK

APPENDIX A

LOG OF EXPLORATORY BORINGS

The Wonder Inn

78201 Amboy Road

Twentynine Palms, San Bernardino County, California

Project No. 2948-CR

GEOTEK

A - FIELD TESTING AND SAMPLING PROCEDURES

The Modified Split-Barrel Sampler (Ring)

The Ring sampler is driven into the ground at various depths in accordance with ASTM D 3550 test procedures. The sampler, with an external diameter of 3.0 inches, is lined with 1-inch long, thin brass rings with inside diameters of approximately 2.4 inches. The sampler is typically driven into the ground 12 or 18 inches with a 140-pound hammer free falling from a height of 30 inches. Blow counts are recorded for every 6 inches of penetration as indicated on the log of boring. The samples are removed from the sample barrel in the brass rings, sealed, and transported to the laboratory for testing.

Bulk Samples (Large)

These samples are normally large bags of earth materials over 20 pounds in weight collected from the field by means of hand digging or exploratory cuttings.

Bulk Samples (Small)

These are plastic bag samples which are normally airtight and contain less than 5 pounds in weight of earth materials collected from the field by means of hand digging or exploratory cuttings. These samples are primarily used for determining natural moisture content and classification indices.

B - BORING LOG LEGEND

The following abbreviations and symbols often appear in the classification and description of soil and rock on the log of borings:

SOILS

USCS	Unified Soil Classification System
f-c	Fine to coarse
f-m	Fine to medium

GEOLOGIC

B: Attitudes	Bedding: strike/dip
J: Attitudes	Joint: strike/dip
C: Contact line	
……..	Dashed line denotes USCS material change
———	Solid Line denotes unit / formational change
———	Thick solid line denotes end of boring

(Additional denotations and symbols are provided on the boring log)

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:		**DRILLER:**	2R Drilling Inc.	**LOGGED BY:**	DRW
PROJECT NAME:	The Wonder Inn	**DRILL METHOD:**	Hollw stem Auger	**OPERATOR:**	Adrian
PROJECT NO.:	2948-CR	**HAMMER:**	140lbs/30in.	**RIG TYPE:**	SIMCO
LOCATION:	See Boring Location Map			**DATE:**	10/30/2021

BORING NO.: B-1

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
				SM	**Alluvium:** Silty f-c SAND, light brown, dry to slightly moist, few gravel			SR
		23 37 33		SM/SP	Silty f-c SAND to f-c SAND, light gray, slightly moist, dense, few gravel, trace caliche	0.9		
5		13 30 35		SP	F-c SAND, light brown, slightly moist, dense, trace caliche and calcite concretions	0.8	120.1	
		38 40 50			Same as above, trace fine gravel, very dense			
10		33 50/6"		SM	Silty f-c SAND, light gray, slightly moist, very dense, trace gravel	1.3	115.3	
				SM/ML	Silty f SAND to f sandy SILT, light grayish brown, slightly moist, very dense/hard			
15		43 50/4"		SM	Silty f-c SAND, light gray, slightly moist, very dense, trace gravel	0.9		
20		28 38 48		SM/ML	Silty f SAND to f sandy SILT, gray, slightly moist, very dense/hard, trace clay	7.6	109	
					BORING TERMINATED AT 21.5 FEET No groundwater encountered Boring backfilled with soil cuttings			
25								
30								

LEGEND

Sample type: ---Ring ---SPT ---Small Bulk ---Large Bulk ---No Recovery ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; HC= Consolidation; MD = Maximum Density

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:		**DRILLER:**	2R Drilling Inc.	**LOGGED BY:**	DRW
PROJECT NAME:	The Wonder Inn	**DRILL METHOD:**	Hollw stem Auger	**OPERATOR:**	Adrian
PROJECT NO.:	2948-CR	**HAMMER:**	140lbs/30in.	**RIG TYPE:**	SIMCO
LOCATION:	See Boring Location Map			**DATE:**	10/30/2021

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	BORING NO.: B-2 / MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
					Alluvium:			
		30 32 27		SM	Silty f-c SAND, light brown, slightly moist, dense, trace gravel, trace caliche	1.0	117.5	
5		20 30 38		SM/SP	Silty f-c SAND to f-c SAND, light orangish brown, slightly moist, dense	2.0	110.4	
		38 50/6"			Same as above, very dense			
10		24 27 36		SM	Silty f SAND, light gray, slightly moist, dense	3.3	116.7	
15		19 33 50		SM/ML	Silty f SAND to f sandy SILT, light gray, slightly moist, very dense/hard	3.4	107.1	
		27 50/5"		SM	Silty f-m SAND, grayish brown, slightly moist, very dense	4.1	115.7	
20					**BORING TERMINATED AT 19.5 FEET** No groundwater encountered Boring backfilled with soil cuttings			
25								
30								

LEGEND

Sample type: ---Ring ---SPT ---Small Bulk ---Large Bulk ---No Recovery ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; HC= Consolidation; MD = Maximum Density

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:		**DRILLER:**	2R Drilling Inc.	**LOGGED BY:**	DRW
PROJECT NAME:	The Wonder Inn	**DRILL METHOD:**	Hollw stem Auger	**OPERATOR:**	Adrian
PROJECT NO.:	2948-CR	**HAMMER:**	140lbs/30in.	**RIG TYPE:**	SIMCO
LOCATION:	See Boring Location Map			**DATE:**	10/30/2021

BORING NO.: B-3

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
				SM	**Alluvium:** Silty f-c SAND, light brown, dry to slightly moist, few gravel			
		20 21 21		SM/SP	Silty f-c SAND to f-c SAND, light brown, slightly moist, medium dense, trace gravel	1.4	121.3	HC
5		23 27 36			Same as above			
		28 31 48		SM	Silty f-c SAND, light gray, slightly moist, dense	0.8	112.7	
10		37 50/6"			Same as above			
15		39 50/4"		SM	Silty f-c SAND, light brown, slightly moist, very dense, trace gravel	2.1	109.6	
20		50/6"		SM/ML	Silty f SAND to f sandy SILT, light gray, slightly moist, very dense/hard			
					BORING TERMINATED AT 20.5 FEET No groundwater encountered Boring backfilled with soil cuttings			
25								
30								

LEGEND

Sample type: ---Ring; ---SPT; ---Small Bulk; ---Large Bulk; ---No Recovery; ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; HC= Consolidation; MD = Maximum Density

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:		**DRILLER:**	2R Drilling Inc.	**LOGGED BY:**	DRW
PROJECT NAME:	The Wonder Inn	**DRILL METHOD:**	Hollw stem Auger	**OPERATOR:**	Adrian
PROJECT NO.:	2948-CR	**HAMMER:**	140lbs/30in.	**RIG TYPE:**	SIMCO
LOCATION:	See Boring Location Map			**DATE:**	10/30/2021

BORING NO.: B-4

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
					Alluvium:			
		9 17 23		SM	Silty f-c SAND, light brown, slightly moist, medium dense, some caliche, trace gravel	3.7	107	MD, EI, SH HC
5		14 23 27		SM	Silty f-c SAND, light grayish brown, slightly moist, medium dense, trace gravel	1.4		
		13 26 33		SM/SP	Silty f-c SAND to f-c SAND, light gray, slightly moist, dense, trace gravel	2.4	109.8	
10		26 38 50		SM	Silty f-c SAND, gray, slightly moist, very dense			
		24						
		50/4"		SM/ML	Silty f SAND to f sandy SILT, light gray, slightly moist, very dense/hard	3.5	108.8	
15								
		31 50/6"			Same as above	2.5	112.7	
20					**BORING TERMINATED AT 19.5 FEET** No groundwater encountered Boring backfilled with soil cuttings			
25								
30								

LEGEND

Sample type: ---Ring ---SPT ---Small Bulk ---Large Bulk ---No Recovery ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; HC= Consolidation; MD = Maximum Density

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:		**DRILLER:**	2R Drilling Inc.	**LOGGED BY:**	DRW
PROJECT NAME:	The Wonder Inn	**DRILL METHOD:**	Hollw stem Auger	**OPERATOR:**	Adrian
PROJECT NO.:	2948-CR	**HAMMER:**	140lbs/30in.	**RIG TYPE:**	SIMCO
LOCATION:	See Boring Location Map			**DATE:**	10/30/2021

BORING NO.: B-5

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
					Alluvium:			
				SM	Silty f-c SAND, light brown, dry to slightly moist, few gravel			
		20 34 37		SM	Silty f-c SAND, light gray, slightly moist, dense, trace gravel, trace caliche	1.0	121	
5		28 50/5"		SM/SP	Silty f-c SAND to f-c SAND, light brown, slightly moist, very dense, trace gravel	1.4	117.1	
		38 50/4"		SM/SP	Silty f-c SAND to f-c SAND, gray, slightly moist, very dense, some gravel	0.8		
10		50/5"		SP	F-c SAND, grayish brown, slightly moist, very dense, some gravel			
15		50/6"			Same as above, trace gravel	0.7		
20		32 50/4"		SM	Silty f-c SAND, gray to grayish brown, slightly moist, very dense			
					BORING TERMINATED AT 21.0 FEET			
					No groundwater encountered Boring backfilled with soil cuttings			
25								
30								

LEGEND

Sample type: ---Ring ---SPT ---Small Bulk ---Large Bulk ---No Recovery ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; HC= Consolidation; MD = Maximum Density

GeoTek, Inc.

LOG OF EXPLORATORY BORING

CLIENT:		**DRILLER:**	2R Drilling Inc.	**LOGGED BY:**	DRW
PROJECT NAME:	The Wonder Inn	**DRILL METHOD:**	Hollw stem Auger	**OPERATOR:**	Adrian
PROJECT NO.:	2948-CR	**HAMMER:**	140lbs/30in.	**RIG TYPE:**	SIMCO
LOCATION:	See Boring Location Map			**DATE:**	10/30/2021

BORING NO.: B-6

Depth (ft)	SAMPLES: Sample Type	SAMPLES: Blows/ 6 in	SAMPLES: Sample Number	USCS Symbol	MATERIAL DESCRIPTION AND COMMENTS	Laboratory Testing: Water Content (%)	Laboratory Testing: Dry Density (pcf)	Laboratory Testing: Others
					Alluvium:			
		20 24 24		SM	Silty f-c SAND, light grayish brown, slightly moist, medium dense, trace gravel	1.2	118.4	
5		23 38 50			Same as above, trace caliche	1.4		
		39 43 50/6"		SP	Gravelly f-c SAND, brownish gray, slightly moist, very dense			
10		50/6"		SP	F-c SAND, gray, slightly moist, very dense, few gravel			
15		31 50/5"			Same as above	1.5	109.8	
		50/5"		SM	Silty f-c SAND, grayish brown, slightly moist, very dense			
20					**BORING TERMINATED AT 19.0 FEET** No groundwater encountered Boring backfilled with soil cuttings			
25								
30								

LEGEND

Sample type: ---Ring ---SPT ---Small Bulk ---Large Bulk ---No Recovery ---Water Table

Lab testing: AL = Atterberg Limits; EI = Expansion Index; SA = Sieve Analysis; RV = R-Value Test; SR = Sulfate/Resisitivity Test; SH = Shear Test; HC= Consolidation; MD = Maximum Density

APPENDIX B

RESULTS OF LABORATORY TESTING

The Wonder Inn

78201 Amboy Road

Twentynine Palms, San Bernardino County, California

Project No. 2948-CR

GEOTEK

SUMMARY OF LABORATORY TESTING

Classification

Soils were classified visually in general accordance with the Unified Soil Classification System (ASTM Test Method D 2487). The soil classifications are shown on the logs of borings in Appendix A.

Collapse Test

Collapse tests were performed on selected samples of the site soils in general accordance with ASTM D 5333 test procedures. The results of this test are presented graphically in Appendix B.

Direct Shear

Shear testing was performed in a direct shear machine of the strain-control type in general accordance with ASTM D 3080 test procedures. The rate of deformation was approximately 0.035 inch per minute. The sample was sheared under varying confining loads in order to determine the coulomb shear strength parameters, angle of internal friction and cohesion. The tests were performed on soil samples remolded to approximately 90 percent of maximum dry density as determined by ASTM D 1557 test procedures. The shear test results are presented in Appendix B.

Expansion Index

Expansion Index testing was performed on one soil sample. Testing was performed in general accordance with ASTM Test Method D 4829. The results of the testing are provided below.

Boring No.	Depth (ft.)	Description	Expansion Index	Classification
B-4	0-5	Silty Sand	0	Very Low

In-Situ Moisture and Density

The natural water content of sampled soils was determined in general accordance with ASTM D 2216 test procedures on samples of the materials recovered from the subsurface exploration. In addition, in-place dry density of the sampled soils was determined in general accordance with ASTM D 2937 test procedures on relatively undisturbed samples to measure the unit weight of the subsurface soils. Results of these tests are shown on the boring logs at the appropriate sample depths in Appendix A.

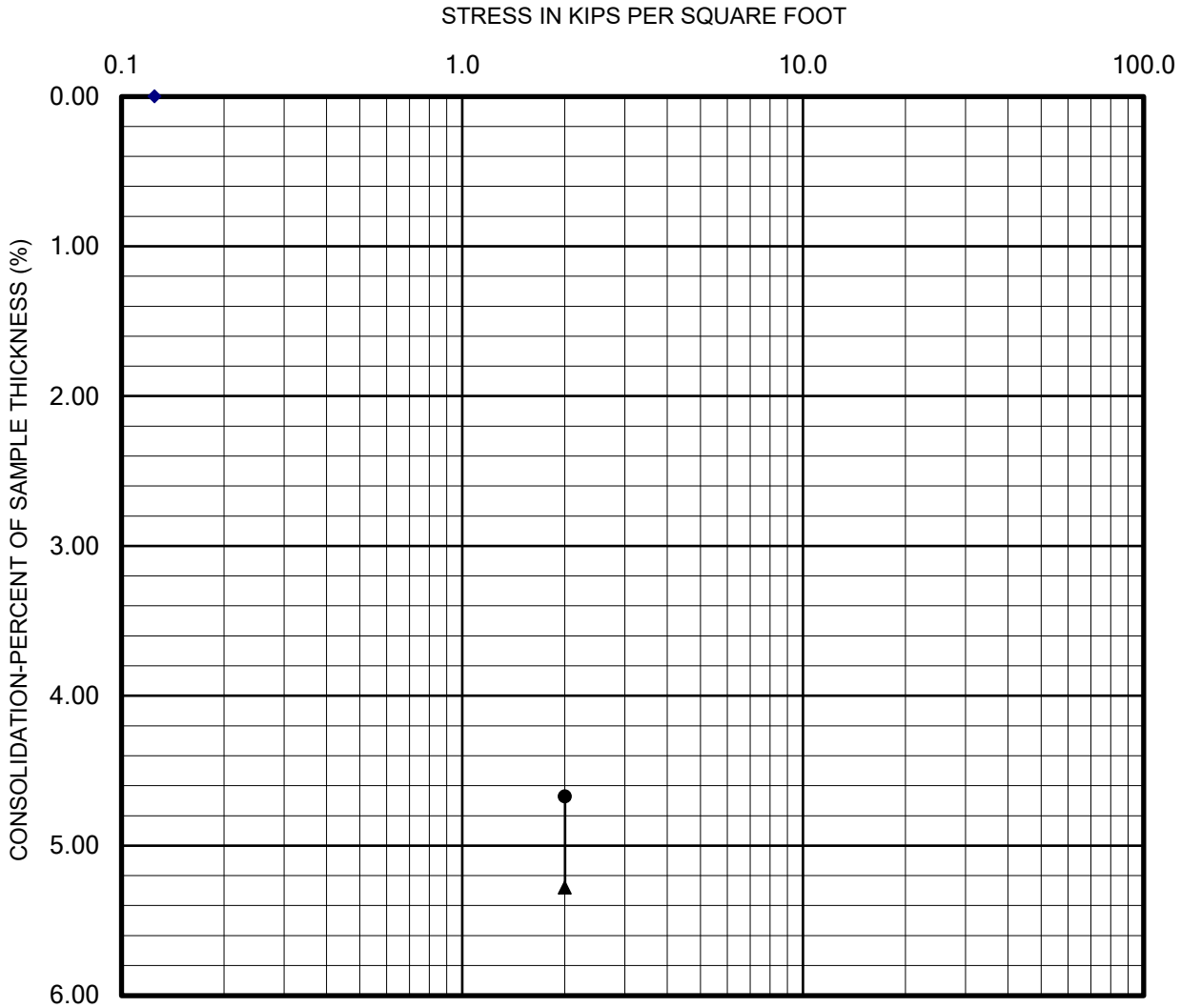
Moisture-Density Relationship

Laboratory testing was performed on one sample collected during the subsurface exploration. The laboratory maximum dry density and optimum moisture content for the soil type was determined in general accordance with test method ASTM Test Procedure D 1557. The results of the testing are provided in Appendix B.

Sulfate Content, Resistivity and Chloride Content

Testing to determine the water-soluble sulfate content was performed by others in general accordance with ASTM D4327 test procedures. Resistivity testing was completed by others in general accordance with ASTM G187 test procedures. Testing to determine the chloride content was performed by others in general accordance with ASTM D4327 test procedures. The results of the testing are provided below and in Appendix B.

Boring No.	Depth (ft.)	pH ASTM D4972	Chloride ASTM D4327 (mg/kg)	Sulfate ASTM D4327 (% by weight)	Resistivity ASTM G187 (ohm-cm)
B-1	0-5	8.3	345.7	0.0002	737



Seating Cycle
Loading Prior to Inundation
Loading After Inundation
Rebound Cycle

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 4546

GEOTEK

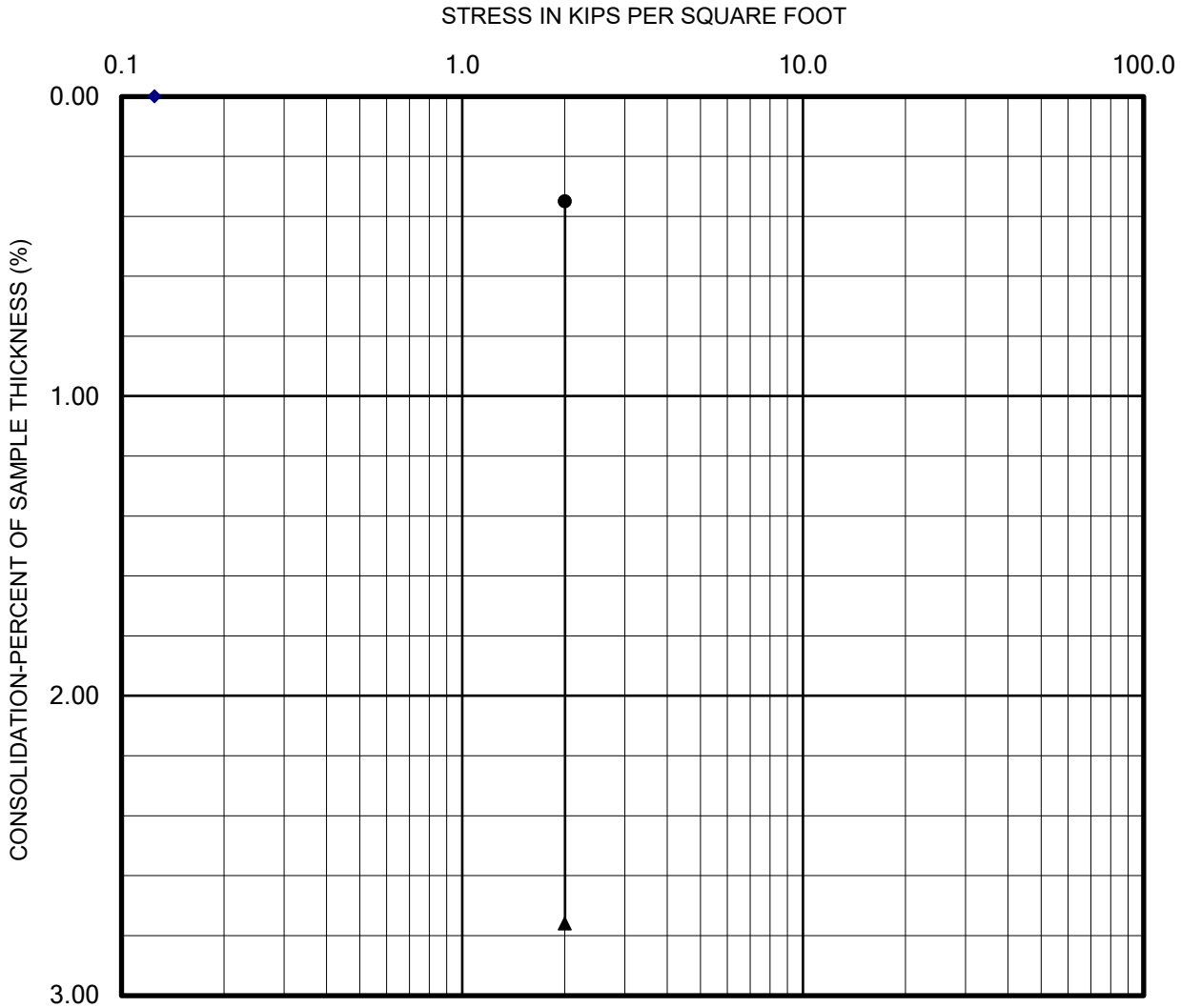
CHECKED BY: DA	Lab: Corona
PROJECT NO.: 2948-CR	Date: 11/11/21

COLLAPSE REPORT

Sample: B-3 @ 2 feet

The Wonder Inn
Twentynine Palms, California

Plate B-1



Seating Cycle
Loading Prior to Inundation
Loading After Inundation
Rebound Cycle

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 4546

GEOTEK

CHECKED BY: DA	Lab: Corona
PROJECT NO.: 2948-CR	Date: 11/11/21

COLLAPSE REPORT

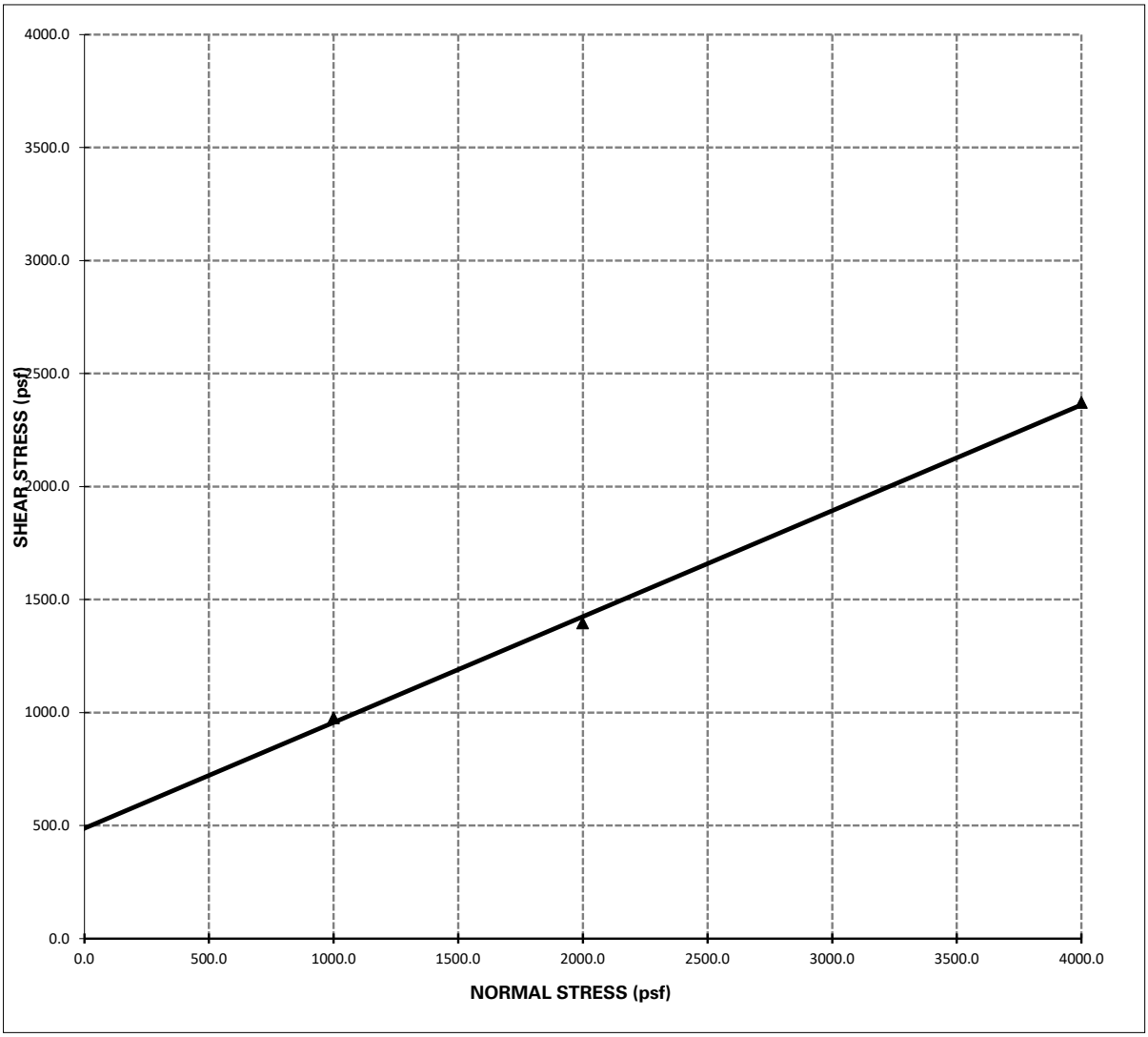
Sample: B-4 @ 1 feet

The Wonder Inn
Twentynine Palms, California

Plate B-2

DIRECT SHEAR TEST

Project Name:	The Wonder Inn, Twentynine Palms	***Sample Location:***	B-4 @ 0-5 feet
Project Number:	2948-CR	***Date Tested:***	11/11/2021



Shear Strength: Φ = 25 ° , C = 488 psf

Notes: 1 - The soil specimen used in the shear box was a ring sample remolded to approximately 90% relative compaction from a bulk sample collected during the field investigation.

2 - The above reflect direct shear strength at saturated conditions.

3 - The tests were run at a shear rate of 0.01 in/min.

GEOTEK

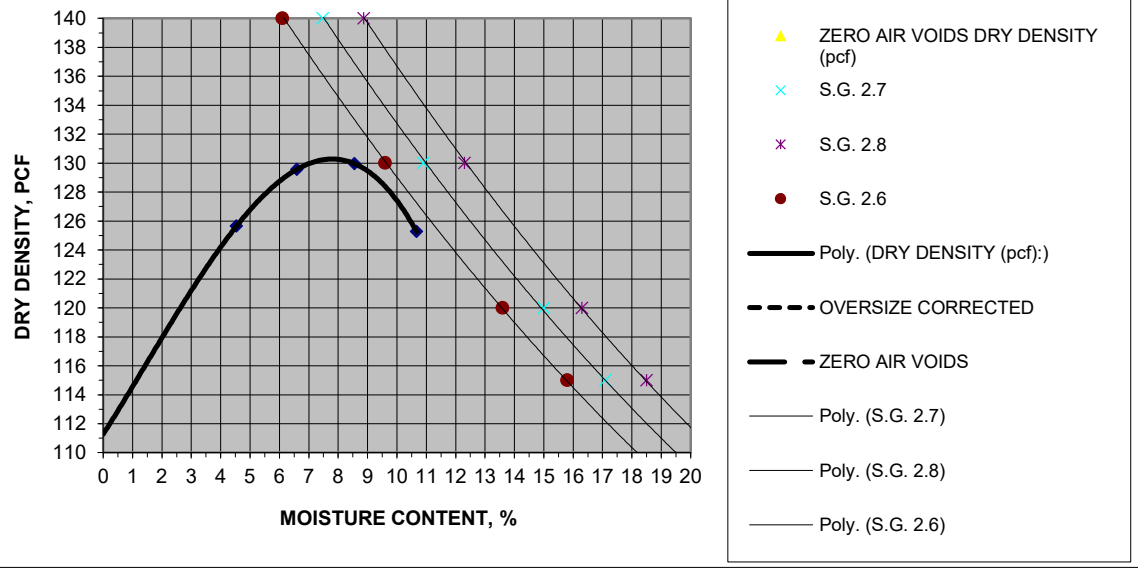
MOISTURE/DENSITY RELATIONSHIP

Client:	The Wonder Inn	**Job No.:**	2948-CR
Project:	The Wonder Inn	**Lab No.:**	Corona
Location:	Twentynine Palms		
Material Type:	Light brown silty sand		
Material Supplier:	-		
Material Source:	-		
Sample Location:	B-4 @ 0-5 feet		
	-		
Sampled By:	JD	**Date Sampled:**	11/8/2021
Received By:	ADLC	**Date Received:**	11/8/2021
Tested By:	ADLC	**Date Tested:**	11/9/2021
Reviewed By:	DA	**Date Reviewed:**	11/11/2021

Test Procedure: ASTM D1557 **Method:** A

Oversized Material (%): 4.0 **Correction Required:** [ ] yes [x] no

MOISTURE/DENSITY RELATIONSHIP CURVE



MOISTURE DENSITY RELATIONSHIP VALUES

Maximum Dry Density, pcf	130.5	**@ Optimum Moisture, %**	7.5
Corrected Maximum Dry Density, pcf		**@ Optimum Moisture, %**	

MATERIAL DESCRIPTION

Grain Size Distribution:

	% Gravel (retained on No. 4)
	% Sand (Passing No. 4, Retained on No. 200)
	% Silt and Clay (Passing No. 200)

Atterberg Limits:

	Liquid Limit, %
	Plastic Limit, %
	Plasticity Index, %

Classification:

Unified Soils Classification:

AASHTO Soils Classification:

Results Only Soil Testing for The Wonder Inn, Joshua Tree

November 9, 2021

Prepared for:

Anna Scott
GeoTek, Inc.
1548 North Maple Street
Corona, CA 92280
ascott@geotekusa.com

Project X Job#: S211108D
Client Job or PO#: 2948-CR The Wonder Inn

Respectfully Submitted,

Eduardo Hernandez, M.Sc., P.E.
Sr. Corrosion Consultant
NACE Corrosion Technologist #16592
Professional Engineer
California No. M37102
ehernandez@projectxcorrosion.com



Soil Analysis Lab Results

Client: GeoTek, Inc.
Job Name: The Wonder Inn, Joshua Tree
Client Job Number: 2948-CR The Wonder Inn
Project X Job Number: S211108D
November 9, 2021

	Method	ASTM D4327		ASTM D4327		ASTM G187		ASTM D4972	ASTM G200	ASTM D4658	ASTM D4327	ASTM D6919	ASTM D6919	ASTM D6919	ASTM D6919	ASTM D6919	ASTM D6919	ASTM D4327	ASTM D4327
Bore# / Description	**Depth**	**Sulfates** SO_4^{2-}		**Chlorides** Cl^-		**Resistivity** As Rec'd | Minimum		**pH**	**Redox**	**Sulfide** S^{2-}	**Nitrate** NO_3^-	**Ammonium** NH_4^+	**Lithium** Li^+	**Sodium** Na^+	**Potassium** K^+	**Magnesium** Mg^{2+}	**Calcium** Ca^{2+}	**Fluoride** F_2^{--}	**Phosphate** PO_4^{3-}
	(ft)	(mg/kg)	(wt%)	(mg/kg)	(wt%)	(Ohm-cm)	(Ohm-cm)		(mV)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
2948-CR B1	0-5	1.6	0.0002	345.7	0.0346	522,600	737	8.3	128	<0.01	1.3	34.4	ND	389.2	3.2	15.0	3.0	5.9	1.4

Cations and Anions, except Sulfide and Bicarbonate, tested with Ion Chromatography
mg/kg = milligrams per kilogram (parts per million) of dry soil weight
ND = 0 = Not Detected | NT = Not Tested | Unk = Unknown
Chemical Analysis performed on 1:3 Soil-To-Water extract
PPM = mg/kg (soil) = mg/L (Liquid)

APPENDIX C

GENERAL GRADING GUIDELINES

The Wonder Inn

78201 Amboy Road

Twentynine Palms, San Bernardino County, California

Project No. 2948-CR

GEOTEK

GENERAL GRADING GUIDELINES

Guidelines presented herein are intended to address general construction procedures for earthwork construction. Specific situations and conditions often arise which cannot reasonably be discussed in general guidelines, when anticipated these are discussed in the text of the report. Often unanticipated conditions are encountered which may necessitate modification or changes to these guidelines. It is our hope that these will assist the contractor to more efficiently complete the project by providing a reasonable understanding of the procedures that would be expected during earthwork and the testing and observation used to evaluate those procedures.

General

Grading should be performed to at least the minimum requirements of governing agencies, Chapters 18 and 33 of the Uniform Building Code, CBC (2019) and the guidelines presented below.

Preconstruction Meeting

A preconstruction meeting should be held prior to site earthwork. Any questions the contractor has regarding our recommendations, general site conditions, apparent discrepancies between reported and actual conditions and/or differences in procedures the contractor intends to use should be brought up at that meeting. The contractor (including the main onsite representative) should review our report and these guidelines in advance of the meeting. Any comments the contractor may have regarding these guidelines should be brought up at that meeting.

Grading Observation and Testing

1. Observation of the fill placement should be provided by our representative during grading. Verbal communication during the course of each day will be used to inform the contractor of test results. The contractor should receive a copy of the "Daily Field Report" indicating results of field density tests that day. If our representative does not provide the contractor with these reports, our office should be notified.
2. Testing and observation procedures are, by their nature, specific to the work or area observed and location of the tests taken, variability may occur in other locations. The contractor is responsible for the uniformity of the grading operations; our observations and test results are intended to evaluate the contractor's overall level of efforts during grading. The contractor's personnel are the only individuals participating in all aspect of site work. Compaction testing and observation should not be considered as relieving the contractor's responsibility to properly compact the fill.
3. Cleanouts, processed ground to receive fill, key excavations, and subdrains should be observed by our representative prior to placing any fill. It will be the contractor's responsibility to notify our representative or office when such areas are ready for observation.

4. Density tests may be made on the surface material to receive fill, as considered warranted by this firm.
5. In general, density tests would be made at maximum intervals of two feet of fill height or every 1,000 cubic yards of fill placed. Criteria will vary depending on soil conditions and size of the fill. More frequent testing may be performed. In any case, an adequate number of field density tests should be made to evaluate the required compaction and moisture content is generally being obtained.
6. Laboratory testing to support field test procedures will be performed, as considered warranted, based on conditions encountered (e.g. change of material sources, types, etc.) Every effort will be made to process samples in the laboratory as quickly as possible and in progress construction projects are our first priority. However, laboratory workloads may cause in delays and some soils may require a **minimum of 48 to 72 hours to complete test procedures**. Whenever possible, our representative(s) should be informed in advance of operational changes that might result in different source areas for materials.
7. Procedures for testing of fill slopes are as follows:
    a) Density tests should be taken periodically during grading on the flat surface of the fill, three to five feet horizontally from the face of the slope.
    b) If a method other than over building and cutting back to the compacted core is to be employed, slope compaction testing during construction should include testing the outer six inches to three feet in the slope face to determine if the required compaction is being achieved.
8. Finish grade testing of slopes and pad surfaces should be performed after construction is complete.

Site Clearing

1. All vegetation, and other deleterious materials, should be removed from the site. If material is not immediately removed from the site it should be stockpiled in a designated area(s) well outside of all current work areas and delineated with flagging or other means. Site clearing should be performed in advance of any grading in a specific area.
2. Efforts should be made by the contractor to remove all organic or other deleterious material from the fill, as even the most diligent efforts may result in the incorporation of some materials. This is especially important when grading is occurring near the natural grade. All equipment operators should be aware of these efforts. Laborers may be required as root pickers.
3. Nonorganic debris or concrete may be placed in deeper fill areas provided the procedures used are observed and found acceptable by our representative.

Treatment of Existing Ground

1. Following site clearing, all surficial deposits of alluvium and colluvium as well as weathered or creep effected bedrock, should be removed unless otherwise specifically indicated in the text of this report.
2. In some cases, removal may be recommended to a specified depth (e.g. flat sites where partial alluvial removals may be sufficient). The contractor should not exceed these depths unless directed otherwise by our representative.
3. Groundwater existing in alluvial areas may make excavation difficult. Deeper removals than indicated in the text of the report may be necessary due to saturation during winter months.
4. Subsequent to removals, the natural ground should be processed to a depth of six inches, moistened to near optimum moisture conditions and compacted to fill standards.
5. Exploratory back hoe or dozer trenches still remaining after site removal should be excavated and filled with compacted fill if they can be located.

Fill Placement

1. Unless otherwise indicated, all site soil and bedrock may be reused for compacted fill; however, some special processing or handling may be required (see text of report).
2. Material used in the compacting process should be evenly spread, moisture conditioned, processed, and compacted in thin lifts six (6) to eight (8) inches in compacted thickness to obtain a uniformly dense layer. The fill should be placed and compacted on a nearly horizontal plane, unless otherwise found acceptable by our representative.
3. If the moisture content or relative density varies from that recommended by this firm, the contractor should rework the fill until it is in accordance with the following:
    a) Moisture content of the fill should be at or above optimum moisture. Moisture should be evenly distributed without wet and dry pockets. Pre-watering of cut or removal areas should be considered in addition to watering during fill placement, particularly in clay or dry surficial soils. The ability of the contractor to obtain the proper moisture content will control production rates.
    b) Each six-inch layer should be compacted to at least 90 percent of the maximum dry density in compliance with the testing method specified by the controlling governmental agency. In most cases, the testing method is ASTM Test Designation D 1557.
4. Rock fragments less than eight inches in diameter may be utilized in the fill, provided:
    a) They are not placed in concentrated pockets;
    b) There is a sufficient percentage of fine-grained material to surround the rocks;
    c) The distribution of the rocks is observed by, and acceptable to, our representative.

5. Rocks exceeding eight (8) inches in diameter should be taken off site, broken into smaller fragments, or placed in accordance with recommendations of this firm in areas designated suitable for rock disposal. On projects where significant large quantities of oversized materials are anticipated, alternate guidelines for placement may be included. If significant oversize materials are encountered during construction, these guidelines should be requested.
6. In clay soil, dry or large chunks or blocks are common. If in excess of eight (8) inches minimum dimension, then they are considered as oversized. Sheepsfoot compactors or other suitable methods should be used to break up blocks. When dry, they should be moisture conditioned to provide a uniform condition with the surrounding fill.

Slope Construction

1. The contractor should obtain a minimum relative compaction of 90 percent out to the finished slope face of fill slopes. This may be achieved by either overbuilding the slope and cutting back to the compacted core, or by direct compaction of the slope face with suitable equipment.
2. Slopes trimmed to the compacted core should be overbuilt by at least three (3) feet with compaction efforts out to the edge of the false slope. Failure to properly compact the outer edge results in trimming not exposing the compacted core and additional compaction after trimming may be necessary.
3. If fill slopes are built "at grade" using direct compaction methods, then the slope construction should be performed so that a constant gradient is maintained throughout construction. Soil should not be "spilled" over the slope face nor should slopes be "pushed out" to obtain grades. Compaction equipment should compact each lift along the immediate top of slope. Slopes should be back rolled or otherwise compacted at approximately every 4 feet vertically as the slope is built.
4. Corners and bends in slopes should have special attention during construction as these are the most difficult areas to obtain proper compaction.
5. Cut slopes should be cut to the finished surface. Excessive undercutting and smoothing of the face with fill may necessitate stabilization.

UTILITY TRENCH CONSTRUCTION AND BACKFILL

Utility trench excavation and backfill is the contractors responsibility. The geotechnical consultant typically provides periodic observation and testing of these operations. While efforts are made to make sufficient observations and tests to verify that the contractors' methods and procedures are adequate to achieve proper compaction, it is typically impractical to observe all backfill procedures. As such, it is critical that the contractor use consistent backfill procedures.

Compaction methods vary for trench compaction and experience indicates many methods can be successful. However, procedures that "worked" on previous projects may or may not prove effective on a given site. The contractor(s) should outline the procedures proposed, so that we may discuss them **prior** to construction. We will offer comments based on our knowledge of site conditions and experience.

1. Utility trench backfill in slopes, structural areas, in streets and beneath flat work or hardscape should be brought to at least optimum moisture and compacted to at least 90 percent of the laboratory standard. Soil should be moisture conditioned prior to placing in the trench.
2. Flooding and jetting are not typically recommended or acceptable for native soils. Flooding or jetting may be used with select sand having a Sand Equivalent (SE) of 30 or higher. This is typically limited to the following uses:
   a) shallow (12 + inches) under slab interior trenches and,
   b) as bedding in pipe zone.

   The water should be allowed to dissipate prior to pouring slabs or completing trench compaction.
3. Care should be taken not to place soils at high moisture content within the upper three feet of the trench backfill in street areas, as overly wet soils may impact subgrade preparation. Moisture may be reduced to 2% below optimum moisture in areas to be paved within the upper three feet below sub grade.
4. Sand backfill should not be allowed in exterior trenches adjacent to and within an area extending below a 1:1 projection from the outside bottom edge of a footing, unless it is similar to the surrounding soil.
5. Trench compaction testing is generally at the discretion of the geotechnical consultant. Testing frequency will be based on trench depth and the contractors procedures. A probing rod would be used to assess the consistency of compaction between tested areas and untested areas. If zones are found that are considered less compact than other areas, this would be brought to the contractors attention.

JOB SAFETY

General

Personnel safety is a primary concern on all job sites. The following summaries are safety considerations for use by all our employees on multi-employer construction sites. On ground personnel are at highest risk of injury and possible fatality on grading construction projects. The company recognizes that construction activities will vary on each site and that job site safety is the contractor's responsibility. However, it is, imperative that all personnel be safety conscious to avoid accidents and potential injury.

In an effort to minimize risks associated with geotechnical testing and observation, the following precautions are to be implemented for the safety of our field personnel on grading and construction projects.

1. Safety Meetings: Our field personnel are directed to attend the contractor's regularly scheduled safety meetings.
2. Safety Vests: Safety vests are provided for and are to be worn by our personnel while on the job site.
3. Safety Flags: Safety flags are provided to our field technicians; one is to be affixed to the vehicle when on site, the other is to be placed atop the spoil pile on all test pits.

In the event that the contractor's representative observes any of our personnel not following the above, we request that it be brought to the attention of our office.

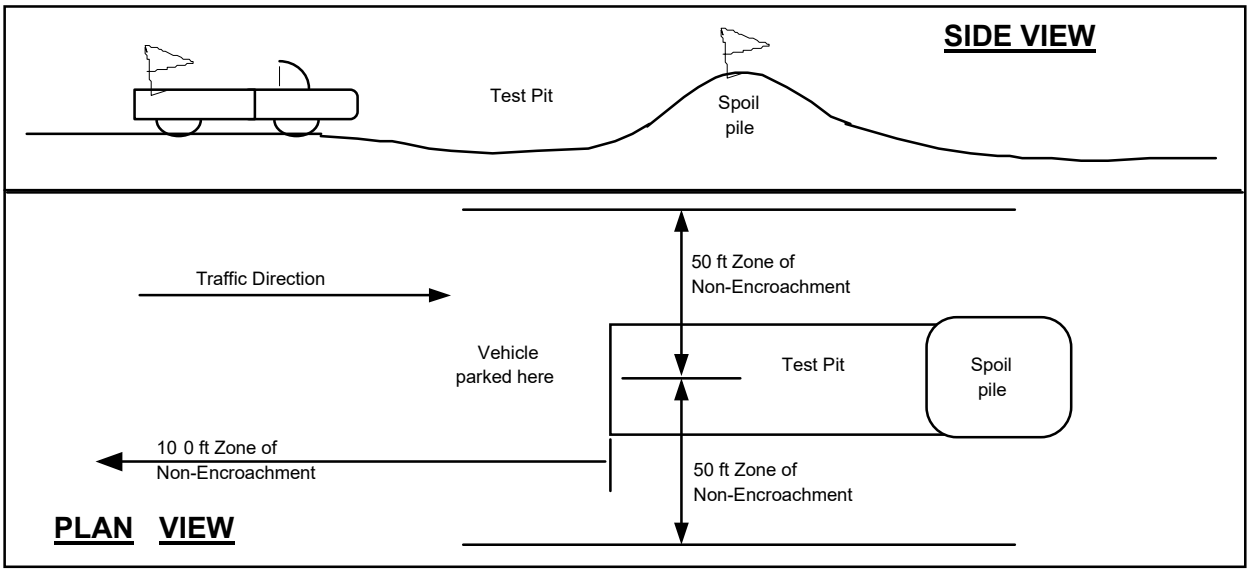
Test Pits Location, Orientation and Clearance

The technician is responsible for selecting test pit locations. The primary concern is the technician's safety. However, it is necessary to take sufficient tests at various locations to obtain a representative sampling of the fill. As such, efforts will be made to coordinate locations with the grading contractors authorized representatives (e.g. dump man, operator, supervisor, grade checker, etc.), and to select locations following or behind the established traffic pattern, preferably outside of current traffic. The contractors authorized representative should direct excavation of the pit and safety during the test period. Again, safety is the paramount concern.

Test pits should be excavated so that the spoil pile is placed away from oncoming traffic. The technician's vehicle is to be placed next to the test pit, opposite the spoil pile. This necessitates that the fill be maintained in a drivable condition. Alternatively, the contractor may opt to park a piece of equipment in front of test pits, particularly in small fill areas or those with limited access.

A zone of non-encroachment should be established for all test pits (see diagram below). No grading equipment should enter this zone during the test procedure. The zone should extend outward to the sides approximately 50 feet from the center of the test pit and 100 feet in the direction of traffic flow. This zone is established both for safety and to avoid excessive ground vibration, which typically decreases test results.

TEST PIT SAFETY PLAN



Slope Tests

When taking slope tests, the technician should park their vehicle directly above or below the test location on the slope. The contractor's representative should effectively keep all equipment at a safe operation distance (e.g. 50 feet) away from the slope during testing.

The technician is directed to withdraw from the active portion of the fill as soon as possible following testing. The technician's vehicle should be parked at the perimeter of the fill in a highly visible location.

Trench Safety

It is the contractor's responsibility to provide safe access into trenches where compaction testing is needed. Trenches for all utilities should be excavated in accordance with CAL-OSHA and any other applicable safety standards. Safe conditions will be required to enable compaction testing of the trench backfill.

All utility trench excavations in excess of 5 feet deep, which a person enters, are to be shored or laid back. Trench access should be provided in accordance with OSHA standards. Our personnel are directed not to enter any trench by being lowered or "riding down" on the equipment.

Our personnel are directed not to enter any excavation which;

1. is 5 feet or deeper unless shored or laid back,
2. exit points or ladders are not provided,
3. displays any evidence of instability, has any loose rock or other debris which could fall into the trench, or

4. displays any other evidence of any unsafe conditions regardless of depth.

If the contractor fails to provide safe access to trenches for compaction testing, our company policy requires that the soil technician withdraws and notifies their supervisor. The contractors representative will then be contacted in an effort to effect a solution. All backfill not tested due to safety concerns or other reasons is subject to reprocessing and/or removal.

Procedures

In the event that the technician's safety is jeopardized or compromised as a result of the contractor's failure to comply with any of the above, the technician is directed to inform both the developer's and contractor's representatives. If the condition is not rectified, the technician is required, by company policy, to immediately withdraw and notify their supervisor. The contractor's representative will then be contacted in an effort to effect a solution. No further testing will be performed until the situation is rectified. Any fill placed in the interim can be considered unacceptable and subject to reprocessing, recompaction or removal.

In the event that the soil technician does not comply with the above or other established safety guidelines, we request that the contractor bring this to technicians attention and notify our project manager or office. Effective communication and coordination between the contractors' representative and the field technician(s) is strongly encouraged in order to implement the above safety program and safety in general.

The safety procedures outlined above should be discussed at the contractor's safety meetings. This will serve to inform and remind equipment operators of these safety procedures particularly the zone of non-encroachment.

The safety procedures outlined above should be discussed at the contractor's safety meetings. This will serve to inform and remind equipment operators of these safety procedures particularly the zone of non-encroachment.

Appendix E

Phase I Environmental Site Assessment, 78201 Amboy Road

Ardent Environmental Group

July 19, 2021

Phase I Environmental Site Assessment

78201 Amboy Road
APN's: 0625-071-04, 05, 07, 08, 09, 10 and 14 Totaling 134 acres
San Bernardino County, California

Prepared for:
The Wonder Inn Joshua Tree
c/o ELMT Consulting, Inc.
2201 North Grand Avenue, Suite 10098
Santa Ana, California 92711

Prepared by:
Ardent Environmental Group, Inc.
1827 Capital Street, Suite 103
Corona, California 92880

July 19, 2021
Project No. 101231001

ARDENT
ENVIRONMENTAL GROUP, INC.

July 19, 2021
Project No. 101231001

Mr. Mark Sur
The Wonder Inn Joshua Tree
c/o ELMT Consulting, Inc.
2201 North Grand Avenue, Suite 10098
Santa Ana. California 92711

Subject: **Phase I Environmental Site Assessment**
78201 Amboy Road
APN's: 0625-071-04, 05, 07, 08, 09, 10 and 14
totaling 134 acres
San Bernardino County, California

Dear Mr. Sur:

Ardent Environmental Group, Inc. (Ardent) has performed a Phase I Environmental Site Assessment (ESA) for the property located at 78201 Amboy Road in an unincorporated area of San Bernardino County, near the city of Twentynine Palms, California (site). The site encompasses APNs 0625-071-04, 05, 07, 08, 09, 10 and 14 and totals 134 acres. Work was completed in general accordance with the Authorization for Services No. 001 dated March 23, 2021 to the Professional Services Agreement dated March 23, 2021 between ELMT Consulting, Inc. (ELMT) and Ardent. The attached report presents our methodology, findings, opinions, and conclusions regarding the environmental conditions at the site. We appreciate the opportunity to be of service to you on this project. If there are any questions, please feel free to call the undersigned at your convenience.

Sincerely,
Ardent Environmental Group, Inc.

Tahsin Annoor
Staff Geologist

Jonathan Anderson, P.G.
Senior Staff Geologist

PAR/JPA/TA/aw

Distribution: (1) Addressee

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EXECUTIVE SUMMARY

Ardent Environmental Group, Inc. (Ardent) was retained by ELMT Consulting, Inc. (ELMT) to perform a Phase I Environmental Site Assessment (ESA) for the property located at 78201 Amboy Road in an unincorporated area of San Bernardino County, near the city of Twentynine Palms, California (site). The site encompasses APNs 0625-071-04, 05, 07, 08, 09, 10 and 14 and totals 134 acres. The site has been vacant land and used for residential and agricultural/commercial purposes. The site is planned to be redeveloped as a hotel, referred to as The Wonder Inn. The existing mid-century commercial building located on the site will be refurbished and included in the new development. The Phase I ESA is being completed as part of the California Environmental Quality Act (CEQA) requirements that will be submitted by ELMT on behalf of its client, The Wonder Inn Joshua Tree. Document review and site assessment activities for this report were conducted between March 23, 2021 and April 21, 2021.

In summary, the following items were noted:

- From at least 1948 through 1952, the site was vacant land. Sometime before 1970, the existing commercial building was constructed and used for residential purposes through at least 1983. By 1995, the northwestern portion of the site was being used for agricultural purposes, most recently to grow jojoba beans for use in producing jojoba oils. According to regulatory records, the agricultural uses ceased in 2007. At the time of Ardent's site reconnaissance, no jojoba production was noted, and the commercial building was vacant.
- Based on Ardent's site reconnaissance, at least two groundwater wells are located on-site. According to a historical water well permit, one of the wells was installed in 1998 to a total depth of 475 feet below ground surface (bgs) and groundwater was measured at a depth of approximately 261 feet below the ground surface (bgs). Groundwater in the site vicinity is anticipated to flow in a north to northeasterly direction following surface topography.
- In 1996, the San Bernardino County Fire Department (SBCFD) completed a site inspection of the property due to a complaint about cyanide mining wastes being present. According to the property owner, the site was formerly a mining operation for gold but ceased its operations approximately ten years before the SBCFD inspection (approximately 1986). Mercury was used to extract gold from ore, and "…cyanide was not used in any capacity." According to the SBCFD, much of the mining equipment was present, although had not been operational for years. No mining wastes or chemicals were observed on the premises. Based on this information, the SBCFD did not issue violations. Based on Ardent's review of historical aerial photographs, topographical maps, and regulatory agency files, there has been no indication of mining operations at the site. Based on this information and the SBCFD inspection report, the mining operations appear to have been minimal and very sporadic, and therefore, large quantities of chemical uses are unlikely. Based on this information, the former mining operations would not be considered an environmental concern to the site.

- According to SBCFD inspection report, the jojoba farming activities included the use of sulfuric acid to reduce the natural soil pH to neutral. According to the former property owner, the natural pH of the soil at the 40-acre jojoba farm is 8. To reduce the pH to 7 and to fertilize the field, 55-gallon containers of sulfuric acid (with a pH of 1 to 2) and urea (a crystalline compound of natural materials used as a fertilizer due to its high nitrogen levels) were mixed in a 200-gallon aboveground storage tank (AST) within secondary containment. The solution was introduced into the irrigation system (most likely through the use of a drip system) through a venturi tube. Again, no violations were issued by the SBCFD. Based on the types of chemicals used (i.e., acids which naturally degrade to neutral levels over time, and urea which is a naturally occurring fertilizer), and lack of concern by the regulatory agency, there is a low likelihood that these chemicals would have adversely impacted the site.
- Based on information obtained during this assessment, a portion of the site began being used for agricultural purposes sometime before 1995. There have been no indications in aerial photographs or regulatory agency files of large quantity storage, use, or mixing of pesticides or herbicides. Since organochlorine pesticides (OCPs) and chlorinated herbicides have been discontinued for use in the United States since the 1970s, there is a low likelihood that these chemicals have been used, stored, or mixed at the site. Based on this information, the possible use of agricultural chemical at the site would not be considered an environmental concern.
- Based on the age of the site building (pre-1970), asbestos containing materials (ACMs) and lead based paint (LBP) are likely present. Although not observed, underground asbestos-cement pipelines (ACPs) are sometimes used by agricultural activities for transferring irrigation water.
- No other on- or off-site environmental concerns were noted.

CONCLUSIONS

Ardent has performed this Phase I ESA in general conformance with the scope and limitations of the American Society for Testing and Materials (ASTM) Practice E 1527-13, ASTM Standard E 2600-15, and the EPA Standards and Practices for All Appropriate Inquiries (AAI), Final Rule (40 CFR, Part 312), for the property located at 78201 Amboy Road in an unincorporated area of San Bernardino County, near the city of Twentynine Palms, California. Any limitations or exceptions encountered during completion of this report are stated in Section 1.4. No evidence or indication of recognized environmental conditions (RECs), historical-RECs (HRECs), controlled-RECs (CRECs), or conditions indicative of releases or threatened releases of hazardous substances on, at, in, or to the site has been revealed, with the exception of the following:

RECs

- No RECs were identified during the completion of this report.

HRECs

- No HRECs were identified during completion of this report.

CRECs

- No CRECs were identified during completion of this report.

De-Minimis Condition

- Although not considered an environmental concern to the site by ASTM Standards, ACMs and LBP are likely present.
- Two groundwater wells and possible ACPs.

RECOMMENDATIONS

Based on the results of this Phase I ESA, Ardent recommends no further investigations at this time. Prior to major renovations of the existing building, a comprehensive asbestos and LBP survey should be completed. If present, these materials should be removed (ACMs) or stabilized (LBP) by a state-licensed abatement contractor prior to renovation activities. If the existing groundwater wells are not planned to be used and/or other wells are discovered during grading, the wells should be abandoned by a state-licensed C-57 drilling contractor in accordance with current regulatory standards. If ACPs are discovered during grading, these materials should be removed by a state-licensed abatement contractor.

1. INTRODUCTION

Ardent Environmental Group, Inc. (Ardent) was retained by ELMT Consulting, Inc. (ELMT) to perform a Phase I Environmental Site Assessment (ESA) for the property located at 78201 Amboy Road in an unincorporated area of San Bernardino County, near the city of Twentynine Palms, California (site; Figure 1). The site encompasses APNs 0625-071-04, 05, 07, 08, 09, 10 and 14 and totals 134 acres. Work was completed in general accordance with the Authorization for Services No. 001 dated March 23, 2021 to the Professional Services Agreement dated March 23, 2021 between ELMT and Ardent. The site has been vacant land and used for residential and agricultural purposes. The site is planned to be redeveloped as a hotel, referred to as The Wonder Inn. The existing mid-century commercial building (referred to herein as site building or commercial building) located on the site will be refurbished and included in the new development. The Phase I ESA is being completed as part of the California Environmental Quality Act (CEQA) requirements that will be submitted by ELMT on behalf of its client, The Wonder Inn Joshua Tree. The following sections identify the purpose, the involved parties, the scope of work, and the limitations and exceptions associated with the Phase I ESA.

1.1. Purpose of Phase I ESA

In accordance with the American Society for Testing and Materials (ASTM) E1527-13 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (ASTM Standard E1527-13), the objective of the Phase I ESA was to identify, to the extent feasible pursuant to ASTM Standard E1527-13, recognized environmental conditions (RECs), historical-RECs (HRECs), controlled-RECs (CRECs), or conditions indicative of releases or threatened releases of hazardous substances on, at, in, or to the subject property.

ASTM defines RECs as "…the presence or likely presence of any hazardous substance or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment." ASTM defines HRECs as "…a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls)." ASTM defines

CRECs as a REC "…resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls)."

Other environmental considerations include site features or conditions that may have an environmental component of interest, but which do not meet the ASTM definition of a REC, CREC, or HREC. ASTM does not necessarily require any actions to address the presence or condition, but such conditions are identified for the sake of thoroughness and completeness.

The United States Environmental Protection Agency ("USEPA" or "EPA") has stated that ASTM Standard E1527-13, is consistent with the Standards and Practices for All Appropriate Inquiries (AAI), Final Rule (40 Code of Federal Regulations [CFR], Part 312) and is compliant with the statutory criteria for all appropriate inquiries. All appropriate inquires, as defined in the AAI Final Rule, must be conducted by persons seeking the landowner liability protections under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) prior to acquiring a property or seeking or receiving federal Brownfields grants under the authorities of CERCLA. The purpose of AAI, as defined in the AAI Final Rule, was to identify releases and threatened releases of hazardous substances which cause or threaten to cause the incurrence of response costs.

As part of this Phase I ESA, Ardent also assessed whether a vapor encroachment condition (VEC) exists at the site. The VEC assessment was completed following the ASTM E2600-15 Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions (ASTM Standard E2600-15). The objective of this work was to evaluate the possibility that hazardous materials or other adverse environmental conditions are present due to past or present use of the site and/or properties in the site vicinity.

1.2. Involved Parties

Ms. Tahsin Annoor of Ardent conducted historical research, site reconnaissance, regulatory inquiries, and document review. Mr. Jonathan Anderson and Mr. Paul Roberts completed oversight and management. Mr. Roberts meets the definition of an *environmental professional* as set forth in the AAI Final Rule.

1.3. Scope of Work

Ardent's scope of work for this Phase I ESA is consistent with ASTM Standard E1527-13. The scope of work included the activities listed below.

- **Review of User Provided Information** – Review of information regarding title and judicial records for environmental liens or activity and use limitations, recorded environmental liens, actual or specialized knowledge or commonly known information regarding environmental conditions at the site, the relationship of the purchase price of the property to the fair market value, readily available maps, environmental reports, and other environmental documents pertaining to the site, as available and obtained from the user/client.
- **Records Review** – Acquisition and review of records, including federal, state, tribal, and local regulatory agency databases, for the site and for properties located within a specified radius of the site; local regulatory agency files for the site and selected nearby properties of potential environmental concern; physical setting sources, including topographic maps, geologic maps, and geologic and hydrogeologic reference documents; and historic land use information including aerial photographs, historical fire insurance rate maps, building department records, and city directories, as necessary, that are reasonably ascertainable, publicly available, can be obtained within reasonable time and cost, and are practically reviewable.
- **Vapor Encroachment Condition (VEC)** – Review available regulatory and client provided data to assess Tier 1 non-numeric screening for the site. Ardent evaluated whether contaminants were present in soil and/or groundwater in the site vicinity which might pose a VEC at the site.
- **Site Reconnaissance** – Performance of a site reconnaissance to visually observe the site and any structure(s) located on the site to the extent not obstructed by bodies of water, adjacent buildings, or other obstacles. The purpose of the site reconnaissance is to obtain information indicating the likelihood of identifying RECs in connection with the site, including the general site setting, site usage, use and storage of hazardous materials and petroleum products, disposal of waste products and materials, sources of polychlorinated biphenyls (PCBs), and evidence of releases and possible risks of contamination from activities at adjacent properties.
- **Interviews** – Interviews with site representatives, including owners, occupants, and site managers, regarding the environmental condition of the site to the extent necessary and such persons are available. Interviews with state and/or local government officials, as necessary.

- **Report** – Evaluation of the information and data obtained by the Phase I ESA process outlined above and preparation of this Phase I ESA report documenting findings and providing opinions and conclusions regarding possible environmental impacts and RECs at the site.

1.4. Limitations and Exceptions

The environmental services described in this report have been conducted in general accordance with current regulatory guidelines and the standard-of-care exercised by environmental consultants performing similar work in the project area. No warranty, expressed or implied, is made regarding the professional opinions presented in this report.

This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Ardent should be contacted if the reader requires any additional information or has questions regarding the content, interpretations presented, or completeness of this document.

The findings, opinions, and conclusions are based on an analysis of the observed site conditions and the referenced literature. It should be understood that the conditions of a site could change with time as a result of natural processes or the activities of man at the subject property or nearby sites. In addition, changes to the applicable laws, regulations, codes, and standards of practice may occur due to government action or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which Ardent has no control. Ardent cannot warrant or guarantee that not finding indicators of any particular hazardous material means that this particular hazardous material or any other hazardous materials do not exist on the site. Additional research, including invasive testing, can reduce the uncertainty, but no techniques now commonly employed can eliminate the uncertainty altogether.

1.5. Special Terms and Conditions

As indicated in Section 13.1.5 of ASTM Standard E1527-13, the following, which is not intended to be all inclusive, represents out-of-scope items with respect to a Phase I ESA: asbestos-containing materials (ACMs), radon, lead-based paint (LBP), lead in drinking water, wetlands, regulatory compliance, cultural and historic risk, industrial hygiene, health and safety, ecological resources, endangered species, indoor air quality unrelated to releases of hazardous substances or petroleum products into the environment, biological agents, and mold. As part of our agreement with the client, Ardent visually assessed site buildings (if

present) for possible ACMs, LBP, and mold and researched the potential for radon exposure at the site. In addition, ASTM Standard E2600-15 supplements the ASTM Standard E1527-13 to include evaluation of VEC using Tier 1 screening.

This study did not include an evaluation of geotechnical conditions or potential geologic hazards. In addition, Ardent did not address interpretations of zoning regulations, building code requirements, or property title issues.

1.6. User Reliance

This report may be relied upon and is intended exclusively for use by the client, its partners, members, investors, affiliates, successors and assigns, and lenders. Any use or reuse of the findings, opinions, and/or conclusions of this report by parties other than the foregoing parties is undertaken at said parties' sole risk.

1.7. Physical Limitations

As noted in Section 6, Ardent was unable to gain access to the farmhouse during its site reconnaissance. Although building access was denied, based on the use of this structure (i.e. residential and jojoba processing) and the lack of chemical uses at the site, there is a low likelihood that large quantities of chemical use, storage, or handling has occurred within the building. Based on this information, the lack of entry into this building would not be considered a data gap based on ASTM Standards and our professional judgement. No other physical limitations were encountered during the completion of this Phase I ESA report.

1.8. Data Gaps

No data gaps were noted during completion of this Phase I ESA.

2. GENERAL SITE CHARACTERISTICS

The following sections describe the location and the current uses of the site and adjacent properties. A site location map is presented as Figure 1 and a site vicinity map is presented as Figure 2. Selected photographs of the site and surrounding properties are provided in Appendix A.

2.1. Location and Legal Description

The site is located at 78201 Amboy Road in an unincorporated area of San Bernardino County, near the city of Twentynine Palms, California (Figure 1). The site is located in a remote area, approximately 6-miles from the city of Twentynine Palms. The site consists of

six parcels which have been issued the County Tax Assessor's Parcel Numbers (APNs) 625-071-04, 625-071-05, 625-071-07, 625-071-08, 625-071-09, and 625-071-10. A complete legal description is present in a Preliminary Title Report provided in Appendix B.

The site is bounded as shown on Figure 2. In general, the site is bounded by Gammel Road (a dirt road) and vacant land to the east, Vía Arenosa (a dirt road) to the west, Amboy Road and vacant land to the north, and vacant land to the south (Figure 2). Site boundary information was obtained during the site reconnaissance and from information provided by the client.

2.2. Site Description and Current Site Uses/Operations

The following paragraphs present a description of the structures present at the site, the tenants currently occupying the site, the activities being conducted on-site, the heating and cooling systems utilized in the site building, the sewage disposal system, and the potable water provider for the site, if any.

2.2.1. Site Description

The site is an "L-shaped" property comprising approximately 133-acres. Forty-acres of land in the northwestern portion of the site has been used as a jojoba farm, and one vacant commercial building is currently present on the site (Figure 2).

2.2.2. Occupants

At the time of this assessment, the site was unoccupied.

2.2.3. Heating and Cooling Systems

Heating and cooling systems are powered by electricity provided by utility purveyors. Natural gas is not provided to the site.

2.2.4. Sewage Disposal/Septic Systems

Sewage disposal at the on-site building is reportedly connected to an on-site septic system. Based on the historical land use as residential and agricultural, this feature would not be considered an environmental concern to the site.

2.2.5. Potable Water

Potable water is obtained from two on-site groundwater wells (Figure 2).

2.3. Adjacent Properties

In general, the site vicinity comprises vacant land with sparse residential buildings. No above ground storage tanks (ASTs), evidence of underground storage tanks (USTs), or possible hazardous materials or wastes were noted being used or stored by off-site properties along the site property line. These off-site properties would not be considered an environmental concern to the site.

3. USER PROVIDED INFORMATION

The following sections summarize information provided by the user to assist the environmental professional in identifying the possibility of RECs in connection with the site, and to fulfill the user's responsibilities in accordance with Section 6 of ASTM Standard E 1527-13. A copy of the user questionnaire completed by Mr. Alan Greenberg of The Wonder Inn Joshua Tree is presented in Appendix B.

3.1. Current Title Information

A Preliminary Title Report prepared by Fidelity National Title Company dated January 24, 2020, amended January 30, 2020 was provided for review during the completion of this report. According to the Preliminary Title Report, the site is currently owned by "Henry Philip Ittleson and Margot Ittleson, husband and wife as joint tenants, as to Parcels A, B, C, D, and E; Henry P. Ittleson and Margot P. Ittleson, husband and wife as joint tenants, as to Parcel F." A copy of the Preliminary Title Report is provided in Appendix B. According to ELMT's client the Mr. Alan Greenberg has since purchased the property from the owners listed in the Preliminary Title Report.

3.2. Environmental Liens or Activity and Use Limitations

Based on our review of available documentation, no records of environmental liens or activity and use limitations (AULs) were noted associated with the subject property. In addition, according to Mr. Greenberg, no environmental liens or AULs have been recorded against the site.

3.3. Specialized Knowledge

Mr. Greenberg has indicated that he has no specialized knowledge or experience pertaining to the site or the adjacent properties that are material to RECs in connection with the site.

3.4. Commonly Known or Reasonably Ascertainable Information

Mr. Greenberg is not aware of commonly known or reasonably ascertainable information pertaining to the site.

3.5. Valuation Reduction for Environmental Issues

In a transaction involving the purchase of a parcel of commercial real estate, the user shall consider the relationship of the purchase price of the property to fair market value of the property if the property was not affected by hazardous substances or petroleum products. According to Mr. Greenberg, the purchase price of the property reflects the fair market value.

3.6. Reason for Performing Phase I ESA

This Phase I ESA is being completed as part of The Wonder Inn Joshua Tree's real estate due diligence prior to purchasing the site.

3.7. Other User Provided Information

No other pertinent environmental information was provided to Ardent during the completion of this report.

4. PHYSICAL SETTING

The following sections include discussions of topographic, geologic, and hydrogeologic conditions in the vicinity of the site, based upon our document review and our visual reconnaissance of the site and adjacent areas.

4.1. Site Topography

Based on the review of the United States Geological Survey (USGS) 7.5 Minute Series, Valley Mountain, California Topographic Quadrangle Maps dated 2012; the elevation of the site and surrounding areas approximately range between 1,740 to 1,760 feet above mean sea level (msl). Surface topography generally slopes in a gradual north to northeasterly direction.

4.2. Geology

The site is located in the southwestern part of the Mojave Desert, which exists in a rain shadow created by the Transverse Ranges and the Sierra Nevada. The Mojave Desert displays typical basin and range topography where areas with higher elevation are

commonly referred to as the “High Desert.” Numerous mountain ranges create valleys in the area which are internally drained into endorheic basins; therefore, precipitation within the valley does not eventually flow to the ocean. The area surrounding the site consists of coarse-grained and poorly sorted sand originating from the surrounding alluvial fans comprised of marine and nonmarine sedimentary rocks of Pleistocene-Holocene age. Below the alluvial cover, the bedrock generally encompasses older igneous and metamorphic rocks intruded by younger igneous rocks.

4.3. Oil and Gas Maps

Based on a review of the California Department of Conservation, Geologic Energy Management Division (CalGEM) online well finder, the site is not located within an active oil field and no oil or natural gas wells have been drilled on the property. The closest well is located approximately 640 feet, immediately east of the site and is considered an abandoned plugged Wildcat well. Based on this information, there is a low likelihood that a methane gas issue is present.

4.4. Site Hydrology

The following sections discuss the site hydrology in terms of both surface waters and groundwater.

4.4.1. Surface Waters

No natural and/or artificial water bodies are located on or adjacent to the site.

4.4.2. Groundwater

Groundwater information for the site was obtained from a Well Completion Report dated December 7, 1998 provided by the San Bernardino County Environmental Health Services (SBCEHS) for an on-site groundwater well located in the south-central portion of the site. (Figure 2) According to the report, groundwater was measured following its installation in 1998 at a depth of approximately 261 feet below ground surface (bgs). As noted in Section 6.12, an additional groundwater well located in the northern portion of the site was observed during Ardent’s site reconnaissance (Figure 2). Groundwater is anticipated to flow in a north to northeasterly direction, following surface topography.

5. HISTORICAL LAND USE

Ardent conducted a historical record search for both the site and surrounding areas. This included a review of one or more of the following sources that were found to be both reasonably ascertainable and useful for the purposes of this Phase I ESA: historical aerial photographs, historical fire insurance maps, historical city directories, building permits and plans, topographic maps, property tax records, zoning/land use records, and a review of prior environmental assessment reports regarding the site. Copies of historical data are provided in Appendix C.

5.1. Summary of Historical Land Use of the Property

From at least 1948 through 1952, the site was vacant land. Sometime before 1970, the existing commercial building was constructed and reportedly used for commercial/residential purposes through at least 1983. By at least 1995, the northwestern portion of the site was being used for agricultural purposes, most recently to grow jojoba beans for use in producing jojoba oils. According to regulatory records, the agricultural uses ceased in 2007. At the time of Ardent's site reconnaissance, no jojoba production was noted, and the farmhouse was vacant.

5.2. Summary of Historical Land Use of Adjoining Properties

The adjoining properties are vacant land and do not appear to have been historically utilized for commercial or residential purposes. Sparse residential buildings have been noted at least 0.20-mile or greater from the site since 1970.

5.3. Fire Insurance Rate Maps

Historical Sanborn Fire Insurance Rate Maps (Sanborn maps) were requested from Environmental Database Resources (EDR) of Shelton, Connecticut. According to EDR, Sanborn maps were not available for the site or site vicinity.

5.4. Historical Aerial Photographs

Historical aerial photographs for select years between 1948 and 2016 were provided by EDR. Aerial photographs dated 1970 and 1977 provided by EDR did not include the northern portion of the site; therefore, Ardent reviewed additional historical aerial photographs from the Historic Aerials website. These photographs were dated 1970, 1983, 2010, and 2014. The following presents a review of these photographs.

- **1948 and 1952** – The aerial photographs are of poor quality; however, the site and site vicinity are noted as vacant land.
- **1970 and 1983** – By at least 1970, the existing commercial building located on-site is observed, and sparse residential buildings are noted in the site vicinity, at least 0.20-mile or greater from the site. No evidence of agricultural land use was noted in these aerial photographs.
- **1995, 2005, 2009, 2010, 2012, 2014 and 2016** – By at least 1995, the northern portion of the site appeared to be in use for agricultural purposes as the jojoba farm. No additional development is noted for the site vicinity. The site and the site vicinity appeared similar to that noted during the site reconnaissance.

5.5. San Bernardino County Land Use Services (SBCLUS)

The SBCLUS maintains building permits for the site and properties in the site vicinity. Due to Covid-19, files were requested using the current address via email. Initial response from the SBCLUS stated that a minimum of 45 days is required to complete a search of their archive files. To-date, no additional response has been obtained. Based on information obtained from other sources during completion of this Phase I ESA, there is a low likelihood that the building permits records, if any, would change the conclusions and recommendations of this report. Based on this information, the lack of files from the SBCLUS would not be considered a data gap in accordance with ASTM Standards and our professional opinion.

5.6. City Directories

A city directory search for selected years from 1976 through 2017 was obtained from EDR for the site and immediate site vicinity. The site was not listed in the 1976 and 1980 directory. From at least 1985 to 2005, the site is listed as a residence, “George Morang,” who was noted on the city directories dated 1985, 1992, and 1995, and as “John Williams” on the 2000 and 2005 directories. The 2010 directory indicated “Occupant Unknown.” The site is no longer listed on the 2014 and 2017 directories.

Based on city directories, the site vicinity has been used for residential purposes since the late-1970s. No listings of potential environmental concern (such as gasoline stations, dry cleaners, automobile shops, industrial businesses, etc.) were noted in the site vicinity.

5.7. Historical Topographic Maps

Historical topographic maps were provided by EDR for review. The maps were dated 1954, 1956, and 2012. The three topographic maps show roads, elevation, and topographical

features relative to the site location. The topographic maps were large scale and did not show property details.

5.8. Interviews

Interviews were conducted by Ardent with key site personnel (e.g., past and present owners, operators, and/or occupants), with the objective of obtaining information indicating RECs in connection with the subject property. The following are the site personnel interviewed for purposes of this assessment, and a summary of their comments with regards to site conditions.

5.8.1. Interview with Owner

The owner was not available to be interviewed during this assessment.

5.8.2. Interview with Site Manager

A site manager was not available to be interviewed during this assessment.

5.8.3. Interviews with Occupant

The site was unoccupied during this assessment; as such, no occupants were available for interview.

5.8.4. Interviews with Local Government Officials

Ardent interviewed local regulatory representatives during completion of the agency file review. The results of these interviews are presented throughout the report.

5.8.5. Interviews with Others

No other interviews were conducted during the completion of this report.

5.9. Previous Reports and Documents

No other previous reports or documents were provided to Ardent.

6. SITE RECONNAISSANCE

The site and site vicinity reconnaissance were performed by Ardent personnel on April 16, 2021. The site reconnaissance involved a visual inspection of the site and a visual observation of adjoining properties. At the time of the site reconnaissance, there were no weather-related obstructions. Selected photographs taken during these activities are included in Appendix A.

At the time of the site reconnaissance, the site was unoccupied. The former jojoba farm was noted in the northwestern portion of the site and contained one vacant commercial building which was reportedly used as for commercial/residence purposes and for jojoba oil production. Based on our research, the jojoba plant is grown in arid environments and require only limited pesticides or herbicides to grow. Once mature, the seeds are harvested and pressed to produce jojoba oil which is used in various commercial, cosmetic, and industrial products. No chemical uses are needed for jojoba production. Based on our site reconnaissance, no chemicals were observed.

Two groundwater wells were noted on the property, one in the northern portion of the site and the other in the south-central portion of the site (Figure 2). Evidence of the former polyvinyl chloride (PVC) irrigation system used by the jojoba farm was evident, leading from the onsite groundwater wells to the plants.

Access into the locked on-site farmhouse building was not provided. Based on this use of the building (i.e., farmhouse and jojoba oil production), and the lack of chemicals used during the production of jojoba oil, there is a low likelihood that large quantities of chemicals have been used or stored at the site; therefore, the lack of entry into the farmhouse would not be considered a data gap in accordance with ASTM Standards and our professional judgment.

The following presents information requested by ASTM.

6.1. Use and Storage of Hazardous Substances and Petroleum Products

No use or storage of hazardous substances or petroleum products was observed.

6.2. Storage and Disposal of Hazardous Wastes

No on-site storage or disposal of hazardous waste was observed.

6.3. Unidentified Substance Containers

No unidentified containers were noted at the site.

6.4. Aboveground Storage Tanks (ASTs) and Underground Storage Tanks (USTs)

No ASTs and no evidence of USTs (fill ports, vent pipelines, manhole covers, etc.) were observed during the site reconnaissance.

6.5. Evidence of Releases

Evidence of chemical releases on the site, such as odors, stressed vegetation, stains, leaks, pools of liquids, and spills, was not observed during the site reconnaissance.

6.6. Polychlorinated Biphenyls (PCBs)

Historically, PCBs (a group of hazardous substances and suspected human carcinogens) were widely used as an additive in cooling oils for electrical components. Typical sources of PCBs can include electrical transformers. One pad-mounted electrical transformer was observed immediately east of the on-site building. The transformer appeared to be in good condition and no evidence of staining was noted in the vicinity of this feature. Based on this information, the transformer would not be considered an environmental concern to the site.

6.7. Suspect Asbestos-Containing Building Materials (ACMs)

The manufacture of most ACMs was phased out in the 1970s, ending in 1980. Previously manufactured ACMs that were in stock continued to be used through approximately 1981. Some non-friable ACMs are still manufactured (e.g., roofing mastics). In general, buildings constructed after 1981 have a negligible potential to contain friable ACMs and a low potential for most non-friable ACMs with the exception of roofing materials and mastics. Based on the age of the site building (pre-1970), ACMs are likely present. Although not observed, underground asbestos-cement pipelines (ACPs) are sometimes used by agricultural activities for transferring irrigation water.

6.8. Lead Based Paint (LBP)

The manufacture of LBP was phased out in approximately 1978. Based on the age of the site building (pre-1970), LBP is likely present.

6.9. Indications of Water Damage or Mold Growth

Although access was not provided into the on-site farmhouse, no indications of water damage or mold growth were observed around the outside of the building during the site reconnaissance.

6.10. Wastewater Systems

No active wastewater systems, such as sumps or clarifiers, were noted during the site reconnaissance.

6.11. Stormwater Systems

No stormwater systems were observed at the site during the site reconnaissance.

6.12. Wells

As noted above, two groundwater wells were noted on the property, one in the northern portion of the site near the existing site building and the other in the south-central portion of the site (Figure 2). As discussed in Sections 4.4.2 and 9.2, records obtained from the SBCEHS indicated that the well in the south-central portion of the site installed in 1998 to a depth of 475 feet bgs. According to the well permit, the well was installed for use as an agricultural water well associated with the former jojoba farm. No publicly available information was found during the completion of this report for the well in the northern portion of the site. If the existing groundwater wells are not planned to be used and/or other wells are discovered during grading, the wells should be abandoned by a state-licensed C-57 drilling contractor in accordance with current regulatory standards.

6.13. Other Subsurface Structures

No subsurface structures were noted during the site reconnaissance.

6.14. Other Issues

It should be noted that large piles of municipal trash and debris were noted in the area of the former jojoba farm, such as tires, wooden boards, rusted metal, stripped/abandoned cars, etc. No evidence of hazardous materials or wastes (such as car batteries, pesticide containers, petroleum containers, paint cans, 55-hgallon drums, etc.) were noted. Based on this information, the municipal trash and debris would not be considered an environmental concern. No other on- or off-site issues of environmental concern were noted during the site reconnaissance.

7. ENVIRONMENTAL DATABASE SEARCH

A computerized environmental information database search was performed by EDR for this Phase I ESA on March 24, 2021. The database search included federal, state, local, and tribal databases. A summary of the environmental databases searched, their corresponding search radii, and number of noted facilities of environmental concern is presented in Appendix D. In addition, a description of the assumptions and approach to the database search is provided in Appendix D. The review was conducted to evaluate whether the site or properties within the

vicinity of the site have been reported as having experienced significant unauthorized releases of hazardous substances or other events with potentially adverse environmental effects.

Two unmapped properties were identified in the database report due to poor or inadequate address information. However, based on the reviewed location information provided for the properties, and/or the type of database on which the properties are listed, there is a low likelihood that the environmental integrity of the site has been adversely impacted by these off-site sources.

The following paragraphs describe the databases that contain noted properties of environmental concern and include a discussion of the regulatory status of the facilities and potential environmental impact to the subject site.

7.1. Federal National Priorities List (NPL): Distance Searched – 1 mile

The NPL is the USEPA's database of uncontrolled or abandoned hazardous waste properties identified for priority remedial actions under the Superfund program. This database includes proposed NPL listings.

Neither the site nor properties located within the search radius are listed on this database.

7.2. Federal Delisted NPL: Distance Searched – 1 mile

This database contains delisted NPL properties under the Superfund program. The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the USEPA uses to delete properties from the NPL. In accordance with 40 Code of Federal Regulations (CFR) 300.425. (e), properties may be deleted from the NPL where no further response is appropriate.

Neither the site nor properties located within the search radius are listed on this database.

7.3. Federal Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) List: Distance Searched – 0.5 mile

The CERCLIS database contains properties which are either proposed or on the NPL and properties which are in the screening and assessment phase for possible inclusion on the NPL. This database also includes properties listed as No Further Remedial Action Planned (NFRAP). These facilities are listed on either the Superfund Enterprise Management System (SEMS) or SEMS-Archive databases (SEMS-ARCHIVE).

Neither the site nor properties located within the search radius are listed on this database.

7.4. Federal Corrective Action Report (CORRACTS): Distance Searched – 1 mile

The USEPA maintains this database of Resource Conservation and Recovery Act (RCRA) facilities that are undergoing corrective action. A corrective action order is issued when there has been a release of hazardous waste or constituents into the environment from a RCRA facility.

Neither the site nor properties located within the search radius are listed on this database.

7.5. Federal Resource Conservation and Recovery Act (RCRA) Treatment, Storage, and Disposal Facilities (TSDF) List: Distance Searched – 0.5 mile

The RCRA TSDF database (non-CORRACTS) is a compilation by the EPA of facilities that report generation, storage, transportation, treatment, or disposal of hazardous waste.

Neither the site nor properties located within the search radius are listed on this database.

7.6. Federal RCRA Generators List: Distance Searched – Site and Adjoining Properties

This list identifies sites that generate hazardous waste as defined by RCRA. Inclusion on this list is for permitting purposes and is not indicative of a release.

Neither the site nor the adjoining properties are listed on this database.

7.7. Federal Institutional Control/Engineering Control Registries: Distance Searched – Site

These lists identify properties with engineering and/or institutional controls. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or affect human health. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on the site. Deed restrictions are generally required as part of the institutional controls.

The site is not listed on this database.

7.8. Federal Emergency Response Notification System (ERNS) List: Distance Searched – Site

The ERNS database, maintained by the USEPA, contains information on reported releases of oil and hazardous substances.

The site is not listed on this database.

7.9. EnviroStor Database (EnviroStor) or State-Equivalent CERCLIS: Distance Searched – 1 mile

The Envirostor database, also known as the State-equivalent CERCLIS, is maintained by the Cal-EPA, DTSC. This database contains information on AWP and both known and potentially contaminated properties. Two-thirds of these properties have been classified, based on available information, as needing NFA and/or inactive by the DTSC. The remaining property is classified as active for review and remediation to determine if a problem exists. These properties are presented by EDR on the Historical Cal-Sites database and the Enviros-tor databases.

Neither the site nor properties located within the search radius are listed on this database.

7.10. State Solid Waste Landfill Sites (SWLF): Distance Searched – 0.5 mile

The SWLF database consists of open and closed solid waste disposal facilities and transfer stations. The data comes from the Integrated Waste Management Board's Solid Waste Information System (SWIS) and the SWRCB Waste Management Unit Database (WMUD) database.

Neither the site nor properties located within the search radius are listed on this database. It should be noted that the County of San Bernardino/29 Palms Landfill addressed 7501 Pinto Mountain Road was inaccurately listed on the database as being within the search radius (approximately 0.5-mile, west-northwest of the site); however, the correct location of the landfill is approximately 3-miles south of the site. Based on the distance, this facility would not be considered an environmental concern to the site.

7.11. State Leaking Underground Storage Tank (LUST) Lists: Distance Searched – 0.5 mile

The LUST information system is obtained from by GeoTracker, the Water Boards data management system for sites that impact, or have the potential to impact, water quality, with emphasis on groundwater.

Neither the site nor properties located within the search radius are listed on this database.

7.12. State Underground Storage Tank (UST) and Aboveground Storage Tank (AST) Registration List: Distance Searched – Site and Adjoining Properties

UST and AST databases are provided by the SWRCB. Inclusion on these lists is for permitting purposes and is not indicative of a release.

Neither the site nor the adjoining properties are listed on these databases.

7.13. State Voluntary Cleanup Programs (VCPs): Distance Searched – 0.5 mile

The State VCP database lists low threat level properties with either confirmed or unconfirmed releases. Project proponents have requested that the DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Neither the site nor properties located within the search radius are listed on this database.

7.14. Indian Reservations: Distance Searched – 1 mile

This list depicts Indian administered lands of the United States that have an area equal to or greater than 640-acres. No Indian Reservations are listed within a 1-mile radius from the site. Due to the lack of Indian Reservations within 1-mile of the site, other tribal database listings required by ASTM and AAI were deemed not applicable. These listings would include tribal-equivalent NPL, CERCLIS, Landfill and/or Solid Waste Disposal, LUST, UST and AST Registrations, Institutional Control/Engineering Control Registries, VCPs, and Brownfields.

7.15. Other Non-ASTM and AAI Database: Distance Searched – Site

Other databases were included in the EDR report but are not required by ASTM or AAI. W M Farms, the historical jojoba farm, is listed on the San Bernardino County Permit database for maintaining a Hazardous Material Handler Permit associated with the use of sulfuric acid and urea during farming operations. The permit was issued to George Morang (occupant of

the site) in 1996, after the SBCFD inspected the property (see Section 9.1). The permit is currently inactive. Based on the regulatory status of the permit and additional information obtained during the 1996 SBCFD inspection, the use of sulfuric acid and urea would not be considered an environmental concern to the site.

8. VAPOR ENCROACHMENT CONDITION (VEC)

Ardent completed a VEC study for the site using Tier 1 criteria as recommended by ASTM E2600-15. The Tier 1 screening identifies surrounding facilities that pose a possible vapor intrusion source to the site based on the results of the Phase I ESA investigations and certain criteria outlined by ASTM. These criteria include a certain distance from the target site (referred to by ASTM as within the "area of concern"); the types of chemicals used (referred to by ASTM as the "chemicals of concern"); and a plume test to determine if the plume associated with a source of contamination is close enough to the site to impact indoor air quality. A VEC is defined by ASTM as "…the presence or likely presence of chemicals of concern vapors in the vadose zone of the target property caused by the release of vapors from contaminated soil and/or groundwater either on or near the target property identified by the Phase I ESA." Based on the results of this assessment, no vapor intrusion issue is noted.

9. REGULATORY RECORDS REVIEW

The SBCFD, SBCEHS, DTSC, Regional Water Quality Control Board, Colorado River Region (CRRWQCB), and Mojave Desert Air Quality Management District (MDAQMD) are the lead regulatory agencies for permitting and regulating USTs, ASTs, LUST cases, and/or facilities that use, store, or generate hazardous waste or hazardous materials. Records were requested using the current site address or were obtained from on-line sources based on mapped locations. Copies of the available records are provided in Appendix E.

9.1. San Bernardino County Fire Department (SBCFD)

The SBCFD maintains USTs, ASTs, hazardous wastes, and hazardous materials inventory information. According to the SBCFD, records were available for review.

In 1996, the SBCFD completed a site inspection of the property due to a complaint about cyanide mining wastes being present. According to the property owner, the site was formerly a mining operation for gold which ceased its operations approximately ten years before the SBCFD inspection (approximately 1986). Mercury was used to extract gold from ore, and

"…cyanide was not used in any capacity." According to the SBCFD, much of the mining equipment was present, although had not been operational for years. No mining wastes or chemicals were observed on the premises. Based on this information, the SBCFD did not issue any violations. Based on Ardent's review of historical aerial photographs, topographical maps, and regulatory agency files, there has been no indication of mining operations at the site. Based on this information and the SBCFD inspection report, the mining operations appear to have been minimal and very sporadic, and therefore, large quantities of chemical uses are unlikely. Based on this information, the former mining operations would not be considered an environmental concern to the site.

Additionally, the SBCFD 1996 inspection report also indicated the use of sulfuric acid to reduce the natural soil pH to neutral during jojoba farming activities. According to the former property owner, the natural pH of the soil at the 40-acre jojoba farm is 8. To reduce the pH to 7 and to fertilize the field, 55-gallon containers of sulfuric acid (with a pH of 1 to 2) and urea (a crystalline compound of natural materials used as a fertilizer due to its high nitrogen levels) were mixed in a 200-gallon AST within secondary containment. The solution was introduced into the irrigation system (most likely through the use of a drip system) through a venturi tube. Again, no violations were issued by the SBCFD. Based on the types of chemicals used (i.e., acids which naturally degrade to neutral levels over time, and urea which is a naturally occurring fertilizer), and lack of concern by the regulatory agency, there is a low likelihood that these chemicals would have adversely impacted the site.

9.2. San Bernardino County Environmental Health Services (SBCEHS)

Ardent requested a file review from the SBCEHS. According to the SBCEHS, records were available for review.

A Well Permit dated September 30, 1998 was issued to install a new groundwater well located in the south-central portion of the site. The well was to be installed for use as an agricultural water well associated with the former jojoba farm. A Well Completion Report dated December 7, 1998 following the new agricultural water well installation was also provided. According to the report, the total depth of boring and completed well is approximately 475 feet bgs. Following installation, groundwater was measured at a depth of approximately 261 feet bgs.

No additional information of environmental concern was noted in this file. As noted in Section 6.12, an additional groundwater well was observed by Ardent during its site reconnaissance in the northern portion of the site. No public records were available for this well. If the existing groundwater wells are not planned to be used and/or other wells are discovered during grading, the wells should be abandoned by a state-licensed C-57 drilling contractor in accordance with current regulatory standards.

9.3. Department of Toxic Substances Control (DTSC)

Ardent reviewed information on the DTSC Envirostor website for possible files regarding the site and adjoining properties. No records regarding the site or adjoining properties were available.

9.4. Regional Water Quality Control Board, Colorado River Region (CRRWQCB)

Ardent requested a records review from the CRRWQCB and also reviewed information on the SWRCB GeoTracker database for records regarding the site address. No records regarding the site were available.

9.5. Mojave Desert Air Quality Management District (MDAQMD)

Ardent requested a records review from the MDAQMD. According to the MDAQMD, no records were available for the site.

10. FINDINGS, OPINIONS AND CONCLUSIONS

Based upon the results of this Phase I ESA, the following findings, opinions, and conclusions are provided.

10.1. Findings and Opinions

The following presents a summary of findings and opinions associated with this Phase I ESA performed for the subject property, including known or suspect RECs, HRECs, CRECs, and de minimis environmental conditions (i.e., conditions that generally do not present a material risk of harm to public health or the environment).

- From at least 1948 through 1952, the site was vacant land. Sometime before 1970, the existing commercial building was constructed and used for commercial/residential purposes through at least 1983. By 1995, the northwestern portion of the site was being used for agricultural purposes, most recently to grow jojoba beans for use in producing jojoba oils. According to regulatory records, the agricultural uses ceased in 2007. At the

time of Ardent's site reconnaissance, no jojoba production was noted, and the commercial building was vacant.

- Based on Ardent's site reconnaissance, at least two groundwater wells are located on-site. According to a historical water well permit, one of the wells was installed in 1998 to a depth of 475 feet bgs and groundwater was measured at a depth of approximately 261 feet bgs. Groundwater in the site vicinity is anticipated to flow in a north to northeasterly direction following surface topography.
- In 1996, the SBCFD completed a site inspection of the property due to a complaint about cyanide mining wastes being present. According to the property owner, the site was formerly a mining operation for gold but ceased its operations approximately ten years before the SBCFD inspection (approximately 1986). Mercury was used to extract gold from ore, and "…cyanide was not used in any capacity." According to the SBCFD, much of the mining equipment was present, although had not been operational for years. No mining wastes or chemicals were observed on the premises. Based on this information, the SBCFD did not issue violations. Based on Ardent's review of historical aerial photographs, topographical maps, and regulatory agency files, there has been no indication of mining operations at the site. Based on this information and the SBCFD inspection report, the mining operations appear to have been minimal and very sporadic, and therefore, large quantities of chemical uses are unlikely. Based on this information, the former mining operations would not be considered an environmental concern to the site.
- According to SBCFD inspection report, the jojoba farming activities included the use of sulfuric acid to reduce the natural soil pH to neutral. According to the former property owner, the natural pH of the soil at the 40-acre jojoba farm is 8. To reduce the pH to 7 and to fertilize the field, 55-gallon containers of sulfuric acid (with a pH of 1 to 2) and urea (a crystalline compound of natural materials used as a fertilizer due to its high nitrogen levels) were mixed in a 200-gallon AST within secondary containment. The solution was introduced into the irrigation system (most likely through the use of a drip system) through a venturi tube. Again, no violations were issued by the SBCFD. Based on the types of chemicals used (i.e., acids which naturally degrade to neutral levels over time, and urea which is a naturally occurring fertilizer), and lack of concern by the regulatory agency, there is a low likelihood that these chemicals would have adversely impacted the site.
- Based on information obtained during this assessment, a portion of the site began being used for agricultural purposes sometime before 1995. There have been no indications in aerial photographs or regulatory agency files of large quantity storage, use, or mixing of pesticides or herbicides. Since OCPs and chlorinated herbicides have been discontinued for use in the United States since the 1970s, there is a low likelihood that these chemicals have been used, stored, or mixed at the site. Based on this information, the possible use of agricultural chemical at the site would not be considered an environmental concern.
- Based on the age of the site buildings (pre-1970), ACMs and LBP are likely present. Although not observed, ACPs are sometimes used by agricultural activities for transferring irrigation water.
- No other on- or off-site environmental concerns were noted.

10.2. Conclusions

Ardent has performed this Phase I ESA in general conformance with the scope and limitations of the ASTM Practice E 1527-13, ASTM Standard E 2600-15, and the EPA Standards and Practices for AAI, Final Rule (40 CFR, Part 312), for the property located at 78201 Amboy Road in an unincorporated area of San Bernardino County, near the city of Twentynine Palms, California. Any limitations or exceptions encountered during completion of this report are stated in Section 1.4. No evidence or indication of recognized RECs, HRECs, CRECs, or conditions indicative of releases or threatened releases of hazardous substances on, at, in, or to the site has been revealed, with the exception of the following:

RECs

- No RECs were identified during the completion of this report.

HRECs

- No HRECs were identified during completion of this report.

CRECs

- No CRECs were identified during completion of this report.

De-Minimis Condition

- Although not considered an environmental concern to the site by ASTM Standards, ACMs and LBP are likely present.
- Two groundwater wells and possible ACPs.

11. RECOMMENDATIONS

Based on the results of this Phase I ESA, Ardent recommends no further investigations at this time. Prior to major renovations of the existing building, a comprehensive asbestos and LBP survey should be completed. If present, these materials should be removed (ACMs) or stabilized (LBP) by a state-licensed abatement contractor prior to renovation activities. If the existing groundwater wells are not planned to be used and/or other wells are discovered during grading, the wells should be abandoned by a state-licensed C-57 drilling contractor in accordance with current regulatory standards. If ACPs are discovered during grading, these materials should be removed by a state-licensed abatement contractor.

12. REFERENCES

Environmental Data Resources, Inc. (EDR), 2021, Regulatory Database Report, dated March 24.

13. QUALIFICATIONS STATEMENT AND SIGNATURE OF ENVIRONMENTAL PROFESSIONAL

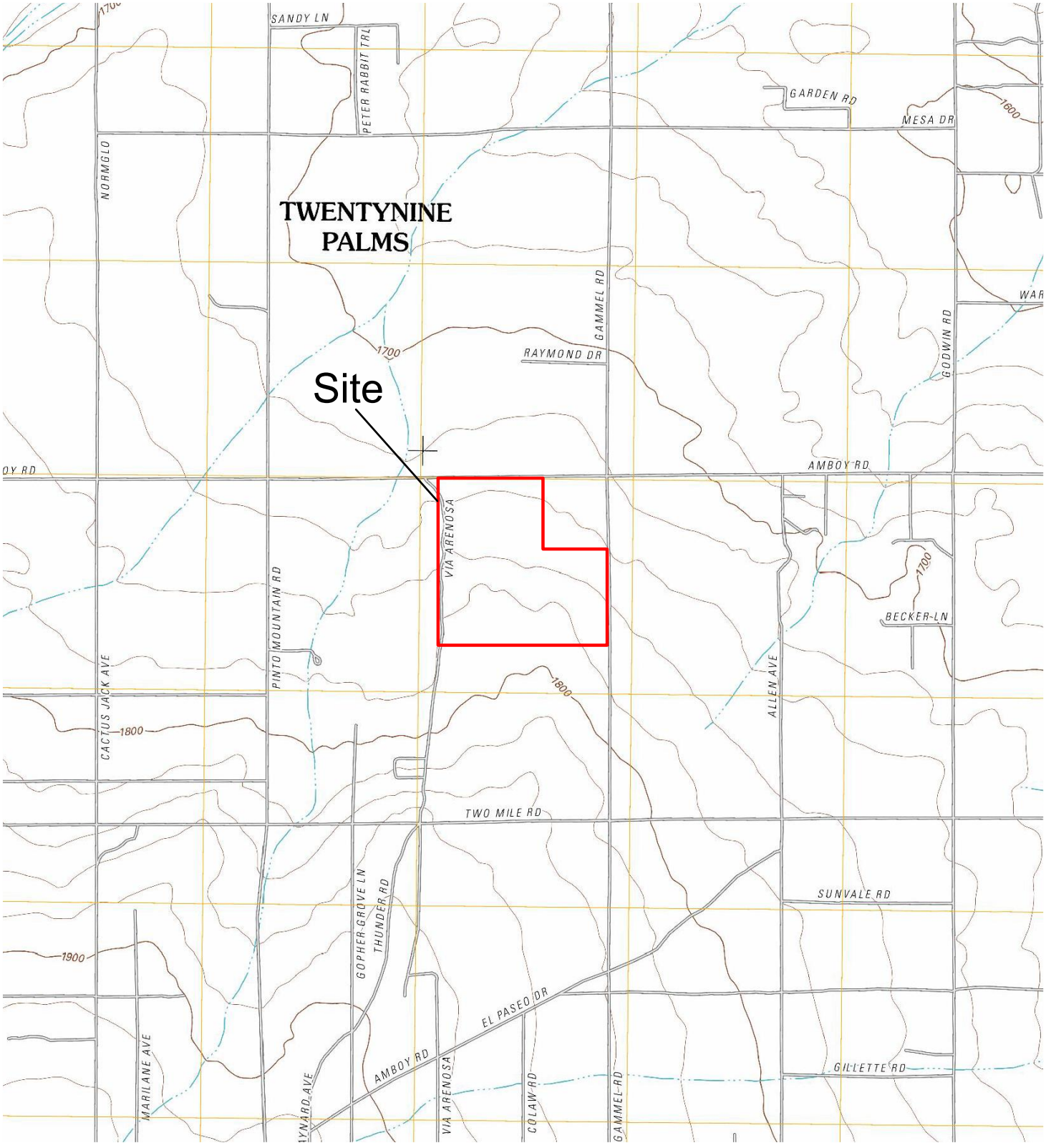
Mr. Paul Roberts states that the Phase I ESA was performed under his direct supervision, and that he has reviewed and approved the report, and the methods and procedures employed in the development of the report conform to the minimum industry standards. Mr. Roberts certifies that Ardent project personnel and subcontractors are properly licensed and/or certified to do the work described herein.

Pursuant to Paragraph 12.13 of the ASTM Standard E1527-13:

I declare that, to the best of my professional knowledge and belief, I meet the definition of *Environmental professional* as defined in §312.10 of 40 CFR 312. I have the specific qualifications based on education, training, and experience to assess a *property* of the nature, history, and setting of the subject *property*. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.



Paul Roberts, P.G.
Principle Geologist



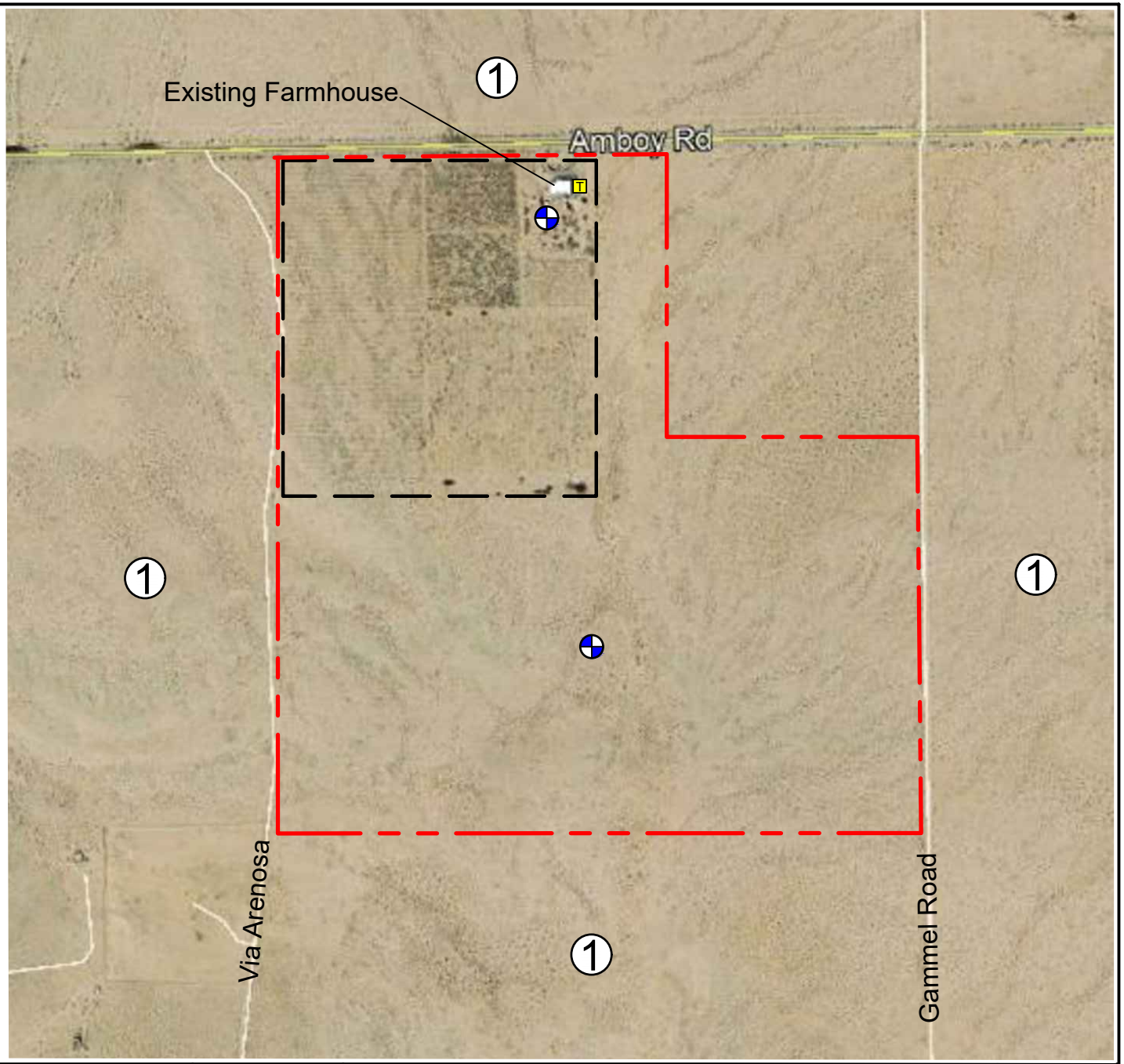
Source: United States Geological Survey (USGS) 7.5 minute series, Twentynine Palms, California, Topographic Quadrangle Map dated 2012

N

ARDENT ENVIRONMENTAL GROUP, INC.	PROJECT NO. 101231001	SITE LOCATION MAP	FIGURE 1
	DATE 07/21	78201 AMBOY ROAD TWENTYNINE PALMS, CALIFORNIA	

LEGEND

- Approximate Site Boundary
- Former Jojoba Farm
- (1) Vacant Land
- T One Pad-Mounted Electrical Transformer
- Groundwater Wells



N

Approximate Scale, Feet

0 300 600 1,200

Dimensions, Directions, and Locations are Approximate

ARDENT ENVIRONMENTAL GROUP, INC.

PROJECT NO.	SITE VICINITY MAP	FIGURE
101231001		2
DATE 07/21	78201 AMBOY ROAD TWENTYNINE PALMS, CALIFORNIA	

APPENDIX A

PHOTOGRAPHIC DOCUMENTATION



Photograph No. 1: View of farmhouse facing north from Amboy Road.



Photograph No. 2: Site, facing south from Amboy Road.



Photograph No. 3: Site, facing north from southern end of former 40-acre jojoba farm.



Photograph No. 4: Site, facing south from former 40-acre jojoba farm.



Photograph No. 5: Site, facing east.



Photograph No. 6: Southern groundwater well.



Photograph No. 7: **View of former 40-acre jojoba farm facing east.**



Photograph No. 8: **View of former 40-acre jojoba farm facing northwest from farmhouse.**



Photograph No. 9: Northern groundwater well.



Photograph No. 10: View of debris piles.

APPENDIX B

CLIENT PROVIDED INFORMATION

Fidelity National Title - IE
451 E. Vanderbilt Way, Suite 350, San Bernardino, CA 92408

Preliminary Report

Fidelity National Title - IE
451 E. Vanderbilt Way, Suite 350, San Bernardino, CA 92408
Phone: (909) 890-0601 Ext. 237

Title Officer: Brian Jon Smith
Email: bsmith@fnf.com
Phone No.: (909) 890-0601 Ext. 237
File No.: 00096707-004-CB-BS2

Property Address: 78201 Amboy Road and 5 vacant lots, known as APN: 625-071-05, 07, 08, 09 and 10, Twentynine

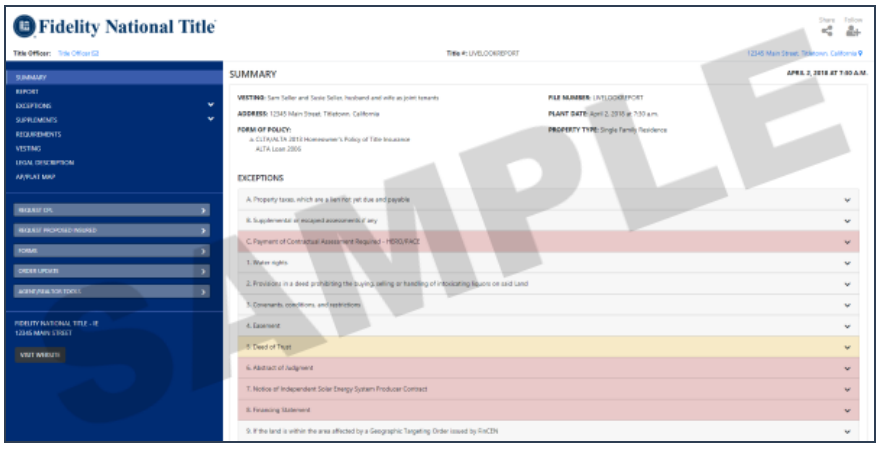
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Fidelity National Title Company
451 E. Vanderbilt Way, Suite 350, San Bernardino, CA 92408
Phone: (909) 890-0601 ● Fax: (909) 890-3609

Issuing Policies of Fidelity National Title Insurance Company

TITLE OFFICER: Brian Jon Smith
PHONE: (909) 890-0601 Ext. 237
FAX: (909) 890-3609
TITLE OFFICER EMAIL: bsmith@fnf.com

ORDER NO.: **00096707-004-CB-BS2**

LOAN NO.:

Fidelity National Title Company
ATTN: Collette Baker
56172 29 Palms Hwy.
Yucca Valley, CA 92284

ORDER NO.: **00096707-004-CB-BS2**

PROPERTY: **78201 Amboy Road and 5 vacant lots, known as APN: 625-071-05, 07, 08, 09 and 10, Twentynine Palms, CA**

AMENDED **PRELIMINARY REPORT**

In response to the application for a policy of title insurance referenced herein, ***Fidelity National Title Company*** *hereby reports that it is prepared to issue, or cause to be issued, as of the date hereof, a policy or policies of title insurance describing the land and the estate or interest therein hereinafter set forth, insuring against loss which may be sustained by reason of any defect, lien or encumbrance not shown or referred to as an exception herein or not excluded from coverage pursuant to the printed Schedules, Conditions and Stipulations or Conditions of said policy forms.*

The printed Exceptions and Exclusions from the coverage and Limitations on Covered Risks of said policy or policies are set forth in Attachment One. The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than that set forth in the arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties. Limitations on Covered Risks applicable to the CLTA and ALTA Homeowner's Policies of Title Insurance which establish a Deductible Amount and a Maximum Dollar Limit of Liability for certain coverages are also set forth in Attachment One. Copies of the policy forms should be read. They are available from the office which issued this report.

This report (and any supplements or amendments hereto) is issued solely for the purpose of facilitating the issuance of a policy of title insurance and no liability is assumed hereby. If it is desired that liability be assumed prior to the issuance of a policy of title insurance, a Binder or Commitment should be requested.

The policy(s) of title insurance to be issued hereunder will be policy(s) of Fidelity National Title Insurance Company, a Florida Corporation.

Please read the exceptions shown or referred to herein and the exceptions and exclusions set forth in Attachment One of this report carefully. The exceptions and exclusions are meant to provide you with notice of matters which are not covered under the terms of the title insurance policy and should be carefully considered.

It is important to note that this preliminary report is not a written representation as to the condition of title and may not list all liens, defects and encumbrances affecting title to the land.

Countersigned by:

Authorized Signature

Fidelity National Title Company
451 E. Vanderbilt Way, Suite 350, San Bernardino, CA 92408
Phone: (909) 890-0601 ● Fax: (909) 890-3609

AMENDED **PRELIMINARY REPORT**

EFFECTIVE DATE: **January 24, 2020 at 7:30 a.m., Amended: January 30, 2020, Amendment No. 1**

ORDER NO.: 00096707-004-CB-BS2

The form of policy or policies of title insurance contemplated by this report is:

ALTA Homeowner's Policy of Title Insurance (12-2-13)

1. THE ESTATE OR INTEREST IN THE LAND HEREINAFTER DESCRIBED OR REFERRED TO COVERED BY THIS REPORT IS:

   A Fee, as to Parcels A, B, C, D and E; An Easement, more fully described below, as to Parcel F

2. TITLE TO SAID ESTATE OR INTEREST AT THE DATE HEREOF IS VESTED IN:

   Henry Philip Ittleson and Margot Ittleson, husband and wife as joint tenants, as to Parcels A, B, C, D and E;

   Henry P. Ittleson and Margot P. Ittleson, husband and wife as joint tenants, as to Parcel F

3. THE LAND REFERRED TO IN THIS REPORT IS DESCRIBED AS FOLLOWS:

   See Exhibit A attached hereto and made a part hereof.

EXHIBIT A

LEGAL DESCRIPTION

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF TWENTYNINE PALMS, IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

PARCEL A: 0625-071-04-0-000

PARCEL 1:

THE EAST ONE HALF OF THE NORTHWEST ONE QUARTER OF THE NORTHEAST ONE QUARTER OF SECTION 20, TOWNSHIP 1 NORTH, RANGE 10 EAST, SAN BERNARDINO BASE AND MERIDIAN, IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF.

EXCEPTING THEREFROM THE NORTH 50 FEET THEREOF.

PARCEL 2:

THE NORTHWEST ONE QUARTER OF THE NORTHWEST ONE-QUARTER OF THE NORTHEAST ONE QUARTER OF SECTION 20, TOWNSHIP 1 NORTH, RANGE 10 EAST, SAN BERNARDINO BASE AND MERIDIAN, IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF.

EXCEPTING THEREFROM THE NORTH 50 FEET THEREOF.

EXCEPTING AND RESERVING UNTO SOUTHERN CALIFORNIA EDISON COMPANY, ITS SUCCESSORS AND ASSIGNS, ALL URANIUM, THORIUM AND OTHER FISSIONABLE MATERIALS, ALL OIL, GAS, PETROLEUM, OTHER HYDROCARBON SUBSTANCES AND ALL UNDERGROUND WATER IN OR UNDER OR WHICH MAY BE PRODUCED FROM SUCH LOT WHICH UNDERLIES A PLANE PARALLEL TO AND 550 FEET BELOW THE PRESENT SURFACE OF SUCH LOT FOR THE PURPOSE OF PROSPECTING FOR, THE EXPLORATION, DEVELOPMENT, PRODUCTION, EXTRACTION AND TAKING OF SAID MINERALS, OIL, GAS, PETROLEUM, OTHER HYDROCARBON SUBSTANCES AND WATER FROM SUCH LOT BY MEANS OF MINES, WELLS, DERRICKS OR OTHER EQUIPMENT FROM SURFACE LOCATIONS ON ADJOINING OR NEIGHBORING LAND OR LYING OUTSIDE OF THE ABOVE DESCRIBED LOT, IT BEING UNDERSTOOD THAT THE OWNER OF SUCH MINERALS, OIL, GAS, PETROLEUM, OTHER HYDROCARBON SUBSTANCES AND WATER, AS SET FORTH ABOVE, SHALL HAVE NO RIGHT TO ENTER UPON THE SURFACE, OR ANY PORTION THEREOF ABOVE SUCH PLANE PARALLEL TO AND 550 FEET BELOW THE PRESENT SURFACE OF SUCH LOTS FOR ANY PURPOSES WHATSOEVER.

PARCEL B: 0625-071-10-0-000

THE SOUTH 1/2 OF THE SOUTH 1/2 OF THE NORTHEAST 1/4, SECTION 20, TOWNSHIP 1 NORTH, RANGE 10 EAST, SAN BERNARDINO BASE AND MERIDIAN, IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, ACCORDING TO GOVERNMENT SURVEY.

PARCEL C: 0625-071-05-0-000

PARCEL NO. 3 AS SHOWN ON LICENSED LAND SURVEYOR'S MAP RECORDED IN BOOK 17, RECORDS OF SURVEYS, PAGE 59, RECORDS OF SAID COUNTY. ALSO BEING A PORTION OF THE NORTHEAST 1/4 OF SECTION 20, TOWNSHIP 1 NORTH, RANGE 10 EAST, SAN BERNARDINO BASE AND MERIDIAN, IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT OF SAID LAND APPROVED BY THE SURVEYOR GENERAL DATED JULY 23, 1856.

EXCEPTING THEREFROM THE NORTH 50 FEET OF THE WEST 274.83 FEET AS DEEDED TO THE COUNTY OF SAN BERNARDINO.

PARCEL D: 0625-071-07-0-000

EXHIBIT A
(Continued)

THE SOUTHWEST 1/4 OF THE NORTHWEST 1/4 OF THE NORTHEAST 1/4 OF SECTION 20, TOWNSHIP 1 NORTH, RANGE 10 EAST, SAN BERNARDINO BASE AND MERIDIAN, IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, ACCORDING TO GOVERNMENT SURVEY.

PARCEL E: 0625-071-09-0-000

THE NORTHEAST 1/4 OF THE SOUTHWEST 1/4 OF THE NORTHEAST 1/4 OF SECTION 20, TOWNSHIP 1 NORTH, RANGE 10 EAST, SAN BERNARDINO BASE AND MERIDIAN, IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF.

PARCEL F: 0625-071-08-0-000

PARCEL 1:

THE NORTHWEST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF THE NORTHEAST ONE-QUARTER OF SECTION 20, TOWNSHIP 1 NORTH, RANGE 10 EAST, SAN BERNARDINO BASE AND MERIDIAN, IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF.

PARCEL 2:

AN EASEMENT FOR ROAD PURPOSES OVER THE WEST 15 FEET OF THE NORTHWEST ONE-QUARTER OF THE NORTHEAST ONE-QUARTER OF SECTION 20, TOWNSHIP 1 NORTH, RANGE 10 EAST, SAN BERNARDINO BASE AND MERIDIAN, EXCEPT THE NORTH 50 FEET THEREOF CONVEYED FOR ROAD PURPOSES.

APN: **0625-071-09, 0625-071-05, 0625-071-07, 0625-071-08, 0625-071-10, 0625-071-04**

EXCEPTIONS

AT THE DATE HEREOF, ITEMS TO BE CONSIDERED AND EXCEPTIONS TO COVERAGE IN ADDITION TO THE PRINTED EXCEPTIONS AND EXCLUSIONS IN SAID POLICY FORM WOULD BE AS FOLLOWS:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.

2. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.

3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.

4. Any encroachment, encumbrance, violation, variation or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the land and not shown by the Public Records.

5. (a) Unpatented mining claims: (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b) or (c) are shown by the Public Records.

6. Any lien or right to a lien for services, labor or material not shown by the Public Records.

7. Property taxes, which are a lien not yet due and payable, including any assessments collected with taxes to be levied for the fiscal year 2020-2021.

8. Property taxes, including any personal property taxes and any assessments collected with taxes are as follows:

Code Area:	094-118
Tax Identification No.:	0625-071-04-0-000
Fiscal Year:	2019-2020
1st Installment:	$1,125.57, Paid
2nd Installment:	$1,125.55, Unpaid
Exemption:	$0.00
Land:	$116,381.00
Improvements:	$73,502.00
Personal Property:	$0.00
Bill No.:	190503152

9. Property taxes, including any personal property taxes and any assessments collected with taxes are as follows:

Code Area:	094-118
Tax Identification No.:	0625-071-05-0-000
Fiscal Year:	2019-2020
1st Installment:	$487.84, Paid
2nd Installment:	$487.84, Unpaid
Exemption:	$0.00
Land:	$73,502.00
Improvements:	$0.00
Personal Property:	$0.00
Bill No.:	190503153

EXCEPTIONS
(Continued)

10. Property taxes, including any personal property taxes and any assessments collected with taxes are as follows:

Code Area:	094-118
Tax Identification No.:	0625-071-07-0-000
Fiscal Year:	2019-2020
1st Installment:	$209.81, Paid
2nd Installment:	$209.78, Unpaid
Exemption:	$0.00
Land:	$18,375.00
Improvements:	$0.00
Personal Property:	$0.00
Bill No.:	190503155

11. Property taxes, including any personal property taxes and any assessments collected with taxes are as follows:

Code Area:	094-118
Tax Identification No.:	0625-071-08-0-000
Fiscal Year:	2019-2020
1st Installment:	$175.81, Paid
2nd Installment:	$175.78, Unpaid
Exemption:	$0.00
Land:	$12,008.00
Improvements:	$0.00
Personal Property:	$0.00
Bill No.:	190503156

12. Property taxes, including any personal property taxes and any assessments collected with taxes are as follows:

Code Area:	094-118
Tax Identification No.:	0625-071-09-0-000
Fiscal Year:	2019-2020
1st Installment:	$209.81, Paid
2nd Installment:	$209.78, Unpaid
Exemption:	$0.00
Land:	$18,375.00
Improvements:	$0.00
Personal Property:	$0.00
Bill No.:	190503157

13. Property taxes, including any personal property taxes and any assessments collected with taxes are as follows:

Code Area:	094-118
Tax Identification No.:	0625-071-10-0-000
Fiscal Year:	2019-2020
1st Installment:	$602.27, Paid
2nd Installment:	$602.24, Unpaid
Exemption:	$0.00
Land:	$73,502.00
Improvements:	$18,375.00
Personal Property:	$0.00
Bill No.:	190503158

EXCEPTIONS
(Continued)

14. The lien of supplemental or escaped assessments of property taxes, if any, made pursuant to the provisions of Chapter 3.5 (commencing with Section 75) or Part 2, Chapter 3, Articles 3 and 4, respectively, of the Revenue and Taxation Code of the State of California as a result of the transfer of title to the vestee named in Schedule A or as a result of changes in ownership or new construction occurring prior to Date of Policy.

15. Water rights, claims or title to water, whether or not disclosed by the public records.

16. Rights of the public in and to that portion of the land lying within the boundaries of any road, street or highway.

17. Reservations contained in the Patent

From:	The United States of America
To:	George H. Albro
Recording Date:	May 16, 1932, Book 795, Page 48, Official Records

Which among other things recites as follows:

Subject to any vested and accrued water rights for mining, agricultural, manufacturing, or other purposes and rights to ditches and reservoirs used in connection with such water rights, as may be recognized and acknowledged by the local customs, laws and decisions of the courts, and the reservation from the lands hereby granted, a right of way thereon for ditches or canals constructed by the authority of the United States.

18. An oil and gas lease for the term therein provided with certain covenants, conditions and provisions, together with easements, if any, as set forth therein.

Dated:	September 29, 1954
Lessor:	George H. Albro
Lessee:	Wm. J. Stava
Recording Date:	August 2, 1955, Book 3705, Page 367, Official Records

Note: No examination as to other matters affecting said lease have been made.

No assurance is made as to the present ownership of said leasehold or matters affecting the rights or interest of the lessor or lessee in said lease.

19. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Purpose:	Road
Recording Date:	June 18, 1956, Book 3965, Page 434, Official Records
Affects:	The West 15 feet of the Northwest ¼ of the Northeast ¼ of Section 20, Township 1 North, Range 10 East
Said Matter Affects:	Parcel 2 of Parcel A and Parcel D

20. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Purpose:	Road
Recording Date:	June 29, 1959, Book 4859, Page 292, Official Records
Affects:	The East 30 feet
Said Matter Affects:	Parcel 1 of Parcel A

EXCEPTIONS
(Continued)

21. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other matters shown on

Map:	Record of Survey
Recording Date:	February 10, 1960, Book 17, Page 59, Records of Survey

22. A deed of trust to secure an indebtedness in the amount shown below,

Amount:	$250,000.00
Dated:	January 21, 2010
Trustor/Grantor	Henry Philip Ittleson and Margot Ittleson
Trustee:	Shoshone Service Corporation
Beneficiary:	The Nancy Ittleson Trust dated December 20, 1976 f/b/o H. Philip Ittleson
Recording Date:	January 26, 2010, Instrument No. 2010-0030915, Official Records
Affects:	Parcels A, B, C, D and E

23. Covenants and restrictions, if any, appearing in the public records, imposed by any Land Conservation Contract executed pursuant to Government Code Sections 51200, et seq. (also called the Williamson Act), authorizing the establishment of agricultural preserves. The use of the land within the preserve may be restricted by the land contract to agricultural, recreational, open-space, and other compatible uses.

24. Any rights of the parties in possession of a portion of, or all of, said Land, which rights are not disclosed by the public records.

The Company will require, for review, a full and complete copy of any unrecorded agreement, contract, license and/or lease, together with all supplements, assignments and amendments thereto, before issuing any policy of title insurance without excepting this item from coverage.

The Company reserves the right to except additional items and/or make additional requirements after reviewing said documents.

PLEASE REFER TO THE "INFORMATIONAL NOTES" AND "REQUIREMENTS" SECTIONS WHICH FOLLOW FOR INFORMATION NECESSARY TO COMPLETE THIS TRANSACTION.

END OF EXCEPTIONS

REQUIREMENTS SECTION

1. In order to complete this report, the Company requires a Statement of Information to be completed by the following party(s),

   Party(s): All Parties

   The Company reserves the right to add additional items or make further requirements after review of the requested Statement of Information.

   NOTE: The Statement of Information is necessary to complete the search and examination of title under this order. Any title search includes matters that are indexed by name only, and having a completed Statement of Information assists the Company in the elimination of certain matters which appear to involve the parties but in fact affect another party with the same or similar name. Be assured that the Statement of Information is essential and will be kept strictly confidential to this file.

END OF REQUIREMENTS

INFORMATIONAL NOTES SECTION

1. Note: None of the items shown in this report will cause the Company to decline to attach CLTA Endorsement Form 100 to an Extended Coverage Loan Policy, when issued.

2. Note: The policy of title insurance will include an arbitration provision. The Company or the insured may demand arbitration provision. Arbitrable matters may include, but are not limited to any controversy or claim between the Company and the insured arising out of or relating to this policy, any service of the Company in connection with its issuance or the breach of a policy provision or other obligation. Please ask your escrow or title officer for a sample copy of the policy to be issued if you wish to review the arbitration provisions and any other provisions pertaining to your Title Insurance Coverage.

3. Note: The only conveyance(s) affecting said Land, which recorded within 24 months of the date of this report, are as follows:

Grantor:	78201, LLC
Grantee:	Henry P. Ittleson and Margot P. Ittleson, husband and wife as joint tenants
Recording Date:	December 12, 2019, Instrument No. 2019-0459543, Official Records

4. Unless this company is in receipt of WRITTEN instructions authorizing a particular policy, Fidelity Title will AUTOMATICALLY issue the American Land Title Association Homeowners Policy (02/03/10) for all qualifying residential 1-4 properties/transactions to insure the buyer at the close of escrow.

5. Note: If a county recorder, title insurance company, escrow company, real estate broker, real estate agent or association provides a copy of a declaration, governing document or deed to any person, California law requires that the document provided shall include a statement regarding any unlawful restrictions. Said statement is to be in at least 14-point bold face type and may be stamped on the first page of any document provided or included as a cover page attached to the requested document. Should a party to this transaction request a copy of any document reported herein that fits this category, the statement is to be included in the manner described.

6. Any documents being executed in conjunction with this transaction must be signed in the presence of an authorized Company employee, an authorized employee of an agent, an authorized employee of the insured lender, or by using Bancserv or other approved third party service. If the above requirements cannot he met, please call the Company at the number provided in this report.

7. Amended Civil Code Section 2941, which becomes effective on January 1,2002, sets the fee for the processing and recordation of the reconveyance of each Deed of Trust being paid off through this transaction at $45.00. The reconveyance fee must be clearly set forth in the Beneficiary's Payoff Demand Statement ("Demand"). In addition, an assignment or authorized release of that fee, from the Beneficiary to the Trustee of record, must be included. An example of the required language is as follows:

   The Beneficiary identified above hereby assigns. releases or transfers to the Trustee of record, the sum of $45.00, included herein as 'Reconveyance Fees', for the processing and recordation of the Reconveyance of the Deed of Trust securing the indebtedness covered hereby, and the escrow company or title company processing this pay-off is authorized to deduct the Reconveyance Fee from this Demand and forward said fee to the Trustee of record or the successor Trustee under the Trust Deed to be paid off in full.

8. In the event that the reconveyance fee and the assignment, release or transfer are not included within the demand statement, then Fidelity National Title Insurance Company and its Underwritten Agent may decline to process the reconveyance and will be forced to return all documentation directly to the Beneficiary for compliance with the requirements of the revised statute.

9. Notice: Please be aware that due to the conflict between federal and state laws concerning the cultivation, distribution, manufacture or sale of marijuana, the Company is not able to close or insure any transaction involving Land that is associated with these activities.

INFORMATIONAL NOTES
(Continued)

10. Note: Part of the RESPA Rule to simplify and Improve the Process of Obtaining Mortgages and Reduce Consumer Settlement Costs requires the settlement agent to disclose the agent and underwriter split of title premiums, including endorsements as follows:

    Line 1107 is used to record the amount of the total title insurance premium including endorsements, that is retained by the title agent. Fidelity National Title Company retains 88% of the total premium and endorsements.

    Line 1108 used to record the amount of the total title insurance premium, including endorsements, that is retained by the title underwriter. Fidelity National Title Insurance Company retains 12% of the total premium and endorsements.

END OF INFORMATIONAL NOTES

Brian Jon Smith/cm

Wire Fraud Alert

This Notice is not intended to provide legal or professional advice. If you have any questions, please consult with a lawyer.

All parties to a real estate transaction are targets for wire fraud and many have lost hundreds of thousands of dollars because they simply relied on the wire instructions received via email, without further verification. **If funds are to be wired in conjunction with this real estate transaction, we strongly recommend verbal verification of wire instructions through a known, trusted phone number prior to sending funds.**

In addition, the following non-exclusive self-protection strategies are recommended to minimize exposure to possible wire fraud.

- **NEVER RELY** on emails purporting to change wire instructions. Parties to a transaction rarely change wire instructions in the course of a transaction.
- **ALWAYS VERIFY** wire instructions, specifically the ABA routing number and account number, by calling the party who sent the instructions to you. DO NOT use the phone number provided in the email containing the instructions, use phone numbers you have called before or can otherwise verify. **Obtain the phone number of relevant parties to the transaction as soon as an escrow account is opened**. DO NOT send an email to verify as the email address may be incorrect or the email may be intercepted by the fraudster.
- **USE COMPLEX EMAIL PASSWORDS** that employ a combination of mixed case, numbers, and symbols. Make your passwords greater than eight (8) characters. Also, change your password often and do NOT reuse the same password for other online accounts.
- **USE MULTI-FACTOR AUTHENTICATION** for email accounts. Your email provider or IT staff may have specific instructions on how to implement this feature.

For more information on wire-fraud scams or to report an incident, please refer to the following links:

Federal Bureau of Investigation:
http://www.fbi.gov

Internet Crime Complaint Center:
http://www.ic3.gov

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FIDELITY NATIONAL FINANCIAL, INC.
PRIVACY NOTICE

Effective January 1, 2020

Fidelity National Financial, Inc. and its majority-owned subsidiary companies (collectively, "FNF," "our," or "we") respect and are committed to protecting your privacy. This Privacy Notice explains how we collect, use, and protect personal information, when and to whom we disclose such information, and the choices you have about the use and disclosure of that information.

A limited number of FNF subsidiaries have their own privacy notices. If a subsidiary has its own privacy notice, the privacy notice will be available on the subsidiary's website and this Privacy Notice does not apply.

Collection of Personal Information

FNF may collect the following categories of Personal Information:

- contact information (*e.g.*, name, address, phone number, email address);
- demographic information (*e.g.*, date of birth, gender, marital status);
- identity information (*e.g.* Social Security Number, driver's license, passport, or other government ID number);
- financial account information (*e.g.* loan or bank account information); and
- other personal information necessary to provide products or services to you.

We may collect Personal Information about you from:

- information we receive from you or your agent;
- information about your transactions with FNF, our affiliates, or others; and
- information we receive from consumer reporting agencies and/or governmental entities, either directly from these entities or through others.

Collection of Browsing Information

FNF automatically collects the following types of Browsing Information when you access an FNF website, online service, or application (each an "FNF Website") from your Internet browser, computer, and/or device:

- Internet Protocol (IP) address and operating system;
- browser version, language, and type;
- domain name system requests; and
- browsing history on the FNF Website, such as date and time of your visit to the FNF Website and visits to the pages within the FNF Website.

Like most websites, our servers automatically log each visitor to the FNF Website and may collect the Browsing Information described above. We use Browsing Information for system administration, troubleshooting, fraud investigation, and to improve our websites. Browsing Information generally does not reveal anything personal about you, though if you have created a user account for an FNF Website and are logged into that account, the FNF Website may be able to link certain browsing activity to your user account.

Other Online Specifics

Cookies. When you visit an FNF Website, a "cookie" may be sent to your computer. A cookie is a small piece of data that is sent to your Internet browser from a web server and stored on your computer's hard drive. Information gathered using cookies helps us improve your user experience. For example, a cookie can help the website load properly or can customize the display page based on your browser type and user preferences. You can choose whether or not to accept cookies by changing your Internet browser settings. Be aware that doing so may impair or limit some functionality of the FNF Website.

Web Beacons. We use web beacons to determine when and how many times a page has been viewed. This information is used to improve our websites.

Do Not Track. Currently our FNF Websites do not respond to "Do Not Track" features enabled through your browser.

Links to Other Sites. FNF Websites may contain links to unaffiliated third-party websites. FNF is not responsible for the privacy practices or content of those websites. We recommend that you read the privacy policy of every website you visit.

Use of Personal Information

FNF uses Personal Information for three main purposes:

- To provide products and services to you or in connection with a transaction involving you.
- To improve our products and services.
- To communicate with you about our, our affiliates', and others' products and services, jointly or independently.

When Information Is Disclosed

We may disclose your Personal Information and Browsing Information in the following circumstances:

- to enable us to detect or prevent criminal activity, fraud, material misrepresentation, or nondisclosure;
- to nonaffiliated service providers who provide or perform services or functions on our behalf and who agree to use the information only to provide such services or functions;

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- to nonaffiliated third party service providers with whom we perform joint marketing, pursuant to an agreement with them to jointly market financial products or services to you;
- to law enforcement or authorities in connection with an investigation, or in response to a subpoena or court order; or
- in the good-faith belief that such disclosure is necessary to comply with legal process or applicable laws, or to protect the rights, property, or safety of FNF, its customers, or the public.

The law does not require your prior authorization and does not allow you to restrict the disclosures described above. Additionally, we may disclose your information to third parties for whom you have given us authorization or consent to make such disclosure. We do not otherwise share your Personal Information or Browsing Information with nonaffiliated third parties, except as required or permitted by law. We do share Personal Information among affiliates (other companies owned by FNF) to directly market to you. Please see "Choices with Your Information" to learn how to restrict that sharing.

We reserve the right to transfer your Personal Information, Browsing Information, and any other information, in connection with the sale or other disposition of all or part of the FNF business and/or assets, or in the event of bankruptcy, reorganization, insolvency, receivership, or an assignment for the benefit of creditors. By submitting Personal Information and/or Browsing Information to FNF, you expressly agree and consent to the use and/or transfer of the foregoing information in connection with any of the above described proceedings.

Security of Your Information
We maintain physical, electronic, and procedural safeguards to protect your Personal Information.

Choices With Your Information
If you do not want FNF to share your information among our affiliates to directly market to you, you may send an "opt out" request by email, phone, or physical mail as directed at the end of this Privacy Notice. We do not share your Personal Information with nonaffiliates for their use to direct market to you.

Whether you submit Personal Information or Browsing Information to FNF is entirely up to you. If you decide not to submit Personal Information or Browsing Information, FNF may not be able to provide certain services or products to you.

For California Residents: We will not share your Personal Information or Browsing Information with nonaffiliated third parties, except as permitted by California law. For additional information about your California privacy rights, please visit the "California Privacy" link on our website (https://fnf.com/pages/californiaprivacy.aspx) or call (888) 413-1748.

For Nevada Residents: You may be placed on our internal Do Not Call List by calling (888) 934-3354 or by contacting us via the information set forth at the end of this Privacy Notice. Nevada law requires that we also provide you with the following contact information: Bureau of Consumer Protection, Office of the Nevada Attorney General, 555 E. Washington St., Suite 3900, Las Vegas, NV 89101; Phone number: (702) 486-3132; email: BCPINFO@ag.state.nv.us.
For Oregon Residents: We will not share your Personal Information or Browsing Information with nonaffiliated third parties for marketing purposes, except after you have been informed by us of such sharing and had an opportunity to indicate that you do not want a disclosure made for marketing purposes.

For Vermont Residents: We will not disclose information about your creditworthiness to our affiliates and will not disclose your personal information, financial information, credit report, or health information to nonaffiliated third parties to market to you, other than as permitted by Vermont law, unless you authorize us to make those disclosures.

Information From Children
The FNF Websites are not intended or designed to attract persons under the age of eighteen (18).We do not collect Personal Information from any person that we know to be under the age of thirteen (13) without permission from a parent or guardian.

International Users
FNF's headquarters is located within the United States. If you reside outside the United States and choose to provide Personal Information or Browsing Information to us, please note that we may transfer that information outside of your country of residence. By providing FNF with your Personal Information and/or Browsing Information, you consent to our collection, transfer, and use of such information in accordance with this Privacy Notice.

FNF Website Services for Mortgage Loans
Certain FNF companies provide services to mortgage loan servicers, including hosting websites that collect customer information on behalf of mortgage loan servicers (the "Service Websites"). The Service Websites may contain links to both this Privacy Notice and the mortgage loan servicer or lender's privacy notice. The sections of this Privacy Notice titled When Information is Disclosed, Choices with Your Information, and Accessing and Correcting Information do not apply to the Service Websites. The mortgage loan servicer or lender's privacy notice governs use, disclosure, and access to your Personal Information. FNF does not share Personal Information collected through the Service Websites, except as required or authorized by contract with the mortgage loan servicer or lender, or as required by law or in the good-faith belief that such disclosure is necessary: to comply with a legal process or applicable law, to enforce this Privacy Notice, or to protect the rights, property, or safety of FNF or the public.

Your Consent To This Privacy Notice; Notice Changes; Use of Comments or Feedback
By submitting Personal Information and/or Browsing Information to FNF, you consent to the collection and use of the information in accordance with this Privacy Notice. We may change this Privacy Notice at any time. The Privacy Notice's effective date will show the

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last date changes were made. If you provide information to us following any change of the Privacy Notice, that signifies your assent to and acceptance of the changes to the Privacy Notice. We may use comments or feedback that you submit to us in any manner without notice or compensation to you.

Accessing and Correcting Information; Contact Us

If you have questions, would like to correct your Personal Information, or want to opt-out of information sharing for affiliate marketing, send your requests to privacy@fnf.com, by phone to (888) 934-3354, or by mail to:

Fidelity National Financial, Inc.
601 Riverside Avenue
Jacksonville, Florida 32204
Attn: Chief Privacy Officer

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Notice of Available Discounts

Pursuant to Section 2355.3 in Title 10 of the California Code of Regulations Fidelity National Financial, Inc. and its subsidiaries ("FNF") must deliver a notice of each discount available under our current rate filing along with the delivery of escrow instructions, a preliminary report or commitment. Please be aware that the provision of this notice does not constitute a waiver of the consumer's right to be charged the field rate. As such, your transaction may not qualify for the below discounts.

You are encouraged to discuss the applicability of one or more of the below discounts with a Company representative. These discounts are generally described below; consult the rate manual for a full description of the terms, conditions and requirements for each discount. These discounts only apply to transaction involving services rendered by the FNF Family of Companies. This notice only applies to transactions involving property improved with a one-to-four family residential dwelling.

FNF Underwritten Title Company
FNTC - Fidelity National Title Company
FNTCCA – Fidelity National Title Company of California

FNF Underwriter
FNTIC - Fidelity National Title Insurance Company

Available Discounts

CREDIT FOR PRELIMINARY REPORTS AND/OR COMMITMENTS ON SUBSEQUENT POLICIES (FNTIC)
Where no major change in the title has occurred since the issuance of the original report or commitment, the order may be reopened within 12 months and all or a portion of the charge previously paid for the report or commitment may be credited on a subsequent policy charge within the following time period from the date of the report.

DISASTER LOANS (FNTIC)
The charge for a lender's Policy (Standard or Extended coverage) covering the financing or refinancing by an owner of record, within 24 months of the date of a declaration of a disaster area by the government of the United States or the State of California on any land located in said area, which was partially or totally destroyed in the disaster, will be 50% of the appropriate title insurance rate.

CHURCHES OR CHARITABLE NON-PROFIT ORGANIZATIONS (FNTIC)
On properties used as a church or for charitable purposes within the scope of the normal activities of such entities, provided said charge is normally the church's obligation the charge for an owner's policy shall be 50% to 70% of the appropriate title insurance rate, depending on the type of coverage selected. The charge for a lender's policy shall be 40% to 50% of the appropriate title insurance rate, depending on the type of coverage selected.

ATTACHMENT ONE

CALIFORNIA LAND TITLE ASSOCIATION
STANDARD COVERAGE POLICY – 1990

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance or governmental regulation (including but not limited to building or zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating (i) the occupancy, use, or enjoyment of the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien, or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
   (b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.
3. Defects, liens, encumbrances, adverse claims or other matters:
   (a) whether or not recorded in the public records at Date of Policy, but created, suffered, assumed or agreed to by the insured claimant;
   (b) not known to the Company, not recorded in the public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy;
   (c) resulting in no loss or damage to the insured claimant;
   (d) attaching or created subsequent to Date of Policy; or
   (e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the insured mortgage or for the estate or interest insured by this policy.
4. Unenforceability of the lien of the insured mortgage because of the inability or failure of the insured at Date of Policy, or the inability or failure of any subsequent owner of the indebtedness, to comply with the applicable doing business laws of the state in which the land is situated.
5. Invalidity or unenforceability of the lien of the insured mortgage, or claim thereof, which arises out of the transaction evidenced by the insured mortgage and is based upon usury or any consumer credit protection or truth in lending law.
6. Any claim, which arises out of the transaction vesting in the insured the estate of interest insured by this policy or the transaction creating the interest of the insured lender, by reason of the operation of federal bankruptcy, state insolvency or similar creditors' rights laws.

EXCEPTIONS FROM COVERAGE - SCHEDULE B, PART I

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.
   Proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.
2. Any facts, rights, interests, or claims which are not shown by the public records but which could be ascertained by an inspection of the land or which may be asserted by persons in possession thereof.
3. Easements, liens or encumbrances, or claims thereof, not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by the public records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b) or (c) are shown by the public records.
6. Any lien or right to a lien for services, labor or material not shown by the public records.

CLTA HOMEOWNER'S POLICY OF TITLE INSURANCE (12-02-13)
ALTA HOMEOWNER'S POLICY OF TITLE INSURANCE

EXCLUSIONS

In addition to the Exceptions in Schedule B, You are not insured against loss, costs, attorneys' fees, and expenses resulting from:

1. Governmental police power, and the existence or violation of those portions of any law or government regulation concerning:
   a. building;
   b. zoning;
   c. land use;

d. improvements on the Land;
e. land division; and
f. environmental protection.

This Exclusion does not limit the coverage described in Covered Risk 8.a., 14, 15, 16, 18, 19, 20, 23 or 27.

2. The failure of Your existing structures, or any part of them, to be constructed in accordance with applicable building codes. This Exclusion does not limit the coverage described in Covered Risk 14 or 15.
3. The right to take the Land by condemning it. This Exclusion does not limit the coverage described in Covered Risk 17.
4. Risks:
   a. that are created, allowed, or agreed to by You, whether or not they are recorded in the Public Records;
   b. that are Known to You at the Policy Date, but not to Us, unless they are recorded in the Public Records at the Policy Date;
   c. that result in no loss to You; or
   d. that first occur after the Policy Date - this does not limit the coverage described in Covered Risk 7, 8.e., 25, 26, 27 or 28.
5. Failure to pay value for Your Title.
6. Lack of a right:
   a. to any land outside the area specifically described and referred to in paragraph 3 of Schedule A; and
   b. in streets, alleys, or waterways that touch the Land.

   This Exclusion does not limit the coverage described in Covered Risk 11 or 21.
7. The transfer of the Title to You is invalid as a preferential transfer or as a fraudulent transfer or conveyance under federal bankruptcy, state insolvency, or similar creditors' rights laws.
8. Contamination, explosion, fire, flooding, vibration, fracturing, earthquake, or subsidence.
9. Negligence by a person or an Entity exercising a right to extract or develop minerals, water, or any other substances.

LIMITATIONS ON COVERED RISKS

Your insurance for the following Covered Risks is limited on the Owner's Coverage Statement as follows:

- For Covered Risk 16, 18, 19, and 21 Your Deductible Amount and Our Maximum Dollar Limit of Liability shown in Schedule A.

The deductible amounts and maximum dollar limits shown on Schedule A are as follows:

	Your Deductible Amount	Our Maximum Dollar Limit of Liability
Covered Risk 16:	1.00% % of Policy Amount Shown in Schedule A or $2,500.00 (whichever is less)	$ 10,000.00
Covered Risk 18:	1.00% % of Policy Amount Shown in Schedule A or $5,000.00 (whichever is less)	$ 25,000.00
Covered Risk 19:	1.00% of Policy Amount Shown in Schedule A or $5,000.00 (whichever is less)	$ 25,000.00
Covered Risk 21:	1.00% of Policy Amount Shown in Schedule A or $2,500.00 (whichever is less)	$ 5,000.00

2006 ALTA LOAN POLICY (06-17-06)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
   (i) the occupancy, use, or enjoyment of the Land;
   (ii) the character, dimensions, or location of any improvement erected on the Land;
   (iii) the subdivision of land; or
   (iv) environmental protection;
   or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
   (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
   (a) created, suffered, assumed, or agreed to by the Insured Claimant;
   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   (c) resulting in no loss or damage to the Insured Claimant;
   (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 13 or 14); or
   (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.

4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury or any consumer credit protection or truth-in-lending law.
6. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
   (a) a fraudulent conveyance or fraudulent transfer, or
   (b) a preferential transfer for any reason not stated in Covered Risk 13(b) of this policy.
7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the Insured Mortgage in the Public Records. This Exclusion does not modify or limit the coverage provided under Covered Risk 11(b).

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

EXCEPTIONS FROM COVERAGE

(Except as provided in Schedule B - Part II,(t(or T)his policy does not insure against loss or damage, and the Company will not pay costs, attorneys' fees or expenses, that arise by reason of:

(PART I

(The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor or material not shown by the Public Records.

PART II

In addition to the matters set forth in Part I of this Schedule, the Title is subject to the following matters, and the Company insures against loss or damage sustained in the event that they are not subordinate to the lien of the Insured Mortgage:)

2006 ALTA OWNER'S POLICY (06-17-06)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
      (i) the occupancy, use, or enjoyment of the Land;
      (ii) the character, dimensions, or location of any improvement erected on the Land;
      (iii) the subdivision of land; or
      (iv) environmental protection;
      or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
   (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
   (a) created, suffered, assumed, or agreed to by the Insured Claimant;
   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   (c) resulting in no loss or damage to the Insured Claimant;
   (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 9 and 10); or
   (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Title.
4. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction vesting the Title as shown in Schedule A, is
   (a) a fraudulent conveyance or fraudulent transfer; or
   (b) a preferential transfer for any reason not stated in Covered Risk 9 of this policy.

5. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the deed or other instrument of transfer in the Public Records that vests Title as shown in Schedule A.

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage, and the Company will not pay costs, attorneys' fees or expenses, that arise by reason of: (The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown in the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and that are not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor or material not shown by the Public Records.
7. (Variable exceptions such as taxes, easements, CC&R's, etc. shown here.)

ALTA EXPANDED COVERAGE RESIDENTIAL LOAN POLICY (12-02-13)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
   (i) the occupancy, use, or enjoyment of the Land;
   (ii) the character, dimensions, or location of any improvement erected on the Land;
   (iii) the subdivision of land; or
   (iv) environmental protection;
   or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5, 6, 13(c), 13(d), 14 or 16.
   (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 5, 6, 13(c), 13(d), 14 or 16.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
   (a) created, suffered, assumed, or agreed to by the Insured Claimant;
   (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
   (c) resulting in no loss or damage to the Insured Claimant;
   (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 16, 17, 18, 19, 20, 21, 22, 23, 24, 27 or 28); or
   (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury, or any consumer credit protection or truth-in-lending law. This Exclusion does not modify or limit the coverage provided in Covered Risk 26.
6. Any claim of invalidity, unenforceability or lack of priority of the lien of the Insured Mortgage as to Advances or modifications made after the Insured has Knowledge that the vestee shown in Schedule A is no longer the owner of the estate or interest covered by this policy. This Exclusion does not modify or limit the coverage provided in Covered Risk 11.
7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching subsequent to Date of Policy. This Exclusion does not modify or limit the coverage provided in Covered Risk 11(b) or 25.
8. The failure of the residential structure, or any portion of it, to have been constructed before, on or after Date of Policy in accordance with applicable building codes. This Exclusion does not modify or limit the coverage provided in Covered Risk 5 or 6.
9. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
   (a) a fraudulent conveyance or fraudulent transfer, or
   (b) a preferential transfer for any reason not stated in Covered Risk 27(b) of this policy.
10. Contamination, explosion, fire, flooding, vibration, fracturing, earthquake, or subsidence.

11. Negligence by a person or an Entity exercising a right to extract or develop minerals, water, or any other substances.

STATEMENT OF INFORMATION

CONFIDENTIAL INFORMATION STATEMENT TO BE USED IN CONNECTION WITH ORDER NO: 00096707-004-BS2

COMPLETION OF THIS FORM WILL EXPEDITE YOUR ORDER AND WILL HELP PROTECT YOU.

THE STREET ADDRESS of the property in this transaction is:

IF NONE LEAVE BLANK

ADDRESS: CITY:

IMPROVEMENTS: ☐ SINGLE RESIDENCE ☐ MULTIPLE RESIDENCE ☐ COMMERCIAL
OCCUPIED BY: ☐ OWNER ☐ LESSEE ☐ TENANTS
ANY PORTION OF NEW LOAN FUNDS TO BE USED FOR CONSTRUCTION: ☐ YES ☐ NO

NAME			SPOUSES NAME		
FIRST	MIDDLE	LAST	FIRST	MIDDLE	LAST
BIRTHPLACE		BIRTH DATE	BIRTHPLACE		BIRTH DATE
I HAVE LIVED IN CALIFORNIA SINCE		SOCIAL SECURITY NUMBER	I HAVE LIVED IN CALIFORNIA SINCE		SOCIAL SECURITY NUMBER
DRIVER'S LICENSE NO.			DRIVER'S LICENSE NO.		

WIFE'S MAIDEN NAME:

WE WERE MARRIED ON AT

RESIDENCE(S) FOR LAST 10 YEARS

NUMBER AND STREET	CITY	FROM	TO
NUMBER AND STREET	CITY	FROM	TO
NUMBER AND STREET	CITY	FROM	TO
NUMBER AND STREET	CITY	FROM	TO

OCCUPATION(S) FOR LAST 10 YEARS

HUSBAND

PRESENT OCCUPATION	FIRM NAME	ADDRESS	NO. OF YEARS
PRIOR OCCUPATION	FIRM NAME	ADDRESS	NO. OF YEARS
PRIOR OCCUPATION	FIRM NAME	ADDRESS	NO. OF YEARS

WIFE

PRESENT OCCUPATION	FIRM NAME	ADDRESS	NO. OF YEARS
PRIOR OCCUPATION	FIRM NAME	ADDRESS	NO. OF YEARS
PRIOR OCCUPATION	FIRM NAME	ADDRESS	NO. OF YEARS

FORMER MARRIAGES: IF NO FORMER MARRIAGES, WRITE "NONE":

NAME OF FORMER SPOUSE

IF DECEASED: DATE WHERE

CURRENT LOAN ON PROPERTY

PAYMENTS ARE BEING MADE TO: 2.

1. 3.

HOMEOWNERS ASSOCIATION NUMBER:

DATE SIGNATURE

HOME PHONE BUSINESS PHONE

PHASE I ENVIRONMENTAL SITE ASSESSMENT (ESA)
USER QUESTIONNAIRE

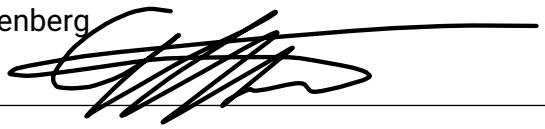
In order to qualify for one of the *Landowner Liability Protections (LLPs)* offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001 (the "*Brownfields Amendments*"), the *user of the Phase I ESA* must provide the following information (if available) to the *environmental professional*. Failure to provide this information could result in a determination that "*all appropriate inquiry*" is not complete.

Project Information	
Facility Name and Address:	78201 Amboy Rd, Twentynine Palms, CA
Reason for the Phase I ESA:	Acquisition
Type of Property:	Commercial
Site Owner and Contact Information:	Alan R. Greenberg Alan@thewonderinn.com 310-999-1169
Site Contact Name and Contact Information:	
Tax Assessors Parcel Number (APN):	062507104; 062507105; 062507107; 062507108; 062507109; 062507110

	Yes	No
1. Are you aware of any environmental cleanup liens against the subject property that are filed or recorded under federal, state, or local law?		X
2. Are you aware of any activity use limitations, such as engineering controls (engineered caps, liners, treatment methods, etc.), land use restrictions, or institutional controls (administrative measures restricting groundwater use, construction, or property use, etc.) that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state, or local law?		X
3. Do you have any specialized knowledge or experience related to the subject property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the subject property so that you would have specialized knowledge of the chemicals or processes used by this type of business?		X
4a. Does the purchase price being paid for the subject property reasonably reflects the fair market value of the subject property?	X	
4b. If you conclude that there is a difference in fair market price, have you considered whether the lower purchase price is because contamination is known or believed to be present at the *property*?		X
5. Are you aware of any commonly known or reasonably ascertainable information about the subject property that would help the environmental professional to identify conditions indicative of releases or threatened releases? For example, as a user,		X
5 (a) Do you know of the past uses of the property?		X
5 (b) Do you know of any specific chemicals that are present or were once present on the subject property?		X
5 (c) Do you know of spills or other chemical releases that have taken place at the subject property?		X
		X

5 (d) Do you know of any environmental cleanups that have taken place at the subject property?		
6. As the user of this ESA, based on your knowledge and experience related to the subject property, are there any obvious indicators that point to the presence or likely presence of contamination at the subject property?		X

If you answered "yes" to any of the questions (except 4a) above, please provide more detail below, or attach additional information to this document:

Name and title of person completing questionnaire: (Please Print)	
Alan R. Greenberg, Owner	
Signature of person completing questionnaire:	Date:
Alan R. Greenberg 	3/30/21

APPENDIX C

HISTORICAL LAND USE INFORMATION

78201 Amboy Road
78201 Amboy Road
Twentynine Palms, CA 92277

Inquiry Number: 6420625.5
March 30, 2021

The EDR-City Directory Image Report

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

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City Directory Images

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. **NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OR DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT.** Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction orforecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

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EXECUTIVE SUMMARY

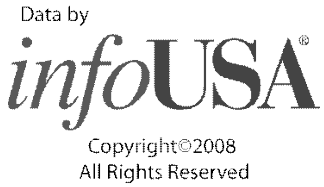
DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RECORD SOURCES

EDR's Digital Archive combines historical directory listings from sources such as Cole Information and Dun & Bradstreet. These standard sources of property information complement and enhance each other to provide a more comprehensive report.

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RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	Target Street	Cross Street	Source
2017	☑	☐	EDR Digital Archive
2014	☑	☐	EDR Digital Archive
2010	☑	☐	EDR Digital Archive
2005	☑	☐	EDR Digital Archive
2000	☑	☐	EDR Digital Archive
1995	☑	☐	EDR Digital Archive
1992	☑	☐	EDR Digital Archive
1985	☑	☐	Haines Criss-Cross Directory
1980	☑	☐	Haines Criss-Cross Directory
1976	☑	☐	Haines Criss-Cross Directory
1971	☐	☐	Haines Criss-Cross Directory

FINDINGS

TARGET PROPERTY STREET

78201 Amboy Road
Twentynine Palms, CA 92277

Year	*CD Image*	*Source*	
AMBOY RD			
2017	pg A1	EDR Digital Archive	
2014	pg A2	EDR Digital Archive	
2010	pg A4	EDR Digital Archive	
2005	pg A6	EDR Digital Archive	
2000	pg A8	EDR Digital Archive	
1995	pg A9	EDR Digital Archive	
1992	pg A11	EDR Digital Archive	
1985	pg A13	Haines Criss-Cross Directory	
1985	pg A14	Haines Criss-Cross Directory	
1980	pg A15	Haines Criss-Cross Directory	
1976	pg A16	Haines Criss-Cross Directory	
1976	pg A17	Haines Criss-Cross Directory	
1971	-	Haines Criss-Cross Directory	Street not listed in Source

FINDINGS

CROSS STREETS

No Cross Streets Identified

City Directory Images

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

AMBOY RD 2017

68439	BRITTOS, LARRY G
68483	WEAVER, JAMES R
69450	JOSLYN, CLARENCE R
69521	MAURER, TINA K
73731	BABES N BLADES
	UHAUL
73791	TWENTYNINE PALMS VAN & STORAGE INC
74685	GARZA, ELVIRA E
	HOPKINS, TINA
74818	VANCLEAVE, JAMIE N
74858	COLLINS, MICHAEL J
74885	KING, LAURA
75932	DRAKE, MARIANNE
76233	STONE, DAVID M
76701	LUKE, TED T
78937	ARCHIE, B
79744	DAVIS, JILL E
82575	WONDER VALLEY CHURCH
82800	PELLIOR, JONATHAN M
82966	SMITH, RODNEY
83131	PALMS RESTAURANT
83415	SHAW, KASANDRA M
83475	AGUILERA, VIRGINIA
84417	MAR, JAMES
84889	HARRIS, JOSHUA H
84954	SCHUMACHER, THOMAS
85121	CLENDINNING, JAMES N
85323	DELISLE, HAROLD F
86856	QUAMME, MARY E
86937	BLAU WILLIAM H PHD
87079	BLAU, SEAN A
87500	GALLOWAY, ROBERT
87533	EHRICH, PETER
87821	ZARATE, CARLOS
87875	ADAMS, ROBERT
87878	DESTRA, VINCENT M
87908	DEBEAL, VERNON R
88020	COPPOCK, SHIRLEY J

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

AMBOY RD 2014

68439 OCCUPANT UNKNOWN,
68483 WEAVER, JAMES R
69450 JOSLYN, CLARENCE R
69521 OCCUPANT UNKNOWN,
73731 BABES N BLADES
73791 TWENTYNINE PALMS VAN & STORAGE INC
73877 BURRTEC WASTE & RECYCLING
74685 ADAMS, TANYA
BANKS, GERALD
GARZA, ELVIRA E
GREENAN, DONNA M
JOHNSON, RENEE
JONES, MARK
KERN, RAVEN L
RUECKER, P
UYEKI, T
VAUGHN, SHEILA
VOCKER, ROBERT
74804 OCCUPANT UNKNOWN,
74818 OCCUPANT UNKNOWN,
74858 COLLINS, MICHAEL J
74885 KING, KENNETH A
75932 OCCUPANT UNKNOWN,
75939 RYAN, DAVID P
76233 SHRYOCK, HOLLY
76525 OCCUPANT UNKNOWN,
76701 LUKE, TED T
76969 OCCUPANT UNKNOWN,
77199 SCHUTZ, ADAM
77828 OCCUPANT UNKNOWN,
78937 ARCHIE, EDWIN L
79579 BECKER, CLARK J
79850 OCCUPANT UNKNOWN,
80185 SHIFMAN, JAMIE Y
80526 COUNTY OF SAN BERNARDINO
WONDER VALLEY PARK & RECREATION
80550 COPPOCK, SHIRLEY J
81242 LECHLETTER, ALBERT A
81448 BUSKIRK, HOLLY R
82525 MILLR, MARILYN A
82575 WONDER VALLEY CHURCH
82800 PELLIOR, JONATHAN M
82966 DEDMAN, LEANNA
83131 OCCUPANT UNKNOWN,
PALMS RESTAURANT
83401 SMITH, RODNEY
83415 SHAW, KASANDRA M
83475 OCCUPANT UNKNOWN,
83683 OCCUPANT UNKNOWN,
83865 OCCUPANT UNKNOWN,

AMBOY RD 2014 (Cont'd)

83883 OCCUPANT UNKNOWN,
84417 DEBORAH, HANSEN
84658 OCCUPANT UNKNOWN,
84788 OCCUPANT UNKNOWN,
84954 SCHUMACHER, THOMAS
85115 CARR, BILLY E
85121 CLENDINNING, JAMES N
85323 DELISLE, HAROLD F
86821 HIDAY, DOUGLAS
86856 QUAMME, MARY E
87079 BLAU, SEAN A
87332 OCCUPANT UNKNOWN,
87448 OCCUPANT UNKNOWN,
87500 GALLOWAY, ROBERT
87533 EHRICH, PETER
87574 OCCUPANT UNKNOWN,
87875 ADAMS, ROBERT
87878 DESTRA, VINCENT M
87884 BUSHONG, DUKE
88020 OCCUPANT UNKNOWN,

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

AMBOY RD 2010

68439	OCCUPANT UNKNOWN,
68483	WEAVER, JAMES R
69450	JOSLYN, CLARENCE R
69521	ORTIZ, MARY
73647	OCCUPANT UNKNOWN,
73649	HALLOWAY, JAMES W
73791	TWENTYNINE PALMS VAN & STORAGE
74685	ALVARADO, ALMA
	GARZA, ELVIRA E
	HILL, VIDA
	KERN, TINA M
	RUECKER, P
	SMITH, TERESA
	UYEKI, TERESA K
	YAKOWENKO, MELINDA
74804	WARREN, MILES G
74818	OCCUPANT UNKNOWN,
74858	COLLINS COMPUTER INNOVATIONS
	COLLINS, MICHAEL J
74885	WINCH, JASMINE
76421	SILVAS, JOE P
76701	LUKE, TED T
76969	OCCUPANT UNKNOWN,
77199	SCHUTZ, ADAM
77828	DAY, MARSHALL K
78201	OCCUPANT UNKNOWN,
79579	BECKER, CLARK J
79850	OCCUPANT UNKNOWN,
80185	WHALEN, JEFFREY
80526	WONDER VALLEY FIRE DEPT
80550	COPPOCK, SHIRLEY J
81242	BEALL, HAROLD
81448	BUSKIRK, HOLLY R
82524	OCCUPANT UNKNOWN,
82525	BENSON, KIM D
82800	OCCUPANT UNKNOWN,
82966	DEDMAN, LEANNA
	ELLISON, LISA G
83131	PALMS RESTAURANT
	SIBLEY, JAMES L
83401	OCCUPANT UNKNOWN,
83415	HUBBARD, GEORGE B
83475	OCCUPANT UNKNOWN,
83683	OCCUPANT UNKNOWN,
83865	MAGEE, JOHN W
84417	DEBORAH, HANSEN
84658	OCCUPANT UNKNOWN,
84954	SCHUMACHER, THOMAS
85011	WASDIN, VICKI
85115	CARR, BILLY E

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

AMBOY RD 2010 (Cont'd)

85121 CLENDINNING, JAMES M
86821 COSBY, LAEH
86856 QUAMME, ADOLPH M
86937 BLAU CATHEY G
BLAU WILLIAM H PHD
87079 OCCUPANT UNKNOWN,
87332 MCGRATH, TIMOTHY A
87448 OCCUPANT UNKNOWN,
87500 GALLOWAY, ROBERT S
87533 CHILTON, CHARLES E
87574 DESY, EDWARD L
87627 PARESA, DEBORAH L
87821 KHALILI, LINDA
87875 FARMER, ELAINE A
87878 DESTRA, VINCENT M
87884 BUSHONG, DUKE
88020 OCCUPANT UNKNOWN,

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

AMBOY RD 2005

68439	BRITTOS, LAWRENCE
68483	WEAVER, JAMES R
69450	JOSLYN, CLARENCE R
72922	MONROE, WILLIAM J
73647	OCCUPANT UNKNOWN,
73649	HALLOWAY, JAMES W
73791	TWENTYNINE PALMS VAN & STORAGE INC
74685	ARKO, FRANK R
	GREENAN, DONNA M
	WALKER, K
74858	COLLINS, KEVIN P
74885	ROSSON, DANIEL D
76233	LAYTON, NELL C
76701	LUKE, TED T
77199	SCHUTZ, ADAM
77828	DAY, MARSHALL K
78201	WILLIAMS, JOHN H
78937	ARCHIES SAW SHARPENING
79579	BECKER, CLARK J
79850	SOQUI, VERONICA
80526	SAN BERNARDINO COUNTY OF FIRE
	WONDER VALLEY NUTRITIONAL OF SENIORS
80550	COPPOCK, SHIRLEY J
81242	BEALL, HAROLD
82050	HARKNESS, C W
82524	OCCUPANT UNKNOWN,
82575	WONDER VALLEY COMMUNITY
82776	LUA DESIGN
82800	ETIMANI, LETASI
82966	ELLISON, LISA G
	GARULE, ALEX
83131	PALMS RESTAURANT
	SIBLEY, JAMES L
83401	OCCUPANT UNKNOWN,
83415	HUBBARD, GEORGE B
83475	ZUIDERWEG, GARMT
83683	CONNOR, FLOSSIE
83865	OCCUPANT UNKNOWN,
84658	HAYTON, JANE I
84889	ALLEN, PAUL R
84954	SCHUMACHER, THOMAS
85011	BECKER, C J
85121	CLENDINNING, JAMES
86200	MCGINNIS, BILLY W
86856	QUAMME, ADOLPH M
87448	BATES, WILLARD
87533	HEFFLIN, NONA K
87574	OCCUPANT UNKNOWN,
87627	PARESA, DEBORAH L
87646	DESY, EDWARD L

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

AMBOY RD 2005 (Cont'd)

87875 OCCUPANT UNKNOWN,
87977 THOMAS, PATRICK R
88020 PITTS, FRED
88449 GUSTAFSON, FRED I
88525 BLACKWOOD, DAVID

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

AMBOY RD 2000

69450 B J PUMP SALES & SERVICE
JOSLYN, BOB
72922 MONROE, WILLIAM
73649 OCCUPANT UNKNOWN,
73791 TWENTYNINE PALMS VAN & STORAGE INCORPORATED
73877 SIERRA ENVIRONMENTAL SERVICE LLC
74685 BARNERD, MARILYN
HAYES, WILLIAM
WALKER, K
74740 OCCUPANT UNKNOWN,
74858 LABENZ, GREGORY L
74885 OCCUPANT UNKNOWN,
76421 SILVAS, JOE P
76701 HARMAN, ROBERT E
HARMON, I M
77149 OCCUPANT UNKNOWN,
78201 WILLIAMS, JOHN
78937 ARCHIE, DOROTHY F
80526 SAN BERNARDINO COUNTY OF FIRE DEPARTMENTS
82050 HARKNESS, C W
82575 DESERT BAPTIST MISSION
82966 ELLISON, TERESA
83001 CRONIN, DONNA M
83131 OCCUPANT UNKNOWN,
PALMS RESTAURANT
83163 OCCUPANT UNKNOWN,
83401 OCCUPANT UNKNOWN,
83415 HUBBARD, GEORGE B
83683 OCCUPANT UNKNOWN,
83865 OCCUPANT UNKNOWN,
83883 KLAUSER, HENRY
84417 OCCUPANT UNKNOWN,
84630 SEEK, TONY
84658 HAYTON, THOMAS L
TOMS TRACTOR SERVICE
86856 QUAMME, ADOLPH
86937 OCCUPANT UNKNOWN,
86952 OCCUPANT UNKNOWN,
87332 OCCUPANT UNKNOWN,
87448 BATES, WILLARD
87561 OCCUPANT UNKNOWN,
87626 OCCUPANT UNKNOWN,
87646 OCCUPANT UNKNOWN,
87908 DAVIS, WILLIAM M

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

AMBOY RD 1995

68125	SERRADELL, SHIRLEY
68221	GAUMER, ARVID H
69450	B J PUMP SALES & SVC
	JOSLYN, BOB
72922	MONROE, WILLIAM
73731	BOWDEN, D L
73791	TWENTYNINE PALMS VAN & STORAGE
73877	SUN, I N
74685	BARNERD, MARILYN
	BRAUGHTON, DOROTHY
	COX, JOHN M
	GLADISH, TERESA
	HUBBARD, NORMA
	JORDAN, CALVIN
	WELCOME, DAVID T
74740	HUNTER, M
74885	BONEM, MICHAEL S
76233	ROOKARD, TONYA
76421	SILVAS, JOE P
76701	HARMAN, ROBERT E
	HARMON, I M
78201	MORANG, GEORGE L
80526	WONDER VALLEY FIRE DEPT
82050	HARKNESS, C W
82524	ZUIDERWEG, GARMT
82575	DESERT BAPTIST MISSION
82800	OCCUPANT UNKNOWNN
82966	ELLISON, TERESA
82978	OCCUPANT UNKNOWNN
83001	OCCUPANT UNKNOWNN
83401	ANDERSON, CAROL J
83865	LYONS, GLYNN
83883	KLAUSER, HENRY
84658	HAYTON, THOMAS L
	TOMS TRACTOR SVC
85323	GRIMES, ROLAND S
86200	BROWN, N
86821	COATES, JOHN
86856	QUAMME, ADOLPH
86925	A 1 PUMP CO
	PONCY, RUSS
86937	BLAU, BILL
86952	GEHRES, ROBERT
87079	OCCUPANT UNKNOWNN
87332	DAVENPORT, BYRON
87448	BATES, WILLARD
87579	DESERT DWELLER
87626	OCCUPANT UNKNOWNN
87627	PARESA, GREGORY
87646	OCCUPANT UNKNOWNN

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

AMBOY RD 1995 (Cont'd)

87908 DAVIS, WILLIAM M
88513 JONES, JEANNIE L
88525 EWASIAK, J

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

AMBOY RD 1992

68125 SERRADELL, SHIRLEY
68221 GAUMER, ARVID H
68439 GIANELLI, PETER
69450 B J PUMP SALES&SERV
JOSLYN, BOB
72922 MONROE, WILLIAM
73647 HOLLOWAY, ROBERT C
73731 BOWDEN CORP LUMBER
73791 29 PALMS VAN&STRG
GLOBAL VAN LINES
73877 SUN STAR DISPOSL SV
74685 BARNERD, MARILYN
BRAUGHTON, DOROTHY
COX, JOHN M
HUBBARD, NORMA
REASONS, ED
SINGING TREES HM PK
SNOW, MONICA
WELCOME, DAVID T
74740 HUNTER, M
74885 BONEM, MICHAEL
76421 SILVAS, JOE P
76701 HARMAN, ROBERT E
78201 MORANG, GEORGE L
78601 MARTINEZ, CYRLO
80526 FIRE DEPARTMENTS
SN BDO CO FIRE DEPT
82050 HARKNESS, C W
82524 ZUIDERWEG, GARMT JR
82800 SCELZA, CARMINE
82966 ELLISON, TERESA
83001 LEACH, JOHN
83131 THE PALMS
83261 ROBB, HAROLD
83401 ANDERSON, CAROL J
83683 CONNOR, WILLIAM J
83865 LYONS, GLYNN
83883 KLAUSER, HENRY
84424 BENNETT, S
84658 HAYTON, THOMAS L
TOMS TRACTOR SV
85323 GRIMES, ROLAND S
86151 KARPEN, SIGMUND
86532 RICHARDSON, MYRON
86821 COATES, JOHN
86856 QUAMME, ADOLPH
86925 A 1 PUMP CO
PONCY, RUSS
86952 GEHRES, ROBERT
87079 BLAU, WILLIAM H

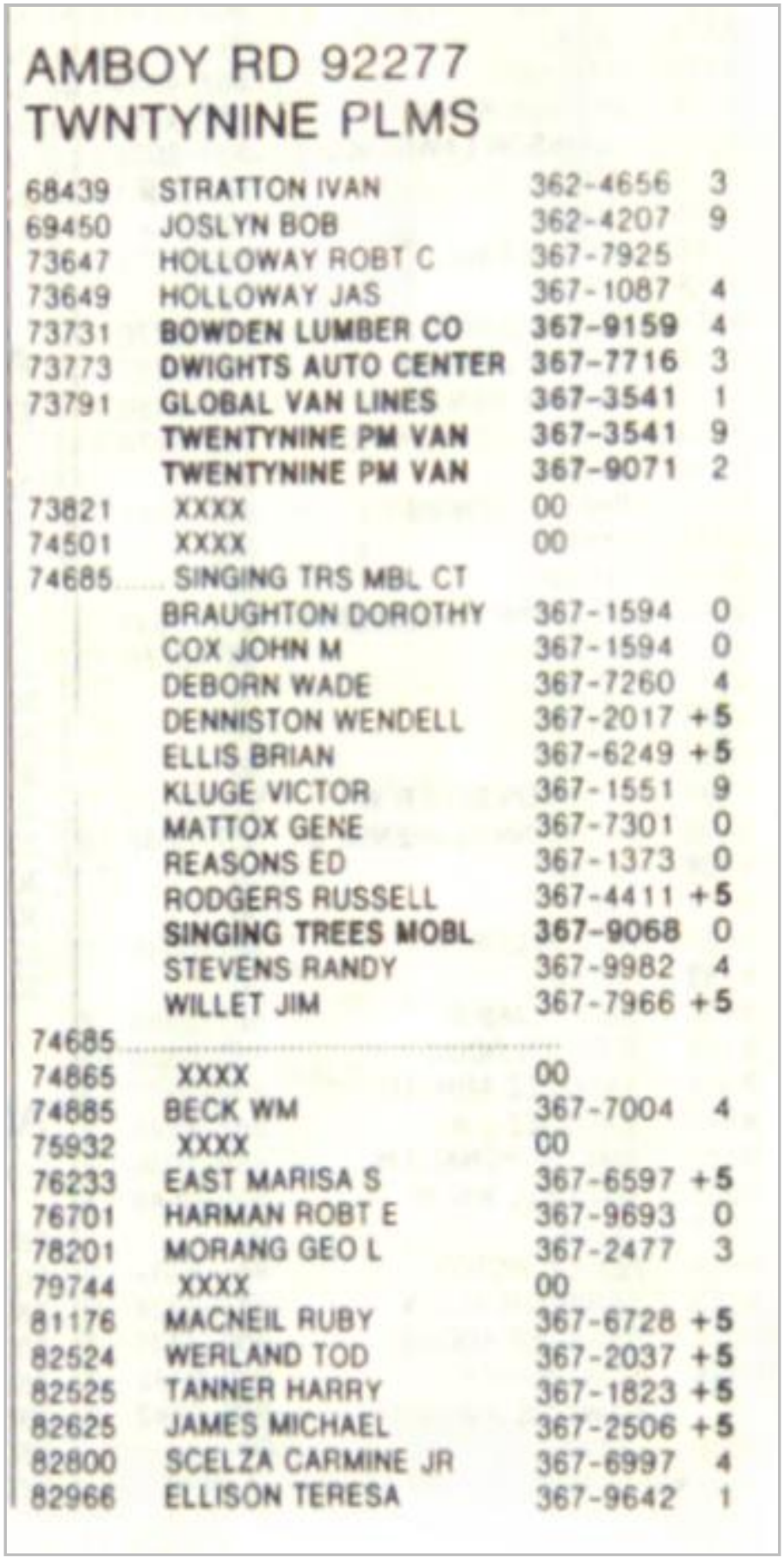
Target Street	Cross Street	Source
✓	-	EDR Digital Archive

AMBOY RD 1992 (Cont'd)

87448 CICERO, JOHNNA
87579 DESERT DWELLER
87627 PARESA, GREGORY
87646 CORN, CHARLES
87666 BARNETTS TRADING
87780 GIL, ALFONSO
87908 DAVIS, WILLIAM M
87979 PHELND, L
88198 MITCHELL, GARY D

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

AMBOY RD 1985



AMBOY RD 92277
TWNTYNINE PLMS

68439	STRATTON IVAN	362-4656	3
69450	JOSLYN BOB	362-4207	9
73647	HOLLOWAY ROBT C	367-7925	
73649	HOLLOWAY JAS	367-1087	4
73731	BOWDEN LUMBER CO	367-9159	4
73773	DWIGHTS AUTO CENTER	367-7716	3
73791	GLOBAL VAN LINES	367-3541	1
	TWENTYNINE PM VAN	367-3541	9
	TWENTYNINE PM VAN	367-9071	2
73821	XXXX	00	
74501	XXXX	00	
74685	SINGING TRS MBL CT		
	BRAUGHTON DOROTHY	367-1594	0
	COX JOHN M	367-1594	0
	DEBORN WADE	367-7260	4
	DENNISTON WENDELL	367-2017	+5
	ELLIS BRIAN	367-6249	+5
	KLUGE VICTOR	367-1551	9
	MATTOX GENE	367-7301	0
	REASONS ED	367-1373	0
	RODGERS RUSSELL	367-4411	+5
	SINGING TREES MOBL	367-9068	0
	STEVENS RANDY	367-9982	4
	WILLET JIM	367-7966	+5
74685			
74865	XXXX	00	
74885	BECK WM	367-7004	4
75932	XXXX	00	
76233	EAST MARISA S	367-6597	+5
76701	HARMAN ROBT E	367-9693	0
78201	MORANG GEO L	367-2477	3
79744	XXXX	00	
81176	MACNEIL RUBY	367-6728	+5
82524	WERLAND TOD	367-2037	+5
82525	TANNER HARRY	367-1823	+5
82625	JAMES MICHAEL	367-2506	+5
82800	SCELZA CARMINE JR	367-6997	4
82966	ELLISON TERESA	367-9642	1

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

AMBOY RD 1985

AMBOY RD		92277 CONT	
82998	XXXX	00	
83001	XXXX	00	
83131	**PALMS THE**	**367-2488**	2
83401	ANDERSON CAROL J	367-1957	4
83415	ROBB PATRICIA	367-1032	+5
83683	CONNOR WILLIAM J	367-6832	1
83865	LYONS GLYNN	367-6908	
83883	KLAUSER HENRY	367-2035	+5
84224	XXXX	00	
84417	XXXX	00	
84439	XXXX	00	
84658	**HAYTON THOMAS L**	**367-6457**	1
84701	SOMERS DAVID	367-6907	2
85001	XXXX	00	
85323	GRIMES ROLAND S	367-6963	6
86140	DANIELS D E	367-1941	3
86161	XXXX	00	
86200	XXXX	00	
86532	RICHARDSON MYRON	367-2787	4
86611	XXXX	00	
86821	COATES JOHN	367-1917	4
86856	QUAMME ADOLPH	367-2411	4
86877	DONOGHUE BERT	367-7404	1
86952	GEHRES ROBT	367-1398	3
87079	BLAU WM H	367-2117	+5
87400	XXXX	00	
87484	AHLHEIM WILFORD J	367-9835	9
87561	XXXX	00	
87574	THOMPSON AMBROSE	367-1914	1
87626	XXXX	00	
87627	PARESA GREGORY	367-6536	3
87666	**BARNETTS TRADING**	**367-2272**	+5
87780	GIL ALFONSO	367-2185	3
87884	CHAPMAN DON	367-1073	+5
87908	DAVIS WM M	367-7694	8
87979	XXXX	00	
NO #	BEITER JOHN C	367-3679	6
NO #	CHILTON CHAS C	367-3245	
NO #	DOTSON MIKEL S	367-6007	7
NO #	LEWIS C A	367-3820	
NO #	MCLEOD M I	367-7459	6
NO #	RADLEY CHAS E	367-7651	
NO #	SCELZA CARMINE J	367-7222	
NO #	SCHUTZ ADAM	367-7936	0
NO #	**WONDER VLY FR DIST**	**367-3761**	0
NO #	ZUIDERWEG ORWIN	367-7198	1
*	10 BUS 72 RES	14 NEW	

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

AMBOY RD 1980

AMBOY RD 92277
TWNTYNINE PLMS

68221	GAUMER ARVID H	362-4601 +0
69450	JOSLYN BOB	362-4207 9
73647	HOLLOWAY ROBT C	367-7925
73773★	**DWIGHTS AUTO CENTER**	**367-7716+0**
73791★	**SMYTH VAN LINE**	**367-3541** 8
★	**TWENTYNINE PM STRGE**	**367-3541** 9
73821	XXXX	00
74685.....	APARTMENTS	
	BELL TROY	367-9426 +0
	BRAUGHTON DOROTHY	367-1594 +0
	COX JOHN M	367-1594 +0
	GAITAUD THIERRY	367-1157 +0
	KLUGE VICTOR	367-1551 9
	MATTOX GENE	367-7301 +0
	MATTOX GENE	367-9068 +0
	REASONS ED	367-1373 +0
★	**SINGING TRS MBL CRT**	**367-9068+0**
	STEFANKO MIKE	367-6814 +0
74685.....		
74865	XXXX	00
74885	BECK WILLIAM	367-7451 9
75932	XXXX	00
76701	HARMAN ROBT E	367-9693 +0
78201	XXXX	00
79744	SMITH CARL L	367-3397 8
82800	MASTERSON JOHN	367-3857 7
★	**WONDER ELECTRIC CO**	**367-3857** 8
82998	SOMERS DAVID	367-6907 8
83001	BOTTORFF RONALD	367-7692 +0
83131★	**PALMS THE**	**367-9342** 4
83865	LYONS GLYNN	367-6908 4
83883	KUHN TERRY	367-9638 +0
84224	BAKER K D	367-1704 +0
	LAMB J	367-1704 +0
84311	KESSLER HOWARD	367-9318 +0
84417	CONSOLARO RAY	367-1364 +0
84439	XXXX	00
85323	GRIMES ROLAND S	367-6963 6
86161	XXXX	00
86200	MEACHAM ZOLA	367-1300 9
86611	WILPONEN MELBA	367-1061 +0
87400	XXXX	00
87484	AHLHEIM WILFORD J	367-9835 9
87561	MINEHARDT GORDON E	367-9635
87908	DAVIS WM M	367-7694 8
88513	FERRELL KEN E	367-9762 5
NO #	BEITER JOHN C	367-3679 6
NO #	BELLOFATTO D J	367-6202
NO #	BLAU WM H	367-7261 5
NO #	CHILTON CHAS C	367-3245
NO #	COX GARLON	367-3869
NO #	DOTSON MIKEL S	367-6007 7
NO #★	**FIRE DP WONDER VLY**	**367-3761+0**
NO #	HAYTON THOS L	367-6457 4
NO #	KELLEY JAS W	367-6449 6
NO #	KUNS L W	367-9822 4
NO #	LEWIS C A	367-3820 5
NO #	MARQUARDT ALBERT A	367-3757 +0
NO #	MCLEOD MARGUERITE I	367-7459 6
NO #	RADLEY CHAS E	367-7651
NO #	RUNDQUIST STEPHEN P	367-6444 8
NO #	SCELZA CARMINE J	367-7222 5
NO #	SCHOOLER OSCAR H	367-3142
NO #	SCHUTZ ADAM	367-7936 +0
NO #	SLAYBAUGH AMEL	367-3391 4
NO #	WEIDER A	367-9244 5
NO #	WILLIAMS J M	367-7208
NO #★	**WONDER VLY FIRE DST**	**367-3761+0**
★	8 BUS 58 RES	23 NEW

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

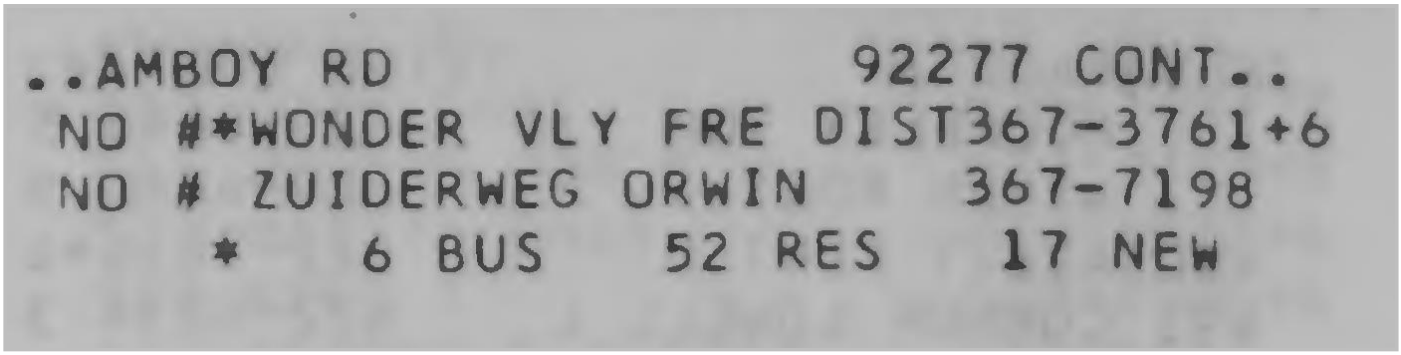
AMBOY RD 1976

AMBOY RD 92277 TWENTYNINE PLMS

69450 WESTERMAN HOWARD 362-4223+6
73647 HOLLOWAY ROBT C 367-7925
73791*ALLIED VAN LINES 367-3541
*TWENTYNINE PLMS VAN367-3541
73821 BELANGER RENE 367-3827
73857 REESE W W 367-3676
74685 XXXX OO
74885 BECK WM 367-7451+6
75932 DRAKE C M 367-6801 5
76701 THOMPSON DONALD E 367-9461+6
79744 SUTTON HARRY A 367-6858+6
83131*PALMS THE 367-9342 4
83865 LYONS GLYNN 367-6908 4
84439 XXXX OO
85323 GRIMES ROLAND S 367-6963+6
86200 GAGE DOUGLAS N 367-6882+6
86513 XXXX OO
87400 LARSEN ERIC 367-6012+6
87561 MINEHARDT GORDON E 367-9635
88513 FERRELL KEN E 367-9762 5
NO # AHLHEIM WILFORD J 367-9835
NO # BAUMAN JOHN L 367-3919
NO # BEITER JOHN C 367-3679+6
NO # BELLOFATTO D J 367-6202
NO # BELMONT ALFRED 367-3651
NO # BLAU WM H 367-7261 5
NO # CHILTON CHAS C 367-3245
NO # COX GARLON 367-3869
NO # DAVIS JOHN F 367-3195 4
NO # DAVIS WM M 367-7694+6
NO # EWASIAK J 367-7246+6
NO # HAYTON THOS L 367-6457 4
NO # KELLEY JAS W 367-6449+6
NO #*KNIGHTS OF COLUMBUS367-3204
NO # KUNS L W 367-9822 4
NO # LEAHY DANL F 367-6574
NO # LEWIS C A 367-3820 5
NO # MARCOUX GERALD J 367-3800
NO # MARQUARDT ALBERT A 367-3757 5
NO # MASTERSON JOHN 367-3857+6
NO # MATTOX GENE 367-9068 5
NO # MCKENZIE DUNCAN 367-7490 5
NO # MCLEOD MARGUERITE 367-7459+6
NO # MOODY JIM 367-3746+6
NO # NORMAN FRANK P 367-3315
NO # PHILLIPS ROBT 362-4532+6
NO # RADLEY CHAS E 367-7651
NO # RUNQUIST STEPHEN P 367-6444 5
NO # SANTOS HELEN L 367-9795+6
NO # SCELZA CARMINE J 367-7222 5
NO # SCHOOLER OSCAR H 367-3142
NO #*SINGING TREE MBL CT367-9068 4
NO # SLAYBAUGH AMEL 367-3391 4
NO # SOMERS DAVID 367-9483 5
NO # WEIDER A 367-9244 5
NO # WILLIAMS J M 367-7208

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

AMBOY RD 1976



..AMBOY RD 92277 CONT..
NO #*WONDER VLY FRE DIST367-3761+6
NO # ZUIDERWEG ORWIN 367-7198
* 6 BUS 52 RES 17 NEW

78201 Amboy Road

78201 Amboy Road

Twentynine Palms, CA 92277

Inquiry Number: 6420625.8

March 24, 2021

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

03/24/21

Site Name:

78201 Amboy Road
78201 Amboy Road
Twentynine Palms, CA 92277
EDR Inquiry # 6420625.8

Client Name:

Ardent Environmental Group
1827 Capital Street
Corona, CA 92880
Contact: Tahsin Annoor

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Search Results:

Year	*Scale*	*Details*	*Source*
2016	1"=500'	Flight Year: 2016	USDA/NAIP
2012	1"=500'	Flight Year: 2012	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2005	1"=500'	Flight Year: 2005	USDA/NAIP
1995	1"=500'	Acquisition Date: October 03, 1995	USGS/DOQQ
1977	1"=500'	Flight Date: July 01, 1977	USGS
1970	1"=500'	Flight Date: April 26, 1970	USGS
1952	1"=500'	Flight Date: November 03, 1952	USDA
1948	1"=500'	Flight Date: July 13, 1948	USGS

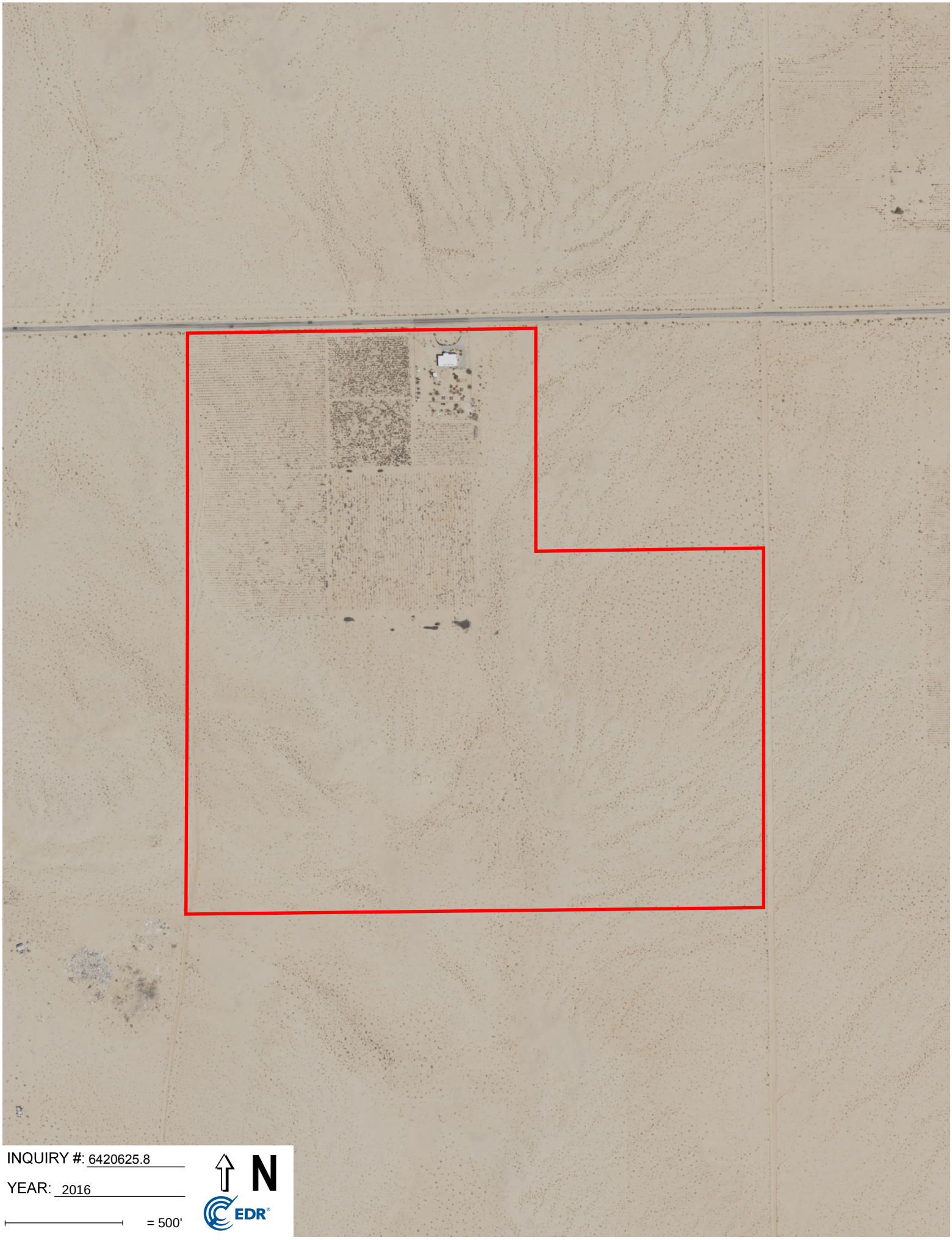
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INQUIRY #: 6420625.8
YEAR: 2016
= 500'
N
EDR



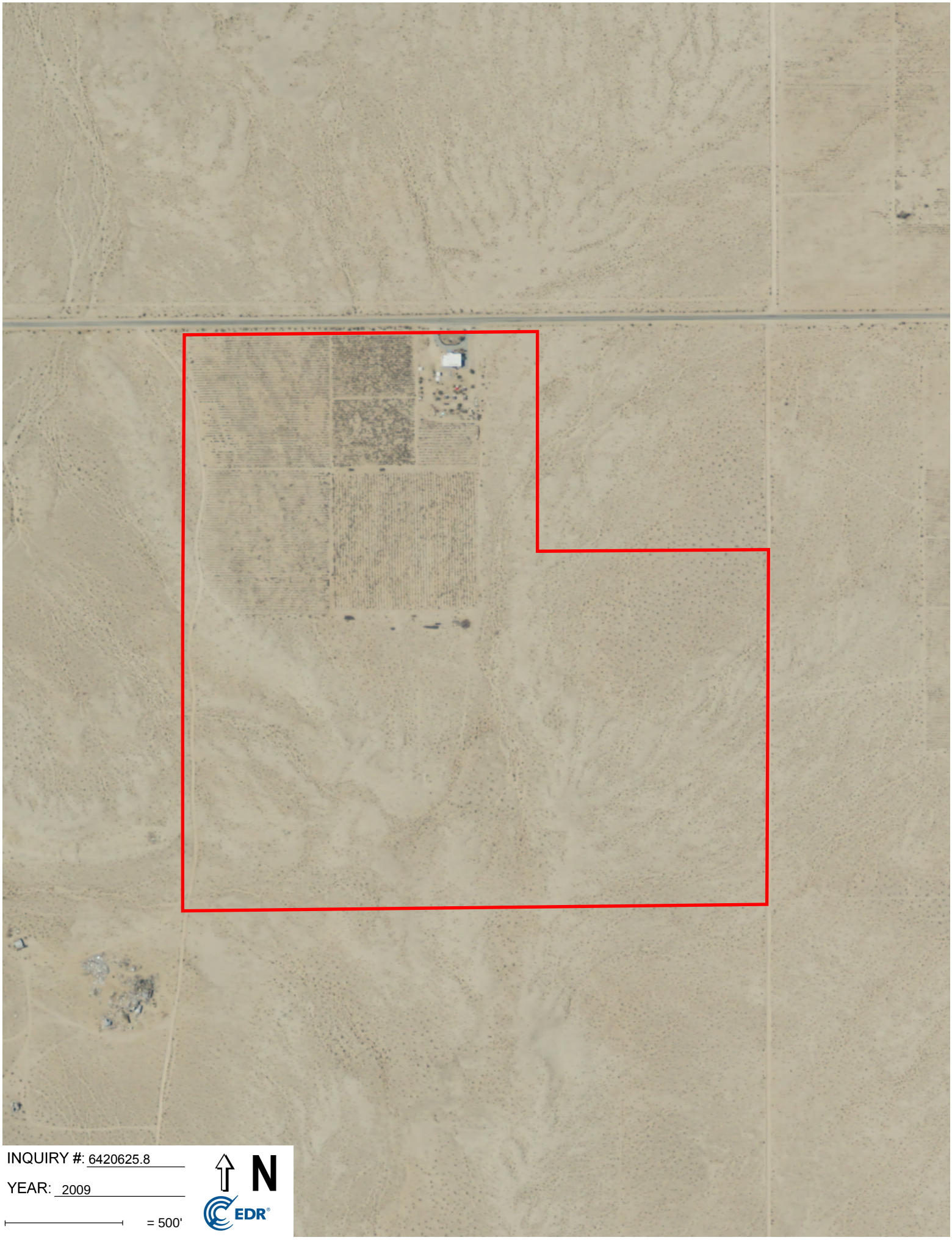
INQUIRY #: 6420625.8

YEAR: 2012

= 500'

N

EDR



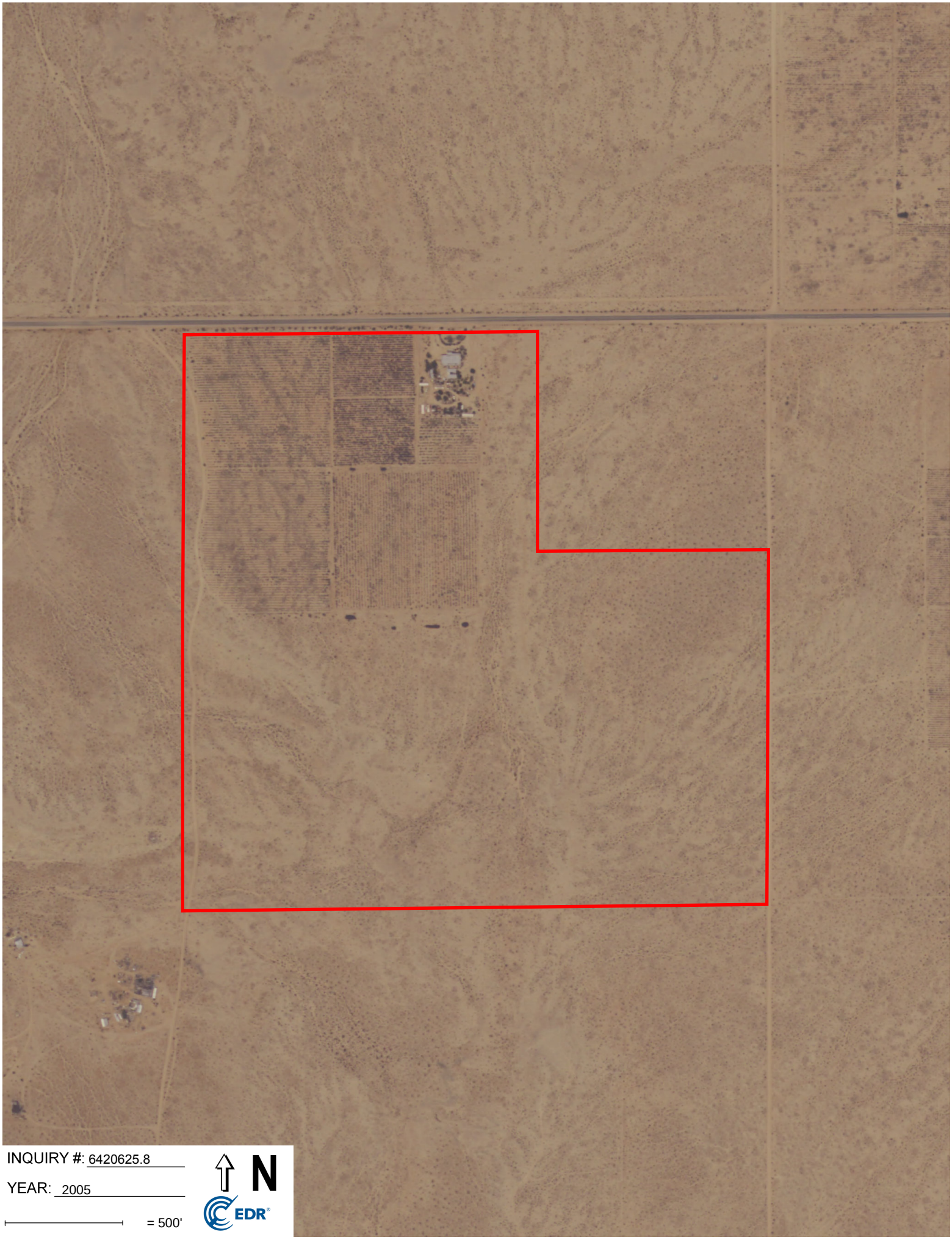
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YEAR: 2009

= 500'

N

EDR



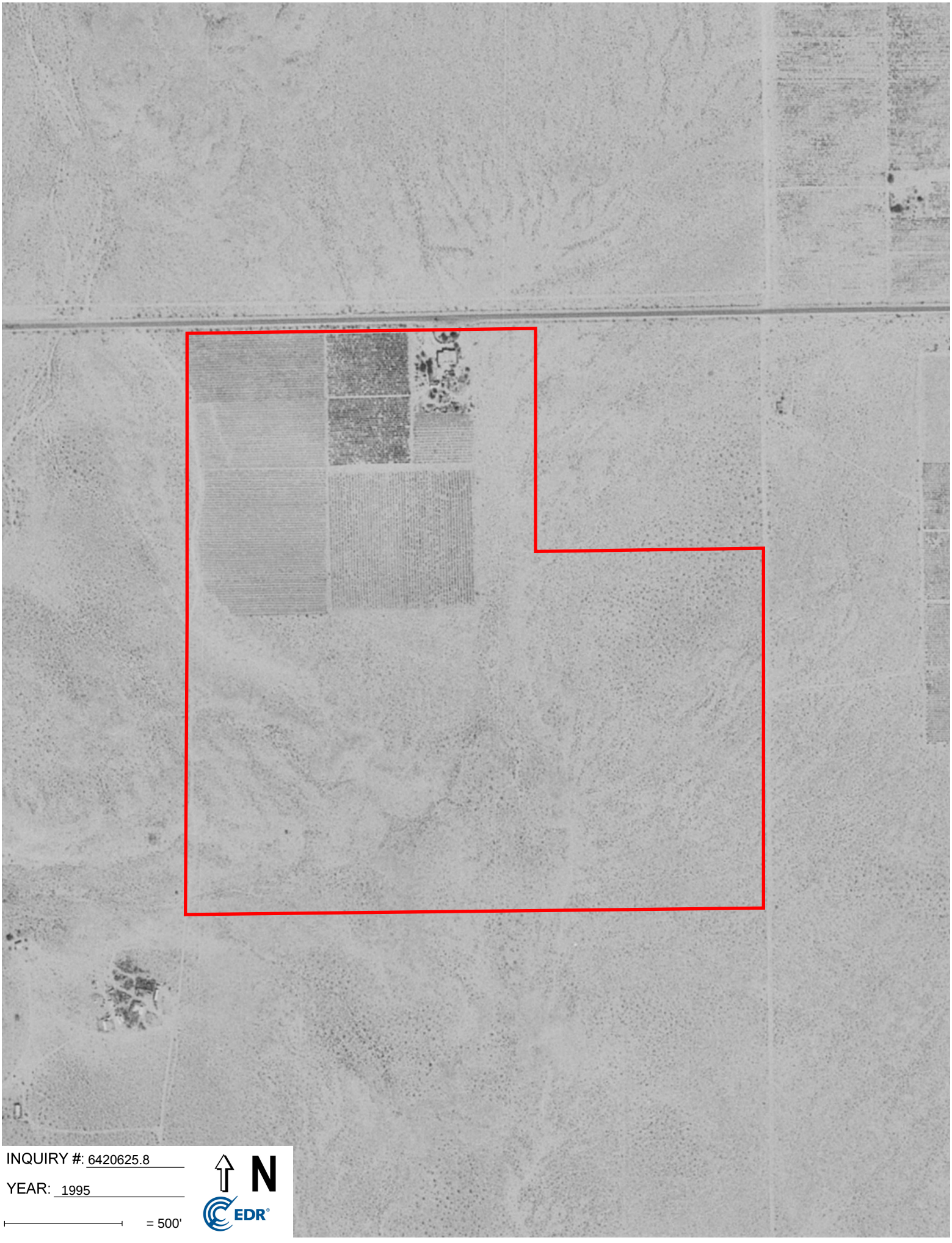
INQUIRY #: 6420625.8

YEAR: 2005

= 500'

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EDR



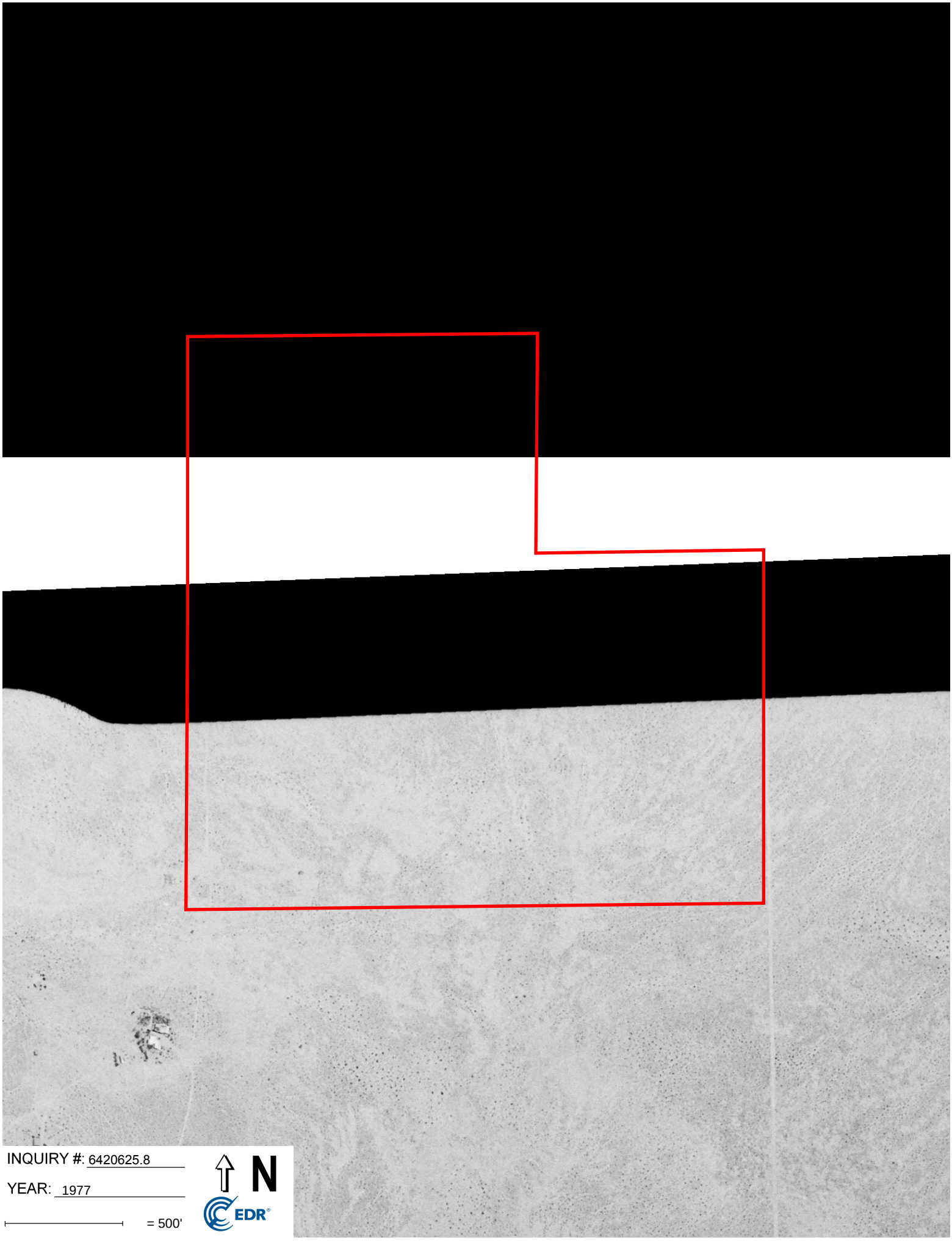
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YEAR: 1995

= 500'

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EDR



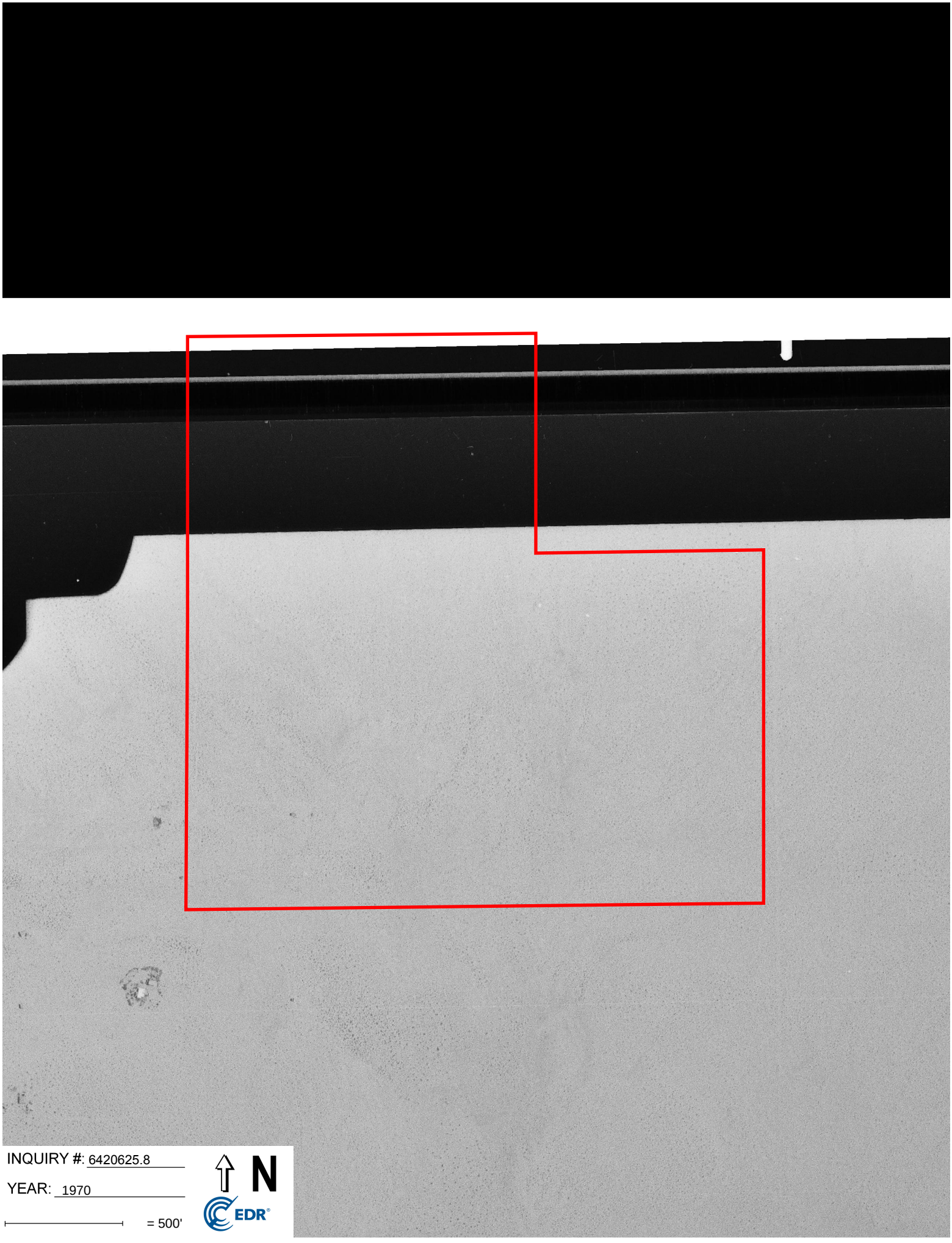
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YEAR: 1977

= 500'

N

EDR



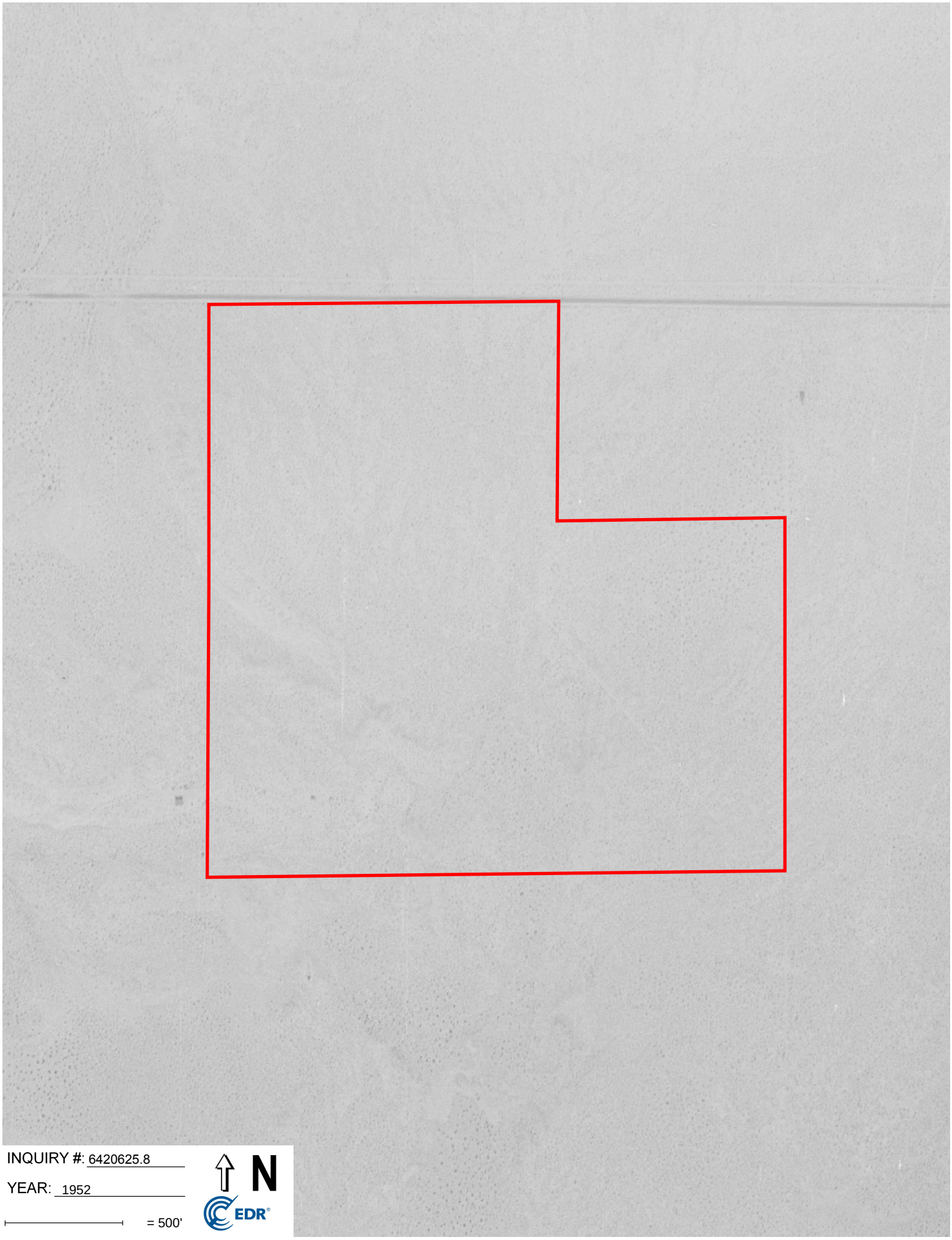
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YEAR: 1970

= 500'

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EDR



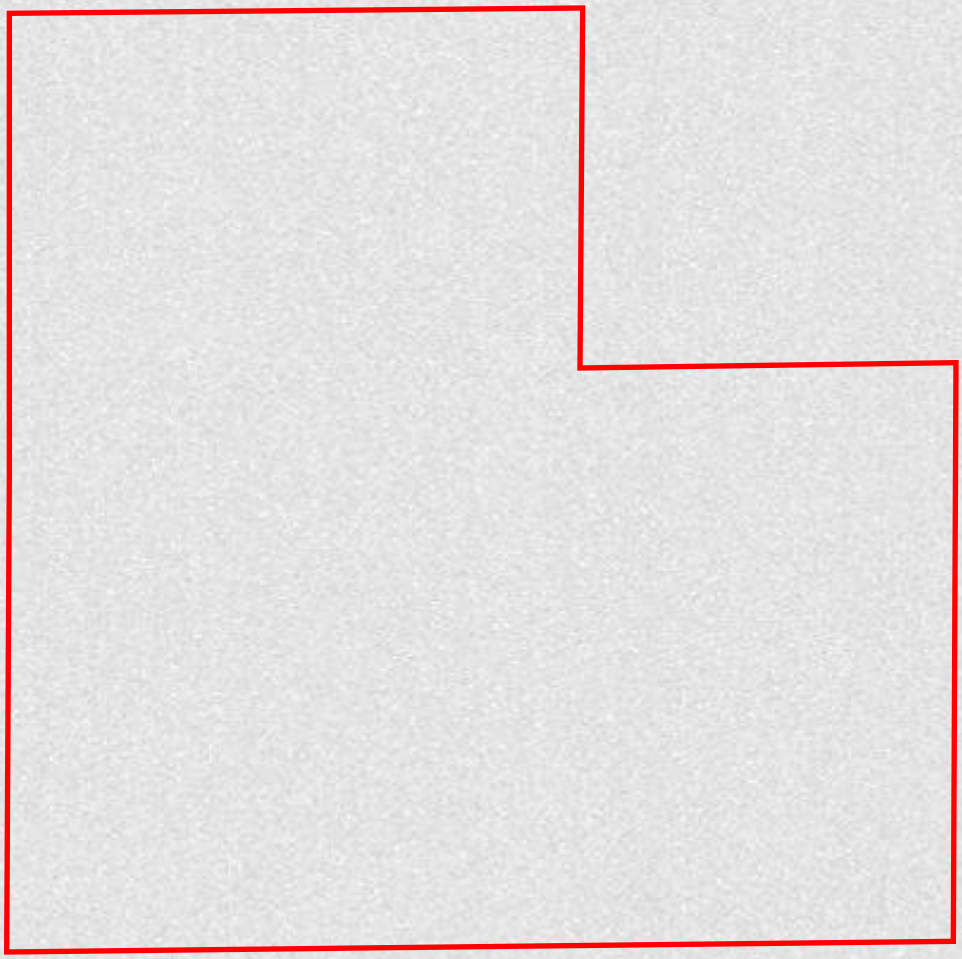
INQUIRY #: 6420625.8

YEAR: 1952

= 500'

N

EDR



INQUIRY #: 6420625.8

YEAR: 1948

= 500'

N

EDR

78201 Amboy Road

78201 Amboy Road

Twentynine Palms, CA 92277

Inquiry Number: 6420625.4

March 24, 2021

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

03/24/21

Site Name:	Client Name:
78201 Amboy Road	Ardent Environmental Group
78201 Amboy Road	1827 Capital Street
Twentynine Palms, CA 92277	Corona, CA 92880
EDR Inquiry # 6420625.4	Contact: Tahsin Annoor

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Search Results:		*Coordinates:*	
P.O.#	NA	**Latitude:**	34.161527 34° 9' 41" North
Project:	101231001	**Longitude:**	-115.953209 -115° 57' 12" West
		UTM Zone:	Zone 11 North
		UTM X Meters:	596487.52
		UTM Y Meters:	3780560.98
		Elevation:	1761.00' above sea level

Maps Provided:

2012
1956
1954

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Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2012 Source Sheets



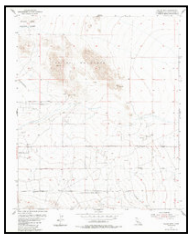
Valley Mountain
2012
7.5-minute, 24000

1956 Source Sheets



Valley Mountain
1956
15-minute, 62500
Aerial Photo Revised 1954

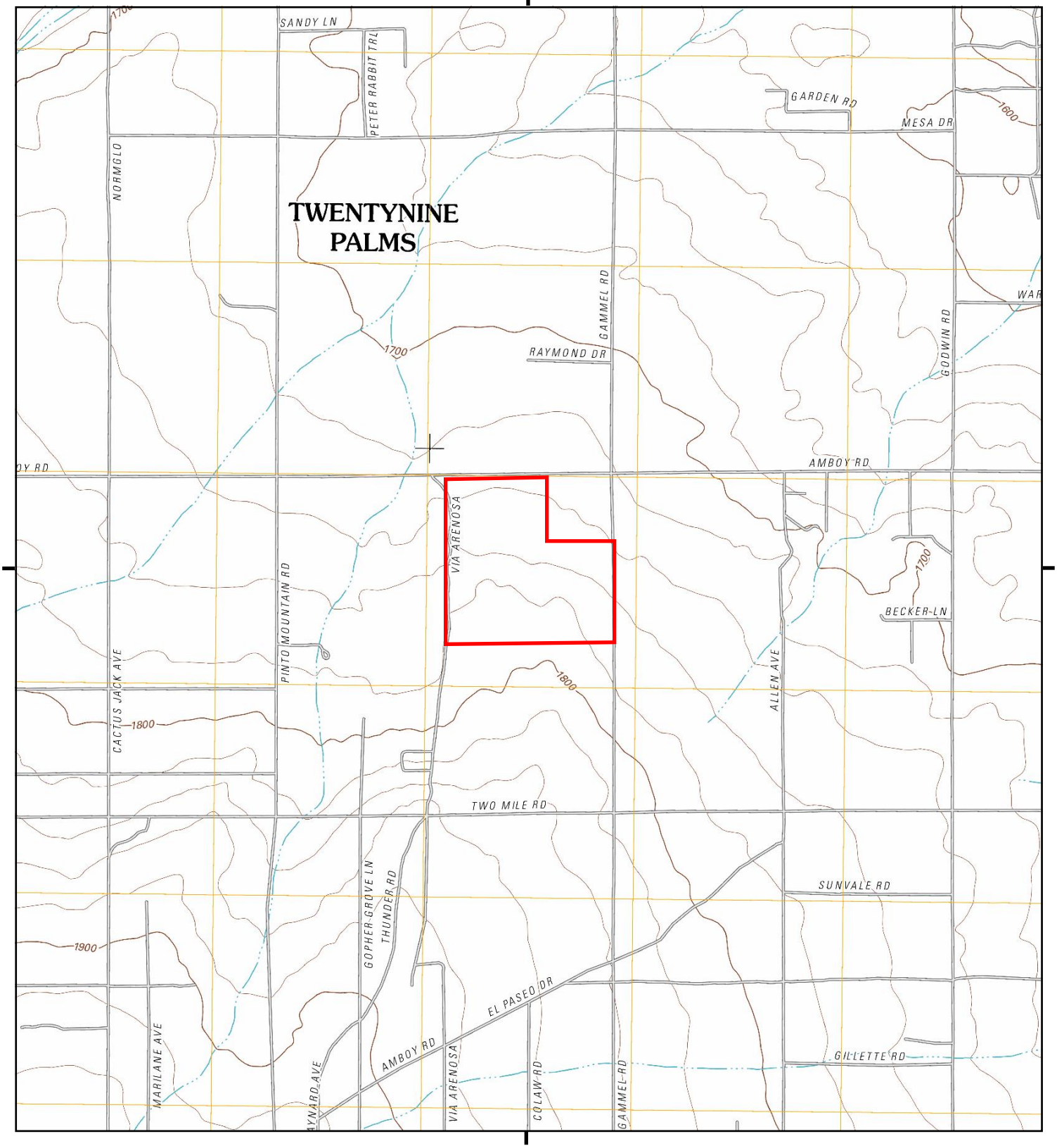
1954 Source Sheets



Valley Mtn
1954
7.5-minute, 24000
Aerial Photo Revised 1952

Historical Topo Map

2012



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

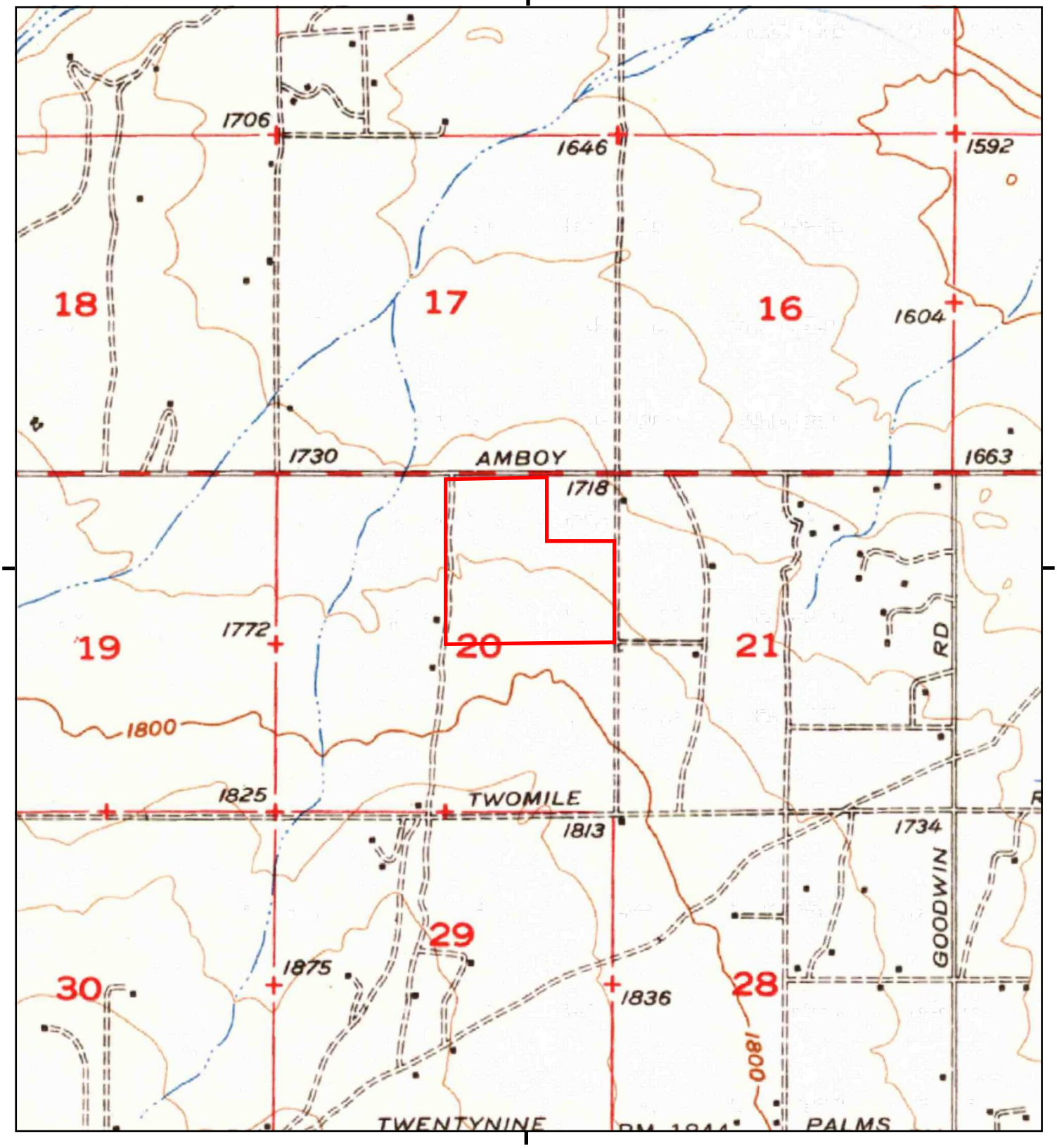
TP, Valley Mountain, 2012, 7.5-minute

SITE NAME: 78201 Amboy Road
ADDRESS: 78201 Amboy Road
Twentynine Palms, CA 92277
CLIENT: Ardent Environmental Group

N

Historical Topo Map

1956



This report includes information from the following map sheet(s).

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W E
SW S SE

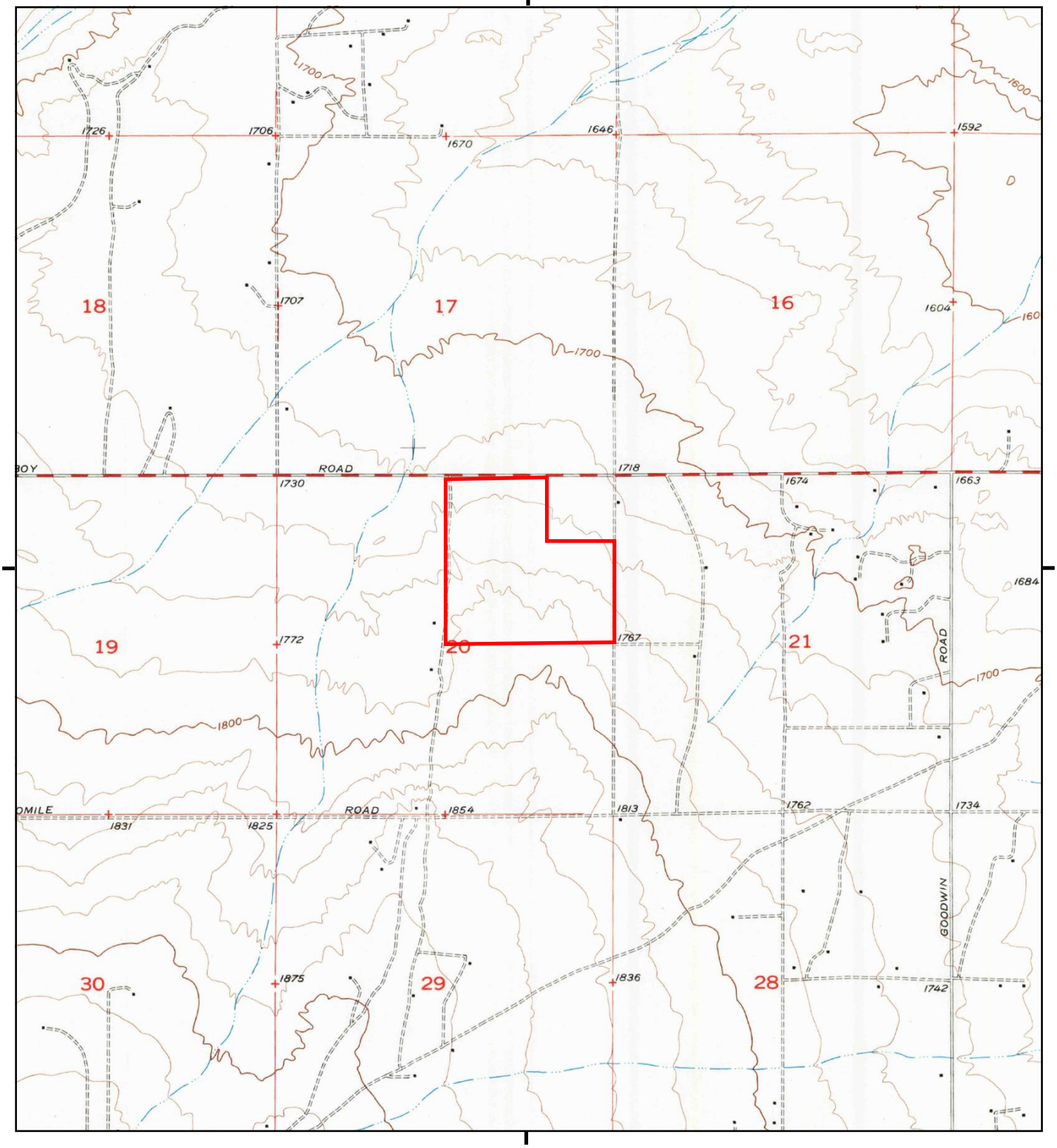
TP, Valley Mountain, 1956, 15-minute

SITE NAME: 78201 Amboy Road
ADDRESS: 78201 Amboy Road
Twentynine Palms, CA 92277
CLIENT: Ardent Environmental Group

N

Historical Topo Map

1954



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Valley Mtn, 1954, 7.5-minute

SITE NAME: 78201 Amboy Road
ADDRESS: 78201 Amboy Road
Twentynine Palms, CA 92277
CLIENT: Ardent Environmental Group

N

78201 Amboy Road

78201 Amboy Road

Twentynine Palms, CA 92277

Inquiry Number: 6420625.3

March 24, 2021

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

03/24/21

Site Name:

78201 Amboy Road
78201 Amboy Road
Twentynine Palms, CA 92277
EDR Inquiry # 6420625.3

Client Name:

Ardent Environmental Group
1827 Capital Street
Corona, CA 92880
Contact: Tahsin Annoor

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The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # 2783-49CA-B8D1

PO # NA

Project 101231001

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: 2783-49CA-B8D1

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

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APPENDIX D

ENVIRONMENTAL DATABASE REPORT

78201 Amboy Road
78201 Amboy Road
Twentynine Palms, CA 92277

Inquiry Number: 6420625.2s
March 24, 2021

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Overview Map	2
Detail Map	3
Map Findings Summary	4
Map Findings	9
Orphan Summary	15
Government Records Searched/Data Currency Tracking	GR-1

GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
Physical Setting Source Summary	A-2
Physical Setting Source Map	A-7
Physical Setting Source Map Findings	A-8
Physical Setting Source Records Searched	PSGR-1

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with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

78201 AMBOY ROAD
TWENTYNINE PALMS, CA 92277

COORDINATES

Latitude (North):	34.1615270 - 34° 9' 41.49''
Longitude (West):	115.9532090 - 115° 57' 11.55''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	596489.7
UTM Y (Meters):	3780366.0
Elevation:	1761 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5630809 VALLEY MOUNTAIN, CA
Version Date:	2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140525
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
78201 AMBOY ROAD
TWENTYNINE PALMS, CA 92277

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
1	W M FARMS	78201 AMBOY RD	San Bern. Co. Permit		TP
2	CNTY SAN BERNARDINO/	7501 PINTO MOUNTAIN	Cortese, HAZNET, CERS, HWTS	Lower	2639, 0.500, WNW

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following records. For more information on this property see page 9 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
W M FARMS 78201 AMBOY RD TWENTYNINE PALMS, CA 92277	San Bern. Co. Permit Facility Status: INACTIVE Facility Id: FA0000697	N/A

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ---------- National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY ---------- Federal Facility Site Information listing
SEMS ---------- Superfund Enterprise Management System

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

Federal RCRA CORRACTS facilities list

CORRACTS ---------- Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ---------- RCRA - Large Quantity Generators

RCRA-SQG ---- RCRA - Small Quantity Generators
RCRA-VSQG ---- RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

Federal institutional controls / engineering controls registries

LUCIS ---- Land Use Control Information System
US ENG CONTROLS ---- Engineering Controls Sites List
US INST CONTROLS ---- Institutional Controls Sites List

Federal ERNS list

ERNS ---- Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE ---- State Response Sites

State- and tribal - equivalent CERCLIS

ENVIROSTOR ---- EnviroStor Database

State and tribal landfill and/or solid waste disposal site lists

SWF/LF ---- Solid Waste Information System

State and tribal leaking storage tank lists

LUST ---- Geotracker's Leaking Underground Fuel Tank Report
INDIAN LUST ---- Leaking Underground Storage Tanks on Indian Land
CPS-SLIC ---- Statewide SLIC Cases

State and tribal registered storage tank lists

FEMA UST ---- Underground Storage Tank Listing
UST ---- Active UST Facilities
AST ---- Aboveground Petroleum Storage Tank Facilities
INDIAN UST ---- Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

INDIAN VCP ---- Voluntary Cleanup Priority Listing
VCP ---- Voluntary Cleanup Program Properties

State and tribal Brownfields sites

BROWNFIELDS ---- Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ---- A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT ---- Waste Management Unit Database

SWRCY Recycler Database
HAULERS Registered Waste Tire Haulers Listing
INDIAN ODI Report on the Status of Open Dumps on Indian Lands
DEBRIS REGION 9 Torres Martinez Reservation Illegal Dump Site Locations
ODI Open Dump Inventory
IHS OPEN DUMPS Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL Delisted National Clandestine Laboratory Register
HIST Cal-Sites Historical Calsites Database
SCH School Property Evaluation Program
CDL Clandestine Drug Labs
Toxic Pits Toxic Pits Cleanup Act Sites
CERS HAZ WASTE CERS HAZ WASTE
US CDL National Clandestine Laboratory Register
PFAS PFAS Contamination Site Location Listing

Local Lists of Registered Storage Tanks

SWEEPS UST SWEEPS UST Listing
HIST UST Hazardous Substance Storage Container Database
CA FID UST Facility Inventory Database
CERS TANKS California Environmental Reporting System (CERS) Tanks

Local Land Records

LIENS Environmental Liens Listing
LIENS 2 CERCLA Lien Information
DEED Deed Restriction Listing

Records of Emergency Release Reports

HMIRS Hazardous Materials Information Reporting System
CHMIRS California Hazardous Material Incident Report System
LDS Land Disposal Sites Listing
MCS Military Cleanup Sites Listing
SPILLS 90 SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR RCRA - Non Generators / No Longer Regulated
FUDS Formerly Used Defense Sites
DOD Department of Defense Sites
SCRD DRYCLEANERS State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR Financial Assurance Information
EPA WATCH LIST EPA WATCH LIST
2020 COR ACTION 2020 Corrective Action Program List
TSCA Toxic Substances Control Act
TRIS Toxic Chemical Release Inventory System
SSTS Section 7 Tracking Systems
ROD Records Of Decision
RMP Risk Management Plans
RAATS RCRA Administrative Action Tracking System
PRP Potentially Responsible Parties

PADS	PCB Activity Database System
ICIS	Integrated Compliance Information System
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS	Material Licensing Tracking System
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database
RADINFO	Radiation Information Database
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS	Incident and Accident Data
CONSENT	Superfund (CERCLA) Consent Decrees
INDIAN RESERV	Indian Reservations
FUSRAP	Formerly Utilized Sites Remedial Action Program
UMTRA	Uranium Mill Tailings Sites
LEAD SMELTERS	Lead Smelter Sites
US AIRS	Aerometric Information Retrieval System Facility Subsystem
US MINES	Mines Master Index File
ABANDONED MINES	Abandoned Mines
FINDS	Facility Index System/Facility Registry System
ECHO	Enforcement & Compliance History Information
DOCKET HWC	Hazardous Waste Compliance Docket Listing
UXO	Unexploded Ordnance Sites
FUELS PROGRAM	EPA Fuels Program Registered Listing
CA BOND EXP. PLAN	Bond Expenditure Plan
CUPA Listings	CUPA Resources List
DRYCLEANERS	Cleaner Facilities
EMI	Emissions Inventory Data
ENF	Enforcement Action Listing
Financial Assurance	Financial Assurance Information Listing
HAZNET	Facility and Manifest Data
ICE	ICE
HIST CORTESE	Hazardous Waste & Substance Site List
HWP	EnviroStor Permitted Facilities Listing
HWT	Registered Hazardous Waste Transporter Database
MINES	Mines Site Location Listing
MWMP	Medical Waste Management Program Listing
NPDES	NPDES Permits Listing
PEST LIC	Pesticide Regulation Licenses Listing
PROC	Certified Processors Database
Notify 65	Proposition 65 Records
UIC	UIC Listing
UIC GEO	UIC GEO (GEOTRACKER)
WASTEWATER PITS	Oil Wastewater Pits Listing
WDS	Waste Discharge System
WIP	Well Investigation Program Case List
MILITARY PRIV SITES	MILITARY PRIV SITES (GEOTRACKER)
PROJECT	PROJECT (GEOTRACKER)
WDR	Waste Discharge Requirements Listing
CIWQS	California Integrated Water Quality System
CERS	CERS
NON-CASE INFO	NON-CASE INFO (GEOTRACKER)
OTHER OIL GAS	OTHER OIL & GAS (GEOTRACKER)
PROD WATER PONDS	PROD WATER PONDS (GEOTRACKER)
SAMPLING POINT	SAMPLING POINT (GEOTRACKER)

EXECUTIVE SUMMARY

WELL STIM PROJ..... Well Stimulation Project (GEOTRACKER)
HWTS..... Hazardous Waste Tracking System
MINES MRDS..... Mineral Resources Data System

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP..... EDR Proprietary Manufactured Gas Plants
EDR Hist Auto..... EDR Exclusive Historical Auto Stations
EDR Hist Cleaner..... EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF..... Recovered Government Archive Solid Waste Facilities List
RGA LUST..... Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

Cortese: The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

A review of the Cortese list, as provided by EDR, and dated 12/17/2020 has revealed that there is 1 Cortese site within approximately 0.5 miles of the target property.

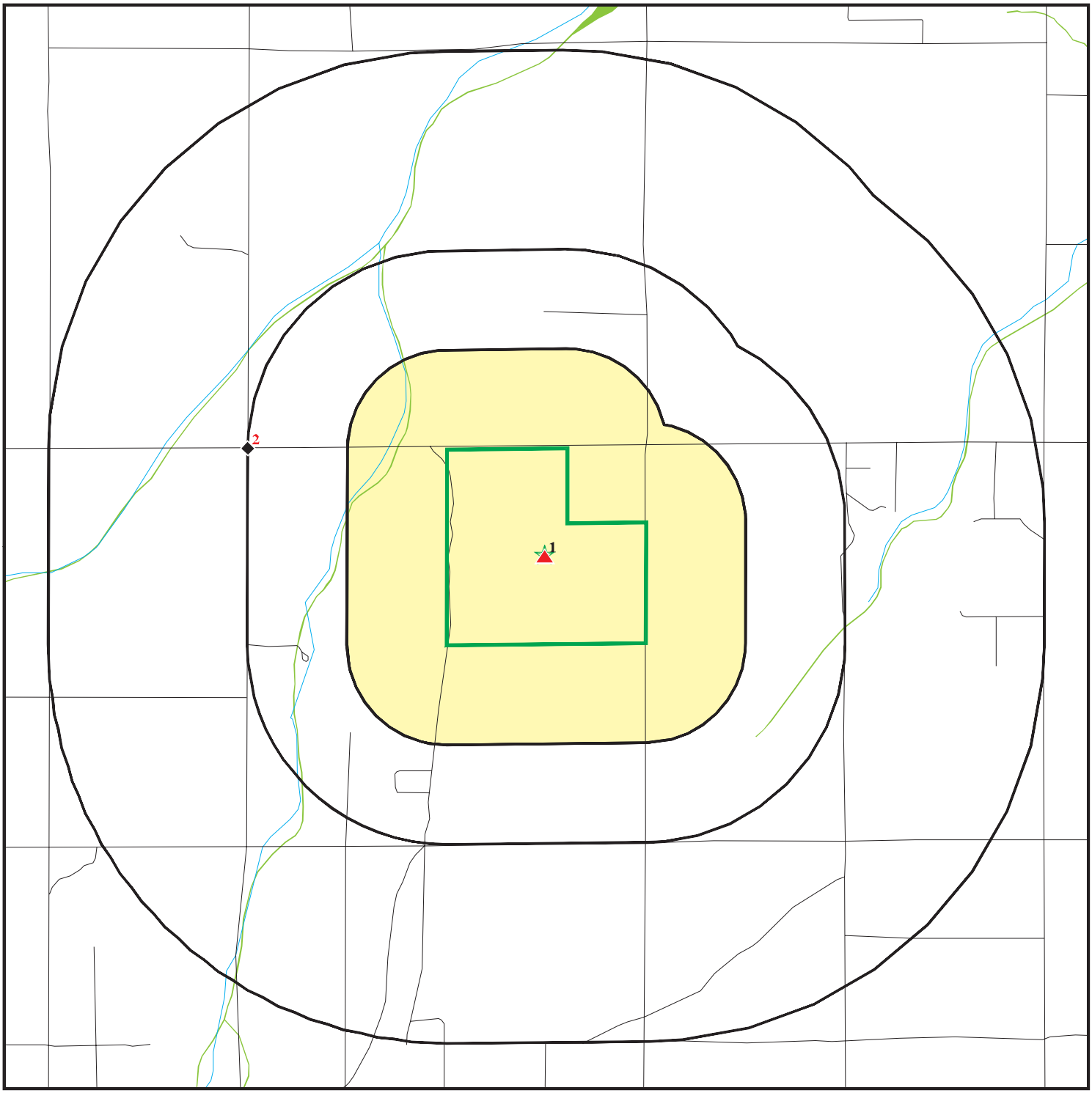
Lower Elevation	Address	Direction / Distance	Map ID	Page
CNTY SAN BERNARDINO/	***7501 PINTO MOUNTAIN***	***WNW 1/4 - 1/2 (0.500 mi.)***	***2***	***9***

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 2 records.

Site Name	Database(s)
AT & T MOBILITY - AMBOY ROAD TWENT	FINDS
AT & T MOBILITY - AMBOY ROAD TWENT	EMI

OVERVIEW MAP - 6420625.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

Special Flood Hazard Area (1%)

0.2% Annual Chance Flood Hazard

National Wetland Inventory

State Wetlands

Areas of Concern

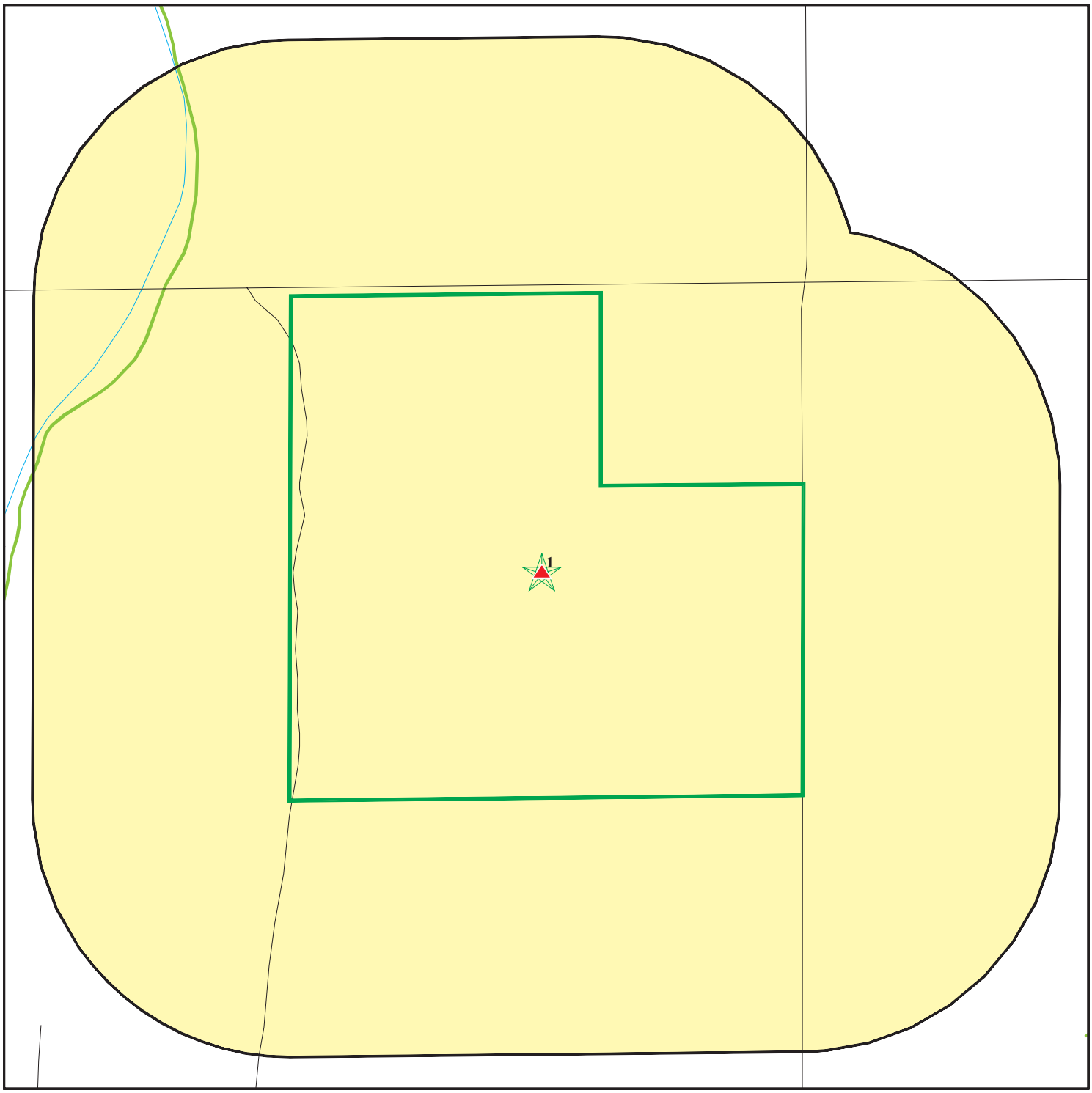
N

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: 78201 Amboy Road ADDRESS: 78201 Amboy Road Twentynine Palms CA 92277 LAT/LONG: 34.161527 / 115.953209	CLIENT: Ardent Environmental Group CONTACT: Tahsin Annoor INQUIRY #: 6420625.2s DATE: March 24, 2021 4:14 pm

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DETAIL MAP - 6420625.2S



0 1/8 1/4 1/2 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: 78201 Amboy Road	CLIENT: Ardent Environmental Group
ADDRESS: 78201 Amboy Road Twentynine Palms CA 92277	CONTACT: Tahsin Annoor
LAT/LONG: 34.161527 / 115.953209	INQUIRY #: 6420625.2s DATE: March 24, 2021 4:15 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROLS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		0	0	0	0	NR	0
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
CERS HAZ WASTE	0.250		0	0	NR	NR	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
PFAS	0.500		0	0	0	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0
CERS TANKS	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
LIENS 2	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
CHMIRS	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	1	NR	NR	1
CUPA Listings	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	0.001		0	NR	NR	NR	NR	0
ENF	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
HAZNET	0.001		0	NR	NR	NR	NR	0
ICE	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0
MINES	0.250		0	0	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
San Bern. Co. Permit	0.250	1	0	0	NR	NR	NR	1
PEST LIC	0.001		0	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
UIC GEO	0.001		0	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
MILITARY PRIV SITES	0.001		0	NR	NR	NR	NR	0
PROJECT	0.001		0	NR	NR	NR	NR	0
WDR	0.001		0	NR	NR	NR	NR	0
CIWQS	0.001		0	NR	NR	NR	NR	0
CERS	0.001		0	NR	NR	NR	NR	0
NON-CASE INFO	0.001		0	NR	NR	NR	NR	0
OTHER OIL GAS	0.001		0	NR	NR	NR	NR	0
PROD WATER PONDS	0.001		0	NR	NR	NR	NR	0
SAMPLING POINT	0.001		0	NR	NR	NR	NR	0
WELL STIM PROJ	0.001		0	NR	NR	NR	NR	0
HWTS	TP		NR	NR	NR	NR	NR	0
MINES MRDS	0.001		0	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		1	0	0	1	0	0	2

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

1 **W M FARMS** **San Bern. Co. Permit** **S106112309**
Target Property **78201 AMBOY RD** **N/A**
TWENTYNINE PALMS, CA 92277

Actual: 1761 ft.

San Bern. Co. Permit:

Name:	W M FARMS
Address:	78201 AMBOY RD
City,State,Zip:	TWENTYNINE PALMS, CA 92277
Region:	SAN BERNARDINO
Facility ID:	FA0000697
Owner:	MORANG, GEORGE
Permit Number:	PT0008199
Permit Category:	HAZMAT HANDLER 0-10 EMPLOYEES
Facility Status:	INACTIVE
Expiration Date:	05/31/1997

---

2 **CNTY SAN BERNARDINO/29 PALMS LANDFILL** **Cortese** **S113016863**
WNW **7501 PINTO MOUNTAIN RD** **HAZNET** **N/A**
1/4-1/2 **TWENTYNINE PALMS, CA 92278** **CERS**
0.500 mi. **HWTS**
2639 ft.

Relative: Lower

Actual: 1735 ft.

CORTESE:

Name:	TWENTYNINE PALMS WMF
Address:	7501 PINTO MOUNTAIN RD
City,State,Zip:	TWENTYNINE PALMS, CA
Region:	CORTESE
Envirostor Id:	Not reported
Global ID:	Not reported
Site/Facility Type:	Not reported
Cleanup Status:	Not reported
Status Date:	Not reported
Site Code:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Owner:	Not reported
Enf Type:	Not reported
Swat R:	Not reported
Flag:	CORTESE
Order No:	00-024
Waste Discharge System No:	Not reported
Effective Date:	06/28/2000
Region 2:	7
WID Id:	7A360304231
Solid Waste Id No:	Not reported
Waste Management Uit Name:	Not reported
File Name:	Cease Desist Orders & Cleanup Abatement Orders

Name:	TWENTYNINE PALMS WMF
Address:	7501 PINTO MOUNTAIN RD
City,State,Zip:	TWENTYNINE PALMS, CA
Region:	CORTESE
Envirostor Id:	Not reported
Global ID:	Not reported
Site/Facility Type:	Not reported
Cleanup Status:	Not reported
Status Date:	Not reported
Site Code:	Not reported
Latitude:	Not reported
Longitude:	Not reported

CNTY SAN BERNARDINO/29 PALMS LANDFILL (Continued) **S113016863**

Owner:	Not reported
Enf Type:	Not reported
Swat R:	Not reported
Flag:	CORTESE
Order No:	00-024
Waste Discharge System No:	Not reported
Effective Date:	06/28/2000
Region 2:	7
WID Id:	7A360304231
Solid Waste Id No:	Not reported
Waste Management Uit Name:	Not reported
File Name:	Cease Desist Orders & Cleanup Abatement Orders

HAZNET:

Name:	CNTY SAN BERNARDINO/29 PALMS LANDFILL
Address:	7501 PINTO MOUNTAIN RD
Address 2:	Not reported
City,State,Zip:	TWENTYNINE PALMS, CA 922780000
Contact:	JOSEPH QUINONES
Telephone:	9093868887
Mailing Name:	Not reported
Mailing Address:	222 W HOSPITALITY LN
Year:	2017
Gepaid:	CAD982495897
TSD EPA ID:	CAT080025711
CA Waste Code:	221 - Waste oil and mixed oil
Disposal Method:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	1.52
Year:	2013
Gepaid:	CAD982495897
TSD EPA ID:	CAD097030993
CA Waste Code:	352 - Other organic solids
Disposal Method:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.175
Year:	1997
Gepaid:	CAD982495897
TSD EPA ID:	CAT080025711
CA Waste Code:	221 - Waste oil and mixed oil
Disposal Method:	R01 - Recycler
Tons:	2.66
Year:	1996
Gepaid:	CAD982495897
TSD EPA ID:	CAD050806850
CA Waste Code:	331 - Off-specification, aged or surplus organics
Disposal Method:	H01 - Transfer Station
Tons:	0.015
Year:	1994
Gepaid:	CAD982495897
TSD EPA ID:	CAT080011059
CA Waste Code:	223 - Unspecified oil-containing waste

CNTY SAN BERNARDINO/29 PALMS LANDFILL (Continued) **S113016863**

Disposal Method:	R01 - Recycler
Tons:	0.1668

Additional Info:

Year:	1994
Gen EPA ID:	CAD982495897
Shipment Date:	19941116
Creation Date:	10/19/1995 0:00:00
Receipt Date:	19941118
Manifest ID:	93118527
Trans EPA ID:	CAD983668583
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080011059
Trans Name:	Not reported
TSDF Alt EPA ID:	CAT080011059
TSDF Alt Name:	Not reported
Waste Code Description:	223 - Unspecified oil-containing waste
RCRA Code:	Not reported
Meth Code:	R01 - Recycler
Quantity Tons:	0.1668
Waste Quantity:	40
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Additional Info:

Year:	1996
Gen EPA ID:	CAD982495897
Shipment Date:	19961231
Creation Date:	5/30/1997 0:00:00
Receipt Date:	19970106
Manifest ID:	95541478
Trans EPA ID:	DED980918858
Trans Name:	Not reported
Trans 2 EPA ID:	CAD009466392
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD050806850
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	331 - Off-specification, aged, or surplus organics
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.005
Waste Quantity:	10
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported

CNTY SAN BERNARDINO/29 PALMS LANDFILL (Continued) **S113016863**

Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported
Shipment Date:	19961231
Creation Date:	5/30/1997 0:00:00
Receipt Date:	19970106
Manifest ID:	95541478
Trans EPA ID:	DED980918858
Trans Name:	Not reported
Trans 2 EPA ID:	CAD009466392
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD050806850
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	331 - Off-specification, aged, or surplus organics
RCRA Code:	Not reported
Meth Code:	H01 - Transfer Station
Quantity Tons:	0.01
Waste Quantity:	20
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Additional Info:

Year:	2017
Gen EPA ID:	CAD982495897
Shipment Date:	20171019
Creation Date:	5/30/2018 18:33:39
Receipt Date:	20171019
Manifest ID:	006297122SKS
Trans EPA ID:	TXR000081205
Trans Name:	SAFETY-KLEEN SYSTEMS INC
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080025711
Trans Name:	ADVANCED ENVIRONMENTAL INC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	221 - Waste oil and mixed oil
RCRA Code:	Not reported
Meth Code:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Quantity Tons:	1.52
Waste Quantity:	400
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

CNTY SAN BERNARDINO/29 PALMS LANDFILL (Continued) **S113016863**

Additional Info:

Year:	2013
Gen EPA ID:	CAD982495897
Shipment Date:	20130301
Creation Date:	5/1/2013 22:15:05
Receipt Date:	20130314
Manifest ID:	010874851JJK
Trans EPA ID:	CAD028277036
Trans Name:	ASBURY ENVIRONMENTAL SERVICES
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAD097030993
Trans Name:	SIEMENS INDUSTRY INC
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	352 - Other organic solids
RCRA Code:	Not reported
Meth Code:	H141 - Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Quantity Tons:	0.175
Waste Quantity:	350
Quantity Unit:	P
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

Additional Info:

Year:	1997
Gen EPA ID:	CAD982495897
Shipment Date:	19970611
Creation Date:	12/4/1997 0:00:00
Receipt Date:	19970611
Manifest ID:	96683676
Trans EPA ID:	CAD009661844
Trans Name:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
TSDF EPA ID:	CAT080025711
Trans Name:	Not reported
TSDF Alt EPA ID:	Not reported
TSDF Alt Name:	Not reported
Waste Code Description:	221 - Waste oil and mixed oil
RCRA Code:	Not reported
Meth Code:	R01 - Recycler
Quantity Tons:	2.66
Waste Quantity:	700
Quantity Unit:	G
Additional Code 1:	Not reported
Additional Code 2:	Not reported
Additional Code 3:	Not reported
Additional Code 4:	Not reported
Additional Code 5:	Not reported

CNTY SAN BERNARDINO/29 PALMS LANDFILL (Continued) **S113016863**

CERS:
- Name: CNTY SAN BERNARDINO/29 PALMS LANDFILL
- Address: 7501 PINTO MOUNTAIN RD
- City,State,Zip: TWENTYNINE PALMS, CA 922780000
- Site ID: 461344
- CERS ID: 110018989772
- CERS Description: US EPA Air Emission Inventory System (EIS)

Affiliation:
- Affiliation Type Desc: Environmental Contact
- Entity Name: ENVIR MGMT
- Entity Title: Not reported
- Affiliation Address: 5 MI E FROM 29 PALMS 2 MI S HWY
- Affiliation City: TWENTYNINEPALMS
- Affiliation State: CA
- Affiliation Country: Not reported
- Affiliation Zip: Not reported
- Affiliation Phone: Not reported

HWTS:
- Name: CNTY SAN BERNARDINO/29 PALMS LANDFILL
- Address: 7501 PINTO MOUNTAIN RD
- Address 2: Not reported
- City,State,Zip: TWENTYNINE PALMS, CA 922780000
- EPA ID: CAD982495897
- Inactive Date: Not reported
- Create Date: 08/14/1990
- Last Act Date: 07/10/2020
- Mailing Name: Not reported
- Mailing Address: 222 W HOSPITALITY LN
- Mailing Address 2: 2ND FLOOR
- Mailing City,State,Zip: SAN BERNARDINO, CA 924151027
- Owner Name: COUNTY OF SAN BERNARDINO SOLID WAST
- Owner Address: 222 W HOSPITALITY LN
- Owner Address 2: 2ND FLOOR
- Owner City,State,Zip: SAN BERNARDINO, CA 924150017
- Contact Name: JOSEPH QUINONES
- Contact Address: 222 W. HOSPITALITY LN 2ND FL
- Contact Address 2: Not reported
- City,State,Zip: SAN BERNARDINO, CA 924150017

NAICS:
- EPA ID: CAD982495897
- Create Date: 2009-12-03 12:41:18.000
- NAICS Code: 56292
- NAICS Description: Materials Recovery Facilities
- Issued EPA ID Date: 1990-08-14 00:00:00
- Inactive Date: Not reported
- Facility Name: CNTY SAN BERNARDINO/29 PALMS LANDFILL
- Facility Address: 7501 PINTO MOUNTAIN RD
- Facility Address 2: Not reported
- Facility City: TWENTYNINE PALMS
- Facility County: Not reported
- Facility State: CA
- Facility Zip: 922780000

Count: 2 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
TWENTYNINE PALMS	S124453564	AT & T MOBILITY - AMBOY ROAD TWENT	825 AMBOY ROAD	92277	EMI
TWENTYNINE PALMS	1025451116	AT & T MOBILITY - AMBOY ROAD TWENT	825 AMBOY ROAD	92277	FINDS

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 12/30/2020
Date Data Arrived at EDR: 01/14/2021
Date Made Active in Reports: 02/09/2021
Number of Days to Update: 26

Source: EPA
Telephone: N/A
Last EDR Contact: 03/04/2021
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 12/30/2020
Date Data Arrived at EDR: 01/14/2021
Date Made Active in Reports: 02/09/2021
Number of Days to Update: 26

Source: EPA
Telephone: N/A
Last EDR Contact: 03/04/2021
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 12/30/2020
Date Data Arrived at EDR: 01/14/2021
Date Made Active in Reports: 02/09/2021
Number of Days to Update: 26

Source: EPA
Telephone: N/A
Last EDR Contact: 03/04/2021
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 04/03/2019
Date Data Arrived at EDR: 04/05/2019
Date Made Active in Reports: 05/14/2019
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 12/23/2020
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 12/30/2020
Date Data Arrived at EDR: 01/14/2021
Date Made Active in Reports: 02/18/2021
Number of Days to Update: 35

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 03/04/2021
Next Scheduled EDR Contact: 04/26/2021
Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 12/30/2020
Date Data Arrived at EDR: 01/14/2021
Date Made Active in Reports: 02/18/2021
Number of Days to Update: 35

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 03/04/2021
Next Scheduled EDR Contact: 04/26/2021
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 12/14/2020
Date Data Arrived at EDR: 12/17/2020
Date Made Active in Reports: 12/22/2020
Number of Days to Update: 5

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 03/23/2021
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 12/14/2020
Date Data Arrived at EDR: 12/17/2020
Date Made Active in Reports: 12/22/2020
Number of Days to Update: 5

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/23/2021
Next Scheduled EDR Contact: 07/05/2021
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/14/2020
Date Data Arrived at EDR: 12/17/2020
Date Made Active in Reports: 12/22/2020
Number of Days to Update: 5

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/23/2021
Next Scheduled EDR Contact: 07/05/2021
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 12/14/2020
Date Data Arrived at EDR: 12/17/2020
Date Made Active in Reports: 12/22/2020
Number of Days to Update: 5

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/23/2021
Next Scheduled EDR Contact: 07/05/2021
Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/14/2020
Date Data Arrived at EDR: 12/17/2020
Date Made Active in Reports: 12/22/2020
Number of Days to Update: 5

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/23/2021
Next Scheduled EDR Contact: 07/05/2021
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 02/09/2021
Date Data Arrived at EDR: 02/11/2021
Date Made Active in Reports: 03/22/2021
Number of Days to Update: 39

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 02/08/2021
Next Scheduled EDR Contact: 05/24/2021
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 10/28/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 11/18/2020
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/23/2021
Next Scheduled EDR Contact: 06/06/2021
Data Release Frequency: Varies

US INST CONTROLS: Institutional Controls Sites List

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 10/28/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 11/18/2020
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/23/2021
Next Scheduled EDR Contact: 06/06/2021
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/14/2020
Date Data Arrived at EDR: 12/15/2020
Date Made Active in Reports: 12/22/2020
Number of Days to Update: 7

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 12/15/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Quarterly

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 10/26/2020
Date Data Arrived at EDR: 10/26/2020
Date Made Active in Reports: 01/13/2021
Number of Days to Update: 79

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/26/2021
Next Scheduled EDR Contact: 05/10/2021
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 10/26/2020
Date Data Arrived at EDR: 10/26/2020
Date Made Active in Reports: 01/13/2021
Number of Days to Update: 79

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/26/2021
Next Scheduled EDR Contact: 05/10/2021
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 11/09/2020
Date Data Arrived at EDR: 11/10/2020
Date Made Active in Reports: 01/14/2021
Number of Days to Update: 65

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 02/09/2021
Next Scheduled EDR Contact: 05/24/2021
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)

Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/04/2020
Date Data Arrived at EDR: 12/04/2020
Date Made Active in Reports: 02/18/2021
Number of Days to Update: 76

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 03/09/2021
Next Scheduled EDR Contact: 06/21/2021
Data Release Frequency: Quarterly

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14
Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 1: Active Toxic Site Investigation
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29
Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22
Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27
Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28
Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/01/2020
Date Data Arrived at EDR: 12/16/2020
Date Made Active in Reports: 03/12/2021
Number of Days to Update: 86
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 10/02/2020
Date Data Arrived at EDR: 12/18/2020
Date Made Active in Reports: 03/12/2021
Number of Days to Update: 84
Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 09/30/2020
Date Data Arrived at EDR: 12/22/2020
Date Made Active in Reports: 03/12/2021
Number of Days to Update: 80
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 10/09/2020
Date Data Arrived at EDR: 12/16/2020
Date Made Active in Reports: 03/12/2021
Number of Days to Update: 86
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 10/01/2020
Date Data Arrived at EDR: 12/16/2020
Date Made Active in Reports: 03/12/2021
Number of Days to Update: 86
Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 11/12/2020
Date Data Arrived at EDR: 12/16/2020
Date Made Active in Reports: 03/12/2021
Number of Days to Update: 86
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 04/08/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84
Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 10/07/2020
Date Data Arrived at EDR: 12/16/2020
Date Made Active in Reports: 03/12/2021
Number of Days to Update: 86
Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

CPS-SLIC: Statewide SLIC Cases (GEOTRACKER)
Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/04/2020
Date Data Arrived at EDR: 12/04/2020
Date Made Active in Reports: 02/18/2021
Number of Days to Update: 76
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/09/2021
Next Scheduled EDR Contact: 06/21/2021
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35
Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36
Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11
Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17
Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: No Update Planned

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/29/2021
Date Data Arrived at EDR: 02/17/2021
Date Made Active in Reports: 03/22/2021
Number of Days to Update: 33
Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 01/04/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Varies

MILITARY UST SITES: Military UST Sites (GEOTRACKER)
Military ust sites

Date of Government Version: 12/04/2020
Date Data Arrived at EDR: 12/04/2020
Date Made Active in Reports: 02/18/2021
Number of Days to Update: 76
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/09/2021
Next Scheduled EDR Contact: 06/21/2021
Data Release Frequency: Varies

UST CLOSURE: Proposed Closure of Underground Storage Tank (UST) Cases

UST cases that are being considered for closure by either the State Water Resources Control Board or the Executive Director have been posted for a 60-day public comment period. UST Case Closures being proposed for consideration by the State Water Resources Control Board. These are primarily UST cases that meet closure criteria under the decisional framework in State Water Board Resolution No. 92-49 and other Board orders. UST Case Closures proposed for consideration by the Executive Director pursuant to State Water Board Resolution No. 2012-0061. These are cases that meet the criteria of the Low-Threat UST Case Closure Policy. UST Case Closure Review Denials and Approved Orders.

Date of Government Version: 12/02/2020
Date Data Arrived at EDR: 12/08/2020
Date Made Active in Reports: 02/23/2021
Number of Days to Update: 77

Source: State Water Resources Control Board
Telephone: 916-327-7844
Last EDR Contact: 03/09/2021
Next Scheduled EDR Contact: 06/21/2021
Data Release Frequency: Varies

UST: Active UST Facilities

Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 12/04/2020
Date Data Arrived at EDR: 12/04/2020
Date Made Active in Reports: 02/18/2021
Number of Days to Update: 76

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 03/09/2021
Next Scheduled EDR Contact: 06/21/2021
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities

A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 03/12/2021
Next Scheduled EDR Contact: 06/28/2021
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 11/12/2020
Date Data Arrived at EDR: 12/16/2020
Date Made Active in Reports: 03/12/2021
Number of Days to Update: 86

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 12/15/2020
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/01/2020
Date Data Arrived at EDR: 12/16/2020
Date Made Active in Reports: 03/12/2021
Number of Days to Update: 86

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 09/30/2020
Date Data Arrived at EDR: 12/22/2020
Date Made Active in Reports: 03/12/2021
Number of Days to Update: 80

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 10/01/2020
Date Data Arrived at EDR: 12/16/2020
Date Made Active in Reports: 03/12/2021
Number of Days to Update: 86

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 10/07/2020
Date Data Arrived at EDR: 12/16/2020
Date Made Active in Reports: 03/12/2021
Number of Days to Update: 86

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 04/08/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 10/09/2020
Date Data Arrived at EDR: 12/16/2020
Date Made Active in Reports: 03/12/2021
Number of Days to Update: 86

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 10/02/2020
Date Data Arrived at EDR: 12/18/2020
Date Made Active in Reports: 03/12/2021
Number of Days to Update: 84

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 03/22/2021
Next Scheduled EDR Contact: 07/05/2021
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27
Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties
Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 10/26/2020
Date Data Arrived at EDR: 10/26/2020
Date Made Active in Reports: 01/13/2021
Number of Days to Update: 79
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/26/2021
Next Scheduled EDR Contact: 05/10/2021
Data Release Frequency: Quarterly

State and tribal Brownfields sites

BROWNFIELDS: Considered Brownfieds Sites Listing
A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 12/17/2020
Date Data Arrived at EDR: 12/17/2020
Date Made Active in Reports: 03/09/2021
Number of Days to Update: 82
Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 03/23/2021
Next Scheduled EDR Contact: 07/05/2021
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 12/11/2020
Date Data Arrived at EDR: 12/11/2020
Date Made Active in Reports: 03/02/2021
Number of Days to Update: 81
Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 03/16/2021
Next Scheduled EDR Contact: 06/28/2021
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 01/25/2021
Next Scheduled EDR Contact: 05/10/2021
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 12/07/2020
Date Data Arrived at EDR: 12/08/2020
Date Made Active in Reports: 02/22/2021
Number of Days to Update: 76

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/09/2021
Next Scheduled EDR Contact: 06/21/2021
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 11/23/2020
Date Data Arrived at EDR: 11/23/2020
Date Made Active in Reports: 02/08/2021
Number of Days to Update: 77

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 02/08/2021
Next Scheduled EDR Contact: 05/24/2021
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 01/25/2021
Next Scheduled EDR Contact: 05/10/2021
Data Release Frequency: Varies

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 01/19/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land
A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 01/29/2021
Next Scheduled EDR Contact: 05/10/2021
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 12/07/2020
Date Data Arrived at EDR: 12/09/2020
Date Made Active in Reports: 03/02/2021
Number of Days to Update: 83

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 02/22/2021
Next Scheduled EDR Contact: 06/06/2021
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 10/26/2020
Date Data Arrived at EDR: 10/26/2020
Date Made Active in Reports: 01/13/2021
Number of Days to Update: 79

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/26/2021
Next Scheduled EDR Contact: 05/10/2021
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 06/30/2019
Date Data Arrived at EDR: 05/28/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 01/19/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Varies

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

CERS HAZ WASTE: CERS HAZ WASTE

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

Date of Government Version: 10/19/2020
Date Data Arrived at EDR: 10/19/2020
Date Made Active in Reports: 01/07/2021
Number of Days to Update: 80

Source: CalEPA
Telephone: 916-323-2514
Last EDR Contact: 01/20/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Quarterly

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 12/07/2020
Date Data Arrived at EDR: 12/09/2020
Date Made Active in Reports: 03/02/2021
Number of Days to Update: 83

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 02/22/2021
Next Scheduled EDR Contact: 06/06/2021
Data Release Frequency: Quarterly

PFAS: PFAS Contamination Site Location Listing

A listing of PFAS contaminated sites included in the GeoTracker database.

Date of Government Version: 12/07/2020
Date Data Arrived at EDR: 12/08/2020
Date Made Active in Reports: 02/22/2021
Number of Days to Update: 76

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 02/24/2021
Next Scheduled EDR Contact: 06/21/2021
Data Release Frequency: Varies

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SAN FRANCISCO AST: Aboveground Storage Tank Site Listing

Aboveground storage tank sites

Date of Government Version: 11/05/2020
Date Data Arrived at EDR: 11/06/2020
Date Made Active in Reports: 01/26/2021
Number of Days to Update: 81

Source: San Francisco County Department of Public Health
Telephone: 415-252-3896
Last EDR Contact: 02/01/2021
Next Scheduled EDR Contact: 05/17/2021
Data Release Frequency: Varies

CERS TANKS: California Environmental Reporting System (CERS) Tanks

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

Date of Government Version: 10/19/2020
Date Data Arrived at EDR: 10/19/2020
Date Made Active in Reports: 01/07/2021
Number of Days to Update: 80

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 01/20/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Quarterly

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 11/24/2020
Date Data Arrived at EDR: 11/30/2020
Date Made Active in Reports: 02/10/2021
Number of Days to Update: 72

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/26/2021
Next Scheduled EDR Contact: 06/14/2021
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 12/30/2020
Date Data Arrived at EDR: 01/14/2021
Date Made Active in Reports: 02/18/2021
Number of Days to Update: 35

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 03/04/2021
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Semi-Annually

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 11/30/2020
Date Data Arrived at EDR: 12/01/2020
Date Made Active in Reports: 02/12/2021
Number of Days to Update: 73

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 03/03/2021
Next Scheduled EDR Contact: 06/14/2021
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/16/2020
Date Data Arrived at EDR: 12/17/2020
Date Made Active in Reports: 03/12/2021
Number of Days to Update: 85

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 12/17/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Quarterly

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 09/30/2020
Date Data Arrived at EDR: 10/19/2020
Date Made Active in Reports: 01/07/2021
Number of Days to Update: 80

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 01/20/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Semi-Annually

LDS: Land Disposal Sites Listing (GEOTRACKER)

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/04/2020
Date Data Arrived at EDR: 12/04/2020
Date Made Active in Reports: 02/18/2021
Number of Days to Update: 76

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/09/2021
Next Scheduled EDR Contact: 06/21/2021
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/04/2020
Date Data Arrived at EDR: 12/04/2020
Date Made Active in Reports: 02/18/2021
Number of Days to Update: 76

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/09/2021
Next Scheduled EDR Contact: 06/21/2021
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 12/14/2020
Date Data Arrived at EDR: 12/17/2020
Date Made Active in Reports: 12/22/2020
Number of Days to Update: 5

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/23/2021
Next Scheduled EDR Contact: 07/05/2021
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 09/29/2020
Date Data Arrived at EDR: 11/17/2020
Date Made Active in Reports: 01/25/2021
Number of Days to Update: 69

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 02/17/2021
Next Scheduled EDR Contact: 05/31/2021
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 01/15/2021
Next Scheduled EDR Contact: 04/26/2021
Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/11/2018
Date Made Active in Reports: 11/06/2019
Number of Days to Update: 574

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 01/07/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 02/09/2021
Next Scheduled EDR Contact: 05/24/2021
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 12/14/2020
Date Data Arrived at EDR: 12/17/2020
Date Made Active in Reports: 03/12/2021
Number of Days to Update: 85

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 03/23/2021
Next Scheduled EDR Contact: 07/05/2021
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 02/02/2021
Next Scheduled EDR Contact: 05/17/2021
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 02/05/2021
Next Scheduled EDR Contact: 05/17/2021
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 06/17/2020
Date Made Active in Reports: 09/10/2020
Number of Days to Update: 85

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 03/19/2021
Next Scheduled EDR Contact: 06/28/2021
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 08/14/2020
Date Made Active in Reports: 11/04/2020
Number of Days to Update: 82

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 02/02/2021
Next Scheduled EDR Contact: 05/31/2021
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 01/20/2021
Date Data Arrived at EDR: 01/21/2021
Date Made Active in Reports: 03/22/2021
Number of Days to Update: 60

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 01/21/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 12/30/2020
Date Data Arrived at EDR: 01/14/2021
Date Made Active in Reports: 02/18/2021
Number of Days to Update: 35

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 03/04/2021
Next Scheduled EDR Contact: 06/14/2021
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 11/02/2020
Date Data Arrived at EDR: 11/12/2020
Date Made Active in Reports: 01/25/2021
Number of Days to Update: 74

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 01/19/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 12/30/2020
Date Data Arrived at EDR: 01/14/2021
Date Made Active in Reports: 03/05/2021
Number of Days to Update: 50

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 03/11/2021
Next Scheduled EDR Contact: 05/17/2021
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 11/19/2020
Date Data Arrived at EDR: 01/08/2021
Date Made Active in Reports: 03/22/2021
Number of Days to Update: 73

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 01/08/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/30/2020
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 08/05/2020
Date Data Arrived at EDR: 08/10/2020
Date Made Active in Reports: 10/08/2020
Number of Days to Update: 59

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 01/19/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 12/01/2020
Date Made Active in Reports: 02/09/2021
Number of Days to Update: 70

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 03/05/2021
Next Scheduled EDR Contact: 06/14/2021
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 01/12/2017
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 251

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 03/02/2021
Next Scheduled EDR Contact: 06/14/2021
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 09/13/2019
Date Data Arrived at EDR: 11/06/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 96
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 02/05/2021
Next Scheduled EDR Contact: 05/17/2021
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/01/2019
Date Data Arrived at EDR: 07/01/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 84
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 01/08/2021
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data
Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 01/02/2020
Date Data Arrived at EDR: 01/28/2020
Date Made Active in Reports: 04/17/2020
Number of Days to Update: 80
Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 01/27/2021
Next Scheduled EDR Contact: 05/10/2021
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2020
Date Data Arrived at EDR: 01/13/2021
Date Made Active in Reports: 03/22/2021
Number of Days to Update: 68

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 01/04/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 06/22/2020
Date Made Active in Reports: 11/20/2020
Number of Days to Update: 151

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 03/23/2021
Next Scheduled EDR Contact: 07/05/2021
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 01/08/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 08/08/2017
Date Data Arrived at EDR: 09/11/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 3

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 02/02/2021
Next Scheduled EDR Contact: 05/17/2021
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 08/30/2019
Date Data Arrived at EDR: 11/15/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 74

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 02/18/2021
Next Scheduled EDR Contact: 05/31/2021
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 12/30/2020
Date Data Arrived at EDR: 01/14/2021
Date Made Active in Reports: 02/09/2021
Number of Days to Update: 26

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 03/04/2021
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 11/03/2020
Date Data Arrived at EDR: 11/23/2020
Date Made Active in Reports: 01/25/2021
Number of Days to Update: 63

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 02/24/2021
Next Scheduled EDR Contact: 06/06/2021
Data Release Frequency: Semi-Annually

MINES VIOLATIONS: MSHA Violation Assessment Data

Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

Date of Government Version: 11/24/2020
Date Data Arrived at EDR: 11/30/2020
Date Made Active in Reports: 01/25/2021
Number of Days to Update: 56

Source: DOL, Mine Safety & Health Admi
Telephone: 202-693-9424
Last EDR Contact: 03/01/2021
Next Scheduled EDR Contact: 06/14/2021
Data Release Frequency: Quarterly

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 05/06/2020
Date Data Arrived at EDR: 05/27/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 78

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 02/26/2021
Next Scheduled EDR Contact: 06/06/2021
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 02/26/2021
Next Scheduled EDR Contact: 06/06/2021
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 12/11/2020
Date Data Arrived at EDR: 12/11/2020
Date Made Active in Reports: 03/02/2021
Number of Days to Update: 81

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 03/10/2021
Next Scheduled EDR Contact: 06/21/2021
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 11/04/2020
Date Data Arrived at EDR: 12/01/2020
Date Made Active in Reports: 01/25/2021
Number of Days to Update: 55

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 03/03/2021
Next Scheduled EDR Contact: 06/14/2021
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 07/02/2020
Date Made Active in Reports: 09/17/2020
Number of Days to Update: 77

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 01/15/2021
Next Scheduled EDR Contact: 04/26/2021
Data Release Frequency: Varies

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 11/03/2020
Date Data Arrived at EDR: 11/17/2020
Date Made Active in Reports: 02/09/2021
Number of Days to Update: 84

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 02/26/2021
Next Scheduled EDR Contact: 06/06/2021
Data Release Frequency: Varies

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 01/02/2021
Date Data Arrived at EDR: 01/08/2021
Date Made Active in Reports: 03/22/2021
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 01/08/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Quarterly

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 02/17/2021
Date Data Arrived at EDR: 02/17/2021
Date Made Active in Reports: 03/22/2021
Number of Days to Update: 33

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 02/17/2021
Next Scheduled EDR Contact: 05/31/2021
Data Release Frequency: Quarterly

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 12/17/2020
Date Data Arrived at EDR: 12/17/2020
Date Made Active in Reports: 03/09/2021
Number of Days to Update: 82

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 03/23/2021
Next Scheduled EDR Contact: 07/05/2021
Data Release Frequency: Quarterly

CUPA LIVERMORE-PLEASANTON: CUPA Facility Listing

list of facilities associated with the various CUPA programs in Livermore-Pleasanton

Date of Government Version: 05/01/2019
Date Data Arrived at EDR: 05/14/2019
Date Made Active in Reports: 07/17/2019
Number of Days to Update: 64

Source: Livermore-Pleasanton Fire Department
Telephone: 925-454-2361
Last EDR Contact: 02/12/2021
Next Scheduled EDR Contact: 05/24/2021
Data Release Frequency: Varies

DRYCLEAN AVAQMD: Antelope Valley Air Quality Management District Drycleaner Listing

A listing of dry cleaners in the Antelope Valley Air Quality Management District.

Date of Government Version: 11/23/2020
Date Data Arrived at EDR: 11/24/2020
Date Made Active in Reports: 02/10/2021
Number of Days to Update: 78

Source: Antelope Valley Air Quality Management District
Telephone: 661-723-8070
Last EDR Contact: 02/26/2021
Next Scheduled EDR Contact: 06/14/2021
Data Release Frequency: Varies

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 11/23/2020
Date Data Arrived at EDR: 11/25/2020
Date Made Active in Reports: 02/10/2021
Number of Days to Update: 77

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 02/26/2021
Next Scheduled EDR Contact: 06/14/2021
Data Release Frequency: Annually

DRYCLEAN SOUTH COAST: South Coast Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the South Coast Air Quality Management District

Date of Government Version: 11/17/2020
Date Data Arrived at EDR: 11/18/2020
Date Made Active in Reports: 02/04/2021
Number of Days to Update: 78

Source: South Coast Air Quality Management District
Telephone: 909-396-3211
Last EDR Contact: 02/22/2021
Next Scheduled EDR Contact: 06/06/2021
Data Release Frequency: Varies

EMI: Emissions Inventory Data
Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 06/16/2020
Date Made Active in Reports: 08/28/2020
Number of Days to Update: 73

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 03/19/2021
Next Scheduled EDR Contact: 06/28/2021
Data Release Frequency: Varies

ENF: Enforcement Action Listing
A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 10/16/2020
Date Data Arrived at EDR: 10/19/2020
Date Made Active in Reports: 01/07/2021
Number of Days to Update: 80

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 01/20/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing
Financial Assurance information

Date of Government Version: 10/13/2020
Date Data Arrived at EDR: 10/14/2020
Date Made Active in Reports: 01/04/2021
Number of Days to Update: 82

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 01/22/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing
A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 11/12/2020
Date Data Arrived at EDR: 11/13/2020
Date Made Active in Reports: 01/29/2021
Number of Days to Update: 77

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 02/08/2021
Next Scheduled EDR Contact: 05/24/2021
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data
Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 04/15/2020
Date Made Active in Reports: 07/02/2020
Number of Days to Update: 78

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 01/05/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Annually

ICE: ICE

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 11/13/2020
Date Data Arrived at EDR: 11/13/2020
Date Made Active in Reports: 02/01/2021
Number of Days to Update: 80

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 02/17/2021
Next Scheduled EDR Contact: 05/31/2021
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 11/13/2020
Date Data Arrived at EDR: 11/13/2020
Date Made Active in Reports: 02/01/2021
Number of Days to Update: 80

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/17/2021
Next Scheduled EDR Contact: 05/31/2021
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 01/05/2021
Date Data Arrived at EDR: 01/05/2021
Date Made Active in Reports: 03/18/2021
Number of Days to Update: 72

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 01/05/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Quarterly

MINES: Mines Site Location Listing

A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 12/07/2020
Date Data Arrived at EDR: 12/08/2020
Date Made Active in Reports: 02/22/2021
Number of Days to Update: 76

Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 03/09/2021
Next Scheduled EDR Contact: 06/21/2021
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing

The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 10/30/2020
Date Data Arrived at EDR: 12/01/2020
Date Made Active in Reports: 02/12/2021
Number of Days to Update: 73

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 03/03/2021
Next Scheduled EDR Contact: 06/14/2021
Data Release Frequency: Varies

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 11/09/2020
Date Data Arrived at EDR: 11/10/2020
Date Made Active in Reports: 01/27/2021
Number of Days to Update: 78

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 02/09/2021
Next Scheduled EDR Contact: 05/24/2021
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing
A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 11/30/2020
Date Data Arrived at EDR: 12/01/2020
Date Made Active in Reports: 02/12/2021
Number of Days to Update: 73

Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 03/03/2021
Next Scheduled EDR Contact: 06/14/2021
Data Release Frequency: Quarterly

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 12/07/2020
Date Data Arrived at EDR: 12/08/2020
Date Made Active in Reports: 02/22/2021
Number of Days to Update: 76

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/09/2021
Next Scheduled EDR Contact: 06/21/2021
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 12/07/2020
Date Data Arrived at EDR: 12/09/2020
Date Made Active in Reports: 12/10/2020
Number of Days to Update: 1

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 03/12/2021
Next Scheduled EDR Contact: 06/28/2021
Data Release Frequency: No Update Planned

UIC: UIC Listing
A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 02/01/2021
Date Data Arrived at EDR: 02/19/2021
Date Made Active in Reports: 02/22/2021
Number of Days to Update: 3

Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 03/09/2021
Next Scheduled EDR Contact: 06/21/2021
Data Release Frequency: Varies

UIC GEO: Underground Injection Control Sites (GEOTRACKER)
Underground control injection sites

Date of Government Version: 12/04/2020
Date Data Arrived at EDR: 12/04/2020
Date Made Active in Reports: 02/18/2021
Number of Days to Update: 76

Source: State Water Resource Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/09/2021
Next Scheduled EDR Contact: 06/21/2021
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing

Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water boards review found that more than one-third of the region's active disposal pits are operating without permission.

Date of Government Version: 11/19/2019
Date Data Arrived at EDR: 01/07/2020
Date Made Active in Reports: 03/09/2020
Number of Days to Update: 62

Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 01/08/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Varies

WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 02/16/2021
Next Scheduled EDR Contact: 05/31/2021
Data Release Frequency: No Update Planned

WIP: Well Investigation Program Case List

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 03/19/2021
Next Scheduled EDR Contact: 07/05/2021
Data Release Frequency: No Update Planned

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)

Military privatized sites

Date of Government Version: 12/04/2020
Date Data Arrived at EDR: 12/04/2020
Date Made Active in Reports: 02/18/2021
Number of Days to Update: 76

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/09/2021
Next Scheduled EDR Contact: 06/21/2021
Data Release Frequency: Varies

PROJECT: Project Sites (GEOTRACKER)

Projects sites

Date of Government Version: 12/04/2020
Date Data Arrived at EDR: 12/04/2020
Date Made Active in Reports: 02/18/2021
Number of Days to Update: 76

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/09/2021
Next Scheduled EDR Contact: 06/21/2021
Data Release Frequency: Varies

WDR: Waste Discharge Requirements Listing

In general, the Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Date of Government Version: 12/07/2020
Date Data Arrived at EDR: 12/08/2020
Date Made Active in Reports: 02/22/2021
Number of Days to Update: 76

Source: State Water Resources Control Board
Telephone: 916-341-5810
Last EDR Contact: 03/09/2021
Next Scheduled EDR Contact: 06/21/2021
Data Release Frequency: Quarterly

CIWQS: California Integrated Water Quality System

The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

Date of Government Version: 11/30/2020
Date Data Arrived at EDR: 12/01/2020
Date Made Active in Reports: 02/12/2021
Number of Days to Update: 73

Source: State Water Resources Control Board
Telephone: 866-794-4977
Last EDR Contact: 03/03/2021
Next Scheduled EDR Contact: 06/14/2021
Data Release Frequency: Varies

CERS: CalEPA Regulated Site Portal Data

The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

Date of Government Version: 10/19/2020
Date Data Arrived at EDR: 10/19/2020
Date Made Active in Reports: 01/07/2021
Number of Days to Update: 80

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 01/20/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

NON-CASE INFO: Non-Case Information Sites (GEOTRACKER)

Non-Case Information sites

Date of Government Version: 12/04/2020
Date Data Arrived at EDR: 12/04/2020
Date Made Active in Reports: 02/18/2021
Number of Days to Update: 76

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/09/2021
Next Scheduled EDR Contact: 06/21/2021
Data Release Frequency: Varies

OTHER OIL GAS: Other Oil & Gas Projects Sites (GEOTRACKER)

Other Oil & Gas Projects sites

Date of Government Version: 12/04/2020
Date Data Arrived at EDR: 12/04/2020
Date Made Active in Reports: 02/18/2021
Number of Days to Update: 76

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/09/2021
Next Scheduled EDR Contact: 06/21/2021
Data Release Frequency: Varies

PROD WATER PONDS: Produced Water Ponds Sites (GEOTRACKER)

Produced water ponds sites

Date of Government Version: 12/04/2020
Date Data Arrived at EDR: 12/04/2020
Date Made Active in Reports: 02/18/2021
Number of Days to Update: 76

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/09/2021
Next Scheduled EDR Contact: 06/21/2021
Data Release Frequency: Varies

SAMPLING POINT: Sampling Point ? Public Sites (GEOTRACKER)

Sampling point - public sites

Date of Government Version: 12/04/2020
Date Data Arrived at EDR: 12/04/2020
Date Made Active in Reports: 02/18/2021
Number of Days to Update: 76

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/09/2021
Next Scheduled EDR Contact: 06/21/2021
Data Release Frequency: Varies

WELL STIM PROJ: Well Stimulation Project (GEOTRACKER)
Includes areas of groundwater monitoring plans, a depiction of the monitoring network, and the facilities, boundaries, and subsurface characteristics of the oilfield and the features (oil and gas wells, produced water ponds, UIC wells, water supply wells, etc?) being monitored

Date of Government Version: 12/04/2020
Date Data Arrived at EDR: 12/04/2020
Date Made Active in Reports: 02/18/2021
Number of Days to Update: 76
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/09/2021
Next Scheduled EDR Contact: 06/21/2021
Data Release Frequency: Varies

PCS: Permit Compliance System
PCS is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

Date of Government Version: 07/14/2011
Date Data Arrived at EDR: 08/05/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 55
Source: EPA, Office of Water
Telephone: 202-564-2496
Last EDR Contact: 01/04/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Semi-Annually

PCS INACTIVE: Listing of Inactive PCS Permits
An inactive permit is a facility that has shut down or is no longer discharging.

Date of Government Version: 11/05/2014
Date Data Arrived at EDR: 01/06/2015
Date Made Active in Reports: 05/06/2015
Number of Days to Update: 120
Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 01/04/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Semi-Annually

PCS ENF: Enforcement data
No description is available for this data

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/06/2015
Number of Days to Update: 29
Source: EPA
Telephone: 202-564-2497
Last EDR Contact: 12/30/2020
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Varies

MINES MRDS: Mineral Resources Data System
Mineral Resources Data System

Date of Government Version: 04/06/2018
Date Data Arrived at EDR: 10/21/2019
Date Made Active in Reports: 10/24/2019
Number of Days to Update: 3
Source: USGS
Telephone: 703-648-6533
Last EDR Contact: 02/26/2021
Next Scheduled EDR Contact: 09/10/2018
Data Release Frequency: Varies

HWTS: Hazardous Waste Tracking System
DTSC maintains the Hazardous Waste Tracking System that stores ID number information since the early 1980s and manifest data since 1993. The system collects both manifest copies from the generator and destination facility.

Date of Government Version: 10/13/2020
Date Data Arrived at EDR: 10/14/2020
Date Made Active in Reports: 11/03/2020
Number of Days to Update: 20
Source: Department of Toxic Substances Control
Telephone: 916-324-2444
Last EDR Contact: 01/19/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

CS ALAMEDA: Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/09/2019
Date Data Arrived at EDR: 01/11/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 53

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 01/04/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Semi-Annually

UST ALAMEDA: Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 10/01/2020
Date Data Arrived at EDR: 10/06/2020
Date Made Active in Reports: 12/23/2020
Number of Days to Update: 78

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 03/17/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA AMADOR: CUPA Facility List

Cupa Facility List

Date of Government Version: 10/19/2020
Date Data Arrived at EDR: 10/22/2020
Date Made Active in Reports: 01/12/2021
Number of Days to Update: 82

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 02/01/2021
Next Scheduled EDR Contact: 05/17/2021
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA BUTTE: CUPA Facility Listing

Cupa facility list.

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 12/30/2020
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA CALVERAS: CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 12/15/2020
Date Data Arrived at EDR: 12/16/2020
Date Made Active in Reports: 12/24/2020
Number of Days to Update: 8

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 03/19/2021
Next Scheduled EDR Contact: 07/05/2021
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA COLUSA: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/06/2020
Date Data Arrived at EDR: 04/23/2020
Date Made Active in Reports: 07/10/2020
Number of Days to Update: 78

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 02/26/2021
Next Scheduled EDR Contact: 05/17/2021
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

SL CONTRA COSTA: Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 10/19/2020
Date Data Arrived at EDR: 10/22/2020
Date Made Active in Reports: 01/13/2021
Number of Days to Update: 83

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 01/25/2021
Next Scheduled EDR Contact: 05/10/2021
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA DEL NORTE: CUPA Facility List
Cupa Facility list

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 08/13/2020
Date Made Active in Reports: 10/22/2020
Number of Days to Update: 70

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 01/25/2021
Next Scheduled EDR Contact: 05/10/2021
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA EL DORADO: CUPA Facility List
CUPA facility list.

Date of Government Version: 10/22/2020
Date Data Arrived at EDR: 11/03/2020
Date Made Active in Reports: 01/20/2021
Number of Days to Update: 78

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 02/08/2021
Next Scheduled EDR Contact: 05/10/2021
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA FRESNO: CUPA Resources List
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 10/02/2020
Date Data Arrived at EDR: 10/06/2020
Date Made Active in Reports: 12/22/2020
Number of Days to Update: 77

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 01/15/2021
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA GLENN: CUPA Facility List
Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 01/19/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: No Update Planned

HUMBOLDT COUNTY:

CUPA HUMBOLDT: CUPA Facility List
CUPA facility list.

Date of Government Version: 11/18/2020
Date Data Arrived at EDR: 11/19/2020
Date Made Active in Reports: 02/04/2021
Number of Days to Update: 77

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 02/16/2021
Next Scheduled EDR Contact: 05/31/2021
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA IMPERIAL: CUPA Facility List
Cupa facility list.

Date of Government Version: 10/14/2020
Date Data Arrived at EDR: 10/15/2020
Date Made Active in Reports: 01/05/2021
Number of Days to Update: 82

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 01/19/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

INYO COUNTY:

CUPA INYO: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/03/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 72

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 02/16/2021
Next Scheduled EDR Contact: 05/31/2021
Data Release Frequency: Varies

KERN COUNTY:

CUPA KERN: CUPA Facility List
A listing of sites included in the Kern County Hazardous Material Business Plan.

Date of Government Version: 10/29/2020
Date Data Arrived at EDR: 10/30/2020
Date Made Active in Reports: 01/15/2021
Number of Days to Update: 77

Source: Kern County Public Health
Telephone: 661-321-3000
Last EDR Contact: 02/01/2021
Next Scheduled EDR Contact: 05/17/2021
Data Release Frequency: Varies

UST KERN: Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 01/19/2021
Date Data Arrived at EDR: 01/21/2021
Date Made Active in Reports: 01/28/2021
Number of Days to Update: 7

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 02/01/2021
Next Scheduled EDR Contact: 05/17/2021
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA KINGS: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 05/11/2020
Date Data Arrived at EDR: 05/12/2020
Date Made Active in Reports: 07/27/2020
Number of Days to Update: 76

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 02/16/2021
Next Scheduled EDR Contact: 05/31/2021
Data Release Frequency: Varies

LAKE COUNTY:

CUPA LAKE: CUPA Facility List
Cupa facility list

Date of Government Version: 02/10/2021
Date Data Arrived at EDR: 02/12/2021
Date Made Active in Reports: 03/11/2021
Number of Days to Update: 27

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 01/11/2021
Next Scheduled EDR Contact: 04/26/2021
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA LASSEN: CUPA Facility List
Cupa facility list

Date of Government Version: 07/31/2020
Date Data Arrived at EDR: 08/21/2020
Date Made Active in Reports: 11/09/2020
Number of Days to Update: 80

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 03/12/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

LOS ANGELES COUNTY:

AOCONCERN: Key Areas of Concerns in Los Angeles County
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office. Date of Government Version: 3/30/2009 Exide Site area is a cleanup plan of lead-impacted soil surrounding the former Exide Facility as designated by the DTSC. Date of Government Version: 7/17/2017

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: N/A
Telephone: N/A
Last EDR Contact: 03/12/2021
Next Scheduled EDR Contact: 06/28/2021
Data Release Frequency: No Update Planned

HMS LOS ANGELES: HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 10/19/2020
Date Data Arrived at EDR: 10/20/2020
Date Made Active in Reports: 01/12/2021
Number of Days to Update: 84

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 01/04/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Semi-Annually

LF LOS ANGELES: List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 10/09/2020
Date Data Arrived at EDR: 10/09/2020
Date Made Active in Reports: 12/29/2020
Number of Days to Update: 81

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 01/12/2021
Next Scheduled EDR Contact: 04/26/2021
Data Release Frequency: Varies

LF LOS ANGELES CITY: City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 08/17/2020
Date Made Active in Reports: 11/05/2020
Number of Days to Update: 80

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 01/11/2021
Next Scheduled EDR Contact: 04/26/2021
Data Release Frequency: Varies

LOS ANGELES AST: Active & Inactive AST Inventory
A listing of active & inactive above ground petroleum storage tank site locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 12/18/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Varies

LOS ANGELES CO LF METHANE: Methane Producing Landfills

This data was created on April 30, 2012 to represent known disposal sites in Los Angeles County that may produce and emanate methane gas. The shapefile contains disposal sites within Los Angeles County that once accepted degradable refuse material. Information used to create this data was extracted from a landfill survey performed by County Engineers (Major Waste System Map, 1973) as well as historical records from CalRecycle, Regional Water Quality Control Board, and Los Angeles County Department of Public Health

Date of Government Version: 04/30/2012
Date Data Arrived at EDR: 04/17/2019
Date Made Active in Reports: 05/29/2019
Number of Days to Update: 42

Source: Los Angeles County Department of Public Works
Telephone: 626-458-6973
Last EDR Contact: 01/15/2021
Next Scheduled EDR Contact: 04/26/2021
Data Release Frequency: No Update Planned

LOS ANGELES HM: Active & Inactive Hazardous Materials Inventory

A listing of active & inactive hazardous materials facility locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 12/18/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Varies

LOS ANGELES UST: Active & Inactive UST Inventory

A listing of active & inactive underground storage tank site locations and underground storage tank historical sites, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 12/18/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Varies

SITE MIT LOS ANGELES: Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 07/20/2020
Date Data Arrived at EDR: 10/09/2020
Date Made Active in Reports: 12/29/2020
Number of Days to Update: 81

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 01/12/2021
Next Scheduled EDR Contact: 04/26/2021
Data Release Frequency: Annually

UST EL SEGUNDO: City of El Segundo Underground Storage Tank

Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 04/19/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 21

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 10/07/2020
Next Scheduled EDR Contact: 01/25/2021
Data Release Frequency: No Update Planned

UST LONG BEACH: City of Long Beach Underground Storage Tank

Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 04/22/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/27/2019
Number of Days to Update: 65

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 01/19/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

UST TORRANCE: City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 09/11/2020
Date Data Arrived at EDR: 10/07/2020
Date Made Active in Reports: 12/23/2020
Number of Days to Update: 77

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 01/19/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA MADERA: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 08/10/2020
Date Data Arrived at EDR: 08/12/2020
Date Made Active in Reports: 10/23/2020
Number of Days to Update: 72

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 02/16/2021
Next Scheduled EDR Contact: 05/31/2021
Data Release Frequency: Varies

MARIN COUNTY:

UST MARIN: Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 09/26/2018
Date Data Arrived at EDR: 10/04/2018
Date Made Active in Reports: 11/02/2018
Number of Days to Update: 29

Source: Public Works Department Waste Management
Telephone: 415-473-6647
Last EDR Contact: 12/21/2020
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Semi-Annually

MENDOCINO COUNTY:

UST MENDOCINO: Mendocino County UST Database
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 12/21/2020
Date Data Arrived at EDR: 12/21/2020
Date Made Active in Reports: 03/10/2021
Number of Days to Update: 79

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 02/22/2021
Next Scheduled EDR Contact: 06/06/2021
Data Release Frequency: Annually

MERCED COUNTY:

CUPA MERCED: CUPA Facility List
CUPA facility list.

Date of Government Version: 02/04/2021
Date Data Arrived at EDR: 02/09/2021
Date Made Active in Reports: 02/18/2021
Number of Days to Update: 9

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 01/29/2021
Next Scheduled EDR Contact: 05/31/2021
Data Release Frequency: Varies

MONO COUNTY:

CUPA MONO: CUPA Facility List
CUPA Facility List

Date of Government Version: 11/16/2020
Date Data Arrived at EDR: 11/23/2020
Date Made Active in Reports: 02/08/2021
Number of Days to Update: 77

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 02/22/2021
Next Scheduled EDR Contact: 06/06/3021
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA MONTEREY: CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 07/13/2020
Date Data Arrived at EDR: 07/15/2020
Date Made Active in Reports: 07/31/2020
Number of Days to Update: 16

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 12/21/2020
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Varies

NAPA COUNTY:

LUST NAPA: Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 02/22/2021
Next Scheduled EDR Contact: 06/06/2021
Data Release Frequency: No Update Planned

UST NAPA: Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 09/05/2019
Date Data Arrived at EDR: 09/09/2019
Date Made Active in Reports: 10/31/2019
Number of Days to Update: 52

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 02/22/2021
Next Scheduled EDR Contact: 06/06/2021
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA NEVADA: CUPA Facility List
CUPA facility list.

Date of Government Version: 10/26/2020
Date Data Arrived at EDR: 10/28/2020
Date Made Active in Reports: 01/15/2021
Number of Days to Update: 79

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 01/25/2021
Next Scheduled EDR Contact: 05/10/2021
Data Release Frequency: Varies

ORANGE COUNTY:

IND_SITE ORANGE: List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 09/01/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 01/26/2021
Number of Days to Update: 82

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/01/2021
Next Scheduled EDR Contact: 05/17/2021
Data Release Frequency: Annually

LUST ORANGE: List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 09/01/2020
Date Data Arrived at EDR: 11/06/2020
Date Made Active in Reports: 01/26/2021
Number of Days to Update: 81

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/05/2021
Next Scheduled EDR Contact: 05/17/2021
Data Release Frequency: Quarterly

UST ORANGE: List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 09/01/2020
Date Data Arrived at EDR: 11/03/2020
Date Made Active in Reports: 01/21/2021
Number of Days to Update: 79

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/02/2021
Next Scheduled EDR Contact: 05/17/2021
Data Release Frequency: Quarterly

PLACER COUNTY:

MS PLACER: Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 11/24/2020
Date Data Arrived at EDR: 11/24/2020
Date Made Active in Reports: 11/25/2020
Number of Days to Update: 1

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 02/26/2021
Next Scheduled EDR Contact: 06/14/2021
Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA PLUMAS: CUPA Facility List
Plumas County CUPA Program facilities.

Date of Government Version: 03/31/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/26/2019
Number of Days to Update: 64

Source: Plumas County Environmental Health
Telephone: 530-283-6355
Last EDR Contact: 01/19/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

RIVERSIDE COUNTY:

LUST RIVERSIDE: Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 01/13/2021
Date Data Arrived at EDR: 01/14/2021
Date Made Active in Reports: 03/10/2021
Number of Days to Update: 55

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/15/2021
Next Scheduled EDR Contact: 06/28/2021
Data Release Frequency: Quarterly

UST RIVERSIDE: Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 01/13/2021
Date Data Arrived at EDR: 01/14/2021
Date Made Active in Reports: 03/10/2021
Number of Days to Update: 55
Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/15/2021
Next Scheduled EDR Contact: 06/28/2021
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

CS SACRAMENTO: Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 02/18/2020
Date Data Arrived at EDR: 03/31/2020
Date Made Active in Reports: 06/15/2020
Number of Days to Update: 76
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 12/30/2020
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Quarterly

ML SACRAMENTO: Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 02/24/2020
Date Data Arrived at EDR: 03/31/2020
Date Made Active in Reports: 06/17/2020
Number of Days to Update: 78
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 12/30/2020
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA SAN BENITO: CUPA Facility List
Cupa facility list

Date of Government Version: 10/28/2020
Date Data Arrived at EDR: 10/30/2020
Date Made Active in Reports: 01/15/2021
Number of Days to Update: 77
Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 02/01/2021
Next Scheduled EDR Contact: 05/17/2021
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

PERMITS SAN BERNARDINO: Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 11/16/2020
Date Data Arrived at EDR: 11/18/2020
Date Made Active in Reports: 02/04/2021
Number of Days to Update: 78
Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 02/01/2021
Next Scheduled EDR Contact: 05/17/2021
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

HMMD SAN DIEGO: Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 11/30/2020
Date Data Arrived at EDR: 12/01/2020
Date Made Active in Reports: 02/16/2021
Number of Days to Update: 77

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 03/03/2021
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: Quarterly

LF SAN DIEGO: Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/01/2020
Date Data Arrived at EDR: 11/23/2020
Date Made Active in Reports: 02/08/2021
Number of Days to Update: 77

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 01/19/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

SAN DIEGO CO LOP: Local Oversight Program Listing

A listing of all LOP release sites that are or were under the County of San Diego's jurisdiction. Included are closed or transferred cases, open cases, and cases that did not have a case type indicated. The cases without a case type are mostly complaints; however, some of them could be LOP cases.

Date of Government Version: 07/14/2020
Date Data Arrived at EDR: 07/16/2020
Date Made Active in Reports: 09/29/2020
Number of Days to Update: 75

Source: Department of Environmental Health
Telephone: 858-505-6874
Last EDR Contact: 02/01/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

SAN DIEGO CO SAM: Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 02/26/2021
Next Scheduled EDR Contact: 06/14/2021
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

CUPA SAN FRANCISCO CO: CUPA Facility Listing

Cupa facilities

Date of Government Version: 11/05/2020
Date Data Arrived at EDR: 11/06/2020
Date Made Active in Reports: 01/27/2021
Number of Days to Update: 82

Source: San Francisco County Department of Environmental Health
Telephone: 415-252-3896
Last EDR Contact: 02/01/2021
Next Scheduled EDR Contact: 05/17/2021
Data Release Frequency: Varies

LUST SAN FRANCISCO: Local Oversite Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 02/01/2021
Next Scheduled EDR Contact: 05/17/2021
Data Release Frequency: No Update Planned

UST SAN FRANCISCO: Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/05/2020
Date Data Arrived at EDR: 11/06/2020
Date Made Active in Reports: 01/26/2021
Number of Days to Update: 81

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 02/01/2021
Next Scheduled EDR Contact: 05/17/2021
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

UST SAN JOAQUIN: San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/22/2018
Date Data Arrived at EDR: 06/26/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 15

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 03/12/2021
Next Scheduled EDR Contact: 06/28/2021
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA SAN LUIS OBISPO: CUPA Facility List
Cupa Facility List.

Date of Government Version: 11/12/2020
Date Data Arrived at EDR: 11/13/2020
Date Made Active in Reports: 02/01/2021
Number of Days to Update: 80

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 02/16/2021
Next Scheduled EDR Contact: 05/31/2021
Data Release Frequency: Varies

SAN MATEO COUNTY:

BI SAN MATEO: Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 02/20/2020
Date Data Arrived at EDR: 02/20/2020
Date Made Active in Reports: 04/24/2020
Number of Days to Update: 64

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/12/2021
Next Scheduled EDR Contact: 06/21/2021
Data Release Frequency: Annually

LUST SAN MATEO: Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/29/2019
Date Data Arrived at EDR: 03/29/2019
Date Made Active in Reports: 05/29/2019
Number of Days to Update: 61

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/08/2021
Next Scheduled EDR Contact: 06/21/2021
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA SANTA BARBARA: CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 02/16/2021
Next Scheduled EDR Contact: 05/31/2021
Data Release Frequency: No Update Planned

SANTA CLARA COUNTY:

CUPA SANTA CLARA: Cupa Facility List
Cupa facility list

Date of Government Version: 11/20/2020
Date Data Arrived at EDR: 11/23/2020
Date Made Active in Reports: 02/05/2021
Number of Days to Update: 74

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 02/16/2021
Next Scheduled EDR Contact: 05/31/2021
Data Release Frequency: Varies

HIST LUST SANTA CLARA: HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LUST SANTA CLARA: LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 02/22/2021
Next Scheduled EDR Contact: 06/06/2021
Data Release Frequency: No Update Planned

SAN JOSE HAZMAT: Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 11/03/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 01/26/2021
Number of Days to Update: 82

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 03/19/2021
Next Scheduled EDR Contact: 05/16/2021
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA SANTA CRUZ: CUPA Facility List
CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 90

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 02/16/2021
Next Scheduled EDR Contact: 05/31/2021
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA SHASTA: CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 02/16/2021
Next Scheduled EDR Contact: 05/31/2021
Data Release Frequency: Varies

SOLANO COUNTY:

LUST SOLANO: Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/04/2019
Date Data Arrived at EDR: 06/06/2019
Date Made Active in Reports: 08/13/2019
Number of Days to Update: 68

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 02/26/2021
Next Scheduled EDR Contact: 06/14/2021
Data Release Frequency: Quarterly

UST SOLANO: Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 12/03/2020
Date Data Arrived at EDR: 12/03/2020
Date Made Active in Reports: 02/18/2021
Number of Days to Update: 77

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 03/12/2021
Next Scheduled EDR Contact: 06/14/2021
Data Release Frequency: Quarterly

SONOMA COUNTY:

CUPA SONOMA: Cupa Facility List
Cupa Facility list

Date of Government Version: 12/15/2020
Date Data Arrived at EDR: 12/16/2020
Date Made Active in Reports: 12/23/2020
Number of Days to Update: 7

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 03/19/2021
Next Scheduled EDR Contact: 07/05/2021
Data Release Frequency: Varies

LUST SONOMA: Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 01/05/2021
Date Data Arrived at EDR: 01/06/2021
Date Made Active in Reports: 03/18/2021
Number of Days to Update: 71

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 03/19/2021
Next Scheduled EDR Contact: 07/05/2021
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA STANISLAUS: CUPA Facility List
Cupa facility list

Date of Government Version: 10/01/2020
Date Data Arrived at EDR: 10/06/2020
Date Made Active in Reports: 12/22/2020
Number of Days to Update: 77

Source: Stanislaus County Department of Ennvironmental Protection
Telephone: 209-525-6751
Last EDR Contact: 01/11/2021
Next Scheduled EDR Contact: 04/26/2021
Data Release Frequency: Varies

SUTTER COUNTY:

UST SUTTER: Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 11/23/2020
Date Data Arrived at EDR: 11/24/2020
Date Made Active in Reports: 02/10/2021
Number of Days to Update: 78

Source: Sutter County Environmental Health Services
Telephone: 530-822-7500
Last EDR Contact: 02/26/2021
Next Scheduled EDR Contact: 06/14/2021
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA TEHAMA: CUPA Facility List
Cupa facilities

Date of Government Version: 08/11/2020
Date Data Arrived at EDR: 08/12/2020
Date Made Active in Reports: 10/26/2020
Number of Days to Update: 75

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 02/01/2021
Next Scheduled EDR Contact: 05/17/2021
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA TRINITY: CUPA Facility List
Cupa facility list

Date of Government Version: 10/14/2020
Date Data Arrived at EDR: 10/15/2020
Date Made Active in Reports: 01/05/2021
Number of Days to Update: 82

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 01/19/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

TULARE COUNTY:

CUPA TULARE: CUPA Facility List
Cupa program facilities

Date of Government Version: 10/30/2020
Date Data Arrived at EDR: 11/03/2020
Date Made Active in Reports: 01/20/2021
Number of Days to Update: 78

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 02/01/2021
Next Scheduled EDR Contact: 05/17/2021
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA TUOLUMNE: CUPA Facility List
Cupa facility list

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 61

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 01/19/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

VENTURA COUNTY:

BWT VENTURA: Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 09/28/2020
Date Data Arrived at EDR: 10/22/2020
Date Made Active in Reports: 01/12/2021
Number of Days to Update: 82
Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 01/19/2021
Next Scheduled EDR Contact: 05/02/2021
Data Release Frequency: Quarterly

LF VENTURA: Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49
Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/21/2020
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: No Update Planned

LUST VENTURA: Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37
Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 02/08/2021
Next Scheduled EDR Contact: 05/24/2021
Data Release Frequency: No Update Planned

MED WASTE VENTURA: Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 09/28/2020
Date Data Arrived at EDR: 10/22/2020
Date Made Active in Reports: 01/12/2021
Number of Days to Update: 82
Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 01/20/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Quarterly

UST VENTURA: Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 12/01/2020
Date Data Arrived at EDR: 12/08/2020
Date Made Active in Reports: 02/22/2021
Number of Days to Update: 76
Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 03/09/2021
Next Scheduled EDR Contact: 06/21/2021
Data Release Frequency: Quarterly

YOLO COUNTY:

UST YOLO: Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 12/21/2020
Date Data Arrived at EDR: 12/23/2020
Date Made Active in Reports: 01/04/2021
Number of Days to Update: 12
Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 12/20/2020
Next Scheduled EDR Contact: 04/11/2021
Data Release Frequency: Annually

YUBA COUNTY:

CUPA YUBA: CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 01/26/2021
Date Data Arrived at EDR: 01/28/2021
Date Made Active in Reports: 02/03/2021
Number of Days to Update: 6

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 02/23/2021
Next Scheduled EDR Contact: 05/10/2021
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 08/10/2020
Date Data Arrived at EDR: 10/20/2020
Date Made Active in Reports: 11/02/2020
Number of Days to Update: 13

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 02/12/2021
Next Scheduled EDR Contact: 05/24/2021
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 04/10/2019
Date Made Active in Reports: 05/16/2019
Number of Days to Update: 36

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 01/08/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 04/29/2020
Date Made Active in Reports: 07/10/2020
Number of Days to Update: 72

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 01/29/2021
Next Scheduled EDR Contact: 05/10/2021
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 06/30/2018
Date Data Arrived at EDR: 07/19/2019
Date Made Active in Reports: 09/10/2019
Number of Days to Update: 53

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 01/11/2021
Next Scheduled EDR Contact: 04/26/2021
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 02/11/2021
Date Made Active in Reports: 02/24/2021
Number of Days to Update: 13

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 02/09/2021
Next Scheduled EDR Contact: 05/31/2021
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 76

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 03/08/2021
Next Scheduled EDR Contact: 06/21/2021
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: Endeavor Business Media
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Electric Power Transmission Line Data
Source: Endeavor Business Media
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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

78201 AMBOY ROAD
78201 AMBOY ROAD
TWENTYNINE PALMS, CA 92277

TARGET PROPERTY COORDINATES

Latitude (North):	34.161527 - 34° 9' 41.50''
Longitude (West):	115.953209 - 115° 57' 11.55''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	596489.7
UTM Y (Meters):	3780366.0
Elevation:	1761 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5630809 VALLEY MOUNTAIN, CA
Version Date:	2012

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

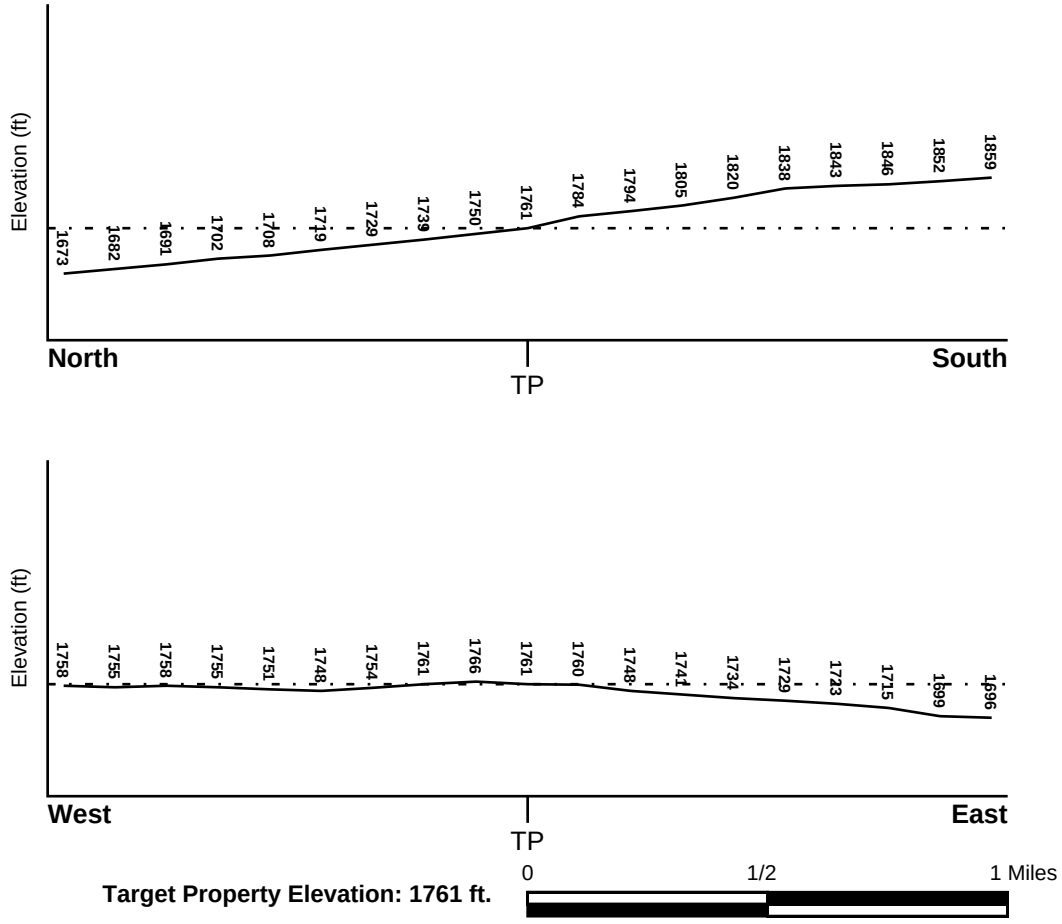
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General NNE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
06071C8225H	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
Not Reported	

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
VALLEY MOUNTAIN	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name:	DUNE LAND
Soil Surface Texture:	sand
Hydrologic Group:	Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.
Soil Drainage Class:	Not reported

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel:	Not Reported
Depth to Bedrock Min:	> 60 inches
Depth to Bedrock Max:	> 60 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	6 inches	sand	Granular materials (35 pct. or less passing No. 200), Fine Sand.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand.	Max: 20.00 Min: 6.00	Max: 0.00 Min: 0.00
2	6 inches	60 inches	sand	Granular materials (35 pct. or less passing No. 200), Fine Sand.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand.	Max: 20.00 Min: 6.00	Max: 0.00 Min: 0.00

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: gravelly - sand
loamy sand
very gravelly - sandy loam
clay
loamy fine sand
very gravelly - loamy sand
silty clay loam

Surficial Soil Types: gravelly - sand
loamy sand
very gravelly - sandy loam
clay
loamy fine sand
very gravelly - loamy sand
silty clay loam

Shallow Soil Types: loamy sand
loamy fine sand

Deeper Soil Types: stratified
gravelly - sand
very gravelly - loamy sand
clay
silty clay loam

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

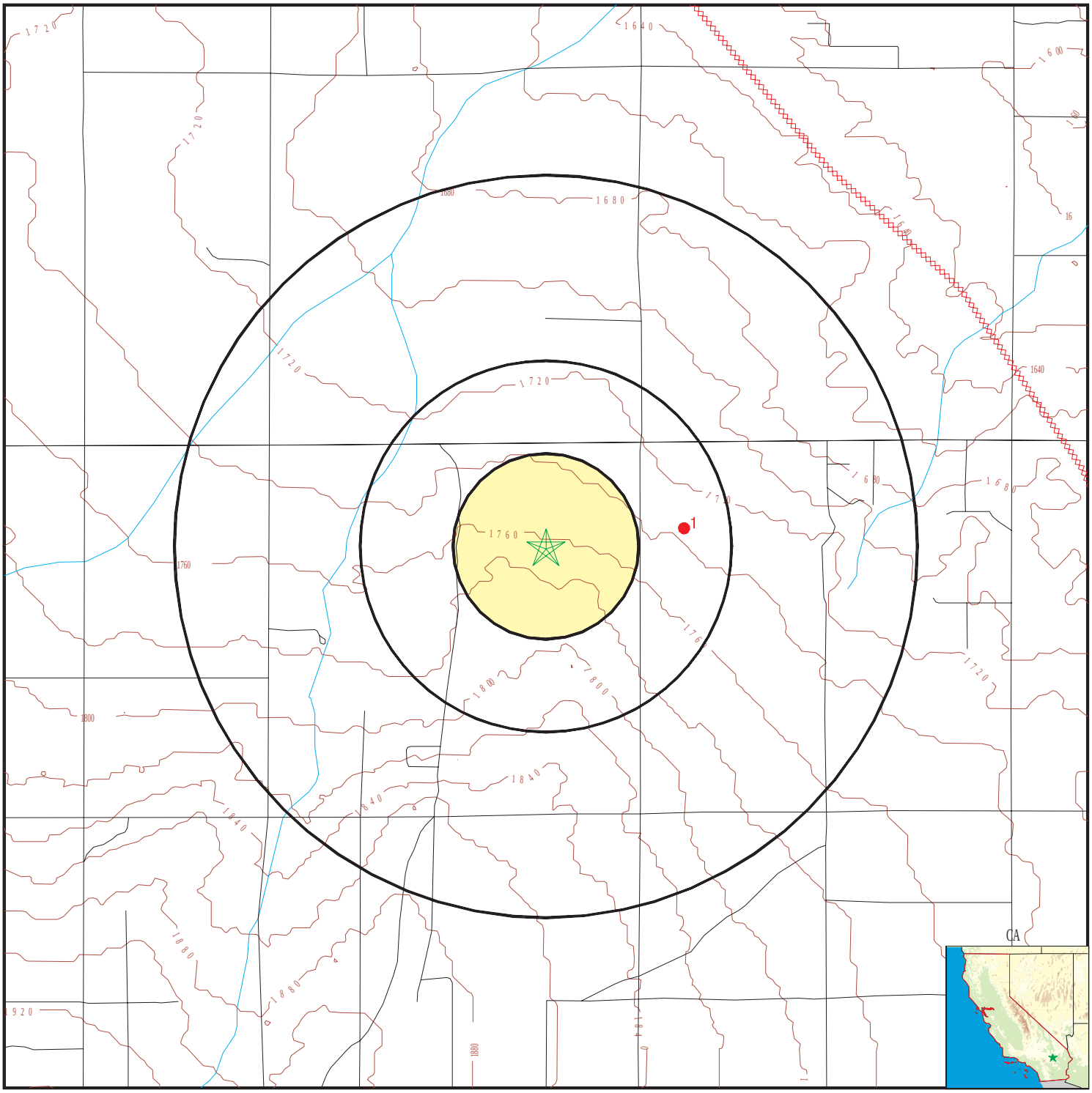
MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

OTHER STATE DATABASE INFORMATION

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	CAOG14000006595	1/4 - 1/2 Mile East

PHYSICAL SETTING SOURCE MAP - 6420625.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	78201 Amboy Road	CLIENT:	Ardent Environmental Group
ADDRESS:	78201 Amboy Road Twentynine Palms CA 92277	CONTACT:	Tahsin Annoor
		INQUIRY #:	6420625.2s
LAT/LONG:	34.161527 / 115.953209	DATE:	March 24, 2021 4:15 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

1
East **OIL_GAS** **CAOG14000006595**
1/4 - 1/2 Mile

API #:	0407100104	Well #:	1
Well Status:	Plugged	Well Type:	Dry Hole
Lease Name:	Brady	Field Name:	Any Field
Area Name:	Any Area	GIS Source:	hud
Confidential Well:	N	Directionally Drilled:	N
Spud Date:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
92277	18	0

Federal EPA Radon Zone for SAN BERNARDINO County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for SAN BERNARDINO COUNTY, CA

Number of sites tested: 18

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.678 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

OTHER STATE DATABASE INFORMATION

Groundwater Ambient Monitoring & Assessment Program
State Water Resources Control Board
Telephone: 916-341-5577
The GAMA Program is Californias comprehensive groundwater quality monitoring program. GAMA collects data by testing the untreated, raw water in different types of wells for naturally-occurring and man-made chemicals. The GAMA data includes Domestic, Monitoring and Municipal well types from the following sources, Department of Water Resources, Department of Heath Services, EDF, Agricultural Lands, Lawrence Livermore National Laboratory, Department of Pesticide Regulation, United States Geological Survey, Groundwater Ambient Monitoring and Assessment Program and Local Groundwater Projects.

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

California Oil and Gas Well Locations
Source: Dept of Conservation, Geologic Energy Management Division
Telephone: 916-323-1779
Oil and Gas well locations in the state.

California Earthquake Fault Lines
Source: California Division of Mines and Geology
The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

RADON

State Database: CA Radon
Source: Department of Public Health
Telephone: 916-210-8558
Radon Database for California

PHYSICAL SETTING SOURCE RECORDS SEARCHED

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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APPENDIX E

REGULATORY AGENCY RECORDS

03/25/21

385 N Arrowhead Ave, 2nd Floor, San Bernardino, CA 92415 | Phone: 800.442.2283 • Fax: 909.387.4323

SAN BERNARDINO COUNTY

Public Health
Environmental Health Services

2021- 183

RECORDS ATTACHED. JH

www.SBCounty.gov
www.SBCounty.gov/dph/dehs

REQUEST TO INSPECT/REPRODUCE PUBLIC RECORDS

Return to any of the following offices:
385 N. Arrowhead Ave. 2nd Floor, San Bernardino 92415-0160
15900 Smoke Tree St., Ste. 131, Hesperia 92345
8575 Haven Ave., Ste. 130, Rancho Cucamonga 91730

TO BE COMPLETED BY REQUESTER

INFORMATION FOR RECORDS REQUESTED

Facility Name:
(Business or Apartment Complex name)

Location Address: 78201 Amboy Road	**City:** Twentynine Palms	**State:** CA	**Zip:** 92277
Case/File Number: (If known)	**Inspector:** (If known)		

Indicate time frame of information requested: (month/year or date of inspection)

From: ANY	**To:** Presen	**From:**	**To:**	**From:**	**To:**

Specific information requested:
(File, inspection report, complaint, etc.)

I would like to request a search of your archives for any records, reports or any other files of environmental investigations, violations, permits, or actions related to the site.

NOTE: EACH REQUESTER AND/OR FILE MUST HAVE A SEPARATE FORM COMPLETED. FOR A LIST REQUEST, PLEASE CALL (800) 442-2283.

FEES

Copy Fee: $.10 Per Page

Certified Copies: Additional $.22 Per Page

REQUESTER INFORMATION

Requester Name: Tahsin Annoor
(Include affiliation, i.e. business name, law office, owner, private citizen, employee, etc.)

Requester Address: 1827 Capital Street, Suite 103	**City:** Corona	**State:** CA	**Zip:** 92880

E-mail Address:
(Preferred method of delivery) tannoor@ardentenv.com

Phone Number:
(To notify when copies/files are ready) 213-249-3089

OFFICE USE ONLY

PROGRAM	**DATE**
PAID $	**# PGS**
RECEIPT #	**REC'D BY**

FC

San Bernardino County Department of Public Health
DIVISION OF ENVIRONMENTAL HEALTH SERVICES
385 North Arrowhead Avenue, San Bernardino, CA 92415-0160

VERBAL OK TO DON SANFORD 10/1/98 JB

DO NOT FILL IN
Permit Number 1998100198
Expiration 10-1-99
FF Duane 11/6/00
FA
SN

WELL PERMIT
(Please Print)

WCR rec'd # 477554

DO NOT FILL IN
Date 10-5-98
Amount $235.00 (175.00 + $60.00)
Receipt Number 14252
Paid By S&S Well Drilling Check # 10271

1. OWN[redacted]
Maili[redacted]
City[redacted]
Site Address 78201 Amboy Rd
City 29 Palms, Ca Zip 92277
Telephone Number [redacted]

2. WELL DRILLER: S+S Water Well Drilling
Business Name
10/5/98 *Start Date* 11/5/98 *Completion Date*

3. WELL USE *(check)*:
☐ Community ☐ Horizontal ☐ Test
☐ Individual ☐ Monitoring ☐ Dairy
☒ Agricultural ☐ Public Water Supply ☐ Other

4. TYPE OF WORK *(check)*:
☒ New ☐ Reconstruction ☐ Destruction

Items 6 through 10 to be estimated for new wells, exact for all other wells.

5. ANNULAR SEAL: Seal Depth 20 ft.
Furnished by: ☐ Owner ☒ Contractor
☐ Driven Conductor Dia. _____ in., Wall (Gage) _____
☐ Sealing Material Cement, Thickness 3 in.

6. DEPTH OF WELL *(feet)*:
Proposed 450 Existing _____
DIAMETER OF BORE *(in.)*: 18 3/4

7. CASING INSTALLED:
☐ Steel ☒ Plastic ☐ Other

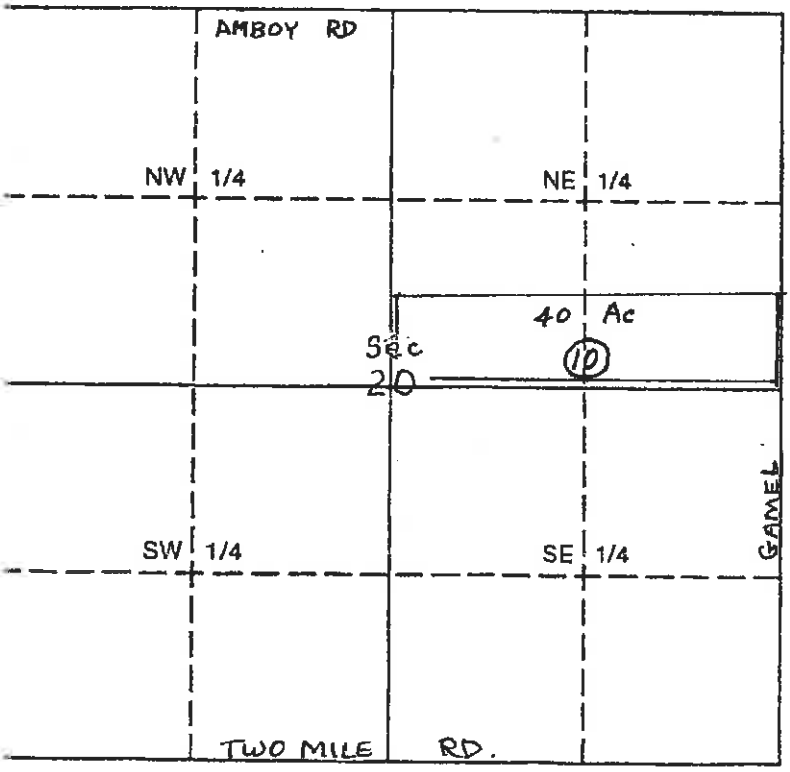
From (ft.)	To (ft.)	Dia. (in.)	Wall (Gage)
0	450	8" PD	Class 200

Gravel Pack: ☒ Yes ☐ No
From 20 to 450 ft.

8. PERFORATIONS *(if applicable)*:
From 250 to 450 ft.

9. SEALED ZONES *(if applicable)*:
From 0 to 20 ft.

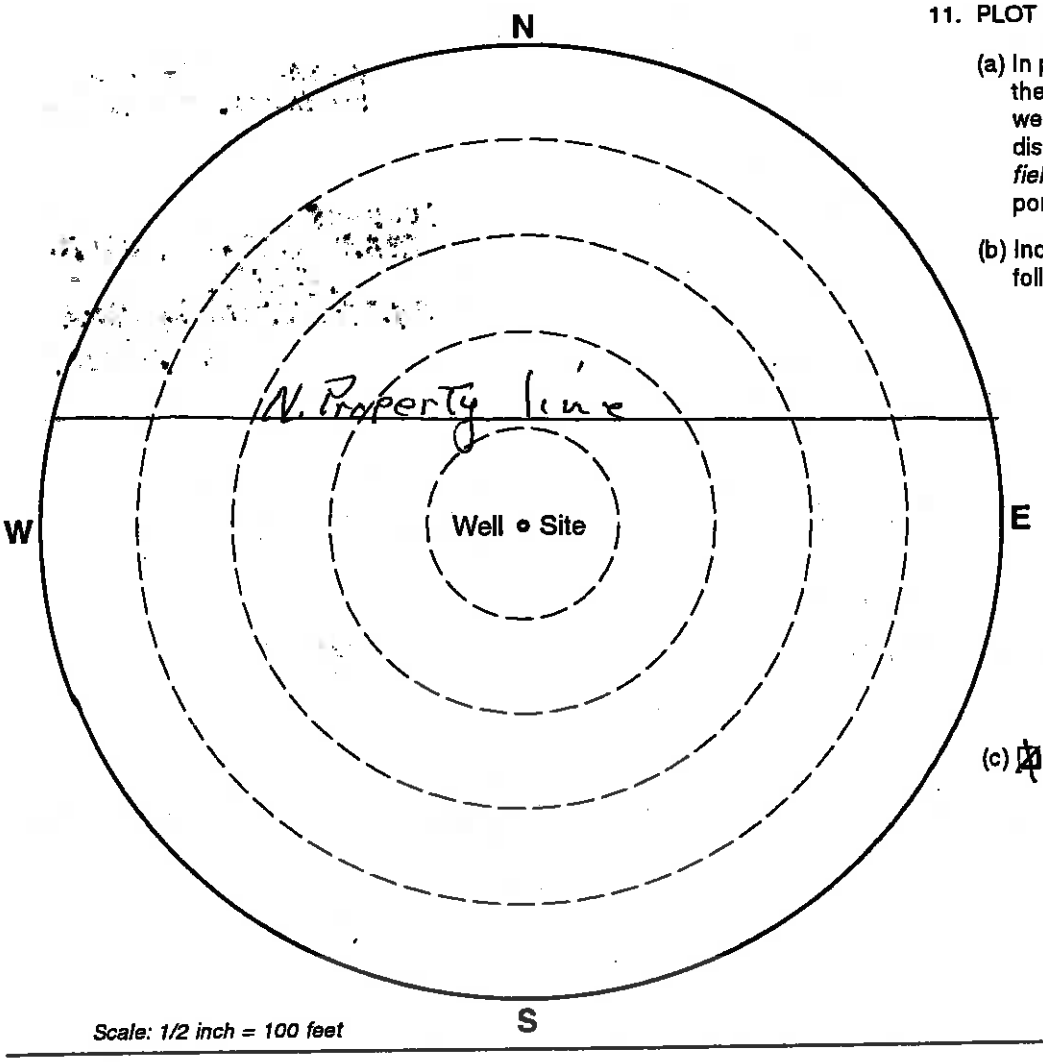
SECTION MAP - DO NOT FILL IN *Scale: 1 inch = 1/4 mile*



10. LOCATION INFORMATION: 150A-3
(a) Township: 4893-G4H2
Tier T1N (N)S Range 10 (E)W Section 20
(b) Assessor's Parcel No. 625-071-10
(c) Latitude and Longitude S½, S½, NE¼ Sec. 20
Lat: _____ °, _____ ', _____ " N/S
Long: _____ °, _____ ', _____ " E/W
(d) Solid or Liquid Disposal Site within Two Miles
☐ Yes ☒ No
Location _____

DO NOT FILL IN
Seal ✓
Cap ✓
Check Valve ✓
Electricals ✓
Slab ✓
Tag
Building & Safety Notified

D:\WATER\WELLPRMT.PM5
Revised August 1997



Scale: 1/2 inch = 100 feet

11. PLOT PLAN: 1998102198

(a) In perspective to the well site, sketch and label the following items: well lot property lines, other wells *(include abandoned wells)*, sewage disposal systems *(sewers, septic tanks, leaching fields, seepage pits, cesspools)*, lakes and ponds, watercourses and animals or fowl kept.

(b) Indicate the distance, in feet, of any of the following which are within 500 ft. of the well site:

Other	
Sewers	
Septic tanks	
Leaching fields	
Seepage pits	
Cesspools	
Lakes and ponds	
Watercourses	
Animals or fowl kept	

(c) ☒ None of the above are within 500 feet of the well site.

ENVIRONMENTAL HEALTH SERVICES
98 OCT -5 AM 10:22

12. I have read this application and agree to comply with all laws regulating the type of work being performed.

C-57 Contractor's Signature [redacted] Date 9/30/98

County Registration No. 20 California License No. 315300

DISPOSITON OF PERMIT

(For Department Use Only)

☐ Sent to Water Agency for review. NA

☐ Water Agency conditions or recommendations attached.

☐ Denied

☒ Approved subject to the following:

A. ☒ Notify the Department, SAFE DRINKING WATER SECTION (909) 387-4666, twenty-four (24) hours in advance to make an inspection of the following operations:

☒ Prior to sealing of the annular space or filling of the conductor casing. (ALTHOUGH WE DON'T NORMALL WITNESS 20 FT SEALS, WE JUST WANT TO BE NOTIFIED WHEN IT IS HAPPENING.

☒ After installation of the surface protective slab and pumping equipment.

☐ During destruction of wells, prior to pouring the sealing material.

B. ☒ Submit to the Department, within thirty (30) days after completion of work, a copy of:

☒ Water Well Driller's Report ☐ Bacterial Analysis ☐ Inorganic Chemical Analysis

☐ Radiological Analysis ☐ General Mineral ☐ Organic Chemical Analysis ☐ General Physical

Comments

ORIGINAL
File with DWR

Page 1 of 1

Owner's Well No. #2

Date Work Began 10/5/98, Ended 10/19/98

Local Permit Agency San Bernardino County

Permit No. 1998100198 Permit Date 10/5/98

STATE OF CALIFORNIA
WELL COMPLETION REPORT
Refer to Instruction Pamphlet

No. 477554

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (✓) ___ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain size, color, etc.*
0	93	Coarse to fine sand w/br clay
93	94	Boulders
94	160	Fine to coarse clay layers
160	161	Sm rock
161	254	Coarse to fine sand w/clay
254	264	Rock w/coarse to fine sand
264	330	Coarse to fine sand w/ clay
330	337	Coarse w/gray clay layers
337	410	Med to hard san w/clay layers
410	425	Hard quartz layers w/ white clay
425	475	Med to hard coarse sand & gravel w/br clay

TOTAL DEPTH OF BORING 475 (Feet)

TOTAL DEPTH OF COMPLETED WELL 460 (Feet)

WELL OWNER

[redacted]

CITY STATE ZIP

WELL LOCATION

Address 78201 Amboy Rd.

City Twentynine Palms, CA 92277

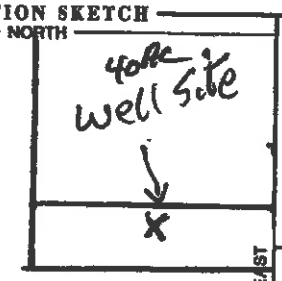
County San Bernardino, Ca

APN Book ___ Page ___ Parcel 625-071-10

Township 1N Range 10E Section 20

Latitude ___ DEG. MIN. SEC. NORTH Longitude ___ DEG. MIN. SEC. WEST

LOCATION SKETCH



Sec 20
S½, S½, NE¼ of Sec 20

SOUTH

Illustrate or Describe Distance of Well from Landmarks such as Roads, Buildings, Fences, Rivers, etc. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

XX NEW WELL
___ MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USE(S) (✓)

___ MONITORING

WATER SUPPLY
___ Domestic
___ Public
XX Irrigation
___ Industrial
___ "TEST WELL"
___ CATHODIC PROTECTION
___ OTHER (Specify)

DRILLING METHOD rotary FLUID bentonite

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH OF STATIC WATER LEVEL 261' (Ft.) & DATE MEASURED 10/19/98

ESTIMATED YIELD* 150 (GPM) & TEST TYPE air

TEST LENGTH 1hr (Hrs.) TOTAL DRAWDOWN n/a (Ft.)

** May not be representative of a well's long-term yield.*

CASING(S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	TYPE (✓) BLANK	SCREEN	CONDUCTOR	FILL PIPE	MATERIAL/ GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	475	15 3/4"								
0	275			XX			PVC F480	8"	Class 200	
275	475				X		" "	"	" "	1/8" hole 10/row

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	TYPE CEMENT (✓)	BENTONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	50	X			
50	475				5/16 gravel

ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME S & S DRILLING (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS 64936 Desert View Ave., Desert Hot Springs, Ca 92240 CITY STATE ZIP

Signed [redacted] DATE SIGNED 12/7/98 C-57 LICENSE NUMBER 315300

DWR 188 REV. 7-90

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ENVIRONMENTAL
HEALTH SERVICES

98 DEC 18 AM 9:39

Tahsin Annoor

From: WB-RB7-PRA <RB7-PRA@Waterboards.ca.gov>
Sent: Thursday, April 01, 2021 9:12 AM
To: Tahsin Annoor
Subject: RE: Request for Records Review

The Colorado River Basin Water Quality Control Board has received your request for records pertaining to site located at 78201 Amboy Road, Twentynine Palms, CA 92277. Upon a search of our records it was determined we do not have records for the site mentioned above.

Thank you,



From: Tahsin Annoor <tannoor@ardentenv.com>
Sent: Thursday, March 25, 2021 9:28 AM
To: WB-RB7-PRA <RB7-PRA@Waterboards.ca.gov>
Subject: Request for Records Review

EXTERNAL:

Dear RWQCB,

I am completing a Phase I Environmental Site Assessment for the property located at **78201 Amboy Road, Twentynine Palms CA 92277**.
I would like to request a search of your archives for any records, reports or any other files of environmental investigations, USTs, violations, permits, or actions related to the site.

Thank you,
Tahsin Annoor
Staff Geologist

Ardent Environmental Group, Inc.
Phone: (951) 736-5334 | **Mobile:** (213) 249-3089
1827 Capital Street, Suite 103 | Corona, CA 92880
Web: www.ardentenv.com
Email: tannoor@ardentenv.com



Tahsin Annoor

From: Hahn, Elena <Elena.Hahn@lus.sbcounty.gov>
Sent: Tuesday, March 30, 2021 7:59 AM
To: Tahsin Annoor
Subject: PERMIT RESEARCH REQUEST - APN 0625-071-04

Good Morning,

Please follow the instructions below. **Permit research is currently taking a minimum of 45 business days to complete.** Once research is completed, you will be contacted by staff via email with the results of our search.

PERMIT RESEARCH PAYMENT INSTRUCTIONS

Research Record Number: BMISC-2021-00078
Total Due: $10.00

PLEASE NOTE: If payment is not received within 30 calendar days, your request will be deleted.

ONLINE PAYMENT INSTRUCTIONS

1. Go to https://ezop.sbcounty.gov/CitizenAccess/Default.aspx
2. Enter your Research Record Number into the "Search" field and click enter.
3. The record will populate. Click on the "Payments" drop down menu, click "Fees."
4. Verify amount and click on "Pay Fees."
5. Click on "Continue Application" and proceed with entering payment details.
6. Once paid, respond to this email and confirm payment.

Having trouble? View the following video on making one time payments using EZOP:
https://www.youtube.com/watch?v=IS91hBoRu2c&feature=youtu.be

PAY BY MAIL INSTRUCTIONS

To pay via check or money order, please make payment payable to "County of San Bernardino" and send to the following mailing address:

County of San Bernardino
Land Use Services Department
ATTN: Elena Hahn/Rosie Griffith
385 N. Arrowhead Ave., 1st Floor
San Bernardino, CA 92415

Please feel free to contact me if you have any questions or concerns.

Thank you,

Elena Hahn
Office Assistant III
Land Use Services Department
Phone: 909-387-8311
Fax: 909-387-3223
385 N. Arrowhead Ave

San Bernardino, CA, 92415-0187



Our job is to create a county in which those who reside and invest can prosper and achieve well-being.
www.SBCounty.gov

County of San Bernardino Confidentiality Notice: This communication contains confidential information sent solely for the use of the intended recipient. If you are not the intended recipient of this communication, you are not authorized to use it in any manner, except to immediately destroy it and notify the sender.

Tahsin Annoor

From: PayHub <no-reply@pay-hub.net>
Sent: Tuesday, March 30, 2021 8:19 AM
To: Tahsin Annoor
Subject: San Bernardino County EZ Online Permitting Payment Confirmation

San Bernardino County
385 N. Arrowhead Ave., San Bernardino, CA 92415
(800) 722-4542| Website

Thank you for your payment

Confirmation number
16070288630

Items Paid

DESCRIPTION	AMOUNT	QUANTITY	SUBTOTAL
BMISC-2021-00078 Misc Fee MISC-070 : $10.00	10.00	1	10.00
Fee:			1.95
Total Charged:			**11.95**

Transaction Details

Payment	MasterCard Card
Account	MasterCard ending in 6878
Paid	11.95

Paid by
Tahsin Annoor
tannoor@ardentenv.com

Payment Date	Mar 30, 2021, 8:19 AM PDT	The payment will appear on your statement as “PMT*EZOP San Bern Permits”.
Recipient	San Bernardino County	For more information on payments handled by San Bernardino County EZ Online Permitting, please visit our website.

Your online payment was received by San Bernardino County with the transaction response code 07389Z.

Tahsin Annoor

From: County of San Bernardino <no-reply@wufoo.com>
Sent: Monday, March 29, 2021 8:49 AM
To: Tahsin Annoor
Subject: Permit Research

Your Permit Research request has been submitted to the County of San Bernardino. Please allow thirty (30) business days to process your request.

If you have any questions, please contact: luscustomerservice@lus.sbcounty.gov

Permit Research

I am the Property Owner *	No
Name *	Tahsin Annoor
Mailing Address	1827 Capital Street, Suite 103 Corona, California 92880 United States
Phone Number	(951) 736-5334
Email *	tannoor@ardentenv.com
Parcel Number *	062507104
Property Address *	78201 Amboy Road Twentynine Palms, California 92277 United States
Permit Research prior to 1987 *	No
Do you have an additional request for Permit Research *	No
Select Reason *	Other

Please Provide Detailed Reason for Request	I am completing a Phase I Environmental Site Assessment for the property located at 78201 Amboy Road, Twentynine Palms CA (APN: 062507104). I would like to request a search of your archives for any records of any building permits or actions related to the site.
Accept Terms *	• I agree to the Term of Service

4/2/2021

(1)

CUPA
San Bernardino County Fire Protection District • Hazardous Materials Division
620 S. E St., San Bernardino, CA 92415-0153 • (909) 386-8468 FAX (909) 386-8460
hazmatrecords@sbcfire.org

REQUEST FOR AN ENVIRONMENTAL AUDIT PHASE 1 CERTIFIED HAZARDOUS MATERIALS RECORDS SEARCH FINDING REPORT

The main focus of a REQUEST FOR AN ENVIRONMENTAL AUDIT PHASE 1 CERTIFIED HAZARDOUS MATERIALS RECORDS SEARCH FINDING REPORT is to determine whether there exists in San Bernardino County Fire Protection District (SBCFPD) any record relating to contamination or reports of spills at a particular site. An Environmental Phase 1 Certified Hazardous Materials Records Search Finding Report should reveal whether there are any facilities at the site that are subject to current or past regulatory activity by SBCFPD, such as underground storage tanks, hazardous material handlers, hazardous waste generators, and CalARP facilities, as well as any reports of spills, incidents, complaints, or cleanup activity, which can be a useful tool in providing a history of compliance or non-compliance.

Once SBCFPD has completed its records search, an Environmental Phase 1 Certified Hazardous Materials Records Search Finding Report will be prepared and issued. Such report will detail all SBCFPD records associated with a particular site by type, date, location, and status (where applicable). All files identified in an Environmental Phase 1 Certified Hazardous Materials Records Search Finding Report can be made available for copies and/or review upon request.

If the completed records search reveals no SBCFPD record of hazardous material activity at the site, an Environmental Phase 1 Certified Hazardous Materials Records Search Finding Report will be issued, noting that "no records" were identified.

Please provide a specific site address or location description. If a situs address does not exist or cannot be found, list another type of location identifier such as Assessor Parcel Number (preferable), cross streets or intersections (e.g., NWC 5th Ave. & Main St.), and/or legal description. If possible, please attach a map to this request form. Single family residential / agricultural

SITE INFORMATION		
Property Owner or Business Name	Location (Site Address and/or Assessor Parcel No.)	City/Community
	(APN #) 062507104 78201 Amboy Rd. 29 Palms	Twentynine Palms

Please provide your name, the company you represent, and contact information below.

REQUESTOR INFORMATION				
NAME	TITLE (*If individual, leave blank*)	COMPANY (*If individual, leave blank*)		
Tahsin Annoor	Staff Geologist	Ardent Environmental Group, Inc.		
MAILING ADDRESS	CITY		STATE	ZIP CODE
1827 Capital Street, Suite 103	Corona		CA	92880
TELEPHONE	FAX	EMAIL ADDRESS		
(951) 736-5334		tannoor@ardentenv.com		

So that we may provide better service, please check one or more of the boxes below which best describe how the findings of th e Env. Audit Phase 1 Certified Hazardous Materials Records Search will be used and/or your relationship to the property in question.

PURPOSE OR RELATIONSHIP TO PROPERTY

- ☑ 1. Phase I site assessment or due diligence **AT THE SITE**
- ☑ 2. Environmental professional involved with remediation **AT THE SITE**
- ☑ 3. Phase I site assessment or due diligence **NEARBY**
- ☐ 4. Environmental professional involved with remediation **NEARBY**
- ☐ 5. Proposed School Site (1/4 mi. search for AHM)
- ☐ 6. Proposed Drinking Water Well
- ☐ 7. Owner or operator of the facility or property
- ☐ 8. Potential buyer
- ☐ 9. Real Estate Agent, Lender, Appraiser
- ☐ 10. Pending escrow
- ☐ 11. Proposed redevelopment
- ☑ 12. Legal or other reason: Conducting Phase I ESA

AGENCY USE WK 12

Phase 1 Certified Record Search Finding Report issued: ___/___/___	Reference No: 21032602
Phase 1 Certified "No Record" Finding Report issued: ___/___/___	Amount Paid: 136.80
	Receipt No.: 106091
	Date: 3-31-2021

RECEIVED
MAR 31 2021
SBCFIRE - HAZMAT

HAZARDOUS MATERIALS FIELD SERVICES
PERMIT BILLING SYSTEM DATA INPUT SHEET

Bill To: E (A) O (circle one) Loc/Dist No: 71/1200 Est No: 9603909

E

Name: W M FARMS
Street No: 78201 ~~AMB~~ Fraction: ____ Direction: __
Street Name: AMBOY RD Apt/Sp No: ___
City: 29 PALMS State: ~~CA~~ Zip Code: 92277
Telephone No: ( )

A

Name: GEORGE MORANG
Street No: HC02 Fraction: ____ Direction: __
Street Name: PO BOX 299 Apt/Sp No: ___
City: 29 PALMS State: CA Zip Code: 92277
Telephone No.: ( )

O

Name: DAVID WILLIAMS
Street No.: HC02 Fraction: ____ Direction: __
Street Name: P.O. BOX 299 Apt/Sp No: ___
City: 29 PALMS State: CA Zip Code: 92277
Telephone No.: ( )

Program Information:
Number of Employees: _____ Number of USTs: _____
Federal Tax I.D. Number/Social Security Number: _____

Permit Information:

Category	Permit Number	Exp. Date
226009	960409 3820	5-31-97

Date Submitted: 4-5-96 Date Entered: APR 09 1996
Submitted By: M Farrell Entered By: Pam

Comments/Remarks:
FARM: FEE EXEMPT
P.P.

SAN BERNARDINO COUNTY FIRE DEPARTMENT

COUNTY OF SAN BERNARDINO, CALIFORNIA

W M FARMS
78201 AMBOY RD
29 PALMS, CA 92277
EST - 96039091 PERMIT - 9604093820

THIS PERMIT EXPIRES:
05/31/1997

PERMIT

NON-TRANSFERABLE

This permit may be suspended or revoked by the County Fire Department for cause. This permit is granted on condition that the person named in the permit will comply with the laws, ordinances and regulations that are now or may hereafter be in force by the United States Government, the State of California, the County of San Bernardino, and/or applicable cities pertaining to the above mentioned business. Penalty fees are assessed on permits renewed 30 days after expiration date indicated above, or for failure to obtain new permit in case of transfer of ownership.

TYPE OF PERMIT - HAZARDOUS MATERIAL HANDLER, 0-10 EMPLOYEES

FEE PAID $0.00

MORANG, GEORGE
DBA: W M FARMS
HCC2 P O BOX 299
29 PALMS, CA 92277

NBR EMPLS - 0

Richard Lewis
Director
COUNTY FIRE CHIEF/FIRE WARDEN

04-1804-631 REV. 8/95

PERMIT DOES NOT IMPLY APPROVAL
FILE COPY

POST IN A
CONSPICUOUS PLACE

CUPA
San Bernardino County Fire Department • Hazardous Materials Division
620 South 'E' Street, San Bernardino, CA 92415-0153 • (909) 386-8401 FAX (909) 386-8460 • www.sbcfire.org

HAZARDOUS WASTE GENERATOR AND HAZARDOUS MATERIALS HANDLER INSPECTION REPORT

FA #: 697 Facility Name: WM FARMS Inspection Date: JUNE 11, 2007

Site Address: 78201 AMBOY RD. Phone #: N/A

City: TWENTYNINE PALMS Zip Code: 92277 EPA ID #: N/A

Consent Granted by:

☐ Inspect ☐ Photograph Name: N/A Title: N/A # Emp:

Refer to Title 19 and Title 22 of the California Code of Regulations (CCR), Chapter 6.5 of the Health and Safety Code (CHSC) and Division 3 of Title 2 of the San Bernardino County Code (CC). The following code sections are either in Violation (V) of, in Compliance (C) with, the applicable laws and regulations, or compliance is not applicable, not addressed or unknown (N).

GENERAL REQUIREMENTS FOR GENERATORS		V	C	N
101. Hazardous Waste Generator Permit current	CC 23.0602(b)(1)			✓
102. Facility access for inspection granted - HW only	CHSC 25185			
103. Hazardous Waste determination made	CCR 66262.11			
104. EPA ID Number obtained	CCR 66262.12(a)			
105. Hazardous Waste storage/treatment authorization	CHSC 25189.5(d)			
106. Facility operated/maintained to prevent release/fire	CCR 66265.31			
107. Contingency Plan established	CCR 66265.51(a)			
108. Recyclable materials managed lawfully	CHSC 25143.2			
905. Universal Waste managed lawfully	CCR 66273.1			
STORAGE AND LABELING REQUIREMENTS				
110. Tank/container labeled/marked "Hazardous Waste"	CCR			✓
111. Hazardous Waste label complete	CCR 66262.34(f)(3)			
112. Accumulation start date on tank/container	CCR 66262.34(f)(2)			
113. Hazardous Waste accumulation time not exceeded	CCR 66262.34			
114. Hazardous Waste containers sound	CCR 66265.171			
115. Hazardous Waste containers not leaking	CCR 66265.173(b)			
116. Hazardous Waste containers closed	CCR 66265.173(a)			
117. Contaminated containers managed properly	CCR 66261.7			
118. Container storage area inspected weekly	CCR 66265.174			
119. Hazardous Waste managed lawfully	CHSC 25154			
120. Hazardous Waste aboveground tank system inspected	CCR 66262.34			
HAZARDOUS WASTE RECORDS AND MANIFESTS				
125. Hazardous Waste transported with a manifest	CCR 66262.20(a)			✓
126. Hazardous Waste manifest complete	CCR 66262.23			
127. Hazardous Waste manifests sent to DTSC	CCR 66262.23(a)(4)			
128. Manifests retained for at least 3 years	CCR 66262.40(a)			
129. Biennial Report prepared	CCR 66262.41			
130. Hazardous Waste analyses retained for 3 years	CCR 66262.40(c)			
131. Training documentation complete & available	CCR 66265.16			
132. Copy of completed SB 14 available	CCR 67100.3			
135. Used oil managed properly	CHSC 25250.4			
136. Used oil not contaminated with Hazardous Waste	CHSC 25250.7			
137. Consolidated manifesting records available	CHSC 25160.2(b)(3)			
138. Used oil filters managed lawfully	CCR 66266.130			
139. Spent lead acid batteries managed lawfully	CCR 66266.81			
DISPOSAL AND TRANSPORTATION				
145. Illegal disposal/abandonment of Hazardous Waste	CHSC 25189.5(a)			✓
146. Illegal disposal of used oil	CHSC 25250.5(a)			
147. Transporting Hazardous Waste w/o valid registration	CHSC 25163			
148. Hazardous Waste hauled by transporter w/o valid registration	CHSC 25163			
149. Hazardous Waste transported to an unauthorized facility	CHSC 25189.5(c)			

GENERAL REQUIREMENTS FOR HANDLERS		V	C	N
201. Hazardous Material Handler permit current	CC 23.0602(b)(3)			✓
202. Business Plan established	CHSC 25503.5			
203. Business Plan submitted/updated	CHSC 25505			
204. Hazardous Materials release reported	CHSC 25507			
205. Facility access for inspection granted – HM	CHSC 25508			
206. Regulated Substances registration filed	CHSC 25533(a)			
207. SPCC Plan prepared	CHSC 25270.5(c)			
230. Business Plan implemented	CHSC 25503.5			

INSPECTION NARRATIVE

AN INSPECTION WAS CONDUCTED ON JUNE 11, 2007 TO VERIFY IF THIS AGRICULTURAL FACILITY IS STILL IN OPERATION.

A FILE REVIEW REVEALED A CONNECTION WITH FACILITY NUMBER 557 (SEE FILE FA557).

THE FACILITY AT THIS ADDRESS IS NO LONGER IN OPERATION. NO AGRICULTURAL OR OTHER COMMERCIAL ACTIVITIES WERE OBSERVED ON THIS DATE. MR. JAVIER VALLEJO WAS PRESENT ON THE PROPERTY AND STATED NO AGRICULTURAL OR COMMERCIAL OPERATIONS ARE CURRENTLY TAKING PLACE AT THIS LOCATION. HE STATED THAT THIS (THE) PROPERTY IS A VACANT PRIVATE

☐ **NOTICE OF VIOLATION: THE VIOLATIONS NOTED ABOVE MUST BE CORRECTED WITHIN ____ DAYS. FAILURE TO COMPLY MAY RESULT IN LEGAL ACTION. THE CERTIFICATE OF COMPLIANCE SHALL BE SUBMITTED WITHIN THE TIME PERIOD NOTED ABOVE.**

Inspected By: [signature] Sign Name — GHEORGHE MAN Print Name

Received By: FILE Sign Name — — Print Name

Title: —

Report Date: JUNE 15, 2007

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San Bernardino County Fire Department • Hazardous Materials Division
620 South 'E' Street, San Bernardino, CA 92415-0153 • (909) 386-8401 FAX (909) 386-8460 •www.sbcfire.org

SUPPLEMENTAL INSPECTION REPORT

INSPECTION DATE: JUNE 11, 2007

FACILITY ID	FACILITY NAME:	FACILITY LOCATION:
697	W M FARMS	78201 AMBOY RD., TWENTYNINE PALMS
Consent Granted by: ☐ Inspect ☐ Photograph	NAME N/A	TITLE N/A

RESIDENCE. BASED ON THIS INFORMATION, I DID NOT SEEK CONSENT TO WALK THE PROPERTY. MR. VALLEJO STATED THE PROPERTY IS NOW OWNED BY PHIL ITTLESON OF PALM SPRINGS, 760.861.6591. PER TELEPHONE CONVERSATION WITH MR. ITTLESON, FACILITY IS NO LONGER IN OPERATION AND HAS NOT BEEN FOR YEARS. MR. ITTLESON STATED, NO HAZARDOUS MATERIALS ON SITE, AND NO COMMERCIAL ACTIVITIES ARE CURRENTLY TAKING PLACE.

NO FURTHER ACTION REQUIRED AT THIS TIME.

SEE FILE FOR FA 557 FOR CROSS REFERENCE.

☐ **NOTICE OF VIOLATION: THE VIOLATIONS NOTED ABOVE MUST BE CORRECTED WITHIN ____ DAYS. FAILURE TO COMPLY MAY RESULT IN LEGAL ACTION. THE CERTIFICATE OF COMPLIANCE SHALL BE SUBMITTED WITHIN THE TIME PERIOD NOTED ABOVE.**

Inspected By: _____ (Sign Name) GHEORGHE MAN (Print Name)

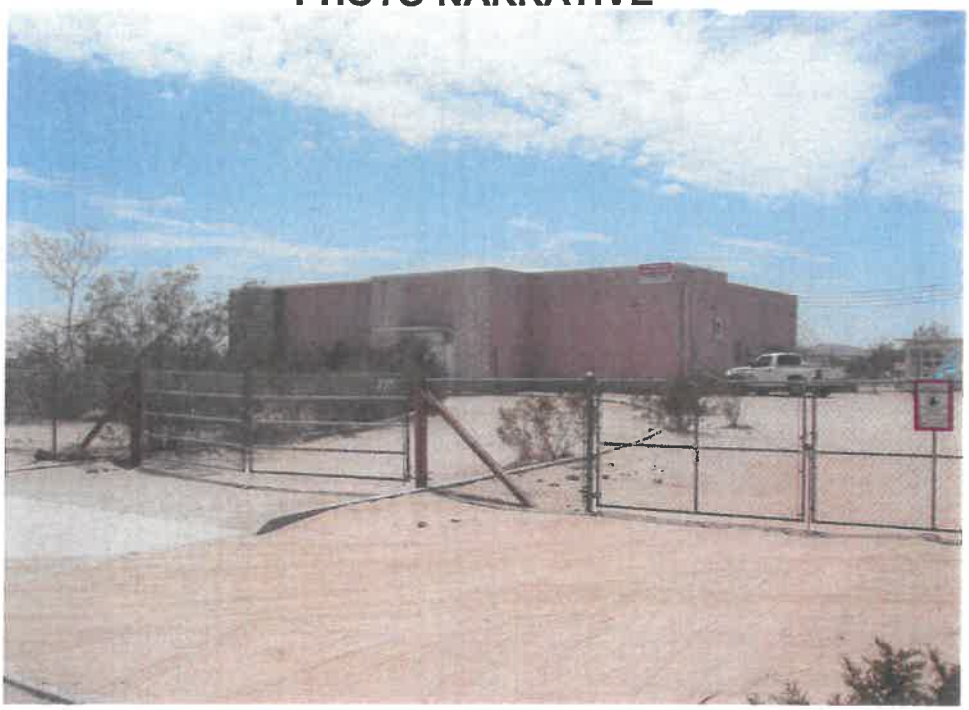
Received By: FILE (Sign Name) _____ (Print Name)

Title: _____

Report Date: JUNE 15, 2007

PHOTO NARRATIVE

PHOTO 1



Facility/Case Name: **W M Farms** Facility ID #: **FA-697**

Address: **78201 Amboy Rd., Twentynine Palms.**

1) Description: **Front of facility as seen from Amboy Rd. Facility is no longer in operation. No hazardous substances were observed from the perimeter. Mr. Javier Vallejo was present on the property at time of inspection and he confirmed no agricultural or commercial activities at this site. The property is now a vacant private residence.**

Date Taken: **June 11, 2007**

Taken By: **Gheorghe Man** Signature:

Revised 10/12/2000

close

HAZA OUS MATERIAL FIELD SERVIC S
COMPUTER DATABASE UPDATE AUTHORIZATION

copy

JPDATE INVOICE MAILING CODE: (CIRCLE ONE) O F A

CURRENT INVOICE MAILING CODE: O

O- OWNER INFORMATION

OWNER ID: OW0000604

NAME: MORANG, GEORGE

ADDRESS 1: HCO2 P O BOX 299 ADDRESS 2:

CITY: TWENTYNINE PALMS STATE: CA ZIP CODE: 92277-9227 COUNTRY:

PHONE: EXT: FAX:

ALT PHONE: EXT: DRIVER LICENSE:

TAX ID: LAST UPDATED: 11/14/2003

OWNER MAILING ADDRESS

CARE OF: DBA: MORANG, GEORGE

ADDRESS1: HCO2 P O BOX 299 ADDRESS 2:

CITY: TWENTYNINE PALMS STATE: CA ZIP CODE: 92277 COUNTRY:

F- FACILITY INFORMATION

FACILITY ID: FA0000697

NAME: ~~AG~~-W M FARMS

ADDRESS 1: 78201 AMBOY RD ADDRESS 2:

CITY: TWENTYNINE PALMS STATE: CA ZIP CODE: 92277-2277 CITY CODE: TWENTYNINE PALMS

SIC CODE: BUSINESS CODE: BUSINESS TYPE: 03

CENSUS: SUPERVISORIAL DISTRICT: 001 INSPECTION DISTRICT: 12

PHONE: EXT: FIRE JURISDICTION: TWENTYNINE PALMS

ALT PHONE: EXT: FAX: LAST UPDATED: 11/09/2006

FACILITY MAILING ADDRESS

BUSINESS NAME: ~~AG~~-W M FARMS

CARE OF:

ADDRESS 1: 78201 AMBOY RD ADDRESS 2:

CITY: TWENTYNINE PALMS STATE: CA ZIP CODE: 92277-2277 COUNTRY:

EMAIL:

A- A/R INFORMATION

ACCOUNT ID: AR0000698

RESPONSIBLE PARTY:

CARE OF:

ADDRESS 1: ADDRESS 2:

CITY: STATE: ZIP CODE: COUNTRY:

PHONE: EXT: DRIVER LICENSE:

ALT PHONE: EXT: LAST UPDATED: 06/05/2007

ALT PHONE: EXT: EXEMPT FROM BILLING: ~~YES~~ TAX ID:

ANNIVERSARY DATE: 05/31/1997 TOTAL DUE: 0.00 ACCOUNT STATUS: ~~ACTIVE ACCOUNT~~ INACTIVE

PERMIT INFORMATION (CIRCLE THOSE THAT APPLY)

UPDATE/CLOSE/Z.O.B.	PT000819.	~~ACTIVE~~	~~4221~~ INACTIVATE	06/01/1996	05/31/1997
	PERMIT NUMBER.	PERMIT STATUS	ORIGINAL P.E.	EFFECTIVE DATE	EXPIRATION DATE

PR0009074	~~ACTIVE, BILLABLE~~	NA	NA	
GHP OR UST ID	CURRENT STATUS(BILLING)	GHP FOR UST(PH)	CURRENT STATUS FOR UST(PH)	UPDATED P.E.

ADD NEW P.E.

NEW P.E.	NEW P.E.	NEW P.E.	NEW P.E.	NEW P.E.	NEW P.E.	NEW P.E.
NEW P.E.	NEW P.E.	NEW P.E.	NEW P.E.	NEW P.E.	NEW P.E.	NEW P.E.

NUMBER OF EMP. _____ NUMBER OF UST'S 0 MFR # _____

DATE SUBMITTED: JUNE 15, 2007 DATE ENTERED: _____ FISCAL DATE: _____

SUBMITTED BY: GHEDLGHE JUAN ENTERED BY: _____

COMMENTS/REMARKS:

-PER INSPECTION OF JUNE 11, 2007, FACILITY NO LONGER IN OPERATION. NO HAZARDOUS SUBSTANCE OBSERVED FROM THE PERIMETER. PER PERSON ON PROPERTY, MR. JAVIER VALLEJO, NO AG. OR COMMERCIAL OPERATION IS CURRENTLY TAKING PLACE. PROPERTY IS VACANT/RESIDENCE.

- CLOSE PE 4221 AND INACTIVATE AT ALL LEVELS -

THANKS,

6/15/07

CLOSE

HAZARDOUS MATERIAL FIELD SERVICES
COMPUTER DATABASE UPDATE AUTHORIZATION

9P

ROD ... FISCAL
07 ... 10 ... 7:01

UPDATE INVOICE MAILING CODE: (CIRCLE ONE) O F A

CURRENT INVOICE MAILING CODE: O

O- OWNER INFORMATION

OWNER ID: OW0000604

NAME: MORANG, GEORGE

ADDRESS 1: HCO2 P O BOX 299 ADDRESS 2:

CITY: TWENTYNINE PALMS STATE: CA ZIP CODE: 92277-9227 COUNTRY:

PHONE: EXT: FAX:

ALT PHONE: EXT: DRIVER LICENSE:

TAX ID: LAST UPDATED: 11/14/2003

OWNER MAILING ADDRESS

CARE OF: DBA: MORANG, GEORGE

ADDRESS1: HCO2 P O BOX 299 ADDRESS 2:

CITY: TWENTYNINE PALMS STATE: CA ZIP CODE: 92277 COUNTRY:

F- FACILITY INFORMATION

FACILITY ID: FA0000697

NAME: ~~AG~~-W M FARMS

ADDRESS 1: 78201 AMBOY RD ADDRESS 2:

CITY: TWENTYNINE PALMS STATE: CA ZIP CODE: 92277-2277 CITY CODE: TWENTYNINE PALMS

SIC CODE: BUSINESS CODE: BUSINESS TYPE: 03

CENSUS: SUPERVISORIAL DISTRICT: 001 INSPECTION DISTRICT: 12

PHONE: EXT: FIRE JURISDICTION: TWENTYNINE PALMS

ALT PHONE: EXT: FAX: LAST UPDATED: 11/09/2006

FACILITY MAILING ADDRESS

BUSINESS NAME: ~~AG~~-W M FARMS

CARE OF:

ADDRESS 1: 78201 AMBOY RD ADDRESS 2:

CITY: TWENTYNINE PALMS STATE: CA ZIP CODE: 92277-2277 COUNTRY:

EMAIL:

A- A/R INFORMATION

ACCOUNT ID: AR0000698

RESPONSIBLE PARTY:

CARE OF:

ADDRESS 1: ADDRESS 2:

CITY: STATE: ZIP CODE: COUNTRY:

PHONE: EXT: DRIVER LICENSE:

ALT PHONE: EXT: LAST UPDATED: 06/05/2007

ALT PHONE: EXT: EXEMPT FROM BILLING: ~~YES~~ TAX ID:

ANNIVERSARY DATE: 05/31/1997 TOTAL DUE: 0.00 ACCOUNT STATUS: ~~ACTIVE ACCOUNT~~ INACTIVE

PERMIT INFORMATION (CIRCLE THOSE THAT APPLY)

UPDATE/CLOSE/Z.O.B.	PT00081	~~ACTIVE~~	~~4221~~ INACTIVATE	06/01/1996	05/31/1997
	PERMIT NUMBER	PERMIT STATUS	ORIGINAL P.E.	EFFECTIVE DATE	EXPIRATION DATE

PR0009074	~~ACTIVE~~, BILLABLE	NA	NA	
GHP OR UST ID	CURRENT STATUS(BILLING)	GHP FOR UST(PH)	CURRENT STATUS FOR UST(PH)	UPDATED P.E.

ADD NEW P.E.

NEW P.E.	NEW P.E.	NEW P.E.	NEW P.E.	NEW P.E.	NEW P.E.	NEW P.E.
NEW P.E.	NEW P.E.	NEW P.E.	NEW P.E.	NEW P.E.	NEW P.E.	NEW P.E.

NUMBER OF EMP. _____ NUMBER OF UST'S 0 MFR # _____

DATE SUBMITTED: JUNE 15, 2007 DATE ENTERED: 6/15/07 FISCAL DATE: _____

SUBMITTED BY: GHEORGHE IVAN ENTERED BY: Carla Gray

COMMENTS/REMARKS:

-PER INSPECTION OF JUNE 11, 2007, FACILITY NO LONGER IN OPERATION. NO HAZARDOUS SUBSTANCE OBSERVED FROM THE PERIMETER. PER PERSON ON PROPERTY, MR. JAVIER VALLEJO, NO AG. OR COMMERCIAL OPERATION IS CURRENTLY TAKING PLACE. PROPERTY IS VACANT/RESIDENCE.

- CLOSE PE 4221 AND INACTIVATE AT ALL LEVELS -

THANKS,

6/15/07

96039091

County of San Bernardino
DEPARTMENT OF ENVIRONMENTAL HEALTH SERVICES • HAZARDOUS MATERIALS FIELD SERVICES
385 North Arrowhead Avenue, San Bernardino, CA 92415-0160 • (909) 387-3080

HAZARDOUS WASTE GENERATOR AND HAZARDOUS MATERIAL HANDLER INSPECTION REPORT

Facility Name: W M FARMS Date: 4-5-96
Street Address: 78291 AMBOY RD Establishment No.:
City: 29 PALMS CA Zip Code: 92277 EPA No.:
Business Contact: GEORGE MOSUNG Business Phone No.: Number of Employees: 1

Refer to Title 19/22 of the California Code of Regulations (CCR), Chapters 6.5 and 6.95 of the Health and Safety Code (HSC). The following Code sections are either in Violation (V) of or in Compliance (C) with the Hazardous Waste or Hazardous Materials laws and regulations, or compliance is Not Applicable, Not Addressed or Unknown (N).

GENERAL REQUIREMENTS		V	C	N
1. No Haz Waste Generator Permit	CHSC 25154			X
2. Authority to inspect/sample/photograph	CHSC 25185		X	
3. Haz Waste Determination not made (T5)	CCR 66262.11			X
4. No Haz Waste EPA Number (T6)	CCR66262.12(a)			X
5. Haz Waste treated w/o DTSC Permit (T1)	CCR 66270.1			X
LABELING AND STORAGE				
6. Haz Waste stored more than 90 days (T1)	CCR 66262.34(a)			X
7. Start Date not on labels (T25)	CCR 66262.34(f) (2)			X
8. Haz Waste containers mislabeled (T28)	CCR 66262.34(f) (3)			X
9. No labels on Haz Waste containers (T27)	CCR 66262.34(f) (3)			X
MANAGEMENT OF CONTAINERS				
10. Haz Waste containers not sound (T65)	CCR 66265.171			X
11. Haz Waste in incompatible container (T66)	CCR 66265.172			X
12. Haz Waste containers not closed (T67)	CCR 66265.173(a)			X
13. Haz Waste containers leaking (T68)	CCR 66265.173(b)			X
14. Storage Area not inspected weekly (T69)	CCR 66265.174			X
15. Incompatible Haz Waste storage (T73)	CCR 66265.177(c)			X
16. Mismanagement of Hazardous Waste	CHSC 25154			X
17. Mismanagement of Waste Batteries (T92)	CCR 66266.81			X
MANAGEMENT OF WASTE OIL				
18. Unlawful management of Waste Oil	CHSC 25250.4			X
19. Waste Oil contaminated w/ Haz Waste (T2)	CHSC 25250.7			X
20. Receipt for Waste Oil incomplete	CHSC 25250.8(b) (4)			X
21. Waste Oil Filters improperly managed	CCR 66266.130			X
HAZARDOUS WASTE MANIFESTS				
22. Haz Waste transported w/o Manifest (T9)	CCR 66262.20(a)			X
23. Haz Waste Manifest incomplete (T13)	CCR 66262.23(a)			X
24. No Manifest sent to DTSC (T16)	CCR 66262.23(a) (4)			X
RECORDS				
25. No Receipts for Waste Oil	CHSC 25250.8(b)			X
26. Failure to retain Manifest 3 yrs (T29)	CCR 66262.40(a)			X
27. Biennial Report not kept 3 yrs (T30)	CCR 66262.40(b)			X
28. Failure to retain Analysis 3 yrs (T31)	CCR 66262.40(c)			X
29. No Biennial Report filed w/ DTSC (T32)	CCR 66262.41(a)			X
30. Training Records unavailable (T78)	CCR 66265.16			X
DISPOSAL AND TRANSPORTATION				
31. Illegal disposal/abandonment of Haz Waste	CHSC 25189.5(a)			X
32. Illegal disposal Waste Oil to Ground	CHSC 25250.5(a)			X
33. Illegal transportation of Haz Waste	CHSC 25163			X
34. Haz Waste transporter Unregistered	CCR 66263.17			X
BUSINESS PLANS AND CONTINGENCY DOCUMENTS				
40. Failure to obtain Haz Mat Handlers Permit	CHSC 25513			
41. Failure to establish a Business Plan (T79)	CHSC 25503.5			X
42. Failure to submit/update a Bus. Plan (T61)	CHSC 25505			X
43. Failure to report a release of Haz Mats	CHSC 25507			X
44. Authority to inspect facility for Haz Mats	CHSC 25508		X	
45. Acutely Haz Mats Registration not filed	CHSC 25533(a)			

CORRECTIONS/NARRATIVES

SEE TYPED INSPECTION REPORT DATED APRIL 4, 1996

MAIL TO
W M FARMS
HC02
PO BOX 295
29 PALMS, CA 92277

☒ Inspection ☐ NOV Issued ☐ Tiered Permit
☐ Reinspection ☐ C.D. Date Total Time 6 HRS
☒ Complaint ☐ Tox.Tic. No. Rev. Ent.

Inspector Mike Farrell Received by Mail

AHWTABLE.PM4
May 1993

COUNTY FIRE DEPARTMENT

HAZARDOUS MATERIALS DIVISION
385 North Arrowhead Avenue, Second Floor • San Bernardino, CA 92415-0160

COUNTY OF SAN BERNARDINO

RICHARD W. SEWELL
Fire Chief
County Fire Warden

April 4, 1996

W M Farms
HCO 2
PO Box 299
78201 Amboy Rd.
29 Palms, Ca 92277

An inspection was conducted due to a complaint about cyanide mining waste at this facility. George Morang, operator, provided information during the inspection.

This facility is a 40 acre farm. The crop grown is jojoba plant. Mr. Morang stated that the soil has a pH of approximately 8. To reduce the pH to about 7, sulfuric acid is used as a soil amendment. The sulfuric acid is pumped from a 55 gallon drum to a mixing vat containing water. Urea is pumped from a 55 gallon drum to the mixing vat. (Urea is used for it's nitrogen content.) The mixing vat holds approximately 200 gallons of this solution and has secondary containment. The pH of this solution is between 1 and 2. The solution is introduced into the irrigation system through a venturi tube. The solution flow is adjusted until the irrigation water pH is 5. The irrigation water reduces the soil pH.

At the time of the inspection, the farm did not have any sulfuric acid. There were six empty 55 gallon sulfuric acid drums on the premises. There were 5 empty 55 gallon urea drums and one drum in use on the premises. Mr. Morang stated that he purchases six drums of acid and six drums of urea at a time. This amount lasts for approximately one year. The empty drums are exchanged for full drums. Due to financial problems, new acid has not been purchased.

This facility was a milling operation for precious metals at one time. According to Mr. Morang, that operation stopped more than ten years ago. Cyanide was not used in any capacity at the facility. Mercury was used to extract the gold from the ore. Much of the milling equipment is still on the premises, and it appears that it has not been operating for numerous years. The inspection did not reveal any mining wastes on the premises. Mr. Morang stated that he didn't know of any mining wastes on the premises.

There is an industrial/office type building on the premises. Mr. Morang uses the building as his home.

W M Farms
78201 Amboy Rd
29 Palms

Sulfuric acid is on the list of acutely hazardous materials. If more than 1,000 pounds of this material is stored at a facility, then an acutely hazardous materials registration form must be completed and sent to this Department. The form will be sent with this report.

Contact Mike Farrell, 909 387-3080, if you have any questions.

Michael Farrell REHS

Michael Farrell REHS
Hazardous Materials Section
San Bernardino County Fire Department

Tahsin Annoor

From: Barbara Hayes <bhayes@mdaqmd.ca.gov>
Sent: Thursday, March 25, 2021 1:28 PM
To: Tahsin Annoor
Cc: Karen Nowak
Subject: Public Record's Request #21-03-25-01

Good afternoon Tahsin,

There are no records for the subject property located at 78201 Amboy Road, Twentynine Palms, CA.

If you have any questions, please contact Karen Nowak at K2Nowak@mdaqmd.ca.gov

Thank you,

Barb

Barbara Hayes
Records Management Technician
760.245.1661, ext. 2574 *Office*
760.245.2022 *Fax*
MDAQMD.ca.gov
@MDAQMD on **Facebook**, **Twitter** and **Instagram**

APPENDIX F

RESUMES

ARDENT
ENVIRONMENTAL GROUP, INC.

RESUME OF JONATHAN ANDERSON

Senior Staff Geologist

EDUCATION

Bachelor of Arts, Geology, 2013, California State University, San Bernardino

REGISTRATIONS AND CERTIFICATIONS

Professional Geologist, California PG 9876
OSHA 40-Hour Health and Safety Training (with annual updates)
EPA/AHERA Building Inspector, and Contractor/Supervisor
HAZWOPER 40-Hour Training (with annual updates)

EMPLOYMENT HISTORY

2013-present – Ardent Environmental Group, Inc. (environmental consulting)

PROFESSIONAL EXPERIENCE AND RESPONSIBILITIES

Mr. Anderson has a strong background in geology, geography, chemistry, and physics which provides support in completing a variety of field and office tasks during environmental assessments, site characterization, and remediation projects. Tasks include development of work plans, drilling and sampling soil borings, installation and abandonment of groundwater monitoring wells, development and sampling of groundwater wells, collecting wipe and bulk building material samples, research and review of regulatory and historical land use records, directing subcontractors, data evaluation, and technical report preparation. Mr. Anderson's project experience includes:

- **Groundwater Monitoring and Vapor Extraction Well Installation:** Mr. Anderson has installed a number of groundwater monitoring wells and vapor extraction wells at properties throughout Southern California. The wells were installed to assess groundwater conditions and to characterize impacted media. Vapor extraction wells were part of a soil vapor extraction remediation systems. These tasks include obtaining well construction permits, interactions with regulatory agencies, directing drilling and surveyor contractors, and designing well construction. Following installation, groundwater monitoring wells are developed by various methods including bailing, surging, and pumping while monitoring water quality parameters.

- **Monitoring Well Abandonment:** Senior Staff Geologist for a property in Los Angeles involving the abandonment of groundwater monitoring and soil vapor wells. Duties include obtaining permits, directing subcontractors, and preparation of a well closure report for submittal to a regulatory agency.

- **Groundwater Monitoring:** Perform quarterly groundwater monitoring activities at facilities throughout Southern California. Depth to groundwater is measured with electric sounders before sampling. Wells are purged of static groundwater using submersible pumps and hand bailers. Groundwater is collected from monitoring wells and sent to a laboratory for analyses on a quarterly basis to determine the effectiveness of remedial actions at the properties.

Quarterly monitoring reports are prepared and are uploaded to the State's GeoTracker website.

- **Phase I Environmental Site Assessment:** Senior Staff Geologist for Phase I Environmental Site Assessment reports throughout Southern California. Report preparation includes site reconnaissance activities involving visual site inspection, research and review of regulatory records and historical land use records, and identification of potential environmental concerns and/or impacts to the site.

- **Phase II Site Characterization:** Staff Geologist for projects involving the advancement of soil borings by direct-push, MIP, and hollow stem auger methods to assess the nature, magnitude, and extent of soil contamination. These duties also include conducting soil gas surveys to assess vapor concentrations of volatile organic compounds (VOCs) for human health risks.

- **Asbestos Sampling:** Conducts surveys of commercial buildings to identify suspect asbestos-containing materials (ACM) and sampling of suspect materials for asbestos analysis. Performs air sampling to assess the concentration of asbestos fibers in air to assess general building conditions and for monitoring and clearance of asbestos abatement.

- **Mold Assessment:** Staff Geologist for the assessment of the presence and extent of mold contamination in commercial buildings. Includes moisture surveys using infrared scanning, direct moisture measurements using handheld instruments, and the collection of air samples for assessment of mold spore concentrations in air.

- **Soil Remediation:** As Senior Staff Geologist, Mr. Anderson was involved with a long-term soil remediation project that included the excavation of over 50,000 cubic yards of petroleum hydrocarbon impacted soil at a property in Downtown Los Angeles. Tasks associated with this project included the preparation, submittal, and implementation of a South Coast Air Quality Management District (SCAQMD) Site Specific Soil Mitigation Plan, daily soil monitoring and quantifying of VOC impacted soil discovered during excavation, providing manifests to disposal transportation companies, interacting with contractors and clients, as well as documenting the discovery and mitigation of unknown environmental concerns discovered during project oversight, including underground storage tanks (USTs) and hydraulic lifts. Mr. Anderson documented these activities in a final environmental grading report.

- **Soil Vapor Monitoring Point Installation and Sampling:** Mr. Anderson installed and sampled soil vapor monitoring points at a number of properties located throughout Southern and Northern California to further assess whether a vapor intrusion issue was present due to past and/or present site activities. This task included the installation of soil vapor monitoring points, purging stagnant air, and collecting vapor samples in Tedlar bags, Summa canisters, or by glass syringe for analysis by a mobile laboratory. Installation and sampling were conducted in accordance with current Department of Toxic Substances Control (DTSC) guidelines.

ASSOCIATIONS

The Geological Society of America

RESUME OF TAHSIN ANNOOR
Staff Geologist

EDUCATION

Bachelor of Science, Geology, 2018, California State Polytechnic University, Pomona

REGISTRATIONS AND CERTIFICATIONS

SCAQMD Rule 403 South Coast Air Basin Fugitive Dust Control
LA County Department of Public Health Lead-Related Construction Certificate
EPA/AHERA Building Inspector, and Contractor/Supervisor
HAZWOPER 40-Hour Training (with annual updates)

EMPLOYMENT HISTORY

2018-2019 – National Engineering and Consulting Group, Inc. (environmental consulting)
2019-2021 – Panacea, Inc. (environmental consulting)
2021-present – Ardent Environmental Group, Inc. (environmental consulting)

PROFESSIONAL EXPERIENCE AND RESPONSIBILITIES

Ms. Annoor has a strong background in geology, geochemistry, environmental science, and industrial hygiene. As a Staff Geologist, her experience has included air monitoring, air quality analysis, lead-based paint surveys, soil sampling, and overseeing various subcontractors for projects relating to construction, soil excavation for contaminated media, and remediation projects. Her tasks also include coordinating environmental research, reviewing historical documents, data evaluation, and technical report preparation. Ms. Annoor's project experience includes:

- **Phase I Environmental Site Assessment:** Report preparation includes site reconnaissance, research and review of regulatory and historical land use records, and identification of potential environmental concerns and/or impacts to the site.
- **Lead-Based Paint Surveys:** Conduct surveys of commercial buildings to identify lead-based paint using handheld x-ray fluorescence (XRF) analyzers and sampling paint chips from various media for detail analysis.
- **Asbestos Sampling:** Conduct surveys of schools and commercial buildings to identify and collect samples of suspect asbestos-containing materials (ACM) and sampling of suspect materials for asbestos analysis. Support air sampling to assess asbestos fibers in air to evaluate general building conditions and for monitoring and clearance of asbestos abatement.
- **Soil Remediation:** Ms. Annoor has completed a long-term soil remediation project under the direction of the California Department of Toxic Substances Control (DTSC) that included the excavation of lead-contaminated soil from residential properties, schools, parks, and daycare centers.

Appendix F-1

Hydrology Report and Calculations, Preliminary Stage
Wonder Inn Hotel

Transtech Engineers

August 2022

HYDROLOGY REPORT AND CALCULATIONS
Preliminary Stage

For the Proposed:

WONDER INN HOTEL

78201 Amboy Road
Twenty-nine Palms, California
APN 0625-071-04

Prepared for:

Wonder Valley Inn

Prepared by:

TRANSTECH ENGINEERS, Inc.

413 Mackay Drive
San Bernardino, CA 92408
Tel No. (909) 384-7464



CARLOS A. PINEDA, P.E.

August 2022

TABLE OF CONTENTS

Part I - Project Description

Part II - Hydrologic Criteria, Methodology, and Results

Part III – Evaluation and Conclusions

Part IV – Appendices
- Appendix A –Input Data and Information
- Appendix B - Rational Method Calculations
- Appendix C – CH1, Small Unit Hydrograph Calculations

Part I – Project Site Description

Project Description:
The Project is a proposed 106 guestroom hotel located at 78201 Amboy Road in the Twenty-nine/ Wonder Valley area of San Bernardino County, California. The developed portion of the site is 'disturbed' property for the proposed hospitality development with an area of 24.40 acres identified in the County of San Bernardino as portions of APN 0625-071-04,05 & 07; it is bounded to the north by Amboy Road, Via Arenosa Road to the West, and Gammel Road to the east".

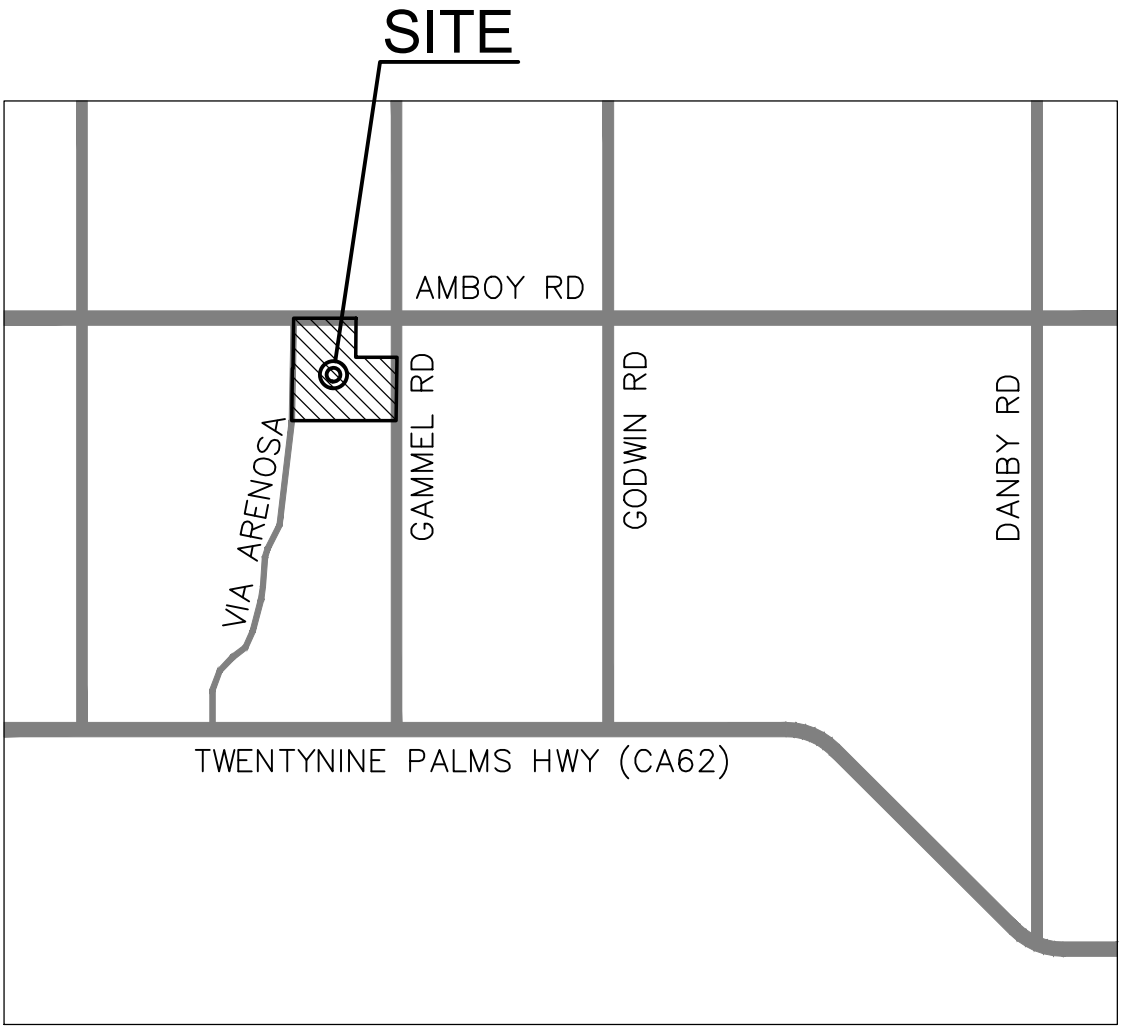
The project proposes the tenant improvement of an existing 4,407 square-foot single story commercial structure, to become a lodging clubhouse for accommodating 42,120 square-feet of new guest rooms on a 5,861,875 square-foot (134.60 Ac) property with CS- Service Commercial and RL5-Rural Living zone designations. Lodging buildings, clubhouse, and pool are located in the portion of the lot with CS zone designation. Parts of the fire access road, walking paths, and water tank are located within the RL-5 zoned portions of the property. Improvements of the commercial building include an 1,860 square-foot clubhouse restaurant and dining room with 457 square feet of outdoor seating, and a 1,125 square-foot kitchen. The proposed 1,939 square-foot restaurant and dining room have 100 seats, 74 of which are indoor and 26 outdoor. The Project provides 149 standard parking spaces, 7 accessible spaces, 12 clean air vehicles, 28 employee spaces, 1 loading dock space, 3 drop-off spaces and 20 motorcycle spaces. Site amenities include a private swimming pool, and shade structures. The Building area is 88,129 square-feet. Total Paving area is 312,628. Total occupancy is 282 people. The FAR is 0.76%. The use of permeable AC and Decomposed Granite in parking, access road and walking areas will be considered to increase perviousness of the site. The project includes plans to plant over 100 new trees.

The Applicant proposes the development of a unique, authentic high desert lodging experience with a facility providing 106 guest rooms in the Wonder Valley neighborhood of San Bernardino County. It involves the remodel of an existing commercial building, construction of four new guestroom buildings, and construction of a variety of amenities including a swimming pool. The goal is to create peace. The lodge provides guests a rural experience that frames and creates a slow, secluded moment to relax and connect with the landscape, horizon, and a dark, starlit sky.

(Please refer to vicinity map on the following page)

Existing Condition:
The lay of land in the Project Site is characterized by a gently sloping down terrain of about 2% to the north with some vegetative cover (desert brush). The site has type "C" soil, as defined in the San Bernardino Hydrology Manual. The area of study for this Project does not have any "blue line" or drainage streams that may be impacted by the proposed development. The site is relatively flat in terrain with no drainage courses that will define a definite flow line.

The existing drainage pattern of the site is an overland flow from the south to the north with no specific flow line and/ or pattern. Runoff is unobstructed as it flows from the topmost point of the tributary area to the Project Site and flows through the property and into Amboy Road and beyond. An existing swale located to the west of the existing development and extends about 640 feet south of Amboy Road, directs runoff to the street. Aside from this, there is no other flow diversion can be seen in the vicinity of the Project Site. This swale has no significant effect to the general drainage trend and will be of no importance to the proposed improvement.



VICINITY MAP

WONDER INN -
78201 Amboy Road,
29 Palms, CA

TRANSTECH
www.transtech.org
TT-JN 20241 04-12-2022

Proposed Condition:
The proposed development will include construction of rock lined swales mostly along southern side of the property, intended to intercept and divert surface runoff to proposed detention ponds on both sides of the development area. This will prevent the offsite runoff from mixing with the rain water in the development zone. The outlet points for these lined swales will be fitted with detention ponds to attenuate the flow as it is released from the site. Outlets for the ponds will also include riprap pads and dissipators, if necessary.

Within the development area, inlets and pipe systems will be used to intercept and convey runoff. The runoff will be brought to infiltration ponds for treatment before eventual release to its original flow path. Further studies on the storm drain elements capacity as well as the infiltration rates for the design of the proposed infiltration basins will be performed in full accordance with the County requirements and presented in the Final Hydrology Report for this Project.

The total drainage tributary area to the site, including the site itself is about 68.0 acres. Its initial point is about 4,000 feet to the south at an elevation of 1,830 feet and the elevation at Amboy is approximately 1,740 Ft.

Part II – Hydrologic Criteria, Methodology, and Results

Hydrologic Criteria

Criteria:
The hydrologic analyses of the Project are based on the methodology prescribed in the Hydrology Manual of San Bernardino County, 1986 Version (Manual). The software used in the calculations are the Rational Method, Small Unit Hydrograph (CH1), and FLOODSCx, unit hydrograph routine with routing, developed by Advanced Engineering Software (AES), 2016 version.

The Manual, under Section A.2. Hydrologic Protection Levels, mandates "*…to provide 100-year return frequency flood protection for all habitable structures …all drainage plans must demonstrate this 100-year flood protection criteria."* This study however, conducted hydrologic analyses for the existing condition and proposed condition of the Project not only for 100-year storm event but also for 2-year, 10-year, and 25-year storm frequencies. Additional parameters were used taken from an internal memo from the Water Resources Division of the County of San Bernardino, dated September 4, 1987, regarding design and construction of detention basins. This memo indicates the following criteria to be used, which in turn are applied to this Project:

- The post development peak flow rate shall be less than or equal to the 90% value of the pre-development peak discharges.
- Only 2, 10, 25, and 100-year storms need to be analyzed.
- Pre-development peak flows shall be calculated as follows:
    1. 10-year flow rates shall be calculated using 5-year rainfall.
    2. 25-year flow rates shall be calculated using 10-year rainfall.
    3. 100-year flow rates shall be calculated using 25-year rainfall and AMC II.

Although not mentioned in the memo, it is understood that the 2-year flow rates shall be calculated using 2-year rainfall, which is likewise, used in this Project. *(Note: Calculations using rainfall data mentioned above are labeled "adjusted" in its file name and headings.)*

The Manual also indicates the use of AMC Index as follows:

AMC I - for 2- and 5-year return frequencies;
AMC II - for 10-, 25-, and 50-year return frequencies; and
AMC III- for 100-year return frequency.

The rainfall depths (for all the return periods under study) used in this Project were taken from the National Oceanic and Atmospheric Administration (NOAA) Atlas 14. The rainfall data derived were based on the location of the Project Site as defined by its coordinates as follows:

34.1651° North
-115.9535° West

(Please refer to the Precipitation Excerpt, located in Part IV (Attachment A)

Methodology

The hydrologic calculations for this Project were conducted for both the existing and developed conditions of the site. The area that will be impacted by the development is about 12.3 acres, based on the preliminary site improvement and grading plan for the Project. From this, it is estimated that about 40% of this area will be covered and will be considered "impervious", or 60% "perviousness," a factor considered in the calculations.

Because of the small area of development compared to the total drainage tributary area (12.3 ac vs. 68.0 ac), it is then expected that the "existing" and "proposed" scenarios will show relatively the same peak flow results. But given the requirements of the Manual memo revision of 1987, the existing scenario was adjusted and consequently more mitigation is anticipated.

The analyses for the Project were conducted using the Rational Method as described in the Manual. The drainage tributary area to the Project site is about 68.0 acres, an area less than one square mile, the maximum area by which this method can be used. The software used for the calculations was developed by Advanced Engineering Software (AES) with built in data from the San Bernardino County Hydrology Manual.

Use of Adjusted Precipitation:

As prescribed by the addendum to the Manual, hydrologic analyses for existing condition were conducted using adjusted precipitation values for the areas indicated on Nodes 5, 6, 13, and 14. The 90% of the resulting peak discharges were compared to the proposed condition peak discharges and found to be less than the proposed Q's, unadjusted values.

On the other hand, Nodes 5 and 13, under developed condition, are the concentration points of offsite drainage flows, discharges that are not affected by the development. At these locations, the intercepted discharges are not compared to the adjusted "existing" condition values but are merely routed to attenuate peak flows.

INPUT DATA:

The Rational Method as well as the UH and CH1 calculations used in these Studies made use of the input data provided by the Manual. The following input data were determined:

- Tributary areas, travel length, land use (see Hydrology Maps, existing and proposed conditions)
- Soil type: **"C"** (for the entire Project Site, refer to Soil Map in the Appendix)
- Log-log slope for rational method = 0.7, for mountain area (Section B.8 of Manual)
- Point Rainfall for 5-min, 30-min, 1-hr, 3-hr, 6-hr, and 24-hr storm duration are taken from the NOAA 14 precipitation (refer to excerpt of rainfall data in the appendix)

SUMMARY OF STUDY RESULTS:

The table “Summary of Drainage Discharges,” in the following page, shows the results of the various calculations conducted for these Studies. The summary includes both the results of the existing and post development conditions of the Project. Included are the results of the Rational Method calculations of the site for the pre-development condition using the adjusted rainfall requirements of the Manual memo revision of 1987.

WONDER INN HOTEL 15-Jul-22

Twenty-Nine Palms, California

Summary of Drainage Discharges, CFS

			Area		*RATIONAL METHOD, Storm Event, Year*				
		Node No.	**(Ac)**		*2*	*10*	*25*	*100*	**Remarks**
Existing Condition					**Discharges Using Standard Criteria**				
	Area 1	5	43.10	Q, cfs	19.48	62.01	84.93	131.28	
				Tc, min	29.83	27.02	26.25	25.26	
	Area 1	6	7.00	Q, cfs	6.37	14.95	19.79	29.05	Initial Q for sub area
				Tc, min	16.41	16.41	16.41	16.41	
	Area 2	13	12.00	Q, cfs	9.21	23.41	31.40	46.92	
				Tc, min	19.28	18.43	18.17	17.84	
	Area 2	14	5.90	Q, cfs	5.85	13.45	17.78	26.02	Initial Q for sub area
				Tc, min	15.07	15.07	15.07	15.07	
					Adjusted Discharges*				2-yr storm not adjusted
	Area 1	5	43.10	Q, cfs	19.48	37.24	62.01	84.93	
				Tc, min	29.83	28.22	27.02	26.25	
	Area 1	6	7.00	Q, cfs	6.37	10.23	14.95	19.79	Initial Q for sub area
				Tc, min	16.41	16.41	16.41	16.41	
	Area 2	13	12.00	Q, cfs	9.21	15.48	23.41	31.40	
				Tc, min	19.28	18.79	18.43	18.17	
	Area 2	14	5.90	Q, cfs	5.85	9.30	13.45	17.78	Initial Q for sub area
				Tc, min	15.07	15.07	15.07	15.07	
					90% of Adjusted Discharges				
	Area 1	5	43.10	Q, cfs	17.53	33.52	55.81	76.44	
		6	7.00	Q, cfs	5.73	9.21	13.46	17.81	Initial Q for sub area
	Area 2	13	12.00	Q, cfs	8.29	13.93	21.07	28.26	
		14	5.9	Q, cfs	5.27	8.37	12.11	16.00	Initial Q for sub area
					RATIONAL METHOD, Storm Event, Year				
					2	*10*	*25*	*100*	
Developed Condition, Standard Criteria	Area 1	5	43.30	Q, cfs	19.32	61.92	84.85	131.27	Offsite, undeveloped area
				Tc, min	30.11	27.23	26.44	25.43	
		6	6.8	Q, cfs	6.68	14.96	19.94	29.54	
				Tc, min	15.11	15.11	15.11	15.11	
	Area 2	13	12.40	Q, cfs	9.90	24.78	33.18	49.43	Offsite, undeveloped area
				Tc, min	18.58	17.87	17.65	17.36	
		15	5.50	Q, cfs	5.40	12.10	16.13	23.89	
				Tc, min	15.11	15.11	15.11	15.11	
					UH/CH1 METHOD, Storm Event, Year				
					2	*10*	*25*	*100*	
	Area 1	5	43.30	Q, cfs	NO CALCULATIONS TO BE MADE FOR THESE STORM FREQUENCIES			123.30	
				V, Af				12.20	
		6	6.8	Q, cfs				24.81	
				V, Af				1.41	
	Area 2	13	12.40	Q, cfs				42.63	
				V, Af				3.49	
		15	5.50	Q, cfs				20.07	
				V, Af				1.14	

V=Volume Af=Acre-feet

(*)= Using 1987 Memo Design Criteria, SBC Hydrology Manual

Nodes in development areas, marked for direct comparison

Part III – Evaluation and Conclusion

The rational method calculations for existing and proposed condition, resulted in significant differences due to the requirements of the Hydrology Manual when calculating the pre-development Q's. The 100-year storm peak discharge for the proposed condition in Node 6 is 17.81 cfs and for the pre-develop condition is 29.54 cfs, a 65% increase. Similar results are provided for the 2yr, 10yr, 25 yr. storms. The AES Hydrologic Results for the Wonder Inn Hotel project are included in the appendix. This result is duplicated in Node 15 and both concentration points, 6 and 15, are the target of not only attenuation of flows but also mitigation of runoff from developed areas.

Only 12.3 acres of the 68.0 acres are being developed (Nodes 6 and 15). The intent is to intercept and convey the runoff from development site without mixing storm water from offsite watershed. Treatment of this runoff will be localized and its separation from greater volume will greatly decrease the extent of mitigation. The Manual, in its Detention Basin Criteria, indicates that "local detention basins shall not be fed by natural drainage courses with undeveloped watersheds…"

Size of Catchment Basins:
The receiving infiltration basins for the development are not designed to contain the total runoff volume for the 100-year storm, much more for a multi-day storm event of the same frequency. For these studies, it is intended that runoff, after accumulating in the designated basins, will also be allowed to overflow into the street. These basins will also act as filtration galleries, addressing issues related to BMPs. The routing of flow will result in an attenuated discharge, the value of which will be determined in the final design phase of the Project. Further studies of the routing ponds involving final depth, volume/ capacity, infiltration rates to name a few, will be conducted to obtain the desired exit discharges.

Detention basins upstream from the development site are temporarily sized based on the total volume of runoff evaluated using Unit Hydrograph and CH1 routines. A more detailed analyses of these detention ponds will be performed in the Final Stage of the design of the Project.

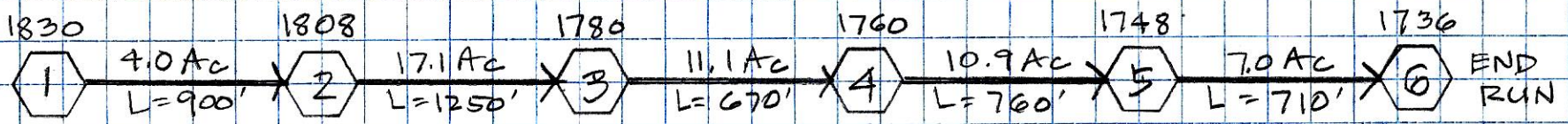
Proposed Conveyance:
The preliminary grading plan shows 1.5-foot deep, 6-foot-wide rock lined swales intercepting the offsite runoff. This size was chosen as initial trial size to indicate the need for such structures. Final dimensions for this and other structures will be determined in the Final Design Stage of the Project complete with hydraulics analyses for each of the chosen sizes.

PART IV – APPENDICES

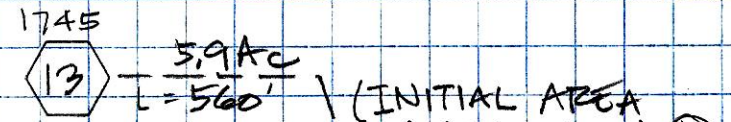
APPENDIX A
INPUT DATA AND INFORMATION

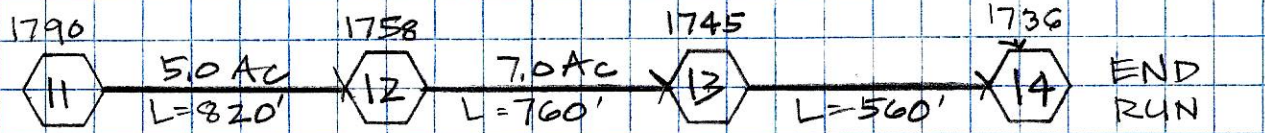
- RATIONAL METHOD NODE TO NODE SCHEMATICS
- HYDROLOGIC SOILS MAP
- POINT PRECIPITATION FREQUENCY ESTIMATE
- NOAA ATLAS RAINFALL DATA EXCERPT
- HYDROLOGY MAPS
- SITE PLAN

"WONDER INN"
PROJECT



(AREA 1)





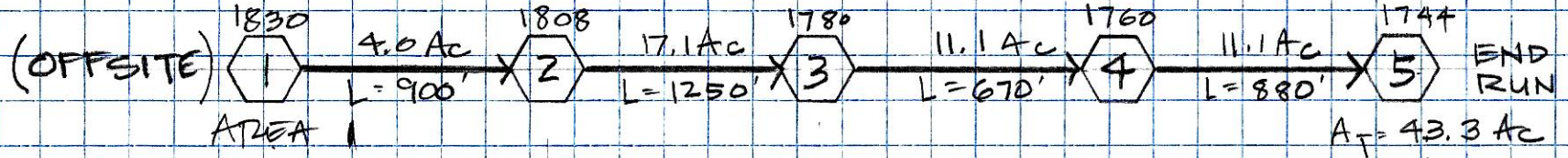
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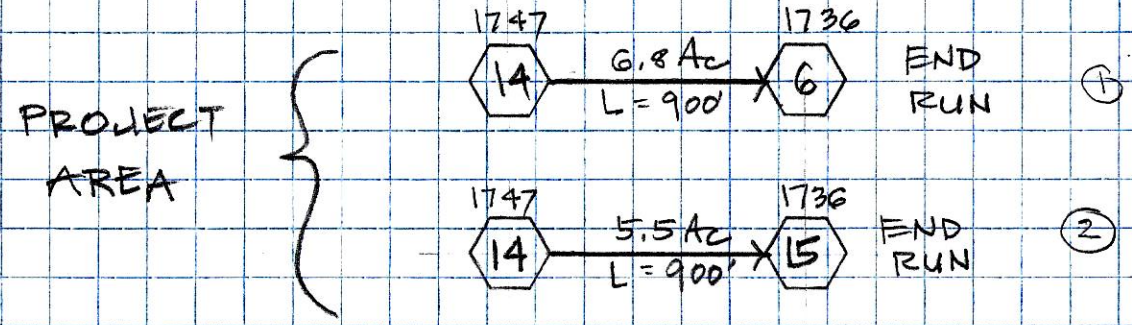
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NATURAL COVER = DESERT BRUSH
(COVERS = 30%)

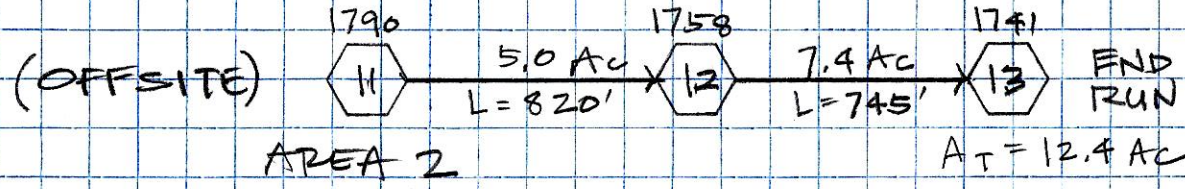
⊛ FOR DIRECT COMPARISON TO DEVELOPED CONDITION

RATIONAL METHOD SCHEMATICS
EXISTING CONDITION
7-13-22

"WONDER INN"
PROJECT







SOIL TYPE = "C"
NATURAL COVER = DESERT BRUSH
(COVER = 30%)

RATIONAL METHOD
SCHEMATICS
DEVELOPED CONDITION

7-13-22

PRECIPITATION FREQUENCY ESTIMATES					
Excerpts from NOAA PF Estimates					
29 PALMS CALIFORNIA					
	Recurrence Interval, Years				
Duration	**2**	**5**	**10**	**25**	**100**
5-min	0.19	0.28	0.336	0.434	0.601
30-min	0.478	0.675	0.844	1.09	1.51
60-min	0.601	0.848	1.06	1.37	1.90
3-hr	0.742	1.03	1.27	1.64	2.27
6-hr	0.843	1.17	1.45	1.87	2.57
24-hr	1.11	1.59	1.99	2.55	3.44
		(precipitation in inches)			
	AMC I	2 yr, 5 yr			
	AMC II	10 yr, 25 yr, 50 yr			
	AMC III	100 yr			
Log-Log Slope=		0.7	(Mountain area)		
Project Location:					
	34.1651° N		-115.9535° W		

General Information
Homepage
Progress Reports
FAQ
Glossary

Precipitation Frequency
Data Server
GIS Grids
Maps
Time Series
Temporals
Documents

Probable Maximum Precipitation
Documents

Miscellaneous
Publications
Storm Analysis
Record Precipitation

Contact Us
Inquiries

NOAA ATLAS 14 POINT PRECIPITATION FREQUENCY ESTIMATES: CA

Data description

Data type: Precipitation depth **Units:** English **Time series type:** Partial duration

Select location

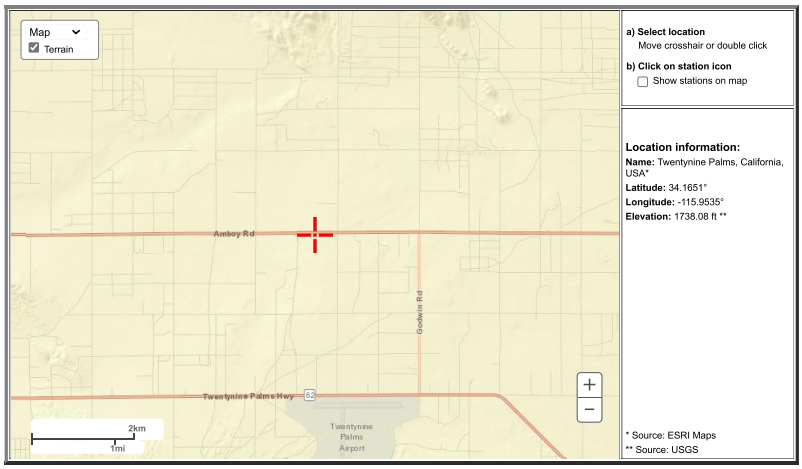
1) Manually:

a) By location (decimal degrees, use "-" for S and W): Latitude: Longitude: Submit

b) By station (list of CA stations): Select station

c) By address 78201 Amboy Rd, Twentynine Palms,

2) Use map (if ESRI interactive map is not loading, try adding the host: **https://js.arcgis.com/** to the firewall, or contact us at hdsc.questions@noaa.gov):



POINT PRECIPITATION FREQUENCY (PF) ESTIMATES

WITH 90% CONFIDENCE INTERVALS AND SUPPLEMENTARY INFORMATION
NOAA Atlas 14, Volume 6, Version 2

PF tabular | PF graphical | Supplementary information | Print page

PDS-based precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.134** (0.111-0.164)	**0.190** (0.157-0.232)	**0.268** (0.221-0.329)	**0.336** (0.274-0.415)	**0.434** (0.343-0.554)	**0.514** (0.396-0.670)	**0.601** (0.455-0.803)	**0.696** (0.512-0.955)	**0.834** (0.589-1.19)	**0.950** (0.649-1.41)
10-min	**0.192** (0.159-0.235)	**0.272** (0.225-0.333)	**0.384** (0.317-0.471)	**0.481** (0.393-0.595)	**0.622** (0.492-0.794)	**0.737** (0.571-0.961)	**0.862** (0.652-1.15)	**0.998** (0.734-1.37)	**1.20** (0.844-1.71)	**1.36** (0.930-2.02)
15-min	**0.233** (0.193-0.284)	**0.329** (0.272-0.403)	**0.465** (0.383-0.570)	**0.582** (0.475-0.719)	**0.752** (0.595-0.960)	**0.891** (0.691-1.16)	**1.04** (0.788-1.39)	**1.21** (0.888-1.66)	**1.45** (1.02-2.07)	**1.65** (1.13-2.44)
30-min	**0.338** (0.279-0.413)	**0.478** (0.395-0.585)	**0.675** (0.556-0.827)	**0.844** (0.690-1.04)	**1.09** (0.863-1.39)	**1.29** (1.00-1.69)	**1.51** (1.14-2.02)	**1.75** (1.29-2.40)	**2.10** (1.48-3.00)	**2.39** (1.63-3.54)
60-min	**0.425** (0.351-0.519)	**0.601** (0.497-0.735)	**0.848** (0.699-1.04)	**1.06** (0.867-1.31)	**1.37** (1.09-1.75)	**1.63** (1.26-2.12)	**1.90** (1.44-2.54)	**2.20** (1.62-3.02)	**2.64** (1.86-3.77)	**3.01** (2.05-4.45)
2-hr	**0.502** (0.415-0.613)	**0.693** (0.572-0.847)	**0.961** (0.792-1.18)	**1.20** (0.977-1.48)	**1.54** (1.22-1.97)	**1.82** (1.41-2.38)	**2.13** (1.61-2.85)	**2.47** (1.82-3.39)	**2.96** (2.09-4.23)	**3.37** (2.30-4.99)
3-hr	**0.540** (0.447-0.660)	**0.742** (0.613-0.907)	**1.03** (0.846-1.26)	**1.27** (1.04-1.58)	**1.64** (1.30-2.09)	**1.94** (1.51-2.53)	**2.27** (1.72-3.03)	**2.63** (1.93-3.61)	**3.15** (2.23-4.50)	**3.59** (2.45-5.30)
6-hr	**0.610** (0.504-0.744)	**0.843** (0.696-1.03)	**1.17** (0.964-1.44)	**1.45** (1.19-1.80)	**1.87** (1.48-2.38)	**2.20** (1.71-2.87)	**2.57** (1.94-3.43)	**2.96** (2.18-4.07)	**3.53** (2.50-5.05)	**4.01** (2.74-5.92)
12-hr	**0.663** (0.549-0.810)	**0.947** (0.782-1.16)	**1.34** (1.10-1.64)	**1.66** (1.36-2.06)	**2.13** (1.68-2.72)	**2.50** (1.94-3.26)	**2.89** (2.19-3.86)	**3.31** (2.44-4.55)	**3.90** (2.76-5.58)	**4.38** (2.99-6.48)
24-hr	**0.746** (0.661-0.860)	**1.11** (0.979-1.28)	**1.59** (1.40-1.84)	**1.99** (1.74-2.32)	**2.55** (2.16-3.07)	**2.99** (2.48-3.67)	**3.44** (2.79-4.33)	**3.92** (3.09-5.06)	**4.58** (3.47-6.16)	**5.10** (3.74-7.10)
2-day	**0.899** (0.797-1.04)	**1.36** (1.20-1.56)	**1.97** (1.74-2.28)	**2.49** (2.18-2.91)	**3.22** (2.73-3.88)	**3.80** (3.16-4.67)	**4.41** (3.58-5.54)	**5.05** (3.99-6.53)	**5.95** (4.51-8.00)	**6.67** (4.89-9.28)
3-day	**0.935** (0.829-1.08)	**1.42** (1.25-1.64)	**2.09** (1.84-2.41)	**2.65** (2.32-3.09)	**3.45** (2.93-4.16)	**4.10** (3.40-5.03)	**4.78** (3.88-6.01)	**5.51** (4.35-7.12)	**6.54** (4.96-8.80)	**7.38** (5.41-10.3)
4-day	**0.977** (0.866-1.13)	**1.49** (1.32-1.72)	**2.20** (1.94-2.54)	**2.80** (2.45-3.27)	**3.67** (3.11-4.41)	**4.36** (3.63-5.36)	**5.11** (4.14-6.42)	**5.90** (4.66-7.63)	**7.04** (5.34-9.47)	**7.97** (5.84-11.1)
7-day	**1.02** (0.901-1.17)	**1.55** (1.38-1.79)	**2.31** (2.04-2.67)	**2.95** (2.58-3.44)	**3.88** (3.29-4.67)	**4.63** (3.85-5.69)	**5.43** (4.40-6.83)	**6.29** (4.97-8.13)	**7.52** (5.70-10.1)	**8.52** (6.25-11.8)
10-day	**1.02** (0.902-1.17)	**1.56** (1.38-1.80)	**2.33** (2.06-2.70)	**2.99** (2.62-3.49)	**3.95** (3.35-4.75)	**4.72** (3.92-5.80)	**5.54** (4.50-6.97)	**6.42** (5.07-8.30)	**7.69** (5.83-10.3)	**8.72** (6.39-12.1)
20-day	**1.09** (0.967-1.26)	**1.71** (1.52-1.98)	**2.60** (2.29-3.00)	**3.36** (2.94-3.92)	**4.47** (3.79-5.38)	**5.38** (4.47-6.60)	**6.34** (5.14-7.97)	**7.37** (5.82-9.53)	**8.84** (6.71-11.9)	**10.0** (7.36-14.0)
30-day	**1.17** (1.04-1.35)	**1.87** (1.65-2.15)	**2.86** (2.53-3.31)	**3.73** (3.27-4.35)	**4.99** (4.23-6.01)	**6.02** (5.00-7.40)	**7.11** (5.77-8.95)	**8.29** (6.54-10.7)	**9.95** (7.54-13.4)	**11.3** (8.28-15.7)
45-day	**1.28** (1.13-1.48)	**2.08** (1.84-2.40)	**3.23** (2.85-3.73)	**4.22** (3.70-4.93)	**5.69** (4.82-6.85)	**6.89** (5.72-8.46)	**8.16** (6.62-10.3)	**9.51** (7.51-12.3)	**11.4** (8.66-15.4)	**13.0** (9.50-18.0)
60-day	**1.41** (1.25-1.63)	**2.32** (2.05-2.67)	**3.62** (3.20-4.19)	**4.76** (4.17-5.55)	**6.42** (5.45-7.73)	**7.79** (6.47-9.57)	**9.24** (7.49-11.6)	**10.8** (8.50-13.9)	**12.9** (9.81-17.4)	**14.7** (10.6-20.4)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.
Please refer to NOAA Atlas 14 document for more information.

Estimates from the table in CSV format: Precipitation frequency estimates Submit

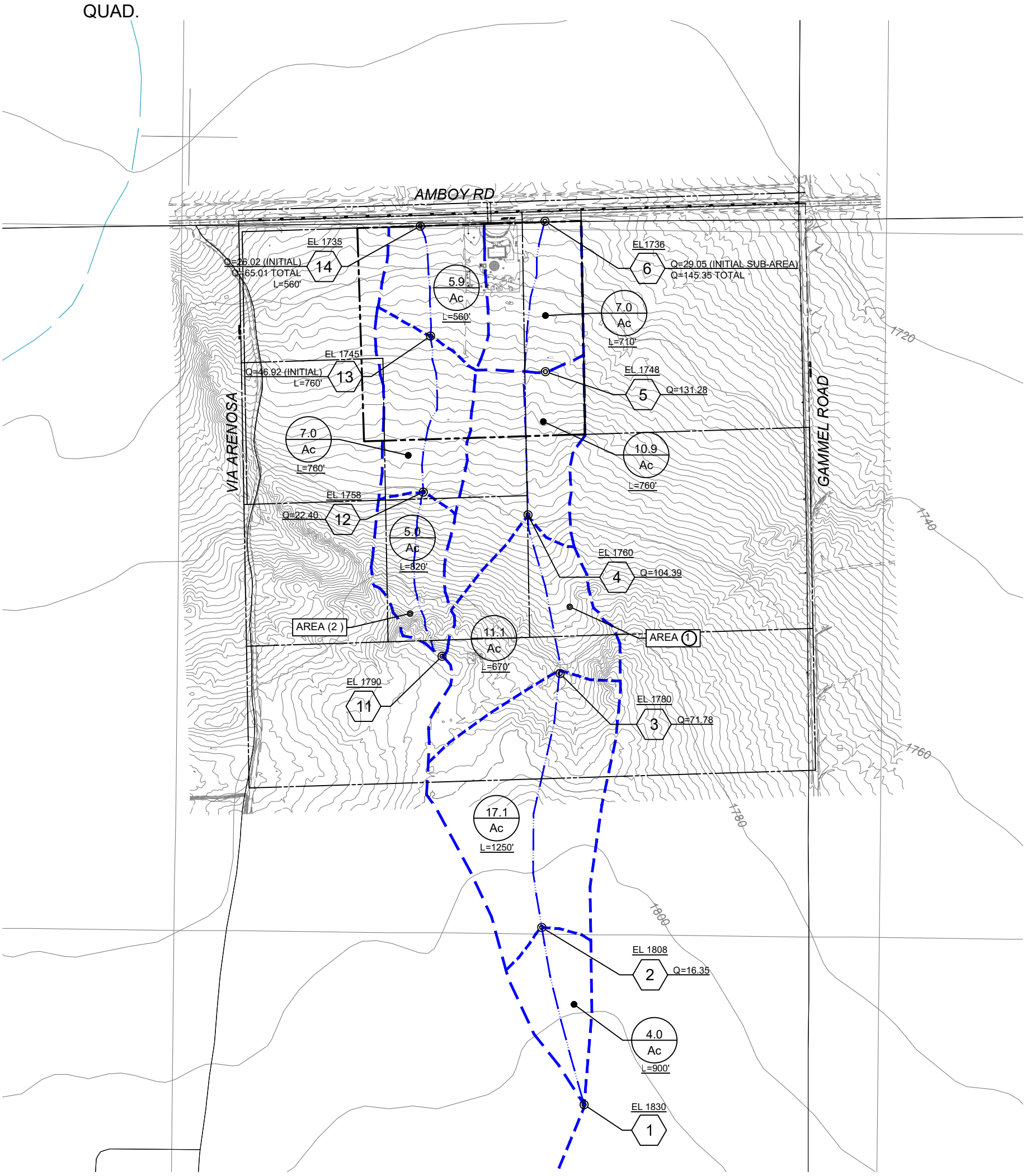
Main Link Categories:
Home | OWP

US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
Office of Water Prediction (OWP)
1325 East West Highway
Silver Spring, MD 20910
Page Author: HDSC webmaster
Page last modified: April 21, 2017

EXISTING HYDROLOGY MAP

THE WONDER INN

NOTE: PORTION OF
VALLEY MOUNTAIN CA.
QUAD.



Q = 100YR PEAK FLOW (cfs)
(UNADJUSTED)

LEGEND:

- 5.0 Ac — TRIBUTARY AREA With FLOW LENGTH
- 5 — NODE No. With PT. ELEV.
- FLOW PATH
- TRIBUTARY AREA BOUNDARY
- SUB-AREA BOUNDARY

NORTH
SCALE: 1"= 500'

500' 0' 500' 1000' 1500'
GRAPHIC SCALE: 1" = 500'

ENGINEER STAMP:

TRANSTECH
413 MACKAY DRIVE.
SAN BERNARDINO, CA. 92408
(909) 384-7464

SAN BERNARDINO COUNTY

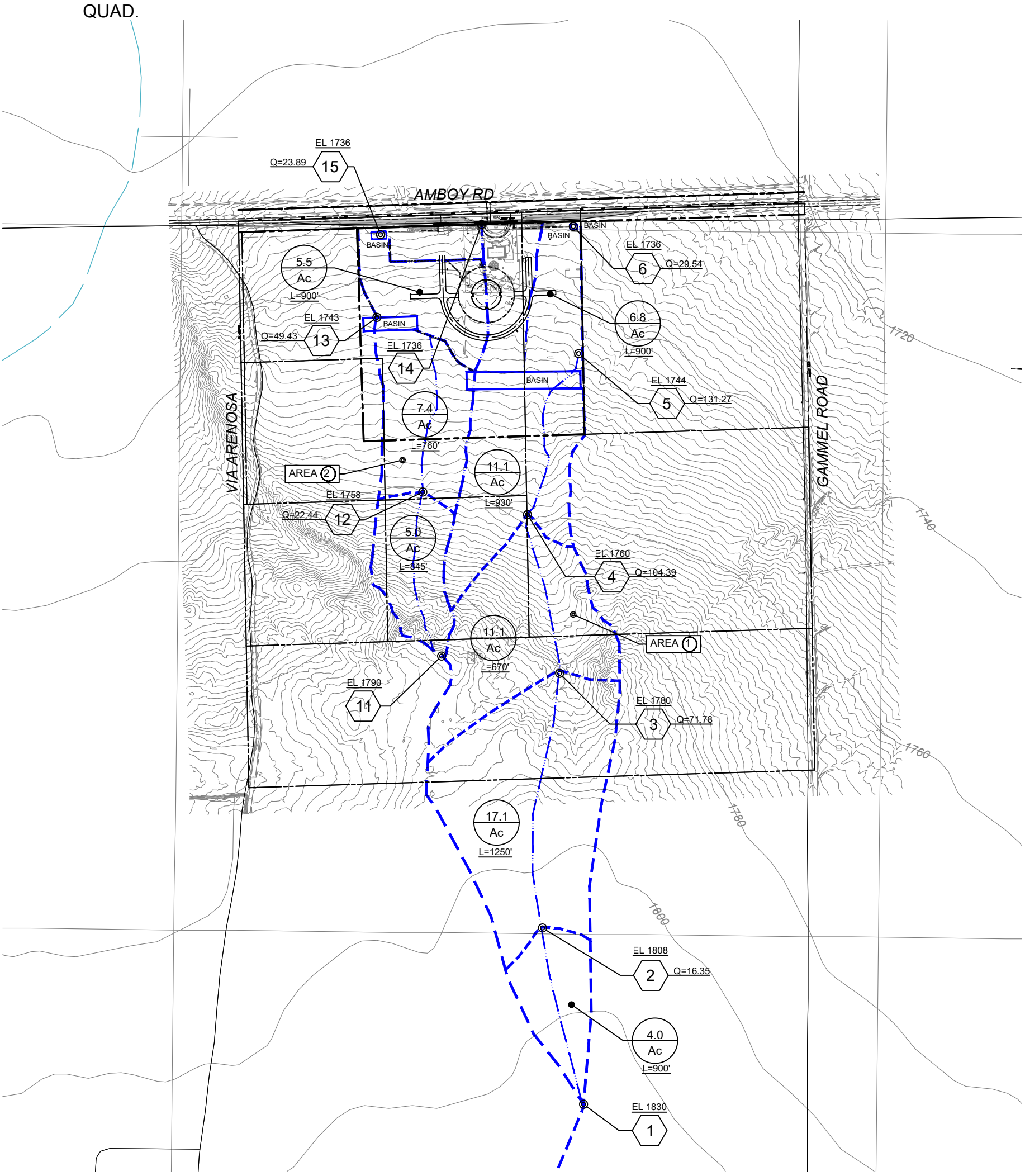
HYDROLOGY MAP
EXISTING CONDITION
THE WONDER INN
78201 Amboy Road, 29 Palms, CA

DRAWN BY:	DATE:	SCALE:	SHEET:	JOB NO.
A.C.	07-28-2022	AS SHOWN	1 OF 1	20421

PROPOSED HYDROLOGY MAP

THE WONDER INN

NOTE: PORTION OF
VALLEY MOUNTAIN CA.
QUAD.



Q = 100 YR PEAK FLOW (cfs)

NORTH
SCALE: 1"= 500'

500' 0' 500' 1000' 1500'
GRAPHIC SCALE: 1" = 500'

ENGINEER STAMP:

LEGEND:

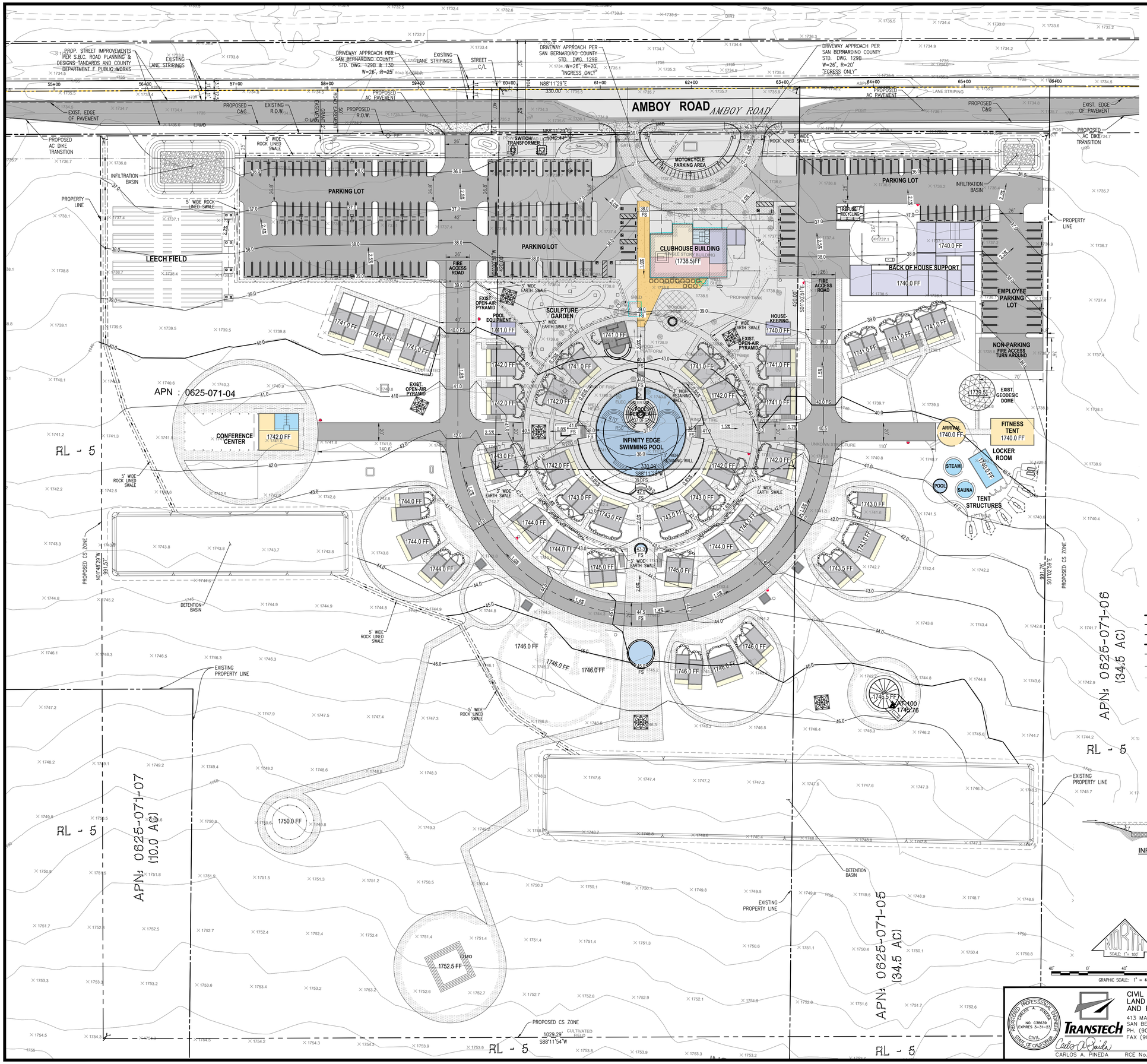
- 5.0 / Ac — TRIBUTARY AREA With FLOW LENGTH
- 5 — NODE No. With PT. ELEV.
- FLOW PATH
- TRIBUTARY AREA BOUNDARY
- SUB-AREA BOUNDARY

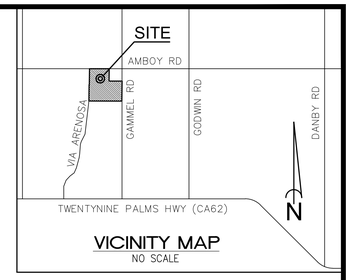
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SAN BERNARDINO, CA. 92408
(909) 384-7464

SAN BERNARDINO COUNTY

HYDROLOGY MAP
PROPOSED CONDITION
THE WONDER INN
78201 Amboy Road, 29 Palms, CA

DRAWN BY:	DATE:	SCALE:	SHEET:	JOB NO.
A.C.	07-28-2022	AS SHOWN	1 OF 1	20421





VICINITY MAP
NO SCALE

LEGAL DESCRIPTION:

A.P.N.'s:

A.P.N. 0625-071-04, 05, 07, 08, 09, 10 AND 14

EXISTING UTILITIES NOTE:

A FIELD SURVEY OF VISIBLE SURFACE UTILITIES WAS PERFORMED IN MAY 2018. RESEARCH OF UTILITY RECORDS IS STILL PENDING. SUBSURFACE UTILITIES MAY EXIST, BUT ARE NOT DENOTED HEREON.

BENCHMARK

ELEVATIONS SHOWN HEREON ARE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88), DETERMINED BY A GPS SURVEY TIED TO NGS BM S 724. BENCHMARK DISK SET IN CONCRETE STAMPED "S 724 1944", 6 MILES EAST OF ADOBE ROAD ALONG HIGHWAY 62 ON NORTH SIDE OF HIGHWAY 62.
ELEVATION = 1846.65'

BASIS OF BEARINGS

THE BEARINGS SHOWN HEREON WERE DETERMINED BY A GPS SURVEY TIED TO THE CALIFORNIA STATE PLANE COORDINATE SYSTEM (CSPCS), ZONE 5, NORTH AMERICAN DATUM 1983 (NAD83), EPOCH 2010, AND BASED LOCALLY BETWEEN CONTINUALLY OPERATING REFERENCE STATIONS (CORS) "P598" AND P614 BEING NORTH 64°48'45" EAST. DISTANCES SHOWN HEREON ARE GROUND, US SURVEY FEET, SCALED ABOUT CONTROL POINT #100, BEING A 1IN IRON PIPE WITH PLASTIC PLUG STAMPED "VLC CONTROL" AND HAVING A (CSPCS) POSITION OF N 1888266.602', E 7180934.027. TO OBTAIN GRID DISTANCES AND COORDINATES, DIVIDE BY A COMBINATION FACTOR OF 1.0001041447.

GENERAL PLAN AND LAND USE

AREA	EXISTING LAND USE	LAND USE ZONING DISTRICT
Site	Vacant building	Service Commercial (CS) and Rural Living-5-acre minimum lot size (RL-5)
North	Vacant land	Rural Living-5-acre minimum lot size (RL-5)
South	Vacant land	Rural Living-5-acre minimum lot size (RL-5)
East	Vacant land	Rural Living-5-acre minimum lot size (RL-5)
West	Vacant land	Rural Living-5-acre minimum lot size (RL-5)

CUP FOR THE WONDER INN HOTEL

EXISTING IMPROVEMENTS:

AMBOY ROAD

- AC DIKE / CURB AND GUTTER
- NO EXISTING SIDEWALK
- AC ROADWAY SECTION
- NO EXISTING STREET LIGHTS

PROPOSED IMPROVEMENTS:

ROADWAY SECTION: 3" AC OVER " BASE
PARKING AREA AND FIRE ROAD STRUCTURAL SECTION:
10.5" COMPACTED CLASS II BASE OVER COMPACTED NATIVE OR PERVIOUS PAVERS.
LANDSCAPED AREA: 67% PROJECT SITE– SEE LANDSCAPE PLANS FOR BREAKDOWN.

SETBACKS AND HEIGHT LIMIT: (CS ZONE)

FRONT: 25'
SIDE: 10' (INTERIOR)
REAR: 10'
HEIGHT LIMIT: 35'

ZONING DEVELOPMENT STANDARD:

RL–5 RURAL LIVING
CS SERVICE COMMERCIAL

EXISTING CS ZONE – 3.18 AC
PROPOSED CS ZONE – 24.4 AC
EXISTING RL ZONE – 129.8 AC

UTILITY COMPANIES:

WATER / SEWER:
ON–SITE PRIVATE SYSTEM/ WELLS

ELECTRIC POWER:
SOUTHERN CALIFORNIA EDISON
909 307–6791

GAS COMPANY:
SOUTHERN GAS COMPANY
909 335–7838

PROPANE TANK – PRIVATE

TELEPHONE:
VERIZON TELECOMMUNICATION
909 748–6640

EASEMENTS:

NONE APPLICABLE

SIGN NOTE:

TO BE SUBMITTED UNDER SEPARATED PERMIT

PARKING:

SEE PARKING PLANS SHEET A0.2

TRASH STORAGE REQUIREMENT:

GUESTROOM – 106 UNITS	42,120 S.F.
CLUBHOUSE/ RESTAURANT/ KITCHEN	4,407 S.F.
BACK OF HOUSE	6,310 S.F.
EVENT/ PREFUNC	5,000 S.F
WELLNESS CNTR	2,900 S.F.
TOTAL	60,737 S.F.

TABLE 84-13
NONRESIDENTIAL STRUCTURES
MINIMUM STORAGE AREAS REQUIRED (SQ.FT)

Building Floor Area	Refuse	Recycling	Total Area*
50,000 - 75,000	144	144	288

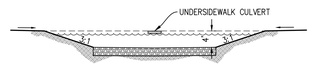
LEGEND

- PROJECT BOUNDARY
- STREET CENTER LINE
- EXIST. RIGHT OF WAY
- NEW RIGHT OF WAY
- P/L PROPERTY LINE
- B.S.L. BUILDING SETBACK LINE
- EXISTING EDGE OF PAVEMENT
- W WATER LINE
- E ELECTRIC LINE
- UE UE UNDERGROUND ELECTRIC
- TV TV CABLE LINE
- TEL TEL TELEPHONE LINE
- IRR IRR IRRIGATION LINE
- G GAS LINE
- SS SANITARY SEWER LINE
- SD SD STORM DRAIN LINE
- LANDSCAPED AREA
- FLOW DIRECTION
- EXISTING CS ZONE
- FIRE HYDRANT

PAVING LEGEND:

- A.C. PAVEMENT
- CONCRETE PAVERS
- CONCRETE PAVEMENT
- DECOMPOSED GRANITE
- TINTED CONCRETE

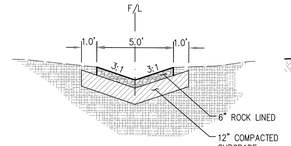
AC	ASPHALT
APN	ASSESSOR'S PARCEL NUMBER
C&G	CURB AND GUTTER
CONC	CONCRETE
EP	EDGE OF PAVEMENT
EX	EXISTING
MH	MANHOLE
FF	FINISH FLOOR
FL	FLOW LINE
I.P.	IRON PIPE
PL	BOUNDARY LINE
PED.	PEDESTRIAN
PP	UTILITY POLE
(R)	RADIAL BEARING
RW	RIGHT OF WAY
S.F.	SQUARE FEET
TC	TOP OF CURB
WV	WATER VALVE



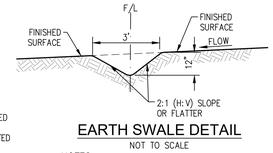
INFILTRATION BASIN
NOT TO SCALE



DETENTION BASIN
NOT TO SCALE



ROCK LINED SWALE DETAIL
NOT TO SCALE



EARTH SWALE DETAIL
NOT TO SCALE

NOTES:
1. STABILIZE INLET, OUTLETS AND SLOPES
2. PROPERLY COMPACT THE SUBGRADE.

REGISTERED PROFESSIONAL ENGINEER — CARLOS A. PINEDA — No. C38639 EXPIRES 3-31-23 — CIVIL — STATE OF CALIFORNIA

TRANSTECH

CIVIL ENGINEERING, LAND SURVEYING AND BUILDING DESIGN
413 MACKAY DRIVE
SAN BERNARDINO, CA. 92408
PH. (909) 384–7464
FAX (909) 384–7475

Carlos A Pineda 08/30/2022
CARLOS A. PINEDA RCE No. C38639 DATE

COUNTY OF SAN BERNARDINO
PLANNING AND LAND USE SERVICES

PRELIM. SITE IMPROVEMENT & GRADING PLAN
THE WONDER INN
78201 Amboy Road, 29 Palms, CA

REVISIONS	DATE	APPR.

COUNTY ENGINEER
NAME:
R.C.E. NO:
APPROVED:
DATE:

SCALE
HORIZ: AS SHOWN
VERT: N/A

PLAN NO. _____ C-110

TT–JN 20241 08–30–2022

APPENDIX B
RATIONAL METHOD CALCULATIONS

EXISTING (PRE-DEVELOPMENT) CONDITION

- 2-, 10-, 25-, AND 100- YEAR STORM ANALYSES
- 10-, 25-, 100- YEAR STORM ANALYSES (ADJUSTED RAINFALL)

PROPOSED (POST DEVELOPMENT) CONDITION

- 2-, 10-, 25-, 100- YEAR STORM ANALYSES

WONDER INN HOTEL 15-Jul-22

Twenty-Nine Palms, California

Summary of Drainage Discharges, CFS

			Area		*RATIONAL METHOD, Storm Event, Year*				
		Node No.	**(Ac)**		*2*	*10*	*25*	*100*	**Remarks**
Existing Condition					**Discharges Using Standard Criteria**				
	Area 1	5	43.10	Q, cfs	19.48	62.01	84.93	131.28	
				Tc, min	29.83	27.02	26.25	25.26	
	Area 1	6	7.00	Q, cfs	6.37	14.95	19.79	29.05	Initial Q for sub area
				Tc, min	16.41	16.41	16.41	16.41	
	Area 2	13	12.00	Q, cfs	9.21	23.41	31.40	46.92	
				Tc, min	19.28	18.43	18.17	17.84	
	Area 2	14	5.90	Q, cfs	5.85	13.45	17.78	26.02	Initial Q for sub area
				Tc, min	15.07	15.07	15.07	15.07	
					Adjusted Discharges*				2-yr storm not adjusted
	Area 1	5	43.10	Q, cfs	19.48	37.24	62.01	84.93	
				Tc, min	29.83	28.22	27.02	26.25	
	Area 1	6	7.00	Q, cfs	6.37	10.23	14.95	19.79	Initial Q for sub area
				Tc, min	16.41	16.41	16.41	16.41	
	Area 2	13	12.00	Q, cfs	9.21	15.48	23.41	31.40	
				Tc, min	19.28	18.79	18.43	18.17	
	Area 2	14	5.90	Q, cfs	5.85	9.30	13.45	17.78	Initial Q for sub area
				Tc, min	15.07	15.07	15.07	15.07	
					90% of Adjusted Discharges				
	Area 1	5	43.10	Q, cfs	17.53	33.52	55.81	76.44	
		6	7.00	Q, cfs	5.73	9.21	13.46	17.81	Initial Q for sub area
	Area 2	13	12.00	Q, cfs	8.29	13.93	21.07	28.26	
		14	5.9	Q, cfs	5.27	8.37	12.11	16.00	Initial Q for sub area
					RATIONAL METHOD, Storm Event, Year				
					2	*10*	*25*	*100*	
Developed Condition, Standard Criteria	Area 1	5	43.30	Q, cfs	19.32	61.92	84.85	131.27	Offsite, undeveloped area
				Tc, min	30.11	27.23	26.44	25.43	
		6	6.8	Q, cfs	6.68	14.96	19.94	29.54	
				Tc, min	15.11	15.11	15.11	15.11	
	Area 2	13	12.40	Q, cfs	9.90	24.78	33.18	49.43	Offsite, undeveloped area
				Tc, min	18.58	17.87	17.65	17.36	
		15	5.50	Q, cfs	5.40	12.10	16.13	23.89	
				Tc, min	15.11	15.11	15.11	15.11	
					UH/CH1 METHOD, Storm Event, Year				
					2	*10*	*25*	*100*	
	Area 1	5	43.30	Q, cfs	NO CALCULATIONS TO BE MADE FOR THESE STORM FREQUENCIES			123.30	
				V, Af				12.20	
		6	6.8	Q, cfs				24.81	
				V, Af				1.41	
	Area 2	13	12.40	Q, cfs				42.63	
				V, Af				3.49	
		15	5.50	Q, cfs				20.07	
				V, Af				1.14	

V=Volume Af=Acre-feet

(*)= Using 1987 Memo Design Criteria, SBC Hydrology Manual

Nodes in development areas, marked for direct comparison

```
************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
         (Reference: 1986 SAN BERNARDINO CO. HYDROLOGY CRITERION)
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            Ver. 23.0  Release Date: 07/01/2016  License ID 1542

                          Analysis prepared by:
                          TRANSTECH ENGINEERS, INC.
                               413 Mackay Drive
                           San Bernardino, CA 92408

 ************************* DESCRIPTION OF STUDY *************************
* WONDER INN PROJECT, 29-PALMS, CALIFORNIA  AREA 2                      *
* 2-YEAR STORM ANALYSIS - EXISTING CONDITION                            *
* NOAA 14 INPUT DATA, UNADJUSTED                                        *
 ************************************************************************

  FILE NAME: WI2EX.DAT
  TIME/DATE OF STUDY: 18:58 07/13/2022
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =    2.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  15.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.85
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 0.6010   (NOAA 14 DATA)

  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.    (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  ========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *PIPE MAY BE SIZED TO HAVE A FLOW CAPACITY LESS THAN
   UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

************************************************************************
  FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   820.00
  ELEVATION DATA: UPSTREAM(FEET) =   1790.00  DOWNSTREAM(FEET) =   1758.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   14.703
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.608
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        5.00      0.48     1.000    73   14.70
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.48
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =      5.09
  TOTAL AREA(ACRES) =      5.00   PEAK FLOW RATE(CFS) =      5.09

****************************************************************************
  FLOW PROCESS FROM NODE     12.00 TO NODE     13.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1758.00  DOWNSTREAM(FEET) =   1745.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   760.00   CHANNEL SLOPE =  0.0171
  CHANNEL FLOW THRU SUBAREA(CFS) =       5.09
  FLOW VELOCITY(FEET/SEC) =   2.77 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   4.57   Tc(MIN.) =   19.28
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE     13.00 =    1580.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     13.00 TO NODE     13.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN.) =   19.28
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.331
  SUBAREA LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        7.00      0.48     1.000    73
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.48
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =    7.00      SUBAREA RUNOFF(CFS) =    5.37
  EFFECTIVE AREA(ACRES) =     12.00   AREA-AVERAGED Fm(INCH/HR) =  0.48
  AREA-AVERAGED Fp(INCH/HR) =  0.48  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       12.0       PEAK FLOW RATE(CFS) =       9.21

****************************************************************************
  FLOW PROCESS FROM NODE     13.00 TO NODE     14.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1745.00  DOWNSTREAM(FEET) =   1736.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   560.00   CHANNEL SLOPE =  0.0161
  CHANNEL FLOW THRU SUBAREA(CFS) =       9.21
  FLOW VELOCITY(FEET/SEC) =   3.10 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   3.01   Tc(MIN.) =   22.28
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE     14.00 =    2140.00 FEET.
```

```
**************************************************************************
  FLOW PROCESS FROM NODE     14.00 TO NODE     14.00 IS CODE =  82
--------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   560.00
  ELEVATION DATA: UPSTREAM(FEET) =   1745.00  DOWNSTREAM(FEET) =   1736.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   15.074
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.581
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        5.90      0.48     1.000    73   15.07
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.48
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =    5.90   INITIAL SUBAREA RUNOFF(CFS) =     5.85

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   22.28
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.202
  SUBAREA AREA(ACRES) =    5.90      SUBAREA RUNOFF(CFS) =     3.85
  EFFECTIVE AREA(ACRES) =     17.90   AREA-AVERAGED Fm(INCH/HR) =  0.48
  AREA-AVERAGED Fp(INCH/HR) =  0.48  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       17.9       PEAK FLOW RATE(CFS) =      11.67
==========================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =       17.9  TC(MIN.) =     22.28
  EFFECTIVE AREA(ACRES) =     17.90  AREA-AVERAGED Fm(INCH/HR)=  0.48
  AREA-AVERAGED Fp(INCH/HR) =  0.48  AREA-AVERAGED Ap = 1.000
  PEAK FLOW RATE(CFS)   =      11.67
==========================================================================
==========================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
************************************************************************
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             Ver. 23.0  Release Date: 07/01/2016  License ID 1542

                          Analysis prepared by:

                          TRANSTECH ENGINEERS, INC.
                               413 Mackay Drive
                             San Bernardino, CA 92408

 ************************* DESCRIPTION OF STUDY *************************
* WONDER INN PROJECT                                                    *
* TWENTY NINE PALMS, CALIFORNIA , AREA 1                                *
* 2-YEAR STORM ANALYSIS, EXISTING CONDITION (NO ADJUSTMENT)             *
 ************************************************************************

  FILE NAME: WONINN.DAT
  TIME/DATE OF STUDY: 20:54 07/13/2022
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =    2.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.85
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 0.6010

  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *PIPE MAY BE SIZED TO HAVE A FLOW CAPACITY LESS THAN
   UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   900.00
  ELEVATION DATA: UPSTREAM(FEET) =   1830.00  DOWNSTREAM(FEET) =   1808.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   16.758
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.468
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        4.00      0.48     1.000    73   16.76
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.48
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =      3.56
  TOTAL AREA(ACRES) =      4.00   PEAK FLOW RATE(CFS) =      3.56

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      3.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1808.00  DOWNSTREAM(FEET) =   1780.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1250.00   CHANNEL SLOPE =  0.0224
  CHANNEL FLOW THRU SUBAREA(CFS) =       3.56
  FLOW VELOCITY(FEET/SEC) =   2.92 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   7.13   Tc(MIN.) =   23.89
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      3.00 =    2150.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      3.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1250.00
  ELEVATION DATA: UPSTREAM(FEET) =   1808.00  DOWNSTREAM(FEET) =   1780.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   19.448
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.322
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C       17.10      0.48     1.000    73   19.45
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.48
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   17.10   INITIAL SUBAREA RUNOFF(CFS) =   13.00

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   23.89
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.145
  SUBAREA AREA(ACRES) =   17.10      SUBAREA RUNOFF(CFS) =   10.27
  EFFECTIVE AREA(ACRES) =     21.10   AREA-AVERAGED Fm(INCH/HR) =  0.48
  AREA-AVERAGED Fp(INCH/HR) =  0.48  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       21.1       PEAK FLOW RATE(CFS) =      12.67

****************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      4.00 IS CODE =  52
----------------------------------------------------------------------------
```

```
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1780.00  DOWNSTREAM(FEET) =   1760.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   670.00   CHANNEL SLOPE =  0.0299
  CHANNEL FLOW THRU SUBAREA(CFS) =      12.67
  FLOW VELOCITY(FEET/SEC) =   4.59 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   2.43   Tc(MIN.) =   26.33
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      4.00 =    2820.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE      4.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   670.00
  ELEVATION DATA: UPSTREAM(FEET) =   1780.00  DOWNSTREAM(FEET) =   1760.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   14.309
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.639
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C       11.10      0.48     1.000    73   14.31
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.48
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   11.10   INITIAL SUBAREA RUNOFF(CFS) =   11.60

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   26.33
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.070
  SUBAREA AREA(ACRES) =   11.10      SUBAREA RUNOFF(CFS) =    5.91
  EFFECTIVE AREA(ACRES) =     32.20   AREA-AVERAGED Fm(INCH/HR) =  0.48
  AREA-AVERAGED Fp(INCH/HR) =  0.48  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       32.2       PEAK FLOW RATE(CFS) =      17.15

****************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE      5.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1760.00  DOWNSTREAM(FEET) =   1748.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   760.00   CHANNEL SLOPE =  0.0158
  CHANNEL FLOW THRU SUBAREA(CFS) =      17.15
  FLOW VELOCITY(FEET/SEC) =   3.61 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   3.51   Tc(MIN.) =   29.83
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      5.00 =    3580.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      5.00 TO NODE      5.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   760.00
```

```
 ELEVATION DATA: UPSTREAM(FEET) =   1760.00  DOWNSTREAM(FEET) =   1748.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   17.093
 *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.447
 SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL DESERT COVER
 "DESERT BRUSH"   (30.0%)   C       10.90      0.48     1.000    73   17.09
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.48
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   10.90   INITIAL SUBAREA RUNOFF(CFS) =    9.51

 ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
 MAINLINE Tc(MIN.) =   29.83
 *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  0.980
 SUBAREA AREA(ACRES) =   10.90      SUBAREA RUNOFF(CFS) =    4.93
 EFFECTIVE AREA(ACRES) =     43.10   AREA-AVERAGED Fm(INCH/HR) =  0.48
 AREA-AVERAGED Fp(INCH/HR) =  0.48  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =       43.1       PEAK FLOW RATE(CFS) =      19.48

****************************************************************************
 FLOW PROCESS FROM NODE      5.00 TO NODE      6.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   1748.00  DOWNSTREAM(FEET) =   1736.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   710.00   CHANNEL SLOPE =  0.0169
 CHANNEL FLOW THRU SUBAREA(CFS) =      19.48
 FLOW VELOCITY(FEET/SEC) =   3.87 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   3.06   Tc(MIN.) =   32.89
 LONGEST FLOWPATH FROM NODE      1.00 TO NODE      6.00 =    4290.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE      6.00 TO NODE      6.00 IS CODE =  82
----------------------------------------------------------------------------
 >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
 >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   710.00
 ELEVATION DATA: UPSTREAM(FEET) =   1748.00  DOWNSTREAM(FEET) =   1736.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   16.409
 *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.489
 SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL DESERT COVER
 "DESERT BRUSH"   (30.0%)   C        7.00      0.48     1.000    73   16.41
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.48
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =    7.00   INITIAL SUBAREA RUNOFF(CFS) =     6.37

 ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
 MAINLINE Tc(MIN.) =   32.89
 *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  0.915
```

```
  SUBAREA AREA(ACRES) =    7.00      SUBAREA RUNOFF(CFS) =    2.76
  EFFECTIVE AREA(ACRES) =     50.10   AREA-AVERAGED Fm(INCH/HR) =  0.48
  AREA-AVERAGED Fp(INCH/HR) =  0.48  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       50.1       PEAK FLOW RATE(CFS) =      19.72
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =       50.1  TC(MIN.) =     32.89
  EFFECTIVE AREA(ACRES) =     50.10  AREA-AVERAGED Fm(INCH/HR)=  0.48
  AREA-AVERAGED Fp(INCH/HR) =  0.48  AREA-AVERAGED Ap = 1.000
  PEAK FLOW RATE(CFS)   =      19.72
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
         (Reference: 1986 SAN BERNARDINO CO. HYDROLOGY CRITERION)
        (c) Copyright 1983-2016 Advanced Engineering Software (aes)
            Ver. 23.0  Release Date: 07/01/2016  License ID 1542

                          Analysis prepared by:
                          TRANSTECH ENGINEERS, INC.
                               413 Mackay Drive
                           San Bernardino, CA 92408

 ************************** DESCRIPTION OF STUDY **************************
* WONDER INN PROJECT                                                     *
* TWENTY NINE PALMS, CALIFORNIA (UNADJUSTED DATA)                        *
* 10-YEAR STORM ANALYSIS, NOAA 14 DATA, EXISTING CONDITION, AREA 1       *
 ************************************************************************

  FILE NAME: WONINN.DAT
  TIME/DATE OF STUDY: 20:07 07/13/2022
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.85
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.0600   (NOAA 14 DATA)

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.    (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *PIPE MAY BE SIZED TO HAVE A FLOW CAPACITY LESS THAN
   UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   900.00
  ELEVATION DATA: UPSTREAM(FEET) =   1830.00  DOWNSTREAM(FEET) =   1808.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   16.758
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.589
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        4.00      0.25     1.000    87   16.76
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =      8.40
  TOTAL AREA(ACRES) =      4.00   PEAK FLOW RATE(CFS) =      8.40

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      3.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1808.00  DOWNSTREAM(FEET) =   1780.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1250.00   CHANNEL SLOPE =  0.0224
  CHANNEL FLOW THRU SUBAREA(CFS) =       8.40
  FLOW VELOCITY(FEET/SEC) =   3.58 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   5.82   Tc(MIN.) =   22.58
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      3.00 =    2150.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      3.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1250.00
  ELEVATION DATA: UPSTREAM(FEET) =   1808.00  DOWNSTREAM(FEET) =   1780.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   19.448
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.332
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C       17.10      0.25     1.000    87   19.45
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   17.10   INITIAL SUBAREA RUNOFF(CFS) =   31.99

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   22.58
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.101
  SUBAREA AREA(ACRES) =   17.10      SUBAREA RUNOFF(CFS) =   28.43
  EFFECTIVE AREA(ACRES) =     21.10   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       21.1       PEAK FLOW RATE(CFS) =      35.08

****************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      4.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
```

```
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1780.00  DOWNSTREAM(FEET) =   1760.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   670.00   CHANNEL SLOPE =  0.0299
  CHANNEL FLOW THRU SUBAREA(CFS) =      35.08
  FLOW VELOCITY(FEET/SEC) =   6.04 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   1.85   Tc(MIN.) =   24.42
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      4.00 =    2820.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE      4.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   670.00
  ELEVATION DATA: UPSTREAM(FEET) =   1780.00  DOWNSTREAM(FEET) =   1760.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   14.309
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.891
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C       11.10      0.25     1.000    87   14.31
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   11.10   INITIAL SUBAREA RUNOFF(CFS) =   26.35

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   24.42
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  1.989
  SUBAREA AREA(ACRES) =   11.10      SUBAREA RUNOFF(CFS) =   17.33
  EFFECTIVE AREA(ACRES) =     32.20   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       32.2       PEAK FLOW RATE(CFS) =      50.27

****************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE      5.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1760.00  DOWNSTREAM(FEET) =   1748.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   760.00   CHANNEL SLOPE =  0.0158
  CHANNEL FLOW THRU SUBAREA(CFS) =      50.27
  FLOW VELOCITY(FEET/SEC) =   4.87 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   2.60   Tc(MIN.) =   27.02
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      5.00 =    3580.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      5.00 TO NODE      5.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   760.00
  ELEVATION DATA: UPSTREAM(FEET) =   1760.00  DOWNSTREAM(FEET) =   1748.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   17.093
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.553
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C       10.90      0.25      1.000    87   17.09
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   10.90   INITIAL SUBAREA RUNOFF(CFS) =   22.55

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   27.02
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  1.853
  SUBAREA AREA(ACRES) =   10.90      SUBAREA RUNOFF(CFS) =   15.68
  EFFECTIVE AREA(ACRES) =     43.10   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       43.1       PEAK FLOW RATE(CFS) =      62.01

****************************************************************************
  FLOW PROCESS FROM NODE      5.00 TO NODE      6.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1748.00  DOWNSTREAM(FEET) =   1736.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   710.00   CHANNEL SLOPE =  0.0169
  CHANNEL FLOW THRU SUBAREA(CFS) =      62.01
  FLOW VELOCITY(FEET/SEC) =   5.36 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   2.21   Tc(MIN.) =   29.23
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      6.00 =    4290.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      6.00 TO NODE      6.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   710.00
  ELEVATION DATA: UPSTREAM(FEET) =   1748.00  DOWNSTREAM(FEET) =   1736.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   16.409
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.627
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        7.00      0.25      1.000    87   16.41
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =    7.00   INITIAL SUBAREA RUNOFF(CFS) =    14.95

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   29.23
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  1.753
  SUBAREA AREA(ACRES) =    7.00      SUBAREA RUNOFF(CFS) =     9.45
```

```
  EFFECTIVE AREA(ACRES) =     50.10   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       50.1       PEAK FLOW RATE(CFS) =      67.61
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =       50.1  TC(MIN.) =     29.23
  EFFECTIVE AREA(ACRES) =     50.10  AREA-AVERAGED Fm(INCH/HR)=  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap = 1.000
  PEAK FLOW RATE(CFS)   =      67.61
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
************************************************************************
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                          Analysis prepared by:
                          TRANSTECH ENGINEERS, INC.
                               413 Mackay Drive
                           San Bernardino, CA 92408

 ************************** DESCRIPTION OF STUDY **************************
* WONDER INN PROJECT                                                     *
* TWENTY NINE PALMS, CALIFORNIA - AREA 1                                 *
* 10-YR STORM ANALYSIS USING 5-YR NOAA DATA, EXISTING CONDITION          *
 ************************************************************************

  FILE NAME: WONINN.DAT
  TIME/DATE OF STUDY: 20:47 07/13/2022
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.85
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 0.8480 (5-YR, 1-HR NOAA DATA)

  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.    (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  ========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *PIPE MAY BE SIZED TO HAVE A FLOW CAPACITY LESS THAN
   UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   900.00
  ELEVATION DATA: UPSTREAM(FEET) =   1830.00  DOWNSTREAM(FEET) =   1808.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   16.758
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.071
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        4.00      0.48     1.000    73   16.76
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.48
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =      5.73
  TOTAL AREA(ACRES) =      4.00   PEAK FLOW RATE(CFS) =      5.73

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      3.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1808.00  DOWNSTREAM(FEET) =   1780.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1250.00   CHANNEL SLOPE =  0.0224
  CHANNEL FLOW THRU SUBAREA(CFS) =       5.73
  FLOW VELOCITY(FEET/SEC) =   3.26 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   6.39   Tc(MIN.) =   23.15
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      3.00 =    2150.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      3.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1250.00
  ELEVATION DATA: UPSTREAM(FEET) =   1808.00  DOWNSTREAM(FEET) =   1780.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   19.448
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  1.866
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C       17.10      0.48     1.000    73   19.45
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.48
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   17.10   INITIAL SUBAREA RUNOFF(CFS) =   21.36

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   23.15
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  1.652
  SUBAREA AREA(ACRES) =   17.10      SUBAREA RUNOFF(CFS) =   18.07
  EFFECTIVE AREA(ACRES) =     21.10   AREA-AVERAGED Fm(INCH/HR) =  0.48
  AREA-AVERAGED Fp(INCH/HR) =  0.48  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       21.1       PEAK FLOW RATE(CFS) =      22.29

****************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      4.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
```

```
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1780.00  DOWNSTREAM(FEET) =   1760.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   670.00   CHANNEL SLOPE =  0.0299
  CHANNEL FLOW THRU SUBAREA(CFS) =      22.29
  FLOW VELOCITY(FEET/SEC) =   5.33 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   2.09   Tc(MIN.) =   25.24
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      4.00 =    2820.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE      4.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   670.00
  ELEVATION DATA: UPSTREAM(FEET) =   1780.00  DOWNSTREAM(FEET) =   1760.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   14.309
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.313
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C       11.10      0.48     1.000    73   14.31
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.48
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   11.10   INITIAL SUBAREA RUNOFF(CFS) =   18.33

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   25.24
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  1.555
  SUBAREA AREA(ACRES) =   11.10      SUBAREA RUNOFF(CFS) =   10.76
  EFFECTIVE AREA(ACRES) =     32.20   AREA-AVERAGED Fm(INCH/HR) =  0.48
  AREA-AVERAGED Fp(INCH/HR) =  0.48  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       32.2       PEAK FLOW RATE(CFS) =      31.20

****************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE      5.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1760.00  DOWNSTREAM(FEET) =   1748.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   760.00   CHANNEL SLOPE =  0.0158
  CHANNEL FLOW THRU SUBAREA(CFS) =      31.20
  FLOW VELOCITY(FEET/SEC) =   4.25 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   2.98   Tc(MIN.) =   28.22
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      5.00 =    3580.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      5.00 TO NODE      5.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   760.00
  ELEVATION DATA: UPSTREAM(FEET) =   1760.00  DOWNSTREAM(FEET) =   1748.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   17.093
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.042
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C       10.90      0.48     1.000    73   17.09
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.48
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   10.90   INITIAL SUBAREA RUNOFF(CFS) =   15.35

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   28.22
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  1.438
  SUBAREA AREA(ACRES) =   10.90      SUBAREA RUNOFF(CFS) =    9.42
  EFFECTIVE AREA(ACRES) =     43.10   AREA-AVERAGED Fm(INCH/HR) =  0.48
  AREA-AVERAGED Fp(INCH/HR) =  0.48  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       43.1       PEAK FLOW RATE(CFS) =      37.24

****************************************************************************
  FLOW PROCESS FROM NODE      5.00 TO NODE      6.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1748.00  DOWNSTREAM(FEET) =   1736.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   710.00   CHANNEL SLOPE =  0.0169
  CHANNEL FLOW THRU SUBAREA(CFS) =      37.24
  FLOW VELOCITY(FEET/SEC) =   4.63 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   2.56   Tc(MIN.) =   30.78
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      6.00 =    4290.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      6.00 TO NODE      6.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   710.00
  ELEVATION DATA: UPSTREAM(FEET) =   1748.00  DOWNSTREAM(FEET) =   1736.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   16.409
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.102
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        7.00      0.48     1.000    73   16.41
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.48
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =    7.00   INITIAL SUBAREA RUNOFF(CFS) =   10.23

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   30.78
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  1.353
  SUBAREA AREA(ACRES) =    7.00      SUBAREA RUNOFF(CFS) =    5.51
```

```
  EFFECTIVE AREA(ACRES) =     50.10   AREA-AVERAGED Fm(INCH/HR) =  0.48
  AREA-AVERAGED Fp(INCH/HR) =  0.48  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       50.1       PEAK FLOW RATE(CFS) =      39.46
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =       50.1  TC(MIN.) =     30.78
  EFFECTIVE AREA(ACRES) =     50.10  AREA-AVERAGED Fm(INCH/HR)=  0.48
  AREA-AVERAGED Fp(INCH/HR) =  0.48  AREA-AVERAGED Ap = 1.000
  PEAK FLOW RATE(CFS)   =      39.46
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
**********************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
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                          Analysis prepared by:
                          TRANSTECH ENGINEERS, INC.
                               413 Mackay Drive
                           San Bernardino, CA 92408

 ************************* DESCRIPTION OF STUDY *************************
* WONDER INN PROJECT, 29-PALMS, CALIFORNIA                             *
* 10-YEAR STORM ANALYSIS - EXISTING CONDITION  AREA 2                  *
* NOAA 14 INPUT DATA, UNADJUSTED                                       *
 **********************************************************************

  FILE NAME: WI2EX.DAT
  TIME/DATE OF STUDY: 18:09 07/13/2022
======================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
======================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  15.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.85
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.0600

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.    (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  =====  ======  =====  =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00  0.0312  0.167  0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *PIPE MAY BE SIZED TO HAVE A FLOW CAPACITY LESS THAN
   UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**********************************************************************
  FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =  21
----------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
======================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   820.00
  ELEVATION DATA: UPSTREAM(FEET) =   1790.00  DOWNSTREAM(FEET) =   1758.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   14.703
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.837
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        5.00      0.25     1.000    87   14.70
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =     11.62
  TOTAL AREA(ACRES) =      5.00   PEAK FLOW RATE(CFS) =     11.62

****************************************************************************
  FLOW PROCESS FROM NODE     12.00 TO NODE     13.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1758.00  DOWNSTREAM(FEET) =   1745.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   760.00   CHANNEL SLOPE =  0.0171
  CHANNEL FLOW THRU SUBAREA(CFS) =      11.62
  FLOW VELOCITY(FEET/SEC) =   3.40 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   3.73   Tc(MIN.) =   18.43
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE     13.00 =    1580.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     13.00 TO NODE     13.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN.) =   18.43
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.422
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        7.00      0.25     1.000    87
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =    7.00      SUBAREA RUNOFF(CFS) =   13.66
  EFFECTIVE AREA(ACRES) =     12.00   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       12.0       PEAK FLOW RATE(CFS) =      23.41

****************************************************************************
  FLOW PROCESS FROM NODE     13.00 TO NODE     14.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1745.00  DOWNSTREAM(FEET) =   1736.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   560.00   CHANNEL SLOPE =  0.0161
  CHANNEL FLOW THRU SUBAREA(CFS) =      23.41
  FLOW VELOCITY(FEET/SEC) =   3.96 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   2.35   Tc(MIN.) =   20.79
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE     14.00 =    2140.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE     14.00 TO NODE     14.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   560.00
  ELEVATION DATA: UPSTREAM(FEET) =   1745.00  DOWNSTREAM(FEET) =   1736.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   15.074
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.788
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        5.90      0.25     1.000    87   15.07
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =    5.90   INITIAL SUBAREA RUNOFF(CFS) =   13.45

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   20.79
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.226
  SUBAREA AREA(ACRES) =    5.90      SUBAREA RUNOFF(CFS) =   10.47
  EFFECTIVE AREA(ACRES) =     17.90   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       17.9       PEAK FLOW RATE(CFS) =      31.77
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =       17.9  TC(MIN.) =     20.79
  EFFECTIVE AREA(ACRES) =     17.90  AREA-AVERAGED Fm(INCH/HR)=  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap = 1.000
  PEAK FLOW RATE(CFS)   =      31.77
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
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                          Analysis prepared by:
                          TRANSTECH ENGINEERS, INC.
                               413 Mackay Drive
                           San Bernardino, CA 92408

 ************************* DESCRIPTION OF STUDY *************************
* WONDER INN PROJECT, 29-PALMS, CALIFORNIA                              *
* 10-YEAR STORM ANALYSIS USING 5-YR STORM DATA - EXISTING CONDITION     *
* AREA 2, WESTERLY SIDE PROJECT (ADJUSTED)                              *
 ************************************************************************

  FILE NAME: WI2EX.DAT
  TIME/DATE OF STUDY: 12:28 07/14/2022
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  15.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.85
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 0.8480 (5-YR 1-HR PRECIPITATION)

  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.    (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  =====  ======  =====  =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00  0.0312  0.167  0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *PIPE MAY BE SIZED TO HAVE A FLOW CAPACITY LESS THAN
   UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   820.00
  ELEVATION DATA: UPSTREAM(FEET) =   1790.00  DOWNSTREAM(FEET) =   1758.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   14.703
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.269
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        5.00      0.48     1.000    73   14.70
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.48
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =      8.06
  TOTAL AREA(ACRES) =      5.00   PEAK FLOW RATE(CFS) =      8.06

****************************************************************************
  FLOW PROCESS FROM NODE     12.00 TO NODE     13.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1758.00  DOWNSTREAM(FEET) =   1745.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   760.00   CHANNEL SLOPE =  0.0171
  CHANNEL FLOW THRU SUBAREA(CFS) =       8.06
  FLOW VELOCITY(FEET/SEC) =   3.10 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   4.09   Tc(MIN.) =   18.79
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE     13.00 =    1580.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     13.00 TO NODE     13.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN.) =   18.79
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  1.911
  SUBAREA LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        7.00      0.48     1.000    73
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.48
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =    7.00      SUBAREA RUNOFF(CFS) =    9.03
  EFFECTIVE AREA(ACRES) =     12.00   AREA-AVERAGED Fm(INCH/HR) =  0.48
  AREA-AVERAGED Fp(INCH/HR) =  0.48  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       12.0       PEAK FLOW RATE(CFS) =      15.48

****************************************************************************
  FLOW PROCESS FROM NODE     13.00 TO NODE     14.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1745.00  DOWNSTREAM(FEET) =   1736.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   560.00   CHANNEL SLOPE =  0.0161
  CHANNEL FLOW THRU SUBAREA(CFS) =      15.48
  FLOW VELOCITY(FEET/SEC) =   3.55 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   2.63   Tc(MIN.) =   21.42
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE     14.00 =    2140.00 FEET.

****************************************************************************
```

```
 FLOW PROCESS FROM NODE     14.00 TO NODE     14.00 IS CODE =  82
----------------------------------------------------------------------------
 >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
 >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   560.00
 ELEVATION DATA: UPSTREAM(FEET) =   1745.00  DOWNSTREAM(FEET) =   1736.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   15.074
 *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.230
 SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL DESERT COVER
 "DESERT BRUSH"   (30.0%)   C        5.90      0.48     1.000    73   15.07
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.48
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =    5.90   INITIAL SUBAREA RUNOFF(CFS) =    9.30

 ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
 MAINLINE Tc(MIN.) =   21.42
 *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  1.744
 SUBAREA AREA(ACRES) =    5.90      SUBAREA RUNOFF(CFS) =    6.72
 EFFECTIVE AREA(ACRES) =    17.90   AREA-AVERAGED Fm(INCH/HR) =  0.48
 AREA-AVERAGED Fp(INCH/HR) =  0.48  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =       17.9       PEAK FLOW RATE(CFS) =      20.39
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =       17.9  TC(MIN.) =     21.42
 EFFECTIVE AREA(ACRES) =     17.90  AREA-AVERAGED Fm(INCH/HR)=  0.48
 AREA-AVERAGED Fp(INCH/HR) =  0.48  AREA-AVERAGED Ap = 1.000
 PEAK FLOW RATE(CFS)   =      20.39
============================================================================
============================================================================
 END OF RATIONAL METHOD ANALYSIS
```

```
******************************************************************************
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                          Analysis prepared by:
                          TRANSTECH ENGINEERS, INC.
                               413 Mackay Drive
                           San Bernardino, CA 92408

 ************************** DESCRIPTION OF STUDY **************************
* WONDER INN PROJECT                                                     *
* TWENTY NINE PALMS, CALIFORNIA (UNADJUSTED DATA)                        *
* 25-YEAR STORM ANALYSIS, NOAA 14 DATA, EXISTING CONDITION AREA 1        *
 ************************************************************************

  FILE NAME: WONINN.DAT
  TIME/DATE OF STUDY: 19:58 07/13/2022
==============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==============================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.85
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.3700 (NOAA 14 DATA)

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.    (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *PIPE MAY BE SIZED TO HAVE A FLOW CAPACITY LESS THAN
   UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

******************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   900.00
  ELEVATION DATA: UPSTREAM(FEET) =   1830.00  DOWNSTREAM(FEET) =   1808.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   16.758
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.346
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        4.00      0.25     1.000    87   16.76
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =     11.13
  TOTAL AREA(ACRES) =      4.00   PEAK FLOW RATE(CFS) =     11.13

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      3.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1808.00  DOWNSTREAM(FEET) =   1780.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1250.00   CHANNEL SLOPE =  0.0224
  CHANNEL FLOW THRU SUBAREA(CFS) =      11.13
  FLOW VELOCITY(FEET/SEC) =   3.84 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   5.42   Tc(MIN.) =   22.18
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      3.00 =    2150.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      3.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1250.00
  ELEVATION DATA: UPSTREAM(FEET) =   1808.00  DOWNSTREAM(FEET) =   1780.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   19.448
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.014
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C       17.10      0.25     1.000    87   19.45
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   17.10   INITIAL SUBAREA RUNOFF(CFS) =   42.48

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   22.18
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  2.750
  SUBAREA AREA(ACRES) =   17.10      SUBAREA RUNOFF(CFS) =   38.41
  EFFECTIVE AREA(ACRES) =     21.10   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       21.1       PEAK FLOW RATE(CFS) =      47.39

****************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      4.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
```

```
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1780.00  DOWNSTREAM(FEET) =   1760.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   670.00   CHANNEL SLOPE =  0.0299
  CHANNEL FLOW THRU SUBAREA(CFS) =      47.39
  FLOW VELOCITY(FEET/SEC) =   6.58 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   1.70   Tc(MIN.) =   23.87
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      4.00 =    2820.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE      4.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   670.00
  ELEVATION DATA: UPSTREAM(FEET) =   1780.00  DOWNSTREAM(FEET) =   1760.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   14.309
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.737
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C       11.10      0.25     1.000    87   14.31
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   11.10   INITIAL SUBAREA RUNOFF(CFS) =   34.79

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   23.87
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  2.611
  SUBAREA AREA(ACRES) =   11.10      SUBAREA RUNOFF(CFS) =   23.55
  EFFECTIVE AREA(ACRES) =     32.20   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       32.2       PEAK FLOW RATE(CFS) =      68.32

****************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE      5.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1760.00  DOWNSTREAM(FEET) =   1748.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   760.00   CHANNEL SLOPE =  0.0158
  CHANNEL FLOW THRU SUBAREA(CFS) =      68.32
  FLOW VELOCITY(FEET/SEC) =   5.33 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   2.38   Tc(MIN.) =   26.25
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      5.00 =    3580.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      5.00 TO NODE      5.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   760.00
  ELEVATION DATA: UPSTREAM(FEET) =   1760.00  DOWNSTREAM(FEET) =   1748.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   17.093
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.300
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C       10.90      0.25      1.000    87   17.09
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   10.90   INITIAL SUBAREA RUNOFF(CFS) =   29.88

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   26.25
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  2.444
  SUBAREA AREA(ACRES) =   10.90      SUBAREA RUNOFF(CFS) =   21.48
  EFFECTIVE AREA(ACRES) =     43.10   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       43.1       PEAK FLOW RATE(CFS) =      84.93

****************************************************************************
  FLOW PROCESS FROM NODE      5.00 TO NODE      6.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1748.00  DOWNSTREAM(FEET) =   1736.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   710.00   CHANNEL SLOPE =  0.0169
  CHANNEL FLOW THRU SUBAREA(CFS) =      84.93
  FLOW VELOCITY(FEET/SEC) =   5.88 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   2.01   Tc(MIN.) =   28.27
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      6.00 =    4290.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      6.00 TO NODE      6.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   710.00
  ELEVATION DATA: UPSTREAM(FEET) =   1748.00  DOWNSTREAM(FEET) =   1736.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   16.409
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.395
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        7.00      0.25      1.000    87   16.41
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =    7.00   INITIAL SUBAREA RUNOFF(CFS) =    19.79

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   28.27
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  2.320
  SUBAREA AREA(ACRES) =    7.00      SUBAREA RUNOFF(CFS) =   13.02
```

```
  EFFECTIVE AREA(ACRES) =     50.10   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       50.1       PEAK FLOW RATE(CFS) =      93.17

================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =       50.1  TC(MIN.) =     28.27
  EFFECTIVE AREA(ACRES) =     50.10  AREA-AVERAGED Fm(INCH/HR)=  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap = 1.000
  PEAK FLOW RATE(CFS)   =      93.17
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
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                          Analysis prepared by:
                          TRANSTECH ENGINEERS, INC.
                               413 Mackay Drive
                           San Bernardino, CA 92408

 ************************** DESCRIPTION OF STUDY **************************
* WONDER INN PROJECT                                                     *
* TWENTY NINE PALMS, CALIFORNIA - AREA 1     ADJUSTED                    *
* 25-YR STORM USING 10-YR NOAA DATA, EXISTING CONDITION                  *
 **************************************************************************
  FILE NAME: WONINN.DAT
  TIME/DATE OF STUDY: 20:36 07/13/2022
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.85
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.0600(NOAA 14 10-YR, 1-HR DATA)

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.    (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *PIPE MAY BE SIZED TO HAVE A FLOW CAPACITY LESS THAN
   UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   900.00
  ELEVATION DATA: UPSTREAM(FEET) =   1830.00  DOWNSTREAM(FEET) =   1808.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
```

```
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   16.758
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  2.589
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        4.00      0.25     1.000    87   16.76
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =      8.40
  TOTAL AREA(ACRES) =      4.00   PEAK FLOW RATE(CFS) =      8.40

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      3.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1808.00  DOWNSTREAM(FEET) =   1780.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1250.00   CHANNEL SLOPE =  0.0224
  CHANNEL FLOW THRU SUBAREA(CFS) =       8.40
  FLOW VELOCITY(FEET/SEC) =   3.58 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   5.82   Tc(MIN.) =   22.58
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      3.00 =    2150.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      3.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1250.00
  ELEVATION DATA: UPSTREAM(FEET) =   1808.00  DOWNSTREAM(FEET) =   1780.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   19.448
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  2.332
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C       17.10      0.25     1.000    87   19.45
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   17.10   INITIAL SUBAREA RUNOFF(CFS) =   31.99

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   22.58
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  2.101
  SUBAREA AREA(ACRES) =   17.10      SUBAREA RUNOFF(CFS) =   28.43
  EFFECTIVE AREA(ACRES) =     21.10   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       21.1       PEAK FLOW RATE(CFS) =      35.08

****************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      4.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
```

```
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1780.00  DOWNSTREAM(FEET) =   1760.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   670.00   CHANNEL SLOPE =  0.0299
  CHANNEL FLOW THRU SUBAREA(CFS) =      35.08
  FLOW VELOCITY(FEET/SEC) =   6.04 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   1.85   Tc(MIN.) =   24.42
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      4.00 =    2820.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE      4.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   670.00
  ELEVATION DATA: UPSTREAM(FEET) =   1780.00  DOWNSTREAM(FEET) =   1760.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   14.309
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  2.891
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C       11.10      0.25     1.000    87   14.31
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   11.10   INITIAL SUBAREA RUNOFF(CFS) =   26.35

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   24.42
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  1.989
  SUBAREA AREA(ACRES) =   11.10      SUBAREA RUNOFF(CFS) =   17.33
  EFFECTIVE AREA(ACRES) =     32.20   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       32.2       PEAK FLOW RATE(CFS) =      50.27

****************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE      5.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1760.00  DOWNSTREAM(FEET) =   1748.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   760.00   CHANNEL SLOPE =  0.0158
  CHANNEL FLOW THRU SUBAREA(CFS) =      50.27
  FLOW VELOCITY(FEET/SEC) =   4.87 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   2.60   Tc(MIN.) =   27.02
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      5.00 =    3580.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      5.00 TO NODE      5.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   760.00
  ELEVATION DATA: UPSTREAM(FEET) =   1760.00  DOWNSTREAM(FEET) =   1748.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   17.093
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  2.553
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C       10.90      0.25      1.000    87   17.09
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   10.90   INITIAL SUBAREA RUNOFF(CFS) =   22.55

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   27.02
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  1.853
  SUBAREA AREA(ACRES) =   10.90      SUBAREA RUNOFF(CFS) =   15.68
  EFFECTIVE AREA(ACRES) =     43.10   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       43.1       PEAK FLOW RATE(CFS) =      62.01

****************************************************************************
  FLOW PROCESS FROM NODE      5.00 TO NODE      6.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1748.00  DOWNSTREAM(FEET) =   1736.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   710.00   CHANNEL SLOPE =  0.0169
  CHANNEL FLOW THRU SUBAREA(CFS) =      62.01
  FLOW VELOCITY(FEET/SEC) =   5.36 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   2.21   Tc(MIN.) =   29.23
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      6.00 =    4290.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      6.00 TO NODE      6.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   710.00
  ELEVATION DATA: UPSTREAM(FEET) =   1748.00  DOWNSTREAM(FEET) =   1736.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   16.409
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  2.627
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        7.00      0.25      1.000    87   16.41
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =    7.00   INITIAL SUBAREA RUNOFF(CFS) =   14.95

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   29.23
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  1.753
  SUBAREA AREA(ACRES) =    7.00      SUBAREA RUNOFF(CFS) =    9.45
  EFFECTIVE AREA(ACRES) =     50.10   AREA-AVERAGED Fm(INCH/HR) =  0.25
```

```
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       50.1       PEAK FLOW RATE(CFS) =      67.61
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =       50.1  TC(MIN.) =     29.23
  EFFECTIVE AREA(ACRES) =     50.10  AREA-AVERAGED Fm(INCH/HR)=  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap = 1.000
  PEAK FLOW RATE(CFS)   =      67.61
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
         (Reference: 1986 SAN BERNARDINO CO. HYDROLOGY CRITERION)
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                          Analysis prepared by:
                          TRANSTECH ENGINEERS, INC.
                               413 Mackay Drive
                           San Bernardino, CA 92408

 ************************** DESCRIPTION OF STUDY **************************
* WONDER INN PROJECT, 29-PALMS, CALIFORNIA                                *
* 25-YEAR STORM ANALYSIS - EXISTING CONDITION   AREA 2                    *
* NOAA 14 INPUT DATA, UNADJUSTED                                          *
 ************************************************************************

  FILE NAME: WI2EX.DAT
  TIME/DATE OF STUDY: 18:01 07/13/2022
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  15.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.85
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.3700

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.    (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  ========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *PIPE MAY BE SIZED TO HAVE A FLOW CAPACITY LESS THAN
   UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

************************************************************************
  FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   820.00
  ELEVATION DATA: UPSTREAM(FEET) =   1790.00  DOWNSTREAM(FEET) =   1758.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   14.703
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.666
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        5.00      0.25     1.000    87   14.70
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =     15.36
  TOTAL AREA(ACRES) =      5.00   PEAK FLOW RATE(CFS) =     15.36

****************************************************************************
  FLOW PROCESS FROM NODE     12.00 TO NODE     13.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1758.00  DOWNSTREAM(FEET) =   1745.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   760.00   CHANNEL SLOPE =  0.0171
  CHANNEL FLOW THRU SUBAREA(CFS) =      15.36
  FLOW VELOCITY(FEET/SEC) =   3.65 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   3.47   Tc(MIN.) =   18.17
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE     13.00 =    1580.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     13.00 TO NODE     13.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN.) =   18.17
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.161
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        7.00      0.25     1.000    87
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =    7.00      SUBAREA RUNOFF(CFS) =   18.32
  EFFECTIVE AREA(ACRES) =     12.00   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       12.0       PEAK FLOW RATE(CFS) =      31.40

****************************************************************************
  FLOW PROCESS FROM NODE     13.00 TO NODE     14.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1745.00  DOWNSTREAM(FEET) =   1736.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   560.00   CHANNEL SLOPE =  0.0161
  CHANNEL FLOW THRU SUBAREA(CFS) =      31.40
  FLOW VELOCITY(FEET/SEC) =   4.30 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   2.17   Tc(MIN.) =   20.34
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE     14.00 =    2140.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE     14.00 TO NODE     14.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   560.00
  ELEVATION DATA: UPSTREAM(FEET) =   1745.00  DOWNSTREAM(FEET) =   1736.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   15.074
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.603
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        5.90      0.25     1.000    87   15.07
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =    5.90   INITIAL SUBAREA RUNOFF(CFS) =   17.78

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   20.34
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  2.921
  SUBAREA AREA(ACRES) =    5.90      SUBAREA RUNOFF(CFS) =   14.16
  EFFECTIVE AREA(ACRES) =     17.90   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       17.9       PEAK FLOW RATE(CFS) =      42.97
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =       17.9  TC(MIN.) =     20.34
  EFFECTIVE AREA(ACRES) =     17.90  AREA-AVERAGED Fm(INCH/HR)=  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap = 1.000
  PEAK FLOW RATE(CFS)   =      42.97
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
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                          Analysis prepared by:
                          TRANSTECH ENGINEERS, INC.
                              413 Mackay Drive
                           San Bernardino, CA 92408

 ************************** DESCRIPTION OF STUDY **************************
* WONDER INN PROJECT                                                     *
* TWENTY NINE PALMS, CALIFORNIA (UNADJUSTED DATA)  AREA 1                *
* 100-YR STORM ANALYSIS, NOAA 14 DATA, EXISTING CONDITION                *
 ************************************************************************

  FILE NAME: WONINN.DAT
  TIME/DATE OF STUDY: 19:50 07/13/2022
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.85
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.9000

  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.    (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  =====  ======  =====  =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00  0.0312  0.167  0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *PIPE MAY BE SIZED TO HAVE A FLOW CAPACITY LESS THAN
   UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   900.00
  ELEVATION DATA: UPSTREAM(FEET) =   1830.00  DOWNSTREAM(FEET) =   1808.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   16.758
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.640
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        4.00      0.10     1.000    97   16.76
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.10
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =     16.35
  TOTAL AREA(ACRES) =      4.00   PEAK FLOW RATE(CFS) =     16.35

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      3.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1808.00  DOWNSTREAM(FEET) =   1780.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1250.00   CHANNEL SLOPE =  0.0224
  CHANNEL FLOW THRU SUBAREA(CFS) =      16.35
  FLOW VELOCITY(FEET/SEC) =   4.25 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   4.90   Tc(MIN.) =   21.66
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      3.00 =    2150.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      3.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1250.00
  ELEVATION DATA: UPSTREAM(FEET) =   1808.00  DOWNSTREAM(FEET) =   1780.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   19.448
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.181
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C       17.10      0.10     1.000    97   19.45
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.10
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   17.10   INITIAL SUBAREA RUNOFF(CFS) =   62.85

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   21.66
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.877
  SUBAREA AREA(ACRES) =   17.10      SUBAREA RUNOFF(CFS) =   58.17
  EFFECTIVE AREA(ACRES) =     21.10   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.10  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       21.1       PEAK FLOW RATE(CFS) =      71.78

****************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      4.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
```

```
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1780.00  DOWNSTREAM(FEET) =   1760.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   670.00   CHANNEL SLOPE =  0.0299
  CHANNEL FLOW THRU SUBAREA(CFS) =      71.78
  FLOW VELOCITY(FEET/SEC) =   7.43 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   1.50   Tc(MIN.) =   23.16
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      4.00 =    2820.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE      4.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   670.00
  ELEVATION DATA: UPSTREAM(FEET) =   1780.00  DOWNSTREAM(FEET) =   1760.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   14.309
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.183
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C       11.10      0.10     1.000    97   14.31
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.10
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   11.10   INITIAL SUBAREA RUNOFF(CFS) =   50.80

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   23.16
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.699
  SUBAREA AREA(ACRES) =   11.10      SUBAREA RUNOFF(CFS) =   35.99
  EFFECTIVE AREA(ACRES) =     32.20   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.10  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       32.2       PEAK FLOW RATE(CFS) =     104.39

****************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE      5.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1760.00  DOWNSTREAM(FEET) =   1748.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   760.00   CHANNEL SLOPE =  0.0158
  CHANNEL FLOW THRU SUBAREA(CFS) =     104.39
  FLOW VELOCITY(FEET/SEC) =   6.04 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   2.10   Tc(MIN.) =   25.26
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      5.00 =    3580.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      5.00 TO NODE      5.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   760.00
  ELEVATION DATA: UPSTREAM(FEET) =   1760.00  DOWNSTREAM(FEET) =   1748.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   17.093
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.576
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C       10.90      0.10      1.000    97   17.09
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.10
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   10.90   INITIAL SUBAREA RUNOFF(CFS) =   43.94

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   25.26
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.481
  SUBAREA AREA(ACRES) =   10.90      SUBAREA RUNOFF(CFS) =   33.20
  EFFECTIVE AREA(ACRES) =     43.10   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.10  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       43.1       PEAK FLOW RATE(CFS) =     131.28

****************************************************************************
  FLOW PROCESS FROM NODE      5.00 TO NODE      6.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1748.00  DOWNSTREAM(FEET) =   1736.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   710.00   CHANNEL SLOPE =  0.0169
  CHANNEL FLOW THRU SUBAREA(CFS) =     131.28
  FLOW VELOCITY(FEET/SEC) =   6.70 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   1.77   Tc(MIN.) =   27.03
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      6.00 =    4290.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      6.00 TO NODE      6.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   710.00
  ELEVATION DATA: UPSTREAM(FEET) =   1748.00  DOWNSTREAM(FEET) =   1736.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   16.409
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.709
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        7.00      0.10      1.000    97   16.41
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.10
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =    7.00   INITIAL SUBAREA RUNOFF(CFS) =    29.05

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   27.03
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.321
  SUBAREA AREA(ACRES) =    7.00      SUBAREA RUNOFF(CFS) =    20.31
```

```
  EFFECTIVE AREA(ACRES) =     50.10   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.10  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       50.1       PEAK FLOW RATE(CFS) =     145.35
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =       50.1  TC(MIN.) =     27.03
  EFFECTIVE AREA(ACRES) =     50.10  AREA-AVERAGED Fm(INCH/HR)=  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.10  AREA-AVERAGED Ap = 1.000
  PEAK FLOW RATE(CFS)   =     145.35
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
             RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
          (Reference: 1986 SAN BERNARDINO CO. HYDROLOGY CRITERION)
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                          Analysis prepared by:

                          TRANSTECH ENGINEERS, INC.
                               413 Mackay Drive
                             San Bernardino, CA 92408

 ************************* DESCRIPTION OF STUDY *************************
* WONDER INN PROJECT                                                    *
* TWENTY NINE PALMS, CALIFORNIA - Area 1 (ADJUSTED)                     *
* 100-YR STORM USING 25-YR NOAA DATA, EXISTING CONDITION                *
 ************************************************************************

  FILE NAME: WONINN.DAT
  TIME/DATE OF STUDY: 20:28 07/13/2022
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.85
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.3700

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *PIPE MAY BE SIZED TO HAVE A FLOW CAPACITY LESS THAN
   UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   900.00
  ELEVATION DATA: UPSTREAM(FEET) =   1830.00  DOWNSTREAM(FEET) =   1808.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   16.758
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.346
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        4.00      0.25     1.000    87   16.76
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =     11.13
  TOTAL AREA(ACRES) =      4.00   PEAK FLOW RATE(CFS) =     11.13

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      3.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1808.00  DOWNSTREAM(FEET) =   1780.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1250.00   CHANNEL SLOPE =  0.0224
  CHANNEL FLOW THRU SUBAREA(CFS) =      11.13
  FLOW VELOCITY(FEET/SEC) =   3.84 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   5.42   Tc(MIN.) =   22.18
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      3.00 =    2150.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      3.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1250.00
  ELEVATION DATA: UPSTREAM(FEET) =   1808.00  DOWNSTREAM(FEET) =   1780.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   19.448
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.014
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C       17.10      0.25     1.000    87   19.45
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   17.10   INITIAL SUBAREA RUNOFF(CFS) =   42.48

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   22.18
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.750
  SUBAREA AREA(ACRES) =   17.10      SUBAREA RUNOFF(CFS) =   38.41
  EFFECTIVE AREA(ACRES) =     21.10   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       21.1       PEAK FLOW RATE(CFS) =      47.39

****************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      4.00 IS CODE =  52
----------------------------------------------------------------------------
```

```
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1780.00  DOWNSTREAM(FEET) =   1760.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   670.00   CHANNEL SLOPE =  0.0299
  CHANNEL FLOW THRU SUBAREA(CFS) =      47.39
  FLOW VELOCITY(FEET/SEC) =   6.58 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   1.70   Tc(MIN.) =   23.87
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      4.00 =    2820.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE      4.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   670.00
  ELEVATION DATA: UPSTREAM(FEET) =   1780.00  DOWNSTREAM(FEET) =   1760.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   14.309
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.737
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C       11.10      0.25     1.000    87   14.31
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   11.10   INITIAL SUBAREA RUNOFF(CFS) =   34.79

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   23.87
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.611
  SUBAREA AREA(ACRES) =   11.10      SUBAREA RUNOFF(CFS) =   23.55
  EFFECTIVE AREA(ACRES) =     32.20   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       32.2       PEAK FLOW RATE(CFS) =      68.32

****************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE      5.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1760.00  DOWNSTREAM(FEET) =   1748.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   760.00   CHANNEL SLOPE =  0.0158
  CHANNEL FLOW THRU SUBAREA(CFS) =      68.32
  FLOW VELOCITY(FEET/SEC) =   5.33 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   2.38   Tc(MIN.) =   26.25
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      5.00 =    3580.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      5.00 TO NODE      5.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   760.00
```

```
 ELEVATION DATA: UPSTREAM(FEET) =   1760.00  DOWNSTREAM(FEET) =   1748.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   17.093
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.300
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL DESERT COVER
 "DESERT BRUSH"   (30.0%)   C       10.90      0.25     1.000    87   17.09
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =   10.90   INITIAL SUBAREA RUNOFF(CFS) =   29.88

 ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
 MAINLINE Tc(MIN.) =   26.25
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.444
 SUBAREA AREA(ACRES) =   10.90      SUBAREA RUNOFF(CFS) =   21.48
 EFFECTIVE AREA(ACRES) =     43.10   AREA-AVERAGED Fm(INCH/HR) =  0.25
 AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =       43.1       PEAK FLOW RATE(CFS) =      84.93

****************************************************************************
 FLOW PROCESS FROM NODE      5.00 TO NODE      6.00 IS CODE =  52
----------------------------------------------------------------------------
 >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   1748.00  DOWNSTREAM(FEET) =   1736.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   710.00   CHANNEL SLOPE =  0.0169
 CHANNEL FLOW THRU SUBAREA(CFS) =      84.93
 FLOW VELOCITY(FEET/SEC) =   5.88 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
 TRAVEL TIME(MIN.) =   2.01   Tc(MIN.) =   28.27
 LONGEST FLOWPATH FROM NODE      1.00 TO NODE      6.00 =    4290.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE      6.00 TO NODE      6.00 IS CODE =  82
----------------------------------------------------------------------------
 >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
 >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   710.00
 ELEVATION DATA: UPSTREAM(FEET) =   1748.00  DOWNSTREAM(FEET) =   1736.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   16.409
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.395
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL DESERT COVER
 "DESERT BRUSH"   (30.0%)   C        7.00      0.25     1.000    87   16.41
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =    7.00   INITIAL SUBAREA RUNOFF(CFS) =   19.79

 ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
 MAINLINE Tc(MIN.) =   28.27
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.320
```

```
  SUBAREA AREA(ACRES) =    7.00      SUBAREA RUNOFF(CFS) =   13.02
  EFFECTIVE AREA(ACRES) =     50.10   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       50.1       PEAK FLOW RATE(CFS) =      93.17
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =       50.1  TC(MIN.) =     28.27
  EFFECTIVE AREA(ACRES) =     50.10  AREA-AVERAGED Fm(INCH/HR)=  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap = 1.000
  PEAK FLOW RATE(CFS)   =      93.17
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
**********************************************************************
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                          Analysis prepared by:
                          TRANSTECH ENGINEERS, INC.
                               413 Mackay Drive
                           San Bernardino, CA 92408

 ************************* DESCRIPTION OF STUDY *************************
* WONDER INN PROJECT, 29-PALMS, CALIFORNIA                             *
* 100-YEAR STORM ANALYSIS - EXISTING CONDITION   AREA 2                *
* NOAA 14 INPUT DATA, UNADJUSTED                                       *
 **********************************************************************

  FILE NAME: WI2EX.DAT
  TIME/DATE OF STUDY: 17:49 07/13/2022
======================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
======================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  15.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.85
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.9000 (NOAA 14 DATA)

  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.    (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *PIPE MAY BE SIZED TO HAVE A FLOW CAPACITY LESS THAN
   UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**********************************************************************
  FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =  21
----------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
======================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   820.00
  ELEVATION DATA: UPSTREAM(FEET) =   1790.00  DOWNSTREAM(FEET) =   1758.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   14.703
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.085
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        5.00      0.10     1.000    97   14.70
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.10
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =     22.44
  TOTAL AREA(ACRES) =      5.00   PEAK FLOW RATE(CFS) =     22.44

****************************************************************************
  FLOW PROCESS FROM NODE     12.00 TO NODE     13.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1758.00  DOWNSTREAM(FEET) =   1745.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   760.00   CHANNEL SLOPE =  0.0171
  CHANNEL FLOW THRU SUBAREA(CFS) =      22.44
  FLOW VELOCITY(FEET/SEC) =   4.04 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   3.13   Tc(MIN.) =   17.84
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE     13.00 =    1580.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     13.00 TO NODE     13.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN.) =   17.84
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.442
  SUBAREA LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        7.00      0.10     1.000    97
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.10
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =    7.00      SUBAREA RUNOFF(CFS) =   27.37
  EFFECTIVE AREA(ACRES) =     12.00   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.10  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       12.0       PEAK FLOW RATE(CFS) =      46.92

****************************************************************************
  FLOW PROCESS FROM NODE     13.00 TO NODE     14.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1745.00  DOWNSTREAM(FEET) =   1736.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   560.00   CHANNEL SLOPE =  0.0161
  CHANNEL FLOW THRU SUBAREA(CFS) =      46.92
  FLOW VELOCITY(FEET/SEC) =   4.82 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   1.94   Tc(MIN.) =   19.77
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE     14.00 =    2140.00 FEET.

****************************************************************************
```

```
 FLOW PROCESS FROM NODE     14.00 TO NODE     14.00 IS CODE =  82
----------------------------------------------------------------------------
 >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
 >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   560.00
 ELEVATION DATA: UPSTREAM(FEET) =   1745.00  DOWNSTREAM(FEET) =   1736.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   15.074
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.997
 SUBAREA Tc AND LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL DESERT COVER
 "DESERT BRUSH"   (30.0%)   C        5.90      0.10     1.000    97   15.07
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.10
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =    5.90   INITIAL SUBAREA RUNOFF(CFS) =   26.02

 ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
 MAINLINE Tc(MIN.) =   19.77
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.132
 SUBAREA AREA(ACRES) =    5.90      SUBAREA RUNOFF(CFS) =   21.43
 EFFECTIVE AREA(ACRES) =     17.90   AREA-AVERAGED Fm(INCH/HR) =  0.10
 AREA-AVERAGED Fp(INCH/HR) =  0.10  AREA-AVERAGED Ap =  1.00
 TOTAL AREA(ACRES) =       17.9       PEAK FLOW RATE(CFS) =      65.01
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =       17.9  TC(MIN.) =     19.77
 EFFECTIVE AREA(ACRES) =     17.90  AREA-AVERAGED Fm(INCH/HR)=  0.10
 AREA-AVERAGED Fp(INCH/HR) =  0.10  AREA-AVERAGED Ap = 1.000
 PEAK FLOW RATE(CFS)   =      65.01
============================================================================
============================================================================
 END OF RATIONAL METHOD ANALYSIS
```

```
************************************************************************
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                          Analysis prepared by:

                          TRANSTECH ENGINEERS, INC.
                               413 Mackay Drive
                             San Bernardino, CA 92408

 ************************* DESCRIPTION OF STUDY *************************
* WONDER INN PROJECT, 29-PALMS, CALIFORNIA                              *
* AREA 1, PROPOSED CONDITION                                            *
* 2-YEAR STORM ANALYSIS                                                 *
 ************************************************************************

  FILE NAME: WIPR1.DAT
  TIME/DATE OF STUDY: 21:17 07/13/2022
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =    2.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.85
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 0.6010

  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *PIPE MAY BE SIZED TO HAVE A FLOW CAPACITY LESS THAN
   UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   900.00
  ELEVATION DATA: UPSTREAM(FEET) =   1830.00  DOWNSTREAM(FEET) =   1808.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   16.758
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.468
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        4.00      0.48     1.000    73   16.76
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.48
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =      3.56
  TOTAL AREA(ACRES) =      4.00   PEAK FLOW RATE(CFS) =      3.56

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      3.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1808.00  DOWNSTREAM(FEET) =   1780.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1250.00   CHANNEL SLOPE =  0.0224
  CHANNEL FLOW THRU SUBAREA(CFS) =       3.56
  FLOW VELOCITY(FEET/SEC) =   2.92 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   7.13   Tc(MIN.) =   23.89
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      3.00 =    2150.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      3.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1250.00
  ELEVATION DATA: UPSTREAM(FEET) =   1808.00  DOWNSTREAM(FEET) =   1780.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   19.448
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.322
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C       17.10      0.48     1.000    73   19.45
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.48
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   17.10   INITIAL SUBAREA RUNOFF(CFS) =   13.00

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   23.89
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.145
  SUBAREA AREA(ACRES) =   17.10      SUBAREA RUNOFF(CFS) =   10.27
  EFFECTIVE AREA(ACRES) =     21.10   AREA-AVERAGED Fm(INCH/HR) =  0.48
  AREA-AVERAGED Fp(INCH/HR) =  0.48  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       21.1       PEAK FLOW RATE(CFS) =      12.67

****************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      4.00 IS CODE =  52
----------------------------------------------------------------------------
```

```
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1780.00  DOWNSTREAM(FEET) =   1760.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   670.00   CHANNEL SLOPE =  0.0299
  CHANNEL FLOW THRU SUBAREA(CFS) =      12.67
  FLOW VELOCITY(FEET/SEC) =   4.59 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   2.43   Tc(MIN.) =   26.33
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      4.00 =    2820.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE      4.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   670.00
  ELEVATION DATA: UPSTREAM(FEET) =   1780.00  DOWNSTREAM(FEET) =   1760.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   14.309
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.639
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C       11.10      0.48     1.000    73   14.31
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.48
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   11.10   INITIAL SUBAREA RUNOFF(CFS) =   11.60

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   26.33
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.070
  SUBAREA AREA(ACRES) =   11.10      SUBAREA RUNOFF(CFS) =    5.91
  EFFECTIVE AREA(ACRES) =     32.20   AREA-AVERAGED Fm(INCH/HR) =  0.48
  AREA-AVERAGED Fp(INCH/HR) =  0.48  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       32.2       PEAK FLOW RATE(CFS) =      17.15

****************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE      5.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1760.00  DOWNSTREAM(FEET) =   1744.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   880.00   CHANNEL SLOPE =  0.0182
  CHANNEL FLOW THRU SUBAREA(CFS) =      17.15
  FLOW VELOCITY(FEET/SEC) =   3.88 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   3.78   Tc(MIN.) =   30.11
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      5.00 =    3700.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      5.00 TO NODE      5.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   880.00
```

```
  ELEVATION DATA: UPSTREAM(FEET) =   1760.00  DOWNSTREAM(FEET) =   1744.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   17.621
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.417
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C       11.10      0.48     1.000    73   17.62
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.48
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   11.10   INITIAL SUBAREA RUNOFF(CFS) =    9.38

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   30.11
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  0.974
  SUBAREA AREA(ACRES) =   11.10      SUBAREA RUNOFF(CFS) =    4.95
  EFFECTIVE AREA(ACRES) =     43.30   AREA-AVERAGED Fm(INCH/HR) =  0.48
  AREA-AVERAGED Fp(INCH/HR) =  0.48  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       43.3       PEAK FLOW RATE(CFS) =      19.32
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =       43.3  TC(MIN.) =     30.11
  EFFECTIVE AREA(ACRES) =     43.30  AREA-AVERAGED Fm(INCH/HR)=  0.48
  AREA-AVERAGED Fp(INCH/HR) =  0.48  AREA-AVERAGED Ap = 1.000
  PEAK FLOW RATE(CFS)   =      19.32
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
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                          Analysis prepared by:
                          TRANSTECH ENGINEERS, INC.
                               413 Mackay Drive
                           San Bernardino, CA 92408

 ************************* DESCRIPTION OF STUDY *************************
* WONDER INN PROJECT, 29-PALMS, CALIFORNIA                              *
* AREA 2, PROPOSED CONDITION                                            *
* 2-YEAR STORM ANALYSIS                                                 *
 ************************************************************************

  FILE NAME: WIPR2.DAT
  TIME/DATE OF STUDY: 09:20 07/14/2022
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =    2.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  15.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.01
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 0.6010   (NOAA 14 DATA)

  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.    (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   820.00
  ELEVATION DATA: UPSTREAM(FEET) =   1790.00  DOWNSTREAM(FEET) =   1758.00
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
```

```
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   14.703
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.608
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        5.00      0.48     1.000    73   14.70
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.48
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =      5.09
  TOTAL AREA(ACRES) =      5.00   PEAK FLOW RATE(CFS) =      5.09
****************************************************************************
  FLOW PROCESS FROM NODE     12.00 TO NODE     13.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1758.00  DOWNSTREAM(FEET) =   1741.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   745.00   CHANNEL SLOPE =  0.0228
  CHANNEL FLOW THRU SUBAREA(CFS) =       5.09
  FLOW VELOCITY(FEET/SEC) =   3.20 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   3.88   Tc(MIN.) =   18.58
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE     13.00 =    1565.00 FEET.
****************************************************************************
  FLOW PROCESS FROM NODE     13.00 TO NODE     13.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   745.00
  ELEVATION DATA: UPSTREAM(FEET) =   1758.00  DOWNSTREAM(FEET) =   1741.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   15.753
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.533
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        7.40      0.48     1.000    73   15.75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.48
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =    7.40   INITIAL SUBAREA RUNOFF(CFS) =    7.02

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   18.58
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.365
  SUBAREA AREA(ACRES) =    7.40      SUBAREA RUNOFF(CFS) =    5.91
  EFFECTIVE AREA(ACRES) =     12.40   AREA-AVERAGED Fm(INCH/HR) =  0.48
  AREA-AVERAGED Fp(INCH/HR) =  0.48  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       12.4       PEAK FLOW RATE(CFS) =       9.90
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =       12.4  TC(MIN.) =     18.58
  EFFECTIVE AREA(ACRES) =     12.40  AREA-AVERAGED Fm(INCH/HR)=  0.48
  AREA-AVERAGED Fp(INCH/HR) =  0.48  AREA-AVERAGED Ap = 1.000
  PEAK FLOW RATE(CFS)   =       9.90
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
************************************************************************
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                          Analysis prepared by:
                          TRANSTECH ENGINEERS, INC.
                               413 Mackay Drive
                           San Bernardino, CA 92408

 ************************** DESCRIPTION OF STUDY **************************
* WONDER INN PROJECT, 29-PALMS, CALIFORNIA                               *
* AREA 1, PROPOSED CONDITION                                             *
* 10-YEAR STORM ANALYSIS                                                 *
 ************************************************************************

  FILE NAME: WIPR1.DAT
  TIME/DATE OF STUDY: 21:12 07/13/2022
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.85
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.0600

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.    (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *PIPE MAY BE SIZED TO HAVE A FLOW CAPACITY LESS THAN
   UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   900.00
  ELEVATION DATA: UPSTREAM(FEET) =   1830.00  DOWNSTREAM(FEET) =   1808.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   16.758
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.589
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        4.00      0.25     1.000    87   16.76
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =      8.40
  TOTAL AREA(ACRES) =      4.00   PEAK FLOW RATE(CFS) =      8.40

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      3.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1808.00  DOWNSTREAM(FEET) =   1780.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1250.00   CHANNEL SLOPE =  0.0224
  CHANNEL FLOW THRU SUBAREA(CFS) =       8.40
  FLOW VELOCITY(FEET/SEC) =   3.58 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   5.82   Tc(MIN.) =   22.58
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      3.00 =    2150.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      3.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1250.00
  ELEVATION DATA: UPSTREAM(FEET) =   1808.00  DOWNSTREAM(FEET) =   1780.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   19.448
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.332
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C       17.10      0.25     1.000    87   19.45
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   17.10   INITIAL SUBAREA RUNOFF(CFS) =   31.99

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   22.58
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.101
  SUBAREA AREA(ACRES) =   17.10      SUBAREA RUNOFF(CFS) =   28.43
  EFFECTIVE AREA(ACRES) =     21.10   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       21.1       PEAK FLOW RATE(CFS) =      35.08

****************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      4.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
```

```
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1780.00  DOWNSTREAM(FEET) =   1760.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   670.00   CHANNEL SLOPE =  0.0299
  CHANNEL FLOW THRU SUBAREA(CFS) =      35.08
  FLOW VELOCITY(FEET/SEC) =   6.04 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   1.85   Tc(MIN.) =   24.42
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      4.00 =    2820.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE      4.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   670.00
  ELEVATION DATA: UPSTREAM(FEET) =   1780.00  DOWNSTREAM(FEET) =   1760.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   14.309
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.891
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C       11.10      0.25     1.000    87   14.31
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   11.10   INITIAL SUBAREA RUNOFF(CFS) =   26.35

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   24.42
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  1.989
  SUBAREA AREA(ACRES) =   11.10      SUBAREA RUNOFF(CFS) =   17.33
  EFFECTIVE AREA(ACRES) =     32.20   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       32.2       PEAK FLOW RATE(CFS) =      50.27

****************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE      5.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1760.00  DOWNSTREAM(FEET) =   1744.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   880.00   CHANNEL SLOPE =  0.0182
  CHANNEL FLOW THRU SUBAREA(CFS) =      50.27
  FLOW VELOCITY(FEET/SEC) =   5.23 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   2.81   Tc(MIN.) =   27.23
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      5.00 =    3700.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      5.00 TO NODE      5.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   880.00
  ELEVATION DATA: UPSTREAM(FEET) =   1760.00  DOWNSTREAM(FEET) =   1744.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   17.621
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.499
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C       11.10      0.25     1.000    87   17.62
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   11.10   INITIAL SUBAREA RUNOFF(CFS) =   22.43

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   27.23
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  1.843
  SUBAREA AREA(ACRES) =   11.10      SUBAREA RUNOFF(CFS) =   15.87
  EFFECTIVE AREA(ACRES) =     43.30   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       43.3       PEAK FLOW RATE(CFS) =      61.92
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =       43.3  TC(MIN.) =     27.23
  EFFECTIVE AREA(ACRES) =     43.30  AREA-AVERAGED Fm(INCH/HR)=  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap = 1.000
  PEAK FLOW RATE(CFS)   =      61.92
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
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                          Analysis prepared by:

                          TRANSTECH ENGINEERS, INC.
                               413 Mackay Drive
                             San Bernardino, CA 92408

 ************************* DESCRIPTION OF STUDY *************************
* WONDER INN PROJECT, 29-PALMS, CALIFORNIA                              *
* AREA 2, PROPOSED CONDITION                                            *
* 10-YEAR STORM ANALYSIS                                                *
 ************************************************************************
  FILE NAME: WIPR2.DAT
  TIME/DATE OF STUDY: 09:14 07/14/2022
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--
  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  15.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.01
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.0600  (NOAA 14 DATA)

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   820.00
  ELEVATION DATA: UPSTREAM(FEET) =   1790.00  DOWNSTREAM(FEET) =   1758.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
```

```
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   14.703
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.837
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        5.00      0.25     1.000    87   14.70
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =     11.62
  TOTAL AREA(ACRES) =      5.00   PEAK FLOW RATE(CFS) =     11.62
****************************************************************************
  FLOW PROCESS FROM NODE     12.00 TO NODE     13.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1758.00  DOWNSTREAM(FEET) =   1741.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   745.00   CHANNEL SLOPE =  0.0228
  CHANNEL FLOW THRU SUBAREA(CFS) =      11.62
  FLOW VELOCITY(FEET/SEC) =   3.92 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   3.17   Tc(MIN.) =   17.87
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE     13.00 =    1565.00 FEET.
****************************************************************************
  FLOW PROCESS FROM NODE     13.00 TO NODE     13.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   745.00
  ELEVATION DATA: UPSTREAM(FEET) =   1758.00  DOWNSTREAM(FEET) =   1741.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   15.753
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.703
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        7.40      0.25     1.000    87   15.75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =    7.40   INITIAL SUBAREA RUNOFF(CFS) =   16.31

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   17.87
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.475
  SUBAREA AREA(ACRES) =    7.40      SUBAREA RUNOFF(CFS) =   14.79
  EFFECTIVE AREA(ACRES) =     12.40   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       12.4       PEAK FLOW RATE(CFS) =      24.78
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =       12.4  TC(MIN.) =     17.87
  EFFECTIVE AREA(ACRES) =     12.40  AREA-AVERAGED Fm(INCH/HR)=  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap = 1.000
  PEAK FLOW RATE(CFS)   =      24.78
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
******************************************************************************
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            Ver. 23.0  Release Date: 07/01/2016  License ID 1542

                          Analysis prepared by:
                          TRANSTECH ENGINEERS, INC.
                               413 Mackay Drive
                           San Bernardino, CA 92408

 ************************** DESCRIPTION OF STUDY **************************
* WONDER INN PROJECT, 29-PALMS, CALIFORNIA                                *
* AREA 1, PROPOSED CONDITION                                              *
* 25-YEAR STORM ANALYSIS                                                  *
 ***************************************************************************

  FILE NAME: WIPR1.DAT
  TIME/DATE OF STUDY: 21:04 07/13/2022
==============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==============================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.85
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.3700

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.    (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  =====  ======  =====  =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00  0.0312  0.167  0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *PIPE MAY BE SIZED TO HAVE A FLOW CAPACITY LESS THAN
   UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

******************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   900.00
  ELEVATION DATA: UPSTREAM(FEET) =   1830.00  DOWNSTREAM(FEET) =   1808.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   16.758
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.346
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        4.00      0.25     1.000    87   16.76
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =     11.13
  TOTAL AREA(ACRES) =      4.00   PEAK FLOW RATE(CFS) =     11.13

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      3.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1808.00  DOWNSTREAM(FEET) =   1780.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1250.00   CHANNEL SLOPE =  0.0224
  CHANNEL FLOW THRU SUBAREA(CFS) =      11.13
  FLOW VELOCITY(FEET/SEC) =   3.84 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   5.42   Tc(MIN.) =   22.18
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      3.00 =    2150.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      3.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1250.00
  ELEVATION DATA: UPSTREAM(FEET) =   1808.00  DOWNSTREAM(FEET) =   1780.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   19.448
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.014
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C       17.10      0.25     1.000    87   19.45
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   17.10   INITIAL SUBAREA RUNOFF(CFS) =   42.48

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   22.18
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  2.750
  SUBAREA AREA(ACRES) =   17.10      SUBAREA RUNOFF(CFS) =   38.41
  EFFECTIVE AREA(ACRES) =     21.10   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       21.1       PEAK FLOW RATE(CFS) =      47.39

****************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      4.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
```

```
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1780.00  DOWNSTREAM(FEET) =   1760.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   670.00   CHANNEL SLOPE =  0.0299
  CHANNEL FLOW THRU SUBAREA(CFS) =      47.39
  FLOW VELOCITY(FEET/SEC) =   6.58 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   1.70   Tc(MIN.) =   23.87
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      4.00 =    2820.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE      4.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   670.00
  ELEVATION DATA: UPSTREAM(FEET) =   1780.00  DOWNSTREAM(FEET) =   1760.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   14.309
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.737
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C       11.10      0.25     1.000    87   14.31
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   11.10   INITIAL SUBAREA RUNOFF(CFS) =   34.79

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   23.87
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  2.611
  SUBAREA AREA(ACRES) =   11.10      SUBAREA RUNOFF(CFS) =   23.55
  EFFECTIVE AREA(ACRES) =     32.20   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       32.2       PEAK FLOW RATE(CFS) =      68.32

****************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE      5.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1760.00  DOWNSTREAM(FEET) =   1744.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   880.00   CHANNEL SLOPE =  0.0182
  CHANNEL FLOW THRU SUBAREA(CFS) =      68.32
  FLOW VELOCITY(FEET/SEC) =   5.72 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   2.57   Tc(MIN.) =   26.44
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      5.00 =    3700.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      5.00 TO NODE      5.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   880.00
  ELEVATION DATA: UPSTREAM(FEET) =   1760.00  DOWNSTREAM(FEET) =   1744.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   17.621
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.230
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C       11.10      0.25     1.000    87   17.62
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   11.10   INITIAL SUBAREA RUNOFF(CFS) =   29.73

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   26.44
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  2.431
  SUBAREA AREA(ACRES) =   11.10      SUBAREA RUNOFF(CFS) =   21.75
  EFFECTIVE AREA(ACRES) =     43.30   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       43.3       PEAK FLOW RATE(CFS) =      84.85
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =       43.3  TC(MIN.) =     26.44
  EFFECTIVE AREA(ACRES) =     43.30  AREA-AVERAGED Fm(INCH/HR)=  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap = 1.000
  PEAK FLOW RATE(CFS)   =      84.85
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
************************************************************************
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                          Analysis prepared by:
                          TRANSTECH ENGINEERS, INC.
                               413 Mackay Drive
                           San Bernardino, CA 92408

 ************************** DESCRIPTION OF STUDY **************************
* WONDER INN PROJECT, 29-PALMS, CALIFORNIA                               *
* AREA 2, PROPOSED CONDITION                                             *
* 25-YEAR STORM ANALYSIS                                                 *
 ************************************************************************
  FILE NAME: WIPR2.DAT
  TIME/DATE OF STUDY: 08:57 07/14/2022
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  15.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.01
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.3700

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

************************************************************************
  FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   820.00
  ELEVATION DATA: UPSTREAM(FEET) =   1790.00  DOWNSTREAM(FEET) =   1758.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   14.703
```

```
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.666
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        5.00      0.25     1.000    87   14.70
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =     15.36
  TOTAL AREA(ACRES) =      5.00   PEAK FLOW RATE(CFS) =     15.36

****************************************************************************
  FLOW PROCESS FROM NODE     12.00 TO NODE     13.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1758.00  DOWNSTREAM(FEET) =   1741.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   745.00   CHANNEL SLOPE =  0.0228
  CHANNEL FLOW THRU SUBAREA(CFS) =      15.36
  FLOW VELOCITY(FEET/SEC) =   4.22 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   2.94   Tc(MIN.) =   17.65
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE     13.00 =    1565.00 FEET.
****************************************************************************
  FLOW PROCESS FROM NODE     13.00 TO NODE     13.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   745.00
  ELEVATION DATA: UPSTREAM(FEET) =   1758.00  DOWNSTREAM(FEET) =   1741.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   15.753
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.494
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        7.40      0.25     1.000    87   15.75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =     7.40   INITIAL SUBAREA RUNOFF(CFS) =   21.58

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   17.65
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.227
  SUBAREA AREA(ACRES) =     7.40      SUBAREA RUNOFF(CFS) =   19.80
  EFFECTIVE AREA(ACRES) =     12.40   AREA-AVERAGED Fm(INCH/HR) =  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       12.4       PEAK FLOW RATE(CFS) =      33.18
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =       12.4  TC(MIN.) =     17.65
  EFFECTIVE AREA(ACRES) =     12.40  AREA-AVERAGED Fm(INCH/HR)=  0.25
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap = 1.000
  PEAK FLOW RATE(CFS)   =      33.18
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
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                          Analysis prepared by:
                          TRANSTECH ENGINEERS, INC.
                               413 Mackay Drive
                           San Bernardino, CA 92408

 ************************* DESCRIPTION OF STUDY *************************
* WONDER INN PROJECT, 29-PALMS, CALIFORNIA                              *
* AREA 1, PROPOSED CONDITION                                            *
* 100-YEAR STORM ANALYSIS                                               *
 ************************************************************************

  FILE NAME: WIPR1.DAT
  TIME/DATE OF STUDY: 19:21 07/13/2022
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.85
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.9000

  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.    (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  =====  ======  =====  =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00  0.0313  0.167  0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *PIPE MAY BE SIZED TO HAVE A FLOW CAPACITY LESS THAN
   UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   900.00
  ELEVATION DATA: UPSTREAM(FEET) =   1830.00  DOWNSTREAM(FEET) =   1808.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   16.758
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.640
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        4.00      0.10     1.000    97   16.76
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.10
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =     16.35
  TOTAL AREA(ACRES) =      4.00   PEAK FLOW RATE(CFS) =     16.35

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      3.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1808.00  DOWNSTREAM(FEET) =   1780.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1250.00   CHANNEL SLOPE =  0.0224
  CHANNEL FLOW THRU SUBAREA(CFS) =      16.35
  FLOW VELOCITY(FEET/SEC) =   4.25 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   4.90   Tc(MIN.) =   21.66
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      3.00 =    2150.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      3.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =  1250.00
  ELEVATION DATA: UPSTREAM(FEET) =   1808.00  DOWNSTREAM(FEET) =   1780.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   19.448
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.181
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C       17.10      0.10     1.000    97   19.45
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.10
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   17.10   INITIAL SUBAREA RUNOFF(CFS) =   62.85

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   21.66
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.877
  SUBAREA AREA(ACRES) =   17.10      SUBAREA RUNOFF(CFS) =   58.17
  EFFECTIVE AREA(ACRES) =     21.10   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.10  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       21.1       PEAK FLOW RATE(CFS) =      71.78

****************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      4.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
```

```
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1780.00  DOWNSTREAM(FEET) =   1760.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   670.00   CHANNEL SLOPE =  0.0299
  CHANNEL FLOW THRU SUBAREA(CFS) =      71.78
  FLOW VELOCITY(FEET/SEC) =   7.43 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   1.50   Tc(MIN.) =   23.16
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      4.00 =    2820.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE      4.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   670.00
  ELEVATION DATA: UPSTREAM(FEET) =   1780.00  DOWNSTREAM(FEET) =   1760.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   14.309
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.183
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C       11.10      0.10     1.000    97   14.31
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.10
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   11.10   INITIAL SUBAREA RUNOFF(CFS) =   50.80

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   23.16
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.699
  SUBAREA AREA(ACRES) =   11.10      SUBAREA RUNOFF(CFS) =   35.99
  EFFECTIVE AREA(ACRES) =     32.20   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.10  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       32.2       PEAK FLOW RATE(CFS) =     104.39

****************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE      5.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1760.00  DOWNSTREAM(FEET) =   1744.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   880.00   CHANNEL SLOPE =  0.0182
  CHANNEL FLOW THRU SUBAREA(CFS) =     104.39
  FLOW VELOCITY(FEET/SEC) =   6.48 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   2.26   Tc(MIN.) =   25.43
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      5.00 =    3700.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      5.00 TO NODE      5.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   880.00
  ELEVATION DATA: UPSTREAM(FEET) =   1760.00  DOWNSTREAM(FEET) =   1744.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   17.621
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.480
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C       11.10      0.10     1.000    97   17.62
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.10
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =   11.10   INITIAL SUBAREA RUNOFF(CFS) =   43.78

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   25.43
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.466
  SUBAREA AREA(ACRES) =   11.10      SUBAREA RUNOFF(CFS) =   33.65
  EFFECTIVE AREA(ACRES) =     43.30   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.10  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       43.3       PEAK FLOW RATE(CFS) =     131.27
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =       43.3  TC(MIN.) =     25.43
  EFFECTIVE AREA(ACRES) =     43.30  AREA-AVERAGED Fm(INCH/HR)=  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.10  AREA-AVERAGED Ap = 1.000
  PEAK FLOW RATE(CFS)   =     131.27
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
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                          Analysis prepared by:
                          TRANSTECH ENGINEERS, INC.
                               413 Mackay Drive
                           San Bernardino, CA 92408

 ************************* DESCRIPTION OF STUDY *************************
* WONDER INN PROJECT, 29-PALMS, CALIFORNIA                              *
* AREA 2, PROPOSED CONDITION                                            *
* 100-YEAR STORM ANALYSIS                                               *
 ************************************************************************

  FILE NAME: WIPR2.DAT
  TIME/DATE OF STUDY: 21:32 07/13/2022
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  15.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.01
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.9000

  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.    (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   820.00
  ELEVATION DATA: UPSTREAM(FEET) =   1790.00  DOWNSTREAM(FEET) =   1758.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   14.703
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.085
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        5.00      0.10     1.000    97   14.70
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.10
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =     22.44
  TOTAL AREA(ACRES) =      5.00   PEAK FLOW RATE(CFS) =     22.44
****************************************************************************
  FLOW PROCESS FROM NODE     12.00 TO NODE     13.00 IS CODE =  52
----------------------------------------------------------------------------
  >>>>>COMPUTE NATURAL VALLEY CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1758.00  DOWNSTREAM(FEET) =   1741.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   745.00   CHANNEL SLOPE =  0.0228
  CHANNEL FLOW THRU SUBAREA(CFS) =      22.44
  FLOW VELOCITY(FEET/SEC) =   4.67 (PER LACFCD/RCFC&WCD HYDROLOGY MANUAL)
  TRAVEL TIME(MIN.) =   2.66   Tc(MIN.) =   17.36
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE     13.00 =    1565.00 FEET.
****************************************************************************
  FLOW PROCESS FROM NODE     13.00 TO NODE     13.00 IS CODE =  82
----------------------------------------------------------------------------
  >>>>>ADD SUBAREA RUNOFF TO MAINLINE, AT MAINLINE Tc,<<<<<
  >>>>>(AND COMPUTE INITIAL SUBAREA RUNOFF)<<<<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   745.00
  ELEVATION DATA: UPSTREAM(FEET) =   1758.00  DOWNSTREAM(FEET) =   1741.00
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   15.753
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.845
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL DESERT COVER
  "DESERT BRUSH"   (30.0%)   C        7.40      0.10     1.000    97   15.75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.10
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA AREA(ACRES) =    7.40   INITIAL SUBAREA RUNOFF(CFS) =   31.62

  ** ADD SUBAREA RUNOFF TO MAINLINE AT MAINLINE Tc:
  MAINLINE Tc(MIN.) =   17.36
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.526
  SUBAREA AREA(ACRES) =    7.40      SUBAREA RUNOFF(CFS) =   29.50
  EFFECTIVE AREA(ACRES) =     12.40   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.10  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       12.4       PEAK FLOW RATE(CFS) =      49.43
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =       12.4  TC(MIN.) =     17.36
  EFFECTIVE AREA(ACRES) =     12.40  AREA-AVERAGED Fm(INCH/HR)=  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.10  AREA-AVERAGED Ap = 1.000
  PEAK FLOW RATE(CFS)   =      49.43
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
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                          Analysis prepared by:

                          TRANSTECH ENGINEERS, INC.
                               413 Mackay Drive
                             San Bernardino, CA 92408

 ************************* DESCRIPTION OF STUDY *************************
* WONDER INN HOTEL PROJECT, 29-PALMS, CALIFORNIA                       *
* EASTERLY PROJECT SITE                                                *
* 2-YEAR STORM ANALYSIS, DEVELOPED CONDITION                           *
 ************************************************************************

  FILE NAME: AREA1.DAT
  TIME/DATE OF STUDY: 11:03 07/14/2022
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =    2.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  15.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.01
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 0.6010

  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

************************************************************************
  FLOW PROCESS FROM NODE     14.00 TO NODE      6.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   900.00
  ELEVATION DATA: UPSTREAM(FEET) =   1747.00  DOWNSTREAM(FEET) =   1736.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   15.107
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.578
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"       C        6.80      0.81     0.600    50   15.11
     (FOR 60% PERVIOUSNESS)
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.81
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.600
  SUBAREA RUNOFF(CFS) =      6.68
  TOTAL AREA(ACRES) =      6.80   PEAK FLOW RATE(CFS) =      6.68
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        6.8  TC(MIN.) =     15.11
  EFFECTIVE AREA(ACRES) =      6.80  AREA-AVERAGED Fm(INCH/HR)=  0.49
  AREA-AVERAGED Fp(INCH/HR) =  0.81  AREA-AVERAGED Ap = 0.600
  PEAK FLOW RATE(CFS)   =       6.68
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

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************************************************************************
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                          Analysis prepared by:
                          TRANSTECH ENGINEERS, INC.
                               413 Mackay Drive
                           San Bernardino, CA 92408

 ************************** DESCRIPTION OF STUDY **************************
* WONDER INN HOTEL PROJECT, 29-PALMS, CALIFORNIA                         *
* EASTERLY PROJECT SITE                                                  *
* 10-YEAR STORM ANALYSIS, DEVELOPED CONDITION                            *
 ************************************************************************

  FILE NAME: AREA1.DAT
  TIME/DATE OF STUDY: 10:56 07/14/2022
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  15.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.01
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.0600

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.    (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

************************************************************************
  FLOW PROCESS FROM NODE     14.00 TO NODE      6.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   900.00
  ELEVATION DATA: UPSTREAM(FEET) =   1747.00  DOWNSTREAM(FEET) =   1736.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   15.107
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.784
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"       C        6.80      0.57     0.600    69   15.11
     (FOR 60% PERVIOUSNESS)
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.57
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.600
  SUBAREA RUNOFF(CFS) =     14.96
  TOTAL AREA(ACRES) =      6.80   PEAK FLOW RATE(CFS) =     14.96
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        6.8  TC(MIN.) =     15.11
  EFFECTIVE AREA(ACRES) =      6.80  AREA-AVERAGED Fm(INCH/HR)=  0.34
  AREA-AVERAGED Fp(INCH/HR) =  0.57  AREA-AVERAGED Ap = 0.600
  PEAK FLOW RATE(CFS)   =      14.96
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
************************************************************************
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                          Analysis prepared by:
                          TRANSTECH ENGINEERS, INC.
                               413 Mackay Drive
                           San Bernardino, CA 92408

 ************************** DESCRIPTION OF STUDY **************************
* WONDER INN HOTEL PROJECT, 29-PALMS, CALIFORNIA                         *
* EASTERLY PROJECT SITE                                                  *
* 10-YEAR STORM ANALYSIS, DEVELOPED CONDITION                            *
 ************************************************************************

  FILE NAME: AREA1.DAT
  TIME/DATE OF STUDY: 10:56 07/14/2022
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  15.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.01
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.0600

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.    (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

************************************************************************
  FLOW PROCESS FROM NODE     14.00 TO NODE      6.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   900.00
  ELEVATION DATA: UPSTREAM(FEET) =   1747.00  DOWNSTREAM(FEET) =   1736.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   15.107
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.784
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"       C        6.80      0.57     0.600    69   15.11
     (FOR 60% PERVIOUSNESS)
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.57
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.600
  SUBAREA RUNOFF(CFS) =     14.96
  TOTAL AREA(ACRES) =      6.80   PEAK FLOW RATE(CFS) =     14.96
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        6.8  TC(MIN.) =     15.11
  EFFECTIVE AREA(ACRES) =      6.80  AREA-AVERAGED Fm(INCH/HR)=  0.34
  AREA-AVERAGED Fp(INCH/HR) =  0.57  AREA-AVERAGED Ap = 0.600
  PEAK FLOW RATE(CFS)   =      14.96
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
************************************************************************
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                          Analysis prepared by:

                          TRANSTECH ENGINEERS, INC.
                               413 Mackay Drive
                             San Bernardino, CA 92408

 ************************** DESCRIPTION OF STUDY **************************
* WONDER INN HOTEL PROJECT, 29-PALMS, CALIFORNIA                          *
* WESTERLY SIDE OF PROJECT SITE, DEVELOPED CONDITION   AREA 2             *
* 10-YEAER STORM ANALYSIS                                                 *
 ************************************************************************

  FILE NAME: AREA2.DAT
  TIME/DATE OF STUDY: 14:20 07/14/2022
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  15.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.01
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.0600

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

************************************************************************
  FLOW PROCESS FROM NODE     14.00 TO NODE     15.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   900.00
  ELEVATION DATA: UPSTREAM(FEET) =   1747.00  DOWNSTREAM(FEET) =   1736.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   15.107
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.784
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"       C        5.50      0.57     0.600    69   15.11
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.57
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.600
  SUBAREA RUNOFF(CFS) =     12.10
  TOTAL AREA(ACRES) =      5.50   PEAK FLOW RATE(CFS) =     12.10
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        5.5  TC(MIN.) =     15.11
  EFFECTIVE AREA(ACRES) =      5.50  AREA-AVERAGED Fm(INCH/HR)=  0.34
  AREA-AVERAGED Fp(INCH/HR) =  0.57  AREA-AVERAGED Ap = 0.600
  PEAK FLOW RATE(CFS)   =      12.10
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
************************************************************************
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                          Analysis prepared by:

                          TRANSTECH ENGINEERS, INC.
                               413 Mackay Drive
                             San Bernardino, CA 92408

 ************************* DESCRIPTION OF STUDY *************************
* WONDER INN HOTEL PROJECT, 29-PALMS, CALIFORNIA                        *
* EASTERLY PROJECT SITE    AREA 1                                       *
* 25-YEAR STORM ANALYSIS, DEVELOPED CONDITION                           *
 ************************************************************************

  FILE NAME: AREA1.DAT
  TIME/DATE OF STUDY: 10:17 07/14/2022
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  15.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.01
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.3700

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

************************************************************************
  FLOW PROCESS FROM NODE     14.00 TO NODE      6.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   900.00
  ELEVATION DATA: UPSTREAM(FEET) =   1747.00  DOWNSTREAM(FEET) =   1736.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   15.107
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.598
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"       C        6.80      0.57     0.600    69   15.11
     (FOR 60% PERVIOUSNESS)
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.57
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.600
  SUBAREA RUNOFF(CFS) =     19.94
  TOTAL AREA(ACRES) =      6.80   PEAK FLOW RATE(CFS) =     19.94
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        6.8  TC(MIN.) =     15.11
  EFFECTIVE AREA(ACRES) =      6.80  AREA-AVERAGED Fm(INCH/HR)=  0.34
  AREA-AVERAGED Fp(INCH/HR) =  0.57  AREA-AVERAGED Ap = 0.600
  PEAK FLOW RATE(CFS)   =      19.94
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
**********************************************************************
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                          Analysis prepared by:

                          TRANSTECH ENGINEERS, INC.
                               413 Mackay Drive
                             San Bernardino, CA 92408

 ************************* DESCRIPTION OF STUDY *************************
* WONDER INN HOTEL PROJECT, 29-PALMS, CALIFORNIA                       *
* WESTERLY SIDE OF PROJECT SITE, DEVELOPED CONDITION  AREA 2           *
* 25-YEAR STORM ANALYSIS                                               *
 **********************************************************************

  FILE NAME: AREA2.DAT
  TIME/DATE OF STUDY: 14:14 07/14/2022
======================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
======================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  15.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.01
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.3700

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**********************************************************************
  FLOW PROCESS FROM NODE     14.00 TO NODE     15.00 IS CODE =  21
----------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
======================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   900.00
  ELEVATION DATA: UPSTREAM(FEET) =   1747.00  DOWNSTREAM(FEET) =   1736.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   15.107
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.598
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"       C        5.50      0.57     0.600    69   15.11
     (FOR 60% PERVIOUS DEVELOPMENT)
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.57
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.600
  SUBAREA RUNOFF(CFS) =     16.13
  TOTAL AREA(ACRES) =      5.50   PEAK FLOW RATE(CFS) =     16.13
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        5.5  TC(MIN.) =     15.11
  EFFECTIVE AREA(ACRES) =      5.50  AREA-AVERAGED Fm(INCH/HR)=  0.34
  AREA-AVERAGED Fp(INCH/HR) =  0.57  AREA-AVERAGED Ap = 0.600
  PEAK FLOW RATE(CFS)   =      16.13
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
************************************************************************
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                          Analysis prepared by:
                          TRANSTECH ENGINEERS, INC.
                               413 Mackay Drive
                           San Bernardino, CA 92408

 ************************** DESCRIPTION OF STUDY **************************
* WONDER INN HOTEL PROJECT, 29-PALMS, CALIFORNIA                         *
* EASTERLY PROJECT SITE                                                  *
* 100-YEAR STORM ANALYSIS, DEVELOPED CONDITION                           *
 ************************************************************************

  FILE NAME: AREA1.DAT
  TIME/DATE OF STUDY: 10:05 07/14/2022
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  15.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.01
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.9000

  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.    (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

************************************************************************
  FLOW PROCESS FROM NODE     14.00 TO NODE      6.00 IS CODE =  21
------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   900.00
  ELEVATION DATA: UPSTREAM(FEET) =   1747.00  DOWNSTREAM(FEET) =   1736.00
```

AREA 1

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   15.107
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.989
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"       C        6.80      0.27     0.600    86   15.11
     (FOR 60% PERVIOUSNESS)
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.600
  SUBAREA RUNOFF(CFS) =     29.54
  TOTAL AREA(ACRES) =      6.80   PEAK FLOW RATE(CFS) =     29.54
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        6.8  TC(MIN.) =     15.11
  EFFECTIVE AREA(ACRES) =      6.80  AREA-AVERAGED Fm(INCH/HR)=  0.16
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap = 0.600
  PEAK FLOW RATE(CFS)   =      29.54
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
**********************************************************************
             RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
          (Reference: 1986 SAN BERNARDINO CO. HYDROLOGY CRITERION)
        (c) Copyright 1983-2016 Advanced Engineering Software (aes)
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                              Analysis prepared by:

                            TRANSTECH ENGINEERS, INC.
                                 413 Mackay Drive
                               San Bernardino, CA 92408

 ************************* DESCRIPTION OF STUDY *************************
* WONDER INN HOTEL PROJECT, 29-PALMS, CALIFORNIA                       *
* WESTERLY SIDE OF PROJECT SITE, DEVELOPED CONDITION                   *
* 100-YEAR STORM ANALYSIS                                              *
 **********************************************************************

  FILE NAME: AREA2.DAT
  TIME/DATE OF STUDY: 13:55 07/14/2022
======================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
======================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  15.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.01
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.7000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.9000

  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**********************************************************************
  FLOW PROCESS FROM NODE     14.00 TO NODE     15.00 IS CODE =  21
----------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
======================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   900.00
  ELEVATION DATA: UPSTREAM(FEET) =   1747.00  DOWNSTREAM(FEET) =   1736.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   15.107
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.989
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "3-4 DWELLINGS/ACRE"       C        5.50      0.27     0.600    86   15.11
     (FOR 60% PERVIOUS)
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.27
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.600
  SUBAREA RUNOFF(CFS) =     23.89
  TOTAL AREA(ACRES) =      5.50   PEAK FLOW RATE(CFS) =     23.89
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        5.5  TC(MIN.) =     15.11
  EFFECTIVE AREA(ACRES) =      5.50  AREA-AVERAGED Fm(INCH/HR)=  0.16
  AREA-AVERAGED Fp(INCH/HR) =  0.27  AREA-AVERAGED Ap = 0.600
  PEAK FLOW RATE(CFS)   =      23.89
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

APPENDIX C
UNIT HYDROGRAPH CALCULATIONS
(CH1 & FLOODSCx)

PROPOSED (POST DEVELOPMENT) CONDITION

- 2-, 10-, 25-, 100- YEAR STORM ANALYSES

WONDER INN HOTEL PROJECT
29-PALMS, CALIFORNIA NODE 6
CH-1 UNIT HYDROGRAPH ANALYSIS, 100-YEAR FREQUENCY

RATIONAL METHOD CALIBRATION COEFFICIENT = 0.90
TOTAL CATCHMENT AREA(ACRES) = 6.80
SOIL-LOSS RATE, Fm,(INCH/HR) = 0.160 (FROM RATIONAL METHOD CALCS)
LOW LOSS FRACTION = 0.315
TIME OF CONCENTRATION(MIN.) = 15.11 (FROM RATIONAL METHOD CALCS)
SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
USER SPECIFIED RAINFALL VALUES ARE USED
RETURN FREQUENCY(YEARS) = 100
5-MINUTE POINT RAINFALL VALUE(INCHES) = 0.60 (NOAA 14 DATA)
30-MINUTE POINT RAINFALL VALUE(INCHES) = 1.51
1-HOUR POINT RAINFALL VALUE(INCHES) = 1.90
3-HOUR POINT RAINFALL VALUE(INCHES) = 2.27
6-HOUR POINT RAINFALL VALUE(INCHES) = 2.57
24-HOUR POINT RAINFALL VALUE(INCHES) = 3.44

TOTAL CATCHMENT RUNOFF VOLUME(ACRE-FEET) = **1.41**
TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) = 0.53

****

TIME (HOURS)	VOLUME (AF)	Q (CFS)	0.	7.5	15.0	22.5	30.0
0.13	0.0007	0.13	Q	.	.	.	.
0.39	0.0033	0.13	Q	.	.	.	.
0.64	0.0060	0.13	Q	.	.	.	.
0.89	0.0087	0.13	Q	.	.	.	.
1.14	0.0115	0.13	Q	.	.	.	.
1.39	0.0142	0.13	Q	.	.	.	.
1.65	0.0170	0.14	Q	.	.	.	.
1.90	0.0199	0.14	Q	.	.	.	.
2.15	0.0228	0.14	Q	.	.	.	.
2.40	0.0257	0.14	Q	.	.	.	.
2.65	0.0287	0.14	Q	.	.	.	.
2.90	0.0317	0.15	Q	.	.	.	.
3.16	0.0348	0.15	Q	.	.	.	.
3.41	0.0379	0.15	Q	.	.	.	.
3.66	0.0411	0.15	Q	.	.	.	.
3.91	0.0443	0.16	Q	.	.	.	.
4.16	0.0475	0.16	Q	.	.	.	.
4.42	0.0509	0.16	Q	.	.	.	.
4.67	0.0542	0.16	Q	.	.	.	.
4.92	0.0577	0.17	Q	.	.	.	.
5.17	0.0612	0.17	Q	.	.	.	.
5.42	0.0647	0.17	Q	.	.	.	.
5.67	0.0683	0.18	Q	.	.	.	.
5.93	0.0720	0.18	Q	.	.	.	.
6.18	0.0758	0.18	Q	.	.	.	.
6.43	0.0797	0.19	Q	.	.	.	.
6.68	0.0836	0.19	Q	.	.	.	.
6.93	0.0876	0.19	Q	.	.	.	.
7.19	0.0917	0.20	Q	.	.	.	.
7.44	0.0958	0.20	Q	.	.	.	.
7.69	0.1001	0.21	Q	.	.	.	.
7.94	0.1045	0.21	Q	.	.	.	.
8.19	0.1090	0.22	Q	.	.	.	.

8.45	0.1136	0.22	Q	.	.	.	.
8.70	0.1183	0.23	Q	.	.	.	.
8.95	0.1231	0.23	Q	.	.	.	.
9.20	0.1281	0.24	Q	.	.	.	.
9.45	0.1332	0.25	Q	.	.	.	.
9.70	0.1385	0.26	Q	.	.	.	.
9.96	0.1440	0.26	Q	.	.	.	.
10.21	0.1496	0.28	Q	.	.	.	.
10.46	0.1554	0.28	Q	.	.	.	.
10.71	0.1614	0.30	Q	.	.	.	.
10.96	0.1676	0.30	Q	.	.	.	.
11.22	0.1741	0.32	Q	.	.	.	.
11.47	0.1808	0.33	Q	.	.	.	.
11.72	0.1878	0.35	Q	.	.	.	.
11.97	0.1952	0.36	Q	.	.	.	.
12.22	0.2024	0.34	Q	.	.	.	.
12.47	0.2094	0.34	Q	.	.	.	.
12.73	0.2167	0.36	Q	.	.	.	.
12.98	0.2244	0.38	Q	.	.	.	.
13.23	0.2327	0.41	Q	.	.	.	.
13.48	0.2415	0.43	Q	.	.	.	.
13.73	0.2511	0.48	Q	.	.	.	.
13.99	0.2614	0.51	Q	.	.	.	.
14.24	0.2723	0.53	Q	.	.	.	.
14.49	0.2838	0.57	Q	.	.	.	.
14.74	0.2969	0.68	Q	.	.	.	.
14.99	0.3119	0.76	.Q	.	.	.	.
15.24	0.3300	0.98	.Q	.	.	.	.
15.50	0.3524	1.17	.Q	.	.	.	.
15.75	0.4094	4.31	. Q	.	.	.	.
16.00	0.5584	10.01	.	. Q	.	.	.
16.25	0.9209	**24.81**	.	.	.	. Q	.
16.50	1.2121	3.17	. Q	.	.	.	.
16.76	1.2540	0.85	.Q	.	.	.	.
17.01	1.2694	0.62	Q	.	.	.	.
17.26	1.2815	0.55	Q	.	.	.	.
17.51	1.2920	0.46	Q	.	.	.	.
17.76	1.3008	0.40	Q	.	.	.	.
18.01	1.3086	0.35	Q	.	.	.	.
18.27	1.3161	0.37	Q	.	.	.	.
18.52	1.3234	0.34	Q	.	.	.	.
18.77	1.3302	0.31	Q	.	.	.	.
19.02	1.3364	0.29	Q	.	.	.	.
19.27	1.3422	0.27	Q	.	.	.	.
19.53	1.3477	0.25	Q	.	.	.	.
19.78	1.3528	0.24	Q	.	.	.	.
20.03	1.3576	0.23	Q	.	.	.	.
20.28	1.3622	0.22	Q	.	.	.	.
20.53	1.3666	0.21	Q	.	.	.	.
20.78	1.3708	0.20	Q	.	.	.	.
21.04	1.3748	0.19	Q	.	.	.	.
21.29	1.3786	0.18	Q	.	.	.	.
21.54	1.3823	0.17	Q	.	.	.	.
21.79	1.3859	0.17	Q	.	.	.	.
22.04	1.3893	0.16	Q	.	.	.	.
22.30	1.3927	0.16	Q	.	.	.	.
22.55	1.3959	0.15	Q	.	.	.	.
22.80	1.3990	0.15	Q	.	.	.	.
23.05	1.4020	0.14	Q	.	.	.	.

23.30	1.4049	0.14	Q	.	.	.	.
23.56	1.4078	0.14	Q	.	.	.	.
23.81	1.4106	0.13	Q	.	.	.	.
24.06	1.4133	0.13	Q	.	.	.	.
24.31	1.4146	0.00	Q	.	.	.	.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1450.6
10%	60.4
20%	30.2
30%	30.2
40%	30.2
50%	15.1
60%	15.1
70%	15.1
80%	15.1
90%	15.1

WONDER INN HOTEL PROJECT
29-PALMS, CALIFORNIA
CH-1 UNIT HYDROGRAPH ANALYSIS, 100-YEAR FREQUENCY
NODE 15, WESTERLY SIDE, 100-YR STORM FREQUENCY

RATIONAL METHOD CALIBRATION COEFFICIENT = 0.90
TOTAL CATCHMENT AREA(ACRES) = **5.50**
SOIL-LOSS RATE, Fm,(INCH/HR) = 0.160 (FROM RATIONAL METHOD)
LOW LOSS FRACTION = 0.315
TIME OF CONCENTRATION(MIN.) = 15.11 (FROM RATIONAL METHOD)
SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
USER SPECIFIED RAINFALL VALUES ARE USED

RETURN FREQUENCY(YEARS) = 100
5-MINUTE POINT RAINFALL VALUE(INCHES) = 0.60 (NOAA 14 DATA)
30-MINUTE POINT RAINFALL VALUE(INCHES) = 1.51
1-HOUR POINT RAINFALL VALUE(INCHES) = 1.90
3-HOUR POINT RAINFALL VALUE(INCHES) = 2.27
6-HOUR POINT RAINFALL VALUE(INCHES) = 2.57
24-HOUR POINT RAINFALL VALUE(INCHES) = 3.44

TOTAL CATCHMENT RUNOFF VOLUME(ACRE-FEET) = **1.14**
TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) = 0.43

****

TIME (HOURS)	VOLUME (AF)	Q (CFS)	0.	7.5	15.0	22.5	30.0
0.13	0.0006	0.10	Q	.	.	.	.
0.39	0.0027	0.10	Q	.	.	.	.
0.64	0.0049	0.10	Q	.	.	.	.
0.89	0.0071	0.11	Q	.	.	.	.
1.14	0.0093	0.11	Q	.	.	.	.
1.39	0.0115	0.11	Q	.	.	.	.
1.65	0.0138	0.11	Q	.	.	.	.
1.90	0.0161	0.11	Q	.	.	.	.
2.15	0.0184	0.11	Q	.	.	.	.
2.40	0.0208	0.11	Q	.	.	.	.
2.65	0.0232	0.12	Q	.	.	.	.
2.90	0.0257	0.12	Q	.	.	.	.
3.16	0.0281	0.12	Q	.	.	.	.
3.41	0.0307	0.12	Q	.	.	.	.
3.66	0.0332	0.12	Q	.	.	.	.
3.91	0.0358	0.13	Q	.	.	.	.
4.16	0.0385	0.13	Q	.	.	.	.
4.42	0.0411	0.13	Q	.	.	.	.
4.67	0.0439	0.13	Q	.	.	.	.
4.92	0.0466	0.13	Q	.	.	.	.
5.17	0.0495	0.14	Q	.	.	.	.
5.42	0.0524	0.14	Q	.	.	.	.
5.67	0.0553	0.14	Q	.	.	.	.
5.93	0.0583	0.14	Q	.	.	.	.
6.18	0.0613	0.15	Q	.	.	.	.
6.43	0.0644	0.15	Q	.	.	.	.

6.68	0.0676	0.15	Q	.	.	.	.
6.93	0.0708	0.16	Q	.	.	.	.
7.19	0.0741	0.16	Q	.	.	.	.
7.44	0.0775	0.16	Q	.	.	.	.
7.69	0.0810	0.17	Q	.	.	.	.
7.94	0.0845	0.17	Q	.	.	.	.
8.19	0.0882	0.18	Q	.	.	.	.
8.45	0.0919	0.18	Q	.	.	.	.
8.70	0.0957	0.19	Q	.	.	.	.
8.95	0.0996	0.19	Q	.	.	.	.
9.20	0.1036	0.20	Q	.	.	.	.
9.45	0.1078	0.20	Q	.	.	.	.
9.70	0.1120	0.21	Q	.	.	.	.
9.96	0.1164	0.21	Q	.	.	.	.
10.21	0.1210	0.22	Q	.	.	.	.
10.46	0.1257	0.23	Q	.	.	.	.
10.71	0.1305	0.24	Q	.	.	.	.
10.96	0.1356	0.25	Q	.	.	.	.
11.22	0.1408	0.26	Q	.	.	.	.
11.47	0.1462	0.27	Q	.	.	.	.
11.72	0.1519	0.28	Q	.	.	.	.
11.97	0.1579	0.29	Q	.	.	.	.
12.22	0.1637	0.27	Q	.	.	.	.
12.47	0.1694	0.27	Q	.	.	.	.
12.73	0.1753	0.29	Q	.	.	.	.
12.98	0.1815	0.31	Q	.	.	.	.
13.23	0.1882	0.34	Q	.	.	.	.
13.48	0.1953	0.35	Q	.	.	.	.
13.73	0.2031	0.39	Q	.	.	.	.
13.99	0.2115	0.41	Q	.	.	.	.
14.24	0.2203	0.43	Q	.	.	.	.
14.49	0.2296	0.46	Q	.	.	.	.
14.74	0.2401	0.55	Q	.	.	.	.
14.99	0.2522	0.61	Q	.	.	.	.
15.24	0.2669	0.80	.Q	.	.	.	.
15.50	0.2850	0.94	.Q	.	.	.	.
15.75	0.3311	3.49	. Q	.	.	.	.
16.00	0.4517	8.10	.	Q	.	.	.
16.25	0.7448	**20.07**	.		.	**Q**	.
16.50	0.9804	2.57	. Q		.	.	.
16.76	1.0143	0.69	Q		.	.	.
17.01	1.0267	0.50	Q		.	.	.
17.26	1.0365	0.44	Q		.	.	.
17.51	1.0450	0.37	Q		.	.	.
17.76	1.0521	0.32	Q		.	.	.
18.01	1.0584	0.28	Q		.	.	.
18.27	1.0645	0.30	Q		.	.	.
18.52	1.0704	0.27	Q		.	.	.
18.77	1.0759	0.25	Q		.	.	.
19.02	1.0809	0.23	Q		.	.	.
19.27	1.0856	0.22	Q		.	.	.
19.53	1.0900	0.20	Q		.	.	.
19.78	1.0942	0.19	Q		.	.	.
20.03	1.0981	0.18	Q		.	.	.
20.28	1.1018	0.17	Q		.	.	.
20.53	1.1054	0.17	Q		.	.	.
20.78	1.1087	0.16	Q		.	.	.
21.04	1.1120	0.15	Q		.	.	.

21.29	1.1151	0.15	Q	.	.	.	.
21.54	1.1181	0.14	Q	.	.	.	.
21.79	1.1210	0.14	Q	.	.	.	.
22.04	1.1237	0.13	Q	.	.	.	.
22.30	1.1264	0.13	Q	.	.	.	.
22.55	1.1290	0.12	Q	.	.	.	.
22.80	1.1315	0.12	Q	.	.	.	.
23.05	1.1340	0.12	Q	.	.	.	.
23.30	1.1363	0.11	Q	.	.	.	.
23.56	1.1387	0.11	Q	.	.	.	.
23.81	1.1409	0.11	Q	.	.	.	.
24.06	1.1431	0.10	Q	.	.	.	.
24.31	1.1442	0.00	Q	.	.	.	.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1450.6
10%	60.4
20%	30.2
30%	30.2
40%	30.2
50%	15.1
60%	15.1
70%	15.1
80%	15.1
90%	15.1

4.07-2022

WONDER INN PROJECT
PROPOSED CONDITION

Project Area (From Hyd. Map)

Easterly side = 6.8 Ac

Westerly side = 5.5

12.3 Ac

Impervious Areas:

Parking
- 440 × 140
- 300 × 80
- 80 × 60
- 80 × 135

} 2.3 Ac ✓

Road / SW

50' × 1170' = 1.3 Ac ✓

Bldgs
- 85 × 60
- (30 × 50) 3
- 55 × 50
- (30 × 45) 4
- (35 × 30) 8
- (30 × 40) (23 + 3)

} 1.3 Ac

Total Impervious = 2.3 + 1.3 + 1.3

= 4.9 Ac

Impervious Ratio = $\frac{4.9}{12.3}$ = 0.4

≈ 40%

Pervious = 60%

PROP. CONDITION, 100-YR

NODE 5

Area	CN
4.0	97
17.1	97
11.1	97
11.1	97
43.3	97

$S = \frac{1000}{97} - 10 = 0.31$

$Ia = 0.2 \times 0.31 = 0.06$

$P_{24} = 3.44$ 100-yr 24hr

$$Y = \frac{(3.44 - 0.06)^2}{(3.44 - 0.06 + 0.31)\,3.44}$$

$Y = 0.97$

$\bar{Y} = 1 - Y = 1 - 0.97$

$= 0.03$

Same values for Node (13)

(5) Area = 43.3 Acres

Tc = 25.43 min

$Lag = \frac{25.43}{60} \times 0.8 = 0.34$ hr

(13) Area = 12.4 Ac

Tc = 17.36 min

$Lag = \frac{17.36}{60} \times 0.8 = 0.23$

CH 1 Input Data

Area 1 Node 6

CN = 86 (from rational method)

$S = \frac{1000}{CN} - 10 = 1.1628$

$Ia = 0.2S = 0.23$

$P_{24} = 3.44''$ (100-YR NOAA 14)

$$Y = \frac{(3.44 - 0.23)^2}{(3.44 - 0.23 + 1.1624)\,3.44}$$

$= 0.685$

$\bar{Y} = 1 - 0.685 = 0.315$

Vol = 1.41 Ac ft

$Q_{100} = 24.81$ cfs

Estimated Det. Pond

Depth = 4 ft

1.41 Ac ft × 20% = 0.28

= 12,284 cf

Assumed depth = 4'

Area = 12,284 / 4

= 3070 sf

W = 30 FT

L = 3070 / 30 → 102 ft

Say 30' × 110' × 4 ft

WONDER INN PROJECT

CH1 Input Data
Area 2 Node 15

CN = 86 (from rational method)

$S = \frac{1000}{86} - 10 = 1.1628$

$Ia = 0.2(S) = 0.23$

$P_{24} = 3.44$ (100-YR NOAA 14)

$Y = \frac{(3.44 - 0.23)^2}{(3.44 - 0.23 + 1.1628)\,3.44}$

$= 0.685$

$\bar{Y} = 1 - 0.685 = 0.315$

$T_c = 15.11$ min

$A = 5.50$ Ac

Result: Volume = 1.14 Ac

Peak Q = 20.07 cfs

Detention Pond Determination

Estimated Depth = 4 ft

$1.14 \times 20\% = 0.228$ ac ft

$= 9932$ cf

for 3 ft deep, area = 3310 sf

say 120 x 30 ft x 3 ft

UNIT HYDROGRAPH ANALYSIS, 100-YR STORM FREQUENCY
WONDER INN HOTEL PROJECT, 29-PALMS, CALIFORNIA
NODE 5 – EASTERLY PROJECT SITE LOCATION

```
**************************************************************************
  FLOW PROCESS FROM NODE     1.00 TO NODE     2.00 IS CODE =   1
--------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
==========================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #2)

         WATERSHED AREA =      43.300 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =    0.340 HOURS
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         DESERT(UNDEVELOPED) S-GRAPH SELECTED
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.010
         LOW LOSS FRACTION = 0.030
         *HYDROGRAPH MODEL #1 SPECIFIED*

         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.60      (NOAA 14 DATA)
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.51
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.90
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  2.27
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.57
         SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  3.44

         PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
           5-MINUTE FACTOR = 0.998
          30-MINUTE FACTOR = 0.998
           1-HOUR FACTOR = 0.998
           3-HOUR FACTOR = 1.000
           6-HOUR FACTOR = 1.000
          24-HOUR FACTOR = 1.000

         UNIT HYDROGRAPH TIME UNIT =   5.000 MINUTES
         UNIT INTERVAL PERCENTAGE OF LAG-TIME =  24.510

==========================================================================
                      UNIT HYDROGRAPH DETERMINATION

--------------------------------------------------------------------------
    INTERVAL          "S" GRAPH          UNIT HYDROGRAPH
     NUMBER          MEAN VALUES          ORDINATES(CFS)
--------------------------------------------------------------------------
        1                1.314                6.880
        2                6.356               26.405
        3               18.675               64.506
        4               40.035              111.853
        5               55.063               78.700
        6               64.261               48.162
        7               70.664               33.532
        8               75.535               25.509
        9               79.389               20.179
       10               82.438               15.965
       11               85.000               13.419
       12               87.240               11.727
```

13	89.068	9.576
14	90.526	7.634
15	91.851	6.939
16	93.011	6.075
17	94.037	5.374
18	94.883	4.429
19	95.677	4.154
20	96.326	3.404
21	96.928	3.152
22	97.385	2.393
23	97.796	2.149
24	98.060	1.383
25	98.312	1.318
26	98.600	1.511
27	98.894	1.540
28	99.188	1.540
29	99.482	1.540
30	99.776	1.540
31	100.000	1.171

****

UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0025	0.0001	0.0024
2	0.0025	0.0001	0.0024
3	0.0025	0.0001	0.0025
4	0.0025	0.0001	0.0025
5	0.0026	0.0001	0.0025
6	0.0026	0.0001	0.0025
7	0.0026	0.0001	0.0025
8	0.0026	0.0001	0.0025
9	0.0026	0.0001	0.0025
10	0.0026	0.0001	0.0025
11	0.0026	0.0001	0.0025
12	0.0026	0.0001	0.0026
13	0.0026	0.0001	0.0026
14	0.0027	0.0001	0.0026
15	0.0027	0.0001	0.0026
16	0.0027	0.0001	0.0026
17	0.0027	0.0001	0.0026
18	0.0027	0.0001	0.0026
19	0.0027	0.0001	0.0026
20	0.0027	0.0001	0.0026
21	0.0027	0.0001	0.0027
22	0.0028	0.0001	0.0027
23	0.0028	0.0001	0.0027
24	0.0028	0.0001	0.0027
25	0.0028	0.0001	0.0027
26	0.0028	0.0001	0.0027
27	0.0028	0.0001	0.0027
28	0.0028	0.0001	0.0027
29	0.0029	0.0001	0.0028
30	0.0029	0.0001	0.0028
31	0.0029	0.0001	0.0028
32	0.0029	0.0001	0.0028
33	0.0029	0.0001	0.0028

34	0.0029	0.0001	0.0028
35	0.0029	0.0001	0.0028
36	0.0029	0.0001	0.0029
37	0.0030	0.0001	0.0029
38	0.0030	0.0001	0.0029
39	0.0030	0.0001	0.0029
40	0.0030	0.0001	0.0029
41	0.0030	0.0001	0.0029
42	0.0030	0.0001	0.0029
43	0.0031	0.0001	0.0030
44	0.0031	0.0001	0.0030
45	0.0031	0.0001	0.0030
46	0.0031	0.0001	0.0030
47	0.0031	0.0001	0.0030
48	0.0031	0.0001	0.0030
49	0.0032	0.0001	0.0031
50	0.0032	0.0001	0.0031
51	0.0032	0.0001	0.0031
52	0.0032	0.0001	0.0031
53	0.0032	0.0001	0.0031
54	0.0032	0.0001	0.0031
55	0.0033	0.0001	0.0032
56	0.0033	0.0001	0.0032
57	0.0033	0.0001	0.0032
58	0.0033	0.0001	0.0032
59	0.0033	0.0001	0.0032
60	0.0034	0.0001	0.0033
61	0.0034	0.0001	0.0033
62	0.0034	0.0001	0.0033
63	0.0034	0.0001	0.0033
64	0.0034	0.0001	0.0033
65	0.0035	0.0001	0.0034
66	0.0035	0.0001	0.0034
67	0.0035	0.0001	0.0034
68	0.0035	0.0001	0.0034
69	0.0036	0.0001	0.0034
70	0.0036	0.0001	0.0035
71	0.0036	0.0001	0.0035
72	0.0036	0.0001	0.0035
73	0.0036	0.0001	0.0035
74	0.0037	0.0001	0.0036
75	0.0037	0.0001	0.0036
76	0.0037	0.0001	0.0036
77	0.0037	0.0001	0.0036
78	0.0038	0.0001	0.0037
79	0.0038	0.0001	0.0037
80	0.0038	0.0001	0.0037
81	0.0039	0.0001	0.0037
82	0.0039	0.0001	0.0038
83	0.0039	0.0001	0.0038
84	0.0039	0.0001	0.0038
85	0.0040	0.0001	0.0038
86	0.0040	0.0001	0.0039
87	0.0040	0.0001	0.0039
88	0.0040	0.0001	0.0039
89	0.0041	0.0001	0.0040
90	0.0041	0.0001	0.0040
91	0.0042	0.0001	0.0040
92	0.0042	0.0001	0.0040

93	0.0042	0.0001	0.0041
94	0.0042	0.0001	0.0041
95	0.0043	0.0001	0.0042
96	0.0043	0.0001	0.0042
97	0.0044	0.0001	0.0042
98	0.0044	0.0001	0.0042
99	0.0044	0.0001	0.0043
100	0.0045	0.0001	0.0043
101	0.0045	0.0001	0.0044
102	0.0045	0.0001	0.0044
103	0.0046	0.0001	0.0044
104	0.0046	0.0001	0.0045
105	0.0047	0.0001	0.0045
106	0.0047	0.0001	0.0046
107	0.0048	0.0001	0.0046
108	0.0048	0.0001	0.0046
109	0.0048	0.0001	0.0047
110	0.0049	0.0001	0.0047
111	0.0049	0.0001	0.0048
112	0.0050	0.0001	0.0048
113	0.0050	0.0002	0.0049
114	0.0051	0.0002	0.0049
115	0.0051	0.0002	0.0050
116	0.0052	0.0002	0.0050
117	0.0052	0.0002	0.0051
118	0.0053	0.0002	0.0051
119	0.0054	0.0002	0.0052
120	0.0054	0.0002	0.0052
121	0.0055	0.0002	0.0053
122	0.0055	0.0002	0.0053
123	0.0056	0.0002	0.0054
124	0.0056	0.0002	0.0055
125	0.0057	0.0002	0.0056
126	0.0058	0.0002	0.0056
127	0.0059	0.0002	0.0057
128	0.0059	0.0002	0.0057
129	0.0060	0.0002	0.0058
130	0.0061	0.0002	0.0059
131	0.0062	0.0002	0.0060
132	0.0062	0.0002	0.0060
133	0.0063	0.0002	0.0061
134	0.0064	0.0002	0.0062
135	0.0065	0.0002	0.0063
136	0.0066	0.0002	0.0064
137	0.0067	0.0002	0.0065
138	0.0067	0.0002	0.0065
139	0.0069	0.0002	0.0067
140	0.0069	0.0002	0.0067
141	0.0071	0.0002	0.0069
142	0.0072	0.0002	0.0069
143	0.0073	0.0002	0.0071
144	0.0074	0.0002	0.0072
145	0.0064	0.0002	0.0062
146	0.0065	0.0002	0.0063
147	0.0067	0.0002	0.0065
148	0.0067	0.0002	0.0065
149	0.0069	0.0002	0.0067
150	0.0070	0.0002	0.0068
151	0.0072	0.0002	0.0070

152	0.0073	0.0002	0.0071
153	0.0075	0.0002	0.0073
154	0.0076	0.0002	0.0074
155	0.0078	0.0002	0.0076
156	0.0079	0.0002	0.0077
157	0.0082	0.0002	0.0079
158	0.0083	0.0002	0.0080
159	0.0086	0.0003	0.0083
160	0.0087	0.0003	0.0084
161	0.0090	0.0003	0.0087
162	0.0092	0.0003	0.0089
163	0.0095	0.0003	0.0092
164	0.0097	0.0003	0.0094
165	0.0101	0.0003	0.0098
166	0.0103	0.0003	0.0100
167	0.0107	0.0003	0.0104
168	0.0109	0.0003	0.0106
169	0.0104	0.0003	0.0101
170	0.0107	0.0003	0.0104
171	0.0112	0.0003	0.0109
172	0.0115	0.0003	0.0112
173	0.0122	0.0004	0.0118
174	0.0125	0.0004	0.0122
175	0.0133	0.0004	0.0129
176	0.0138	0.0004	0.0133
177	0.0147	0.0004	0.0143
178	0.0153	0.0005	0.0148
179	0.0165	0.0005	0.0160
180	0.0172	0.0005	0.0167
181	0.0188	0.0006	0.0183
182	0.0198	0.0006	0.0192
183	0.0221	0.0007	0.0214
184	0.0234	0.0007	0.0227
185	0.0539	0.0008	0.0531
186	0.0573	0.0008	0.0565
187	0.0660	0.0008	0.0651
188	0.0718	0.0008	0.0710
189	0.1348	0.0008	0.1340
190	0.1488	0.0008	0.1480
191	0.1985	0.0008	0.1976
192	0.2570	0.0008	0.2562
193	0.5998	0.0008	0.5990
194	0.1681	0.0008	0.1673
195	0.0790	0.0008	0.0781
196	0.0612	0.0008	0.0604
197	0.0250	0.0007	0.0242
198	0.0209	0.0006	0.0202
199	0.0180	0.0005	0.0174
200	0.0159	0.0005	0.0154
201	0.0142	0.0004	0.0138
202	0.0129	0.0004	0.0125
203	0.0118	0.0004	0.0115
204	0.0109	0.0003	0.0106
205	0.0112	0.0003	0.0108
206	0.0105	0.0003	0.0102
207	0.0099	0.0003	0.0096
208	0.0093	0.0003	0.0090
209	0.0088	0.0003	0.0086
210	0.0084	0.0003	0.0082

211	0.0080	0.0002	0.0078
212	0.0077	0.0002	0.0075
213	0.0074	0.0002	0.0072
214	0.0071	0.0002	0.0069
215	0.0068	0.0002	0.0066
216	0.0066	0.0002	0.0064
217	0.0075	0.0002	0.0072
218	0.0072	0.0002	0.0070
219	0.0070	0.0002	0.0068
220	0.0068	0.0002	0.0066
221	0.0066	0.0002	0.0064
222	0.0064	0.0002	0.0062
223	0.0063	0.0002	0.0061
224	0.0061	0.0002	0.0059
225	0.0060	0.0002	0.0058
226	0.0058	0.0002	0.0056
227	0.0057	0.0002	0.0055
228	0.0056	0.0002	0.0054
229	0.0054	0.0002	0.0053
230	0.0053	0.0002	0.0052
231	0.0052	0.0002	0.0050
232	0.0051	0.0002	0.0049
233	0.0050	0.0001	0.0048
234	0.0049	0.0001	0.0048
235	0.0048	0.0001	0.0047
236	0.0047	0.0001	0.0046
237	0.0046	0.0001	0.0045
238	0.0046	0.0001	0.0044
239	0.0045	0.0001	0.0043
240	0.0044	0.0001	0.0043
241	0.0043	0.0001	0.0042
242	0.0043	0.0001	0.0041
243	0.0042	0.0001	0.0041
244	0.0041	0.0001	0.0040
245	0.0041	0.0001	0.0039
246	0.0040	0.0001	0.0039
247	0.0039	0.0001	0.0038
248	0.0039	0.0001	0.0038
249	0.0038	0.0001	0.0037
250	0.0038	0.0001	0.0037
251	0.0037	0.0001	0.0036
252	0.0037	0.0001	0.0036
253	0.0036	0.0001	0.0035
254	0.0036	0.0001	0.0035
255	0.0035	0.0001	0.0034
256	0.0035	0.0001	0.0034
257	0.0035	0.0001	0.0033
258	0.0034	0.0001	0.0033
259	0.0034	0.0001	0.0033
260	0.0033	0.0001	0.0032
261	0.0033	0.0001	0.0032
262	0.0033	0.0001	0.0032
263	0.0032	0.0001	0.0031
264	0.0032	0.0001	0.0031
265	0.0031	0.0001	0.0031
266	0.0031	0.0001	0.0030
267	0.0031	0.0001	0.0030
268	0.0030	0.0001	0.0030
269	0.0030	0.0001	0.0029

270	0.0030	0.0001	0.0029
271	0.0030	0.0001	0.0029
272	0.0029	0.0001	0.0028
273	0.0029	0.0001	0.0028
274	0.0029	0.0001	0.0028
275	0.0028	0.0001	0.0028
276	0.0028	0.0001	0.0027
277	0.0028	0.0001	0.0027
278	0.0028	0.0001	0.0027
279	0.0027	0.0001	0.0027
280	0.0027	0.0001	0.0026
281	0.0027	0.0001	0.0026
282	0.0027	0.0001	0.0026
283	0.0026	0.0001	0.0026
284	0.0026	0.0001	0.0025
285	0.0026	0.0001	0.0025
286	0.0026	0.0001	0.0025
287	0.0026	0.0001	0.0025
288	0.0025	0.0001	0.0025

TOTAL STORM RAINFALL(INCHES) = 3.44
TOTAL SOIL-LOSS(INCHES) = 0.06
TOTAL EFFECTIVE RAINFALL(INCHES) = 3.38

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 0.2032
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = **12.2021**

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	50.0	100.0	150.0	200.0
0.083	0.0001	0.02	Q	.	.	.	.
0.167	0.0007	0.08	Q	.	.	.	.
0.250	0.0023	0.24	Q	.	.	.	.
0.333	0.0059	0.51	Q	.	.	.	.
0.417	0.0107	0.71	Q	.	.	.	.
0.500	0.0164	0.83	Q	.	.	.	.
0.583	0.0227	0.91	Q	.	.	.	.
0.667	0.0294	0.98	Q	.	.	.	.
0.750	0.0365	1.03	Q	.	.	.	.
0.833	0.0439	1.08	Q	.	.	.	.
0.917	0.0516	1.11	Q	.	.	.	.
1.000	0.0595	1.15	Q	.	.	.	.
1.083	0.0676	1.17	Q	.	.	.	.
1.167	0.0758	1.20	Q	.	.	.	.
1.250	0.0842	1.22	Q	.	.	.	.
1.333	0.0928	1.24	Q	.	.	.	.
1.417	0.1014	1.26	Q	.	.	.	.
1.500	0.1102	1.27	Q	.	.	.	.
1.583	0.1191	1.29	Q	.	.	.	.

1.667	0.1281	1.30	Q	.	.	.	.
1.750	0.1372	1.32	Q	.	.	.	.
1.833	0.1463	1.33	Q	.	.	.	.
1.917	0.1556	1.34	Q	.	.	.	.
2.000	0.1649	1.35	Q	.	.	.	.
2.083	0.1742	1.36	Q	.	.	.	.
2.167	0.1837	1.37	Q	.	.	.	.
2.250	0.1932	1.38	Q	.	.	.	.
2.333	0.2027	1.39	Q	.	.	.	.
2.417	0.2124	1.40	Q	.	.	.	.
2.500	0.2221	1.41	Q	.	.	.	.
2.583	0.2319	1.42	Q	.	.	.	.
2.667	0.2417	1.43	Q	.	.	.	.
2.750	0.2516	1.43	Q	.	.	.	.
2.833	0.2615	1.44	Q	.	.	.	.
2.917	0.2714	1.45	Q	.	.	.	.
3.000	0.2815	1.45	Q	.	.	.	.
3.083	0.2915	1.46	Q	.	.	.	.
3.167	0.3016	1.47	Q	.	.	.	.
3.250	0.3118	1.48	QV	.	.	.	.
3.333	0.3220	1.48	QV	.	.	.	.
3.417	0.3323	1.49	QV	.	.	.	.
3.500	0.3426	1.50	QV	.	.	.	.
3.583	0.3530	1.51	QV	.	.	.	.
3.667	0.3634	1.51	QV	.	.	.	.
3.750	0.3739	1.52	QV	.	.	.	.
3.833	0.3844	1.53	QV	.	.	.	.
3.917	0.3950	1.54	QV	.	.	.	.
4.000	0.4056	1.55	QV	.	.	.	.
4.083	0.4163	1.55	QV	.	.	.	.
4.167	0.4271	1.56	QV	.	.	.	.
4.250	0.4379	1.57	QV	.	.	.	.
4.333	0.4488	1.58	QV	.	.	.	.
4.417	0.4597	1.59	QV	.	.	.	.
4.500	0.4707	1.60	QV	.	.	.	.
4.583	0.4817	1.60	QV	.	.	.	.
4.667	0.4928	1.61	QV	.	.	.	.
4.750	0.5040	1.62	QV	.	.	.	.
4.833	0.5152	1.63	QV	.	.	.	.
4.917	0.5265	1.64	QV	.	.	.	.
5.000	0.5379	1.65	QV	.	.	.	.
5.083	0.5493	1.66	QV	.	.	.	.
5.167	0.5608	1.67	QV	.	.	.	.
5.250	0.5724	1.68	QV	.	.	.	.
5.333	0.5840	1.69	QV	.	.	.	.
5.417	0.5957	1.70	QV	.	.	.	.
5.500	0.6075	1.71	QV	.	.	.	.
5.583	0.6193	1.72	Q V	.	.	.	.
5.667	0.6312	1.73	Q V	.	.	.	.
5.750	0.6432	1.74	Q V	.	.	.	.
5.833	0.6552	1.75	Q V	.	.	.	.
5.917	0.6674	1.76	Q V	.	.	.	.
6.000	0.6796	1.77	Q V	.	.	.	.
6.083	0.6919	1.78	Q V	.	.	.	.
6.167	0.7042	1.79	Q V	.	.	.	.
6.250	0.7167	1.81	Q V	.	.	.	.
6.333	0.7292	1.82	Q V	.	.	.	.
6.417	0.7418	1.83	Q V	.	.	.	.
6.500	0.7545	1.84	Q V	.	.	.	.

6.583	0.7672	1.85	Q	V	.	.	.	.
6.667	0.7801	1.87	Q	V	.	.	.	.
6.750	0.7930	1.88	Q	V	.	.	.	.
6.833	0.8060	1.89	Q	V	.	.	.	.
6.917	0.8191	1.90	Q	V	.	.	.	.
7.000	0.8323	1.92	Q	V	.	.	.	.
7.083	0.8456	1.93	Q	V	.	.	.	.
7.167	0.8590	1.94	Q	V	.	.	.	.
7.250	0.8725	1.96	Q	V	.	.	.	.
7.333	0.8861	1.97	Q	V	.	.	.	.
7.417	0.8998	1.99	Q	V	.	.	.	.
7.500	0.9135	2.00	Q	V	.	.	.	.
7.583	0.9274	2.02	Q	V	.	.	.	.
7.667	0.9414	2.03	Q	V	.	.	.	.
7.750	0.9555	2.05	Q	V	.	.	.	.
7.833	0.9697	2.06	Q	V	.	.	.	.
7.917	0.9840	2.08	Q	V	.	.	.	.
8.000	0.9984	2.09	Q	V	.	.	.	.
8.083	1.0129	2.11	Q	V	.	.	.	.
8.167	1.0276	2.13	Q	V	.	.	.	.
8.250	1.0423	2.14	Q	V	.	.	.	.
8.333	1.0572	2.16	Q	V	.	.	.	.
8.417	1.0722	2.18	Q	V	.	.	.	.
8.500	1.0873	2.19	Q	V	.	.	.	.
8.583	1.1025	2.21	Q	V	.	.	.	.
8.667	1.1179	2.23	Q	V	.	.	.	.
8.750	1.1334	2.25	Q	V	.	.	.	.
8.833	1.1490	2.27	Q	V	.	.	.	.
8.917	1.1648	2.29	Q	V	.	.	.	.
9.000	1.1807	2.31	Q	V	.	.	.	.
9.083	1.1967	2.33	Q	V	.	.	.	.
9.167	1.2129	2.35	Q	V	.	.	.	.
9.250	1.2292	2.37	Q	V	.	.	.	.
9.333	1.2457	2.39	Q	V	.	.	.	.
9.417	1.2623	2.41	Q	V	.	.	.	.
9.500	1.2791	2.44	Q	V	.	.	.	.
9.583	1.2961	2.46	Q	V	.	.	.	.
9.667	1.3132	2.48	Q	V	.	.	.	.
9.750	1.3305	2.51	Q	V	.	.	.	.
9.833	1.3479	2.53	Q	V	.	.	.	.
9.917	1.3655	2.56	Q	V	.	.	.	.
10.000	1.3833	2.58	Q	V	.	.	.	.
10.083	1.4013	2.61	Q	V	.	.	.	.
10.167	1.4194	2.64	Q	V	.	.	.	.
10.250	1.4378	2.66	Q	V	.	.	.	.
10.333	1.4563	2.69	Q	V	.	.	.	.
10.417	1.4751	2.72	Q	V	.	.	.	.
10.500	1.4940	2.75	Q	V	.	.	.	.
10.583	1.5132	2.78	Q	V	.	.	.	.
10.667	1.5326	2.81	Q	V	.	.	.	.
10.750	1.5522	2.84	Q	V	.	.	.	.
10.833	1.5720	2.88	Q	V	.	.	.	.
10.917	1.5920	2.91	Q	V	.	.	.	.
11.000	1.6123	2.95	Q	V	.	.	.	.
11.083	1.6329	2.98	Q	V	.	.	.	.
11.167	1.6537	3.02	Q	V	.	.	.	.
11.250	1.6747	3.06	Q	V	.	.	.	.
11.333	1.6960	3.10	Q	V	.	.	.	.
11.417	1.7176	3.13	Q	V	.	.	.	.

11.500	1.7395	3.18	Q	V	.	.	.	.
11.583	1.7616	3.22	Q	V	.	.	.	.
11.667	1.7841	3.26	Q	V	.	.	.	.
11.750	1.8069	3.31	Q	V	.	.	.	.
11.833	1.8300	3.35	Q	V	.	.	.	.
11.917	1.8534	3.40	Q	V	.	.	.	.
12.000	1.8772	3.45	Q	V	.	.	.	.
12.083	1.9012	3.49	Q	V	.	.	.	.
12.167	1.9255	3.52	Q	V	.	.	.	.
12.250	1.9496	3.50	Q	V	.	.	.	.
12.333	1.9733	3.44	Q	V	.	.	.	.
12.417	1.9967	3.41	Q	V	.	.	.	.
12.500	2.0202	3.41	Q	V	.	.	.	.
12.583	2.0439	3.44	Q	V	.	.	.	.
12.667	2.0678	3.47	Q	V	.	.	.	.
12.750	2.0920	3.51	Q	V	.	.	.	.
12.833	2.1165	3.56	Q	V	.	.	.	.
12.917	2.1413	3.61	Q	V	.	.	.	.
13.000	2.1666	3.67	Q	V	.	.	.	.
13.083	2.1923	3.73	Q	V	.	.	.	.
13.167	2.2184	3.80	Q	V	.	.	.	.
13.250	2.2450	3.87	Q	V	.	.	.	.
13.333	2.2722	3.95	Q	V	.	.	.	.
13.417	2.2999	4.03	Q	V	.	.	.	.
13.500	2.3283	4.11	Q	V	.	.	.	.
13.583	2.3572	4.20	Q	V	.	.	.	.
13.667	2.3869	4.30	Q	V	.	.	.	.
13.750	2.4172	4.41	Q	V	.	.	.	.
13.833	2.4483	4.52	Q	V	.	.	.	.
13.917	2.4802	4.63	Q	V	.	.	.	.
14.000	2.5130	4.76	Q	V	.	.	.	.
14.083	2.5467	4.89	Q	V	.	.	.	.
14.167	2.5812	5.01	.Q	V	.	.	.	.
14.250	2.6162	5.09	.Q	V	.	.	.	.
14.333	2.6517	5.15	.Q	V	.	.	.	.
14.417	2.6878	5.24	.Q	V	.	.	.	.
14.500	2.7248	5.38	.Q	V	.	.	.	.
14.583	2.7629	5.54	.Q	V	.	.	.	.
14.667	2.8024	5.73	.Q	V	.	.	.	.
14.750	2.8433	5.94	.Q	V	.	.	.	.
14.833	2.8858	6.18	.Q	V	.	.	.	.
14.917	2.9302	6.44	.Q	V	.	.	.	.
15.000	2.9766	6.74	.Q	V	.	.	.	.
15.083	3.0253	7.07	.Q	V	.	.	.	.
15.167	3.0767	7.46	.Q	V	.	.	.	.
15.250	3.1310	7.89	.Q	V	.	.	.	.
15.333	3.1888	8.39	.Q	V	.	.	.	.
15.417	3.2518	9.15	.Q	V	.	.	.	.
15.500	3.3246	10.57	. Q	V	.	.	.	.
15.583	3.4154	13.18	. Q	.V	.	.	.	.
15.667	3.5354	17.42	. Q	.V	.	.	.	.
15.750	3.6842	21.60	. Q	. V	.	.	.	.
15.833	3.8676	26.63	. Q	. V	.	.	.	.
15.917	4.1023	34.09	. Q	. V	.	.	.	.
16.000	4.4167	45.65	. Q.	V	.	.	.	.
16.083	4.8344	60.66	. . Q	V	.	.	.	.
16.167	5.3941	81.27	. .	QV	.	.	.	.
16.250	6.1206	105.48	. .	VQ	.	.	.	.
16.333	6.9698	**123.30**	. .	. V **Q**	.	.	.	.

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16.417      7.6739    102.24  .          .          Q    V    .          .
16.500      8.2089     77.69  .          .    Q     .     V   .          .
16.583      8.6285     60.93  .          . Q        .       V .          .
16.667      8.9617     48.38  .        Q.           .        V.          .
16.750      9.2344     39.60  .      Q  .           .         V          .
16.833      9.4631     33.19  .     Q   .           .         .V         .
16.917      9.6601     28.61  .    Q    .           .         .V         .
17.000      9.8325     25.03  .    Q    .           .         . V        .
17.083      9.9826     21.80  .   Q     .           .         . V        .
17.167     10.1139     19.06  .  Q      .           .         .  V       .
17.250     10.2324     17.21  .  Q      .           .         .  V       .
17.333     10.3395     15.55  .  Q      .           .         .  V       .
17.417     10.4365     14.10  . Q       .           .         .   V      .
17.500     10.5239     12.68  . Q       .           .         .   V      .
17.583     10.6039     11.62  . Q       .           .         .   V      .
17.667     10.6760     10.47  . Q       .           .         .   V      .
17.750     10.7419      9.57  .Q        .           .         .    V     .
17.833     10.8012      8.61  .Q        .           .         .    V     .
17.917     10.8556      7.90  .Q        .           .         .    V     .
18.000     10.9046      7.12  .Q        .           .         .    V     .
18.083     10.9509      6.72  .Q        .           .         .    V     .
18.167     10.9959      6.54  .Q        .           .         .     V    .
18.250     11.0396      6.34  .Q        .           .         .     V    .
18.333     11.0818      6.13  .Q        .           .         .     V    .
18.417     11.1221      5.85  .Q        .           .         .     V    .
18.500     11.1598      5.46  .Q        .           .         .     V    .
18.583     11.1933      4.87  Q         .           .         .     V    .
18.667     11.2212      4.04  Q         .           .         .     V    .
18.750     11.2470      3.75  Q         .           .         .     V    .
18.833     11.2715      3.57  Q         .           .         .     V    .
18.917     11.2951      3.42  Q         .           .         .      V   .
19.000     11.3179      3.32  Q         .           .         .      V   .
19.083     11.3402      3.23  Q         .           .         .      V   .
19.167     11.3619      3.15  Q         .           .         .      V   .
19.250     11.3830      3.07  Q         .           .         .      V   .
19.333     11.4036      2.99  Q         .           .         .      V   .
19.417     11.4237      2.93  Q         .           .         .      V   .
19.500     11.4434      2.86  Q         .           .         .      V   .
19.583     11.4627      2.80  Q         .           .         .      V   .
19.667     11.4816      2.74  Q         .           .         .      V   .
19.750     11.5000      2.68  Q         .           .         .      V   .
19.833     11.5181      2.63  Q         .           .         .      V   .
19.917     11.5358      2.57  Q         .           .         .      V   .
20.000     11.5532      2.52  Q         .           .         .      V   .
20.083     11.5702      2.47  Q         .           .         .      V   .
20.167     11.5869      2.43  Q         .           .         .      V   .
20.250     11.6034      2.38  Q         .           .         .       V  .
20.333     11.6195      2.34  Q         .           .         .       V  .
20.417     11.6353      2.30  Q         .           .         .       V  .
20.500     11.6509      2.26  Q         .           .         .       V  .
20.583     11.6663      2.23  Q         .           .         .       V  .
20.667     11.6814      2.19  Q         .           .         .       V  .
20.750     11.6962      2.15  Q         .           .         .       V  .
20.833     11.7108      2.12  Q         .           .         .       V  .
20.917     11.7252      2.09  Q         .           .         .       V  .
21.000     11.7393      2.05  Q         .           .         .       V  .
21.083     11.7532      2.02  Q         .           .         .       V  .
21.167     11.7670      1.99  Q         .           .         .       V  .
21.250     11.7805      1.97  Q         .           .         .       V  .
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21.333	11.7938	1.94	Q	.	.	.	V .
21.417	11.8070	1.91	Q	.	.	.	V .
21.500	11.8200	1.88	Q	.	.	.	V .
21.583	11.8328	1.86	Q	.	.	.	V .
21.667	11.8454	1.83	Q	.	.	.	V .
21.750	11.8579	1.81	Q	.	.	.	V .
21.833	11.8702	1.79	Q	.	.	.	V .
21.917	11.8824	1.77	Q	.	.	.	V .
22.000	11.8944	1.74	Q	.	.	.	V .
22.083	11.9062	1.72	Q	.	.	.	V.
22.167	11.9180	1.70	Q	.	.	.	V.
22.250	11.9295	1.68	Q	.	.	.	V.
22.333	11.9410	1.66	Q	.	.	.	V.
22.417	11.9523	1.64	Q	.	.	.	V.
22.500	11.9635	1.62	Q	.	.	.	V.
22.583	11.9746	1.61	Q	.	.	.	V.
22.667	11.9855	1.59	Q	.	.	.	V.
22.750	11.9963	1.57	Q	.	.	.	V.
22.833	12.0070	1.56	Q	.	.	.	V.
22.917	12.0176	1.54	Q	.	.	.	V.
23.000	12.0281	1.52	Q	.	.	.	V.
23.083	12.0385	1.51	Q	.	.	.	V.
23.167	12.0488	1.49	Q	.	.	.	V.
23.250	12.0590	1.48	Q	.	.	.	V.
23.333	12.0690	1.46	Q	.	.	.	V.
23.417	12.0790	1.45	Q	.	.	.	V.
23.500	12.0889	1.43	Q	.	.	.	V.
23.583	12.0987	1.42	Q	.	.	.	V.
23.667	12.1084	1.41	Q	.	.	.	V.
23.750	12.1180	1.39	Q	.	.	.	V.
23.833	12.1275	1.38	Q	.	.	.	V.
23.917	12.1369	1.37	Q	.	.	.	V.
24.000	12.1463	1.36	Q	.	.	.	V.
24.083	12.1554	1.33	Q	.	.	.	V.
24.167	12.1640	1.25	Q	.	.	.	V.
24.250	12.1715	1.08	Q	.	.	.	V.
24.333	12.1770	0.80	Q	.	.	.	V.
24.417	12.1812	0.60	Q	.	.	.	V.
24.500	12.1845	0.48	Q	.	.	.	V.
24.583	12.1872	0.40	Q	.	.	.	V.
24.667	12.1895	0.33	Q	.	.	.	V.
24.750	12.1914	0.28	Q	.	.	.	V.
24.833	12.1931	0.24	Q	.	.	.	V.
24.917	12.1945	0.20	Q	.	.	.	V.
25.000	12.1957	0.17	Q	.	.	.	V.
25.083	12.1967	0.15	Q	.	.	.	V.
25.167	12.1976	0.13	Q	.	.	.	V.
25.250	12.1983	0.11	Q	.	.	.	V.
25.333	12.1990	0.09	Q	.	.	.	V.
25.417	12.1995	0.08	Q	.	.	.	V.
25.500	12.2000	0.07	Q	.	.	.	V.
25.583	12.2004	0.06	Q	.	.	.	V.
25.667	12.2007	0.05	Q	.	.	.	V.
25.750	12.2010	0.04	Q	.	.	.	V.
25.833	12.2012	0.03	Q	.	.	.	V.
25.917	12.2014	0.03	Q	.	.	.	V.
26.000	12.2016	0.03	Q	.	.	.	V.
26.083	12.2018	0.02	Q	.	.	.	V.
26.167	12.2019	0.02	Q	.	.	.	V.

26.250	12.2020	0.01	Q	.	.	.	V.
26.333	12.2021	0.01	Q	.	.	.	V.
26.417	12.2021	0.01	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1585.0
10%	120.0
20%	75.0
30%	50.0
40%	35.0
50%	25.0
60%	25.0
70%	15.0
80%	15.0
90%	5.0

UNIT HYDROGRAPH ANALYSIS, 100-YR STORM FREQUENCY
WONDER INN HOTEL PROJECT, 29-PALMS, CALIFORNIA
NODE 13 – WESTERLY PROJECT SITE LOCATION

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****************************************************************************
  FLOW PROCESS FROM NODE    12.00 TO NODE    13.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (UNIT-HYDROGRAPH ANALYSIS)<<<<<
============================================================================

      (UNIT-HYDROGRAPH ADDED TO STREAM #1)

         WATERSHED AREA =      12.400 ACRES
         BASEFLOW =   0.000 CFS/SQUARE-MILE
         *USER ENTERED "LAG" TIME =    0.230 HOURS (DERIVED FROM Tc)
          CAUTION: LAG TIME IS LESS THAN 0.50 HOURS.
          THE 5-MINUTE PERIOD UH MODEL (USED IN THIS COMPUTER PROGRAM)
          MAY BE TOO LARGE FOR PEAK FLOW ESTIMATES.
         DESERT(UNDEVELOPED) S-GRAPH SELECTED
         MAXIMUM WATERSHED LOSS RATE(INCH/HOUR) =  0.010
         LOW LOSS FRACTION = 0.030
         *HYDROGRAPH MODEL #1 SPECIFIED*

    100-YEAR NOAA 14 PRECIPITATION FOR PROJECT SITE:
         SPECIFIED PEAK  5-MINUTES RAINFALL(INCH)=  0.60
         SPECIFIED PEAK 30-MINUTES RAINFALL(INCH)=  1.51
         SPECIFIED PEAK  1-HOUR RAINFALL(INCH) =  1.90
         SPECIFIED PEAK  3-HOUR RAINFALL(INCH) =  2.27
         SPECIFIED PEAK  6-HOUR RAINFALL(INCH) =  2.57
         SPECIFIED PEAK 24-HOUR RAINFALL(INCH) =  3.44

         PRECIPITATION DEPTH-AREA REDUCTION FACTORS:
           5-MINUTE FACTOR = 0.999
          30-MINUTE FACTOR = 0.999
           1-HOUR FACTOR = 0.999
           3-HOUR FACTOR = 1.000
           6-HOUR FACTOR = 1.000
          24-HOUR FACTOR = 1.000

         UNIT HYDROGRAPH TIME UNIT =   5.000 MINUTES
         UNIT INTERVAL PERCENTAGE OF LAG-TIME =  36.232

============================================================================
                      UNIT HYDROGRAPH DETERMINATION

----------------------------------------------------------------------------
    INTERVAL          "S" GRAPH          UNIT HYDROGRAPH
     NUMBER          MEAN VALUES          ORDINATES(CFS)
----------------------------------------------------------------------------
        1                2.355                3.532
        2               14.606               18.371
        3               43.157               42.816
        4               61.537               27.564
        5               71.417               14.816
        6               78.024                9.907
        7               82.713                7.033
        8               86.338                5.436
        9               89.150                4.216
       10               91.259                3.162
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11	93.030	2.657
12	94.466	2.154
13	95.650	1.775
14	96.612	1.442
15	97.357	1.117
16	97.911	0.832
17	98.285	0.561
18	98.709	0.635
19	99.143	0.652
20	99.567	0.635
21	99.990	0.635
22	100.000	0.015

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UNIT PERIOD (NUMBER)	UNIT RAINFALL (INCHES)	UNIT SOIL-LOSS (INCHES)	EFFECTIVE RAINFALL (INCHES)
1	0.0025	0.0001	0.0024
2	0.0025	0.0001	0.0024
3	0.0025	0.0001	0.0025
4	0.0025	0.0001	0.0025
5	0.0026	0.0001	0.0025
6	0.0026	0.0001	0.0025
7	0.0026	0.0001	0.0025
8	0.0026	0.0001	0.0025
9	0.0026	0.0001	0.0025
10	0.0026	0.0001	0.0025
11	0.0026	0.0001	0.0025
12	0.0026	0.0001	0.0026
13	0.0026	0.0001	0.0026
14	0.0027	0.0001	0.0026
15	0.0027	0.0001	0.0026
16	0.0027	0.0001	0.0026
17	0.0027	0.0001	0.0026
18	0.0027	0.0001	0.0026
19	0.0027	0.0001	0.0026
20	0.0027	0.0001	0.0026
21	0.0027	0.0001	0.0027
22	0.0028	0.0001	0.0027
23	0.0028	0.0001	0.0027
24	0.0028	0.0001	0.0027
25	0.0028	0.0001	0.0027
26	0.0028	0.0001	0.0027
27	0.0028	0.0001	0.0027
28	0.0028	0.0001	0.0027
29	0.0028	0.0001	0.0028
30	0.0029	0.0001	0.0028
31	0.0029	0.0001	0.0028
32	0.0029	0.0001	0.0028
33	0.0029	0.0001	0.0028
34	0.0029	0.0001	0.0028
35	0.0029	0.0001	0.0028
36	0.0029	0.0001	0.0029
37	0.0030	0.0001	0.0029
38	0.0030	0.0001	0.0029
39	0.0030	0.0001	0.0029
40	0.0030	0.0001	0.0029
41	0.0030	0.0001	0.0029

42	0.0030	0.0001	0.0029
43	0.0031	0.0001	0.0030
44	0.0031	0.0001	0.0030
45	0.0031	0.0001	0.0030
46	0.0031	0.0001	0.0030
47	0.0031	0.0001	0.0030
48	0.0031	0.0001	0.0030
49	0.0032	0.0001	0.0031
50	0.0032	0.0001	0.0031
51	0.0032	0.0001	0.0031
52	0.0032	0.0001	0.0031
53	0.0032	0.0001	0.0031
54	0.0032	0.0001	0.0031
55	0.0033	0.0001	0.0032
56	0.0033	0.0001	0.0032
57	0.0033	0.0001	0.0032
58	0.0033	0.0001	0.0032
59	0.0033	0.0001	0.0032
60	0.0034	0.0001	0.0033
61	0.0034	0.0001	0.0033
62	0.0034	0.0001	0.0033
63	0.0034	0.0001	0.0033
64	0.0034	0.0001	0.0033
65	0.0035	0.0001	0.0034
66	0.0035	0.0001	0.0034
67	0.0035	0.0001	0.0034
68	0.0035	0.0001	0.0034
69	0.0036	0.0001	0.0034
70	0.0036	0.0001	0.0035
71	0.0036	0.0001	0.0035
72	0.0036	0.0001	0.0035
73	0.0036	0.0001	0.0035
74	0.0037	0.0001	0.0036
75	0.0037	0.0001	0.0036
76	0.0037	0.0001	0.0036
77	0.0037	0.0001	0.0036
78	0.0038	0.0001	0.0037
79	0.0038	0.0001	0.0037
80	0.0038	0.0001	0.0037
81	0.0039	0.0001	0.0037
82	0.0039	0.0001	0.0038
83	0.0039	0.0001	0.0038
84	0.0039	0.0001	0.0038
85	0.0040	0.0001	0.0038
86	0.0040	0.0001	0.0039
87	0.0040	0.0001	0.0039
88	0.0040	0.0001	0.0039
89	0.0041	0.0001	0.0040
90	0.0041	0.0001	0.0040
91	0.0042	0.0001	0.0040
92	0.0042	0.0001	0.0040
93	0.0042	0.0001	0.0041
94	0.0042	0.0001	0.0041
95	0.0043	0.0001	0.0042
96	0.0043	0.0001	0.0042
97	0.0044	0.0001	0.0042
98	0.0044	0.0001	0.0042
99	0.0044	0.0001	0.0043
100	0.0045	0.0001	0.0043

101	0.0045	0.0001	0.0044
102	0.0045	0.0001	0.0044
103	0.0046	0.0001	0.0044
104	0.0046	0.0001	0.0045
105	0.0047	0.0001	0.0045
106	0.0047	0.0001	0.0046
107	0.0048	0.0001	0.0046
108	0.0048	0.0001	0.0046
109	0.0048	0.0001	0.0047
110	0.0049	0.0001	0.0047
111	0.0049	0.0001	0.0048
112	0.0050	0.0001	0.0048
113	0.0050	0.0002	0.0049
114	0.0051	0.0002	0.0049
115	0.0051	0.0002	0.0050
116	0.0052	0.0002	0.0050
117	0.0052	0.0002	0.0051
118	0.0053	0.0002	0.0051
119	0.0054	0.0002	0.0052
120	0.0054	0.0002	0.0052
121	0.0055	0.0002	0.0053
122	0.0055	0.0002	0.0053
123	0.0056	0.0002	0.0054
124	0.0056	0.0002	0.0055
125	0.0057	0.0002	0.0056
126	0.0058	0.0002	0.0056
127	0.0059	0.0002	0.0057
128	0.0059	0.0002	0.0057
129	0.0060	0.0002	0.0058
130	0.0061	0.0002	0.0059
131	0.0062	0.0002	0.0060
132	0.0062	0.0002	0.0060
133	0.0063	0.0002	0.0061
134	0.0064	0.0002	0.0062
135	0.0065	0.0002	0.0063
136	0.0066	0.0002	0.0064
137	0.0067	0.0002	0.0065
138	0.0067	0.0002	0.0065
139	0.0069	0.0002	0.0067
140	0.0069	0.0002	0.0067
141	0.0071	0.0002	0.0069
142	0.0072	0.0002	0.0069
143	0.0073	0.0002	0.0071
144	0.0074	0.0002	0.0072
145	0.0064	0.0002	0.0062
146	0.0065	0.0002	0.0063
147	0.0067	0.0002	0.0065
148	0.0067	0.0002	0.0065
149	0.0069	0.0002	0.0067
150	0.0070	0.0002	0.0068
151	0.0072	0.0002	0.0070
152	0.0073	0.0002	0.0071
153	0.0075	0.0002	0.0073
154	0.0076	0.0002	0.0074
155	0.0078	0.0002	0.0076
156	0.0079	0.0002	0.0077
157	0.0082	0.0002	0.0079
158	0.0083	0.0002	0.0080
159	0.0086	0.0003	0.0083

160	0.0087	0.0003	0.0084
161	0.0090	0.0003	0.0087
162	0.0092	0.0003	0.0089
163	0.0095	0.0003	0.0092
164	0.0097	0.0003	0.0094
165	0.0101	0.0003	0.0097
166	0.0103	0.0003	0.0099
167	0.0107	0.0003	0.0104
168	0.0109	0.0003	0.0106
169	0.0104	0.0003	0.0100
170	0.0106	0.0003	0.0103
171	0.0112	0.0003	0.0108
172	0.0115	0.0003	0.0111
173	0.0121	0.0004	0.0117
174	0.0125	0.0004	0.0121
175	0.0132	0.0004	0.0128
176	0.0137	0.0004	0.0133
177	0.0146	0.0004	0.0142
178	0.0152	0.0005	0.0147
179	0.0164	0.0005	0.0159
180	0.0171	0.0005	0.0166
181	0.0187	0.0006	0.0182
182	0.0197	0.0006	0.0191
183	0.0219	0.0007	0.0213
184	0.0233	0.0007	0.0226
185	0.0540	0.0008	0.0531
186	0.0574	0.0008	0.0566
187	0.0661	0.0008	0.0652
188	0.0719	0.0008	0.0711
189	0.1350	0.0008	0.1342
190	0.1490	0.0008	0.1482
191	0.1987	0.0008	0.1979
192	0.2574	0.0008	0.2566
193	0.6007	0.0008	0.5998
194	0.1684	0.0008	0.1675
195	0.0791	0.0008	0.0782
196	0.0613	0.0008	0.0605
197	0.0248	0.0007	0.0241
198	0.0207	0.0006	0.0201
199	0.0179	0.0005	0.0173
200	0.0158	0.0005	0.0153
201	0.0141	0.0004	0.0137
202	0.0128	0.0004	0.0124
203	0.0118	0.0004	0.0114
204	0.0109	0.0003	0.0105
205	0.0112	0.0003	0.0108
206	0.0105	0.0003	0.0102
207	0.0099	0.0003	0.0096
208	0.0093	0.0003	0.0090
209	0.0088	0.0003	0.0086
210	0.0084	0.0003	0.0082
211	0.0080	0.0002	0.0078
212	0.0077	0.0002	0.0075
213	0.0074	0.0002	0.0072
214	0.0071	0.0002	0.0069
215	0.0068	0.0002	0.0066
216	0.0066	0.0002	0.0064
217	0.0075	0.0002	0.0072
218	0.0072	0.0002	0.0070

219	0.0070	0.0002	0.0068
220	0.0068	0.0002	0.0066
221	0.0066	0.0002	0.0064
222	0.0064	0.0002	0.0062
223	0.0063	0.0002	0.0061
224	0.0061	0.0002	0.0059
225	0.0060	0.0002	0.0058
226	0.0058	0.0002	0.0056
227	0.0057	0.0002	0.0055
228	0.0056	0.0002	0.0054
229	0.0054	0.0002	0.0053
230	0.0053	0.0002	0.0052
231	0.0052	0.0002	0.0050
232	0.0051	0.0002	0.0049
233	0.0050	0.0001	0.0048
234	0.0049	0.0001	0.0048
235	0.0048	0.0001	0.0047
236	0.0047	0.0001	0.0046
237	0.0046	0.0001	0.0045
238	0.0046	0.0001	0.0044
239	0.0045	0.0001	0.0043
240	0.0044	0.0001	0.0043
241	0.0043	0.0001	0.0042
242	0.0043	0.0001	0.0041
243	0.0042	0.0001	0.0041
244	0.0041	0.0001	0.0040
245	0.0041	0.0001	0.0039
246	0.0040	0.0001	0.0039
247	0.0039	0.0001	0.0038
248	0.0039	0.0001	0.0038
249	0.0038	0.0001	0.0037
250	0.0038	0.0001	0.0037
251	0.0037	0.0001	0.0036
252	0.0037	0.0001	0.0036
253	0.0036	0.0001	0.0035
254	0.0036	0.0001	0.0035
255	0.0035	0.0001	0.0034
256	0.0035	0.0001	0.0034
257	0.0035	0.0001	0.0033
258	0.0034	0.0001	0.0033
259	0.0034	0.0001	0.0033
260	0.0033	0.0001	0.0032
261	0.0033	0.0001	0.0032
262	0.0033	0.0001	0.0032
263	0.0032	0.0001	0.0031
264	0.0032	0.0001	0.0031
265	0.0031	0.0001	0.0031
266	0.0031	0.0001	0.0030
267	0.0031	0.0001	0.0030
268	0.0030	0.0001	0.0030
269	0.0030	0.0001	0.0029
270	0.0030	0.0001	0.0029
271	0.0030	0.0001	0.0029
272	0.0029	0.0001	0.0028
273	0.0029	0.0001	0.0028
274	0.0029	0.0001	0.0028
275	0.0028	0.0001	0.0028
276	0.0028	0.0001	0.0027
277	0.0028	0.0001	0.0027

278	0.0028	0.0001	0.0027
279	0.0027	0.0001	0.0027
280	0.0027	0.0001	0.0026
281	0.0027	0.0001	0.0026
282	0.0027	0.0001	0.0026
283	0.0026	0.0001	0.0026
284	0.0026	0.0001	0.0025
285	0.0026	0.0001	0.0025
286	0.0026	0.0001	0.0025
287	0.0026	0.0001	0.0025
288	0.0025	0.0001	0.0025

TOTAL STORM RAINFALL(INCHES) = 3.44
TOTAL SOIL-LOSS(INCHES) = 0.06
TOTAL EFFECTIVE RAINFALL(INCHES) = 3.38

TOTAL SOIL-LOSS VOLUME(ACRE-FEET) = 0.0581
TOTAL STORM RUNOFF VOLUME(ACRE-FEET) = **3.4947**

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2 4 - H O U R S T O R M
R U N O F F H Y D R O G R A P H

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HYDROGRAPH IN FIVE-MINUTE UNIT INTERVALS(CFS)
(Note: Time indicated is at END of Each Unit Intervals)

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	12.5	25.0	37.5	50.0
0.083	0.0001	0.01	Q	.	.	.	.
0.167	0.0004	0.05	Q	.	.	.	.
0.250	0.0015	0.16	Q	.	.	.	.
0.333	0.0031	0.23	Q	.	.	.	.
0.417	0.0049	0.26	Q	.	.	.	.
0.500	0.0069	0.29	Q	.	.	.	.
0.583	0.0090	0.31	Q	.	.	.	.
0.667	0.0112	0.32	Q	.	.	.	.
0.750	0.0135	0.33	Q	.	.	.	.
0.833	0.0158	0.34	Q	.	.	.	.
0.917	0.0183	0.35	Q	.	.	.	.
1.000	0.0207	0.36	Q	.	.	.	.
1.083	0.0232	0.36	Q	.	.	.	.
1.167	0.0257	0.37	Q	.	.	.	.
1.250	0.0283	0.37	Q	.	.	.	.
1.333	0.0309	0.38	Q	.	.	.	.
1.417	0.0335	0.38	Q	.	.	.	.
1.500	0.0361	0.38	Q	.	.	.	.
1.583	0.0388	0.39	Q	.	.	.	.
1.667	0.0414	0.39	Q	.	.	.	.
1.750	0.0441	0.39	Q	.	.	.	.
1.833	0.0469	0.39	Q	.	.	.	.
1.917	0.0496	0.40	Q	.	.	.	.
2.000	0.0523	0.40	Q	.	.	.	.
2.083	0.0551	0.40	Q	.	.	.	.
2.167	0.0578	0.40	Q	.	.	.	.
2.250	0.0606	0.40	Q	.	.	.	.

2.333	0.0634	0.40	Q	.	.	.	.
2.417	0.0662	0.41	Q	.	.	.	.
2.500	0.0690	0.41	Q	.	.	.	.
2.583	0.0718	0.41	Q	.	.	.	.
2.667	0.0746	0.41	Q	.	.	.	.
2.750	0.0775	0.41	Q	.	.	.	.
2.833	0.0804	0.42	Q	.	.	.	.
2.917	0.0832	0.42	Q	.	.	.	.
3.000	0.0861	0.42	Q	.	.	.	.
3.083	0.0891	0.42	QV	.	.	.	.
3.167	0.0920	0.42	QV	.	.	.	.
3.250	0.0949	0.43	QV	.	.	.	.
3.333	0.0979	0.43	QV	.	.	.	.
3.417	0.1008	0.43	QV	.	.	.	.
3.500	0.1038	0.43	QV	.	.	.	.
3.583	0.1068	0.44	QV	.	.	.	.
3.667	0.1098	0.44	QV	.	.	.	.
3.750	0.1129	0.44	QV	.	.	.	.
3.833	0.1159	0.44	QV	.	.	.	.
3.917	0.1190	0.44	QV	.	.	.	.
4.000	0.1220	0.45	QV	.	.	.	.
4.083	0.1251	0.45	QV	.	.	.	.
4.167	0.1282	0.45	QV	.	.	.	.
4.250	0.1314	0.45	QV	.	.	.	.
4.333	0.1345	0.46	QV	.	.	.	.
4.417	0.1377	0.46	QV	.	.	.	.
4.500	0.1409	0.46	QV	.	.	.	.
4.583	0.1440	0.46	QV	.	.	.	.
4.667	0.1473	0.47	QV	.	.	.	.
4.750	0.1505	0.47	QV	.	.	.	.
4.833	0.1537	0.47	QV	.	.	.	.
4.917	0.1570	0.47	QV	.	.	.	.
5.000	0.1603	0.48	QV	.	.	.	.
5.083	0.1636	0.48	QV	.	.	.	.
5.167	0.1669	0.48	QV	.	.	.	.
5.250	0.1703	0.49	QV	.	.	.	.
5.333	0.1737	0.49	QV	.	.	.	.
5.417	0.1770	0.49	Q V	.	.	.	.
5.500	0.1804	0.49	Q V	.	.	.	.
5.583	0.1839	0.50	Q V	.	.	.	.
5.667	0.1873	0.50	Q V	.	.	.	.
5.750	0.1908	0.50	Q V	.	.	.	.
5.833	0.1943	0.51	Q V	.	.	.	.
5.917	0.1978	0.51	Q V	.	.	.	.
6.000	0.2013	0.51	Q V	.	.	.	.
6.083	0.2049	0.52	Q V	.	.	.	.
6.167	0.2085	0.52	Q V	.	.	.	.
6.250	0.2121	0.52	Q V	.	.	.	.
6.333	0.2157	0.53	Q V	.	.	.	.
6.417	0.2194	0.53	Q V	.	.	.	.
6.500	0.2230	0.53	Q V	.	.	.	.
6.583	0.2267	0.54	Q V	.	.	.	.
6.667	0.2305	0.54	Q V	.	.	.	.
6.750	0.2342	0.54	Q V	.	.	.	.
6.833	0.2380	0.55	Q V	.	.	.	.
6.917	0.2418	0.55	Q V	.	.	.	.
7.000	0.2456	0.56	Q V	.	.	.	.
7.083	0.2495	0.56	Q V	.	.	.	.
7.167	0.2534	0.56	Q V	.	.	.	.

7.250	0.2573	0.57	Q V	.	.	.	.
7.333	0.2612	0.57	Q V	.	.	.	.
7.417	0.2652	0.58	Q V	.	.	.	.
7.500	0.2692	0.58	Q V	.	.	.	.
7.583	0.2732	0.59	Q V	.	.	.	.
7.667	0.2773	0.59	Q V	.	.	.	.
7.750	0.2814	0.59	Q V	.	.	.	.
7.833	0.2855	0.60	Q V	.	.	.	.
7.917	0.2896	0.60	Q V	.	.	.	.
8.000	0.2938	0.61	Q V	.	.	.	.
8.083	0.2980	0.61	Q V	.	.	.	.
8.167	0.3023	0.62	Q V	.	.	.	.
8.250	0.3066	0.62	Q V	.	.	.	.
8.333	0.3109	0.63	Q V	.	.	.	.
8.417	0.3153	0.63	Q V	.	.	.	.
8.500	0.3197	0.64	Q V	.	.	.	.
8.583	0.3241	0.64	Q V	.	.	.	.
8.667	0.3286	0.65	Q V	.	.	.	.
8.750	0.3331	0.65	Q V	.	.	.	.
8.833	0.3376	0.66	Q V	.	.	.	.
8.917	0.3422	0.67	Q V	.	.	.	.
9.000	0.3468	0.67	Q V	.	.	.	.
9.083	0.3515	0.68	Q V	.	.	.	.
9.167	0.3562	0.68	Q V	.	.	.	.
9.250	0.3610	0.69	Q V	.	.	.	.
9.333	0.3658	0.70	Q V	.	.	.	.
9.417	0.3706	0.70	Q V	.	.	.	.
9.500	0.3755	0.71	Q V	.	.	.	.
9.583	0.3804	0.72	Q V	.	.	.	.
9.667	0.3854	0.72	Q V	.	.	.	.
9.750	0.3904	0.73	Q V	.	.	.	.
9.833	0.3955	0.74	Q V	.	.	.	.
9.917	0.4007	0.75	Q V	.	.	.	.
10.000	0.4059	0.75	Q V	.	.	.	.
10.083	0.4111	0.76	Q V	.	.	.	.
10.167	0.4164	0.77	Q V	.	.	.	.
10.250	0.4218	0.78	Q V	.	.	.	.
10.333	0.4272	0.79	Q V	.	.	.	.
10.417	0.4326	0.79	Q V	.	.	.	.
10.500	0.4382	0.80	Q V	.	.	.	.
10.583	0.4438	0.81	Q V	.	.	.	.
10.667	0.4494	0.82	Q V	.	.	.	.
10.750	0.4552	0.83	Q V	.	.	.	.
10.833	0.4610	0.84	Q V	.	.	.	.
10.917	0.4668	0.85	Q V	.	.	.	.
11.000	0.4728	0.86	Q V	.	.	.	.
11.083	0.4788	0.87	Q V	.	.	.	.
11.167	0.4849	0.88	Q V	.	.	.	.
11.250	0.4910	0.90	Q V	.	.	.	.
11.333	0.4973	0.91	Q V	.	.	.	.
11.417	0.5036	0.92	Q V	.	.	.	.
11.500	0.5100	0.93	Q V	.	.	.	.
11.583	0.5165	0.94	Q V	.	.	.	.
11.667	0.5231	0.96	Q V	.	.	.	.
11.750	0.5298	0.97	Q V	.	.	.	.
11.833	0.5366	0.98	Q V	.	.	.	.
11.917	0.5435	1.00	Q V	.	.	.	.
12.000	0.5504	1.01	Q V	.	.	.	.
12.083	0.5575	1.03	Q V	.	.	.	.

12.167	0.5645	1.02	Q V . . . .
12.250	0.5714	0.99	Q V . . . .
12.333	0.5781	0.98	Q V . . . .
12.417	0.5848	0.98	Q V . . . .
12.500	0.5916	0.98	Q V . . . .
12.583	0.5985	1.00	Q V . . . .
12.667	0.6054	1.01	Q V . . . .
12.750	0.6125	1.02	Q V . . . .
12.833	0.6196	1.04	Q V . . . .
12.917	0.6269	1.06	Q V . . . .
13.000	0.6343	1.07	Q V . . . .
13.083	0.6418	1.09	Q V . . . .
13.167	0.6495	1.12	Q V . . . .
13.250	0.6573	1.14	Q V . . . .
13.333	0.6654	1.16	Q V . . . .
13.417	0.6735	1.19	Q V . . . .
13.500	0.6819	1.22	Q V . . . .
13.583	0.6905	1.25	Q V . . . .
13.667	0.6993	1.28	.Q V . . . .
13.750	0.7084	1.31	.Q V . . . .
13.833	0.7176	1.35	.Q V . . . .
13.917	0.7271	1.38	.Q V . . . .
14.000	0.7369	1.42	.Q V . . . .
14.083	0.7470	1.46	.Q V . . . .
14.167	0.7573	1.49	.Q V . . . .
14.250	0.7676	1.49	.Q V . . . .
14.333	0.7780	1.51	.Q V . . . .
14.417	0.7887	1.55	.Q V. . . . .
14.500	0.7997	1.60	.Q V. . . . .
14.583	0.8112	1.66	.Q V. . . . .
14.667	0.8230	1.72	.Q V. . . . .
14.750	0.8353	1.79	.Q V. . . . .
14.833	0.8482	1.87	.Q V. . . . .
14.917	0.8617	1.96	.Q V. . . . .
15.000	0.8759	2.06	.Q V . . . .
15.083	0.8908	2.17	.Q V . . . .
15.167	0.9066	2.30	.Q V . . . .
15.250	0.9235	2.45	.Q V . . . .
15.333	0.9415	2.61	. Q V . . . .
15.417	0.9616	2.92	. Q .V . . . .
15.500	0.9868	3.66	. Q .V . . . .
15.583	1.0223	5.16	. Q .V . . . .
15.667	1.0664	6.40	. Q . V . . . .
15.750	1.1195	7.70	. Q . V . . . .
15.833	1.1869	9.79	. Q . V . . . .
15.917	1.2799	13.50	. Q V . . . .
16.000	1.3993	17.34	. . Q V . . . .
16.083	1.5602	23.37	. . VQ . . . .
16.167	1.7880	33.08	. . V Q . . .
16.250	2.0816	**42.63**	. . . V . **Q** .
16.333	2.3145	33.82	. . . VQ . . .
16.417	2.4804	24.09	. . Q. V . . .
16.500	2.6059	18.22	. . Q . V. . .
16.583	2.7003	13.71	. Q . V . . .
16.667	2.7746	10.79	. Q . .V . . .
16.750	2.8350	8.77	. Q . . V . .
16.833	2.8847	7.22	. Q . . V . .
16.917	2.9271	6.15	. Q . . V . .
17.000	2.9633	5.25	. Q . . V . .

17.083	2.9944	4.52	. Q	.	.	. V	.
17.167	3.0214	3.92	. Q	.	.	. V	.
17.250	3.0450	3.42	. Q	.	.	. V	.
17.333	3.0656	3.00	. Q	.	.	. V	.
17.417	3.0840	2.66	. Q	.	.	. V	.
17.500	3.1010	2.47	.Q	.	.	. V	.
17.583	3.1168	2.30	.Q	.	.	. V	.
17.667	3.1312	2.09	.Q	.	.	. V	.
17.750	3.1441	1.87	.Q	.	.	. V	.
17.833	3.1541	1.45	.Q	.	.	. V	.
17.917	3.1629	1.29	.Q	.	.	. V	.
18.000	3.1711	1.19	Q	.	.	. V	.
18.083	3.1789	1.12	Q	.	.	. V	.
18.167	3.1864	1.09	Q	.	.	. V	.
18.250	3.1939	1.09	Q	.	.	. V	.
18.333	3.2014	1.08	Q	.	.	. V	.
18.417	3.2087	1.06	Q	.	.	. V	.
18.500	3.2158	1.03	Q	.	.	. V	.
18.583	3.2227	1.01	Q	.	.	. V	.
18.667	3.2295	0.98	Q	.	.	. V	.
18.750	3.2361	0.96	Q	.	.	. V	.
18.833	3.2426	0.94	Q	.	.	. V	.
18.917	3.2489	0.91	Q	.	.	. V	.
19.000	3.2550	0.89	Q	.	.	. V	.
19.083	3.2610	0.87	Q	.	.	. V	.
19.167	3.2669	0.85	Q	.	.	. V	.
19.250	3.2726	0.83	Q	.	.	. V	.
19.333	3.2782	0.81	Q	.	.	. V	.
19.417	3.2837	0.80	Q	.	.	. V	.
19.500	3.2891	0.78	Q	.	.	. V	.
19.583	3.2943	0.76	Q	.	.	. V	.
19.667	3.2995	0.75	Q	.	.	. V	.
19.750	3.3045	0.73	Q	.	.	. V	.
19.833	3.3095	0.72	Q	.	.	. V	.
19.917	3.3143	0.71	Q	.	.	. V	.
20.000	3.3191	0.69	Q	.	.	. V	.
20.083	3.3238	0.68	Q	.	.	. V	.
20.167	3.3284	0.67	Q	.	.	. V	.
20.250	3.3329	0.66	Q	.	.	. V	.
20.333	3.3373	0.64	Q	.	.	. V	.
20.417	3.3417	0.63	Q	.	.	. V	.
20.500	3.3460	0.62	Q	.	.	. V	.
20.583	3.3502	0.61	Q	.	.	. V	.
20.667	3.3544	0.60	Q	.	.	. V	.
20.750	3.3585	0.59	Q	.	.	. V	.
20.833	3.3625	0.59	Q	.	.	. V	.
20.917	3.3665	0.58	Q	.	.	. V	.
21.000	3.3704	0.57	Q	.	.	. V	.
21.083	3.3742	0.56	Q	.	.	. V	.
21.167	3.3780	0.55	Q	.	.	. V	.
21.250	3.3818	0.55	Q	.	.	. V	.
21.333	3.3855	0.54	Q	.	.	. V	.
21.417	3.3892	0.53	Q	.	.	. V	.
21.500	3.3928	0.52	Q	.	.	. V	.
21.583	3.3963	0.52	Q	.	.	. V	.
21.667	3.3998	0.51	Q	.	.	. V	.
21.750	3.4033	0.50	Q	.	.	. V	.
21.833	3.4067	0.50	Q	.	.	. V	.
21.917	3.4101	0.49	Q	.	.	. V	.

22.000	3.4135	0.49	Q	.	.	.	V.
22.083	3.4168	0.48	Q	.	.	.	V.
22.167	3.4201	0.47	Q	.	.	.	V.
22.250	3.4233	0.47	Q	.	.	.	V.
22.333	3.4265	0.46	Q	.	.	.	V.
22.417	3.4297	0.46	Q	.	.	.	V.
22.500	3.4328	0.45	Q	.	.	.	V.
22.583	3.4359	0.45	Q	.	.	.	V.
22.667	3.4389	0.44	Q	.	.	.	V.
22.750	3.4420	0.44	Q	.	.	.	V.
22.833	3.4450	0.44	Q	.	.	.	V.
22.917	3.4479	0.43	Q	.	.	.	V.
23.000	3.4509	0.43	Q	.	.	.	V.
23.083	3.4538	0.42	Q	.	.	.	V.
23.167	3.4567	0.42	Q	.	.	.	V.
23.250	3.4595	0.41	Q	.	.	.	V.
23.333	3.4623	0.41	Q	.	.	.	V.
23.417	3.4651	0.41	Q	.	.	.	V.
23.500	3.4679	0.40	Q	.	.	.	V.
23.583	3.4707	0.40	Q	.	.	.	V.
23.667	3.4734	0.40	Q	.	.	.	V.
23.750	3.4761	0.39	Q	.	.	.	V.
23.833	3.4787	0.39	Q	.	.	.	V.
23.917	3.4814	0.38	Q	.	.	.	V.
24.000	3.4840	0.38	Q	.	.	.	V.
24.083	3.4866	0.37	Q	.	.	.	V.
24.167	3.4888	0.32	Q	.	.	.	V.
24.250	3.4903	0.21	Q	.	.	.	V.
24.333	3.4913	0.15	Q	.	.	.	V.
24.417	3.4920	0.11	Q	.	.	.	V.
24.500	3.4926	0.08	Q	.	.	.	V.
24.583	3.4930	0.07	Q	.	.	.	V.
24.667	3.4934	0.05	Q	.	.	.	V.
24.750	3.4937	0.04	Q	.	.	.	V.
24.833	3.4939	0.03	Q	.	.	.	V.
24.917	3.4941	0.03	Q	.	.	.	V.
25.000	3.4942	0.02	Q	.	.	.	V.
25.083	3.4943	0.02	Q	.	.	.	V.
25.167	3.4944	0.01	Q	.	.	.	V.
25.250	3.4945	0.01	Q	.	.	.	V.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1515.0
10%	95.0
20%	60.0
30%	45.0
40%	35.0
50%	25.0
60%	15.0
70%	15.0
80%	5.0
90%	5.0

Appendix F-2

Preliminary Technical Report for Wonder Inn Potable Water System
Transient Non-Community Domestic Water Well

Woodard & Curran, Inc.

June 8, 2021

(With Approval Letter from San Bernardino County Environmental Health dated August 20, 2021)

385 N Arrowhead Ave. 2nd Floor, San Bernardino, CA 92415 | Phone: 800.442.2283| Fax: 909.387.4323
www.SBCounty.gov

SAN BERNARDINO COUNTY

Public Health
Environmental Health Services

Joshua Dugas, MBA, REHS
Director

Michael A. Sequeira, M.D.
Health Officer

Jennifer Osorio, REHS
Division Chief

August 20, 2021

Mr. Alan R. Greenberg
78201 Amboy Road
Twentynine Palms, CA 92277

Subject: Preliminary Technical Report Approval for APN: 0625-071-04, 0625-071-05, 0625-071-07, 0625-071-08, 0625-071-09, 0625-071-10

Dear Alan R. Greenberg,

The Division of Environmental Health Services (EHS) has received the preliminary technical report for 78201 AMBOY ROAD, TWENTYNINE PALMS, CA 92277, APN: 0625-071-04, 0625-071-05, 0625-071-07, 0625-071-08, 0625-071-09, 0625-071-10. A copy was sent to the State Water Resource Control Board (SWRCB), Division of Drinking Water (DDW).

EHS and DDW concurrently approved the preliminary technical report for the commencement of water related construction with the following conditions:

All components used in building the water system shall meet Title 22 California Code of Regulations requirements, and applicable AWWA, NSF 61 standards. Specifications Data Sheets shall be provided prior installation. Water well(s) shall meet DWR 74-81 and 74-90, waterworks standards and AWWA standards. EHS permit must be obtained prior to construction or well rehabilitation.

Prior to occupancy/use, an approved domestic water supply permit will need to be on file with EHS. A Permit Application (enclosed), a Health Permit Application, a Technical Managerial and Financial (TMF) document, Engineering Report, Emergency Notification Form, Emergency response plan, Bacterial Sample Siting Plan, and a detailed water system plan shall be submitted and approved by EHS prior to issuance of the permit.

Information related to water system permit and well application is available at the following https://wp.sbcounty.gov/dph/programs/ehs/safe-drinking-water/.

Sincerely,

Gabriela Garcia, REHS
Environmental Health Specialist III
Land Use Protection Program

BOARD OF SUPERVISORS
Col. Paul Cook (Ret.) First District | Janice Rutherford Second District | Dawn Rowe Vice Chair, Third District | Curt Hagman Chairman, Fourth District | Joe Baca, Jr. Fifth District
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FINAL PRELIMINARY TECHNICAL REPORT



TO: Phanessa Adams-Holt phanessa@thewonderinn.com

PREPARED BY: Janet Fordunski, PE; Martha de Maria y Campos, PE

REVIEWED BY: Erica Wolski, PE

DATE: June 8, 2021

RE: Preliminary Technical Report for Wonder Inn Potable Water System Transient Non-Community Domestic Water Well

1. INTRODUCTION

Wonder Inn is a proposed hospitality development with approximately 140 hotel units (one-bedroom bungalows) near Twentynine Palms, CA. The property has two existing wells that will serve as the source of domestic, irrigation, and fire suppression water at the site. It is anticipated that the smaller capacity well will be used for irrigation only.

A public water system is defined as providing water for human consumption to at least 15 service connections or to at least 25 people for at least 60 days per year, Wonder Inn would meet this classification. The drinking water standards required to be met depend on how the public water system is defined: a community water system (CWS), non-transient non-community (NTNC) water system or a transient non-community (TNC) water system.

A TNC water system is a public water system that does not regularly serve at least 25 of the same persons over six months of the year, such as a campground or highway rest stop. Wonder Inn intends to operate the development as a TNC water system, limiting the number of employees to less than 25 and limiting guest stays to less than 60 days to prevent the development being classified as a CWS. The purpose of this technical report is to obtain a TNC water system permit for Wonder Inn near Twentynine Palms, California.

1.1 Applicant General Information

Applicant and Legal Owner:

Alan R. Greenberg
(310) 999-1169
Wondervalley29@gmail.com
See **Appendix A** for proof of ownership. Parcels will be transferred to the Wonder Inn, LLC in the future.

Engineering consultant responsible for the overall project:

David Mlynarski, PE
Transtech Engineers
David.mlynarski@Transtech.org
(909) 384-7464 Ext. 106

Engineering consultant responsible for permitting of the public water system portion of the project:

Erica Wolski, PE
Woodard & Curran
ewolski@woodardcurran.com
(858) 875-7425

Have you applied to be a public water system previously for this property? ☐ Yes ☒ No

2. GENERAL INFORMATION ON THE PROPOSED WATER SYSTEM

2.1 Location

County of proposed new public water system: San Bernardino County (See **Figure 1)**

Assessor's Parcel Number(s) or address of proposed new public water system:

APN: 062507104, 062507105, 062507107, 062507108, 062507109, 062507110

Address: 78201 Amboy Road

Twentynine Palms, CA, 92277

Number of proposed connections (e.g. buildings, homes, etc.) the new public water system would serve:

The existing water well (APN 062507110) located at 78201 Amboy Road, Twentynine Palms, CA 92277 would connect to a proposed on-site water tank. The well is not located within 100 feet of a lake, river or creek. The proposed tank would serve fire suppression and daily demands for the hotel operations and guests.

Number of people the new public water system would serve:

The system would serve the guests of the hotel (140 units) and a staff of less than 25 people.

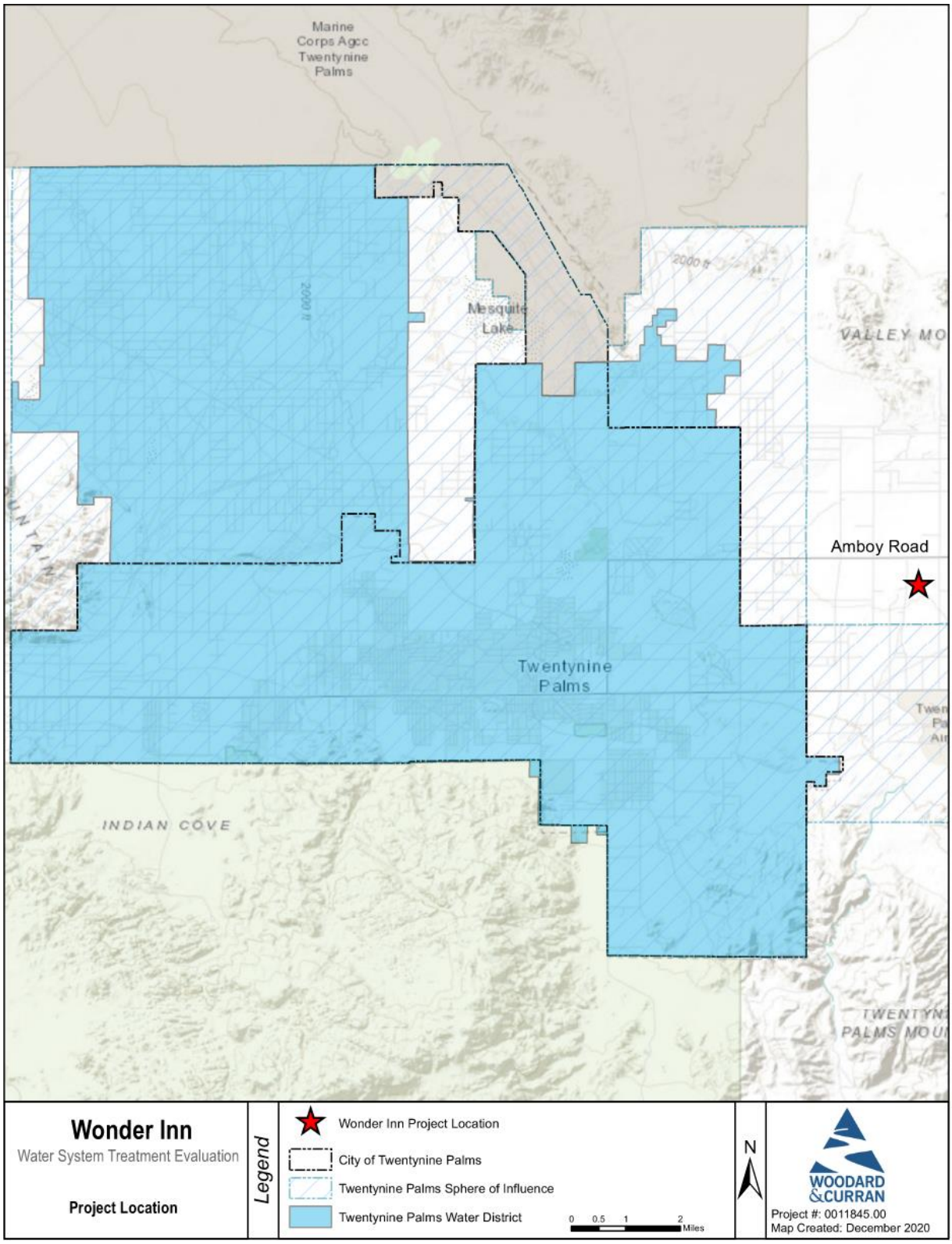


Figure 1: Wonder Inn Project Location

2.2 Property Description and Use

The Wonder Inn project site is located in the unincorporated area of Twentynine Palms, California. The project site is shown in **Figure 2** bounded by Amboy Road, Gammel Road and Via Arenosa. The existing land uses include service commercial and rural living.

The full project area is approximately 135 acres, about 40 acres (parcel APNs 062507104 and 062507107) have been previously used for a post office and jojoba farmland. The existing post office will be renovated and repurposed into the Wonder Inn lobby and office area.

2.3 Estimated Water Demands

Water demands were estimated utilizing WaterSense's WaterUSE Tool and associated Water Assessment Worksheets released by the EPA to help hotel managers and operators identify and prioritize cost-effective water efficiency projects and best management practices to reduce water and energy use and save on operating costs. The WaterUSE tool guides through a water assessment of the hotel based on facility-specific inputs entered by the user. The WaterUSE Tool provides estimated water usage based on industry data. The proposed facilities for the Wonder Inn resort were input into the WaterUSE tool to estimate the annual, average daily, and max day demands as summarized in Table 1. The WaterUSE tool inputs and results can be found in **Appendix B.**

The estimated average day demand (ADD) for the 140-unit Wonder Inn resort is approximately 18,600 gallons per day (gpd). Using a peaking factor of 2, the estimated maximum day demand (MDD) for the system is 37,200 gpd.

Table 1: Estimated Water Demands

Hotel Component	Average Annual Demand (gallons per year)	Average Daily Demand (gallons per day)
Guest Rooms	2,177,000	6,000
Public Restrooms	66,100	200
Guest Ice and Laundry	1,104,000	3,000
Commercial Kitchen	2,844,000	7,800
Dishwashing	145,000	400
Pool & Spa	435,700	1,200
Total (gallons per year)	**6,771,800**	
Total Average Day Demand (ADD) (gpd)		**18,600**
Total Max Day Demand (ADD x 2) (gpd)		**37,200**

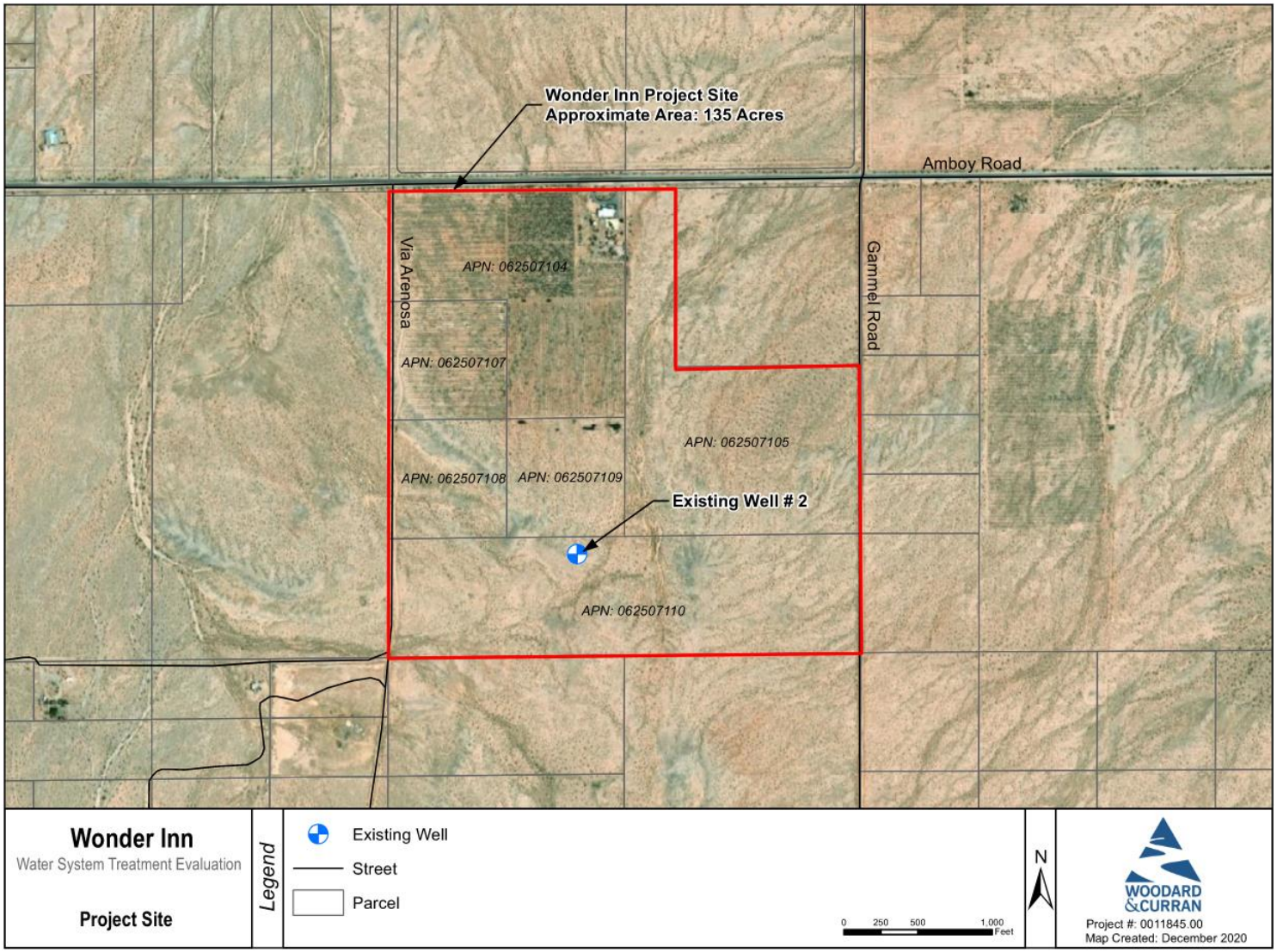


Figure 2: Wonder Inn Project Site

2.4 Proposed Water System Operation and Facilities

Number of days per year the new public water system will serve water:

365 days

What are the sources of water for the proposed public water system (mark all that apply, note: more detailed source information is required in Section VI):

Other: Existing on-site groundwater well

What type of properties will be served, indicate all that are applicable, or provide a copy of the use permit:

Other: Commercial Enterprise

If the proposed water source is surface water (e.g. lake, river, creek, well near river, etc.) do you currently possess water rights to the source? (Surface water rights must be documented.)

Not Applicable.

Is any treatment known to be required for the source water? If yes, explain.

Well No.2 meets the nitrate/nitrite and bacteria standards for a transient non-community water system. The well will be treated to reduce iron and manganese to improve aesthetics. As part of the iron and manganese system, the well water will be chlorinated. The well will also be treated to reduce hardness to increase the lifespan of the Inn's fixtures. As the water has high total dissolved solids (TDS), a reverse osmosis system may also be installed in the future.

Provide a summary description of the proposed water system (physical facilities, type of legal entity it will be, who it will serve, who will manage it, existing facilities that will be incorporated, any contamination in the local area that could impact the water quality, other pertinent factors).

The proposed water system consists of a groundwater well, a storage tank, chlorination and iron and manganese removal treatment. A softener will also be installed to reduce hardness. As the water has high total dissolved solids (TDS), a reverse osmosis system may also be installed in the future. The distribution system to the hotel rooms, lobby, pool, spa, and other facilities has not yet been designed but will meet Waterworks Standards and the California Plumbing Code.

Currently, the legal entity that owns the property is a sole proprietor: Alan Greenburg. The parcels, along with the well and water system, will be transferred to Wonder Inn, LLC, which will own and manage the facility. The water system will serve hotel guests and staff.

Other than the existing well, all other water system facilities will be new construction.

There is no manmade contamination in the vicinity per Geotracker (https://geotracker.waterboards.ca.gov) and the well meets the setback requirements from septic systems and other hazards. There is naturally occurring contamination in the vicinity, such as fluoride and hexavalent chromium.

3. POTENTIAL FOR CONSOLIDATION WITH AN EXISTING SYSTEM

3.1 Twentynine Palms Water District

List the names of all community water systems with boundaries within a 3-mile distance from the proposed public water system's service below. CHSC (116527(c)(1):

PWSID: CA3610049 Name: Twentynine Palms Water District

The Twentynine Palms Water District (TPWD or District) operates as an independent special district, providing water services to the residents of Twentynine Palms and unincorporated areas of San Bernardino. Special Districts are unique forms of local government, created by residents, focused on a specific set of services for the community. TPWD is governed by a 5-member Board of Directors comprised of residents of Twentynine Palms, who are dedicated to preserving and providing a safe, reliable water supply to the community.

TPWD provides water service to approximately 18,000 people. The 87-square-mile service area is made up mostly of single-family homes, with some apartment complexes, commercial properties and light industry. TPWD maintains roughly 200 miles of water distribution pipelines and approximately 8,000 metered services within its boundaries, most of them residential. Commercial connections make up about 5 percent of the total service connections, landscape irrigation and non-potable connections account for less than 1 percent, and fire protection connections account for the remaining 1.5 percent. Groundwater provides all of TPWD's supply. It is pumped through 10 wells located mostly along the southern edge of the service area. Water is pumped through eight booster stations strategically located throughout the service area to lift water up and over hills for distribution. The District maintains 10 water storage reservoirs with a total 17-million-gallon storage capacity.

Is the proposed water system in the County Local Area Formation Commission's (LAFCo) sphere of influence boundary for any city or municipal water service? CHSC 116527(c)(9)

No, the project area is located outside the sphere of influence boundary as shown in **Figure 1**.

3.2 Twentynine Palms Water District Water Quality

Local groundwater has widely varying levels of naturally occurring fluoride, depending on the source. These levels, when averaged, maintain an overall District fluoride level of less than 1.4 milligrams per liter (mg/L). State regulations allow for a fluoride level of 2 mg/L in drinking water, while federal rules permit up to 4 mg/L. Because groundwater is the sole source of supply for the Twentynine Palms area, the State has granted the District a variance that allows for a fluoride level up to 3 mg/L. However, the District's goal is to maintain fluoride levels of less than 2 mg/L.

TPWD treats water from certain wells for naturally occurring constituents including fluoride and arsenic. The Twentynine Palms Fluoride Removal Water Treatment Plant in the Twentynine Palms Valley Basin is designed to reduce fluoride concentrations in the groundwater to levels below the maximum contaminant level (MCL) of 2 mg/L. The treatment plant is currently producing approximately 1.2 MGD and has a maximum capacity of 3 MGD (Kennedy Jenks, 2016). The elevated arsenic concentrations require treatment at some of the TPWD wells.

3.3 Potential Connection to Twentynine Palms Water District

Connecting Wonder Inn to the nearest assumed TPWD water main was evaluated. The assumed connection point to TPWD would be approximately 3.4 miles west along Amboy Road to the edge of the TPWD service area on Bouillon Mountain Road as shown in **Figure 3**.

3.3.1 Twentynine Palms Water District Rates and Fees

TPWD charges a monthly fixed fee and a variable rate based on water usage as summarized in **Table 2**. Fixed charges cover the cost of maintaining the reliability of the TPWD water system. They include maintenance, repair and replacement of infrastructure, water quality testing, meter reading, debt payments, employee salaries and fire flow. These costs are covered by the Ready to Serve Charge, which does not vary from month to month and is not affected by how much water a customer uses.

Variable charges are based on how much water is delivered to a home or business and include the cost of electricity for pumping water and treatment chemicals. These items are covered in the water rate, a per-unit charge for water used during each billing cycle.

Table 2: TPWD Water Rates

Service Category	1/1/2020 Rates
Monthly Potable Commodity Charge	$3.33 / HCF
Bi-Monthly Ready to Serve Charge	$ / Meter
1" Meter	$38.69
1 1/2" Meter	$66.18
2" Meter	$99.17
3" Meter	$203.63
4" Meter	$357.57
6" Meter	$725.93
Monthly Fire Service Charge	$ / Meter
2" Meter	$64.61
3" Meter	$128.11
4" Meter	$178.24
6" Meter	$345.33
8" Meter	$545.84
10" Meter	$1,481.57

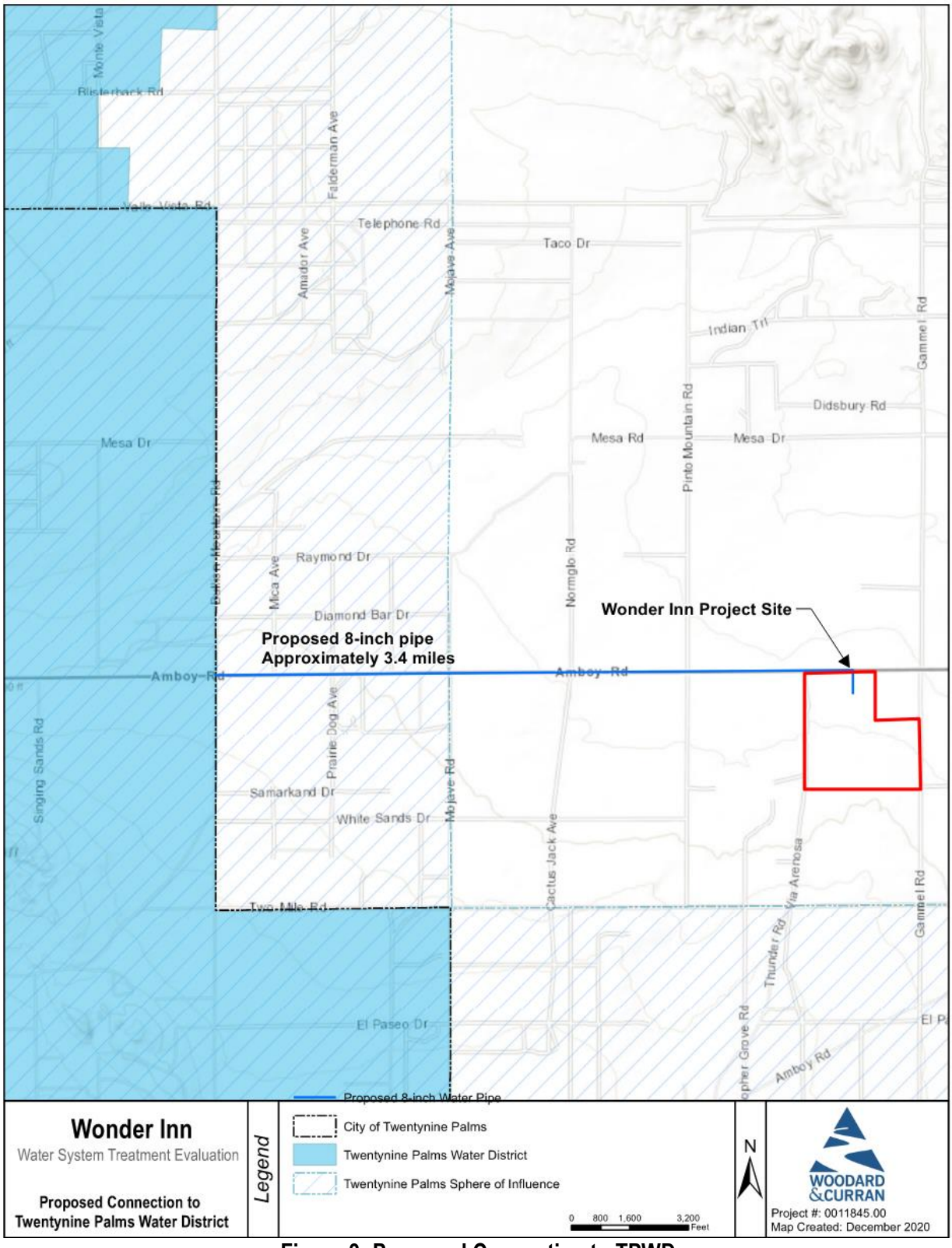


Figure 3: Proposed Connection to TPWD

3.3.2 Estimated Connection Costs

The estimated cost to connect Wonder Inn to the TPWD includes the construction of an 8-inch pipeline to the assumed nearest TPWD water service line (**Figure 3**), administrative and capacity charges to connect, and the estimated monthly charges for purchasing water. As shown in **Table 3**, the estimated capital cost to connect to TPWD is $5,580,000.

Table 3: Estimated Capital Cost to Connect to TPWD

Component	Quantity	Cost
8-inch PVC Pipe	18,000 LF	$ 3,168,000
Pump Station	2 hp	$ 16,000
Raw Construction Cost		$ 3,180,000
Construction Contingency	30%	$ 950,000
Total Construction Cost		$ 4,130,000
Implementation Cost	35%	$ 1,450,000
Total Project Cost		**$ 5,580,000**

As shown in Table 4**,** the estimated additional annual operation and maintenance (O&M) cost for TPWD to serve Wonder Inn is approximately $18,000 per year. The annual water charges for Wonder Inn based on TPWD's existing fee schedule is $32,300 or $2,700 per month. As Wonder Inn would be the only customer served by the connection, and due to the length of the connection pipeline, TPWD may charge O&M to Wonder Inn for the connection pipe and pumps, which would bring the total annual water charges to $50,000 or $4,200 per month.

Table 4: Estimated Annual Cost to Connect to TPWD

Component	Quantity	Cost
Pumping Energy	7,700 kWh	$ 1,400
Pipeline Maintenance	0.5%	$ 15,800
Pump Maintenance	5.0%	$ 800
Total O&M Costs[1]		**$ 18,000**
TPWD Ready to Serve Charge	2-inch Meter	$ 600
TPWD Water Rate	9,053 HCF	$ 30,100
TPWD Fire Service Charge	2-inch Meter	$ 1,600
Subtotal Service Charges (without Additional O&M Costs)		**$ 32,300 ($ 2,700 per mo.)**
Total Annual Cost (with Additional O&M Costs)		**$ 50,000 ($ 4,200 per mo.)**

Notes:

1. *Estimated O&M that TPWD may charge Wonder Inn for system connection*

4. MANAGERIAL CONSOLIDATION

4.1 Twentynine Palms Water District

In addition to the connection to TPWD being financially undesirable, Wonder Inn cannot obtain a water supply from TWPD since the project site is located outside of the TPWD sphere of influence. TPWD was contacted in March 2020 regarding the Wonder Inn Project and provided a series of "Will Not Serve" letters. The letters from TPWD can be found in **Appendix C**.

Wonder Inn is in the process of contacting TPWD and other local entities about the potential for a contract operator and will discuss options for managerial consolidation at that time.

5. PROPOSED NEW PUBLIC WATER SYSTEM

5.1 Water Supply Well No. 2

Well No. 2 was drilled in October 1998 with a depth of 450 feet and an 8-inch PVC casing with an 11" steel conductor casing. The well has a 50-foot cement annular seal and a gravel pack from a depth of 20 feet to 450 feet, Figure 4. A source water assessment and the well data sheet for Well No. 2 are included in **Appendix D.** The pipeline between the well and the proposed storage tank may be replaced. The wellhead discharge piping will be modified to include a flowmeter and a sample tap per waterworks standards. The existing security fence will also be repaired.



Figure 4: Existing Well No. 2

5.1.1 Water Quantity Evaluation

In October 1998, an air lift test was completed after the well was drilled and the well produced 150 gallons per minute (gpm) during the one-hour test. The static water level after drilling was 261 feet. Heritage Well Services inspected the well on March 18, 2021 (see inspection report in **Appendix D**). The well was pumped for four hours (240 minutes) and averaged 125 gpm.

5.1.2 Water Quality Evaluation

Well No. 2 was sampled on January 13, 2020, July 29, 2020, and March 19, 2021. The lab reports for the three sample events are included in **Appendix E**. A summary of the water quality results is presented in **Table 5** and **Table 6**. Well

No. 2 was sampled for constituents beyond what is needed for a TNC water system. Well No. 2 exceeded the primary MCL for fluoride in both samples and the total chromium MCL in one of the two samples. Both samples had a hexavalent chromium result of 18 ug/L, which exceeds the former MCL of 10 ug/L. The well also exceeded the notification level for boron in the one sample collected and the vanadium notification level in one of the two samples collected. TNC water systems are not required to meet the primary MCLs for fluoride or chromium or the notification levels for boron and vanadium. The well meets the nitrate MCL, which is required for TNC water systems. TNC water systems are also required to comply with the bacteriological standards. Samples were taken in January 2020 for total coliform and E. Coli and were absent for coliform and E. Coli.

The well exceeds several of the secondary MCLs, which are non-health-based standards that are set solely for aesthetics. TNC water systems are not required to meet secondary MCLs. The well exceeds the secondary MCLs for iron, color, and turbidity. The exceedances of the color and turbidity standards are probably related to the high iron. In the March 2021 sampling, the contractor properly flushed the casing prior to collecting samples and the color and turbidity were below the secondary MCL and the iron level significantly dropped from 3,000 ug/L to 480 ug/L. Total dissolved solids (TDS), specific conductance, chloride and sulfate have secondary MCLs with varying limits as no fixed consumer acceptance limit has been established. It is recommended that these values be reduced below the "recommended" limit for a higher degree of consumer acceptance. Providing water up to the "Upper" limit is allowable if it is not reasonable or feasible to provide more suitable waters. Providing water up to the "Short-Term limit is only allowable in community water systems on a short-term basis until treatment is provided. TNCs are not required to meet limits for TDS, conductance, chloride and/or sulfate. However, high TDS and conductance can lead to scaling and damage to pipelines and fixtures. Wonder Inn is planning to install a softener to reduce the scaling potential of the water and may in the future install a RO system to reduce TDS. At a minimum, a point-of-use RO device will be installed in the hotel restaurant sink For hotel customers, bottled water will be provided for drinking.

When the well was sampled in 2020, the well had been sitting idle for an unknown amount of time prior to sampling. The well was only operated for an hour prior to sampling, which is a significantly short amount of time to create a representative sample of the groundwater since the water had been stagnant for several years. In the 2021 sampling, after improved flushing, improvements were seen in results for aluminum, arsenic, total chromium, color, turbidity, iron, and zinc.

Table 5: Well No. 2 Source Water Quality – Primary MCLs

Parameter	Unit	Jan 2020	Jul 2020	Mar 2021	MCL
Total Coliform / E. Coli	Present (P) /Absent (A)	A/A			
Aluminum	ug/L	130	160	<50	1,000 (Primary MCL) 200 (Secondary MCL)
Antimony	ug/L	<6	<6	<6	6
Arsenic	ug/L	4.5	6.7	3.5	10
Barium	ug/L	<100	19	<20	1,000
Beryllium	ug/L	<1	<1	<1	4
Cadmium	ug/L	<1	<1	<1	5
Chromium (total)	ug/L	35	89	31	50
Chromium (hexavalent)	ug/L	18	18		10 (MCL is under review)
Fluoride	mg/L	9.1	9.3	9.5	2
Lead	ug/L	<5	1.6	<5	15
Mercury	ug/L	<1	0.5	<1	2

Parameter	Unit	Jan 2020	Jul 2020	Mar 2021	MCL
Nickel	ug/L	<10	1.6	<10	100
Nitrate as N	mg/L	0.7	0.8	0.8	10
Nitrite as N	mg/L	<0.4	<0.4	<0.4	1
Perchlorate	mg/L	<4	<4		6
Selenium	ug/L	5.8	2.9	<5	50
Thallium	ug/L	<1	0.3	<1	2

Table 6: Well No. 2 Source Water Quality – Secondary MCLs and Unregulated Constituents

Parameter	Unit	Jan 2020	Jul 2020	Mar 2021	MCL
Apparent Color	Color Units		50	5	15
Chloride	mg/L		250	240	250 (Recommended) 500 (Upper) 600 (Short-Term)
Copper	mg/L		<0.05	<0.05	1.3 (Action Level) 1.0(Secondary MCL)
Iron	ug/L		3,000	480	300
MBAS	mg/L		<0.1		0.5
Manganese	ug/L		48	<20	50
Odor	TON		1		3
Silver	ug/L	<10	0.4	<10	100
Specific Conductance	umhos/cm		2,200	2,200	900 (Recommended) 1,600 (Upper) 2,200 (Short-Term)
Sulfate as SO4	mg/L		560	570	250 (Recommended) 500 (Upper) 600 (Short-Term)
TDS	mg/L		1,300	1,400	500 (Recommended) 1,000 (Upper) 1,500 (Short-Term)
Turbidity	NTU		11	2.9	5
Zinc	mg/L		0.65	0.12	5
Unregulated					
Alkalinity, Total	mg/L as CaCO3		160	160	-
Alkalinity, Bicarbonate	mg/L as CaCO3		200	160	-
Alkalinity, Carbonate	mg/L as CaCO3		<5	<5	-
Alkalinity, Hydroxide	mg/L as CaCO3		<5	<5	-
Boron	mg/L		1.7		1.0(Notification Level)
Calcium	mg/L		24	23	-
Hardness	mg/L as CaCO3		77	76	-
Magnesium	mg/L		4	4.1	-
pH (lab)	-----		8.2	8.3	-

Parameter	Unit	Jan 2020	Jul 2020	Mar 2021	MCL
Potassium	mg/L		3.7	4.2	-
Sodium	mg/L		480	460	-
Vanadium	ug/L	33	52		50 (Notification Level)

5.2 Proposed Water System Facilities

Due to the high iron content, it is recommended that iron removal treatment be installed**. Figure 5** and **Figure 6** show the process flow diagram and site layout for the proposed treatment system. Well No. 2 will pump to the storage tank, which will be used to store well water for fire suppression and to feed the iron removal and softening treatment system. From the storage tank, the water will be pumped through the greensand filters with sodium hypochlorite being added before and after softening treatment as needed. A smaller effluent tank may be installed post treatment to store the treated water. Additional detail about each component is included in the next sections.

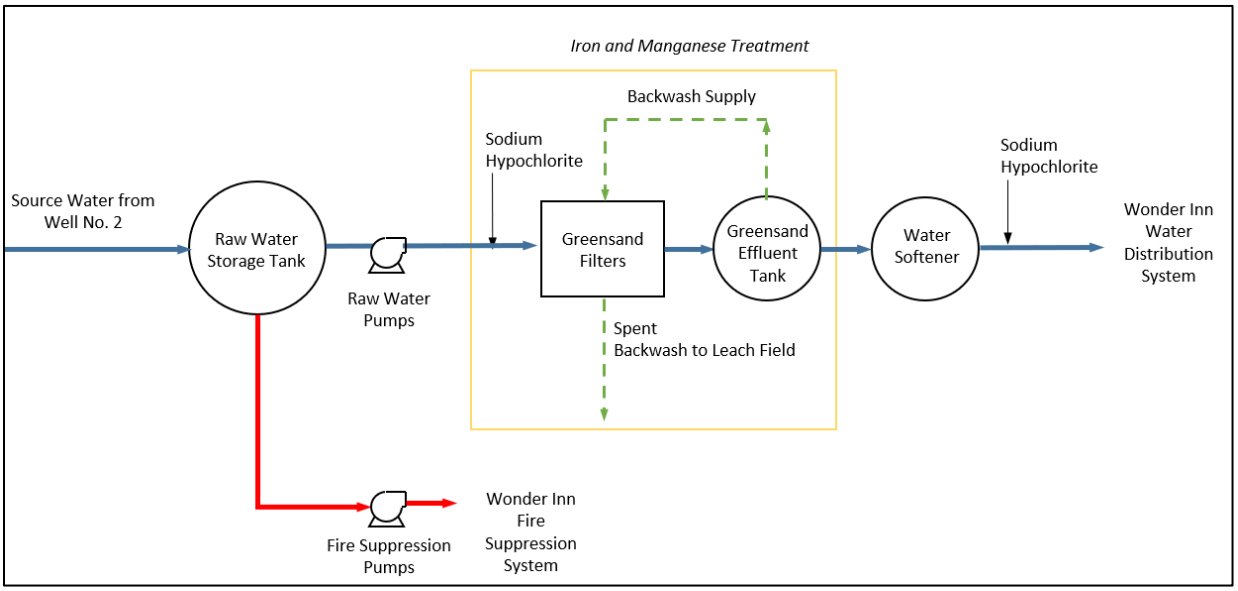


Figure 5: Proposed Wonder Inn Water System Facilities

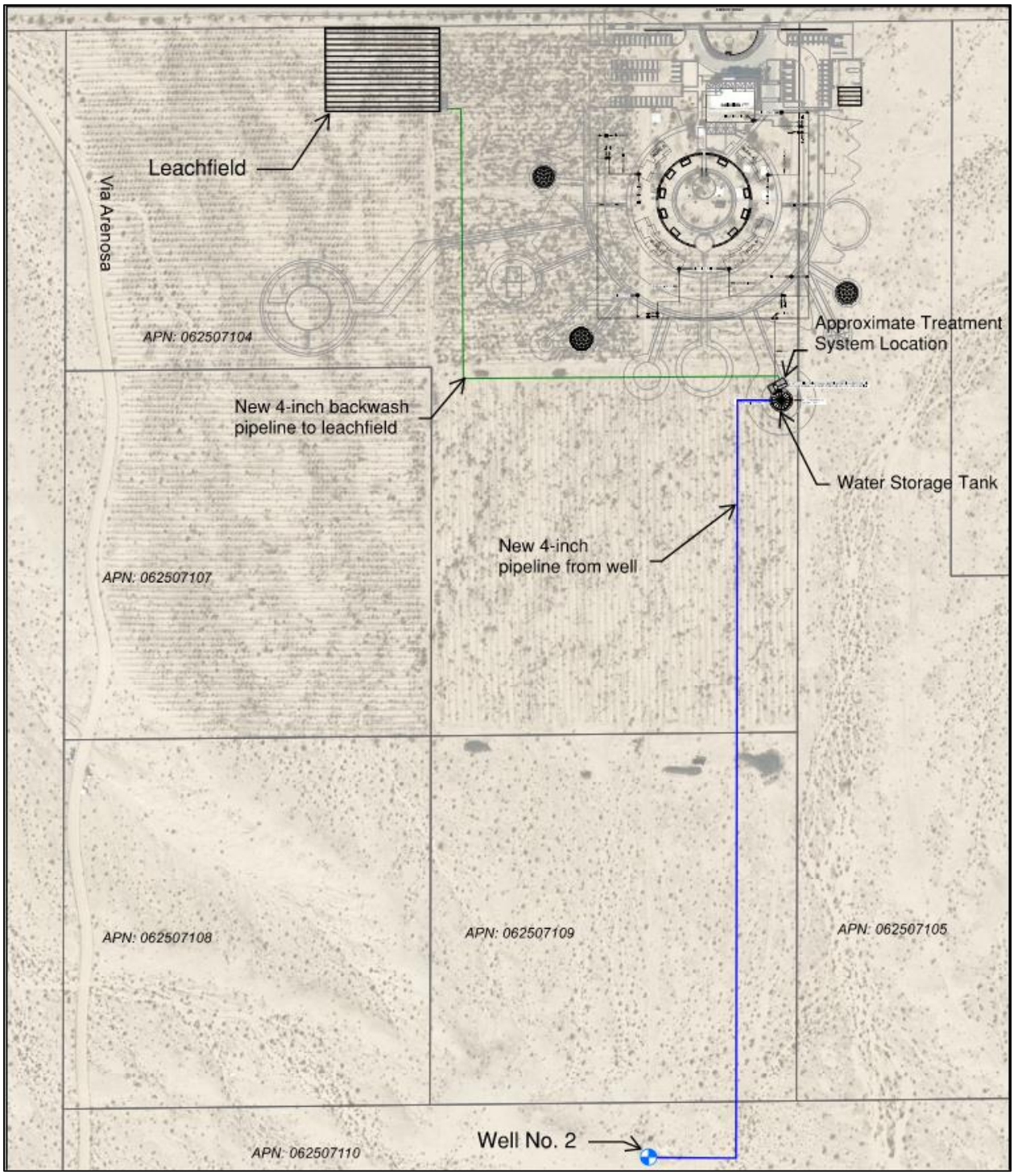


Figure 6: Proposed Wonder Inn Water System

5.2.1 Storage

The storage tank will provide storage for domestic needs and for fire protection.

Per San Bernardino County fire standards, *"domestic water supplies (including that for irrigation of landscaping) shall not be stored in fire protection water supply tanks unless it can be shown that adequate water can be provided to satisfy all current and future domestic needs in addition to that required for fire protection, but in all cases the water capacity of the tank shall be increased to a minimum two thousand five hundred (2,500) gallons above what is needed for fire protection supply only. When the fire protection supply and domestic water supply are in the same tank, an approved low level water alarm device shall be installed and set so as to activate when the supply in the tank is at the level required for fire protection supply. Such alarm shall be sounded locally within the primary dwelling on the property or shall have an automatic refill system from the domestic line from the water supply on site. Tanks supplying water for fire protection purposes shall be maintained at full."*

For the purposes of fire protection, the tank was originally sized for 180,000 gallons based on two hours of the minimum fire flow 1,500 gallons per minute (gpm). The fire system and tank are in design by others and will be fed by Well No.2 through a new 1,650 linear feet (LF) 4-inch pipeline from the well to the proposed storage tank.

Additional storage is required for the Wonder Inn domestic water demands discussed in **Section 2.3**. The estimated MDD for Wonder Inn is approximately 37,200 gallons per day (gpd). The proposed 180,000-gallon fire storage tank will be upsized by 50,000 gallons to 230,000 gallons to meet at least one day of MDD, as required by Section 64554(a)(2) of Title 22, California Code of Regulations. This additional storage exceeds the 2,500-gallon additional requirement for combined storage tanks required by the County of San Bernardino fire standards.

The proposed storage tank will be a standard factory engineered galvanized steel tank with a liquid tight potable internal liner, including a secondary protective pre-liner liner. The tank's structure will consist of corrugated, galvanized steel wall sheets, roof panels, one roof panel with an access hatch, standard peak cap, roof ladder angles, anchor clips, specified appurtenances, and necessary hardware for tank assembly. To comply with the County of San Bernardino fire standards, an approved low level water alarm will also be installed to activate if the water level in the tank falls below 182,500 gallons (1,500 gpm for two hours plus 2,500 gallons).

5.3 Transmission Piping from Well to Storage Tank and Raw Water Pumps

The existing pipeline from Well No.2 may be replaced with approximately 1,650 LF of new 4-inch PVC from Well No.2 to the proposed storage tank.

From the Storage Tank, a set of raw water pumps will draw raw water from the storage tank and pump it through the treatment system into the distribution system. A CRNE-Plus model CRNE20-5 pump system will be installed. These pumps are 15 horsepower (hp) and have a flow range of 60 gpm to 120 gpm and are equipped with a variable frequency drive (VFD). The pressure range is 52 to 82 psi. The goal will be to maintain a pressure of 60 psi entering the distribution system. **Appendix F** includes additional detail on the booster pump system.

5.4 Treatment System

Disinfection

The greensand filters require sodium hypochlorite (chlorine) addition as an oxidant for manganese removal. After the treatment process, additional chlorine is added as needed to provide a chlorine residual in the distribution system as shown in **Figure 5**. It is anticipated that two Grundfos DDA Model 60-10 metering pumps including calibration columns and valves for a complete dosing system will be installed. Grundfos DDA pumps are NSF 61 certified. **Appendix F** includes additional detail on the chlorine pumps.

It is estimated that a chlorine dose of at least of 0.62 mg/L of chlorine per mg/L of iron and 1.29 mg/L of chlorine per mg/L of manganese is needed ahead of the treatment. Assuming an iron level of 3 mg/L and a manganese level of 0.5 mg/L, a minimum chlorine dose of 2.5 mg/L is needed ahead of the filtration system. To be conservative, a chlorine dose of 8 mg/L is assumed to be needed prior to filtration with an additional dose of 2 mg/L needed post-treatment to maintain a residual. Sodium hypochlorite calculations are included in **Table 7**. Due to the low chlorine demand of approximately 1 gallon per day, chlorine will likely be diluted with treatment plant effluent. Only NSF/ANSI 60 chlorine suitable for drinking water systems will be used in the water system.

Table 7: Sodium Hypochlorite Calculations

Component	Units	Value
Water flow rate	MGD	0.02
Estimate Dose Needed Prior to Greensand Treatment	mg/L	8
Estimate Dose Needed Post-Treatment to Maintain Residual	mg/L	2
Total Dose Required	mg/L	10
Daily Chlorine Consumption	lbs/day	2
Solution Strength		0.125 (12.5% available chlorine)
Specific Gravity	-	1.15
Solution Content	lbs chemical/gallon	1.20
Sodium Hypochlorite Usage (Undiluted)	gallons per day	1.29
Sodium Hypochlorite Usage (Undiluted)	gallons per year	471
Grundfos DDA 60-10 Metering Pump Dosing Capacity	gph	0.02 – 15.8 (0.5 – 379 gpd)

Iron and Manganese Removal

The design of the treatment process is based on source water quality representative of Well No.2. **Table 5** and **Table 6** summarize the design source water quality.

The Well No.2 source water quality exceeds the secondary MCL for iron (Fe) 0.3 mg/L and is close to the manganese (Mn) secondary MCL of 0.05 mg/L. Secondary standards affect the aesthetic quality of the water (color, odor, and taste). The recorded Fe concentration in Well No. 2 was 0.5 to 3 mg/L, which is over the secondary MCL. The Mn concentration ranged from non-detect (0.02 mg/L) to 0.048 mg/L, which is close to exceeding the 0.05 mg/L secondary MCL for Mn.

The recommended treatment process for Fe and Mn removal is greensand filtration. The manganese dioxide acts as a catalyst in the oxidation of both iron and manganese, converting the soluble forms of the mineral (Fe^{+2} or ferrous ion and Mn^{+2} or manganous ion) to insoluble forms (Fe^{+3}, ferric ion and Mn^{+4}, tetravalent manganese ion) for removal by filtration. Chlorine, formed from the addition of sodium hypochlorite, acts an oxidant in the process. After the ionic conversion, the Mn^{4+} reacts with the dissolved oxygen in the water to form MnO_2, precipitate out of solution as a solid, and become trapped in the media bed. The MnO_2 that accumulate in the filter bed are removed through periodic backwashing of the media.

The proposed iron and manganese removal system will consist of two Culligan CTM-PF-36 pressure filters. The filter is designed to handle up to 5 mg/L of iron and 5 NTU turbidity. Additional details are included in **Table 8**. The proposed treatment system meets NSF Standard 61. **Appendix F** includes additional detail on the treatment system. The spent filter backwash will either be conveyed to the septic system for the facility or will be spray irrigated for disposal on one of the open undeveloped parcels.

Table 8: Filtration System Details

Component	Units	Value
Number of filter vessels	-	2
Model	-	Culligan CTM-PF-36
Filter dimensions	inches	36" diameter 72" height
Filter Media	inches	9" gravel 24" greensand media 12" anthracite
Average feed flow rate	gpm	71 gpm at 10 psi(102,240 gpd)
Peak feed flow rate	gpm	107 gpm at 19 psi (154,080 gpd)
Backwash flow rate	gpm	90
Backwash rate	gpm/ft^2	12.7
Backwash frequency	# / day	Once per day for 15 minutes per day
Estimated backwash volume	gallons / day	1,480

Water Softener

Conventional water softening uses an ion-exchange resin in which positively charged ions, mainly calcium (Ca2+) and magnesium (Mg2+), are exchanged for sodium ions. As described by NSF/ANSI Standard 44, ion-exchange devices reduce the hardness by replacing Mg2+ and Ca2+ with sodium or potassium ions (Na+ and K+). The resin to be used is ResinTech CGS which is a "sodium form standard crosslinked gel strong acid cation resin" and is NSF 61 certified. (See **Appendix F** for the data sheet for this resin.) The softener vessel will be a Hi-Flo 50 Model HS-2004 with a tank size of 60 x 60 (60-inches in diameter and 60-inches in height). The vessel is sized for a peak service flow rate of 400 gpm and a continuous service flow rate of 240 gpm.

When all the available Na+ ions have been replaced with calcium or magnesium ions, the resin must be recharged by eluting the Ca2+ and Mg2+ ions using a solution of sodium chloride or sodium hydroxide, depending on the type of resin used. The proposed softening system includes one resin tank, the spent resin will be recharged or disposed of offsite due to the Colorado River Regional Water Quality Control Board's Basin Plan limitation on discharging brine to the groundwater basin[1] .

5.4.1 Distribution System

The distribution system has not yet been designed. Water lines meeting the California Plumbing Code will be installed to the hotel lobby, pool, spa and each hotel room. These plans can be provided to the County when they are available.

[1] Basin Plan: https://www.waterboards.ca.gov/coloradoriver/water_issues/programs/basin_planning/

6. ESTIMATED NEW PUBLIC WATER SYSTEM COST

6.1 Cost Estimate Basis

The Association for Advancement of Cost Estimating International's (AACE) cost estimate classification system includes five classes of project cost estimates. Cost estimates in this report fall within Class 4 estimates, which have an expected accuracy of +50% to -30%. Per AACE (2011): "Class 4 estimates are generally prepared based on limited information and subsequently have fairly wide accuracy ranges. They are typically used for project screening, determination of feasibility, concept evaluation, and preliminary budget approval. Typically, engineering is from 1% to 15% complete and would comprise at a minimum the following: plant capacity, block schematics, indicated layout, process flow diagrams for main process systems, and preliminary engineered process and utility equipment lists."

Reference Unit Costs

Various unit cost data and estimating methods have been used to develop the conceptual level construction cost estimate. A summary of these unit costs is contained in **Table 9.**

Table 9: Unit Costs

Item	Construction Cost	O&M Cost
Treatment Facilities		
Greensand Pressure Filters	$123,000	1% of capital cost
Water Softener	$104,000	1% of capital cost
Chlorine Injection	$34,000	3.5% of capital cost
Distribution System Facilities		
Backwash Pipelines	4" (unpaved) - $20/ LF	0.5% of capital cost
Pump Station	$46,000	5% of capital cost
Raw Water Storage Tank	$206,000	0.5% of capital cost
Backup Generator for Life Safety	$22,000	1% of capital cost
Operations & Maintenance		
Electrical Power	--	$0.18 / kWh
Sodium Hypochlorite	--	$5 / gallon
Labor	--	$100 / hour
Greensand Filter Media Replacement	--	$10,000 / ~7 years
Service Soft Water Tank	--	$975 / month
Chlorine Residual Test Packets (Daily Influent and Effluent)	--	$500/ year
Permit Fees	--	$1,000/ year
Analytical Testing (Nitrate & Coliform)		$945 / year

Notes:
1. Pump station size based on peak flow and 75% pump / motor efficiency.

Total Capital Cost Factors

Construction contingency and implementation factors are added to the raw construction costs derived from the unit costs in the previous section.

Construction contingencies are defined as unknown or unforeseen costs. In general, higher contingencies should be applied to projects of high risk or with significant unknown or uncertain conditions. Unknowns and risk conditions for

construction cost estimates could include project scope, level of project definition, occurrence of groundwater and associated dewatering uncertainties, unknown soil conditions, unknown utility conflicts, etc. A 30% contingency will be applied to construction cost estimates based on the methodology for Class 4 estimates.

Implementation factors are included to try to capture non-construction capital costs. While these costs can vary greatly from project to project and from component to component, it is most common to assume a standard factor applied to the estimated construction costs across all projects and project types when analyzing alternatives and project options. For this project, an allowance of 20% of the estimated construction costs is used to account for the following activities:

- Engineering design services (pre-construction)
- Engineering services during construction
- Construction management and inspection
- As-builts plans

Costs Required Per State and County Guidelines

The following items are specifically requested by the December 4, 2020, "*Preliminary Technical Report Guidance*."

Section 64552 – System Engineering and Design Costs for Construction and Permitting

As discussed in the previous section, an allowance for engineering design and construction management has been added to the capital cost for a total of $90,000. Costs to develop this report are not included in this value as the costs have already been incurred by Wonder Inn.

Section 64554 – Pump Tests

This cost has not been included in the cost estimate. Wonder Inn hired Heritage Well Services to complete a four-hour pump test in March 2021. These costs have not been included in the estimated costs in **Section 6.2**.

Section 64560 – Well Control Zone

The well site is currently fenced and meets the 50-foot control zone and therefore costs to control the well site have not been included.

Monitoring Costs

The costs for the two sets of 2020 monitoring samples have not been included. Wonder Inn is in the process of completing another set of samples for nitrate/nitrite, general mineral/general physical and metals which will be completed with the well condition assessment mentioned above. An annual cost of $1,920 has been added for anticipated compliance monitoring for Nitrate/Nitrite and Coliform. It is anticipated that Nitrate testing will be required annually (1/year), Nitrite testing will be required every 3 years, and Coliform testing will be monthly at both the wellhead and distribution system (24/year).

Construction Costs

Construction costs for the treatment system, booster pump system and backwash piping have been included. The costs for the distribution system have not been included as it will be included as part of the hotel construction.

Backup Electricity

Wonder Inn will be installing a generator for backup electricity to provide life safety, which includes the fire system and fire pumps. The estimated cost of the generator is $22,000.

Meter Installation

Flowmeters will be included on the treatment system and on the well and the cost is included in the capital cost. Meters are not required on each individual hotel room and therefore the costs for these are not included.

Adequate Storage Capacity and Fire Capacity

The storage tank is being completed by others and has been requested to be upsized to account for operational storage. The estimated cost of the Fire Storage Tank is $206,000.

Monthly Electricity Costs

As noted previously, an electricity cost of $0.18 per kilowatt-hour (kWh) is being used to estimate electricity costs. The primary electricity cost is related to the well pump and the distribution pump station.

Interest on Any Debt Service

This item is not applicable and has not been included.

As-Built Cost

This cost is included in the Implementation Allowance described in **Section 6.1**.

Disinfectant Cost

Chlorine dosage calculations are included in **Section 5.4.** Costs include purchase of liquid chlorine and chlorine residual test kits using a colorimeter field test instrument. Residual testing is assumed to occur daily on both influent and effluent of the treatment system.

Contract Operator Cost

Wonder Inn will contract an operator with D1/T1 certification of to operate and perform routine maintenance on the water system. The cost estimate assumes 4 hours per week plus hours to provide annual updates to the emergency notification plan, and maintaining the bacteriological site sampling plan, valve exercising, flushing, meter maintenance, and maintaining system maps and written procedures for system maintenance, and completing the electronic annual report to the DDW (250 hours / year).

Permit Fees

This annual permit fee is estimated at $880 for a TNC system, which has been rounded to $1,000/year.

6.2 Wonder Inn Water System Estimated Costs

The estimated cost to install a new water supply at Wonder Inn includes the construction of a booster pump station, greensand filter treatment system, backwash disposal and chlorine disinfection. This estimated capital cost does not include upsizing the storage tank or Well No.2 rehabilitation as these upgrades will be completed as part of another project at Wonder Inn. As summarized in **Table 10** and **Table 11**, the estimated capital cost for the Wonder Inn water system is $884,000 with an estimated annual operation and maintenance cost of $50,000.

Table 10: Estimated Capital Cost

Component	Quantity	Cost
Greensand Filters	1 skid	$123,000
4-inch Backwash Piping	1,500 LF	$30,000
Water Softener	1 skid	$104,000
Chlorine Injection Skid with Field Test Equipment	1 skid	$34,000
Instrumentation	1 LS	$2,000
Raw Water Storage (Fire Flow and Potable)	230,000 gallons	$206,000
Backup Generator for Life Safety	1 EA	$22,000

Component	Quantity	Cost
Distribution Pump Station	2 hp	$46,000
Raw Construction Cost		$567,000
Construction Contingency	30%	$170,000
Total Construction Cost		$737,000
Implementation Cost	20%	$147,000
Total Project Cost		**$884,000**

Table 11: Estimated O&M Costs

Component	Quantity	Cost
Well Pumping Energy	3,900 kwh-yr	$700
Distribution Pump Energy	3,900 kwh-yr	$700
Treatment and Generator	1.0% of Construction Costs	$3,000
Piping and Storage	0.5% of Construction Costs	$1,200
Pumps	5% of Construction Costs	$2,300
Filter Media Replacement	$10,000 every 7 years	$1,500
Water Softener Tank Service	$975 per month	$11,700
Sodium Hypochlorite (Disinfectant)	$5 per gallon	$2,400
Chlorine Residual Test Packets (Daily Influent and Effluent)	$500 per year	$500
Analytical Testing (Nitrate & Coliform)	$1,920 per year	$1,900
Permit fees	$1,000 per year	$1,000
Labor	250 hours	$25,000
Total Annual O&M Costs		**$50,000**

6.3 20 Year Evaluation of Proposed New Public Water System's Supply Capacity

Average day demand (ADD) is estimated at 18,553 gallons per day (gpd) and maximum day demand is estimated at 37,000 gpd. This equates to an ADD of 13 gpm and a MDD of 35 gpm. Currently, the well pump capacity is estimated at 120 gpm which exceeds the MDD by approximately 3.4 times.

In the event, that the well failed to produce adequate supply to continue operation of the Wonder Inn facility, Wonder Inn would need to scale down operations or close its business until the water supply issue could be remedied. Remedies may include drilling a new well or connecting to the TPWD water system.

6.4 Cost-Comparison

Table 12 shows a comparison of the cost to connect to the TPWD water system versus constructing and operating a new public water system for Wonder Inn. Due to the distance of Wonder Inn from TPWD's existing water lines, the capital cost is significant at $5.6 million compared to the cost of constructing a new water system with iron removal and water softening treatment and chlorination at $884,000. O&M costs are comparable for both options.

Table 12: Estimated Capital Cost to Connect to TPWD

Component	Connection to TPWD	New Water System
Capital Cost	$ 5,580,000	$ 884,000
Annual O&M Costs	$ 32,300 - $ 50,000	$ 40,000
Monthly O&M Cost	$2 ,700 - $ 4,200	$ 3,300

Connecting to the TPWD would provide greater long-term sustainability and resiliency in the face of possible water resource impacts from climate change or a decline in the local groundwater table, as TPWD operates multiple sources and has a larger customer base. Contamination from nitrate or bacteria that would affect the ability of a TNC water system to operate is not anticipated due to the remote undeveloped surrounding area with few septic systems. If Wonder Inn's system classification were to change to a or community water system or NTNC, treatment would be needed for fluoride, hexavalent chromium and additional secondary MCLs; however, even with this change in classification, it is anticipated that it would still be cheaper to construct and operate treatment than connecting to TPWD.

In the future, if TPWD's sphere of influence and water system boundary expands eastward, or if additional development in the vicinity of Wonder Inn occurs, the cost to connect to TPWD would be reduced, and a re-evaluation of the potential to consolidate with TPWD should be performed.

7. REFERENCES

Colorado River Regional Water Quality Control Board (RWQCB), *"Water Quality Control Plan for the Colorado River Basin",* last updated January 8, 2019, accessed on June 6, 2021: https://www.waterboards.ca.gov/coloradoriver/water_issues/programs/basin_planning/

San Bernardino County Fire Department Community Safety Division, *"Fire Safety Standard: Water Supply for Residential Fire Protection,"* published March 22, 2016.

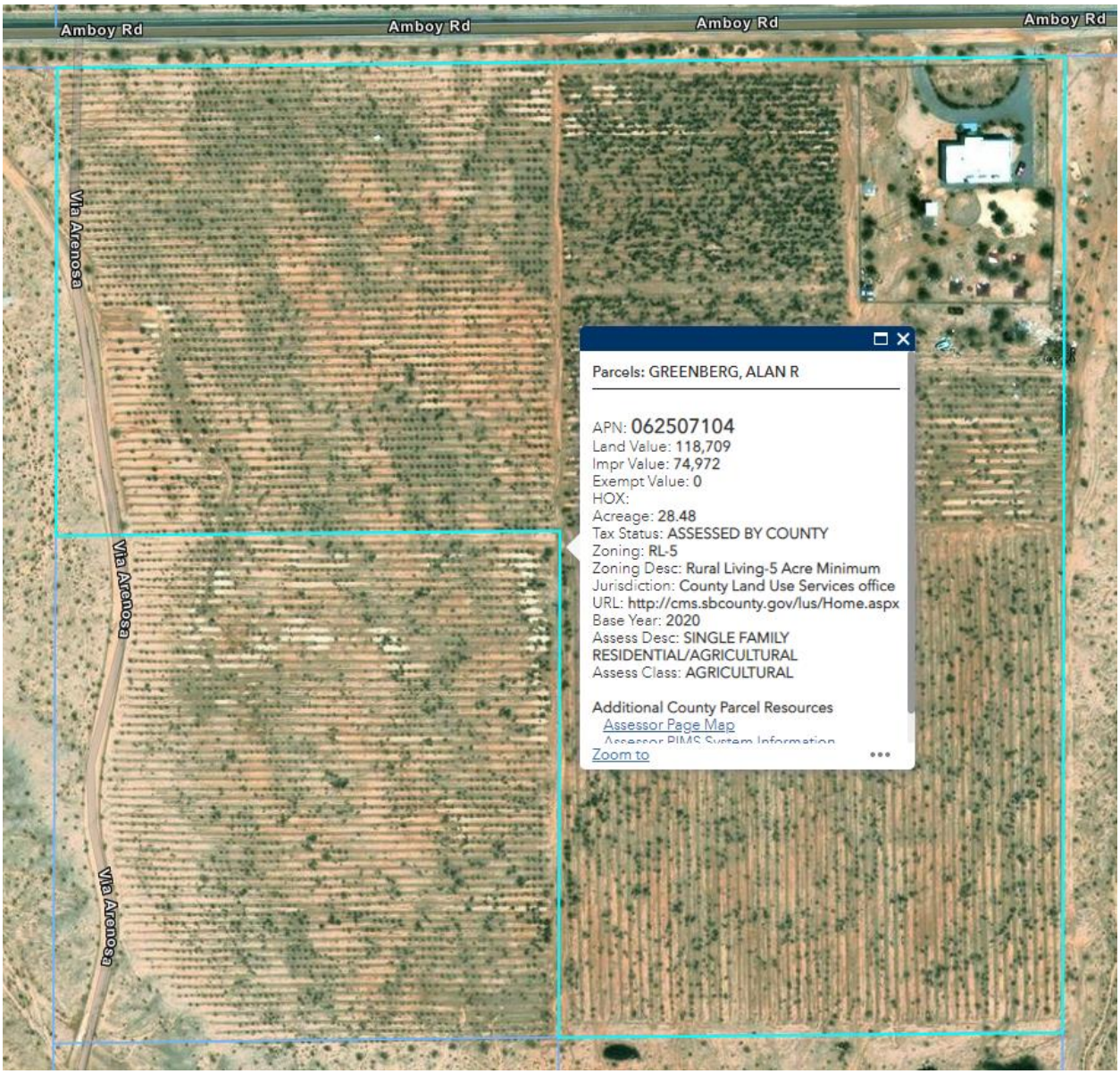
Twentynine Palms Water District, *"Facilities and Systems Information",* https://29palmswater.com/facilities-systems-information/, accessed on February 16, 2021.

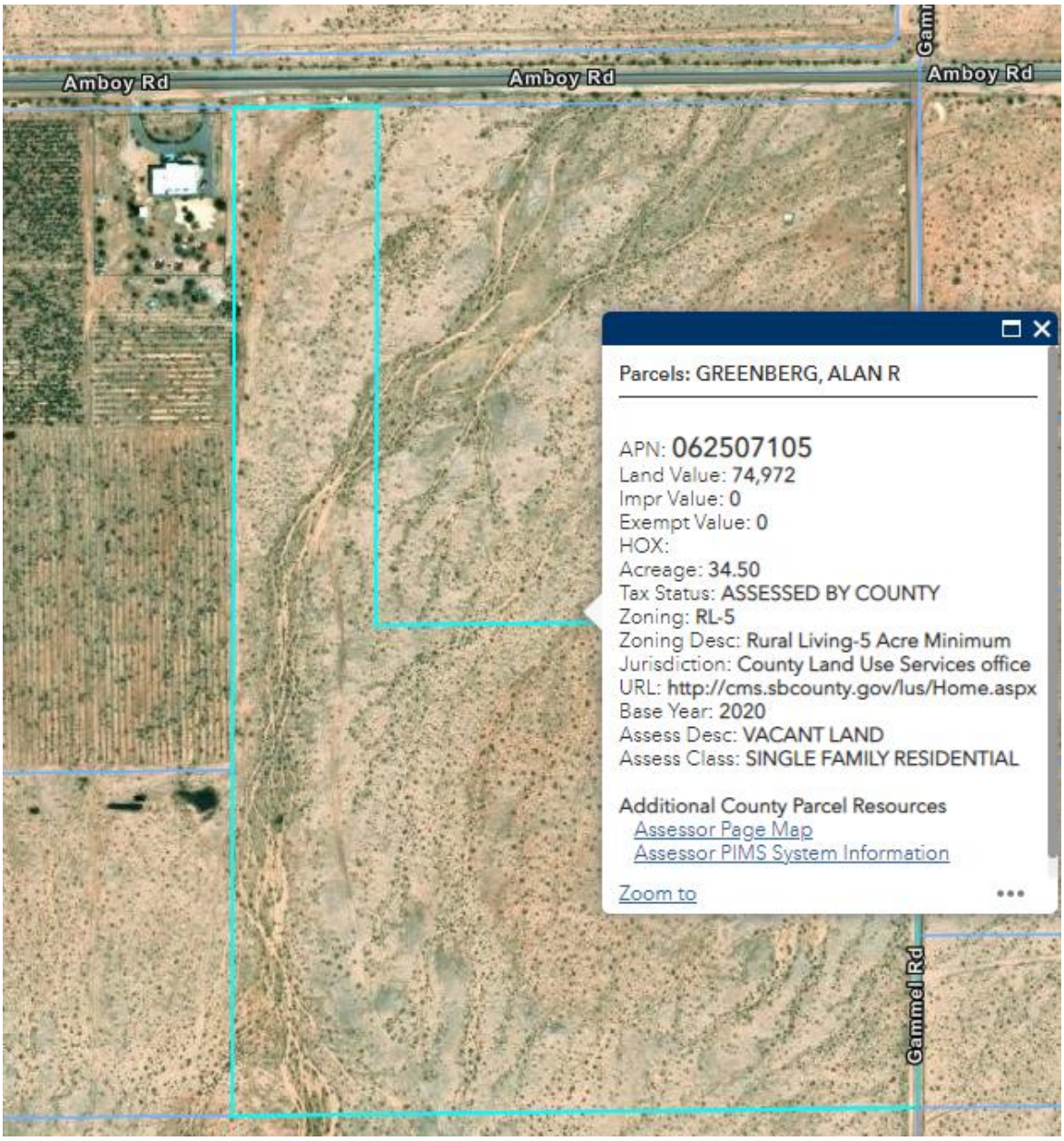
Twentynine Palms Water District, *"Resolution 21-01 A Resolution of the Board of Directors of the Twentynine Palms Water District Adopting Fees and Charges, and Taking Other Actions Related Thereto",* https://29palmswater.com/wp-content/uploads/21-01.pdf, accessed on February 16, 2021.

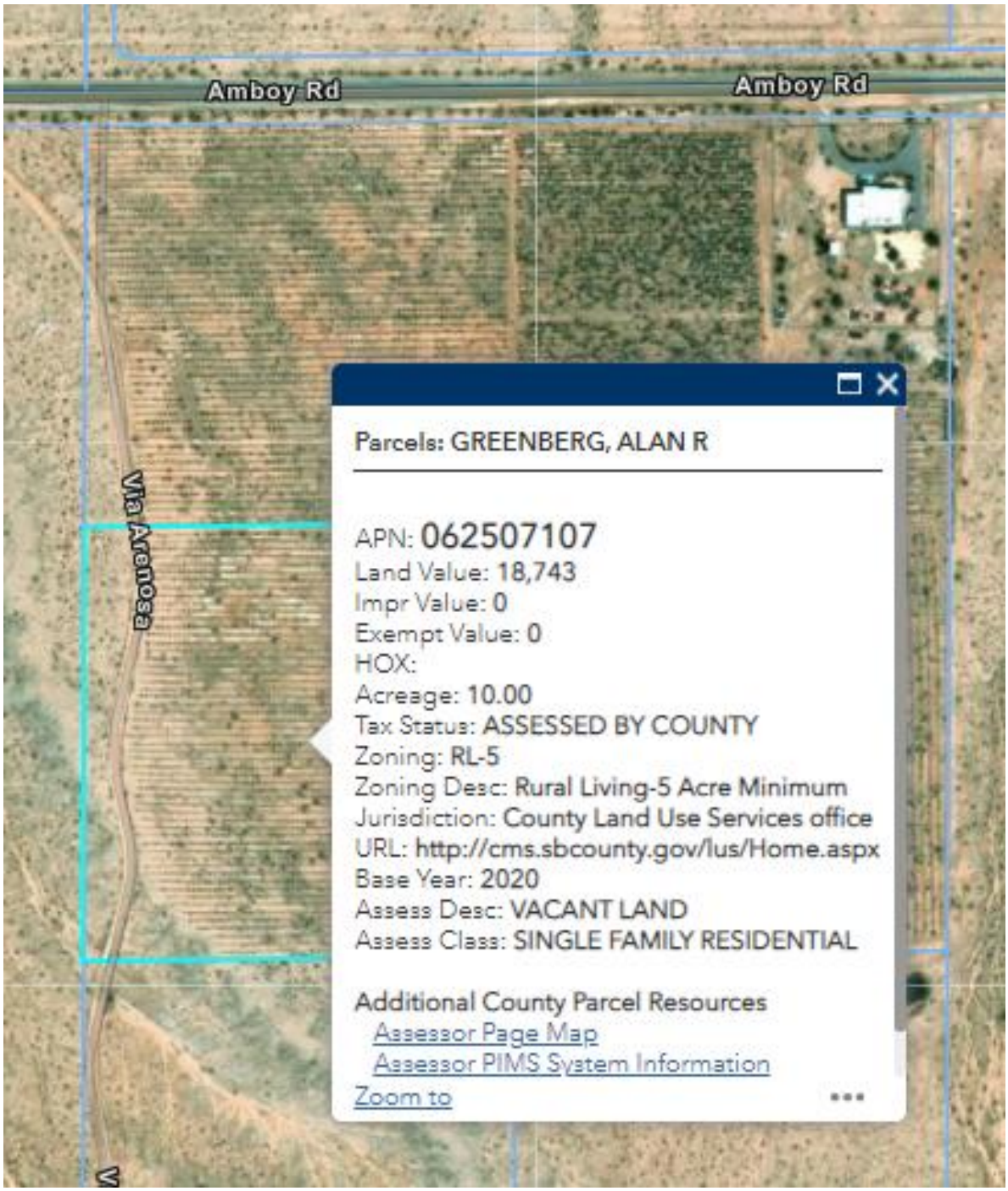
United States Environmental Protection Agency (EPA), "H2Otel Challenge," https://www.epa.gov/watersense/h2otel-challenge, accessed on February 16, 2021.

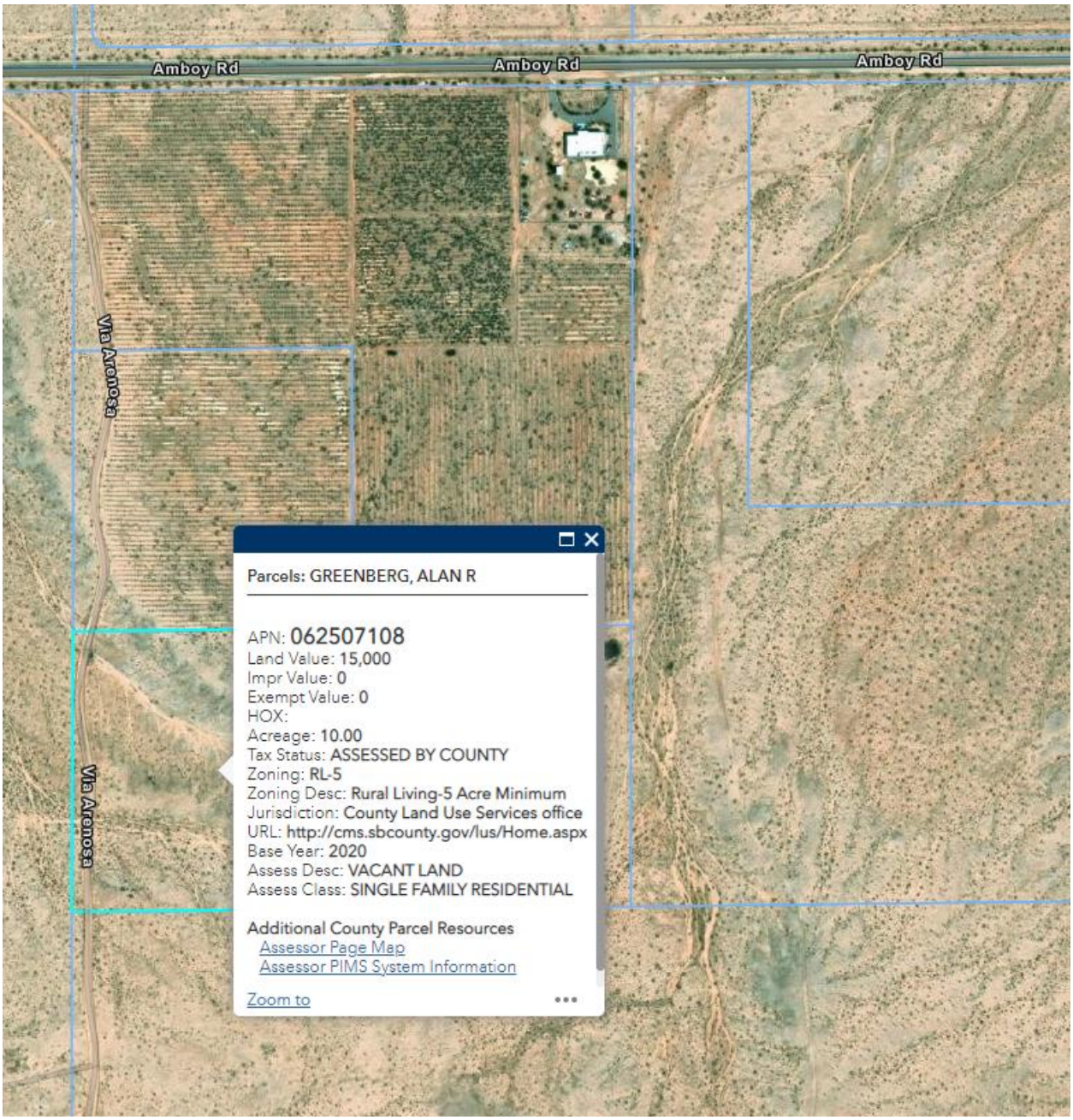
Appendix A. Proof of Ownership of Water System

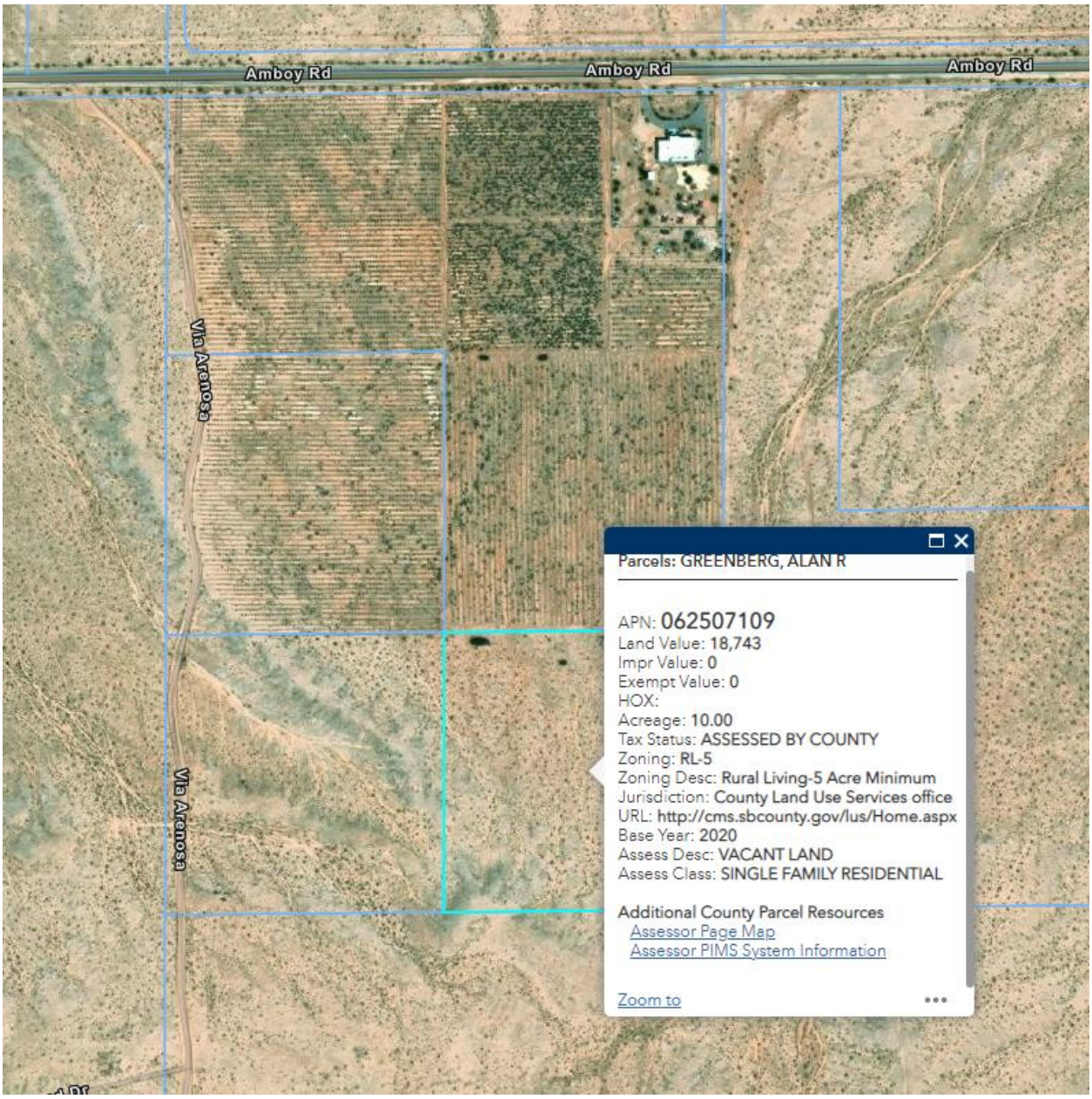
Screenshots of owner listing for parcels 062507104, 062507105, 062507107, 062507108, 062507109, 062507110 provided from: Public San Bernardino County Parcel Viewer (https://sbcounty.maps.arcgis.com) on February 25, 2021. The well proposed for use in public water supply is located on APN # 062507110.

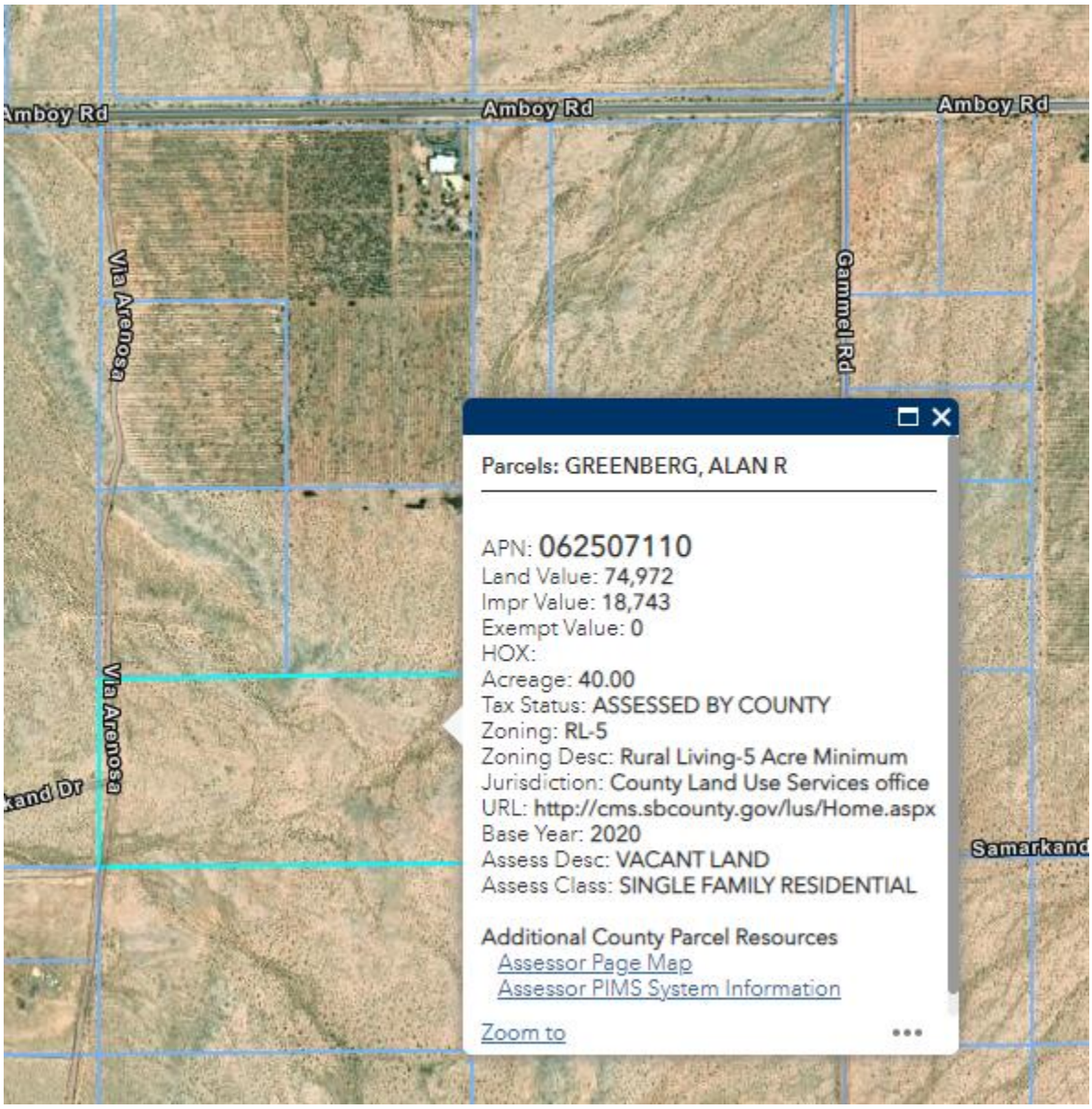



Amboy Rd
Amboy Rd
Amboy Rd
Gammel Rd
Parcels: GREENBERG, ALAN R
APN: 062507105
Land Value: 74,972
Impr Value: 0
Exempt Value: 0
HOX:
Acreage: 34.50
Tax Status: ASSESSED BY COUNTY
Zoning: RL-5
Zoning Desc: Rural Living-5 Acre Minimum
Jurisdiction: County Land Use Services office
URL: http://cms.sbcounty.gov/lus/Home.aspx
Base Year: 2020
Assess Desc: VACANT LAND
Assess Class: SINGLE FAMILY RESIDENTIAL
Additional County Parcel Resources
Assessor Page Map
Assessor PIMS System Information
Zoom to


Amboy Rd
Amboy Rd
Via Arenosa
Parcels: GREENBERG, ALAN R
APN: 062507107
Land Value: 18,743
Impr Value: 0
Exempt Value: 0
HOX:
Acreage: 10.00
Tax Status: ASSESSED BY COUNTY
Zoning: RL-5
Zoning Desc: Rural Living-5 Acre Minimum
Jurisdiction: County Land Use Services office
URL: http://cms.sbcounty.gov/lus/Home.aspx
Base Year: 2020
Assess Desc: VACANT LAND
Assess Class: SINGLE FAMILY RESIDENTIAL
Additional County Parcel Resources
Assessor Page Map
Assessor PIMS System Information
Zoom to


Amboy Rd
Amboy Rd
Amboy Rd
Via Arenosa
Via Arenosa
Parcels: GREENBERG, ALAN R
APN: 062507108
Land Value: 15,000
Impr Value: 0
Exempt Value: 0
HOX:
Acreage: 10.00
Tax Status: ASSESSED BY COUNTY
Zoning: RL-5
Zoning Desc: Rural Living-5 Acre Minimum
Jurisdiction: County Land Use Services office
URL: http://cms.sbcounty.gov/lus/Home.aspx
Base Year: 2020
Assess Desc: VACANT LAND
Assess Class: SINGLE FAMILY RESIDENTIAL
Additional County Parcel Resources
Assessor Page Map
Assessor PIMS System Information
Zoom to


Amboy Rd
Amboy Rd
Amboy Rd
Via Arenosa
Via Arenosa
Parcels: GREENBERG, ALAN R
APN: 062507109
Land Value: 18,743
Impr Value: 0
Exempt Value: 0
HOX:
Acreage: 10.00
Tax Status: ASSESSED BY COUNTY
Zoning: RL-5
Zoning Desc: Rural Living-5 Acre Minimum
Jurisdiction: County Land Use Services office
URL: http://cms.sbcounty.gov/lus/Home.aspx
Base Year: 2020
Assess Desc: VACANT LAND
Assess Class: SINGLE FAMILY RESIDENTIAL
Additional County Parcel Resources
Assessor Page Map
Assessor PIMS System Information
Zoom to


Amboy Rd
Amboy Rd
Amboy Rd
Via Arenosa
Gammel Rd
Via Arenosa
Samarkand
Parcels: GREENBERG, ALAN R
APN: 062507110
Land Value: 74,972
Impr Value: 18,743
Exempt Value: 0
HOX:
Acreage: 40.00
Tax Status: ASSESSED BY COUNTY
Zoning: RL-5
Zoning Desc: Rural Living-5 Acre Minimum
Jurisdiction: County Land Use Services office
URL: http://cms.sbcounty.gov/lus/Home.aspx
Base Year: 2020
Assess Desc: VACANT LAND
Assess Class: SINGLE FAMILY RESIDENTIAL
Additional County Parcel Resources
Assessor Page Map
Assessor PIMS System Information
Zoom to

Appendix B. WaterUSE Tool Inputs and Results

WaterUSE Tool

Facility Information

Prepared By *(optional)*

Name:	Woodard & Curran
Title:	
Date:	12/21/2020

Contact Information *(optional)*

Facility Name:	Wonder Inn	**Address Line 1:**	
Assessment Contact Name:		**Address Line 2:**	
Phone:		**City:**	
Fax:		**State:**	
		Zip:	

Facility Details *(required)*

Building Size (sq. ft.)	43,000	
Construction Year (or Significant Renovation):	2020	<< Note: Renovation year should only be included if restroom fixtures in guest rooms and public restrooms were replaced.
Building Hot Water Fuel Type:	Electric	<< Note: You must make a selection even if neither fuel type is used for hot water heating.
Number of Guest Rooms in the Hotel:	136	
Hotel Operating Days per Year:	365	
Average Number of Guests per Room:	1.4	
Average Annual Occupancy Rate:	70%	

Utility Information *(required)*

	Cost ($)	Units
Water Rate ($/unit):	$3.81	thousand gallons (kgal)
Wastewater Rate ($/unit):	$5.06	thousand gallons (kgal)
Electricity Rate ($/unit):	$0.11	thousand Watt-hours (kWh)
Natural Gas Rate ($/unit):	$8.87	thousand cubic feet (Mcf)

WaterSense WaterUSE Tool

Guest Rooms Water Use

Water Use and Fixture Assessment

1. Does your hotel have any shared bathrooms for your guest rooms? No << Note: This may be common in hostels and bed & breakfasts.

2. What type of toilets are installed in your guest rooms?

Toilet Type	Number Installed	Existing Flush Volume (gpf)
Flushometer-Valve	136	1.28

3. What is the flow rate of the lavatory faucets in guest rooms?

Number Installed	Existing Flow Rate (gpm)
136	2.2

4. What is the flow rate for the showerheads installed in guest rooms?

Number Installed	Existing Flow Rate (gpm)
136	2.5

Current Water Use

Your existing water use for your overnight guest restrooms is approximately 2,177,000 gallons of water per year. The following table provides your estimated water use for each fixture type.

	Estimated Annual Water Use (gal)
Tank-Type Toilets	0
Flushometer-Valve Toilets	314,000
Faucets	866,000
Showerheads	997,000
TOTAL	**2,177,000**

WaterUSE Tool

Public and Staff Restrooms Water Use

Water Use and Fixture Assessment

1. How many daily full-time equivalent employees do you have at your hotel? 20

2. On average, how many non-overnight visitors does your hotel host per day? 20

3. What type of toilets are installed in public and employee-only areas?

Toilet Type	Number Installed	Existing Flush Volume (gpf)
Flushometer-Valve	9	1.28

4. What type of urinals are installed in public and employee-only areas?

Urinal Type	Number Installed	Existing Flush Volume (gpf)
Flushing	2	1

5. What is the flow rate of lavatory faucets installed in public and employee-only areas?

Number Installed	Existing Flow Rate (gpm)
13	2.2

6. What is the flow rate of showerheads installed in public and employee-only areas?

Number Installed	Existing Flow Rate (gpm)
2	2.5

Current Water Use

Your existing water use for your public and staff restrooms is approximately 66,100 gallons of water per year. The following table provides your estimated water use for each fixture type.

	Estimated Annual Water Use (gal)
Tank-Type Toilets	0
Flushometer-Valve Toilets	21,000
Urinals	8,000
Faucets	28,000
Showerheads	9,100
TOTAL	**66,100**

WaterSense WaterUSE Tool

Guest Ice and Laundry Water Use

Water Use Assessment

1. Does your hotel provide ice makers for guest use? Yes

1a. What type(s) of ice makers does your hotel provide for guest use?

Ice Maker Type	Batch / Continuous	Cooling Type	Number Installed	Number ENERGY STAR®
Remote Condensing Unit	Batch	Single-Pass Water Cooling	10	0

2. Does your hotel provide clothes washers for guest use? No

Current Water Use

Your existing water use for guest service ice makers and clothes washers is approximately 1,104,000 gallons of water per year. The following table provides your estimated water use by appliance type.

	Estimated Annual Water Use (gal)
Ice Maker(s)	1,104,000
Clothes Washer(s)	N/A
TOTAL	**1,104,000**

WaterUSE Tool

Linen Laundry Water Use

Instructions: Enter information from Worksheet 6 of the Water Assessment Worksheets into the cells below. Dark blue-shaded cells are dropdown menus used to identify the selection options and light blue-shaded cells should be filled in based on your inventory. If you're unsure of certain information, you can press the "<<< Use Default" buttons to estimate values based on industry averages; however, entering facility-specific information in those cells will yield more accurate savings estimates. Once data entry is complete, press "Show My Results" to see recommended water efficiency best management practices.

Consider updating the information in the red-shaded table if you have more accurate facility- or equipment-specific data and assumptions than the default values provided. This table can be found towards the bottom of the form below the "Recommended Best Management Practices and Potential Water Savings" section.

If you would like to clear the information from this tab and start over, scroll right to press the "Reset Form" button at the top right corner of the form.

Water Use Assessment

1. Does your hotel have a towel and linen reuse program for guests?	No
2. Does your facility have in-house laundry equipment?	No

According to the American Hotel & Lodging Association (AH&LA), implementing a linen and towel reuse program that allows guests to choose whether or not to have their linens and towels laundered daily can reduce a hotel's laundry load by approximately 17 percent. This reduces the amount of water, energy, detergent, and labor needed to clean laundry each day and decreases the wear and tear on

Version 1.2. (June 2015)

WaterUSE Tool

Commercial Kitchen Water Use (Excluding Dishwashing)

Water Use Assessment

1. Does your facility have a restaurant/commercial kitchen?	Yes
1a. Number of operating days per year?	365
1b. How many hours does your kitchen operate daily, on average?	12
2. Does your kitchen have ice makers?	Yes

2a. What type(s) of ice makers does your hotel use in your hotel commercial kitchen/restaurant?

Ice Maker Type	Batch / Continuous	Cooling Type	Number Installed	Number ENERGY STAR®
Ice Making Head	Batch	Single-Pass Water Cooling	2	0

3. Does your kitchen have any steam cookers (food steamers)?	Yes

3a. What type of steam cookers are installed in your hotel commercial kitchen/restaurant?

Equipment Type	Number Installed	Number ENERGY STAR®	Daily Use (hours)
Connectionless Unit	6	0	12

4. Does your kitchen have a combination oven?	Yes

4a. What type of combination ovens are installed in your hotel commercial kitchen/restaurant?

Equipment Type	Number Installed	Daily Use (hours)
Connectionless Unit	2	12

5. Does your kitchen have any steam kettles?	No
6. Does your kitchen have any dipper wells in your restaurant or bar area?	No
7. Does your kitchen have a garbage disposal for food waste?	Yes

7a. What type of food disposal is used in your hotel commercial kitchen/restaurant?

Equipment Type	Number Installed	Sluice Trough Water Flow Rate (gpm)	Total Daily Use (hours)	Daily Sluice Trough Idling Hours
Food Grinder	2	2	12	9

7b. Does your garbage disposal have a load sensor to regulate water flow?	No

Current Water Use

Your existing commercial kitchen equipment uses approximately 2,844,000 gallons of water per year. The following table provides your estimated water use for each appliance and equipment type.

	Estimated Annual Water Use (gal)
Ice Maker(s)	611,000
Steam Cooker(s)	1,051,000
Combination Oven(s)	131,000
Steam Kettle(s)	N/A
Dipper Well(s)	N/A
Food Disposal(s)	1,051,000
TOTAL	**2,844,000**

WaterSense WaterUSE Tool

Dishwashing Water Use

If you would like to clear the information from this tab and start over, scroll right to press the "Reset Form" button at the top right corner of the form.

Water Use Assessment

1. Does your hotel have dishwashing equipment? Yes

1a. What is the number of operating days per year for your dishwashing equipment? 365

2. Does your kitchen have a commercial dishwasher? Yes

2a. What type of commercial dishwashing equipment does your hotel use?

Temperature (low or high)	Dishwashing Equipment Type	Number Installed	Number ENERGY STAR®	Number of Racks Washed per Day
High	Pot, Pan, and Utensil	1	0	280

3. Does your kitchen have a pre-rinse spray valve? Yes

3a. What is the flow rate of any pre-rinse spray valves used in your hotel commercial kitchen/restaurant?

Number Installed	Existing Flow Rate (gpm)	Average Daily Use (minutes)
2	1.6	64

Current Water Use

Your existing dishwashing equipment uses approximately 145,000 gallons of water per year. The following table provides your estimated water use for each appliance/equipment type.

	Estimated Annual Water Use (gal)
Dishwasher(s)	71,000
Pre-Rinse Spray Valve(s)	74,000
TOTAL	145,000

WaterSense WaterUSE Tool

HVAC and Mechanical System Water Use

Water Use Assessment

Section A: Cooling Towers

A1. Does your hotel have a cooling tower? No

Section B: Single-Pass Cooling

B1. Does your hotel use single-pass cooling for equipment other than ice makers? No

Section C: Steam Boilers

C1. Does your hotel use a steam boiler(s) for heating? No

Because you indicated that your hotel does not have a cooling tower, single-pass cooling for equipment other than ice makers, or a steam boiler for heating, there are no best management practice recommendations for this water use area. Continue to another tab to assess other water savings opportunities.

Version 1.2. (June 2015)

WaterSense WaterUSE Tool

Outdoor Irrigation Water Use

Instructions: *Enter information from Worksheet 10 of the Water Assessment Worksheets into the cells below. Dark blue-shaded cells are dropdown menus used to identify the selection options and light blue-shaded cells should be filled in based on your inventory. Once data entry is complete, press "Show My Results" to see recommended water efficiency best management practices. If you would like to clear the information from this tab and start over, scroll right to press the "Reset Form" button at the top right corner of the form.*

Water Use Assessment

1. Does your hotel have an in-ground irrigation system? No

Although you indicated that your hotel does not have an in-ground irrigation system, your landscape may benefit from implementing landscaping best management practices. For more information on water-efficient landscaping, see:

WaterSense at Work Section 5.2: Landscaping and Section 5.3: Irrigation

Version 1.2. (June 2015)

WaterUSE Tool

Pool and Spa Water Use

Instructions: Enter information from Worksheet 11 of the Water Assessment Worksheets into the cells below. Dark blue-shaded cells are dropdown menus used to identify the selection options and light blue-shaded cells should be filled in based on your inventory. If you're unsure of certain information, you can press the "<<< Use Default" buttons to estimate values based on industry averages; however, entering facility-specific information in those cells will yield more accurate savings estimates. Once data entry is complete, press "Show My Results" to see recommended water efficiency best management practices.

Consider updating the information in the red-shaded table if you have more accurate facility- or equipment-specific data and assumptions than the default values provided. This table can be found towards the bottom of the form below the "Recommended Best Management Practices and Potential Water Savings" section.

If you would like to clear the information from this tab and start over, scroll right to press the "Reset Form" button at the top right corner of the form.

Water Use Assessment

1. Does your facility have a pool?	Yes
1a. What is the square footage of your pool surface?	6,268
1b. What is the volume of your pool in gallons?	214,000
1c. How many days per year is your pool operating?	365
1d. Is a pool cover used when pool is not in use?	No
1e. What type of filtration system is installed?	Sand Filter

2. Does your facility have a hot tub/spa?	Yes
2a. What is the square footage of your hot tub/spa?	40
2b. What is the volume of your hot tub/spa in gallons?	1,100
2c. How many days per year is your hot tub/spa operating?	365
2d. Is a cover used when hot tub/spa is not in use?	No
2e. What type of filtration system is installed?	Sand Filter

Current Water Use

An average hotel with your pool and spa system loses approximately 435,700 gallons of water per year from evaporation and filter cleaning. The following table provides water loss estimates for each activity.

	Estimated Annual Water Use (gal)
Evaporation	246,000
Filter Cleaning	189,700
TOTAL	**435,700**

Appendix C. TPWD Decline to Serve Letter

TPWD
TWENTYNINE PALMS WATER DISTRICT

March 17, 2020

To Whom it May Concern:

Reference: APN #625-071-04

This letter is to confirm that the above referenced parcel is NOT located within the Twentynine Palms Water District Boundaries and water is NOT available to serve this parcel.

Sincerely,

Matthew Shragge
Maintenance Superintendent

72401 Hatch Road, Twentynine Palms, California 92277 • 760-367-7546 • Fax 760-367-6612 • www.29palmswater.org

Appendix D. Source Water Assessment for Well No. 2

Checklist for Drinking Water Source Assessment - Ground Water Source
Transient Noncommunity Water System

Public water system: Wonder Inn, LLC ID No.: To be assigned

Name of source: Well No. 2 ID No.: To be assigned

Assessment date: 2/25/21 Assessment conducted by Woodard & Curran, Inc.

Water System Contact Name: Alan Greenberg Phone #: 310-999-1169

Water System Contact Address: 78201 Amboy Road, Twentynine Palms, CA 92777

The following information should be contained in the drinking water source assessment submittal.

__X__ Checklist *(this form)*

__X__ Delineation of groundwater protection zones

__X__ Source Data Sheet (select appropriate form)

- __X__ Well Data Sheet (included)
- _____ Spring Data Sheet (obtain from DHS or County office or DHS website)
- _____ Horizontal Well Data Sheet (obtain from DHS or County office or DHS website)

__X__ Possible Contaminating Activities (PCA) inventory form

__X__ Assessment map with source location and protection zone

__X__ Means of Public Availability of Report (indicate those that will be used)

- __X__ Copy in regulatory agency (DHS or LPA) office (minimum)
- _____ Posted at public water system (recommended)
- _____ Other (describe)

Submit the specified forms to the DHS district office or LPA county office. Office staff will complete the assessment.

Transient Noncommunity Water System
Delineation of Ground Water Protection Zone

Public water system: Wonder Inn, LLC ID No.: To be assigned

Name of source: Well No. 2 ID No.: To be assigned

Delineation date: 2/25/21 Delineation conducted by Woodard & Curran, Inc.

Indicate the size of the protection zones by selecting the aquifer media type:

__X__ Porous media aquifer = 600 feet

_____ Fractured rock aquifer = 900 feet

Porous media aquifers typically consist of a mixture of interbedded sands, silts and gravels. Open spaces within the aquifer are assumed to exist between individual particles that comprise the aquifer.

Fractured rock aquifers typically consist of rock of various types. Open spaces are located along faults and fractures that formed long after the rock was formed. Such aquifers can have highly localized and complex ground water flow properties that may be difficult to characterize quantitatively.

There are more complicated methods for determining the size, shape and location of zones. Water systems interested in these methods should consult with a hydrogeologist or other knowledgeable professional.

Transient Noncommunity System Ground Water Source Possible Contaminating Activity (PCA) Inventory Form

Water system name: Wonder Inn, LLC ID No. To be assigned

Source Name: Well No. 2 ID No. To be assigned

Inventory date: 2/25/21 Inventory conducted by: Woodard & Curran, Inc.

Transient Noncommunity Water System PCA Inventory – Ground Water Source

PCA (Risk Ranking)	PCA in Zone? (Y, N or U)	*	Comments
Automobile - Gas stations (VH)	N		
Chemical/petroleum processing/storage (VH)	N		
Dry cleaners (VH)	N		
Metal plating/ finishing/fabricating (VH)	N		
Plastics/synthetics producers (VH)	N		
Sewer collection systems (H)	N		
Airports - Maintenance/ fueling areas (VH)	N		
Landfills/dumps (VH)	N		
Septic systems - high density (>1/acre) (VH)	N		
Wastewater treatment plants (VH)	N		
Septic systems – low density (<1/acre) (H)	N		Nearest is 2000 feet
Lagoons / liquid wastes (H)	N		
Agricultural Drainage (H)	N		
Fertilizer, Pesticide/ Herbicide Application (M)	N		
Sewage sludge/biosolids application (M)	N		
Underground Injection of Commercial/Industrial Discharges (VH)	N		
Historic gas stations (VH)	N		
Historic waste dumps/ landfills (VH)	N		
Injection wells/ dry wells/ sumps (VH)	N		
Known Contaminant Plumes (VH)	N		Naturally occurring
Military installations (VH)	N		fluoride, chromium but not related to a plume
Mining operations - Historic (VH)	N		
Mining operations – Active (VH)	N		
Confirmed leaking Underground storage tanks (VH)	N		
Grazing (> 5 large animals or equivalent per acre) (H)	N		
Concentrated Animal Feeding Operations (CAFOs) (see Note 1) (VH)	N		
Animal Feeding Operations (See Note 2) (VH)	N		
Other Animal operations (H)	N		

Risk Ranking of PCAs: VH = Very High Risk, H = High Risk, M = Moderate Risk, L = Low Risk

***** A contaminant potentially associated with this PCA has been detected in the water supply

WELL DATA SHEET

Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.		
* *Indicates items required for Source Water Assessment*		
** *Indicates additional items required for assessments and Ground Water Rule*		
	(separate multiple entries in field with semi-colon)	Actual, Estimated or Default?
DATA SHEET GENERAL INFORMATION		
System Name	Wonder Inn, LLC	*from DHS database*
System Number	TBD	*from DHS database*
Source of Information (well log, SWRCB/County files, system, etc)	Well log	
Organization Collecting Information (SWRCB, County, System, other)	System	
Date Information Collected/Updated	2/26/2021	
WELL IDENTIFICATION		
* Well Number or Name	Well No. 2	*from DHS database*
* DHS Source Identification Number (FRDS ID No.)	**TBD**	
DWR Well Log on File? ("YES" or "NO")	YES	
State Well Number (from DWR)	Report No. 477554	
Well Status (Active, Standby, Inactive)	Active	*from DHS database*
WELL LOCATION		
Street Address	T 1N, R10E, Section 20	APN 625-071-10
Nearest Cross Street	78201 Amboy Road	
City	29 Palms	
County	San Bernardino	
* Neighborhood/Surrounding Area *(see Note 1)*	Ru	
Site plan on file? ("YES" or "NO")	YES	
SANITARY CONDITIONS		
** Distance to closest Sewer Line, Sewage Disposal, Septic Tank (ft)	2,000	
** Size of controlled area around well (square feet)	2,000	parcel area = 140 ac
* Type of access control to well site *(fencing, building, etc)*	Fenced 40' x 50'	Fence will be repaired
* Surface Seal? (Concrete slab)("YES", "NO" or "UNKNOWN")	YES	
* Dimensions of concrete slab: Length(ft)/ Width(ft)/ Thick(in)	5ft x 5ft x 4in	
* Within 100 year flood plain? ("YES", "NO" or "UNKNOWN")	No	Zone X per FEMA
* Drainage away from well? ("YES" or "NO")	Yes	
ENCLOSURE/HOUSING		
Enclosure Type *(building, vault, none, etc.)*	None	
Floor material	-	
WELL CONSTRUCTION		
Date drilled	10/19/1998	
Drilling Method	rotary	
Depth of Bore Hole (feet below ground surface)	475	
Casing Beginning Depth/Ending Depth(ft below surface); 2nd Casing Beginning Depth/Ending Depth; 3rd Casing, etc.	0 to 475	
Casing Diameter (inches); 2nd Casing Diameter; 3rd Casing, etc.	8	11" steel conductor still installed
Casing Material; 2nd Casing Material; 3rd Casing, etc.	PVC	
	(separate multiple entries in field with semi-colon)	Actual, Estimated or Default?
WELL CONSTRUCTION (continued)		
* Depth to highest perforations/screens (ft below surface) (or "UNKNOWN")	275	
* Total length of screened interval (ft) *(default = 10% pump capacity in gpm)* (or "UNKNOWN")	200	
* Annular Seal?("YES", "NO" or "UNKNOWN") *(See Note 3)*	YES	
* Depth of Annular Seal (ft)	50	
Material of Annular Seal *(cement grout, bentonite, etc.)*	Cement	
AQUIFER		
* Aquifer Materials *(list all that apply: sand, silt, clay, gravel, rock, fractured rock)*	sand (primarily) with some clay layers and rock; hard quartz layer 410' to 425'	
* Effective porosity (decimal percent) *(default = 0.2)* (or "UNKNOWN")	0.2	Default
* Confining layer (Impervious Strata) above aquifer? ("YES", "NO" or "UNKNOWN")	No	
Thickness of confining layer, if known (ft)	-	
Depth to confining layer, if known (ft below ground)	-	
* Static water level (ft below ground surface)	261'	Static water level in wells in the vicinity (approximately 5 miles west) is approximately 260 feet below grade or shallower per DWR Groundwater Level Report.
Static water level measurement: Date/Method	10/19/1998	
Pumping water level (ft below ground surface)	**TBD**	
Pumping water level measurement: Date/Method	**TBD**	
WELL PRODUCTION		
Well Yield (gpm)	125	Well was also sampled after installation on 10/19/1998 via air lift testing. Flow rate was 150 gpm.
Well Yield Based On (i.e., pump test, etc.)	Pump test	
Date measured	3/18/2021	
Is the well metered? ("YES" or "NO")	Yes	Flow meter will be added
Production (gallons per year)	If 24/7: 65,700,000	
Frequency of Use (hours/year)	**TBD**	
Typical pumping duration (hours/day)	**TBD**	
PUMP		
Make	**TBD**	
Type	Submersible	
Size (hp)	15	
* Capacity (gpm)	125	
Depth to suction intake (ft below ground surface)	**TBD**	
Lubrication Type	Water	
REMARKS AND DEFECTS (use additional sheets as necessary)		
NOTES		
1. Neighborhood/Surrounding Area (list all that apply): A= Agricultural, Ru = Rural, Re = Residential, Co = Commercial, I = Industrial, Mu = Municipal, P = Pristine, O = Other		
2. Conductor Casing - Oversized casing used to stabilize bore hole during well construction. Should be removed during installation of annular seal.		
3. Annular Seal - Seal of grout in the space between the well casing and the wall of the drilled hole. Sometimes called "sanitary seal".		

Heritage Well SERVICE

PO Box 391578 Anza, CA 92539 Lic. 813456 C-55, C-57
(951) 763-2210 Office (951) 602-6320 Fax
heritagewellservice@yahoo.com www.heritagewellservice.com

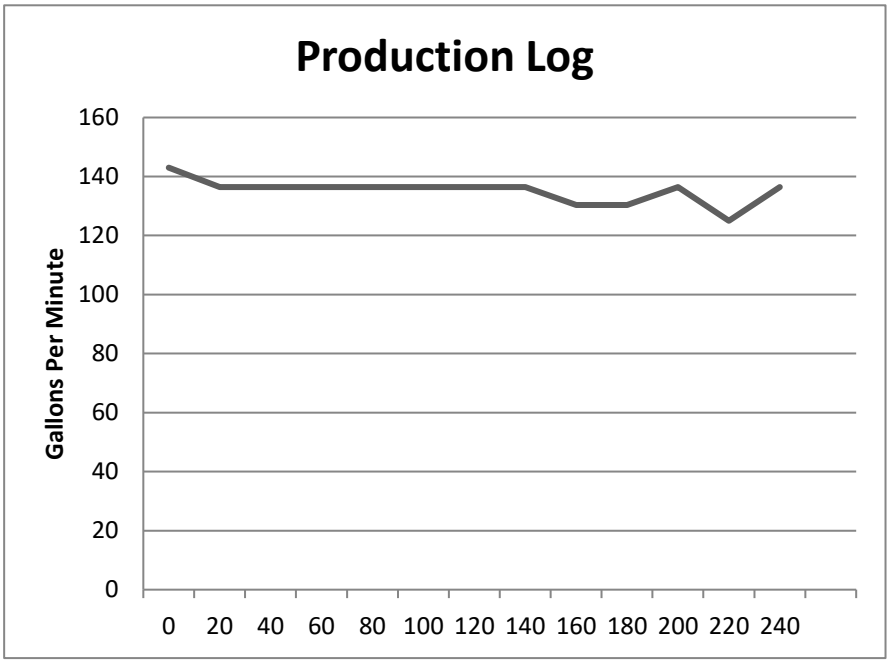
WELL INSPECTION

		Report No.	**2071**
Customer:	The Wonder Inn	Date:	3/18/2021
Telephone:	469-263-7789	Email:	phanessa@thewonderinn.com
Site Address:			
Well Address:	78201 Amboy Rd,Twentynine Palms Ca 92277		
APN:	062-507-104	GPS Coordinates:	N 33.807362, W -116.826196
Realtor:	n/a	Email:	
Escrow:	n/a	Email:	

Well Production Information					
Observed Total Production:				32606	Gallons
Average Yield for Pumping Duration:				125.4	GPM*
Final Observed Yield Rate:				136.4	GPM*
Pumping Duration:				240	Minutes
Pump Broke Suction During Test:	**YES**		**NO**	X	

Due to the unknown nature of groundwater and used pumping equipment, this inspection/certifcation does in no way warranty the condition of the well or its equipment beyond the date of this inspection. The certification reflects the well/well system on the date of the inspection only

WELL PRODUCTION LOG		
MINUTES	AMPS	GPM
0	22	143
20	22.1	136.4
40	22	136.4
60	22	136.4
80	22	136.4
100	21.9	136.4
120	21.9	136.4
140	21.9	136.4
160	21.8	130.4
180	21.8	130.4
200	21.8	136.4
220	21.7	125
240	21.7	136.4

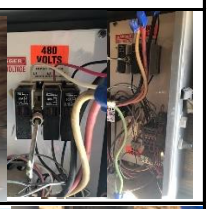
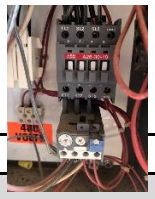


Specializing in:
Well Drilling - Submersible Booster Pumps - Storage Tanks - Well Certifications - Filtration - Well Cleaning

Part:	Data:	F	D	NO	Picture
	F= Functional	D= Deficient	NO= Not Observed/Not Present		
Water Use:	Potable Water	X			
Well Motor:	15 HP 230V 3 PH	X			
Well Pump:	Unknown	X			
Wire Size:	#8	X			
Pump Saver:	777 set @ 20 mins	X			
Booster Pump:	n/a			X	
Pressure Tank(s):	n/a			X	
Storage Tank(s):	n/a			X	
Filter/Plumbing:	3" PVC	X			

Specializing in:

Well Drilling - Submersible Booster Pumps - Storage Tanks - Well Certifications - Filtration - Well Cleaning

Part:	N	F	D	NO	Picture
	F= Functional	D= Deficient	NO= Not Observed/Not Present		
Float:	n/a			X	
System Pressure:	n/a			X	
Pressure Switch:	n/a			X	
Electrical Equipment:	15 HP 	X	    		
Well Casing:	11" Steel  	X	 		

Well Water Condition:						
Sulfur Odor:		Yes	X	No	Comments:	
Iron Visible:		Yes	X	No	Comments:	
Samples Taken:	E Coli, Bacti, Nitrates,Nitrites,Lead,Arsenic,and additional water samples					
Water Testing Information (If Applicable):	Babcock & Sons, Inc. 951-653-3351					

Comments About the System:
System is aged but functional. Well is powered on a 480V 3PH Contactor, in order to provide pressurized water to the property system will need to be upgraded to a VFD with a pressure system or be fed into a storage tank system with a booster pump. A quote can be provided upon request.

Dated: 3/19/2021

By: Eric J. Haley, Owner/Operator

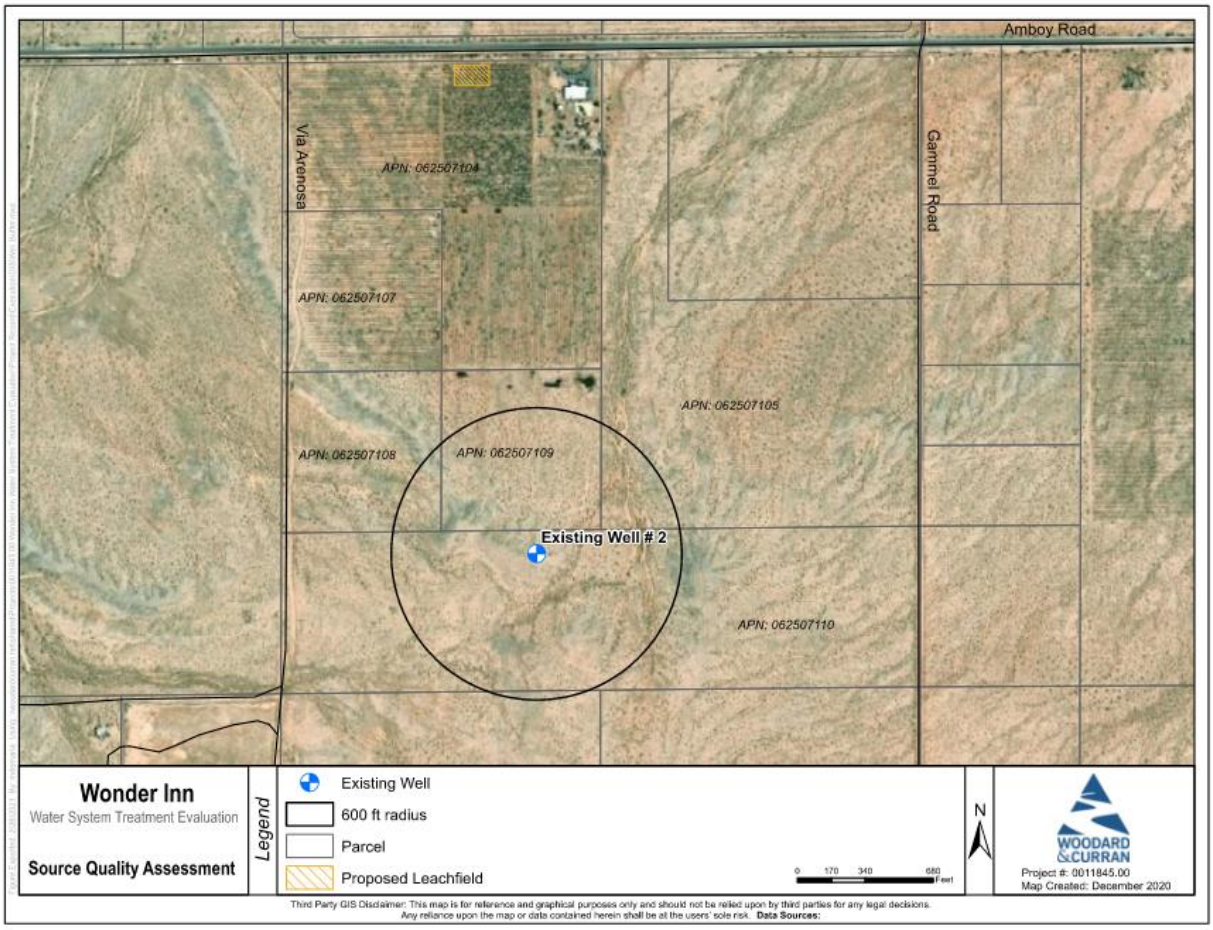
Eric J Haley

Specializing in:

Well Drilling - Submersible Booster Pumps - Storage Tanks - Well Certifications - Filtration - Well Cleaning

Source Water Assessment Map

The 600-foot radius surrounding Well No. 2 is primarily on the parcels owned by Wonder Inn, LLC. The two nearest septic systems are approximately 2,000 feet away: 1) Wonder Inn septic is located along Amboy Road to the north of the well and 2) the nearest house on a separate parcel is located to the southeast. No other PCAs are noted in the vicinity of the well.



Flood Map – All Wonder Inn parcels are located in Zone X
Screenshot from FEMA's National Flood Hazard Layer Viewer
(https://hazards-fema.maps.arcgis.com) accessed on 2/25/2021



No PCAs Shown on Geotracker in Vicinity
accessed on 2/25/2021



Appendix E. Water Quality Sample Results

BABCOCK Laboratories, Inc.
The Standard of Excellence for Over 100 Years

Client Name: Heritage Well Service
Contact: Natasha Firth
Address: PO Box 391578
Anza, CA 92539

Report Date: 02-Apr-2021

Analytical Report: Page 1 of 7
Project Name: Heritage Well - The Wonder Inn
Project Number: The Wonder Inn

Work Order Number: C1C2706

Received on Ice (Y/N): Yes Temp: 12 °C

Attached is the analytical report for the sample(s) received for your project. Below is a list of the individual sample descriptions with the corresponding laboratory number(s). Also, enclosed is a copy of the Chain of Custody document (if received with your sample(s)). Please note any unused portion of the sample(s) may be responsibly discarded after 30 days from the above report date, unless you have requested otherwise.

Thank you for the opportunity to serve your analytical needs. If you have any questions or concerns regarding this report please contact our client service department.

Sample Identification

Lab Sample #	Client Sample ID	Matrix	Date Sampled	By	Date Submitted	By
C1C2706-01	78201 Amboy Rd ---ROUTINE---	Water	03/19/21 08:15	Michael Jupp	03/19/21 12:32	M. Jupp

Client Name: Heritage Well Service
Contact: Natasha Firth
Address: PO Box 391578
Anza, CA 92539

Report Date: 02-Apr-2021

Project Name: Heritage Well - The Wonder Inn
Project Number: The Wonder Inn

Work Order Number: C1C2706

Received on Ice (Y/N): Yes Temp: 12 °C

Laboratory Reference Number
C1C2706-01

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
78201 Amboy Rd	Water	03/19/21 08:15	03/19/21 12:32

Analyte(s)	Result	RDL	Units	Method	Analysis Date	Analyst	Flag
Cations							
Total Hardness	76	3.0	mg/L	SM 2340B/EPA 200.7	03/29/21 15:47	HRL	
Calcium	23	1.0	mg/L	EPA 200.7	03/29/21 15:47	HRL	
Magnesium	4.1	1.0	mg/L	EPA 200.7	03/29/21 15:47	HRL	
Sodium	460	1.0	mg/L	EPA 200.7	03/29/21 15:47	HRL	
Potassium	4.2	1.0	mg/L	EPA 200.7	03/29/21 15:47	HRL	
Total Cations	21.7	0.05	me/L	Calculation			
Anions							
Total Alkalinity	160	5.0	mg/L as CaCO3	SM 2320B	03/31/21 12:00	BZB	
Hydroxide	ND	5.0	mg/L as CaCO3	SM 2320B	03/31/21 12:00	BZB	
Carbonate	ND	5.0	mg/L as CaCO3	SM 2320B	03/31/21 12:00	BZB	
Bicarbonate	160	5.0	mg/L as CaCO3	SM 2320B	03/31/21 12:00	BZB	
Chloride	240	1.0	mg/L	EPA 300.0	03/19/21 20:56	KJN	
Sulfate	570	2.5	mg/L	EPA 300.0	03/20/21 16:56	CMR	
Nitrate as N	0.77	0.20	mg/L	EPA 300.0	03/19/21 20:56	KJN	
Fluoride	9.5	0.10	mg/L	EPA 300.0	03/19/21 20:56	KJN	
Nitrite as N	ND	0.1	mg/L	EPA 300.0	03/19/21 20:56	KJN	
Nitrate	3.4	1.0	mg/L	EPA 300.0	03/19/21 20:56	KJN	
Total Anions	22.4	0.05	me/L	Calculation			
Aggregate Properties							
pH	8.3	1.0	pH Units	SM 4500H+ B	03/31/21 12:00	BZB	
Specific Conductance	2200	1.0	umhos/cm	SM 2510 B	03/31/21 12:00	BZB	
Solids							
Total Dissolved Solids	1400	20	mg/L	SM 2540C	03/25/21 09:00	YVD	

Client Name: Heritage Well Service
Contact: Natasha Firth
Address: PO Box 391578
Anza, CA 92539

Report Date: 02-Apr-2021

Project Name: Heritage Well - The Wonder Inn
Project Number: The Wonder Inn

Work Order Number: C1C2706

Received on Ice (Y/N): Yes Temp: 12 °C

Laboratory Reference Number
C1C2706-01

Sample Description	Matrix	Sampled Date/Time	Received Date/Time
78201 Amboy Rd	Water	03/19/21 08:15	03/19/21 12:32

Analyte(s)	Result	RDL	Units	Method	Analysis Date	Analyst	Flag
General Physical							
Color (Apparent)	5.0	3.0	Color Units	SM 2120B	03/19/21 23:00	NC	
Turbidity	2.9	0.10	NTU	SM 2130 B	03/19/21 23:00	NC	
Metals and Metalloids							
Aluminum	ND	50	ug/L	EPA 200.7	03/29/21 15:47	HRL	
Antimony	ND	6.0	ug/L	EPA 200.8	03/29/21 18:11	AJH	
Arsenic	3.5	2.0	ug/L	EPA 200.8	03/29/21 18:11	AJH	
Barium	ND	20	ug/L	EPA 200.8	03/29/21 18:11	AJH	
Beryllium	ND	1.0	ug/L	EPA 200.8	03/29/21 18:11	AJH	
Cadmium	ND	1.0	ug/L	EPA 200.8	03/29/21 18:11	AJH	
Total Chromium	31	1.0	ug/L	EPA 200.8	03/23/21 12:51	AJH	
Copper	ND	50	ug/L	EPA 200.8	03/29/21 18:11	AJH	
Iron	480	100	ug/L	EPA 200.7	03/29/21 15:47	HRL	
Lead	ND	5.0	ug/L	EPA 200.8	03/29/21 18:11	AJH	
Manganese	ND	20	ug/L	EPA 200.8	03/29/21 18:11	AJH	
Mercury	ND	1.0	ug/L	EPA 200.8	03/29/21 18:11	AJH	
Nickel	ND	10	ug/L	EPA 200.8	03/29/21 18:11	AJH	
Selenium	ND	5.0	ug/L	EPA 200.8	03/29/21 18:11	AJH	
Silver	ND	10	ug/L	EPA 200.8	03/29/21 18:11	AJH	
Thallium	ND	1.0	ug/L	EPA 200.8	03/29/21 18:11	AJH	
Zinc	120	50	ug/L	EPA 200.8	03/29/21 18:11	AJH	

Client Name: Heritage Well Service
Contact: Natasha Firth
Address: PO Box 391578
Anza, CA 92539

Report Date: 02-Apr-2021

Project Name: Heritage Well - The Wonder Inn

Project Number: The Wonder Inn

Work Order Number: C1C2706

Received on Ice (Y/N): Yes Temp: 12 °C

Notes and Definitions

pH: Regulatory 15 minute holding time exceeded C1C2706-01

ND: Analyte NOT DETECTED at or above the Method Detection Limit **(if MDL is reported)**, otherwise at or above the Reportable Detection Limit (RDL)

NR: Not Reported

RDL: Reportable Detection Limit

MDL: Method Detection Limit

* / ''' : NELAP does not offer accreditation for this analyte/method/matrix combination

Approval

Enclosed are the analytical results for the submitted sample(s). Babcock Laboratories certify the data presented as part of this report meet the minimum quality standards in the referenced analytical methods. Any exceptions have been noted.



Cindy A. Waddell

cc:

e-Short_No Alias.rpt

This report applies only to the sample(s) analyzed. As a mutual protection to clients, the public, and Babcock Laboratories, Inc., this report is submitted and accepted for the exclusive use of the Client to whom it is addressed. Interpretation and use of the information contained within this report are the sole responsibility of the Client. Babcock Laboratories, Inc. is not responsible for any misinformation or consequences that may result from misinterpretation or improper use of this report. This report is not to be modified or abbreviated in any way. Additionally, this report is not to be used, in whole or in part, in any advertising or publicity matter without written authorization from Babcock Laboratories, Inc. The liability of Babcock Laboratories, Inc. is limited to the actual cost of the requested analyses, unless otherwise agreed upon in writing. There is no other warranty expressed or implied.

BABCOCK Laboratories, Inc.
The Standard of Excellence for Over 100 Years

Client Name: Heritage Well Service
Contact: Natasha Firth
Address: PO Box 391578
Anza, CA 92539

Report Date: 02-Apr-2021

Analytical Report: Page 5 of 7
Project Name: Heritage Well - The Wonder Inn

Project Number: The Wonder Inn

Work Order Number: C1C2706

Received on Ice (Y/N): Yes Temp: 12 °C

BABCOCK Laboratories, Inc.
The Standard of Excellence for Over 100 Years
6100 Quail Valley Court Riverside, CA 92507
(951) 653-3351 • FAX (951) 653-1662
www.babcocklabs.com

Chain of Custody & Sample Information Record

Client: HERITAGE WELL Contact: MEGAN HALEY Fax No. 9516026320
Phone No. 9517632210 email: HERITAGEWELLSERVICE@GMAIL.COM
Project Name: 78201 ALBOY RD Turn Around Time: Routine *72 Hour Rush *48 Hour Rush *24 Hour Rush
Project Location: *Lab TAT Approval: By: *Additional Charges Apply

Additional Reporting Requests: Include QC Data Package: ☐ Yes ☐ No; FAX Results: ☐ Yes ☐ No; Email Results: ☐ Yes ☐ No; State EDT: ☐ Yes ☐ No (Include Source Number in Notes)

Sampler Information: Name: MICHAEL JUPP; Employer: HERITAGE; Signature:

Sample ID	Date	Time	# of Containers & Preservatives: Unpreserved	H_2SO_4	HCl	HNO_3	$Na_2S_2O_3$	NaOH	NaOH/Zn Acetate	NH_4Cl	PDC	Total # of Containers	Sample Type: Routine	Resample	Special	Analysis Requested	Matrix	Notes
78201 ALBOY RD	3/19/21	8:15	3			1						4	X			X SEE ATTACHMENT		* see attachment for requested analyses -JV

Matrix: DW = Drinking Water; WW = Waste Water; GW = Ground Water; S = Source; SG = Sludge; L = Liquid; M = Miscellaneous

Relinquished By (sign)	Print Name / Company	Date / Time	Received By (sign)	Print Name / Company
	MJUPP/HERITAGE	3/19/21 12:32		James Villegas/ESB

By signing on behalf of your organization and relinquishing this chain of custody you agree to abide by the Babcock Laboratories, Inc. *Terms and Conditions.*

(For Lab Use Only) Sample Integrity Upon Receipt/Acceptance Criteria T6#

Sample(s) Submitted on Ice? (Yes) No
Custody Seal(s) Intact? Yes No (NA)
Sample(s) Intact? (Yes) No
Temperature: 12 °C ☐ Cooler Blank

Sample meets laboratory acceptance criteria? (Yes) No
Permission to continue: Yes No
Deviation/Notes:
Signature/Date:

C1C2706
Rc'd: 03/19/2021 12:32
JLH

Rev. 9/19

Client Name: Heritage Well Service
Contact: Natasha Firth
Address: PO Box 391578
Anza, CA 92539

Report Date: 02-Apr-2021

Project Name: Heritage Well - The Wonder Inn
Project Number: The Wonder Inn

Work Order Number: C1C2706

Received on Ice (Y/N): Yes Temp: 12 °C

Project Information

Printed: 03/19/2021 1:16 pm

Heritage Well Service **0709**
PO Box 391578
Anza, CA 92539
Laboratory PM: Cindy A. Waddell
Phone: (951) 763-2210
Fax: (951) 602-6320

Project Name: Heritage Well - The Wonder Inn
Project Number: The Wonder Inn
Client PM: Natasha Firth
Comments:

Invoice To: Heritage Well Service
Invoice Bid: The Wonder Inn
Invoice Manager: Natasha Firth

Analysis	Comment
Cl	
Hardness Pack-DW	
Fluoride-IC	
FE_ICP_DW	
EC	
CU_ICPMS_DW	
AG_ICPMS_DW	
Color	
CD_ICPMS_DW	
BE_ICPMS_DW	
BA_ICPMS_DW	
AS_ICPMS_DW	
Alkalinity	
AL_ICP_DW	
CR_ICPMS_DW	
PB_ICPMS_DW	
Turbidity	
Total Cations-ICP_DW	
Total Anions - calc	
TL_ICPMS_DW	
Solids-Total Diss	
SO4	
SE_ICPMS_DW	
HG_ ICPMS_DW	
pH	
K_ICP_DW	
NO3-N	
Nitrite-N IC	
NI_ICPMS_DW	
NA_ICP_DW	
MN_ICPMS_DW	
ZN_ICPMS_DW	
SB_ICPMS_DW	
Hardness Pack-DW subanalyses:	
Hardness Total-DW	
Metals-Turbidity	
CA_ICP_DW	
MG_ICP_DW	
Total Anions - calc subanalyses:	
Fluoride	
NO3	

C1C2706
Rc'd: 03/19/2021 12:32
JLH

mailing
P.O Box 432
Riverside, CA 92502-0432

location
6100 Quail Valley Court
Riverside, CA 92507-0704

P 951 653 3351
F 951 653 1662
www.babcocklabs.com

CA ELAP No. 2698
EPA No. CA00102
NELAP No. OR4035
LACSD No. 10119

Client Name: Heritage Well Service
Contact: Natasha Firth
Address: PO Box 391578
Anza, CA 92539

Report Date: 02-Apr-2021

Analytical Report: Page 7 of 7
Project Name: Heritage Well - The Wonder Inn
Project Number: The Wonder Inn

Work Order Number: C1C2706

Received on Ice (Y/N): Yes Temp: 12 °C

Project Information
(Continued)

Printed: 03/19/2021 1:16 pm

Heritage Well Service **0709**
PO Box 391578
Anza, CA 92539
Laboratory PM: Cindy A. Waddell
Phone: (951) 763-2210
Fax: (951) 602-6320

Project Name:	Heritage Well - The Wonder Inn	**Invoice To:**	Heritage Well Service
Project Number:	The Wonder Inn	**Invoice Bid:**	The Wonder Inn
Client PM:	Natasha Firth	**Invoice Manager:**	Natasha Firth
Comments:			

Analysis	Comment

C1C2706
Rc'd: 03/19/2021 12:32
JLH

Page 2 of 2

Clinical Laboratory of San Bernardino, Inc.

Transtech Engineers	Project: Well Cert Analysis	Work Order: 20G2528
13367 Benson Ave	Sub Project:	Received: 07/29/20 16:36
Chino CA, 91710	Project Manager: Leonardo Martinez	Reported: 08/10/20

Well **20G2528-01 (Water)** **Sample Date:** 07/29/20 11:15 **Sampler:** Michael Salazar

Analyte	Method	Result	Units	Rep. Limit	MDL	MCL	Prepared	Analyzed	Batch	Qualifier
Field Analyses										
Temperature (Field)	Field	**20.0**	°C				07/29/20	07/29/20	2031092	
General Physical Analyses										
Apparent Color	SM 2120BM	**50.0**	Color Units	6.0		15	07/29/20	07/29/20	2031119	
Odor Threshold	EPA 140.1-M	**1**	TON	1		3	07/29/20	07/29/20	2031119	
Turbidity	EPA 180.1	**11**	NTU	1.0	0.2	5	07/29/20	07/29/20	2031119	
General Chemical Analyses										
Alkalinity, Total (as CaCO3)	SM 2320 B	**160**	mg/L	5.0			07/30/20	07/30/20	2031092	
Bicarbonate (HCO3)	SM 2320 B	**200**	mg/L	5.0			07/30/20	07/30/20	2031092	
Carbonate (CO3)	SM 2320B	ND	mg/L	5.0			07/30/20	07/30/20	2031092	
Chloride (Cl)	EPA 300.0	**250**	mg/L	1.0	0.075	500	07/30/20	07/30/20	2031111	
Langelier Index at Source Tmp	SM 203	**0.30**			-50.00		07/29/20	07/29/20	2031092	
Langelier Index at 60 C	SM 203	**0.90**			-50.00		07/29/20	07/29/20	2031092	
Aggressive Index	SM 203	**12.19**					07/29/20	07/29/20	2031092	
Cyanide (CN)	SM4500CNF	ND	ug/L	100	37	150	08/03/20	08/03/20	2032031	
Specific Conductance (E.C.)	SM 2510B	**2200**	umhos/cm	2.0	0.20	1600	07/30/20	07/30/20	2031092	
Fluoride (F)	EPA 300.0	**9.3**	mg/L	0.40	0.10	2	07/31/20	07/31/20	2031135	
Hydroxide (OH)	SM 2320B	ND	mg/L	5.0			07/30/20	07/30/20	2031092	
MBAS (LAS Mole. Wt 340.0)	SM 5540C	ND	mg/L	0.10	0.047	0.5	07/30/20	07/30/20	2031089	
Nitrate as N (NO3-N)	EPA 300.0	**0.80**	mg/L	0.40	0.12	10	07/30/20	07/30/20	2031111	
Nitrate + Nitrite (as N)	EPA 300.0	**0.80**	mg/L	0.40	0.29	10	07/30/20	07/30/20	2031111	
Nitrite as N (NO2-N)	EPA 300.0	ND	mg/L	0.40	0.17	1	07/30/20	07/30/20	2031111	
Perchlorate (ClO4)	EPA 314.0	ND	ug/L	4.0	0.38	6	08/04/20	08/05/20	2032056	
pH (Lab)	SM 4500HB	**8.2**	pH Units				07/30/20	07/30/20	2031092	
Sulfate (SO4)	EPA 300.0	**560**	mg/L	2.0	0.56	500	07/31/20	07/31/20	2031135	
Total Filterable Residue/TDS	SM 2540C	**1300**	mg/L	5.0	3.1	1000	08/03/20	08/04/20	2031130	
Metals										
Aluminum (Al)	EPA 200.7	**160**	ug/L	50	14	200	08/05/20	08/05/20	2032085	
Antimony (Sb)	EPA 200.8	ND	ug/L	6.0	0.14	6	08/05/20	08/05/20	2032075	
Arsenic (As)	EPA 200.8	**6.7**	ug/L	2.0	0.40	10	08/05/20	08/05/20	2032075	
Barium (Ba)	EPA 200.7	**19**	ug/L	100	12	1000	08/05/20	08/05/20	2032085	J
Beryllium (Be)	EPA 200.8	ND	ug/L	1.0	0.20	4	08/05/20	08/05/20	2032075	
Boron (B)	EPA 200.7	**1700**	ug/L	100	32		08/05/20	08/05/20	2032085	
Cadmium (Cd)	EPA 200.8	ND	ug/L	1.0	0.11	5	08/05/20	08/05/20	2032075	

Stu Styles
Client Services Manager

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

Transtech Engineers	Project: Well Cert Analysis	Work Order: 20G2528
13367 Benson Ave	Sub Project:	Received: 07/29/20 16:36
Chino CA, 91710	Project Manager: Leonardo Martinez	Reported: 08/10/20

Well **20G2528-01 (Water)** **Sample Date:** 07/29/20 11:15 **Sampler:** Michael Salazar

Analyte	Method	Result	Units	Rep. Limit	MDL	MCL	Prepared	Analyzed	Batch	Qualifier
Metals										
Calcium (Ca)	EPA 200.7	**24**	mg/L	1.0	0.080		08/04/20	08/04/20	2032049	
Chromium (+6)	EPA 218.6	**18**	ug/L	1.0	0.14		07/29/20	07/30/20	2030144	
Chromium (Total Cr)	EPA 200.8	**89**	ug/L	10	0.42	50	08/07/20	08/07/20	2032142	
Copper (Cu)	EPA 200.7	ND	ug/L	50	6.5	1000	08/05/20	08/05/20	2032085	
Iron (Fe)	EPA 200.7	**3000**	ug/L	100	14	300	08/05/20	08/05/20	2032085	
Lead (Pb)	EPA 200.8	**1.6**	ug/L	5.0	0.51		08/05/20	08/05/20	2032075	J
Magnesium (Mg)	EPA 200.7	**4.0**	mg/L	1.0	0.51		08/04/20	08/04/20	2032049	
Manganese (Mn)	EPA 200.7	**48**	ug/L	20	0.80	50	08/05/20	08/05/20	2032085	
Mercury (Hg)	EPA 200.8	**0.52**	ug/L	1.0	0.50	2	08/07/20	08/07/20	2032144	J
Nickel (Ni)	EPA 200.8	**1.6**	ug/L	10	0.52	100	08/05/20	08/05/20	2032075	J
Potassium (K)	EPA 200.7	**3.7**	mg/L	1.0	0.18		08/04/20	08/04/20	2032049	
Selenium (Se)	EPA 200.8	**2.9**	ug/L	5.0	0.95	50	08/05/20	08/05/20	2032075	J
Silver (Ag)	EPA 200.8	**0.38**	ug/L	10	0.30	100	08/05/20	08/05/20	2032075	J
Sodium (Na)	EPA 200.7	**480**	mg/L	10	2.1		08/04/20	08/04/20	2032049	
Thallium (Tl)	EPA 200.8	**0.26**	ug/L	1.0	0.18	2	08/05/20	08/05/20	2032075	J
Vanadium (V)	EPA 200.8	**52**	ug/L	3.0	0.25		08/05/20	08/05/20	2032075	
Zinc (Zn)	EPA 200.7	**650**	ug/L	50	15	5000	08/05/20	08/05/20	2032085	
Anion / Cation Balance										
Hardness, Total (as CaCO3)	Calculated	**77**	mg/L				08/04/20	08/04/20	[CALC]	
Total Anions	Calculated	**22.5**	meq/L				08/04/20	07/31/20	[CALC]	
Total Cations	Calculated	**22.5**	meq/L				08/04/20	08/04/20	[CALC]	
% difference	Calculated	**0.16**					08/04/20	07/31/20	[CALC]	

J Detected below the Reporting Limit; reported concentration is estimated; (J-Flag)

pH (Lab) was analyzed ASAP but received and analyzed past the 15 minute hold time.

ND Analyte NOT DETECTED at or above the MDL; Method Detection Limit



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0/1/3

Clinical Lab of San Bernardino, Inc. Chain of Custody

WO 20G2528

21881 Barton Road Grand Terrace CA 92313 909 825-7693 / 516-A N 8th St. Lompoc CA 93436 805 737-7300

Client	Transtech Engineers
Address:	13367 Benson Ave
	Chino, CA 91710
Client Contact:	Leonardo Martinez
Phone No.:	(909) 595-8599
System No.:	N/A
Project:	Well Analysis
Sampled By:	Michael Salazar
Comments: EMail :	Leonardo.Martinez@transtech.org

Destination Laboratory

[ ]	Clinical Grand Terrace / ELAP 1088
[ ]	Clinical Lompoc / ELAP 1678
[ ]	Other:

Date	Time	Sample Identification	Container ID	Matrix	Sample Type	No. of Preserved Cont. Unpreserved, 1/2 Gallon	Unpreserved, pint	G.P. Bottle	1/2 Pint Cr (VI) Buffer	HNO3	HCl	NaOH	Na2SO3	ZnC4H6O4	Total Containers	General Minerals	General Physical	Inorganic Chemicals	Corr w/o Field pH w/GM Panel	Comments	Turn Around Time (TAT)
7/29	11:15	Well		GW		1	1	1	1						4	X	X	X	X		10

Analysis Requested

Matrix: DW - Drinking Water GW - Ground Water SW - Surface Water W - Water WW - Wastewater SWR - Stormwater Runoff S - Sludge O - Other _____

Use for Bacteria Samples / Sample Type: 1-Routine 2-Repeat 3-Replacement 4-Special D-Distribution W-Well

TAT: (10) Ten Day (5) Five Day Rush (2) Two Day Rush

Relinquished By (Sign)	Print Name / Company	Date / Time	Received By (Sign)	Print Name / Company
M Salazar	Mike/CLSB	7/29/20 - 4:36	[illegible]	CLSB

Condition: [X] On Wet Ice [ ] On Blu Ice [X] Intact [ ] Custody Seals

Samples / COC Checked By: _____ Work Order Logged By: _____

Receipt Comment Clinical Lab Receipt Temp.: _____ °C

3.2 °C

Clinical Laboratory of San Bernardino, Inc.

Celebrating 50 Years of Analytical Service 1967-2017

Chambers DP Drilling	Project: Routine	Work Order: 20A0883
6647 Macs Road	Sub Project:	Received: 01/13/20 17:34
Twentynine Palms CA, 92277	Project Manager: Water Quality Supervisor	Reported: 01/23/20

78201 Amboy Rd **20A0883-01 (Water)** **Sample Date:** 01/13/20 15:00 **Sampler:** Not Listed

Analyte	Method	Result	Rep. Limit	MCL	Units	Prepared	Analyzed	Batch	Qualifier
Microbiology Analyses									
Total Coliform	SM 9223	A			P/A	01/13/20	01/14/20	2003053	
E. Coli	SM 9223	A			P/A	01/13/20	01/14/20	2003053	
General Chemical Analyses									
Cyanide (CN)	SM4500CNF	ND	100	150	ug/L	01/16/20	01/16/20	2003125	
Fluoride (F)	EPA 300.0	**9.1**	0.40	2	mg/L	01/16/20	01/16/20	2003104	
Nitrate as N (NO3-N)	EPA 300.0	**0.70**	0.40	10	mg/L	01/14/20	01/14/20	2003034	
Nitrate + Nitrite (as N)	EPA 300.0	**0.70**	0.40	10	mg/L	01/14/20	01/14/20	2003034	
Nitrite as N (NO2-N)	EPA 300.0	ND	0.40	1	mg/L	01/14/20	01/14/20	2003034	
Perchlorate (ClO4)	EPA 314.0	ND	4.0	6	ug/L	01/21/20	01/21/20	2004031	
Metals									
Aluminum (Al)	EPA 200.7	**130**	50	200	ug/L	01/17/20	01/17/20	2003138	
Antimony (Sb)	EPA 200.8	ND	6.0	6	ug/L	01/23/20	01/23/20	2004097	
Arsenic (As)	EPA 200.8	**4.5**	2.0	10	ug/L	01/23/20	01/23/20	2004097	
Barium (Ba)	EPA 200.7	ND	100	1000	ug/L	01/17/20	01/17/20	2003138	
Beryllium (Be)	EPA 200.8	ND	1.0	4	ug/L	01/23/20	01/23/20	2004097	
Cadmium (Cd)	EPA 200.8	ND	1.0	5	ug/L	01/23/20	01/23/20	2004097	
Chromium (+6)	EPA 218.6	**18**	1.0		ug/L	01/13/20	01/22/20	2003110	
Chromium (Total Cr)	EPA 200.8	**35**	10	50	ug/L	01/23/20	01/23/20	2004097	
Lead (Pb)	EPA 200.8	ND	5.0		ug/L	01/23/20	01/23/20	2004097	
Mercury (Hg)	EPA 200.8	ND	1.0	2	ug/L	01/20/20	01/20/20	2004007	
Nickel (Ni)	EPA 200.8	ND	10	100	ug/L	01/23/20	01/23/20	2004097	
Selenium (Se)	EPA 200.8	**5.8**	5.0	50	ug/L	01/23/20	01/23/20	2004097	
Silver (Ag)	EPA 200.8	ND	10	100	ug/L	01/23/20	01/23/20	2004097	
Thallium (Tl)	EPA 200.8	ND	1.0	2	ug/L	01/23/20	01/23/20	2004097	
Vanadium (V)	EPA 200.8	**33**	3.0		ug/L	01/23/20	01/23/20	2004097	

ND Analyte NOT DETECTED at or above the reporting limit

Bob Glaubig

Laboratory Director

Post Office Box 329 San Bernardino, CA 92402 (909) 825-7693 Fax (909) 825-7696 ELAP Number 1088

Appendix F. Water System Information Provided by Vendors

Quotation 5142021

Date: 05/14/2021

Prepared By:
DENNIS POORE
CRH CALIFORNIA WATER INC dba CULLIGAN OF ONTARIO
1925 Burgundy Place
Ontario, California 91761
United States
Telephone: 714-349-4812
Email: dpoore@hallswater.com

Quoted To:
JANET FORDUNSKI, PE
WONDER INN LLC
24422 AVENIDA DE LA CARLOTA
LAGUNA HILLS , CA 92653
Telephone: 949 420 5319
Email:
JFORDUNSKI@WOODARDCURRAN.COM

Quote No: 5142021
RE: WONDER INN RESORT

Culligan Equipment/Services: REVISED TO INCLUDE GREENSAND FILTERS FOR IRON REMOVAL

Qty	Part No	Description	Price
1	01021304	G2-8HE Reverse Osmosis system	$28,303.92
1	D1019583	2-Float Level Control Kit	$466.44
1	TANK	1500 GAL STORAGE to feed to property pure water	$2,640.00
1	TANK	60X60 ASME CODE VESSEL WITH 2 3X12 SITE GLASSES	$43,512.00
75	RESIN	8% COSSLINK RESIN	$8,640.00
1	PUMPS	VFD PUMP 120 GPM	$19,800.00
4	01029664	CTM--36-PF Greensand Filters rated 140 GPM	$41,593.06
3	01016327	Culligan GBE Standard Communication Cable	$149.11
4	01029503	CTM Plumbing Adapter, 2" NPT, Inlet/Outlet, with 1/4" Ports	$251.23

Equipment and Services Sub Total: $145,355.76

Culligan Terms and Conditions:
The above products and services are provided by CRH CALIFORNIA WATER INC dba CULLIGAN OF ONTARIO and will be assembled by an authorized Culligan representative on site. Prices and terms are based on approved credit and are subject to change.
Delivery: 12 WEEKS CURRENT LEAD TIME from Culligan after acceptance of signed purchase order and credit approval.

I have read and agree to the terms and conditions above and attached.

Accepted:_____ Date:_____
Signature

Accepted:_____ Title:_____
Printed

Purchase Order #:_____

Terms and Conditions

GENERAL:
Unless otherwise stipulated herein the equipment shall be installed by and at the expenses of the purchaser.
No waiver, alteration or modification of any of the provisions hereof shall be binding unless in writing and signed by a duly authorized representative of the seller.

Neither party shall be liable to the other for indirect or consequential damages arising from any cause whatsoever.
The warranties detailed herein apply only to material of the seller's manufacture. Outside purchased equipment and accessories are guaranteed only the extent of the original manufacturer's guarantee.

Standard Terms of Sale

- Applicable Terms. These terms govern the purchase and sale of the equipment ("Equipment") referred to in Seller's purchase order, quotation, proposal or acknowledgment, as the case may be ("Seller's Documentation"). Whether these terms are included in an offer or an acceptance by Seller, such offer or acceptance is conditioned on Buyer's assent to these terms. Seller rejects all additional or different terms in any of Buyer's forms or documents.

- Payment. Buyer shall pay Seller the full purchase price as set forth in Seller's Documentation. Unless Seller's Documentation provides otherwise, freight, storage, insurance and all taxes, duties or other governmental charges relating to the Equipment or any included services shall be paid by Buyer. If Seller is required to pay any such charges, Buyer shall immediately reimburse Seller. All payments are due within 30 days after receipt of invoice. Buyer shall be charged the lower of
1 ½% interest per month or the maximum legal rate on all amounts not received by the due date and shall pay all of Seller's reasonable costs (including attorneys' fees) of collecting amounts due but unpaid. All orders are subject to credit approval.

- Delivery. Delivery of the Equipment shall be in material compliance with the schedule in Seller's Documentation. Unless Seller's Documentation provides otherwise, Delivery terms are F.O.B. Seller's facility.

- Ownership of Materials. All devices, designs (including drawings, plans and specifications), estimates, prices, notes, electronic data and other documents or information prepared or disclosed by Seller, and all related intellectual property rights, shall remain Seller's property. Seller grants Buyer a non-exclusive, non-transferable license to use any such material solely for Buyer's use of the Equipment. Buyer shall not disclose any such material to third parties without Seller's prior written consent.

- Changes. Seller shall not implement any changes in the scope of work described in Seller's Documentation unless Buyer and Seller agree in writing to the details of the change and any resulting price, schedule or other contractual modifications. This includes any changes necessitated by a change in applicable law occurring after the effective date of any contract including these terms.

- Warranty. Seller warrants to Buyer that the Equipment shall materially conform to the description in Seller's Documentation and shall be free from defects in material and workmanship. If Buyer gives Seller prompt written notice of breach of this warranty within 18 months from delivery or 1 year from acceptance, whichever occurs first (the "Warranty Period"), Seller shall, at its sole option and as Buyer's sole remedy, repair or replace the subject parts or refund the purchase price. If Seller determines that any claimed breach is not, in fact, covered by this warranty, Buyer shall pay Seller its then customary charges for any repair or replacement made by Seller. Seller's warranty is conditioned on Buyer's (a) operating and maintaining the Equipment in accordance with Seller's instructions, (b) not making any unauthorized repairs or alterations, and (c) not being in default of any payment obligation to Seller. Seller's warranty does not cover damage caused by chemical action or abrasive material, misuse or improper installation (unless installed by Seller). THE WARRANTIES SET FORTH IN THIS SECTION ARE SELLER'S SOLE AND EXCLUSIVE WARRANTIES. SELLER MAKES NO OTHER WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE.

- Indemnity. Seller shall indemnify, defend and hold Buyer harmless from any claim, cause of action or liability incurred by Buyer as a result of third party claims for personal injury, death or damage to tangible property, to the extent caused by Seller's negligence. Seller shall have the sole authority to direct the defense of and settle any indemnified claim. Seller's indemnification is conditioned on Buyer (a) promptly, within the Warranty Period, notifying Seller of any claim, and (b) providing reasonable cooperation in the defense of any claim.

- Force Majeure. Under no circumstances shall either Seller or Buyer have any liability for any breach (except for payment obligations) caused by extreme weather or other act of God, strike or other labor shortage or disturbance, fire, accident, war or civil disturbance, delay of carriers, failure of normal sources of supply, change in law or other act of government or any other cause beyond such party's reasonable control.

- Cancellation. If Buyer cancels or suspends its order for any reason other than Seller's breach, Buyer shall pay Seller for work performed prior to cancellation or suspension and any other direct costs incurred by Seller as a result of such cancellation or suspension.

- LIMITATION OF LIABILITY. NOTWITHSTANDING ANYTHING ELSE TO THE CONTRARY, CULLIGAN SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, PUNITIVE OR OTHER INDIRECT DAMAGES, AND CULLIGAN'S TOTAL LIABILITY ARISING AT ANY TIME FROM THE SALE OR USE OF THE EQUIPMENT SHALL NOT EXCEED THE PURCHASE PRICE PAID FOR THE EQUIPMENT. THESE LIMITATIONS APPLY WHETHER THE LIABILITY IS BASED ON CONTRACT, TORT, STRICT LIABILITY OR ANY OTHER THEORY.

- Miscellaneous. If these terms are issued in connection with a government contract, they shall be deemed to include those federal acquisition regulations that are required by law to be included. These terms, together with any quotation, purchase order or acknowledgement issued or signed by Seller, comprise the complete and exclusive statement of the agreement between the parties (the "Agreement") and supersede any terms contained in Buyer's documents, unless separately signed by Seller. No part of the Agreement may be changed or cancelled except by a written document signed by Seller and Buyer. No course of dealing or performance, usage of trade or failure to enforce any term shall be used to modify the Agreement. If any of these terms is unenforceable, such term shall be limited only to the extent necessary to make it enforceable, and all other terms shall remain in full force and effect. Buyer may not assign or permit any other transfer of the Agreement without Seller's prior written consent. The Agreement shall be governed by the laws of the Province in which the goods in question are sold without regard to its conflict of laws provisions.

CTM Depth Filter
System Design Data

Filtration System Selected is: CTM-DF-36 Multi-tank Model

The CTM will Provide (Each Unit):

Design Flow, gpm	: 50 @ 1 psi psi loss
Peak Flow, gpm	: 107 @ 19 psi loss
Total Media Volume, lbs	: 1895
Tank Size, in.	: 36 x 72
Tank Area, ft²	: 7.08
Freeboard, in.	: 27



Reconditioning Data (Each Unit):

Backwash Flow Req'd, gpm	: 90
Recond Water Req'd, gals	: 1480
Total Regen Time, min	: 22

System Requirements:

Operating Press., psi	: 35 - 125
Operating Temp., °F	: 40 - 120
Voltage	: 120 / 24 Volts AC, 50 / 60 Hz, 1 Phase
Full Load, Amps	: < 1
Pipe Conn, in NPT...	
Inlet	: 2
Outlet	: 2
Drain	: 2

Shipping Weight, lbs...	
Duplex	: 2270
Triplex	: 3405
Quad	: 4540

Operating Weight, lbs…	
Duplex	: 4216
Triplex	: 6324
Quad	: 8432

Overall Dimensions, in....	
Width x Height x Depth	
Duplex	: 78 x 100 x 36
Triplex	: 120 x 100 x 36
Quad	: 162 x 100 x 36

CTM Water Filter
Engineer's Specification

1.0 SCOPE

1.1 Provide as indicated a vertical pressure type water filter system complete with pressure vessel, filter media, control valve, and electronic controller. The system will be of an approved design as fabricated by a manufacturer regularly engaged in the production of water treatment equipment. All equipment and material will be supplied in compliance with the specifications as intended for a complete and operational system.

1.2 Qualified manufacturers of water filter equipment must be engaged in the manufacture of this equipment for a period of not less than fifty (50) years. Acceptable manufacturers are Culligan International Company or the Engineer's approved equal.

1.3 Qualified manufacturers will have the entire filter certified as s system to NSF/ANSI 61, NSF/ANSI 372, CSA 483.1, UL/CUL, and CE

2.0 GENERAL DESCRIPTION

2.1 The system specifications are based on Culligan International model CTM-DF-36 Duplex configured as multi-tank system with either TimeClock, Water Meter or Differential Pressure governance.

The purpose of the Culligan International Series CTM Duplex automatic depth filter will be to remove suspended solids from a known water supply to a level not to exceed 10 microns in size, when the system is operated in accordance with the operating instructions.

The systems performance will be capable of a peak flow rate of 214 gpm for sustained periods of 90 minutes with a pressure drop of 19 psi.

Each individual filter unit will be capable of these performance metrics.

3.0 PERFORMANCE AND DESIGN DATA

3.1 INFLUENT WATER ANALYSIS
N/A

3.2 DESIGN PARAMETERS

Normal System Flow & Pressure Drop	: 71 gpm @ 10 psi
Maximum System Flow & Pressure Drop	: 107 gpm @ 19 psi
Backwash/Rinse Flow	: 90 gpm
Backwash Volume	: 1480 gallons nominal
Operating Temperature Range	: 40 - 120
Operating Pressure Range (System)	: 35 - 125
Electrical Requirements	: 120 / 24 Volts AC, 50 / 60 Hz, 1 Ph (dedicated receptacle req'd.)

4.0 EQUIPMENT SPECIFICATIONS

4.1 FILTER TANK(S)
Each filter tank shall be 36 in. in diameter. The sideshell height shall be 72 in., sufficient to allow for a proper freeboard space above the media bed for adequate expansion of the media during backwashing.

4.1.0 Tank Construction
Tank(s) shall be manufactured of polyester reinforced by a continuous roving glass filament overwrap. The top opening will be 4"-8 UN threaded and the tank bottom will be supported on a molded structural base.

4.2 INTERNAL DISTRIBUTION

4.2.1 The upper distribution system shall be of the single point baffle type, constructed of PVC pipe.

4.2.2 The lower distribution system shall be of the single point distributor type, constructed of PVC pipe and a fine slotted strainer to provide even flow distribution through the filter bed. The distribution system shall be embedded in a two layer subfill of washed inorganic material to support the filter bed.

4.3 MAIN OPERATING VALVE

The main operating valve shall be of a top mount design constructed of thermoplastic resistant to attack by substances found in natural water supplies. Inlet and outlet connections to be 1.5" or 2 inch NPTE. The Cv (flow coefficient) of the main operating valve shall be equal to/greater than 32.

A vacuum breaker and pressure regulating valve shall be integrated in the design of the main operating valve.

The main operating valve will be of the motor driven, mechanically activated design with 5 positions to accomplish the regeneration steps of backwash, brine draw/rinse, fast rinse and brine refill in addition to the service position. The internal seals will be of a modular design for ease of replacement and service.

The main operating valve shall be designed by the same manufacturer as the water filter system and tested prior to shipment.

4.4 FLOW CONTROL

The backwash flow controller shall be a pressure-compensating orifice capable of providing and maintaining proper backwash flows over the entire listed operating pressure range of the system. The backwash flow controller shall be easily serviced without special tools and design so that service to the flow controller can be performed without disassembly of the valve body or the sequencing controller and without disconnecting existing inlet and outlet piping connections.

4.5 CONTROLS

A fully integrated programmable microprocessor driven electronic controller shall be provided to automatically cycle the main operating valve through the regeneration sequence. The electronic controller shall be designed and manufactured by the same manufacturer as the water treatment equipment.

The controller shall be capable of initiating a regeneration by accepting an internal signal from the controller time keeping device; an external Hall-Effect flow sensor, or external device such as a remote start push-button or any combination of these methods. The controller shall sequence all steps of an automatic regeneration and automatically return the filter to a service or stand-by mode. The initiating time and/or volume setpoints shall automatically reset upon completion of the regeneration sequence.

The controller shall include a sealed keypad, capable of programming all controller functions, located on the face of the controller. The controller display shall be a multi-line OLED display capable of full text readouts of operating status and codes. The firmware shall be capable of being updated to the latest version.

An audible alarm beeper capable of emitting a tone of ~70 dBA shall be available but capable of being disabled if so desired.

The controller shall allow for a manual initiation of the automatic regeneration sequence by utilizing a regeneration selection from the controller menu.

The controller shall operate on a low voltage electrical system. The system shall include a UL/CUL listed transformer. The entire electronic control package and its associated inputs/outputs shall require not more than 24 VAC @ 50VA. The control shall be rated for web environments and certified to NEMA 3R.

The controller shall utilize EEPROM to save pertinent programmed data and statistical functions. The controller must retain all functionality for power interruptions of less than 72 hours. A battery backup shall be installed and capable of maintaining the time of day for a minimum of 5 years.

4.5.1 System control options

One or a combination of below control options shall be available

Timeclock - An operator selected program of a time-initiated reconditioning for single units shall be available. The controller shall be capable of being entirely programmed in the field without additional interface devices. The operator shall be able to select reconditioning to occur after a specified number of hours or days or specific day of the week. The electronic controller shall indicate various data that includes number of reconditionings in the last 14 days, days since last reconditioning, total number of reconditionings for the life of the unit, current day of the week, time of day, and unit in reconditioning.

Water Meter - An operator selected volume based reconditioning for single units shall be available. A flow sensor package shall be provided consisting with an appropriately sized installation fitting. The operator shall be able to select reconditioning to occur after a specified number gallons. The electronic controller shall indicate various data that includes number of reconditionings in the last 14 days, days since last reconditioning, total number of reconditionings for the life of the unit, time of day, and unit in reconditioning.

Differential Pressure Switch - An operator selected program of immediate or delayed differential pressure initiated reconditioning for single units shall be available. A differential pressure switch will be installed across the inlet and outlet pipe of the system and will signal the circuit board to initiate reconditioning at a preset pressure drop. The differential pressure switch will be field adjustable within a range from 3 to 20 psi. The controller shall be capable of being programmed in the field without additional interface devices. The controller shall indicate various data that includes number of reconditionings in the last 14 days, days since the last reconditioning, total number of reconditionings for the life of the unit, time of day, and unit in reconditioning.

4.5.2 In addition the following functions shall be provided as part of the system controller:

The controller shall have the capability of providing communications with the following external devices:

- Serial Communications (RS-232 & RS-485)
- USB
- Modbus RTU
- Profibus Communications
- BACnet Communications
- Modem (cell modem or land-line modem)
- Dry Contact Alarm Relay
- Wireless Remote (local RF wireless remote, 200 ft range)

Regeneration sequence timers: The controller shall allow control customization of individual regeneration cycle times, each programmable from 1 - 99 minutes. The regeneration cycle and time of cycle remaining shall be displayed when in regeneration.

Lockout function: The controller shall include a lockout to prevent unauthorized personnel from altering program data.

Regeneration override: The controller shall include a function to direct pre-programmed regeneration after a user determined period of time (hours or 24 hour intervals) without an input signal from another regeneration initiation device.

Alarm status indicator: The controller shall monitor operation of internal functions. If a fault is identified, the need for operator intervention will be signaled visually within the controller display.

Two Auxiliary Outputs: Two Auxiliary Outputs shall be integral to the controller circuit board. Each Output shall be capable of being programmed to provide power to a "Normally Open" or "Normally Closed" contact (user choice). These 24VAC outputs shall be used only for the purpose of energizing a relay coil.

Flow rate indication: The controller shall be capable of indicating the flow rate of the treated water.

Totalizer: The controller shall include a totalizer function and a display capacity to 99,999,999 units before resetting to zero. The totalizer value shall be displayed through the controller display during operation.

4.5.3 Flow Sensor(s)

Each filter will include a turbine-type Hall Effect flow sensor.

The sensor shall be integral to the control valve. A cable shall be provided for direct connection to the system controller.

The flow sensor package provided shall be functional within the flow range of 1.5 to 180.0 gpm.

The flow sensor shall have an accuracy of +/- 2% over the full range.

4.6 FILTER MEDIA

Each filter tank shall have a granular media bed, consisting of three (3) distinct layers and designed to operate as a depth filter rather than a surface filter. The filter layers shall stratify with the coarsest layer at the top and the finest layer at the bottom. Mineral density, particle size, uniformity coefficient and depth of each layer will be carefully controlled to assure proper stratification after backwashing and optimum performance in service. The top layer will remove large debris and collect coarse turbidity. The center layer will accumulate particles normally trapped by sand filters. The bottom layer will polish the water by removing particles down to 10 microns in size.

The system shall include 1895 lbs of filter media per vessel.

4.7 ACCESSORIES

5.0 INSTRUCTIONS

One (1) complete sets of installation, operating and maintenance manuals shall be provided.

6.0 FIELD SERVICE

The services of a factory authorized service representative can be made available to supervise, inspect and provide operator training as required for initial start-up and system operation. Contact your local Culligan dealer for service rates and scheduling.

7.0 WARRANTY

A single written warranty must be provided from the manufacturer of the water filter system covering workmanship and materials.

8.0 CTM MANUAL REFERENCE

Installation Instructions : 01029343 Rev. A
Smart Controller Communication: 01021512

NOTES:

(1) ITEMS SHOWN IN BROKEN LINES TO BE FURNISHED BY OTHERS.

(2) ALL DIMENSIONS ARE ±1" (25mm) AND SUBJECT TO TO CHANGE WITHOUT NOTICE.

(3) UNIONS SHOULD BE LOCATED ON INLET AND OUTLET CONNECTIONS OF CONTROL VALVE TO FACILITATE SERVICING.

(4) THE USE OF DISSIMILAR METALS IN A PIPING SYSTEM IS NOT RECOMMENDED. WHERE DISSIMILAR METALS MUST BE CONNECTED IN A WATER SYSTEM. THE USE OF NONCONDUCTIVE (DIELECTRIC) FITTINGS MAY REDUCE GALVANIC CORROSION.

(5) A TEN FOOT POWER CORD (LONGER LENGTHS AVAILABLE) AND WALL MOUNT TRANSFORMER ARE PROVIDED. THE CUSTOMER SHOULD PROVIDE A RECEPTACLE, PREFERABLE ONE NOT CONTROLLED BY A SWITCH THAT CAN BE TURNED OFF ACCIDENTALLY, OBSERVE THE LOCAL ELECTRICAL CODES.

(6) ALLOW 6–12 INCHES BEHIND THE UNIT FOR PLUMBING AND DRAIN LINES AND 12 INCHES ABOVE OVERALL HEIGHT FOR SERVICE ACCESS AND FILLING THE SALT CONTAINER.

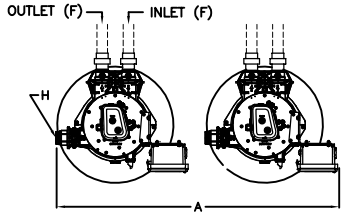
(7) SYSTEM USES FRP TANKS WHICH MUST NOT BE SUBJECTED TO VACUUM CONDITIONS. SYSTEM CONTROL VALVE DESIGN HAS INTEGRATED VACUUM BREAKER TO PREVENT SUCH CONDITIONS WHICH SHOULD NOT BE REMOVED DURING OPERATION.

(8) TO PERMIT THE OBSERVATION OF THE DRAIN FLOW DO NOT MAKE A DIRECT CONNECTION TO THE DRAIN. PROVIDE AN AIR GAP OF AT LEAST TWO TIMES THE DIAMETER OF THE DRAIN PIPE OR CONFORM TO LOCAL SANITATION CODES.

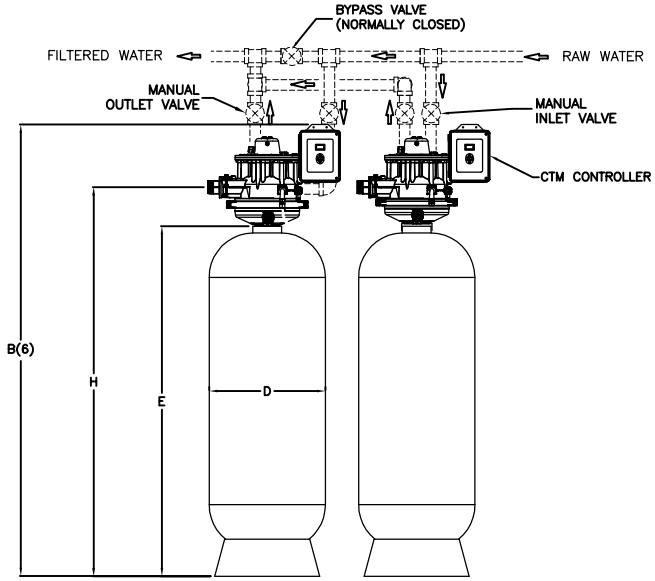
(9) BRINE TANK DIMENSIONS SHOWN ARE FOR THE BRINE TANK MOST COMMONLY SELECTED FOR USE WITH THIS SIZE SYSTEM.

(10) SHIPPING AND OPERATING WEIGHTS SHOWN ON THIS DRAWING INCLUDE THE BRINE SYSTEM.

	DIMENSIONS (INCHES)							UNIT DATA PER TANK						
MODEL	WIDTH A	HEIGHT B(6)	TANK DIA. D	TANK HEIGHT E	INLET OUTLET PIPE SIZES F	DRAIN SIZE H	FLOOR TO INLET J	NORMAL FLOW gpm @ 15 psi drop	PEAK FLOW gpm @ 25 psi drop	RESIN VOLUME ft^3	DRAIN FLOW gpm	MIN. DRAIN PIPE SIZE IN.	DUPLEX OPER. WT. lbs.	DUPLEX SHIP. WT. lbs.
CTM–36–DF	78	99.8	36	72	2.0	2.0	88.4	71 @ 10	107 @ 19	23.6	90	2.0	4216	2270



TOP VIEW



DUPLEX INSTALLATION

DO NOT SCALE DRAWING TOLERANCES: ±1/8" UNLESS OTHERWISE NOTED				
Let.	Change	By	App	Date
A	Remove 16" system & dimension C.	MM		2/10/17
B	Modify resin volume.	MM		4/1/17

Culligan® ENGINEERED SYSTEMS
ROSEMONT, ILLINOIS

PRINT AND BILL OF MATERIAL ARE NOT TO BE USED WITHOUT THE WRITTEN CONSENT OF CULLIGAN INTERNATIONAL CO.

NAME
CTM 2.0" METERED AUTOMATIC DEPTH–CULSORB FILTER DUPLEX TECHNICAL DATA SHEET

DETAILED BY:	APP. BY:	SHEET
MKM 8/04/15	LW 8/18/15	1 OF 1

REF. NO.

PART NO.
DRW–2156

The Culligan® Top Mount Series

WATER FILTER SYSTEM

Superior Flow. Superior Savings. Superior Water for Commercial and Industrial Needs.



The Culligan® Top Mount (CTM) Series filter models use the latest control valve technology to offer superior flow rates and long-lasting performance for commercial and industrial applications. The top-mounted control minimizes the system's footprint and is constructed of a corrosion-resistant, heavy duty plastic tested in extreme operating conditions to service all types of problem water (high chloramines, heavy iron, etc.). The CTM valve and system also carry certification for testing and passing the highest drinking water standards. The CTM includes integrated vacuum breakers and pressure relief valves to protect the system in addition to possessing an integrated flow meter for highly accurate reporting. Each CTM operates with a Culligan® Smart Controller which provides users access to the Culligan® technology platform of intercommunicating systems, remote monitoring and water and energy saving accessories.

The CTM Filter Series forms part of the Culligan® Commercial and Industrial product portfolio that has been offering durable, high-quality equipment to the world for over 80 years. For those customers who need a more customized solution Culligan's application engineering and project management team will provide professional, technical expertise through the initial project scope to the expedited delivery and start-up process. Our expansive dealership network will provide aftermarket support and technical expertise and trusted service to users in every market. Contact Culligan® today to learn more about the CTM and other water treatment products.

Markets Served:

Clinics
Educational Facilities
Energy / Power
Food / Beverage Production
Food Service / Restaurants
Grocery
Healthcare / Hospitals / Bio-Pharmaceutical
Hospitality / Lodging
Manufacturing
Municipal Drinking Water
Oil / Gas

CULLIGAN® ADVANTAGES:

- Global Product Platform with Flexible Modular Configurations
- Simple Integration into Existing Systems
- Quick Delivery & Installation
- Exclusive Culligan Features
  - Universal Electronic Controller
  - Aqua-Sensor®, Progressive Flow and Other Operational Cost-Saving Technology
  - Remote Monitoring Capabilities with Multiple Alarm Recognitions
  - Cloud Storage for Historical Data
  - U.S. Standard and Metric Readings with Multiple Interface Languages for Programming Interface

SYSTEM SPECIFICATIONS

Warranty

Culligan's CTM Water Filters are backed by a limited **2-year warranty** against defects in material, workmanship and corrosion. In addition, softener tanks are warranted for a period of 5 years.†

† See printed warranty for details. Culligan® will provide a copy of the warranty upon request. Some localities have corrosive water. A softener cannot correct this condition, so its printed warranty disclaims liability for corrosion of plumbing lines, fixtures, or water-using equipment. If you suspect corrosion, your independently operated Culligan® dealer has equipment to help control the problem.

System Specifications

Specification	US	Metric
Inlet Pressure (dynamic)	35–125 psig	240–860 kPa
Power Voltage Frequency	120 Volts[1] 50/60Hz	
Feed Water Temperature	40–120° F	4-49° C
Vacuum	None[2]	None[2]
Turbidity Chlorine Iron	5 NTU, max.[3] 1 mg/L, max.[3] 5 mg/L, max.[3]	

[1] 120 Volt/24 Volt CUL/UL listed Transformer Included.
[2] FRP tank warranty is void if subject to vacuum
[3] See media specification for details.

Tested and Certified by WQA to NSF/ANSI 61 and 372

Examples of Filter Applications

- Food and Beverage–Improved taste
- Educational Facilities—Boiler and cooling tower make-up water for scale reduction and improved energy costs
- Restaurants—For dishwashing, cleaning material savings, scale reduction
- RO, Softener, and DI Pretreatment
- Car washes—Quality results, detergent and water heating savings, scale reduction
- Apartment buildings, assisted living facilities and hotels—Quality water for laundry, dishwashers, boilers
- Grocery / Retail—Quality water for aesthetics and help extend equipment life
- Light industry—For process and make-up water, boiler and cooling system pretreatment, general housekeeping
- Office buildings—For heating plant pretreatment, tenant convenience, general housekeeping

Standard Features

- Single or multiple tank configurations available
- Carbon Filters—For reduction of organics (flow rates up to 35 gpm per tank), or chlorine (flow rates up to 71 gpm)
- Depth Filters—Flow rates up to 107 gpm per tank
- Corrosion-resistant control valve body certified to drinking water applications
- Integrated flow meter, vacuum breaker and pressure relief valve*
- Available with your choice of initiation (time clock, meter or differential pressure switch inputs)*
- Telemetric data capabilites with remote monitoring
- No special tools required for servicing
- Robust piston-valve technology uses retained, radial seals in the body for improved longevity and reliability. Ideal for challenging water conditions
- Control complies with CUL, CE, UL 50/50E and UL 746C standards for NEMA 3R enclosure rating

* Multi-tank, upflow configurations and integrated components are not available for time clock models.

Optional Features & Accessories

- 1.5" or 2" Flow adapters are available to provide every CTM unit the flexibility to use different inlet pipe sizes with minimal impact to flow rates
- Patented Progressive Flow –Culligan's Smart Controller can monitor flow demands bringing additional filter tanks on-line or offline as flows increase or decrease
- Differential pressure switch and pressure gauge packages available for mounting at inlet and outlet connection
- Remote Display
- RS232, RS485, Modbus PLC Output

Culligan® Top Mount (CTM) Water Filter System

CTM Depth Filter Family Group*

Model	Service Flow Rates[1] Normal gpm @ psi drop lpm @ kPa drop	Service Flow Rates[1] Peak gpm @ psi drop lpm @ kPa drop	Backwash Flow[2] (gpm/lpm)	Media Qty. (lbs/kg)	Pipe Size** (in/mm)	Tank Size*** (in / mm)
CTM-DF21	24 @ 5	36 @ 10	30	615	1.5" & 2"	21 x 62
	90.8 @ 34.5	136.3 @ 69	114	280	25.4 & 50.8	538 x 1587
CTM-DF24	32 @ 5	48 @ 9	48	870	1.5" & 2"	24 x 72
	121 @ 34.5	182 @ 62	182	395	25.4 & 50.8	614 x 1843
CTM-DF30	50 @ 7	74 @ 11	70	1230	1.5" & 2"	30 x 72
	190 @ 48.3	280 @ 76	265	558	25.4 & 50.8	768 x 1843
CTM-DF36	71 @ 10	107 @ 19	90	1895	1.5" & 2"	36 x 72
	269 @ 69	405 @ 131	341	859	25.4 & 50.8	922 x 1843

* Each Family Group includes the following control valve options: Timeclock-only, Single downflow, Multi-tank downflow

** Depending on choice of 1.5" or 2" flow adapter

***Dimensions are diameter by height and may differ slightly for Time Clock models

1 Service flow rates are based on 2" flow adapter and may be slightly lower when using the 1.5" flow adapter:

Normal (10 gpm/ft² - 24 m³/hr/m²) - Best qiality effluent at specified flow. Lowest pressure loss. Recommended for suspended solids loads up to and greater than 300 ppm.

Peak (15 gpm/ft² - 37 m³/hr/m²) - Very good quality effluent at specified flow. Increased pressure loss. Recommended for suspended solids loads less than 300 ppm.

2 Backwash flow rates are based on 12-14 gpm/ft² (29-34 m³/hr/m²) using 50°F (10°C) water. A different backwash rate may be required depending upon water temperature.

CTM Carbon Filter Family Group*

Model	Service Flow Rates[1] Taste & Odor Removal gpm @ psi drop lpm @ kPa drop	Service Flow Rates[1] Dechlorination gpm @ psi drop lpm @ kPa drop	Backwash Flow[2] (gpm/lpm)	Media Qty. (ft³/ltr)	Pipe Size** (in/mm)	Tank Size *** (in / mm)
CTM-CF21	12 @ 1.5	24 @ 4	30	6	1.5" & 2"	21 x 62
	45 @ 10.3	91 @ 28	114	170	25.4 & 50.8	538 x 1587
CTM-CF24	16 @ 2	31 @ 4	48	8	1.5" & 2"	24 x 72
	61 @ 13.8	4 @ 28	182	227	25.4 & 50.8	614 x 1843
CTM-CF30	25 @ 3	49 @ 6	70	12	1.5" & 2"	30 x 72
	95 @ 20.7	6 @ 41	265	340	25.4 & 50.8	768 x 1843
CTM-CF36	35 @ 3	71 @ 9	90	18	1.5" & 2"	36 x 72
	132 @ 20.7	9 @ 62	341	510	25.4 & 50.8	922 x 1843

* Each Family Group includes the following control valve options: Timeclock-only, Single downflow, Multi-tank downflow

** Depending on choice of 1.5" or 2" flow adapter

***Dimensions are diameter by height and may differ slightly for Time Clock models

1 Service flow rates are based on 2" flow adapter and may be slightly lower when using the 1.5" flow adapter:

Taste, odor & organic removal are based on 5 gpm/ft² (12 m³/hr/m²)

Dechlorination are based on 10 gpm/ft² (24 m³/hr/m²)

2 Backwash flow rates are based on 10 gpm/ft² (24 m³/hr/m²) using 50°F (10°C) water. A different backwash rate may be required depending upon water temperature or the type of carbon used.

NOTE: Operational, maintenance and replacement requirements are essential for this product to perform as advertised. Specifications shown are for single models. Also available in multiple tank configurations. All pressure drop figures are based on new filter media and a water temperature of 60°F. Depth filters are capable of 10 microns effluent water quality, whereas all other filter types are capable of 40 micron effluent water quality.

Culligan®

www.culligan.com • 866-787-4293

For 80 years, Culligan® has made better water. Our global network, comprised of 800+ dealers and international licensees in over 90 countries, is dedicated to addressing your water-related problems. As a worldwide leader in water treatment, our sales representatives and service technicians are familiar with the local water conditions in your area. Being global and local position us to deliver customized solutions to commercial and industrial water issues that affect your business and your bottom line.

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Products manufactured or marketed by Culligan® and its affiliates are protected by patents issued or pending in the United States and other countries.

Culligan® reserves the right to change the specifications referred to in this literature at any time, without prior notice.

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Part No. 39011

RESINTECH INC.
INNOVATIONS IN ION EXCHANGE

CGS

CATION EXCHANGE RESIN
SOFTENING GRADE
Na FORM

RESINTECH CGS is a sodium form standard crosslinked gel strong acid cation resin. *CGS* is optimized for residential applications that require good regeneration efficiency and high capacity. *RESINTECH CGS* is intended for use in all residential and commercial softening applications that do not have significant amounts of chlorine in the feedwater. *CGS* is supplied in the sodium form.

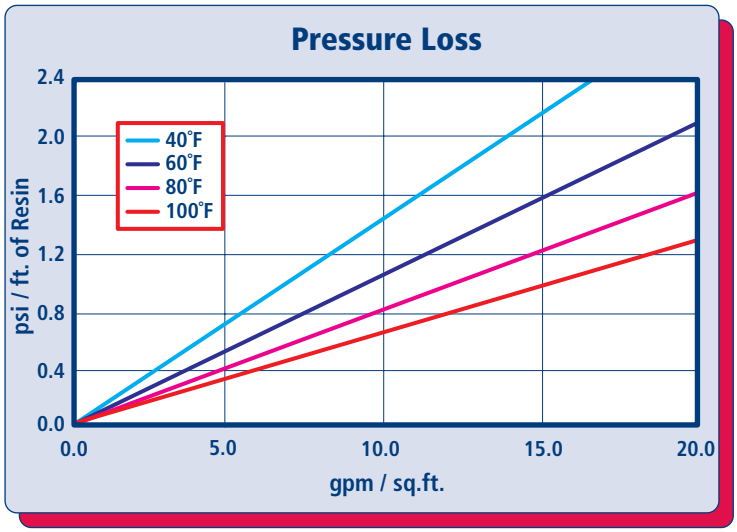
C US
NSF/ANSI 44/61 CERTIFIED FOR MATERIAL SAFETY

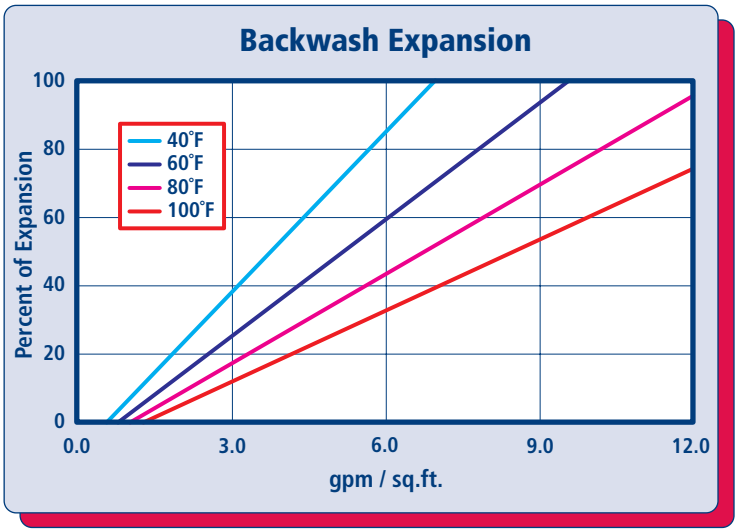
FEATURES & BENEFITS

- **RESIDENTIAL SOFTENING APPLICATIONS**
  Resin parameters are optimized for residential softeners
- **LOW COLOR THROW**
- **SUPERIOR PHYSICAL STABILITY**
  93% plus sphericity and high crush strengths together with carefully controlled particle distribution provides long life and low pressure drop
- **COMPLIES WITH US FDA REGULATIONS**
  Conforms to paragraph 21CFR173.25 of the Food Additives Regulations of the US FDA

NSF/ANSI-61 compliance requires conditioning with a minimum 20 bed volume rinse prior to first use.

HYDRAULIC PROPERTIES





PRESSURE LOSS

The graph above shows the expected pressure loss of *ResinTech CGS* per foot of bed depth as a function of flow rate at various temperatures.

BACKWASH

The graph above shows the expansion characteristics of *ResinTech CGS* as a function of flow rate at various temperatures.

1801 Federal Street • Camden, NJ 08105 USA • p: 856.768.9600 • f: 856.768.9601• e: info@resintech.com • w: resintech.com

RESINTECH® CGS

PHYSICAL PROPERTIES

Polymer Structure	Styrene/DVB
Polymer Type	Gel
Functional Group	Sulfonic Acid
Physical Form	Spherical beads
Ionic Form as shipped	Sodium
Total Capacity	
Sodium form	>1.8 meq/mL
Water Retention	
Sodium form	40 to 52 percent
Approximate Shipping Weight	
Sodium form	50 lbs./cu.ft.
Screen Size Distribution (U.S. mesh)	16 to 50
Maximum Fines Content (<50 mesh)	1 percent
Minimum Sphericity	90 percent
Uniformity Coefficient	1.6 approx.
Resin Color	Amber

Note: Physical properties can be certified on a per lot basis, available upon request

SUGGESTED OPERATING CONDITIONS

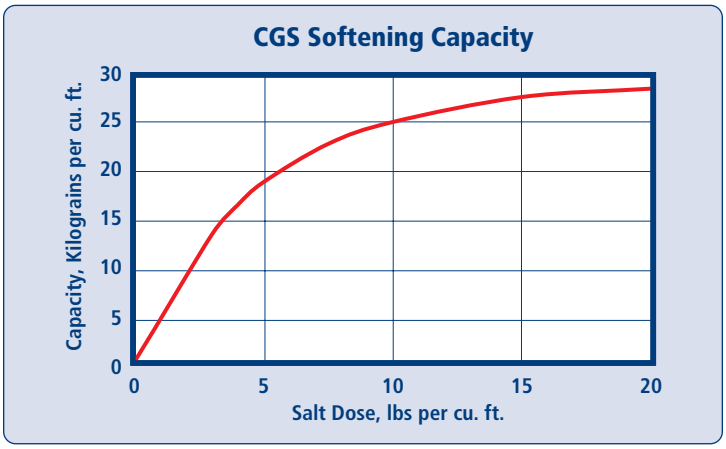
Maximum continuous temperature	
Sodium form	250˚F
Minimum bed depth	24 inches
Backwash expansion	25 to 50 percent
Maximum pressure loss	25 psi
Operating pH range	0 to 14 SU
Regenerant Concentration	
Salt cycle	10 to 15 percent NaCl
Regenerant level	4 to 15 lbs./cu.ft.
Regenerant flow rate.	0.5 to 1.5 gpm/cu.ft.
Regenerant contact time	>20 minutes
Displacement flow rate	Same as dilution water
Displacement volume	10 to 15 gallons/cu.ft.
Rinse flow rate	Same as service flow
Rinse volume	35 to 60 gallons/cu.ft.
Service flow rate	1 to 10 gpm/cu.ft.

Note: These guidelines describe average low risk operating conditions. They are not intended to be absolute minimums or maximums.
For operation outside these guidelines, contact ResinTech Technical Support

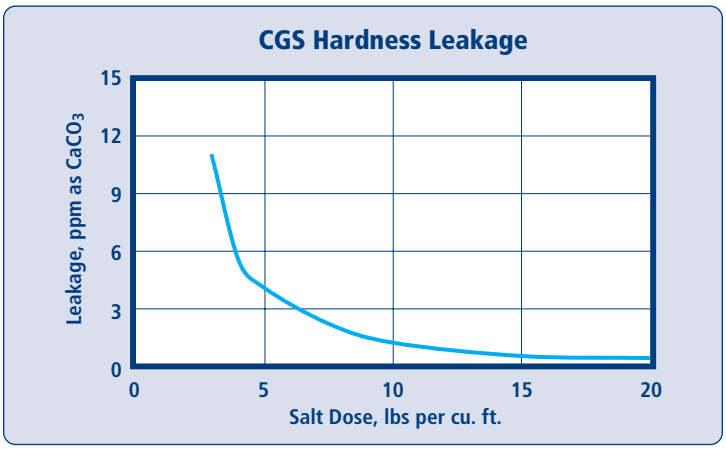
APPLICATIONS

SOFTENING

ResinTech CGS is a standard crosslinked cation resin optimized for residential and commercial applications. This type of resin is easier to regenerate than the higher crosslinked resins. CGS has marginal resistance to chlorine and other oxidants and is not ideal for high temperature and other high stress applications.



Capacity and leakage data are based on the following: 2:1 Ca:Mg ratio, 500 ppm TDS as CaCO3, 0.2% hardness in the salt and 10% brine concentration applied co-currently through the resin over 30 minutes. No engineering downgrade has been applied.

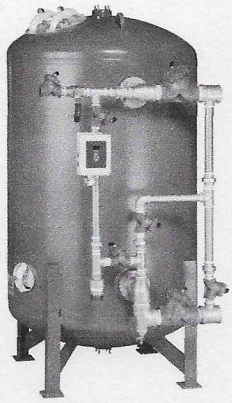


CAUTION: DO NOT MIX ION EXCHANGE RESIN WITH STRONG OXIDIZING AGENTS. Nitric acid and other strong oxidizing agents can cause explosive reactions when mixed with organic materials, such as ion exchange resins.

MATERIAL SAFETY DATA SHEETS (MSDS) are available for all ResinTech Inc. products. To obtain a copy, contact your local ResinTech sales representative or our corporate headquarters. They contain important health and safety information. That information may be needed to protect your employees and customers from any known health and safety hazards associated with our products. We recommend that you secure and study the pertinent MSDS for our products and any other products being used. These suggestions and data are based on information we believe to be reliable. They are offered in good faith. However we do not make any guarantee or warranty. We caution against using these products in an unsafe manner or in violation of any patents; further we assume no liability for the consequences of any such actions.

ResinTech is a registered trademark ® of RESINTECH INC.

01021442: Hi-Flo 50 Softener - HS-2004



Hi-Flo 50 softener with a 4" valve harness, electronic Smart Controller. Non-ASME Steel Tank. **Brine system not included.** Special construction available at additional cost. Brine reclaim also available - contact factory for details.

For general inquiries please use the Contact Culligan online form.

Submit a suggestion for improving this part description, by completing the Product Description Revision online form.

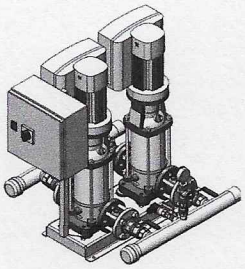
View Subcomponents in eCatalog

Specifications

Model	HS-2004
Capacity per Media Tank Minimum gr/lb	1,340,000/402
Capacity per Media Tank Maximum gr/lb	2,000,000/1005
Service Flow Rate Peak (gpm) Per Tank	400
Pressure Drop at Peak Flow Rate (psi) Per Tank	18
Service Flow Rate Continuous (gpm) Per Tank	240
Pressure Drop at Continuous Flow Rate (psi) Per Tank	7
Resin Qty.	67
Softener Tank Size	60 x 60
Approx. Ship Wt. (lb.)	9130.130
Approx. Ship Weight	9600
CAD PDF	/Technical-Service/Product-Documents/CAD/Standard-C-I/Hi-Flo-50.aspx

Selection Chart

01037531: Pump System, CRNE-Plus CRNE20-5, 440-480V/3PH/60HZ/15HP



These pre-assembled repressurization skidded systems have a single vertical, multistage centrifugal pump. The skidded pump system includes…

- Grundfos Pump
- Stainless Steel Interconnecting Plumbing
- VFD Control (variable frequency drive)
- NEMA 3R UL Fused Enclosure

For general inquiries please use the Contact Culligan online form.

Submit a suggestion for improving this part description, by completing the Product Description Revision online form.

Specifications

HP	15
Minimum Flow (gpm)	60
Low Flow Pressure(psi)	82
Maximum Flow (gpm)	120
High Flow Pressure (psi)	52
Separate Control Skid (Y/N)	N
Approx. Ship Wt. (lb.)	309.000

Tech Docs

Manual	Publication Date	Revision
REF Grundfos 01037527 CRNE3-12 Overview	6/1/2019 12:00:00 AM	A
REF Grundfos 01037527 CRNE3-12 Pump Curve	6/1/2019 12:00:00 AM	A
REF Grundfos 01037527 CRNE3-12 Spec Sheet	9/1/2019 12:00:00 AM	A

Martha De Maria y Campos

From: Erica Wolski
Sent: Monday, January 25, 2021 10:34 AM
To: Martha De Maria y Campos; Janet Fordunski
Subject: FW: Fe / Mn Treatment System Inquiry

From: Tarn Victor <tarnvictor@jbiwater.com>
Sent: Monday, January 25, 2021 8:17 AM
To: Erica Wolski <EWolski@woodardcurran.com>
Subject: Fe / Mn Treatment System Inquiry

See below. Does this cover what you need?

Tarn Victor
JBI Water & Wastewater
949-302-6622
www.jbiwater.com

From: Michael Bourke <michael.bourke@wigen.com>
Date: Monday, January 25, 2021 at 7:24 AM
To: Tarn Victor <tarnvictor@jbiwater.com>
Subject: RE: Fe / Mn Treatment System Inquiry

Tarn,

We use all NSF 61 components that come in contact with the water.
If they want redundant chlorine dosing pumps mounted on a skid, the added cost would be $17K. We just priced this for another project.
Scope was: (2) Grundfos DDA metering pumps, including calibration column and valves for a complete dosing system as shown on P&ID, mounted on powder coated carbon steel shelf with PVC backing.

Regards,
Michael

From: Erica Wolski <EWolski@woodardcurran.com>
Date: Wednesday, January 20, 2021 at 9:07 AM
To: Tarn Victor <tarnvictor@jbiwater.com>
Cc: Janet Fordunski <jfordunski@woodardcurran.com>, Martha De Maria y Campos <mdemaria@woodardcurran.com>
Subject: RE: Fe / Mn Treatment System Inquiry

Hi Tarn,

These are the two questions we have for now:

- cost to include the chlorine dosing equipment

Acknowledgement

ORDER DATE	ORDER NUMBER
02/09/21	S160829224

527 HAJOCA CORP COSTA MESA CA
3170 AIRWAY AVE
COSTA MESA CA 92626-4608
714-638-4442 Fax 714-537-1810

ORDERED FROM:
527 HAJOCA CORP COSTA MESA CA
3170 AIRWAY AVE
COSTA MESA CA 92626-4608
714-638-4442 Fax 714-537-1810

PAGE NO: 1

Printed on 02/09/21 at 06:58pm EST

SOLD TO:
7902 CASH SALES COSTA MESA
3170 AIRWAY AVENUE
COSTA MESA, CA 92626-4608

SHIP TO:
7902 CASH SALES COSTA MESA
3170 AIRWAY AVENUE
COSTA MESA, CA 92626-4608

714-638-4442

ORDERED BY	CUSTOMER PURCHASE ORDER NUMBER	CUSTOMER RELEASE NUMBER	SALESPERSON
MARTHA CAMPOS	WONDER INN/WOODARD	WONDER INN/GRUNDFOS	House Sales

WRITER	SHIP VIA	TERMS	SHIP DATE	FREIGHT ALLOWED
Danny Rickerson	AM OT DELIVERY	CASH	03/09/21	No

ORDER QTY	OUR PART NO	DESCRIPTION	NET UNIT PRICE	EXTENSION
		QUOTE REF: GRUNDFOS BOOSTERPAQ FOR WONDER INN/WOODARD & CURRAN CONTACT: MARTHA CAMPOS EM: MDEMARIA@WOODARDCURRAN.COM PH# 949-420-5310		
1ea	4513656	GRUNDFOS MPC-E 2 CRNE5-6 3X460V 30GPM @ 138'TDH 60PSI BOOST JOB NAME: WONDER INN 6-8 WEEKS LEAD TIME FFA & START UP INCLUDED *** EXPANSION TANK INCLUDED****	21153.488/ea	21153.49

** C A S H S A L E * C A S H S A L E **

Subtotal	21153.49
S&H CHGS	0.00
Sales Tax	1639.39
Amount Due	22792.88

Return Rec'd On___/___/___ By_____ AuthBy_____ Appr'd_____
No materials may be returned without authorization. Authorized returns subject to a restocking fee. Returns of "special order merchandise" are not permitted.

Customer Technical Offer

Project name	: Woodard and Curran	Tag Number	: 001
Consulting engineer	:	Service	:
Customer	:	Model	: HYDRO MPC E 100kA SCCR 2CRNE5-6 3x460V 60Hz
Customer ref. / PO	:		
Quote Number / ID	: 1325762 / -	Quantity	: 1
Date last saved	: 02/08/2021 11:31 AM	Quoted By (Sales Office)	: DELTA-Q, INC
		Quoted By (Sales Engineer)	: Danny Hambruch

Construction

Construction Code:	Application type: Pressure Boosting - Flooded suction

System information

Qty	Description
1	**Hydro MPC system features** Pressure booster system supplied as compact packaged assembly certified and listed by UL (Category QCZJ - Packaged Pumping Systems) for conformance to U.S. and Canadian Standards. All pumps are speed-controlled. - Hydro MPC-E maintains constant pressure through continuous adjustment of the speed of the pumps. - The system performance is adapted to the demand through cutting in/out the required number of pumps and through parallel control of the pumps in operation. - All pumps in operation will run at equal speed.

Packaged Pump System

Qty	Description
1	*HYDRO MPC E 100kA SCCR 2CRNE5-6 3x460V 60Hz* **Hydro MPC system** **Configuration** **Environment details** Installation location: Indoor - Conditioned Space Environment data Ambient temperature low: 68.00 deg F Ambient temperature High: 68.00 deg F Elevation: 600.0 ft Fluid temperature: 68.00 deg F **System configuration** Selected configuration Number of ACTIVE pumps: 2 Number of STAND-BY pumps: 0 Pump type: CRNE5-6 Multistage, Vertical 316L In-Line Pump Fasteners hardware: Zinc Plated Steel Motor installed: 2hp 3x460 PEI(VL): Out of scope ER(VL): Out of scope Enclosure: Grundfos MLE (TEFC) System details Panel: CONTROL MPC E 2x2hp 3x460V 60Hz Power supply: 3x460V Application type: Flooded Suction Type: MPC-E (CRE) - all VFD (integrated VFD/motor) Packaged Pump System Dry run protection method MPC: Liquid Level Switch (w/ fittings) Wire Assembly: Split Base – Separate panel base from Pump Base Low NPSH Pump Option: Not Required System layout: 1.) Pipe Connections Left, (Panel Right) - DEFAULT

Packaged Pump System

Qty	Description
	Plumbing options
	System pressure details
	Min. Inlet Pressure: 14.00 psi.g
	Max. Inlet Pressure: 14.00 psi.g
	Pump shutoff pressure (at Max. speed): 85.31 psi.g
	Max. Possible Pressure (at Max. speed): 99.31 psi.g
	Max. Allowed Pressure: 0.00 psi.g
	System pressure details: Please, input a Max allowed pressure value here. It's recommended the value be at least 20psi higher than System Set point
	System Set point: 138.7 ft
	System connections
	Selected system Manifolds are: 2'' NPT 150 #
	Manifold material: 316SS
	Pump connection to the manifold port size: 1 1/4"
	Blind flange material: End Caps 304SS
	CheckValve - Side: Discharge
	CheckValve - Model on Discharge: GNVP
	CheckValve - Size on Discharge: 1 1/4"
	CheckValve - Material: Stnd Check Valve & Parts
	Gauge (set): Trerice - 304SS/brass
	Isolation Valves - Model: Ball Valve Ni/Brass
	Isolation Valves - Size: 1 1/4"
	Isolation Valves - Material: Stnd Isolation Valve & Parts
	Gauge Isolation Valve Assembly: Trerice - 304SS
	Panel Option Package
	Panel Model: 100kA SCCR
	Enclosure class: UL Type 3R
	Panel Option Package: Included
	Panel Options Included with Panel Option Package selected
	Emergency/Normal Operating Switches (MPC-E & MPC-E(CUE) systems)
	Surge Protection
	Pump Run Indicator Lights
	Alarm Circuit (Panel mounted System Fault Light + Audible Alarm)
	Side Mount External Service Disconnect Switch 0-30A (0-25Hp) 460/575V
	100kA SCCR fault current rating
	Accessories and Services
	NSF Approval: NSF61/NSF372 - Drinking Water and Low Lead approval
	Approvals list
	Approvals list: UL (Category QCZJ - Packaged Pumping Systems) for conformance to U.S. and Canadian Standards
	Layout
	Layout: • Rubber vibration dampers shall be fitted between each pump and baseframe to minimize vibration

Control Panel

Qty	Description
1	**Hydro MPC system features**
	Pump operation is controlled by CU352 controller, specifically designed to control parallel operation of multiple pumps with the following features/functions: - PID controller with adjustable PI parameters (Kp + Ti) - Constant pressure at setpoint, independent of inlet pressure - Stop function (no flow shutdown) - Automatic cascade control of pumps for optimum efficiency. - Selection of min. time between start/stop, automatic pump changeover and pump priority - Automatic pump test function to prevent idle pumps from seizing up - Standby pump allocation capability

Control Panel

Qty	Description
	- Redundant primary sensor capability
	- Manual operation
	- Proportional pressure control
	- Multi-Sensor zone control with up to six zones
	• DP SENSORS NEEDED ON ZONES
	- Differential Pressure/Temperature control using two seperate sensors (i.e. discharge - suction substraction)
	• DP USING IN/OUTLET SENSOR ON MANIFOLDS
	• DELTA T WILL REQUIRE TEMPERATURE SENSORS (NOT INCL)
	- Secondary Fall-back sensor will revert to secondary (local) sensor upon primary (remote) sensor failure
	- Digital Pulse water meter reading (log accumulated flow)
	- Forced pump changeover
	- Clock program
	- Soft pressure build-up
	- External setpoint influence (via analog input)
	- Emergency run (via digital input)
	- Password protection
	- Possibility of digital remote-control functions (via digital inputs):
	• system on/off
	• max., min. or user-defined duty
	• up to 6 alternative setpoints.
	- Digital inputs and outputs can be configured individually
	Pump and system monitoring functions:
	- minimum and maximum limits of current value (flow, level, temp., etc.)
	- built in data logging capability
	• PC TOOL REQUIRED TO RETREIVE DATA LOG
	- non return valve (check valve) failure detection
	- high system pressure protection
	- low system pressure protection
	- pump curve data loaded into controller to provide end of curve protection
	- alarm log with the previous 24 warnings/alarms
	- potential-free changeover contacts for operation and fault.
	- Grundfos bus communication with optional gateway connections for all popular communication protocols
	- Ethernet connection (built-in web server)
	Pre-fabricated and tested packaged pump system including pumps, piping, and wiring complete with Control MPC
	ALL MPC SYSTEMS ARE PERFORMANCE AND HYDRO TESTED. IF TEST REPORTS ARE REQUIRED, THEN VERTIFIED TESTS NEED TO BE ADDED

Pump Performance Datasheet

Customer	:	Quote Number / ID	: 1325762
Customer ref. / PO	:	Model	: Hydro MPC-E 2CRNE 5-6 3x460V 60Hz
Tag Number	: 001		
Service	:	Part Number	: Custom system
Quantity	: 1	Stages	: 6
Quantity of pumps	: 2 active + 0 standby	Based on curve number	: RC10493
		Date last saved	: 02/08/2021 11:31 AM

Operating Conditions

System flowrate	: 30.00 USgpm
Flowrate per pump	: 15.00 USgpm
Differential head / pressure, rated (requested)	: 106.3 ft
Differential head / pressure, rated (actual)	: 106.3 ft
Suction pressure, min / max	: 14.00 / 14.00 psi.g
NPSH available, rated	: Ample
Site Supply Frequency	: 60 Hz
Power Supply	: 3ph 460V

Performance

Speed, rated	: 2785 rpm
Speed, maximum	: 3599 rpm
Speed, minimum	: 901 rpm
Pump efficiency	: 55.95 %
NPSH required / margin required	: 2.33 / 0.00 ft
nq (imp. eye flow) / S (imp. eye flow)	: 37 / 79 Metric units
Head maximum, rated speed	: 118.6 ft
Head rise to shutoff	: 11.57 %
Flow, best eff. point	: 25.15 USgpm
Flow ratio, rated / BEP	: 59.63 %
Speed ratio (rated / max)	: 77.38 %
Head ratio (rated speed / max speed)	: 58.77 %
Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010]	: 1.00 / 1.00 / 0.99 / 1.00
Selection status	: Acceptable

Energy Indexes

PEI (VL)	: Out of scope
ER (VL)	: Out of scope

Liquid

Liquid type	: Cold Water
Additional liquid description	:
Temperature, max	: 68.00 deg F
Fluid density, rated / max	: 1.000 / 1.000 SG
Viscosity, rated	: 1.00 cP
Vapor pressure, rated	: 0.34 psi.a

Material

Material selected	: Standard - 316 Stainless Steel/316 Stainless Steel

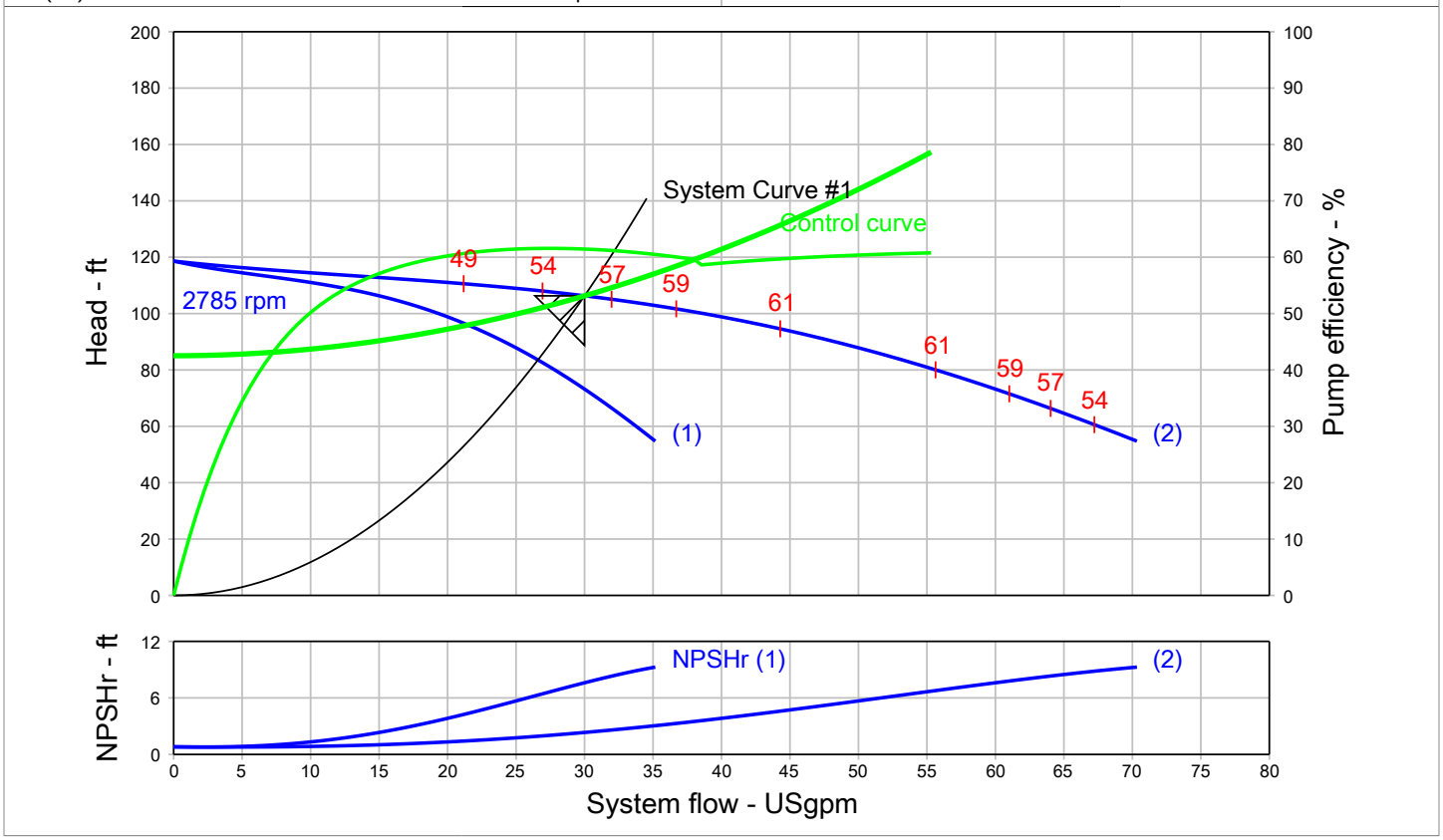
Pressure Data

Pump shut off pressure	: 65.33 psi.g
Maximum allowable suction pressure	: 145.0 psi.g

Driver & Power Data (@Max density)

Motor sizing specification	: Max power (non-overloading)
Margin over specification	: 0.00 %
Service factor	: 1.00
Rated power (based on duty point)	: 2 x 0.72 hp
Max power (non-overloading)	: 2 x 0.97 hp
Nameplate motor rating	: 2 x 2.00 hp / 1.49 kW (Fixed)
Panel Max FLA *	: 5.3 A

* addition of pilot pump, up-sizing HP, or 3x575V will affect System FLA



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SUBMITTAL

Hydro MPC E with CRNE pumps

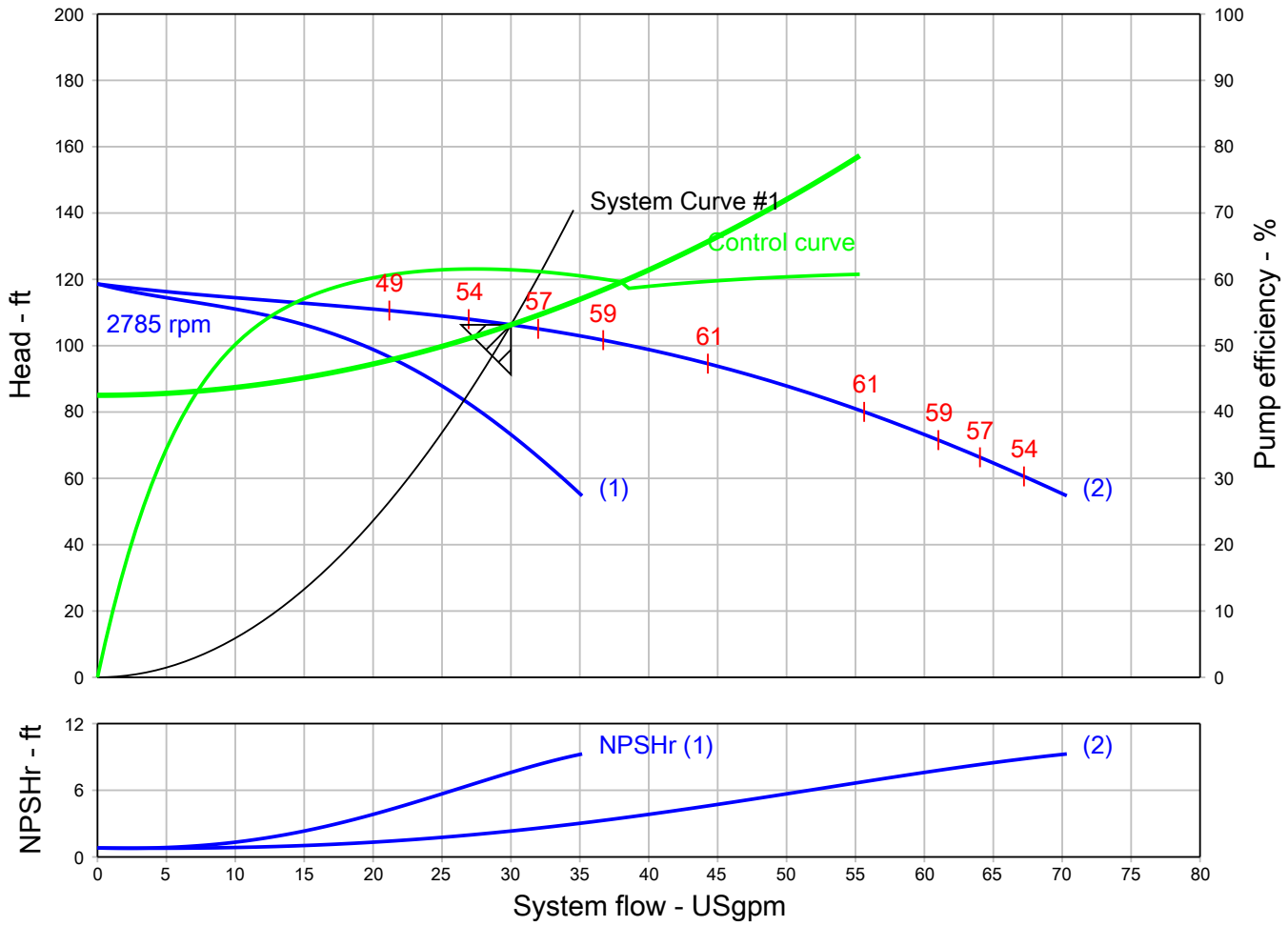
QUOTE NUMBER / ID 1325762	**UNIT TAG 001**	**QUANTITY 1**
	SERVICE	
REPRESENTATIVE	**SUBMITTED BY**	**DATE**
ENGINEER	**APPROVED BY**	**DATE**
CONTRACTOR	**ORDER #**	**DATE**



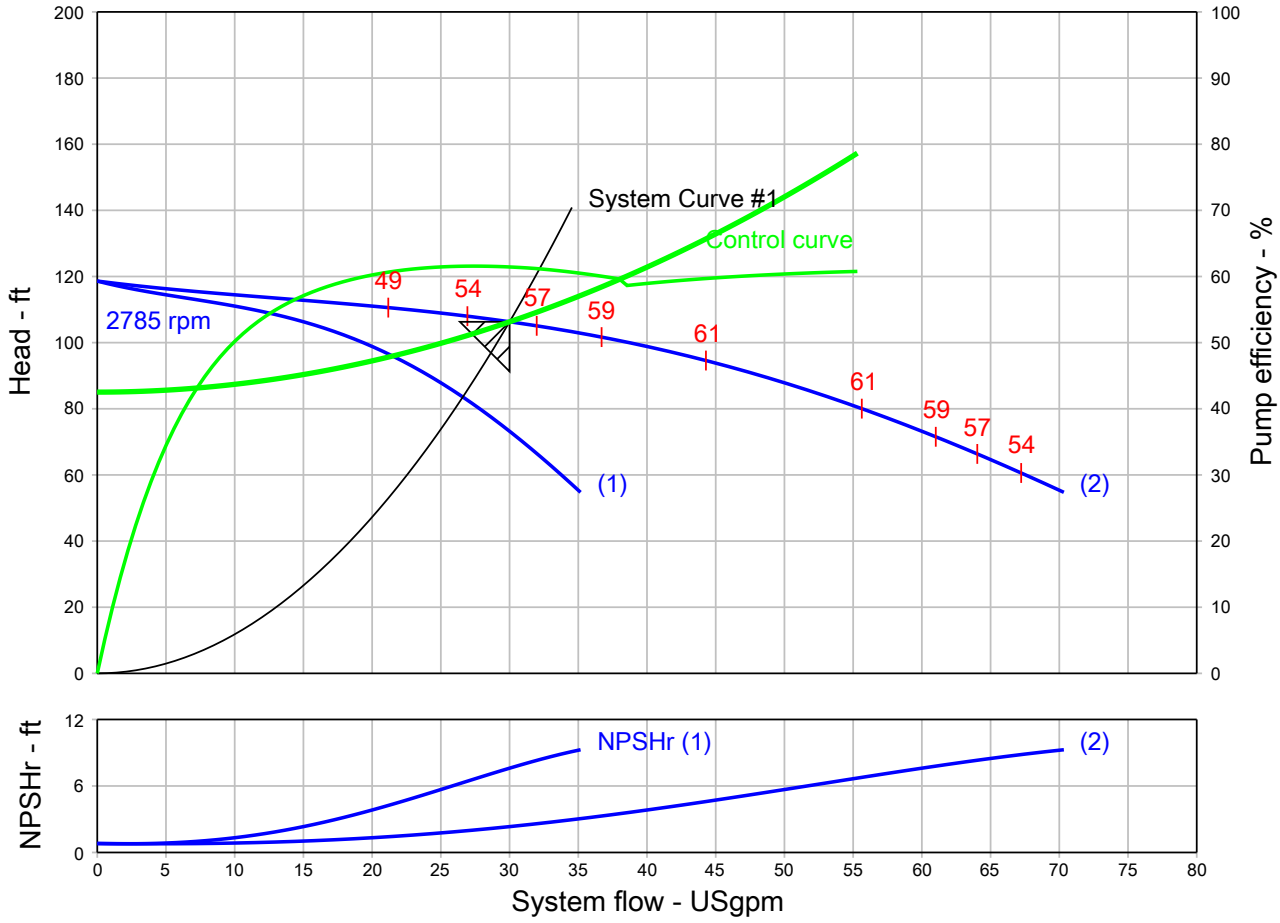
Hydro MPC-E 2CRNE 5-6 3x460V 60Hz 3599 rpm

Part Number N/A

Conditions of Service		Pump Data		Motor Data	
Flow Per Pump	15.00 USgpm	Material	Standard - 316 Stainless Steel/316 Stainless Steel	Nameplate HP	2 HP
Head	106.3 ft			Rated Power	0.72
Liquid	Cold Water			Enclosure	TEFC
Temperature	68.00 deg F	Pump shut off pressure	65.33 psi.g	Voltage	208-230 V
NPSHr	2.33 ft	Max Allowable Suction Pressure	145.0 psi.g	Phase	3 Phase
Viscosity	1.00 cP	Pump Efficiency	55.95 %		
Specific Gravity	1.000 SG	PEI (VL)	Out of Scope		
		ER (VL)	Out of Scope		



Pump Performance Curve

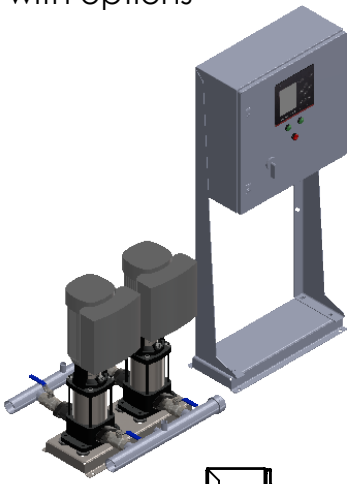


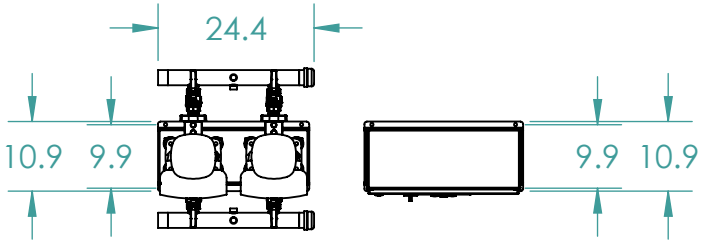
Customer	:
Customer ref. / PO	:
Tag Number	: 001
Service	:
Quantity	: 1
Quote Number / ID	: 1325762
Date last saved	: 02/08/2021 11:31 AM
System flowrate	: 30.00 USgpm
Flowrate per pump	: 15.00 USgpm
Differential head / pressure, rated	: 106.3 ft
Pressure control curve	: Quadratic control curve

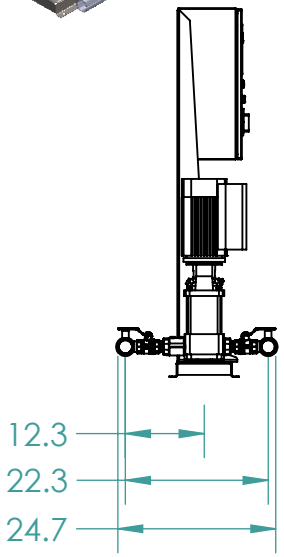
Model	: Hydro MPC-E 2CRNE 5-6 3x460V 60Hz
Stages	: 6
Speed, rated	: 2785 rpm
Based on curve number	: RC10493
Pump efficiency	: 55.95 %
Rated power (based on duty point)	: 2 x 0.72 hp
NPSH required	: 2.33 ft
Fluid density, rated / max	: 1.000 / 1.000 SG
Viscosity	: 1.00 cP

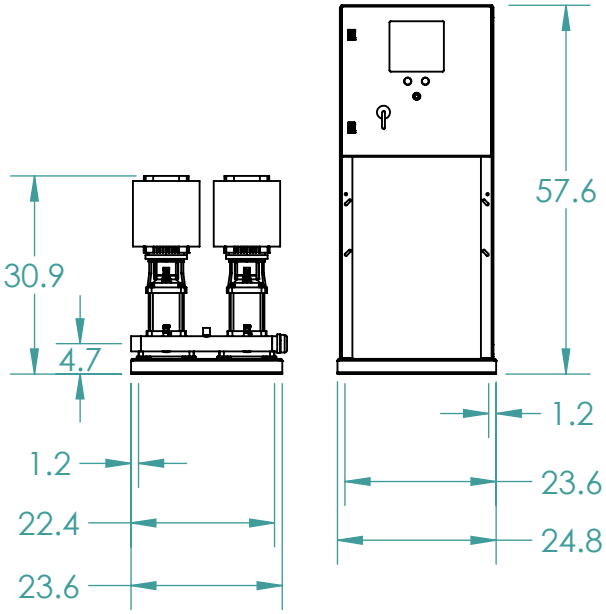
1. Manifolds 2" NPT AISI 316SS Schedule 10s ASTM A312 or ∅60.3mm x2mm
2. Base/Frame AISI 304SS
3. Standard system layout : panel right facing suction
4. Full port ball valve ASTM
5. UL Type 3R/12 rated electrical panel

Note: panel size will vary with options









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FRESNO, CALIFORNIA 93727 USA

Note:
All dimensions are ±0.5"
Not for Construction
All dimensions subject to changewithout notice.

BoosterpaQ Model:	HYDRO MPC E 2CRE5-6				
Power:	3x460	60HZ	2x2HP		
Job:				Scale:	1:30
Dwg No:	Rev: 0	Date: 5/24/2018	Drawer 71999	Page:	1 of 1

Panel Part Number:
99554612

Description

Control MPC E

2 X 2HP

3 X 480V

Selected Options: System Fault Light, Audible Alarm, Surge Protection, Pump Run Light, Normal/Emergency Switch, Service Disconnect Switch

ECM/Rev	Date
0	4/15/2019
1	9/9/2019

Control MPC E
2 X 2HP
3 X 480V

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PROJECT: 99554612

EDW-WD-GPC-1021

Panel Part Number: 99554612

Feeder Circuit Protection:

Feeder circuit protection to be provided by others. Type and size to be based on local, state and national electrical codes

SCCR Rating: 100 kA RMS Symmetric, 480V

UL Type Rating: 3R

Largest Motor FLA and Panel Maximum FLA:

Motor Horsepower	2HP
Motor FLA	2.65FLA
Panel Max. FLA	6.3FLA

Wire Type	Color	Abbr.
+12/24VDC Power/PLC Input(s)	Blue	BU
-12/24VDC Power/PLC Input(s)	Blue w/White Stripe	BUWH
115VAC Primary Line Power	Black	BK
115VAC Neutral	White	WH
Ground/PE	Green/Yellow Stripe	GNYE
Analog Inputs	Orange	OG
Analog Outputs	Orange	OG
Digital Inputs (CU Components)	Violet	VT
Ground for Digital Inputs (CU Components)	Violet w/White Stripe	VTWH
Digital Outputs	Yellow	YE
Power L1	Black	BK
Power L2	Orange	OG
Power L3	Red	RD
Power Neutral	White	WH
All Other Wiring	Brown	BN

Cross Reference Definition

(##-##)
Sheet-Row

Wire Types

Internal Panel Wire
External Wire

Safety / Application Notes:

** Please Reference the "BOOSTERPAQ - HYDRO MPC" Installation and Operation Instructions "BEFORE" Applying power to Panel.

** Power supply wires in front of main disconnect switch have dangerous voltage even though the main disconnect switch is off.

** Control panel must be connected professionally to the earth / ground.

** GRUNDFOS MLE motors have an integrated variable frequency drive (VFD) which provides motor overload protection. If a system utilizes MLE motors, the motor overload protection is provided by the VFD and does not require any additional motor overload protection.

ECM/Rev	Date
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1	9/9/2019

Control MPC E
2 X 2HP
3 X 480V

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PROJECT: 99554612

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GRUNDFOS

Panel Part Number: 99554612

1-Table of Contents

Drawing	Revision	Date	Created by	Description
01	0	4/15/2019	kharen	Cover Page 01
02	0	4/15/2019	kharen	Cover Page 02
03	0	4/15/2019	kharen	Drawings list
04	0	4/15/2019	kharen	Power 01
05	0	4/15/2019	kharen	Control 01
06	0	4/15/2019	kharen	Control 02
07	0	4/15/2019	kharen	Panel Layout
08	0	4/15/2019	kharen	Panel Views
09	0	5/21/2019	bmabie	Bill Of Materials grouped by manufacturer Rev1.0 (Components)
10	0	5/21/2019	bmabie	Bill Of Materials grouped by manufacturer Rev1.0 (Components)
11	0	4/15/2019	kharen	Main electrical closet

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0	4/15/2019
1	9/9/2019

Control MPC E
2 X 2HP
3 X 480V

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Panel Part Number: 99554612

480V, 3-Phase, 60 Hz

T1 T2 T3

F22 F23 F24

L1-0 12AWG-BK L1 | L2-0 12AWG-OG L2 | L3-0 12AWG-RD L3

D1 D2 D3

L1-1 12AWG-BK | L2-1 12AWG-OG | L3-1 12AWG-RD

MDS1

12A Fuse Class CC

GL0

SA1

1 2 3 gnd

10 12AWG-GNYE

GL21

FB1

F4 F5 F6

L1-5 12AWG-BK L1 | L2-5 12AWG-OG L2 | L3-5 12AWG-RD L3

10A Fuse Class CC

DS1

T1 T2 T3

L1-6 12AWG-BK | L2-6 12AWG-OG | L3-6 12AWG-RD

XP1

1 2 3

GL1

NE1

Norm Emer

2 16AWG-BN 3 | 4 16AWG-BN

X1

1 9 NO C

PRL1

4 16AWG-BK X1 G X2

16 16AWG-WH 05-17 | 04-17

17 16AWG-BK 05-15 | 04-20

FACTORY JUMPER START/STOP INPUT

L1 L2 L3 PE DI2-1 DI1-2 GND-6 GND-9 NO NC COM

MLE VFD

Pump1

3 X 480V
2HP ▬ 2.65FLA

A Y B

06-26 06-27 06-28

04-28 04-29 04-30

FB2

F7 F8 F9

L1-11 12AWG-BK L1 | L2-11 12AWG-OG L2 | L3-11 12AWG-RD L3

10A Fuse Class CC

DS2

T1 T2 T3

L1-12 12AWG-BK | L2-12 12AWG-OG | L3-12 12AWG-RD

XP2

1 2 3

GL2

NE2

Norm Emer

7 16AWG-BN 3 | 8 16AWG-BN

X2

1 9 NO C

PRL2

9 16AWG-BK X1 G X2

16 16AWG-WH 04-4

17 16AWG-BK 04-7

FACTORY JUMPER START/STOP INPUT

L1 L2 L3 PE DI2-1 DI1-2 GND-6 GND-9 NO NC COM

MLE VFD

Pump2

3 X 480V
2HP ▬ 2.65FLA

A Y B

04-14 04-15 04-16

05-2 05-2

ECM/Rev	Date
0	4/15/2019
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Control MPC E
2 X 2HP
3 X 480V

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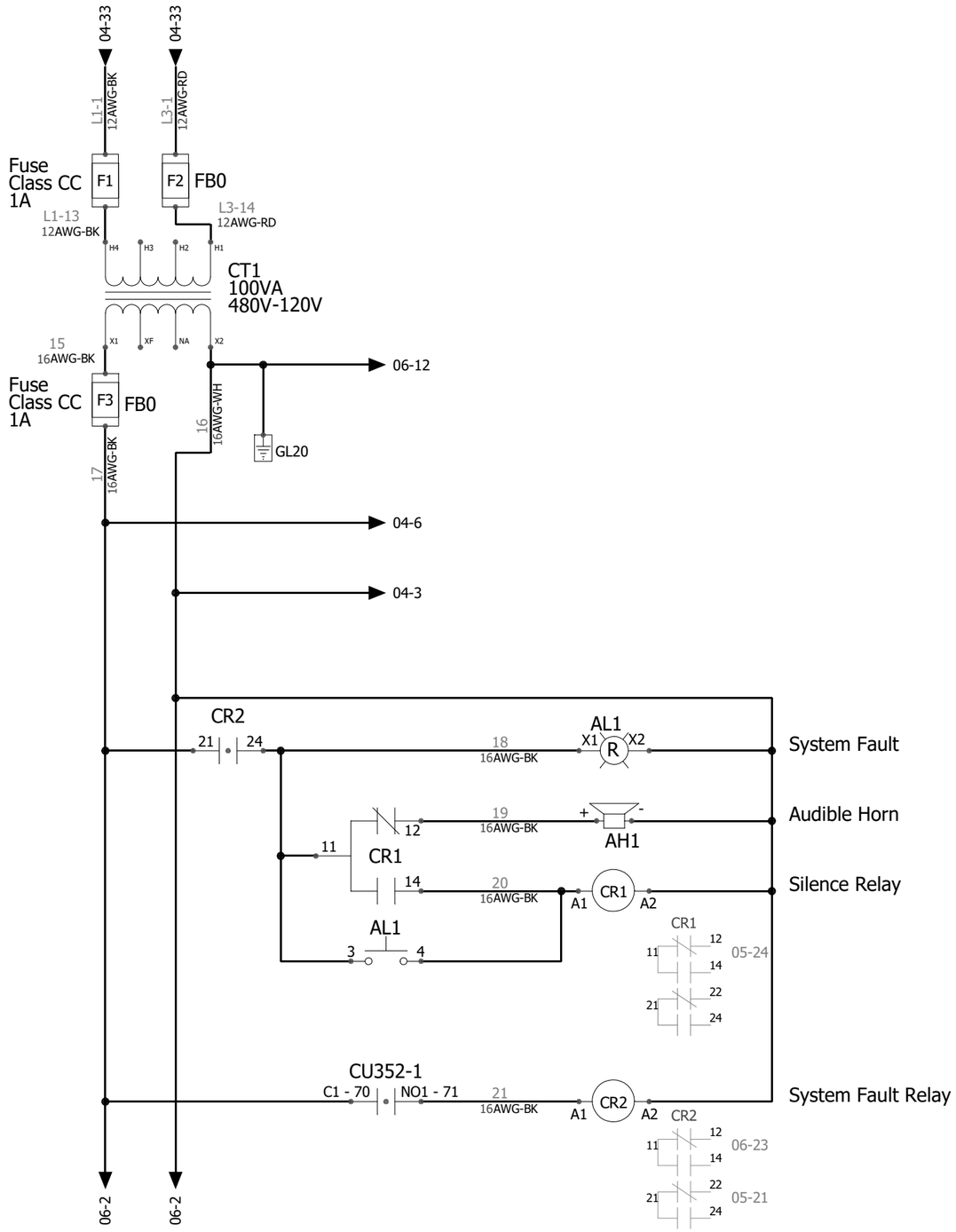
PROJECT: 99554612

EDW-WD-GPC-1021

GRUNDFOS

Panel Part Number: 99554612

SHEET: 4/10



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0	4/15/2019
1	9/9/2019

Control MPC E
2 X 2HP
3 X 480V

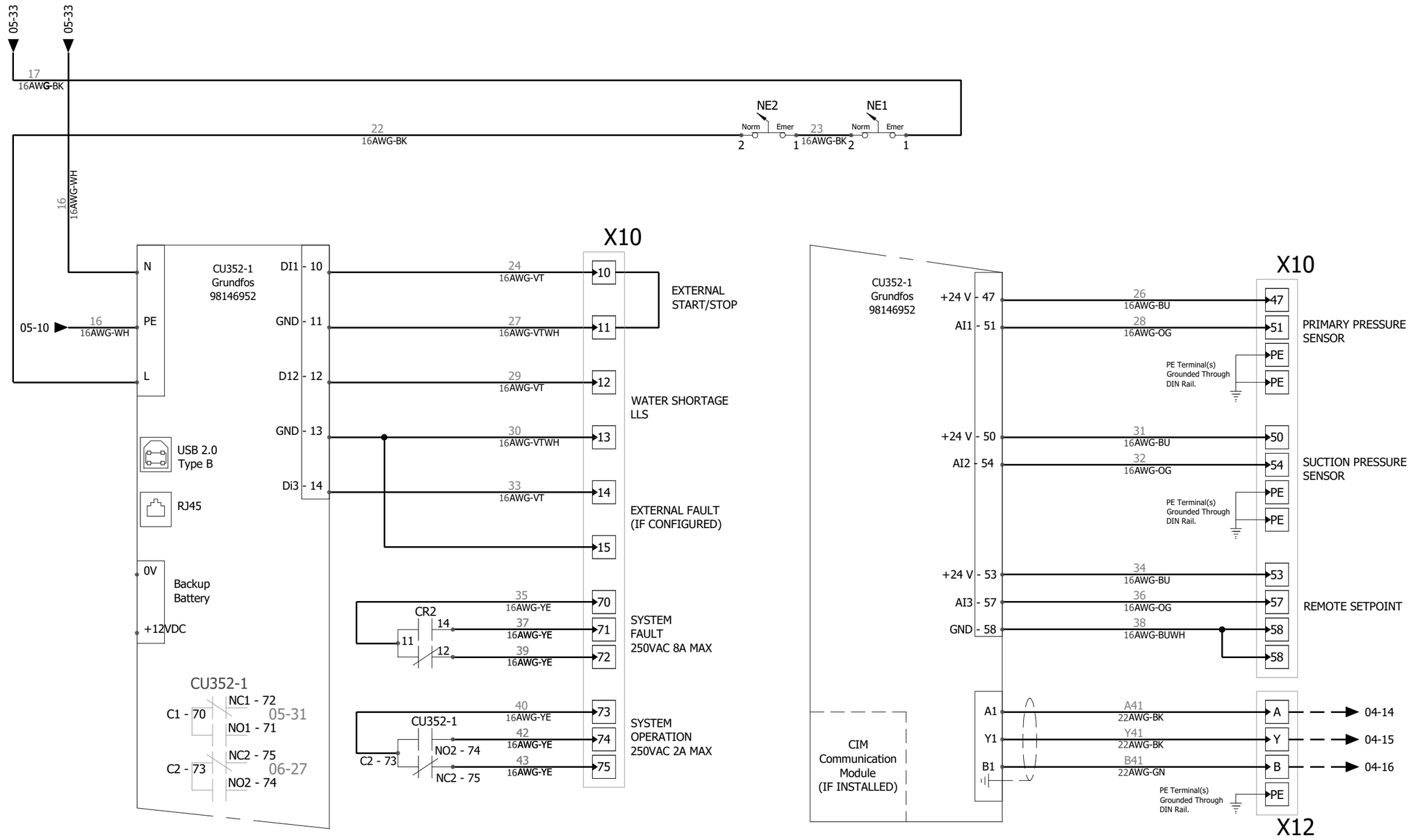
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PROJECT: 99554612

EDW-WD-GPC-1021

GRUNDFOS

Panel Part Number: 99554612



CIM COMMUNICATION MODULE TERMINATIONS

CIM		Terminal 1	Terminal 2	Terminal 3	Terminal 4
CIM 110	LON	LON terminal A	LON terminal B	LON terminal for cable screen	N/A
CIM 150	PROFIBUS DP	PROFIBUS terminal B	PROFIBUS terminal A	PROFIBUS terminal DGND	+5VDC
CIM 200	Modbus RTU	Modbus terminal D1	Modbus terminal D0	Modbus terminal common/GND	N/A
CIM 300	BACnet MS/TP	BACnet Plus terminal	BACnet Minus terminal	BACnet Ground terminal	N/A
CIM 500	BACnet IP, Modbus TCP, PROFINET IO	RJ45	RJ45		

ECM/Rev	Date
0	4/15/2019
1	9/9/2019

Control MPC E
2 X 2HP
3 X 480V

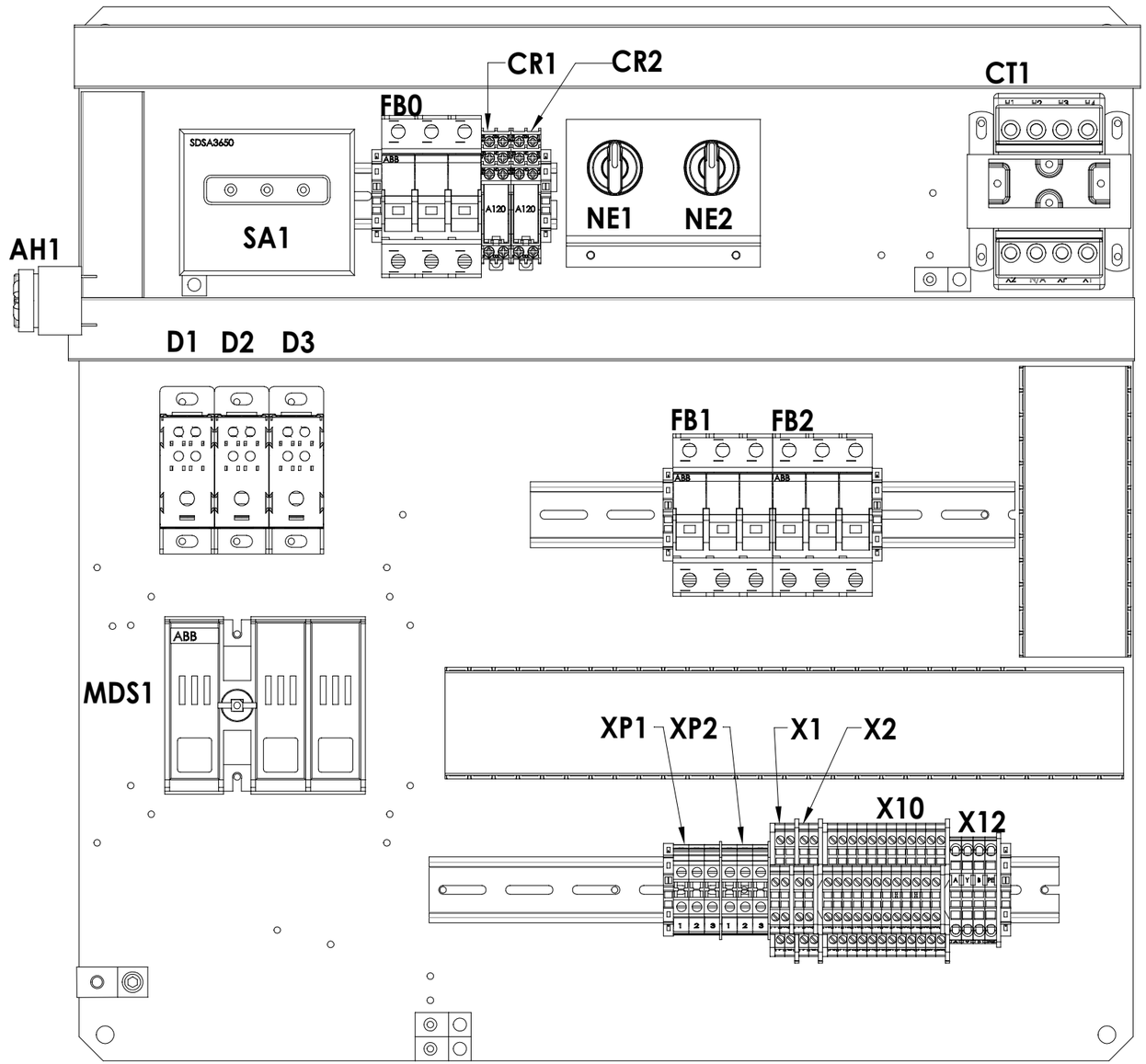
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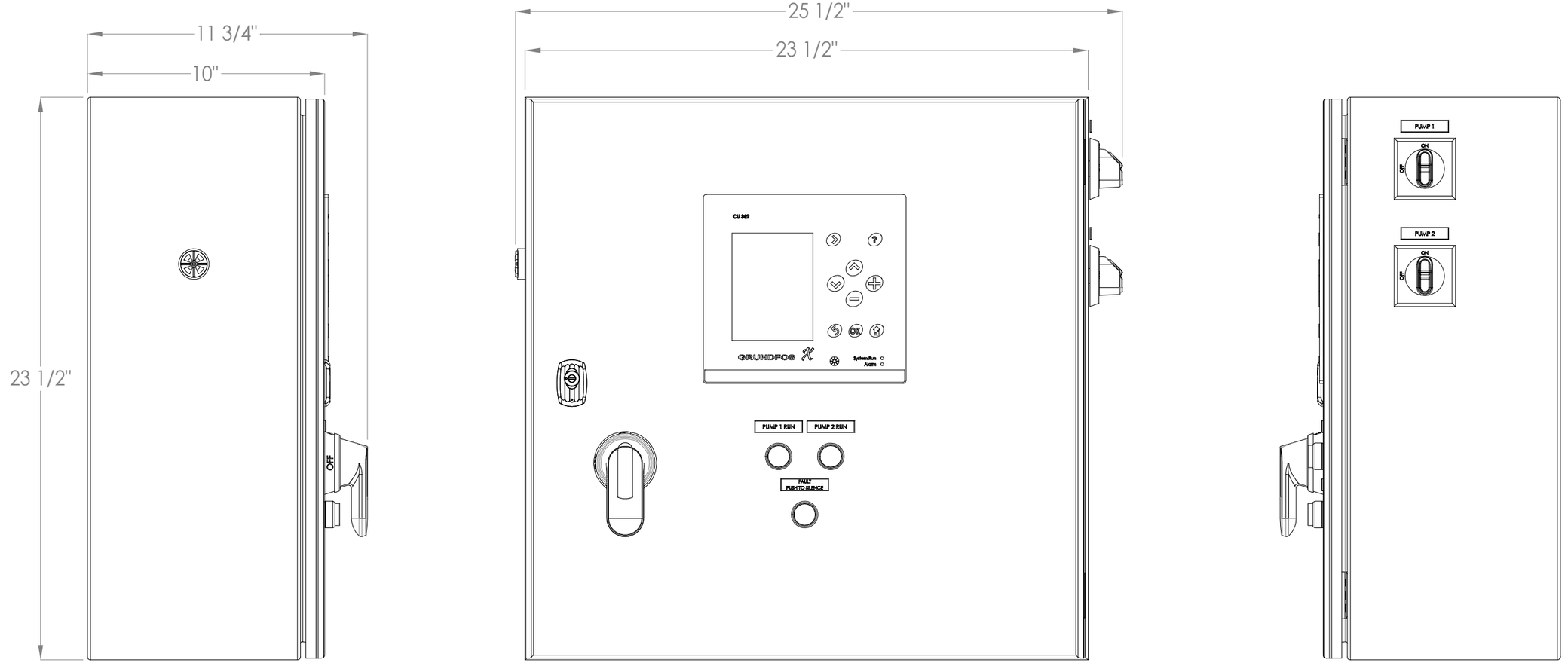
EDW-WD-GPC-1021

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Panel Part Number: 99554612



0	4/15/2019	Control MPC E 2 X 2HP 3 X 480V	This drawing and its content is the property of GRUNDFOS. It may not be copied for third third parties or competitors. Changes are only to be made by GRUNDFOS.	PROJECT: 99554612	GRUNDFOS
1	9/9/2019			EDW-WD-GPC-1021	Panel Part Number: 99554612
					SHEET: 7/10
ECM/Rev	Date				



CLEARANCE FROM FRONT OF ENCLOSURE MUST BE 36"
CLEARANCE FROM DISCONNECT HANDLES MUST BE 6"

ECM/Rev	Date
0	4/15/2019
1	9/9/2019

Control MPC E
2 X 2HP
3 X 480V

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PROJECT: 99554612

EDW-WD-GPC-1021

GRUNDFOS

Panel Part Number: 99554612

SHEET: 8/10

Article Number	Mark	Manufacturer	Reference	Description	Quantity	Component Type
13-16-26-1241	FB0 , FB1 , FB2	ABB	E9330CCS	Fuse Block; 3P, 30 A, Class CC, Indicator, Padlockable	3	Fuse Block 3-pole
13-16-66-1615	MDS1	ABB	OHY80L6	Disconnect Handle; Red/Yellow, 30/60/100/250A, Type 4, 4X, 3R, 12	1	Main Disconnect
13-16-66-1348	DS1 , DS2	ABB	OHYS2RJ	Disconnect Handle; Red/Yellow, for Side Mount, Type 3R, 12	2	Service Disconnect
13-16-66-1506	MDS1	ABB	OHZX10	Alignment Ring; Use on all Pistol Grip Handles	1	Main Disconnect
13-16-66-1431	MDS1	ABB	OS30FACC12	Disconnect Switch; 30A, Fuseable, 600V, 3-Pole, UL98, Class CC, Center Shaft	1	Main Disconnect
13-16-66-1383	DS1 , DS2	ABB	OT63FT3	Disconnect Switch; 60A, 600V, 3-Pole, Front Mount	2	Service Disconnect
13-16-66-1610	MDS1	ABB	OXP6X500	Disconnect Shaft; 19.7", 6x500	1	Main Disconnect
13-16-81-1463	CT1	Acme	TB100A005C	Transformer; 100VA, P/208/230/460V, S/115V	1	Controls Transformer
13-16-26-1060	F1 , F2 , F3	F.Shaw	ATQR1	Fuse; 1A, 600V, 13/32" x 1 1/2", Class CC	3	Fuse
13-16-26-1066	F4 , F5 , F6 , F7 , F8 , F9	F.Shaw	ATQR10	Fuse; 10A, 600V, 13/32" x 1 1/2", Class CC	6	Fuse
13-16-26-1067	F22 , F23 , F24	F.Shaw	ATQR12	Fuse; 12A, 600V, 13/32" x 1 1/2", Class CC	3	Fuse
13-16-71-1536	D1 , D2 , D3	F.Shaw	FS PDB 2A	Distribution block; 175A, 600V, 1in/4out	3	Distribution Block
13-16-56-1029	AH1	Floyd Bell	SP-1081	Alarm; 120V, 95db, Reduced Sensitivity, Extra Fast Warble, Panel Mount	1	Audible Horn
13-16-39-1093	CU352-1	Grundfos	98146952	(CM) Logic Module; Grundfos MPC Controller (CU352)	1	CU352
13-16-46-1073	CR1 , CR2	Idec	RJ2S-CL-A120	Relay; 120V, DPDT, 8A, Indicator	2	Silence Relay , System Fault Relay
13-16-46-1283	CR1 , CR2	Idec	SJ2S-07LW	Socket; 8 Pin, DIN/Pnl Mt, for RJ Relays	2	Silence Relay , System Fault Relay
13-66-11-1130	SAB1	OSI	13-66-11-1130	Bracket; Surge Arrestor	1	SA Bracket
65-BP-2424-A01	L1	OSI	65-BP-2424-A01	Backplate; 24x24, Aluminum, Pre-Drilled, Layout 01	1	Main electrical closet
65-ELEC-BRKT-2HOA	SWB1	OSI	65-ELEC-BRKT-2HOA	Bracket; HOA or N/E Switch, x2	1	NE Bracket
65-LIGHT-1R-032	AL1	OSI	65-light-1R-032	Push Button Light; Fault, Push to Silence	1	System Fault
65-SWITCH-2-12	NE1 , NE2	OSI	65-SWITCH-2-12	Switch; Two Position, 1-NO, 1-NC	2	Normal/Emergency Switch
65-TB-CU352-DB	X10 1	OSI	65-TB-CU352-DB	Terminal Blocks; Double Stack, X10 CU352 Terminals	1	CU352 Terminal Blocks
65-TB-GENI	X12 1	OSI	65-TB-GENI	Terminal Blocks; X12 Geni Bus Terminals	1	Geni Bus Terminal Blocks

Article Number	Mark	Manufacturer	Reference	Description	Quantity	Component Type
65-TB-PT-50A	XP2 1 , XP1 1	OSI	65-TB-PT-50A	Terminal Blocks; Single Pump Pass Through, 50A	2	Pump Power Terminal Blocks
65-TB-SINGLE-PUMP-DB	X1 1 , X2 1	OSI	65-TB-SINGLE-PUMP-DB	Terminal Blocks; MLE Pump Control	2	Pump Control Terminal Blocks
13-16-86-1680	GL0 , GL1 , GL2 , GL20 , GL21	Raco	TA2-Bulk	Ground Lug; 2AWG, Burndy	5	Ground Lug
13-16-61-1010	SA1	Schneider	SDSA 3650	Surge Arrestor; 3 Phase, 600V, WYE	1	Surge Arrestor
65-ENCL-2424-RSH	L1	Schneider Electric	65-ENCL-2424-RSH	Enclosure; 24X24 Right Side Hinge	1	Main electrical closet
13-16-36-1421	PRL1 , PRL2	Siemens	3SU11036AA401AA0	Pilot Light; Green, 110 VAC Complete	2	Pump 1 Run Light , Pump 2 Run Light

ECM/Rev	Date
0	4/15/2019
1	9/9/2019

Control MPC E
2 X 2HP
3 X 480V

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PROJECT: 99554612

EDW-WD-GPC-1021

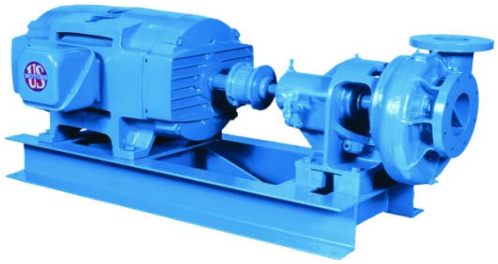
GRUNDFOS

Panel Part Number: 99554612

Vibration Isolation

Common vibration concerns with frame mounted end suction pumps

- Misalignment between motor shaft and pump shaft is the #1 source of pump vibration
  - o End suction pumps typically have large over-hung impellers with high rotating inertia, that when misaligned creates large unbalanced forces and results in vibration
  - o Offset discharge throat of the volute creates the radial load
  - o Decreased component life
- End suction pump bearing loading is primarily from radial forces



Unbalanced forces and increased vibration

Grundfos CR Multistage pump benefits:

- Register fit between motor and pump
- No alignment required for lifetime of operation
- Minimized vibration
- Longer component life
- Quiet operation (product lubricated pump bearings)
- CR Multistage pumps offer the lowest rotating inertia compared to most other pumps in same duty conditions
- Low rotating inertia equals less opportunitiy for vibration
- Multistage pump bearing loading is on average 10% radial and 90% axial forces

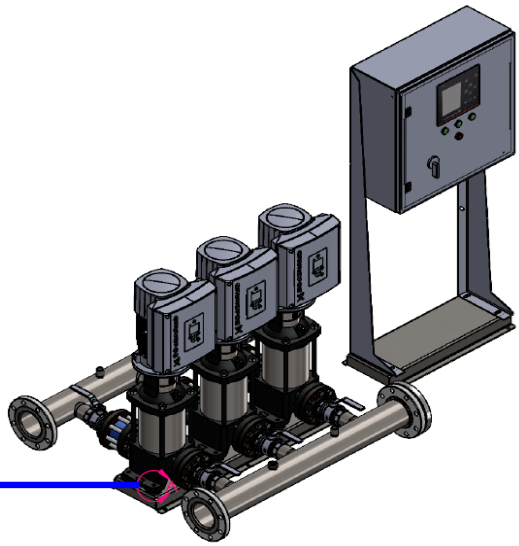


No alignment is required

Pump systems with Grundfos CR(E) Multistage pumps

- Vibration Isolation:
  - o 1/2" thick dampeners at pump base mounting points (4 per pump)
  - o Inertia bases and grouting are not required when mounted to concrete housekeeping pad
  - o Flexible connectors on manifold connections are recommended





WELL-X-TROL®

Diaphragm Well Tanks: WX-400C Series ASME

150 PSIG Working Pressure

Construction

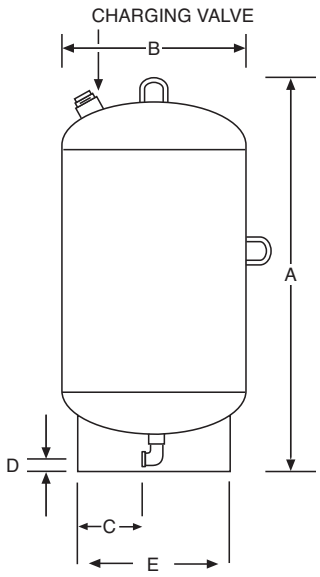
Shell	ASME Approved Steel
Diaphragm	Heavy Duty Butyl
Liner	Antimicrobial Polypropylene w/ Anti-Legionella Protection
System Connection	Malleable Iron (NPTF)
Finish	Red Oxide Primer
Water Circulator	Turbulator™
Air Valve	Schrader Valve w/EPDM Seat
Factory Precharge	25 PSIG (1.7 bar))

Performance

Maximum Operating Temperature	200°F (93°C)
Maximum Working Pressure	150 PSIG (10.3 bar)
Warranty	1-Year

Application

- For use in commercial well water and booster pump systems.
- Fixed diaphragm construction.
- Designed and constructed per ASME Code Section VIII, Division 1.
- Tested to JIS Z 2801 for reduction of Legionella, Staphylococcus and E. coli.
- Follows ASHRAE 188 Anti-Legionella guidelines.
- Sight glass and seismic restraint options available.



ASME Models

Model Number	Tank Volume		Max. Accept. Volume		A Tank Height		B Tank Diameter		C Sys. Conn. Inset		D Sys. Conn. Centerline		E Stand Diameter		System Conn. (NPTF)	Shipping Weight	
	Gal.	Lit.	Gal	Lit	In	mm	In	mm	In	mm	In	mm	In	mm	In	Lbs	Kg
WX-401C	18	68	11	42	31	787	16	406	5	124	1½	38	12¾	324	1	96	44
WX-402C	25	95	11	42	40	1016	16	406	5	124	1½	38	12¾	324	1	113	51
WX-403C	34	129	11	42	49	1245	16	406	5	124	1½	38	12¾	324	1	120	54
WX-404C	68	258	34	129	48	1219	24	610	6	159	1⅝	41	16	406	1¼	232	105
WX-405C	90	341	34	129	59	1499	24	610	6	159	1⅝	41	16	406	1¼	255	116
WX-406C	110	417	34	129	70	1778	24	610	6	159	1⅝	41	16	406	1¼	335	152
WX-407C	132	500	46	175	57	1448	30	762	10	254	1¾	44	24	610	1¼	450	204

All dimensions and weights are approximate.

Job Name _____ Notes _____

Engineer _____ _____

Contractor _____ _____

P.O. No. _____ _____

Sales Rep. _____ _____

Model No. _____ _____

188 AntiLegionella

Antimicrobial

Turbulator

CERTIFIED TO NSF/ANSI 61

ISO 9001:2015 CERTIFIED

MADE IN USA

LOW-LEAD IAPMO R&T

Appendix F-3

Comparative analysis of freshwater usage for a 30-acre jojoba farm and the proposed Wonder Inn in Wonder Valley, CA

PlanetGeek, LLC

August 7, 2021

Plant Geek Consulting, LLC

plantgeekconsulting@gmail.com

805-717-9323

August 7, 2022

Comparative analysis of freshwater usage for a 30-acre jojoba farm and the proposed Wonder Inn in Joshua Tree, CA.

An existing jojoba farm located at 78201 Amboy RD, Twentynine Palms, CA 92277 operates 30 acres of commercial jojoba production. Jojoba is a desert dwelling plant that is native to the Sonoran Desert. It has a high rate of drought tolerance. However commercial production of jojoba beans (the seeds contain high % of oil/wax content) requires supplemental irrigation during the growing season to ensure the highest rate of efficiency and production. The farm features a drip irrigation system that provides water for the crops to grow. It has been found that jojoba production is most efficient when the plants are irrigated at a rate of 0.973 acre-feet (317,000 gals) of water per year, per acre of farmed land (Ayerza, 1993). Using this volume as a standard, the total amount of water used to irrigate the 30 acres of farmland is approx. **35.04 acre-feet (9.51 million gallons)** annually.

The farm pulls groundwater from several surrounding basins (Joshua Tree Basin and Mesquite Lake Basin). According to a report submitted by Kennedy/Jenks Consultants in 2017, the historical yearly average from the period of 1990-2015 has shown an average pumping level of 3045 acre-feet/year. In 2011, water management strategies called for a reduction in pumping to prevent overdraft, with an average over that period of 2746.8 acre-feet/year. Between all basins, the DWP limited groundwater pumping capacity is 6995 acre-feet/year.

The Wonder Inn hotel complex will feature 106 guest rooms, 32,000 gallon swimming pool, a restaurant, and xeriscaping with native vegetation. The guest rooms will feature modern low-flow fixtures to ensure maximum efficiency. A grey water reclamation system will reclaim approx. 65% of the water used and return it to the aquifer. A study (Dzieglielewski *et al*, 2000) found that similarly sized hotels consumed on average of 21.3 acre-feet (5.8 million gallons) of water annually. Similarly, the report found that an

average sized restaurant consumed approx. 7.8 acre-feet (2.11 million gallons) annually. Many of the sites audited for the study did not feature modern or water-sustainable appliances or fixtures. Therefore, it can be assumed with efficient technology, water consumption for the hotel and restaurant would result in substantial reduction over the averages found in the studies.

The hotel pool, which holds 32,000 gallons, will have an evaporation loss of approx. 60% annually (Shah, 2014). Therefore, the water consumption by the hotel pool should be 51,200 gallons (0.188 acre-feet) for the first year, then 40% loss per year after that, equaling to 44,800 gallons (0.137 acre-feet). The resort will also feature a spa, which has been estimated to consume 384,500 gallons (1.17 acre-feet).

A recent assessment by a water consumption specialist estimated the usage at Wonder Inn to be -

- Guest Rooms: 6.68 acre-feet (2,177,000 gallons)
- Public Restrooms: 0.202 acre-feet (66,100 gallons)
- Guest Ice & Laundry: 3.38 acre-feet (1,104,000 gallons)
- Restaurant/Commercial Kitchen: 8.72 acre-feet (2,8400,00 gallons)
- Dishwashing: 0.44 acre-feet (145,000 gallons)
- Pool & Spa: 1.33 acre-feet (435,700 gallons)
- **Total Consumption:** **20.75 acre-feet (6,762,058 gallons/year)**

When comparing the water use data for both scenarios, the hotel's approximate consumption is approximately 40% less water than the farm.

- Jojoba Farm: 35.04 acre-feet (9.51 million gallons)
- Wonder Inn: 20.75 acre-feet (6.76 million gallons)
- **Consumption Reduction:** **14.29 acre-feet (2.75 million gallons)**

The jojoba farm was in operation during the date ranges of the historical water basin data monitoring that was reported by the USGS survey mentioned above. With the estimated water consumption by the proposed Wonder Inn project, we can assume that there will be no increase in water usage or pumping from the basin attributed to the hotel. Due to the decreased consumption, it can also be argued that the hotel (coupled with the 65% grey water reclamation system, which was not factored into the above calculations), would be adding valuable water resources to the area.

References:

Ayerza, R. 1993, *Effect of Irrigation on Jojoba Production Under Arid Chaco Conditions: Seed Yields and Wax Quality*. Journal of the American Oil Chemists' Society. December

Dziegielewski, B. 2000, *Commercial and Institutional End Uses of Water*, AWWA Research Foundation

Riley, F.S. and Hoffman, W. 2001, *Geology And Ground-Water Appraisal of the Twentynine Palms Marine Corps Training Center, California*. United States Geological Survey

Shah, M.M. 2014. *Methods for Calculation of Evaporation from Swimming Pools and Other Water Sources*

California Department of Water Resources (DWR), 1984. *Twentynine Palms Groundwater Study*

Kennedy/Jenks Consultants (KJC), 2017, *Twentynine Palms Water District Groundwater Monitoring Implementation Plan*, December

Appendix G

Wonder Inn Project, Noise Impact Study, County of San Bernardino

MD Acoustics

May 2, 2022

Wonder Inn Project

Noise Impact Study

County of San Bernardino, CA

Prepared for:

ELMT Consulting, Inc
Julie Gilbert
2201 N Grand Ave, Ste #10098
Santa Ana, CA 92711

Prepared by:

MD Acoustics, LLC
Francisco Irarrazabal
1197 Los Angeles Avenue, Ste 256
Simi Valley, CA 93065

Date: 5/2/2022

MD ACOUSTICS
Sound Solutions for Planning and Design

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1.0 Introduction

1.1 Purpose of Analysis and Study Objectives

The purpose of this noise impact study is to evaluate the potential noise impacts for the project study area and compare results to County and CEQA thresholds. The assessment was conducted and compared to the noise standards set forth by the Federal, State and Local agencies. Consistent with the California Environmental Quality Act (CEQA) and CEQA Guidelines, a significant impact related to noise would occur if a proposed project is determined to result in:

- Exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or noise ordinance, or applicable agencies.
- Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels.
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

The following is provided in this report:

- A description of the study area and the proposed project
- Information regarding the fundamentals of noise
- A description of the local noise guidelines and standards
- An evaluation of the existing ambient noise environment
- An analysis of the traffic noise impacts to the project site
- An evaluation of the interior noise limit compliance
- Construction noise and vibration evaluation

1.2 Site Location and Study Area

The project site is located at the south side of Amboy Road, approximately 5.5 miles east of Pinto Mountain Road and approximately 0.3 miles west of Gammel Road, in an unincorporated area of the County of San Bernardino, as shown in Exhibit A. The project site is out of the influence of the Airport Comprehensive Land Use Plan of the 29 Palms Airport (refer to Figure 2 of said Plan). The County of San Bernardino General Plan classifies the land use designation of the site as Commercial. The project site is partially designated as 3.18 acres of Commercial Service (CS), and the surrounding land uses are Rural Living (RL-5).

1.3 Proposed Project Description

The Project proposes to develop 42,120 square feet of 106 pre-manufactured hotel rooms and an additional four (4) pre-manufactured buildings for administration, storage, event prefunction and

restrooms, pool restrooms and spa locker rooms and restrooms. In addition, there will be new permanent shade structures for the fitness/spa area, treatment rooms and event space. The hotel grounds will also include a swimming pool, hot tubs, outdoor showers, desert type landscaping and parking. Laundry will be provided by an off-site vendor. The existing 4407 square foot single story commercial building on site will be remodeled to serve as the main hotel lobby, restaurant, with indoor and outdoor dining, and commercial kitchen. Utilities include water supplied from an existing well onsite, a new septic leech field system for wastewater, propane, and electricity. The Project will employ approximately twenty full time employees and part time employees as needed. The hotel will be open 24/7 year-round. The site plan for the project is shown in Exhibit B.

Exhibit A

Location Map

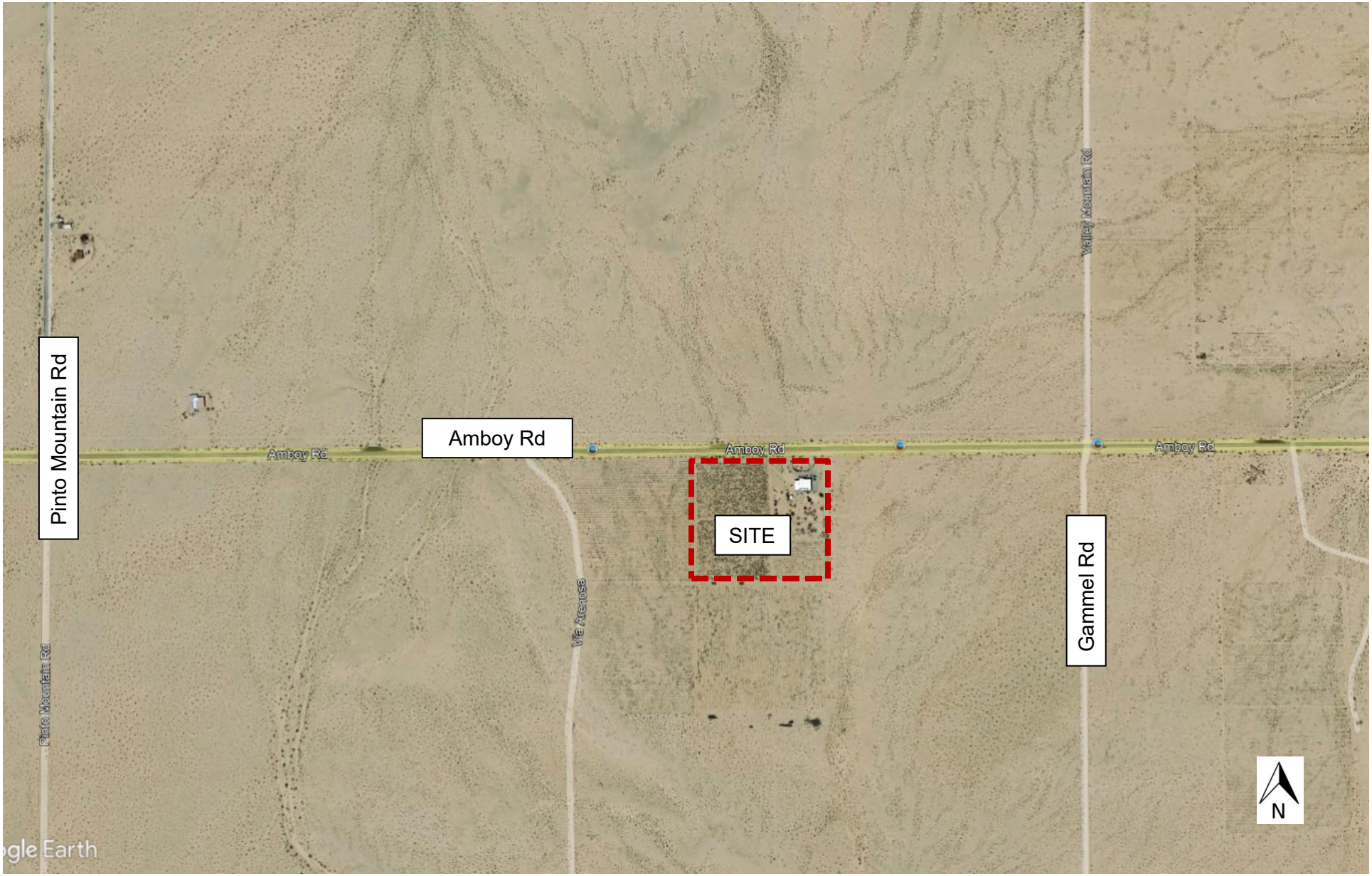
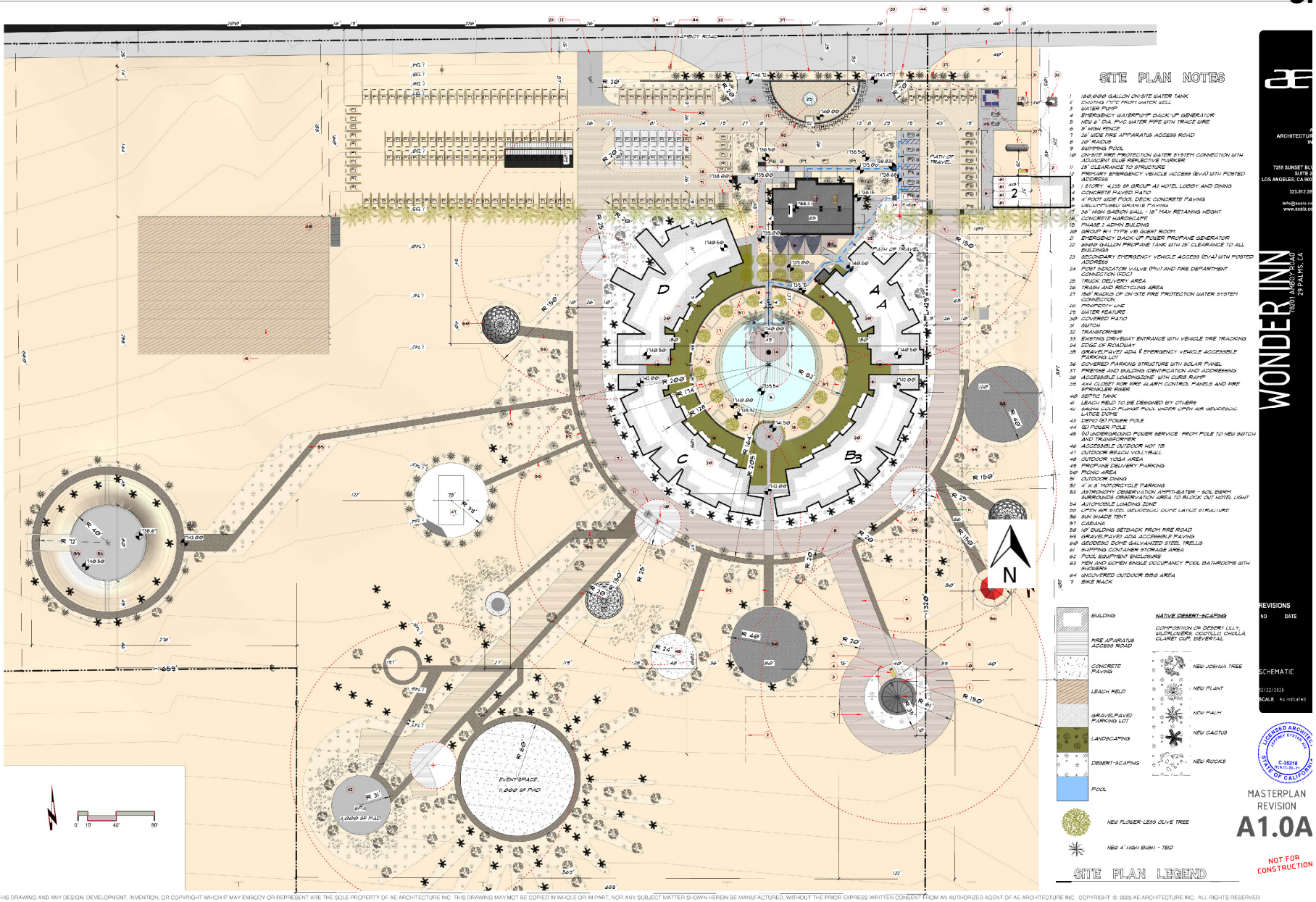


Exhibit B

Site Plan



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2.0 Fundamentals of Noise

This section of the report provides basic information about noise and presents some of the terms used in the report.

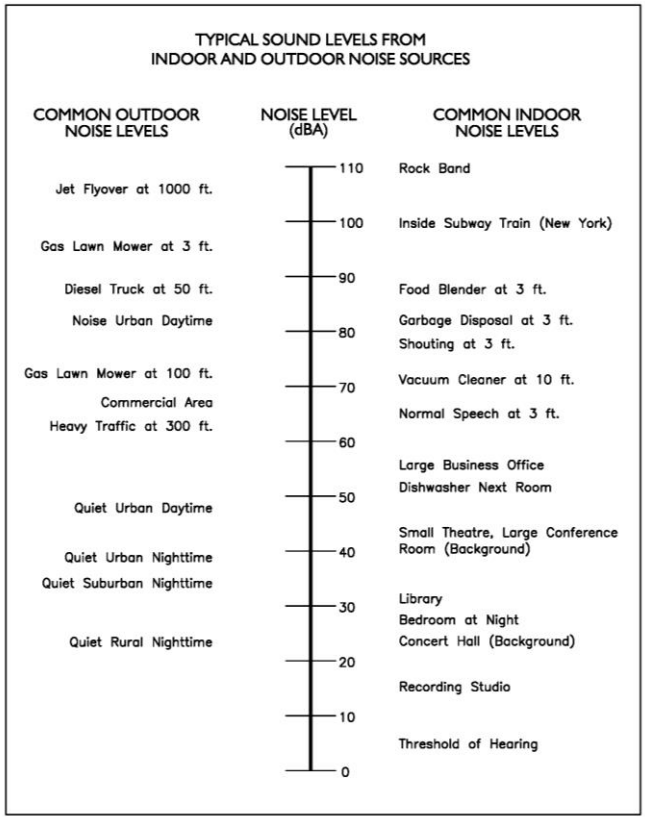
2.1 Sound, Noise and Acoustics

Sound is a disturbance created by a moving or vibrating source and is capable of being detected by the hearing organs. Sound may be thought of as mechanical energy of a moving object transmitted by pressure waves through a medium to a human ear. For traffic or stationary noise, the medium of concern is air. *Noise* is defined as sound that is loud, unpleasant, unexpected, or unwanted.

2.2 Frequency and Hertz

A continuous sound is described by its *frequency* (pitch) and its *amplitude* (loudness). Frequency relates to the number of pressure oscillations per second. Low-frequency sounds are low in pitch (bass sounding) and high-frequency sounds are high in pitch (squeak). These oscillations per second (cycles) are commonly referred to as Hertz (Hz). The human ear can hear from the bass pitch starting out at 20 Hz all the way to the high pitch of 20,000 Hz.

Exhibit C: Typical A-Weighted Noise Levels



2.3 Sound Pressure Levels and Decibels

The *amplitude* of a sound determines its loudness. The loudness of sound increases or decreases as the amplitude increases or decreases. Sound pressure amplitude is measured in units of micro-Newton per square inch meter ($\mu N/m^2$), also called micro-Pascal (µPa). One µPa is approximately one hundred billionths (0.00000000001) of normal atmospheric pressure. Sound pressure level (SPL or L_p) is used to describe in logarithmic units the ratio of actual sound pressures to a reference pressure squared. These units are called decibels, abbreviated dB. Exhibit C illustrates references sound levels for different noise sources.

2.4 Addition of Decibels

Because decibels are on a logarithmic scale, sound pressure levels cannot be added or subtracted by simple plus or minus addition. When two sounds or equal SPL are combined, they will produce an SPL 3 dB greater than the original single SPL. In other words, sound energy must be doubled to produce a 3 dB increase. If two sounds differ by approximately 10 dB, the higher sound level is the predominant sound.

2.5 Human Response to Changes in Noise Levels

In general, the healthy human ear is most sensitive to sounds between 1,000 Hz and 5,000 Hz, and it perceives a sound within that range as being more intense than a sound with a higher or lower frequency with the same magnitude. For purposes of this report as well as with most environmental documents, the A-scale weighting is typically reported in terms of A-weighted decibel (dBA), a scale designed to account for the frequency-dependent sensitivity of the ear. Typically, the human ear can barely perceive a change in noise level of 3 dB. A change in 5 dB is readily perceptible, and a change in 10 dB is perceived as being twice or half as loud. As previously discussed, a doubling of sound energy results in a 3 dB increase in sound, which means that a doubling of sound energy (e.g. doubling the volume of traffic on a highway) would result in a barely perceptible change in sound level.

2.6 Noise Descriptors

Noise in our daily environment fluctuates over time. Some noise levels occur in regular patterns, others are random. Some noise levels are constant while others are sporadic. Noise descriptors were created to describe the different time-varying noise levels.

A-Weighted Sound Level: The sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighting filter de-emphasizes the very low and very high-frequency components of the sound in a manner similar to the response of the human ear. A numerical method of rating human judgment of loudness.

Ambient Noise Level: The composite of noise from all sources, near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

Community Noise Equivalent Level (CNEL): The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of five (5) decibels to sound levels in the evening from 7:00 to 10:00 PM and after addition of ten (10) decibels to sound levels in the night before 7:00 AM and after 10:00 PM.

Decibel (dB): A unit for measuring the amplitude of a sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micro-pascals.

dB(A): A-weighted sound level (see definition above).

Equivalent Sound Level (LEQ): The sound level corresponding to a steady noise level over a given sample period with the same amount of acoustic energy as the actual time-varying noise level. The energy average noise level during the sample period.

Habitable Room: Any room meeting the requirements of the Uniform Building Code, or other applicable regulations, which is intended to be used for sleeping, living, cooking or dining purposes, excluding such enclosed spaces as closets, pantries, bath or toilet rooms, service rooms, connecting corridors, laundries, unfinished attics, foyers, storage spaces, cellars, utility rooms and similar spaces.

L(n): The A-weighted sound level exceeded during a certain percentage of the sample time. For example, L10 in the sound level exceeded 10 percent of the sample time. Similarly L50, L90, and L99, etc.

Noise: *A*ny unwanted sound or sound which is undesirable because it interferes with speech and hearing, or is intense enough to damage hearing, or is otherwise annoying. The State Noise Control Act defines noise as "...excessive undesirable sound...".

Outdoor Living Area: Outdoor spaces that are associated with residential land uses typically used for passive recreational activities or other noise-sensitive uses. Such spaces include patio areas, barbecue areas, jacuzzi areas, etc. associated with residential uses; outdoor patient recovery or resting areas associated with hospitals, convalescent hospitals, or rest homes; outdoor areas associated with places of worship which have a significant role in services or other noise-sensitive activities; and outdoor school facilities routinely used for educational purposes which may be adversely impacted by noise. Outdoor areas usually not included in this definition are: front yard areas, driveways, greenbelts, maintenance areas and storage areas associated with residential land uses; exterior areas at hospitals that are not used for patient activities; outdoor areas associated with places of worship and principally used for short-term social gatherings; and, outdoor areas associated with school facilities that are not typically associated with educational uses prone to adverse noise impacts (for example, school play yard areas).

Percent Noise Levels: See L(n).

Sound Level (Noise Level): The weighted sound pressure level obtained by use of a sound level meter having a standard frequency filter for attenuating part of the sound spectrum.

Sound Level Meter: An instrument, including a microphone, an amplifier, an output meter, and frequency weighting networks for the measurement and determination of noise and sound levels.

Single Event Noise Exposure Level (SENEL): The dB(A) level which, if it lasted for one second, would produce the same A-weighted sound energy as the actual event.

2.7 Traffic Noise Prediction

Noise levels associated with traffic depends on a variety of factors: (1) volume of traffic, (2) speed of traffic, (3) auto, medium truck (2–3 axle) and heavy truck percentage (4 axle and greater), and sound propagation. The greater the volume of traffic, higher speeds and truck percentages equate to a louder volume in noise. A doubling of the Average Daily Traffic (ADT) along a roadway will increase noise levels by approximately 3 dB; reasons for this are discussed in the sections above.

2.8 Sound Propagation

As sound propagates from a source it spreads geometrically. Sound from a small, localized source (i.e., a point source) radiates uniformly outward as it travels away from the source in a spherical pattern. The sound level attenuates at a rate of 6 dB per doubling of distance. The movement of vehicles down a roadway makes the source of the sound appear to propagate from a line (i.e., line source) rather than a point source. This line source results in the noise propagating from a roadway in a cylindrical spreading versus a spherical spreading that results from a point source. The sound level attenuates for a line source at a rate of 3 dB per doubling of distance.

As noise propagates from the source, it is affected by the ground and atmosphere. Noise models use hard site (reflective surfaces) and soft site (absorptive surfaces) to help calculate predicted noise levels. Hard site conditions assume no excessive ground absorption between the noise source and the

receiver. Soft site conditions such as grass, soft dirt or landscaping attenuate noise at a rate of 1.5 dB per doubling of distance. When added to the geometric spreading, the excess ground attenuation results in an overall noise attenuation of 4.5 dB per doubling of distance for a line source and 7.5 dB per doubling of distance for a point source.

Research has demonstrated that atmospheric conditions can have a significant effect on noise levels when noise receivers are located 200 feet from a noise source. Wind, temperature, air humidity, and turbulence can further impact have far sound can travel.

3.0 Ground-Borne Vibration Fundamentals

3.1 Vibration Descriptors

Ground-borne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. The effects of ground-borne vibrations typically only cause a nuisance to people, but at extreme vibration levels, damage to buildings may occur. Although ground-borne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Ground-borne noise is an effect of ground-borne vibration and only exists indoors since it is produced from noise radiated from the motion of the walls and floors of a room and may also consist of the rattling of windows or dishes on shelves.

Several different methods are used to quantify vibration amplitude.

PPV – Known as the peak particle velocity (PPV) which is the maximum instantaneous peak in vibration velocity, typically given in inches per second.

RMS – Known as root mean squared (RMS) can be used to denote vibration amplitude

VdB – A commonly used abbreviation to describe the vibration level (VdB) for a vibration source.

3.2 Vibration Perception

Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. These continuous vibrations are not noticeable to humans whose threshold of perception is around 65 VdB. Outdoor sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible ground-borne noise or vibration. To counter the effects of ground-borne vibration, the Federal Transit Administration (FTA) has published guidance relative to vibration impacts. According to the FTA, fragile buildings can be exposed to ground-borne vibration levels of 0.3 inches per second without experiencing structural damage.

3.3 Vibration Propagation

There are three main types of vibration propagation: surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wavefront, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wavefront. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wavefront. However, unlike P-waves, the particle motion is transverse, or side-to-side and perpendicular to the direction of propagation.

As vibration waves propagate from a source, the vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. As stated above, this drop-off rate can vary greatly depending on the soil but has been shown to be effective enough for screening purposes, in order to identify potential vibration impacts that may need to be studied through actual field tests.

4.0 Regulatory Setting

The proposed project is located within the County of San Bernardino, California and noise regulations are addressed through the efforts of various federal, state and local government agencies. The agencies responsible for regulating noise are discussed below.

4.1 Federal Regulations

The adverse impact of noise was officially recognized by the federal government in the Noise Control Act of 1972, which serves three purposes:

- Publicize noise emission standards for interstate commerce
- Assist state and local abatement efforts
- Promote noise education and research

The Federal Office of Noise Abatement and Control (ONAC) originally was tasked with implementing the Noise Control Act. However, it was eventually eliminated leaving other federal agencies and committees to develop noise policies and programs. Some examples of these agencies are as follows: The Department of Transportation (DOT) assumed a significant role in noise control through its various agencies. The Federal Aviation Agency (FAA) is responsible for regulating noise from aircraft and airports. The Federal Highway Administration (FHWA) is responsible for regulating noise from the interstate highway system. The Occupational Safety and Health Administration (OSHA) is responsible for the prohibition of excessive noise exposure to workers. The Housing and Urban Development (HUD) is responsible for establishing noise regulations as it relates to exterior/interior noise levels for new HUD-assisted housing developments near high noise areas.

The federal government advocates that local jurisdictions use their land use regulatory authority to arrange new development in such a way that “noise sensitive” uses are either prohibited from being constructed adjacent to a highway or, or alternatively that the developments are planned and constructed in such a manner that potential noise impacts are minimized.

Since the federal government has preempted the setting of standards for noise levels that can be emitted by the transportation source, the City is restricted to regulating the noise generated by the transportation system through nuisance abatement ordinances and land use planning.

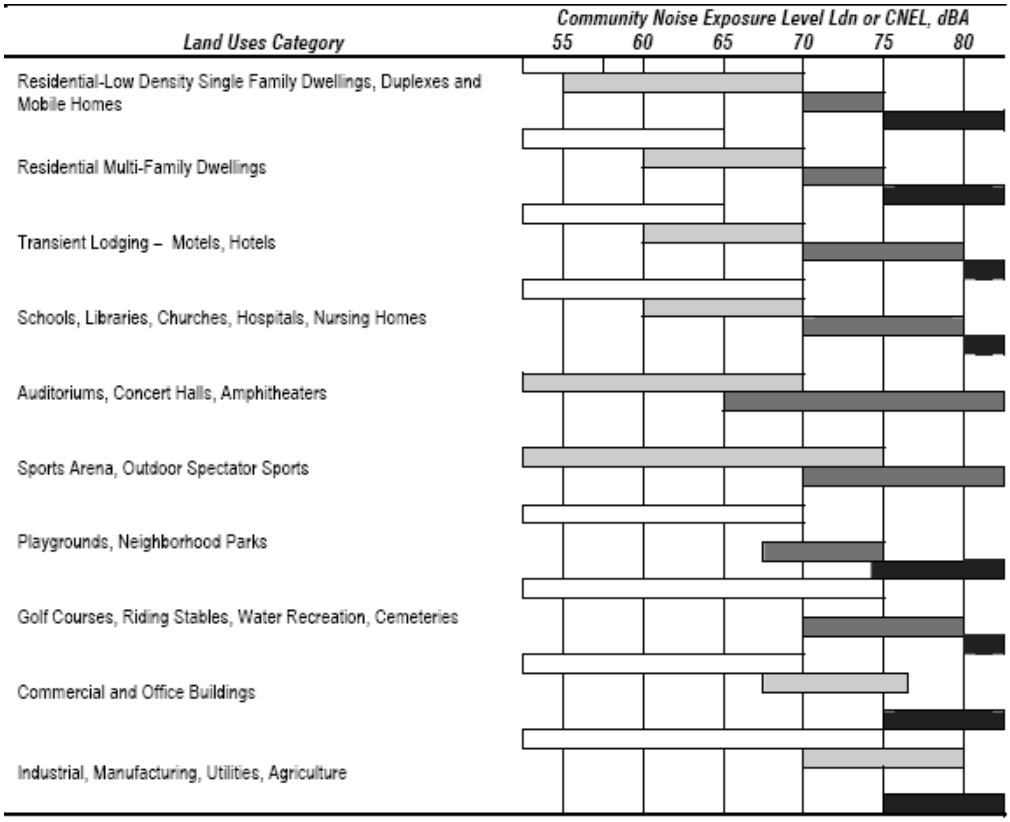
4.2 State Regulations

Established in 1973, the California Department of Health Services Office of Noise Control (ONC) was instrumental in developing regularity tools to control and abate noise for use by local agencies. One significant model is the “Land Use Compatibility for Community Noise Environments Matrix.” The matrix allows the local jurisdiction to clearly delineate compatibility of sensitive uses with various incremental levels of noise.

The State of California has established noise insulation standards as outlined in Title 24 and the Uniform Building Code (UBC) which in some cases requires acoustical analyses to outline exterior noise levels and to ensure interior noise levels do not exceed the interior threshold. The State mandates that the legislative body of each county and city adopt a noise element as part of its comprehensive general

plan. The local noise element must recognize the land use compatibility guidelines published by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable as illustrated in Exhibit D.

Exhibit D: Land Use Compatibility Guidelines



4.3 County of San Bernardino Noise Regulations

The County of San Bernardino outlines their noise regulations and standards within the Policy Plan, Safety and Security Section, Hazards Element from the General Plan and the Noise Ordinance from the Municipal Code.

County of San Bernardino General Plan

Applicable policies and standards governing environmental noise in the County are set forth in the General Plan Policy Plan. Section Safety and Security, in its goal HZ-2 Human-generated Hazards, outlines the noise policies within the county.

The County has outlined goals, policies, and implementation measures to reduce potential noise impacts and are presented below:

Goals, Policies, and Implementation Measures

Policies, goals and implementation program measures from the Policy Plan that would mitigate potential impacts on noise include the following.

Goal HZ-2 Human-generated Hazards: People and the natural environment protected from exposure to hazardous materials, excessive noise, and other human-generated hazards.

Policy HZ-2.6: Coordination with transportation authorities. We collaborate with airport owners, FAA, Caltrans, SBCTA, SCAG, neighboring jurisdictions, and other transportation providers in the preparation and maintenance of, updates to transportation-related plans and projects to minimize noise impacts and provide appropriate mitigation measures.

Policy HZ-2.7: Truck delivery areas. We encourage truck delivery areas to be located away from residential properties and require associated noise impacts to be mitigated.

Policy HZ-2.8: Proximity to noise generating uses. We limit or restrict new noise sensitive land uses in proximity to existing conforming noise generating uses and planned industrial areas.

Policy HZ-2.9: Control sound at the source. We prioritize noise mitigation measures that control sound at the source before buffers, soundwalls, and other perimeter measures.

Policy HZ-2.10: Agricultural operations. We require new development adjacent to existing conforming agricultural operations to provide adequate buffers to reduce the exposure of new development to operational noise, odor, and the storage or application of pesticides or other hazardous materials.

County of San Bernardino– Noise Ordinance/Municipal Code

Chapter 83.01 General Performance Standards of the County's Municipal Code outlines the County's noise ordinance.

Section 83.01.080 –Noise

This Section establishes standards concerning acceptable noise levels for both noise-sensitive land uses and for noise-generating land uses.

(a) *Noise Measurement*. Noise shall be measured:

(1) At the property line of the nearest site that is occupied by, and/or zoned or designated to allow the development of noise-sensitive land uses;

(2) With a sound level meter that meets the standards of the American National Standards Institute (ANSI § SI4 1979, Type 1 or Type 2);

(3) Using the "A" weighted sound pressure level scale in decibels (ref. pressure = 20 micronewtons per meter squared). The unit of measure shall be designated as dB(A).

(b) *Noise Impacted Areas*. Areas within the County shall be designated as "noise-impacted" if exposed to existing or projected future exterior noise levels from mobile or stationary sources exceeding the standards listed in Subdivision (d) (Noise Standards for Stationary Noise Sources) and Subdivision (e) (Noise Standards for Adjacent Mobile Noise Sources), below. New development of residential or other noise-sensitive land uses shall not be allowed in noise-impacted areas unless effective mitigation measures are incorporated into the project design to reduce noise levels to these standards. Noise-sensitive land uses shall include residential uses, schools, hospitals, nursing homes, religious institutions, libraries, and similar uses.

(c) *Noise Standards for Stationary Noise Sources*.

(1) *Noise Standards*. Table 83-2 (Noise Standards for Stationary Noise Sources) describes the noise standard for emanations from a stationary noise source, as it affects adjacent properties:

Table 1: Noise Standards for Stationary Noise Sources (Table 83-2)

Table 83-2		
Noise Standards for Stationary Noise Sources		
Affected Land Uses (Receiving Noise)	***7:00 a.m. – 10 p.m. Leq***	***10:00 p.m. – 7 a.m. Leq***
Residential	55 dB(A)	45 dB(A)
Professional Services	55 dB(A)	55 dB(A)
Other Commercial	60 dB(A)	60 dB(A)
Industrial	70 dB(A)	70 dB(A)
Leq = (Equivalent Energy Level). The sound level corresponding to a steady-state sound level containing the same total energy as a time-varying signal over a given sample period, typically one, eight or 24 hours.		
dB(A) = (A-weighted Sound Pressure Level). The sound pressure level, in decibels, as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound, placing greater emphasis on those frequencies within the sensitivity range of the human ear.		

(2) Noise Limit Categories. No person shall operate or cause to be operated a source of sound at a location or allow the creation of noise on property owned, leased, occupied, or otherwise controlled by the person, which causes the noise level, when measured on another property, either incorporated or unincorporated, to exceed any one of the following:

(a) The noise standard for the receiving land use as specified in Subdivision (b) (Noise-Impacted Areas), above, for a cumulative period of more than 30 minutes in any hour.

(b) The noise standard plus five dB(A) for a cumulative period of more than 15 minutes in any hour.

(c) The noise standard plus ten dB(A) for a cumulative period of more than five minutes in any hour.

(d) The noise standard plus 15 dB(A) for a cumulative period of more than one minute in any hour.

(e) The noise standard plus 20 dB(A) for any period of time.

(d) Noise Standards for Adjacent Mobile Noise Sources. Noise from mobile sources may affect adjacent properties adversely. When it does, the noise shall be mitigated for any new development to a level that shall not exceed the standards described in the following Table 83-3 (Noise Standards for Adjacent Mobile Noise Sources).

<Table 2 in next page>

Table 2: Noise Standards for Adjacent Mobile Noise Sources (Table 83-3)

Table 83-3			
Noise Standards for Adjacent Mobile Noise Sources			
Land Use		***Ldn (or CNEL) dB(A)***	
Categories	***Uses***	***Interior***[(1)]	***Exterior***[(2)]
Residential	Single and multi-family, duplex, mobile homes	45	60[(3)]
Commercial	Hotel, motel, transient housing	45	60[(3)]
	Commercial retail, bank, restaurant	50	N/A
	Office building, research and development, professional offices	45	65
	Amphitheater, concert hall, auditorium, movie theater	45	N/A
Institutional/Public	Hospital, nursing home, school classroom, religious institution, library	45	65
Open Space	Park	N/A	65
Notes:			
(1) The indoor environment shall exclude bathrooms, kitchens, toilets, closets and corridors.			
(2) The outdoor environment shall be limited to: • Hospital/office building patios • Hotel and motel recreation areas • Mobile home parks • Multi-family private patios or balconies • Park picnic areas • Private yard of single-family dwellings • School playgrounds			
(3) An exterior noise level of up to 65 dB(A) (or CNEL) shall be allowed provided exterior noise levels have been substantially mitigated through a reasonable application of the best available noise reduction technology, and interior noise exposure does not exceed 45 dB(A) (or CNEL) with windows and doors closed. Requiring that windows and doors remain closed to achieve an acceptable interior noise level shall necessitate the use of air conditioning or mechanical ventilation.			
CNEL = (Community Noise Equivalent Level). The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of approximately five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and ten decibels to sound levels in the night from 10:00 p.m. to 7:00 a.m.			

(e) *Increases in Allowable* Noise Levels. If the measured ambient level exceeds any of the first four noise limit categories in Subdivision (d)(2), above, the allowable noise exposure standard shall

be increased to reflect the ambient noise level. If the ambient noise level exceeds the fifth noise limit category in Subdivision (d)(2), above, the maximum allowable noise level under this category shall be increased to reflect the maximum ambient noise level.

(f) *Reduction in Allowable Noise Levels.* If the alleged offense consists entirely of impact noise or simple tone noise, each of the noise levels in Table 83-2 (Noise Standards for Stationary Noise Sources) shall be reduced by five dB(A).

(g) *Exempt Noise.* The following sources of noise shall be exempt from the regulations of this Section:
  (1) Motor vehicles not under the control of the commercial or industrial use.
  (2) Emergency equipment, vehicles, and devices.
  (3) Temporary construction, maintenance, repair, or demolition activities between 7:00 a.m. and 7:00 p.m., except Sundays and Federal holidays.

(h) Noise Standards for Other Structures. All other structures shall be sound attenuated against the combined input of all present and projected exterior noise to not exceed the criteria.

Per the table above outlined above, the City's noise limit for residential uses is 55 dBA during the hours of 7:00 AM to 6:00 PM, 50 dBA during the hours of 6:00 PM to 10:00 PM, 45 dBA during the hours of 10:00 PM to 7:00 AM.

Table 3: Noise Standards for Other Structures (Table 83-3)

Table 83-4	
Noise Standards for Other Structures	
Typical Uses	**12-Hour Equivalent Sound Level (Interior) in dBA Ldn**
Educational, institutions, libraries, meeting facilities, etc.	45
General office, reception, etc.	50
Retail stores, restaurants, etc.	55
Other areas for manufacturing, assembly, testing, warehousing, etc.	65

In addition, the average of the maximum levels on the loudest of intrusive sounds occurring during a 24-hour period shall not exceed 65 dBA interior.

5.0 Study Method and Procedure

The following section describes the noise modeling procedures and assumptions used for this assessment.

5.1 Noise Measurement Procedure and Criteria

Noise measurements are taken to determine the existing noise levels. A noise receiver or receptor is any location in the noise analysis in which noise might produce an impact. The following criteria are used to select measurement locations and receptors:

- Locations expected to receive the highest noise impacts, such as the first row of houses
- Locations that are acoustically representative and equivalent of the area of concern
- Human land usage
- Sites clear of major obstruction and contamination

MD conducted the sound level measurements in accordance to the County's and Caltrans (TeNS) technical noise specifications. All measurement equipment meets American National Standards Institute (ANSI) specifications for sound level meters (S1.4-1983 identified in Chapter 19.68.020.AA). The following gives a brief description of the Caltrans Technical Noise Supplement procedures for sound level measurements:

- Microphones for sound level meters were placed 5-feet above the ground for all measurements
- Sound level meters were calibrated (Larson Davis CAL 200) before and after each measurement
- Following the calibration of equipment, a windscreen was placed over the microphone
- Frequency weighting was set on "A" and slow response
- Results of the long-term noise measurements were recorded on field data sheets
- During any short-term noise measurements, any noise contaminations such as barking dogs, local traffic, lawn mowers, or aircraft fly-overs were noted
- Temperature and sky conditions were observed and documented

5.2 Noise Measurement Locations

Noise monitoring location was selected based on the nearest sensitive receptors relative to the proposed onsite noise sources. One (1) long-term 24-hour noise measurement was conducted at or near the project site and are illustrated in Exhibit E. Appendix A includes photos, field sheet, and measured noise data.

5.3 FHWA Traffic Noise Prediction Model

Traffic noise from vehicular traffic was projected using a computer program that replicates the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108). The FHWA model arrives at the predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). Roadway volumes and percentages correspond to the County's General Plan traffic counts, and roadway classification. The referenced traffic data was applied to the model and is in Appendix B. The following outlines the key adjustments made to the REMEL for the roadway inputs:

- Roadway classification – (e.g. freeway, major arterial, arterial, secondary, collector, etc),

- Roadway Active Width – (distance between the center of the outer most travel lanes on each side of the roadway)
- Average Daily Traffic Volumes (ADT), Travel Speeds, Percentages of automobiles, medium trucks and heavy trucks
- Roadway grade and angle of view
- Site Conditions (e.g. soft vs. hard)
- Percentage of total ADT which flows each hour through-out a 24-hour period

Table 4 indicates the roadway parameters and vehicle distribution utilized for this study.

Table 4: Roadway Parameters and Vehicle Distribution

Roadway	Segment	Existing ADT[1]	Existing Plus Project ADT[2]	Speed (MPH)	Site Conditions
Amboy Road	Pinto Mountain Rd to Gammel Rd	7,000	7,886	55	Soft
Vehicle Distribution (Truck Mix)					
Motor-Vehicle Type		**Daytime % (7AM to 7 PM)**	**Evening % (7 PM to 10 PM)**	**Night % (10 PM to 7 AM)**	**Total % of Traffic Flow**
Automobiles		75.5	14.0	10.5	97.42
Medium Trucks		48.9	2.2	48.9	1.84
Heavy Trucks		47.3	5.4	47.3	0.74

Notes:
[1] Traffic count from San Bernardino County General Plan, Final Environmental Report, Chapter IV Table IV-O-8.
[2] Trip generation rate based on CalEEMod run.

The following outlines key adjustments to the REMEL for project site parameter inputs:

- Vertical and horizontal distances (Sensitive receptor distance from noise source)
- Noise barrier vertical and horizontal distances (Noise barrier distance from sound source and receptor).
- Traffic noise source spectra
- Topography

5.4 FHWA Roadway Construction Noise Model

The construction noise analysis utilizes the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RNCM), together with several key construction parameters. Key inputs include distance to the sensitive receiver, equipment usage, % usage factor, and baseline parameters for the project site.

The project was analyzed based on the different construction phases. Construction noise is expected to be loudest during the grading, concrete and building phases of construction. The construction noise

calculation output worksheet is located in Appendix C. The following assumptions relevant to short-term construction noise impacts were used:

- It is estimated that construction will occur over a 6 month to 1 year time period. Construction noise is expected to be the loudest during the grading, concrete, and building phases.

Exhibit E
Measurement Locations

= Long-Term
Monitoring Location



6.0 Existing Noise Environment

A one (1) 24-hour ambient noise measurement was conducted at the property site. The noise measurement was taken to determine the existing ambient noise levels. Noise data indicates that traffic along Amboy Road is the primary source of noise impacting the site and the adjacent uses. This assessment utilizes the ambient noise data as a basis and compares project operational levels to said data.

6.1 Long-Term Noise Measurement Results

The results of the long-term noise data are presented in Table 5.

Table 5: Long-Term Noise Measurement Data[1]

Date	Time	1-Hour dB(A)							
		L_{EQ}	L_{MAX}	L_{MIN}	L_2	L_8	L_{25}	L_{50}	L_{90}
8/20/2021	11:00AM-12:00PM	63.3	78.9	42	68.2	67.3	63.4	62	58.8
8/20/2021	12:00PM-1:00PM	62.9	78.8	38.5	69	66.5	63.8	61.9	53.5
8/20/2021	1:00PM-2:00PM	65.1	78.9	41.9	70.6	68.7	66.1	63.7	57.5
8/20/2021	2:00PM-3:00PM	69.3	83.2	45.9	74.4	72.8	70.7	67.9	63.3
8/20/2021	3:00PM-4:00PM	68.7	80.3	45	73.2	72	70.3	67.9	62.2
8/20/2021	4:00PM-5:00PM	67.1	81.8	44.6	71.9	70.1	68	66.2	62.1
8/20/2021	5:00PM-6:00PM	61.1	75.7	35.4	66.6	64.9	62.3	60	50.9
8/20/2021	6:00PM-7:00PM	61.1	86.1	34.6	67	64.6	61	58.4	51.5
8/20/2021	7:00PM-8:00PM	55.5	78.9	30.5	64.5	60.1	54.5	48.1	33.6
8/20/2021	8:00PM-9:00PM	50.1	70.1	30.5	55.3	54.5	52.3	47.8	33.6
8/20/2021	9:00PM-10:00PM	50.8	71.9	30.5	57.9	55.2	52.4	47.4	36.9
8/20/2021	10:00PM-11:00PM	56.1	72.5	36.9	62	58.7	56.5	54.8	51.6
8/20/2021	11:00PM-12:00AM	56.7	75.5	33.6	62.3	59.6	57.9	55.8	49.4
8/20/2021	12:00AM-1:00AM	51.9	72.3	30.4	59.3	57.7	51.9	46.8	35.3
8/20/2021	1:00AM-2:00AM	47.9	72.8	30.4	57.9	51.7	44.1	37.5	32.3
8/20/2021	2:00AM-3:00AM	47.1	65.6	30.4	54.4	51.6	47.3	44.3	37.4
8/20/2021	3:00AM-4:00AM	46.7	68.1	30.4	55.4	52.9	44.8	41.3	33.9
8/20/2021	4:00AM-5:00AM	43.1	68.9	30.4	53.1	44.6	40.4	37.2	31.5
8/20/2021	5:00AM-6:00AM	57.1	85.1	30.3	62.9	57.4	51.6	35.2	30.5
8/20/2021	6:00AM-7:00AM	52.9	75.6	30.7	60.3	57.7	54.1	45.7	37.7
8/20/2021	7:00AM-8:00AM	55.4	77.1	31.1	63.1	60.2	56.7	52	39.7
8/20/2021	8:00AM-9:00AM	57.5	80.3	30.8	65	62	57.9	53.3	46.1
8/20/2021	9:00AM-10:00AM	55.4	73.5	30.7	61.1	60.2	56.5	54	43
8/20/2021	10:00AM-11:00AM	56.8	74.5	30.3	62.4	60.7	57.8	55.8	47.1
CNEL		63.3							

Notes:
[1.] Short-term noise monitoring location (ST1) is illustrated in Exhibit E.

Noise data indicates the ambient noise level average was 63.3 dBA CNEL at the project site. Maximum hourly levels reached up to 69.3 dBA at 2:00 p.m. as a result of traffic along Amboy Road. Additional field notes and photographs are provided in Appendix A.

7.0 Future Noise Environment Impacts and Mitigation

This assessment analyzes future noise impacts as a result of the project. The analysis details the estimated exterior noise levels.

7.1 Future Exterior Noise

The following outlines the exterior noise levels associated with the proposed project:

7.1.1 Noise Impacts to Off-Site Receptors Due to Project Generated Traffic

A worst-case project generated traffic noise level was modeled utilizing the FHWA Traffic Noise Prediction Model - FHWA-RD-77-108. Traffic noise levels were calculated 220 feet from the centerline of the analyzed roadway. The modeling is theoretical and does not take into account any existing barriers, structures, and/or topographical features that may further reduce noise levels. Therefore, the levels are shown for comparative purposes only to show the difference in with and without project conditions. In addition, the noise contours for 60, 65 and 70 dBA CNEL were calculated. The potential off-site noise impacts caused by an increase of traffic from operation of the proposed project on the nearby roadways were calculated for the following scenarios:

Existing Year (without Project): This scenario refers to existing year traffic noise conditions.

Existing Year (Plus Project): This scenario refers to existing year + project traffic noise conditions.

Table 6 compares the without and with project scenario and shows the change in traffic noise levels as a result of the proposed project. It takes a change of 3 dB or more to hear a perceptible difference. As demonstrated in Table 6, the project is anticipated to not change the noise levels.

Since there is a small increase in traffic noise levels, the impact is considered less than significant as the noise levels at or near any existing proposed sensitive receptor would be 59.3 dBA CNEL or less and the change in noise level is 0.5 dBA or less. No further mitigation is required.

Table 6: Existing Scenario - Noise Levels Along Roadways (dBA CNEL)

Existing Without Project Exterior Noise Levels

Roadway	Segment	CNEL at 220 Ft (dBA)	Distance to Contour (Ft)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Amboy Road	Pinto Mountain Rd and Gammel Rd	58.8	39	85	183	394

Existing With Project Exterior Noise Levels

Roadway	Segment	CNEL at 220 Ft (dBA)	Distance to Contour (Ft)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Amboy Road	Pinto Mountain Rd and Gammel Rd	59.3	43	92	198	426

Change in Existing Noise Levels as a Result of Project

Roadway	Segment	CNEL at 50 Feet dBA[2]			
		Existing Without Project[1]	Existing With Project[1]	Change in Noise Level	Potential Significant Impact
Amboy Rd	Pinto Mountain Rd and Gammel Rd	58.8	59.3	0.5	No

Notes:
[1] Exterior noise levels calculated at 5 feet above ground level.
[2] Noise levels calculated from centerline of subject roadway.

7.1.2 Noise Impacts to On-Site Receptors Due to Project Generated Traffic

The closest guest room considered for this project site is located approximately 202 feet from the center line of Amboy Road and would fall beyond the 60 dBA CNEL or less contour. Therefore, the project would be normally acceptable per the County's Land Use Compatibility Matrix.

7.2 Mitigation Measures

Considering the typical construction standard, the project will meet the County's interior noise ordinance. Also, the project is not located within the Airport Comprehensive Land Use Plan of the Twentynine Palms Airport (TNP). Therefore, at this point no further mitigation is required.

8.0 Construction Noise Impact

The degree of construction noise may vary for different areas of the project site and also vary depending on the construction activities. Noise levels associated with the construction will vary with the different phases of construction.

8.1 Construction Noise

The Environmental Protection Agency (EPA) has compiled data regarding the noise generated characteristics of typical construction activities. The data is presented in Table 7.

Table 7: Typical Construction Equipment Noise Levels[1]

Type	Lmax (dBA) at 50 Feet
Backhoe	80
Truck	88
Concrete Mixer	85
Pneumatic Tool	85
Pump	76
Saw, Electric	76
Air Compressor	81
Generator	81
Paver	89
Roller	74

Notes:
[1] Referenced Noise Levels from FTA noise and vibration manual.

Construction noise is considered a short-term impact and would be considered significant if construction activities are taken outside the allowable times (7a.m. to 7p.m.) as described in the County of San Bernardino Municipal Code Section 83.01.080 (g)(3). Construction is anticipated to occur during the permissible hours according to the County's Municipal Code. Construction noise will have a temporary or periodic increase in the ambient noise level above the existing within the project vicinity. Furthermore, noise reduction measures are provided to further reduce construction noise. The impact is considered less than significant however construction noise level projections are provided.

Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Noise levels will be loudest during grading phase. A likely worst-case construction noise scenario during grading assumes the use of 1-grader, 1-dozer, 1-excavators, 1-scrapers and 1-backhoes operating at 3,050 feet from the nearest sensitive receptor (northwest low density residential).

Assuming a usage factor of 40 percent for each piece of equipment, unmitigated noise levels at 3,050 feet have the potential to reach 46 dBA L_{eq} at the nearest sensitive receptors during grading. Noise levels for the other construction phases would be lower, approximately from 37 to 45 dBA L_{eq}.

8.2 Construction Vibration

Construction activities can produce vibration that may be felt by adjacent land uses. The construction of the proposed project would not require the use of equipment such as pile drivers, which are known to generate substantial construction vibration levels. The primary vibration source during construction may be from a bulldozer. A large bulldozer has a vibration impact of 0.089 inches per second peak particle velocity (PPV) at 25 feet which is perceptible but below any risk to architectural damage.

The fundamental equation used to calculate vibration propagation through average soil conditions and distance is as follows:

$$PPV_{equipment} = PPV_{ref} (100/D_{rec})^n$$

Where: PPV_{ref} = reference PPV at 100ft.
D_{rec} = distance from equipment to receiver in ft.
n = 1.1 (the value related to the attenuation rate through ground)

The thresholds from the Caltrans Transportation and Construction Induced Vibration Guidance Manual in Table 8 (below) provides general thresholds and guidelines as to the vibration damage potential from vibratory impacts.

Table 8: Guideline Vibration Damage Potential Threshold Criteria

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Source: Table 19, Transportation and Construction Vibration Guidance Manual, Caltrans, Sept. 2013.
Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

Table 9 gives approximate vibration levels for particular construction activities. This data provides a reasonable estimate for a wide range of soil conditions.

Table 9: Vibration Source Levels for Construction Equipment[1]

Equipment	Peak Particle Velocity (inches/second) at 25 feet	Approximate Vibration Level LV (dVB) at 25 feet
Pile driver (impact)	1.518 (upper range)	112
	0.644 (typical)	104
Pile driver (sonic)	0.734 upper range	105
	0.170 typical	93
Clam shovel drop (slurry wall)	0.202	94
Hydromill	0.008 in soil	66
(slurry wall)	0.017 in rock	75
Vibratory Roller	0.21	94
Hoe Ram	0.089	87
Large bulldozer	0.089	87
Caisson drill	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58

[1] Source: Transit Noise and Vibration Impact Assessment, Federal Transit Administration, May 2006.

At a distance of 3,050 feet, a large bulldozer would yield a worst-case 0.0 PPV (in/sec) which means the vibration would not be perceptible during grading along the northeastern property line of the project site and is below any threshold of damage. There is no impact, and no mitigation is required.

8.3 Construction Noise Reduction Measures

Construction operations must follow the County's General Plan and the Noise Ordinance, which states that construction, repair or excavation work performed must occur within the permissible hours. To further ensure that construction activities do not disrupt the adjacent land uses, the following measures should be taken:

1. Construction should occur during the permissible hours as defined in Section 83.01.080(g)(3).

2. During construction, the contractor shall ensure all construction equipment is equipped with appropriate noise attenuating devices.

3. The contractor should locate equipment staging areas that will create the greatest distance between construction-related noise/vibration sources and sensitive receptors nearest the project site during all project construction.

4. Idling equipment should be turned off when not in use.

5. Equipment shall be maintained so that vehicles and their loads are secured from rattling and banging.

9.0 References

State of California General Plan Guidelines: 1998. Governor's Office of Planning and Research

County of San Bernardino: General Plan.

County of San Bernardino: Municipal Code. Chapter 83.01.080 Noise

Final Environmental Impact Report and Appendices for County of San Bernardino General Plan: Table IV – 8 – O Roadway Daily Volume Thresholds. February 2007.

County of San Bernardino, Planning Department: Airport Comprehensive Land Use, Twentynine Palms Airport, May 1992.

Federal Highway Administration. Noise Barrier Design Handbook. June 2017.

Federal Transit Administration. Transit Noise and Vibration Impact Assessment Manual. September 2018

Appendix A:

Photographs and Field Measurement Data

24-Hour Continuous Noise Measurement Datasheet

Project Name:	Wonder Inn Project
Project: #/Name:	0739-2021-001
Site Address / Location:	78201 Amboy Road, Twentynine Pal
Date:	03/10/2022
Field Tech / Engineer:	Jason Schuyler
Sound Meter:	Piccolo 2, Soft dB **SN:** P02QC2019080208
Settings:	A-weighted, slow, 1-min, 24-hour duration
Meteorological Cond.:	Partly Cloudy, 75F max 54F min, wind in the afternoon
Site Id:	LT1

Site Observations:

Site Topo: Flat

Ground Type: Soft Site, desert

Noise Source(s) w/ Distance:

105ft from Amboy Rd CL



MD ACOUSTICS

24-Hour Continuous Noise Measurement Datasheet - Cont.

Project Name:	Wonder Inn Project
Site Address / Location:	78201 Amboy Road, Twentynine Pal
Site Id:	LT1

Figure 1: LT1 Looking North

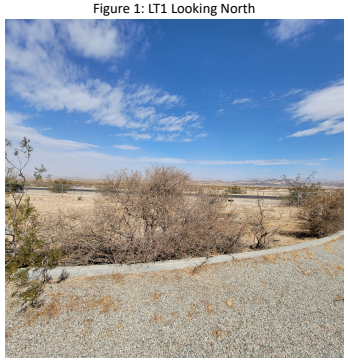


Figure 2: LT1 Looking South

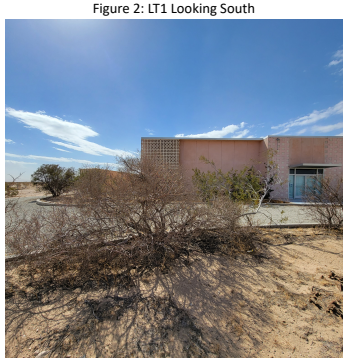
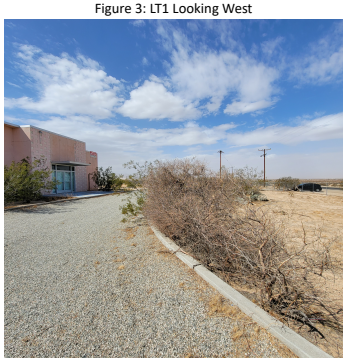


Figure 3: LT1 Looking West



MD ACOUSTICS

24-Hour Continuous Noise Measurement Datasheet - Cont.

Project Name: Wonder Inn Project **Day:** 1 of 1

Site Address / Location: 78201 Amboy Road, Twentynine Pal

Site Id: LT1

Table 1: Baseline Noise Measurement Summary

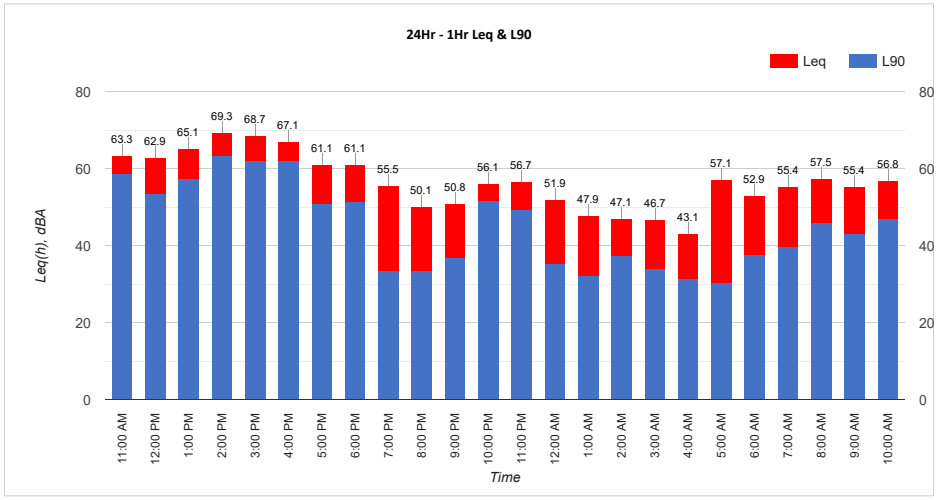
Date	Start	Stop	Leq	Lmax	Lmin	L2	L8	L25	L50	L90
3/10/2022	11:00 AM	12:00 PM	63.3	78.9	42	68.2	67.3	63.4	62	58.8
3/10/2022	12:00 PM	1:00 PM	62.9	78.8	38.5	69	66.5	63.8	61.9	53.5
3/10/2022	1:00 PM	2:00 PM	65.1	78.9	41.9	70.6	68.7	66.1	63.7	57.5
3/10/2022	2:00 PM	3:00 PM	69.3	83.2	45.9	74.4	72.8	70.7	67.9	63.3
3/10/2022	3:00 PM	4:00 PM	68.7	80.3	45	73.2	72	70.3	67.9	62.2
3/10/2022	4:00 PM	5:00 PM	67.1	81.8	44.6	71.9	70.1	68	66.2	62.1
3/10/2022	5:00 PM	6:00 PM	61.1	75.7	35.4	66.6	64.9	62.3	60	50.9
3/10/2022	6:00 PM	7:00 PM	61.1	86.1	34.6	67	64.6	61	58.4	51.5
3/10/2022	7:00 PM	8:00 PM	55.5	78.9	30.5	64.5	60.1	54.5	48.1	33.6
3/10/2022	8:00 PM	9:00 PM	50.1	70.1	30.5	55.3	54.5	52.3	47.8	33.6
3/10/2022	9:00 PM	10:00 PM	50.8	71.9	30.5	57.9	55.2	52.4	47.4	36.9
3/10/2022	10:00 PM	11:00 PM	56.1	72.5	36.9	62	58.7	56.5	54.8	51.6
3/10/2022	11:00 PM	12:00 AM	56.7	75.5	33.6	62.3	59.6	57.9	55.8	49.4
3/11/2022	12:00 AM	1:00 AM	51.9	72.3	30.4	59.3	57.7	51.9	46.8	35.3
3/11/2022	1:00 AM	2:00 AM	47.9	72.8	30.4	57.9	51.7	44.1	37.5	32.3
3/11/2022	2:00 AM	3:00 AM	47.1	65.6	30.4	54.4	51.6	47.3	44.3	37.4
3/11/2022	3:00 AM	4:00 AM	46.7	68.1	30.4	55.4	52.9	44.8	41.3	33.9
3/11/2022	4:00 AM	5:00 AM	43.1	68.9	30.4	53.1	44.6	40.4	37.2	31.5
3/11/2022	5:00 AM	6:00 AM	57.1	85.1	30.3	62.9	57.4	51.6	35.2	30.5
3/11/2022	6:00 AM	7:00 AM	52.9	75.6	30.7	60.3	57.7	54.1	45.7	37.7
3/11/2022	7:00 AM	8:00 AM	55.4	77.1	31.1	63.1	60.2	56.7	52	39.7
3/11/2022	8:00 AM	9:00 AM	57.5	80.3	30.8	65	62	57.9	53.3	46.1
3/11/2022	9:00 AM	10:00 AM	55.4	73.5	30.7	61.1	60.2	56.5	54	43
3/11/2022	10:00 AM	11:00 AM	56.8	74.5	30.3	62.4	60.7	57.8	55.8	47.1

	DNL	63.3

MD ACOUSTICS

24-Hour Continuous Noise Measurement Datasheet - Cont.

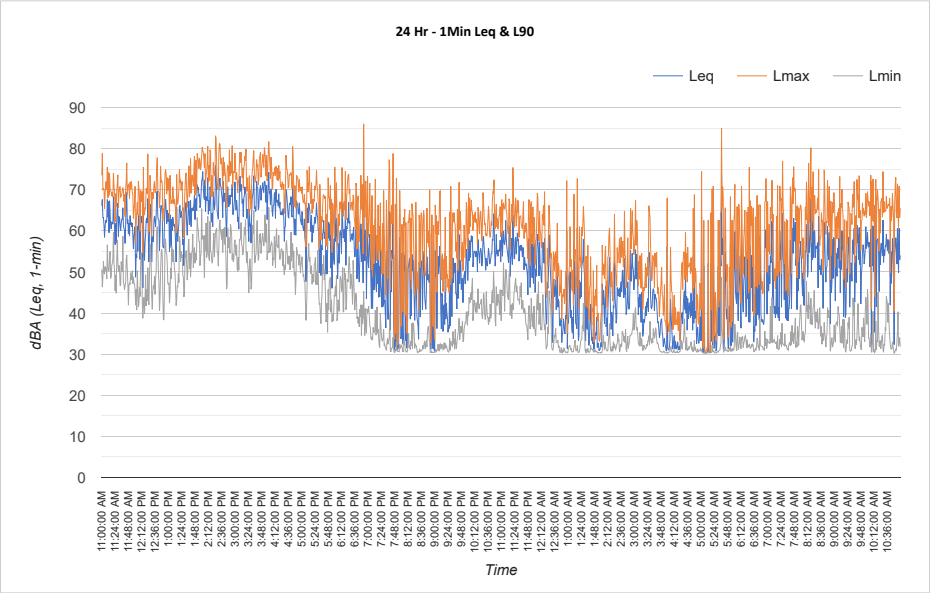
Project Name:	Wonder Inn Project	**Day:** 1 of 1	
Site Address / Location:	78201 Amboy Road, Twentynine Pal		
Site Id:	LT1		



MD ACOUSTICS

24-Hour Continuous Noise Measurement Datasheet - Cont.

Project Name:	Wonder Inn Project	**Day:** 1 of 1	
Site Address / Location:	78201 Amboy Road, Twentynine Pal		
Site Id:	LT1		



MD ACOUSTICS

Appendix B:

Traffic Noise Modeling Output

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Wonder Inn Project
ROADWAY Amboy Road
SEGMENT Pinto Mountain Rd and Gammel Rd
LOCATION: County of San Bernardino SCENARIO: Existing

JOB #: 0739-2021-01
DATE: 2-May-22
ENGINEER: F. Irarrazabal

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	7,000
SPEED =	55
PK HR % =	10
NEAR LANE/FAR LANE DIST =	24
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	700

RECEIVER INPUT DATA

RECEIVER DISTANCE =		220
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		220
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	15	
MED TRUCKS	15	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	15	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.489	0.022	0.489	0.018
HEAVY TRUCKS	0.473	0.054	0.473	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	219.7	- -
MEDIUM TRUCKS=	4.00	219.7	- -
HEAVY TRUCKS =	8.01	219.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	57.4	55.4	54.1	48.1	56.5	57.1
MEDIUM TRUCKS	47.3	43.4	36.0	44.6	50.8	50.9
HEAVY TRUCKS	47.3	43.3	39.9	44.5	50.7	50.8
VEHICULAR NOISE	58.2	55.9	54.3	50.8	58.4	**58.8**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	39	85	183	394
LDN	37	79	171	368

FHWA-RD-77-108 ROADWAY TRAFFIC NOISE PREDICTION MODEL (CNEL) - CALVENO

PROJECT: Wonder Inn Project
ROADWAY Amboy Road
SEGMENT Pinto Mountain Rd and Gammel Rd
LOCATION: County of San Bernardino SCENARIO: Existing + Project

JOB #: 0739-2021-01
DATE: 2-May-22
ENGINEER: F. Irarrazabal

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	7,886
SPEED =	55
PK HR % =	10
NEAR LANE/FAR LANE DIST =	24
ROAD ELEVATION =	0
GRADE =	0
PK HR VOL =	789

RECEIVER INPUT DATA

RECEIVER DISTANCE =		220
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5
WALL DISTANCE FROM RECEIVER =		220
PAD ELEVATION =		0
ROADWAY VIEW:	LF ANGLE	-90
	RT ANGLE	90
	DF ANGLE	180

SITE CONDITIONS

AUTOMOBILES	15	
MED TRUCKS	15	(HARD SITE=10, SOFT SITE=15)
HVY TRUCKS	15	

WALL INFORMATION

HTH WALL =	0	FT
AMBIENT =	0	
BARRIER =	0	(0=WALL,1=BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVE	NIGHT	DAILY
AUTOMOBILES	0.755	0.140	0.105	0.974
MEDIUM TRUCKS	0.489	0.022	0.489	0.018
HEAVY TRUCKS	0.473	0.054	0.473	0.007

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES =	2.00	219.7	- -
MEDIUM TRUCKS=	4.00	219.7	- -
HEAVY TRUCKS =	8.01	219.7	0.0

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	57.9	55.9	54.6	48.6	57.0	57.6
MEDIUM TRUCKS	47.8	43.9	36.5	45.2	51.3	51.4
HEAVY TRUCKS	47.8	43.8	40.4	45.0	51.2	51.3
VEHICULAR NOISE	58.7	56.4	54.8	51.4	58.9	**59.3**

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	43	92	198	426
LDN	40	86	185	399

Appendix C:

Construction Noise Modeling Output

Construction Noise Levels at Senstive Receptors by Phase

Activity	Leq at 3,050 FT (Northwest)	Lmax at 3,050 FT (Northwest)
Site Preparation	45	47
Grading	46	50
Building Construction	41	45
Architectural Coating	37	41

Equipment Summary	Reference (dBA) 50 ft Lmax
Rock Drills	96
Jack Hammers	82
Pneumatic Tools	85
Pavers	80
Dozers	85
Scrapers	87
Haul Trucks	88
Cranes	82
Portable Generators	80
Rollers	80
Tractors	80
Front-End Loaders	86
Hydraulic Excavators	86
Graders	86
Air Compressors	86
Welders	73
Excavators	85
Conc/Ind Saws	90
Trucks	86

Site Preparation

Noise Level Calculation Prior to Implementation of Noise Attenuation Requirements

No.	Equipment Description	Reference (dBA) 50 ft Lmax	Quantity	Usage Factor[1]	Distance to Receptor (ft)	Ground Effect	Shielding (dBA)	Calculated (dBA) Lmax	Calculated (dBA) Leq	Energy
1	Dozer	85	2	40	3050	0.5	0	43.4	39.4	8704.93233
2	Excavators	85	3	40	3050	0.5	0	45.1	41.2	13057.3985
3	Concrete/Industrial Saws	90	1	20	3050	0.5	0	45.4	38.4	6881.85326
							Lmax	**47**	**Leq**	**45**
							Lw	**81**	**Lw**	**76**

Source: MD Acoustics, LLC - Sept. 2021.
1- Percentage of time that a piece of equipment is operating at full power.
dBA – A-weighted Decibels
Lmax- Maximum Level
Leq- Equivalent Level

Feet	Meters	Ground Effect	No Shielding Leq dBA	1 dBA Shielding Leq dBA	2 dBA Shielding Leq dBA	3 dBA Shielding Leq dBA	4 dBA Shielding Leq dBA	5 dBA Shielding Leq dBA	6 dBA Shielding Leq dBA	7 dBA Shielding Leq dBA	8 dBA Shielding Leq dBA	9 dBA Shielding Leq dBA	10 dBA Shielding Leq dBA	11 dBA Shielding LeqdBA	12 dBA Shielding Leq dBA	13 dBA Shielding Leq dBA	14 dBA Shielding Leq dBA	15 dBA Shielding Leq dBA
50	15.2	0.5	45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30
60	18.3	0.5	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28
70	21.3	0.5	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26
80	24.4	0.5	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24
90	27.4	0.5	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23
100	30.5	0.5	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22
110	33.5	0.5	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21
120	36.6	0.5	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20
130	39.6	0.5	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19
140	42.7	0.5	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18
150	45.7	0.5	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18
160	48.8	0.5	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
170	51.8	0.5	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
180	54.9	0.5	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
190	57.9	0.5	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15
200	61.0	0.5	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15
210	64.0	0.5	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14
220	67.1	0.5	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13
230	70.1	0.5	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13
240	73.1	0.5	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13
250	76.2	0.5	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12
260	79.2	0.5	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12
270	82.3	0.5	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11
280	85.3	0.5	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11
290	88.4	0.5	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10
300	91.4	0.5	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10
310	94.5	0.5	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10
320	97.5	0.5	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9
330	100.6	0.5	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9
340	103.6	0.5	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9
350	106.7	0.5	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8
360	109.7	0.5	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8
370	112.8	0.5	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8

Grading

		Noise Level Calculation Prior to Implementation of Noise Attenuation Requirements						Calculated (dBA)		
No.	Equipment Description	Reference (dBA) 50 ft Lmax	Quantity	Usage Factor[1]	Distance to Receptor (ft)	Ground Effect	Shielding (dBA)	Lmax	Leq	Energy
1	Grader	86	1	40	3050	0.5	0	41.4	37.4	5479.43026
2	Dozer	85	1	40	3050	0.5	0	40.4	36.4	4352.46617
3	Tractor/Backhoe	80	2	40	3050	0.5	0	38.4	34.4	2752.7413
4	Scrapers	87	2	40	3050	0.5	0	45.4	41.4	13796.388
5	Excavators	86	2	40	3050	0.5	0	44.4	40.4	10958.8605
							Lmax*	50	Leq	46
							Lw	78	Lw	77

Source: MD Acoustics, LLC - Sept. 2021.
1- Percentage of time that a piece of equipment is operating at full power.
dBA – A-weighted Decibels
Lmax- Maximum Level
Leq- Equivalent Level

Feet	Meters	Ground Effect	No Shielding Leq dBA	1 dBA Shielding Leq dBA	2 dBA Shielding Leq dBA	3 dBA Shielding Leq dBA	4 dBA Shielding Leq dBA	5 dBA Shielding Leq dBA	6 dBA Shielding Leq dBA	7 dBA Shielding Leq dBA	8 dBA Shielding Leq dBA	9 dBA Shielding Leq dBA	10 dBA Shielding Leq dBA	11 dBA Shielding LeqdBA	12 dBA Shielding Leq dBA	13 dBA Shielding Leq dBA	14 dBA Shielding Leq dBA	15 dBA Shielding Leq dBA
50	15.2	0.5	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32	31
60	18.3	0.5	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29
70	21.3	0.5	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27
80	24.4	0.5	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26
90	27.4	0.5	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24
100	30.5	0.5	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23
110	33.5	0.5	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22
120	36.6	0.5	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21
130	39.6	0.5	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20
140	42.7	0.5	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20
150	45.7	0.5	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19
160	48.8	0.5	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18
170	51.8	0.5	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
180	54.9	0.5	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
190	57.9	0.5	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
200	61.0	0.5	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
210	64.0	0.5	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15
220	67.1	0.5	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15
230	70.1	0.5	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14
240	73.1	0.5	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14
250	76.2	0.5	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13
260	79.2	0.5	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13
270	82.3	0.5	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12
280	85.3	0.5	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12
290	88.4	0.5	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12
300	91.4	0.5	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11
310	94.5	0.5	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11
320	97.5	0.5	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11
330	100.6	0.5	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10
340	103.6	0.5	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10
350	106.7	0.5	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10
360	109.7	0.5	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9
370	112.8	0.5	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9

Building Construction

Noise Level Calculation Prior to Implementation of Noise Attenuation Requirements

No.	Equipment Description	Reference (dBA) 50 ft Lmax	Quantity	Usage Factor[1]	Distance to Receptor (ft)	Ground Effect	Shielding (dBA)	Calculated (dBA) Lmax	Calculated (dBA) Leq	Energy
1	Forklift/Tractor	80	3	40	3050	0.5	0	40.1	36.2	4129.11196
2	Tractor/Backhoe	80	3	40	3050	0.5	0	40.1	36.2	4129.11196
3	Cranes	82	1	40	3050	0.5	0	37.4	33.4	2181.40048
4	Generator	80	1	40	3050	0.5	0	35.4	31.4	1376.37065
5	Welders	73	1	40	3050	0.5	0	28.4	24.4	274.622049
							Lmax	**45**	**Leq**	**41**
							Lw	**76**	**Lw**	**72**

Source: MD Acoustics, LLC - Sept. 2021.
1- Percentage of time that a piece of equipment is operating at full power.
dBA – A-weighted Decibels
Lmax- Maximum Level
Leq- Equivalent Level

Feet	Meters	Ground Effect	No Shielding Leq dBA	1 dBA Shielding Leq dBA	2 dBA Shielding Leq dBA	3 dBA Shielding Leq dBA	4 dBA Shielding Leq dBA	5 dBA Shielding Leq dBA	6 dBA Shielding Leq dBA	7 dBA Shielding Leq dBA	8 dBA Shielding Leq dBA	9 dBA Shielding Leq dBA	10 dBA Shielding Leq dBA	11 dBA Shielding LeqdBA	12 dBA Shielding Leq dBA	13 dBA Shielding Leq dBA	14 dBA Shielding Leq dBA	15 dBA Shielding Leq dBA
50	**15.2**	**0.5**	**41**	**40**	**39**	**38**	**37**	**36**	**35**	**34**	**33**	**32**	**31**	**30**	**29**	**28**	**27**	**26**
60	18.3	0.5	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24
70	21.3	0.5	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22
80	24.4	0.5	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21
90	27.4	0.5	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19
100	30.5	0.5	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18
110	33.5	0.5	32	31	30	29	28	27	26	25	24	23	22	21	20	19	**18**	17
120	36.6	0.5	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
130	39.6	0.5	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15
140	42.7	0.5	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15
150	45.7	0.5	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14
160	48.8	0.5	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13
170	51.8	0.5	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13
180	54.9	0.5	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12
190	57.9	0.5	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11
200	61.0	0.5	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11
210	64.0	0.5	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10
220	67.1	0.5	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10
230	70.1	0.5	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9
240	73.1	0.5	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9
250	76.2	0.5	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8
260	79.2	0.5	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8
270	82.3	0.5	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8
280	85.3	0.5	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7
290	88.4	0.5	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7
300	91.4	0.5	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
310	94.5	0.5	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
320	97.5	0.5	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
330	100.6	0.5	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5
340	103.6	0.5	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5
350	106.7	0.5	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5
360	109.7	0.5	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4
370	112.8	0.5	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4

Architectural Coating

Noise Level Calculation Prior to Implementation of Noise Attenuation Requirements

No.	Equipment Description	Reference (dBA) 50 ft Lmax	Quantity	Usage Factor[1]	Distance to Receptor (ft)	Ground Effect	Shielding (dBA)	Calculated (dBA) Lmax	Calculated (dBA) Leq	Energy
1	Air Compressor	86	1	40	3050	0.5	0	41.4	37.4	5479.43026
							Lmax*	**41**	**Leq**	**37**
							Lw	**73**	**Lw**	**69**

Source: MD Acoustics, LLC - Sept. 2021.
1- Percentage of time that a piece of equipment is operating at full power.
dBA – A-weighted Decibels
Lmax- Maximum Level
Leq- Equivalent Level

Feet	Meters	Ground Effect	No Shielding Leq dBA	1 dBA Shielding Leq dBA	2 dBA Shielding Leq dBA	3 dBA Shielding Leq dBA	4 dBA Shielding Leq dBA	5 dBA Shielding Leq dBA	6 dBA Shielding Leq dBA	7 dBA Shielding Leq dBA	8 dBA Shielding Leq dBA	9 dBA Shielding Leq dBA	10 dBA Shielding Leq dBA	11 dBA Shielding LeqdBA	12 dBA Shielding Leq dBA	13 dBA Shielding Leq dBA	14 dBA Shielding Leq dBA	15 dBA Shielding Leq dBA
50	**15.2**	**0.5**	**37**	**36**	**35**	**34**	**33**	**32**	**31**	**30**	**29**	**28**	**27**	**26**	**25**	**24**	**23**	**22**
60	18.3	0.5	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20
70	21.3	0.5	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19
80	24.4	0.5	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
90	27.4	0.5	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
100	30.5	0.5	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15
110	33.5	0.5	29	28	27	26	25	24	23	22	21	20	19	18	17	16	**15**	14
120	36.6	0.5	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13
130	39.6	0.5	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12
140	42.7	0.5	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11
150	45.7	0.5	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10
160	48.8	0.5	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10
170	51.8	0.5	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9
180	54.9	0.5	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8
190	57.9	0.5	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8
200	61.0	0.5	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7
210	64.0	0.5	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7
220	67.1	0.5	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
230	70.1	0.5	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6
240	73.1	0.5	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5
250	76.2	0.5	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5
260	79.2	0.5	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4
270	82.3	0.5	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4
280	85.3	0.5	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4
290	88.4	0.5	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3
300	91.4	0.5	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3
310	94.5	0.5	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3
320	97.5	0.5	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2
330	100.6	0.5	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2
340	103.6	0.5	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2
350	106.7	0.5	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
360	109.7	0.5	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
370	112.8	0.5	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Appendix H-1

Wonder Inn Project Trip Generation & Vehicle Miles Traveled Screening Assessment

Ganddini Group

May 19, 2021

May 19, 2021

Mr. Karl Pfaff, Project Manager
WONDER INN JOSHUA TREE
78201 Amboy Road
Twentynine Palms, California 92277

RE: Wonder Inn Project Trip Generation & Vehicle Miles Traveled Screening Assessment
Project No. 19382

Dear Mr. Pfaff:

Ganddini Group, Inc. is pleased to provide this Trip Generation & Vehicle Miles Traveled Screening Assessment for the proposed Wonder Inn Project in the County of San Bernardino. This assessment includes a trip generation calculation for the proposed project and determines whether further Level of Service (LOS) or Vehicle Miles Traveled (VMT) analysis is necessary based on County of San Bernardino requirements. We trust the findings of this analysis will aid you and the County of San Bernardino in assessing the project.

PROJECT DESCRIPTION

The 134.6-acre project site is located at 78201 Amboy Road in the unincorporated Wonder Valley community, east of Twentynine Palms, in the County of San Bernardino, California. Comprised of six parcels, the site is bordered to the west by Via Arenosa Road and is approximately 1,500 feet from Gammel Road to the east. The project site is currently developed with an existing 4,235 commercial building formerly used as a post office.

The proposed project involves the redevelopment of the site into a unique retreat-style hotel. The proposed project involves remodeling of the existing commercial building into a lobby, construction of four new buildings to provide a total of 106 guest rooms, and construction of a variety of amenities, including a swimming pool, on-site restaurant, picnic area, event space, spa, volleyball and yoga areas, and an astronomy observation amphitheater. New building area will consist of total of approximately 34,450 square feet. The proposed site plan is shown in Attachment A.

Two existing driveways provide access from Amboy Road and will be maintained. A third driveway is proposed for Emergency Vehicle Access (EVA) located three hundred feet west of the existing east driveway.

PROJECT TRIP GENERATION

Table 1 shows the project trip generation based upon rates obtained from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (10th Edition, 2017). Based on the ITE land use description, trip generation rates for ITE Land Use Code 330 – Resort Hotel were determined to adequately represent the proposed and were selected for this analysis. The number of trips generated is determined by multiplying the land use quantity by the trip generation rates for the respective time periods.

As shown in Table 1, the proposed project is forecast to generate approximately 604 daily trips, including 34 trips during the AM peak hour and 43 trips during the PM peak hour.

Mr. Karl Pfaff, Project Manager
WONDER INN JOSHUA TREE
May 19, 2021

NEED FOR PREPARATION OF TRANSPORTATION IMPACT STUDY

A project screening assessment was performed to determine if further Level of Service (LOS) or Vehicle Miles Traveled (VMT) analysis is warranted in accordance with guidance specified in the County of San Bernardino *Transportation Impact Study Guidelines* (July 2019) ["the County guidelines"].

In accordance with provisions of the California Environmental Quality Act (CEQA), VMT is the most appropriate measure of transportation impacts under CEQA. The need for further Level of Service analysis is reviewed solely for General Plan conformance since a project's effect on automobile delay shall not constitute a significant environmental impact under CEQA.

LEVEL OF SERVICE SCREENING CRITERIA (NON-CEQA/GENERAL PLAN CONFORMITY)

As specified in the County guidelines, certain types of development proposals are generally exempt from the requirement to prepare a Level of Service transportation impact analysis, including the following:

- If a project generates more than 100 or more trips without consideration of pass-by trip reductions during any peak hour.
- If a project is located within 300 feet of intersection of two streets designated as Collector or higher on the County's General Plan circulation system or an impacted intersection as determined by the County Traffic Division.
- If the project creates safety or operational concerns.
- If a project generates less than 100 trips without consideration of pass-by trip reductions during any peak hour, a study may be required if there are special concerns.

The proposed project is forecast to generate fewer than 100 peak hour trips and is not within 300 feet of a classified roadway intersection. Assuming the project shall construct all on-site and off-site improvements (if any) in accordance with County design standards, the project would not create any new safety or operational concerns. Therefore, the proposed project does not appear to warrant preparation of a Level of Service transportation impact study based on the County-established screening criteria for Level of Service analysis.

VEHICLE MILES TRAVELED SCREENING CRITERIA (CEQA)

The VMT screening assessment has been prepared in accordance with the County guidelines, which were developed based on guidance from the Office of Planning and Research (OPR) *Technical Advisory on Evaluating Transportation Impacts in CEQA* (State of California, December 2018) ["OPR Technical Advisory"]. The County guidelines identify screening criteria for certain types of projects that typically reduce VMT and may be presumed to result in a less than significant VMT impact. No further VMT analysis is typically required for projects that satisfy one or more of the following screening criteria.

Local Serving Land Uses

As noted in the OPR Technical Advisory, a presumption of less than significant VMT impact may be appropriate for certain types of local serving projects based on their VMT-reducing nature. The County guidelines identify the following projects which serve the local community and should not be required to complete a VMT assessment:

- Local-serving retail less than 50,000 square feet
- Local-serving K-12 schools
- Local parks
- Day care centers
- Student housing projects
- Local serving community colleges (if consistent with the Regional Transportation Plan)

The proposed project land uses are not included in the list of local-serving land uses; therefore, the project does not satisfy this screening criteria.

Projects Generating Less Than 110 Daily Vehicle Trips

Based on CEQA provisions for categorical exemptions[1], the following "typical" development proposals generally correspond to 110 daily vehicle trips and may be presumed to result in a less than significant VMT impact:

- 11 single family residential dwelling units
- 16 multi-family residential dwelling units
- 10,000 square feet of office
- 15,000 square feet of light industrial
- 65,000 square feet of warehousing
- 79,000 square feet of high-cube transload and short-term storage warehouse
- 12 hotel rooms

As previously noted, the proposed project is forecast to generate approximately 604 daily trips and consists of more than 12 hotel rooms; therefore, the project does not satisfy this screening criteria.

Projects Located Within a Transit Priority Area (TPA)

As noted in CEQA Guidelines, § 15064.3, subd. (b)(1), projects within one-half mile of an existing major transit stop[2] or a stop along an existing high quality transit corridor[3] should be presumed to cause a less than significant transportation impact.

Based on review of existing transit facilities in the project vicinity, the project is not located within a transit priority area; therefore, the project does not satisfy this screening criteria.

[1] As noted in the County guidelines and OPR Technical Advisory, CEQA provides a categorical exemption for existing facilities and additions to existing structures up to 10,000 square feet so long as the project is in an area where public infrastructure is available to allow for maximum planning development and the project is not in an environmentally sensitive area (CEQA Guidelines, § 15301, subd. (e)(2).). Typical project types for which trip generation increases relatively linearly with building footprint (i.e., general office building, single tenant office building, office park, and business park) generate or attract an additional 110-124 trips per 10,000 square feet. Therefore, absent substantial evidence otherwise, it is reasonable to conclude that the addition of 110 or fewer trips could be considered not to lead to a significant impact.

[2] A major transit stop is defined as an existing rail transit station, ferry terminal with bus or rail service, or the intersection of two or more major bus routes with less than 15 minutes headways during the peak commute hours (Pub. Resources Code, § 21064.3.).

[3] Fixed route bus service with less than 15 minute headways during the peak commute hours (Pub. Resources Code, § 21155).

Projects Located within a Low VMT Area

Based on guidance from the OPR Technical Advisory, projects located in areas with low VMT relative to the region and that incorporate similar features, will tend to exhibit similarly low VMT. To verify this screening criterion, the County of San Bernardino uses the web-based San Bernardino County Transportation Authority (SBCTA) VMT Screening Tool. Based on the County-established threshold of significance, a low VMT area is defined as an area where the VMT per applicable service population does not exceed four percent (4%) below the existing VMT for the unincorporated County. Figure 1 shows the SBCTA VMT Screening Tool results for the project site.

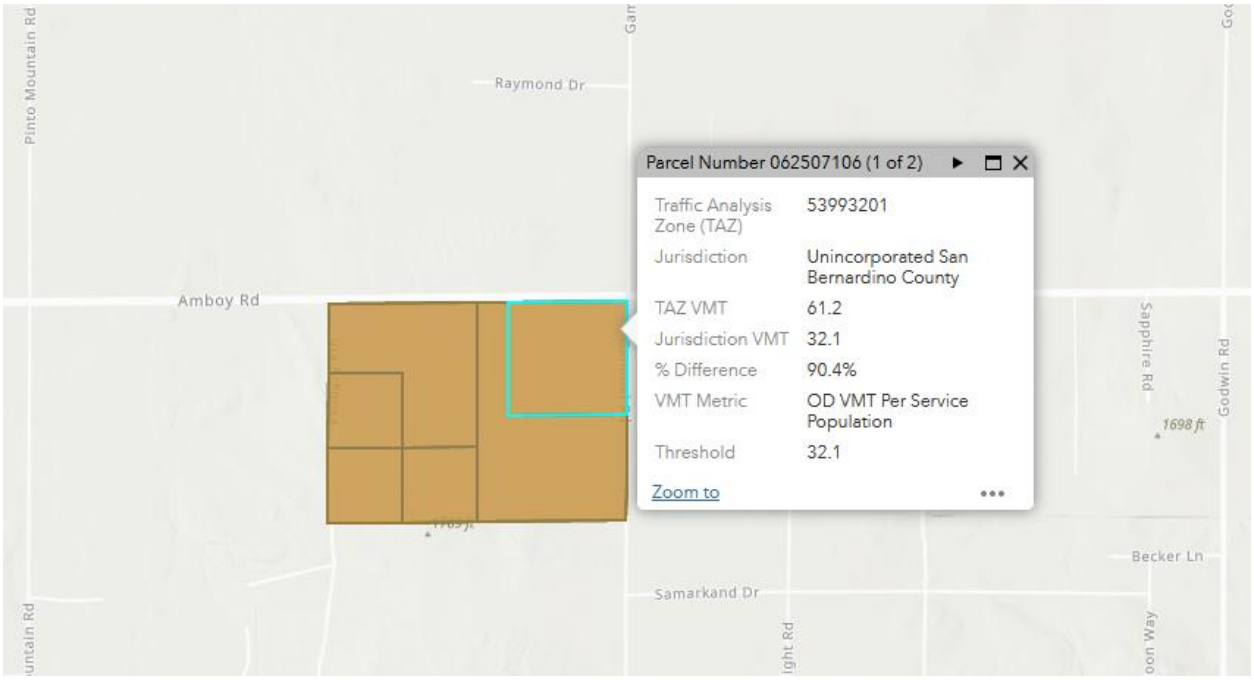


Figure 1 – SBCTA VMT Screening Tool Results

As shown on Figure 1, the proposed project is located in area that generates approximately 61.2 VMT per service population, which exceeds the County-established threshold of 30.8; therefore, the project does not satisfy this screening criteria.

Need for Further VMT Analysis

The project does not satisfy any of the County-established VMT screening criteria. Therefore, further analysis, including new model runs, appears to be necessary to determine the project's VMT impact under CEQA.

Mr. Karl Pfaff, Project Manager
WONDER INN JOSHUA TREE
May 19, 2021

CONCLUSIONS

The proposed project is forecast to generate approximately 604 daily trips, including 34 trips during the AM peak hour and 43 trips during the PM peak hour.

The proposed project does not appear to warrant preparation of a Level of Service transportation impact study based on the County-established screening criteria for Level of Service analysis.
The project does not satisfy any of the County-established VMT screening criteria. Therefore, further analysis, including new model runs, appears to be necessary to determine the project's VMT impact under CEQA.

It has been a pleasure to assist you with 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.

Sincerely,
GANDDINI GROUP, INC.



Perrie Ilercil, P.E. (AZ)
Senior Engineer

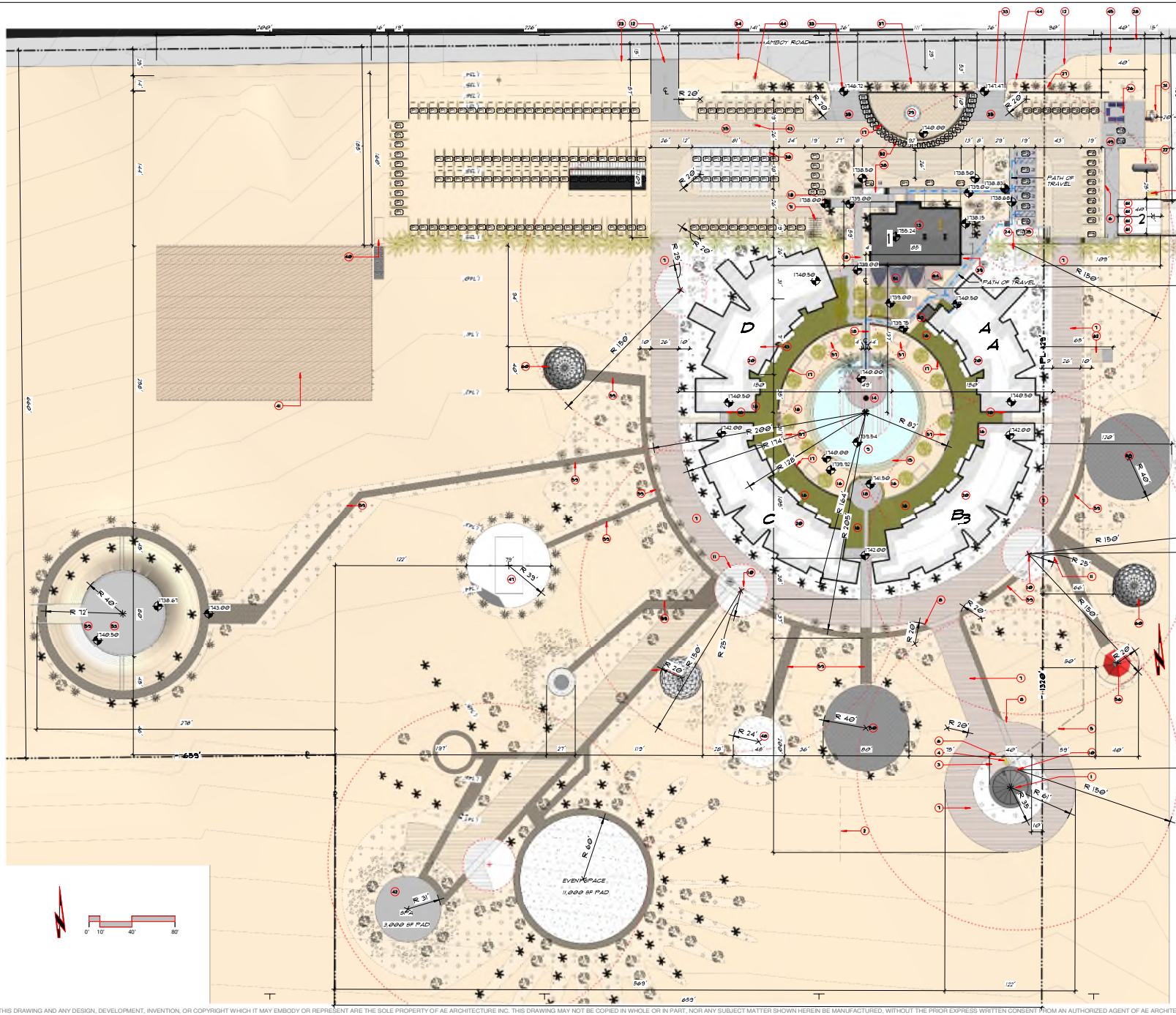




Giancarlo Ganddini, PE, PTP
Principal

ATTACHMENT A

SITE PLAN



SITE PLAN NOTES

1. 150,000 GALLON ON-SITE WATER TANK
2. EXISTING PIPE FROM WATER WELL
3. WATER PUMP
4. EMERGENCY WATERPUMP BACK-UP GENERATOR
5. NEW 6" DIA. PVC WATER PIPE WITH TRACE WIRE
6. 6' HIGH FENCE
7. 26' WIDE FIRE APPARATUS ACCESS ROAD
8. 20' RADIUS
9. SWIMMING POOL
10. ON-SITE FIRE PROTECTION WATER SYSTEM CONNECTION WITH ADJACENT BLUE REFLECTIVE MARKER
11. 25' CLEARANCE TO STRUCTURE
12. PRIMARY EMERGENCY VEHICLE ACCESS (EVA) WITH POSTED ADDRESS
13. 1 STORY, 4,235 SF GROUP A2 HOTEL LOBBY AND DINING
14. CONCRETE PAVED PATIO
15. 4' FOOT WIDE POOL DECK CONCRETE PAVING
16. DECOMPOSED GRANITE PAVING
17. 36" HIGH GABION WALL - 18" MAX RETAINING HEIGHT
18. CONCRETE HARDSCAPE
19. PHASE 2 ADMIN BUILDING
20. GROUP R-1 TYPE VB GUEST ROOM
21. EMERGENCY BACK-UP POWER PROPANE GENERATOR
22. 6500 GALLON PROPANE TANK WITH 25' CLEARANCE TO ALL BUILDINGS
23. SECONDARY EMERGENCY VEHICLE ACCESS (EVA) WITH POSTED ADDRESS
24. POST INDICATOR VALVE (PIV) AND FIRE DEPARTMENT CONNECTION (FDC)
25. TRUCK DELIVERY AREA
26. TRASH AND RECYCLING AREA
27. 150' RADIUS OF ON-SITE FIRE PROTECTION WATER SYSTEM CONNECTION
28. PROPERTY LINE
29. WATER FEATURE
30. COVERED PATIO
31. SWITCH
32. TRANSFORMER
33. EXISTING DRIVEWAY ENTRANCE WITH VEHICLE TIRE TRACKING
34. EDGE OF ROADWAY
35. GRAVELPAVED ADA & EMERGENCY VEHICLE ACCESSIBLE PARKING LOT
36. COVERED PARKING STRUCTURE WITH SOLAR PANEL
37. PREFIRE AND BUILDING IDENTIFICATION AND ADDRESSING
38. ACCESSIBLE LOADINGZONE WITH CURB RAMP
39. 4X4 CLOSET FOR FIRE ALARM CONTROL PANELS AND FIRE SPRINKLER RISER
40. SEPTIC TANK
41. LEACH FIELD TO BE DESIGNED BY OTHERS
42. SAUNA COLD PLUNGE POOL UNDER OPEN AIR GEODESCIC LATICE DOME
43. DEMO (E) POWER POLE
44. (E) POWER POLE
45. (N) UNDERGROUND POWER SERVICE FROM POLE TO NEW SWITCH AND TRANSFORMER
46. ACCESSIBLE OUTDOOR HOT TB
47. OUTDOOR BEACH VOLLYBALL
48. OUTDOOR YOGA AREA
49. PROPANE DELIVERY PARKING
50. PICNIC AREA
51. OUTDOOR DINING
52. 4' X 8' MOTORCYCLE PARKING
53. ASTRONOMY OBSERVATION AMPITHEATER - SOIL BERM SURROUNDS OBSERVATION AREA TO BLOCK OUT HOTEL LIGHT
54. AUTOMOBILE LOADING ZONE
55. OPEN AIR STEEL, GEODESCIC DOME LATICE STRUCTURE
56. SUN SHADE TENT
57. CABANA
58. 10' BUILDING SETBACK FROM FIRE ROAD
59. GRAVELPAVED ADA ACCESSIBLE PAVING
60. GEODESIC DOME GALVANIZED STEEL TRELLIS
61. SHIPPING CONTAINER STORAGE AREA
62. POOL EQUIPMENT ENCLOSURE
63. MEN AND WOMEN SINGLE OCCUPANCY POOL BATHROOMS WITH SHOWERS
64. UNCOVERED OUTDOOR BBQ AREA
71. BIKE RACK

BUILDING
FIRE APPARATUS ACCESS ROAD
CONCRETE PAVING
LEACH FIELD
GRAVELPAVED PARKING LOT
LANDSCAPING
DESERT-SCAPING
POOL

NATIVE DESERT-SCAPING

COMPOSITION OF DESERT LILLY, WILDFLOWERS, OCOTILLO, CHOLLA, CLARET CUP, BEVERTAIL

NEW JOSHUA TREE
NEW PLANT
NEW PALM
NEW CACTUS
NEW ROCKS

NEW FLOWER-LESS OLIVE TREE
NEW 4' HIGH BUSH - TBD

SITE PLAN LEGEND

AE ARCHITECTURE INC
7288 SUNSET BLVD SUITE 201
LOS ANGELES, CA 90046
323.512.3800
info@aeala.com
www.aeala.com

WONDER INN

19201 AMBOY ROAD
29 PALMS, CA

REVISIONS

NO	DATE

SCHEMATIC

12/22/2020

SCALE As indicated

LICENSED ARCHITECT
C-35218
EXP. 11-30-21
STATE OF CALIFORNIA

MASTERPLAN REVISION

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Appendix H-2

Wonder Inn Hotel Project Vehicle Miles Traveled Analysis

Environment, Planning, Development Solutions

July 15, 2021

ENVIRONMENT | PLANNING | DEVELOPMENT SOLUTIONS, INC.

Date:	July 15, 2021
Prepared by:	Meghan Macias, TE
To:	Giancarlo Ganddini, PE, PTP Ganddini Group, Inc.
Site:	Wonder Inn Hotel Project EPD Project Number 21-082
Subject:	Vehicle Miles Traveled (VMT) Analysis



This memo evaluates the potential vehicle miles traveled for the Wonder Inn project located in unincorporated San Bernardino County. The 134.6-acre project site is located at 78201 Amboy Road in the unincorporated Wonder Valley community. The project site is located east of Twentynine Palms and is approximately 11 miles from the entrance to Joshua Tree National Park. There is a 4,235 SF commercial building on the project site, which was formerly used as a post office. The project location is shown in Figure 1.

The proposed project would redevelop the site into a retreat-style hotel. The existing commercial building would be utilized as a lobby and four new buildings would provide a total of 106 guest rooms. A variety of amenities will be provided including a swimming pool, on-site restaurant, picnic area, event space, spa, volleyball and yoga areas, and an astronomy observation amphitheater. Access to the project site would be provided via two existing driveways on Amboy Road. A third driveway will be constructed for Emergency Vehicle Access (EVA) three hundred feet west of the existing east driveway.
The project site plan is shown in Figure 2.

A Trip Generation and Vehicle Miles Traveled Screening Assessment was prepared for the project by Ganddini Associates dated May 19, 2021 (attached). According to the VMT screening, the project would not satisfy any of the County VMT screening criteria. The project was therefore analyzed for VMT impacts using SBTAM. This technical memorandum summarizes the findings of the VMT analysis.

Background

Senate Bill (SB) 743 was signed by Governor Brown in 2013 and required the Governor's Office of Planning and Research (OPR) to amend the CEQA Guidelines to provide an alternative to LOS for evaluating Transportation impacts. SB743 specified that the new criteria should promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks and a diversity of land uses. The bill also specified that delay-based level of service could no longer be considered an indicator of a significant impact on the environment. In response, Section 15064.3 was added to the CEQA Guidelines beginning January 1, 2019. Section 15064.3 - Determining the Significance of Transportation Impacts states that Vehicle Miles Traveled (VMT) is the most appropriate measure of transportation impacts and provides lead agencies with the discretion to choose the most appropriate methodology and thresholds for evaluating VMT. Section 15064.3(c) states that the provisions of the section shall apply statewide beginning on July 1, 2020.

VMT Analysis Methodology

The San Bernardino County Transportation Impact Study Guidelines (July 19, 2019), provide analysis methodology and thresholds for preparation of a VMT analysis. Per the VMT guidelines, a project would be considered to have a significant impact if the project VMT per employee/person is greater than 4% below

the existing VMT per employee/person for the unincorporated County. The project would generate two types of trips that would need to be included in the VMT analysis: 1) Home-based work trips generated by project employees and 2) Visitor trips.

To evaluate the project, EPD input the project employment into the project traffic analysis Zone (TAZ 53993201) in the San Bernardino Transportation Analysis Model (SBTAM). The model was run for the base year (2016) and future year (2040) conditions. EPD evaluated the 2016 and 2040 VMT for the project TAZ using the production/attraction (PA) home-based work (HBW) trips output from with project SBTAM model runs. The model was also run for 2016 and 2040 conditions without the project. To determine the VMT threshold, VMT for unincorporated San Bernardino County zones was calculated using the production/attraction (PA) home-based work (HBW) trips output from the without project SBTAM model runs. The PA HBW trips were multiplied by the trip lengths to determine the VMT. The HBW VMT was divided by the employment (i.e. number of jobs) for the project TAZ and for unincorporated county TAZs to determine the VMT/Employee.

The Baseline 2021 VMT was calculated using linear interpolation between the 2016 and 2040 VMT. The County's threshold is based on VMT generated in the unincorporated County areas, therefore only VMT generated by TAZs in unincorporated County areas was used to determine the threshold of significance. The VMT threshold calculation is shown in Table 1.

Table 1: VMT Threshold Calculation

	2016	2040	2021	Threshold (4% below 2021)
Unincorporated VMT/Employee	23.18	25.41	23.83	22.88

Per the information provided to EPD, the proposed project would have between 20 and 30 employees. The VMT analysis is based on 30 project employees. The Project VMT/Employee was determined using interpolation between the 2016 and 2040 VMT from the SBTAM Model. Table 2 shows the project VMT/Employee calculation. As shown in Table 2, the 2021 project VMT/Employee would be 22.59, which is less than the threshold of 22.88. Therefore, the project would have a less than significant impact on VMT.

Table 2: Project VMT Impact Evaluation

	2016	2040	2021	Threshold	VMT Impact?
Project VMT/Employee	23.1	20.01	22.59	22.88	No

The project VMT/Employee of 22.59 is less than the threshold of 22.88. Therefore, the project would have a less than significant VMT impact.

Evaluation of Visitor VMT

The SBTAM model does not model visitor travel activity. Therefore, an off-model evaluation of visitor trips was prepared to determine if visitor trips would result in a significant VMT impact. The County's guidelines do not define a significant impact for visitor trips. For purposes of this analysis, a significant impact would occur if the project causes additional visitors to the area resulting in an overall increase in VMT.

Most visits to the Twentynine Palms area are to visit Joshua Tree National Park. Annual visitation to Joshua Tree National Park was approximately 2.9 million visitors in 2017, 2018 and 2019[1]. According to the City of Twentynine Palms Retail Market Study prepared May 5, 2017[2], visitation at Joshua Tree National Park is expected to grow to 4 million persons in the coming years.

When evaluating VMT of visitor serving uses, it should be determined whether the proposed project would serve an existing attraction or area or would create its own attraction that would result in an increase of visitors to the area. As noted above, visitors currently visit the Twentynine Palms area to Visit Joshua Tree National Park and are served by existing hotels in the area. According to the Retail Market Study, the average occupancy of hotels in the Twentynine Palms Area peaks at approximately 78 percent during March and has a low of approximately 50 percent during December and January. The average occupancy was 59.9 percent in 2016. Therefore, there are available rooms for visitors who wish to stay overnight in a hotel, even during peak season. Because there is hotel availability during both peak and typical times, there is not a latent demand for travel to the Twentynine Palms/Joshua Tree National Park area which cannot be accommodated by existing lodging. Therefore, the increase in lodging availability would not increase trips to the area.

The hotel would provide on-site amenities such as dining, a swimming pool, yoga, etc. There are other resorts and retreat centers in the area that provide dining, swimming and yoga/meditation retreats, therefore these amenities would not be an attraction by themselves. Rather, it is the combination of the on-site amenities and proximity to Joshua Tree National Park that will attract visitors to the project. For these reasons, the on-site amenities are not likely to attract visitors who were not previously planning a trip to the area.

Because of the existing hotel capacity and resort amenities in the Twentynine Palms area, construction of the project would not result in a significant number of new visitors to the Twentynine Palms/Joshua Tree National Park area but would instead divert existing visitors from other lodging choices. Overall VMT would not increase as a result of the project and therefore VMT impacts due to visitors would be less than significant.

Summary and Conclusions

The home-based work VMT was evaluated using the SBTAM traffic model. Home-based work trips were analyzed for 2016 and 2040 both without and with the project. Year 2021 conditions were interpolated using 2016 and 2040 data. The 2021 project VMT/Employee was calculated as 22.59 VMT/Employee, less than the calculated threshold of 22.88 VMT/Employee. Therefore the project would have a less than significant impact on home-based work VMT.

Visitor VMT was evaluated using existing hotel capacity in the Twentynine Palms/Joshua Tree National Park area. The average occupancy of hotels in the Twentynine Palms Area peaks at approximately 78 percent during March and has a low of approximately 50 percent during December and January. Because hotels in the area currently have adequate vacancy, construction of new hotel rooms would not cause additional visitor travel to the area, which is primarily driven by visitors to Joshua Tree National Park. Because the project would not induce additional travel to the area, visitor VMT impacts would be less than significant.

If you have any questions, please feel free to contact me at meghan@epdsolutions.com or at (949) 794-1186.

[1] https://www.nps.gov/jotr/learn/management/statistics.htm
[2] https://www.ci.twentynine-palms.ca.us/retailmarketstudy

Figure 1: Project Location

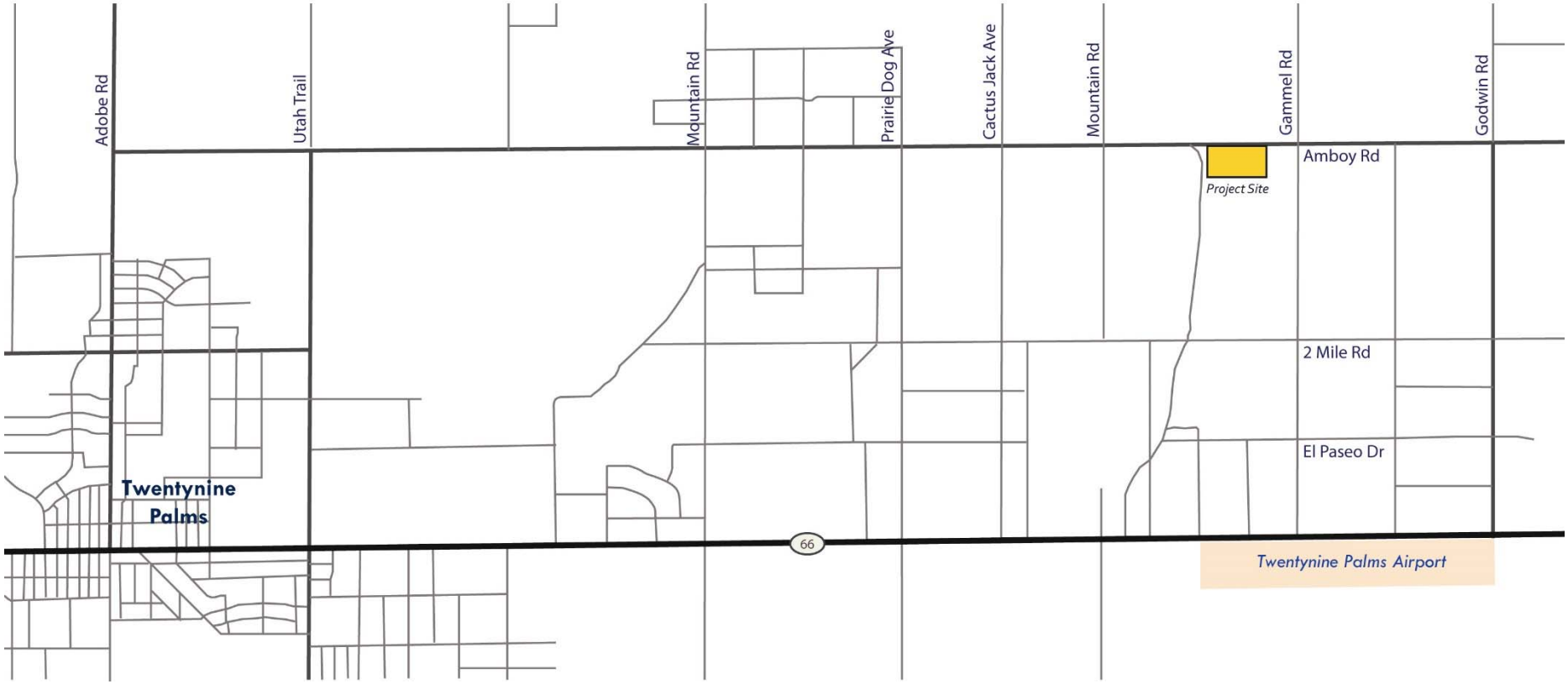


Figure 2: Project Site Plan

