INITIAL STUDY

BIG BEAR CITY COMMUNITY SERVICES DISTRICT SEWER MASTER PLAN IMPLEMENTATION PROJECT

Prepared for:

Big Bear City Community Services District
139 East Big Bear Boulevard
Big Bear City, California 92314

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July 2019

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SECTION 1 – INTRODUCTION

The Big Bear City Community Services District (District or BBCCSD) provides wastewater collection to an approximately 11.5-square mile service area which includes Big Bear City and the Sugarloaf, Moonridge, and Erwin Lake communities in the unincorporated area of San Bernardino County. In 2017, the District updated its Sewer Master Plan (SMP) to aid in the planning for future growth and ongoing maintenance of the collection system (WSC Inc., May 2017). The SMP identifies capacity constrained sewer mains, assesses lift station conditions and provides a prioritized list of recommended capital improvement projects spanning out to Fiscal Year 2035. The District currently operates under an SMP that was prepared in 2002 which provided system growth projections and projects through Fiscal Year 2021.

The 2017 SMP recommends capital improvement projects to accommodate system maintenance needs and growth projections. These projects generally include:

- Install flow monitoring devices at locations throughout the District's collection system
- Conduct lift station corrosion assessments
- Acquire additional easements for pipeline maintenance
- Replace various pipelines
- Replace and rehabilitate lift stations

Background

The District, organized in 1966, was formed through the consolidation of three districts: The Big Bear Sanitation District; the Big Bear Fire Protection District; and the Big Bear City Street Lighting District. In 1967, the shareholders of the Big Bear City Mutual Service Company voted to turn over its water system to the District. The District is governed by a 5-member Board of Directors elected at large. Daily management is carried out by the General Manager who oversees the District's staff and reports directly to the Board of Directors.

The District's service area is located in the San Bernardino Mountains in southwest San Bernardino County approximately 100 miles northeast of Los Angeles and approximately 40 miles northeast of the City of San Bernardino (Figure 1, Regional Location). The service area encompasses the unincorporated communities of Big Bear City, Sugarloaf, Moonridge and Lake Erwin. The communities are located in proximity to Big Bear Lake and situated at an elevation of approximately 6,500 feet, adjacent to and east the incorporated City of Big Bear Lake.

Big Bear Lake and the surrounding mountains offer extensive outdoor recreation opportunities, including boating, fishing, alpine skiing, mountain biking, hiking and horseback riding. The Big Bear Valley is within a two to three-hour drive from the Los Angeles and San Diego metro areas, making it a recreational destination for an estimated 20 million people a year. As such, the population on weekends can double or triple due to tourists and owners of second homes throughout the region.

The District's service area includes 11,786 residential customers, seven restaurants, six churches, four schools, and 186 businesses.

The District's collection system is comprised of approximately 114 miles of gravity sewer main, 2,842 manholes, 7 sewage lift stations, and 0.92 mile of force main (Figure 2, District Service Area). Approximately 94 percent of the system is comprised of 8-inch and 10-inch pipes.

Although not a part of the District's system, the Big Bear Area Regional Wastewater Agency (BBARWA) operates a trunk line, primarily 18 inches and 21 inches in diameter, that passes through the District's service area and collects wastewater for delivery to the BBARWA wastewater treatment plant (WSC Inc., May 2017).

Existing Conditions

The District's most recent SMP was prepared in 2002; and identified the then existing and future wastewater flow estimates, a brief analysis of system deficiencies based on hydraulic modeling results, and proposed system improvements to be implemented between 2002 and 2021. The 2002 SMP evaluated individual segments of the collection system and proposed an estimated $2.6 million budget to support projects for collection system improvements.

The SMP serves as the District's long-range planning process for ongoing operations of the collection system. The purpose of the SMP is to guide the District's planned capital project expenditures and asset management in an efficient and cost-effective manner. Specifically, objectives of the SMP include the following:

- Plan for growth expected within the District boundaries;
- Develop an accurate hydraulic model of the collection system;
- Identify existing and future system deficiencies;
- Develop a prioritized list of improvement projects, including anticipated costs, to address the deficiencies and assure capacity of the collection system balances future wastewater generation; and
- Assess the District's approach for planning, scheduling, and performing maintenance activities.

System Facilities

The District operates a series of pipes and lift stations to provide wastewater services throughout its service area as shown on Figure 3. These include the following:

Gravity Pipes and Manholes

Approximately 85 percent of the District's service area drains to the BBARWA wastewater treatment plant solely by gravity, without the assistance of lift stations. Approximately 114 miles of gravity sewer mains and 2,842 manholes constitute the gravity portion of the District's collection system, including the gravity portion upstream of each lift station. Approximately 94 percent of the system is comprised of 8-inch and 10-inch pipes. Most of the District's system pipes were installed in 1969/1970.

Lift Station and Force Mains

The District's collection system currently includes seven lift stations and 0.92 mile of force main. The seven lift stations serve approximately 15 percent of the District's collection system. Several of the lift stations receive direct flow from upstream lift stations, including the Drake Lift Station which receives flow pumped from the Shore Lift Station and the Imperial Lift Station which receives flow pumped from the Kern Lift Station. Table 1, Lift Station Summary Table, provides a summary of several operational parameters with respect to the individual lift stations.

Table 1
LIFT STATION SUMMARY TABLE

Lift Station	No. of Pumps	Pump Capacity (per pump) (gpm)	Total Dynamic Head (feet)	Horsepower per Pump (hp)
Division	2	150	25	3
Drake	2	450	54	10
Erwin	2	300	84	15
Imperial	2	300	61	7.5
Kern	2	150	42	5
Orange	2	150	56	5
Shore	2	350	26	5

Source: Big Bear City Community Service District Sewer Master Plan, Table 3-1, WSC Inc., May 2017.

System Maintenance

System maintenance activities include a system-wide closed-circuit television (CCTV) inspection every six years, Hydro cleaning every three years, and non-routine repairs. Lift station preventative maintenance includes inspections on a weekly basis. The District utilizes the infraMAP asset management system, a geospatial platform, to schedule and track maintenance activity and record field observations.

The District has eight employees, including seven maintenance staff and one office staff to support operations.

District equipment includes:

- 1 Kenworth Vactor (T880/2115) Big Hydro Truck
- 1 International Vactor (7300 4x4/2013) Small Hydro truck
- 1 4x4 CCTV truck
- 6 Heavy Duty/Medium Duty 4x4 trucks
- 1 Caterpillar (430F) Backhoe
- 1 Caterpillar (304E2) Mini Excavator
- 1 Ford Super Duty 4x4 Plow Truck
- 8 Utility trailers

Visual/CCTV Inspections
The District's CCTV inspections include a video record of the inspection and a log of the defects, such as root intrusion or grease build-up. The CCTV inspections are used to prioritize maintenance efforts and present the basis for condition assessment and planning of ongoing maintenance of the wastewater collection system.

Preventative Maintenance
The District's preventative maintenance program includes weekly inspections of lift stations and Hydro cleaning of gravity sewers every three years. Hydro cleaning is done using two large combination cleaning/vacuum trucks that employ high pressure jetting to clean pipes, clear roots, and break stoppages and powerful vacuums to extract grit, grease, and debris. While the general

interval for using Hydro trucks to clean the collection system is three years, areas identified as problematic based on previous CCTV inspections are scheduled to be cleaned on a more frequent basis such as monthly, quarterly, or annually.

Completed System Repairs

Key elements of collection system management are the performance of repairs and to address issues that are identified during CCTV inspections or cleaning. Adequate maintenance is critical to both the longevity of the wastewater collection system and the prevention of sanitary sewer overflows (SSOs). Between 1985 and 2015, the District conducted 1,575 manhole repairs and 569 sewer line repairs. Raising manholes made up half of the total 2,144 repairs, and the most common sewer line repair was repair of sewer mains, making up approximately 10 percent of the total repairs.

Data Information Management

The District also utilizes several data systems to organize and analyze physical attributes, maintenance requirements, and conditional observations associated with the wastewater collection system. These systems include:

- A geographic information system (GIS) for gravity pipes, manholes, cleanouts, lift stations, and force mains.
- The Hansen asset management system which allows the District to schedule and track routine and non-routine preventative maintenance activities with respect to the entire wastewater collection system.
- The software, infraMAP, which provides an interactive interface that uses a color-coded system to notify District staff when an individual gravity main or other asset is due for a particular maintenance activity such as Hydro cleaning, CCTV, FOG inspection, or other monthly, quarterly, and annual activities.

Existing System Flow

Three primary factors are utilized to evaluate the effective functionality of a wastewater collection system – wastewater from customer connections, infiltration from groundwater, and inflow of storm water from manhole covers and other sources.

The 2017 SMP identified the District's average annual flow (AAF) to be 0.91 million gallons per day (MGD), based on an analysis of historical monthly sewer inflow data from BBARWA between 2010 to 2014. The maximum flow was 1.8 MGD in March 2011.

Inflow is the water discharged into a sewer system and service connections from such sources as roof drains, cellar, yard and area drains, foundation drains, cooling water discharges, drains from springs and swampy areas, manhole covers, cross connections from storm sewers, catch basins, storm water, surface runoff, or drainage.

Inflow does not include infiltration which occurs when water enters a sewer system other than through inflow. Infiltration consists of water entering a sewer system and service connections from groundwater, through such means as defective pipes joints, connections, or manhole walls. Infiltration does not include inflow and is typically relatively constant over a period of days, weeks, or even months as high groundwater conditions persist. Flows typically increase during wet years, which indicate possible infiltration.

Inflow varies rapidly with rainfall conditions, with flows rising and falling in response to a storm event. Unlike infiltration, inflow cannot often be identified through monthly or annual flow data, but becomes apparent in hourly and, in some cases, daily data (WSC Inc., May 2017). To determine the inflow rates, rainfall totals and daily pump run times between October 2013 and August 2015 were reviewed for the seven lift stations. The data identified several potential signs of inflow at a number of lift stations; however, there was no strong correlation. The 2017 SMP concluded that because only 15 percent of the system is served by the lift stations, utilizing lift station data only to determine inflow rates is not representative of the system's potential for actual inflow.

Therefore, to estimate infiltration and inflow (I/I) in the District's collection system, the 2017 SMP calculated a prorated I/I flow based on the maximum day I/I identified at BBARWA in the 2010 BBARWA SMP and the percentage of flow that was received from the District's system. The District's 2017 SMP determined that the potential maximum day I/I for the District's system is 4.68 million gallons per day (MGD).

Projected System Growth

The 2017 SMP will assist the District with planning for future growth and ongoing maintenance of the collection system through Fiscal Year 2035. Historically, growth rates in the District's service area has been approximately 0.08 percent per year (WSC Inc., May 2017). For the 2017 SMP, growth rates were derived from the Southern California Association of Governments (SCAG) population projection data. The growth rates were identified to be 0.33 percent between 2015 and 2020 and 0.09 percent from 2021 to 2035.

Flow projections are based on yearly equivalent dwelling unit (EDU) counts and a gallons-per-day (GPD)/EDU flow generation factor. The EDU is approximately equal to the number of residential customers. The 2017 SMP estimated that in 2015 the District's service area contained 29,719 EDUs, but due to the tourist nature of the region, not all residences are assumed to have full time occupancy. For planning purposes, the 2017 SMP analyzed two scenarios: a 47.7 percent occupancy rate, equivalent to 14,176 EDUs; and a 75 percent occupancy rate, equivalent to 22,289 EDUs.

The trend from 2009 and 2014 identifies a decline in flow per EDU. While permanent water conservation efforts may have contributed to this decline, it can largely be attributed to the reduction in per capita water consumption that is attributed to the drought conditions that California has been experiencing over the past several years (WSC Inc., May 2017). Given the uncertainty in how long the drought will last, future flows were projected based on a flow per EDU of 90 gallons per day (gpd/EDU).

Detailed Project Description

Purpose and Need for the Project

The SMP will guide the District's planned capital project expenditures and asset management in an efficient and cost-effective manner in order to achieve the following objectives:

1. Plan for growth expected within the District boundaries;
2. Develop an accurate hydraulic model of the collection system;
3. Identify existing and future system deficiencies;

4. Develop a prioritized list of improvement projects, including anticipated costs, to address the deficiencies and assure capacity of the collection system; and
5. Assess the Districts approach for planning, scheduling, and performing maintenance activities.

Description of SMP's Covered Activities

The 2017 SMP identifies approximately 3.4 miles of pipeline that are either over capacity or would be over capacity under future conditions based on the recommended depth/Diameter (d/D) criteria (Figure 4 – Pipelines Over Capacity Under Future Conditions). Of the 3.4 miles of pipeline identified, 0.6 miles have been recommended for replacement or installation of a relief line, with monitoring of the remaining 2.8 miles. Additionally, the 2017 SMP concludes that while each lift station currently has sufficient capacity to accommodate up to the future intensified use in wet weather conditions, replacement or rehabilitation of lift station components (pumps and valves, wells) within the next 5-12 years is recommended based on physical condition and age of the lift stations.

Specifically, the proposed projects include the following:

- Install flow monitoring devices at locations throughout the BBCCSD collection system
- Conduct lift station corrosion assessments at seven locations
- Conduct an Easement Accessibility and Maintenance Study (EAMS)
- Bowles, Arbor, and Elysian Pipeline Replacement
- Alternatives Evaluation and Design of Kern Lift Station Parking Space (KLSP)
- Implementation of EAMS Recommendations
- Division Lift Station Pump Replacement
- Allowance for KLSP Recommendations
- Gildart Sewer Upgrades (Division and Rainbow Relief)
- Shore and Drake Lift Station Pump Replacements
- Sequoia and W Meadow Pipeline Replacement
- Kern, Orange, Erwin, and Imperial Lift Station Pump Replacements
- Pipeline Conditional Records Assessment
- Rehabilitation of Lift Station Wet Wells and Bypass Wells
- Rehabilitation of Lift Station Dry Wells

These projects are described in greater detail below and identified by project number on Figure 5. The proposed phasing of the recommended system improvements is shown in Table 2.

Table 2
RECOMMENDED SMP PROJECTS

Fiscal Year	CIP Project Year	Project Number[1]
2016-2017	1	1,2
2017-2018	2	3,4
2018-2019	3	5,6
2019-2020	4	7,8
2020-2021	5	9,10
2021- 2023	6-7	11,12
2023-2026	8-9	13,14
2026-2036	10-20	15

Source: BBCCSD Sewer Master Plan, Table 1-2, WSC Inc., May 2017.
Notes:
1 A number of these projects consist of an evaluation or study that would not result in a physical change to the environment. See Table 3 which identifies which CIP projects that may result in an environmental impact.

Project 1 – Flow Monitoring

Project 1 includes flow monitoring at various locations throughout the District's collection system to verify capacity in those pipelines identified as over capacity with medium to high potential for a sanitary sewer overflow (SSO) and confirming them as pipelines in need of replacement. Flow monitoring will be performed by mobilizing the District's smart cover manhole lid which measures flow and provides reporting via satellite communication, and no external power is necessary to support the smart cover manhole lids.

Although not every over capacity pipeline can be individually monitored due to accessibility of equipment, the pipelines of interest are often grouped together, in which case it is recommended that monitoring take place in the locations most representative of the group. The pipelines recommended for monitoring include those recommended for replacement or relief in Projects 4, 9, and 11.

Project 2 – Lift Station Corrosion Assessment

Based on lift station data provided by the District, the wet and dry wells currently range from 38 to 43 years of age. This project will likely consist of visual inspection, ultra-sonic thickness measurements, pit depth measurements, soil testing, and interior coating evaluations. The assessment will assist the District in determining the remaining life span of the seven lift stations' wet and dry wells and the potential extent of rehabilitation needed.

Project 3 – Easement Accessibility and Maintenance Study (EAMS)

The recommended Easement Accessibility and Maintenance Study is an effort to assist the District with improving accessibility, through acquisition of easements, along approximately 1.5 miles of pipeline stretching from Sugar Pine Road to Travertine Road and Fenway Drive in the community of Moonridge, as shown in Figure 6 – Project 6 – Moonridge Area Facilities. Currently, access to most of this pipeline is restricted, posing difficulties for District staff in the event of an SSO or if maintenance is needed. The study would likely include investigation of property ownership and title reports, surveying efforts, preparation of legal descriptions and

exhibits for easements, evaluation of constraints, preparation of a recommendations report, and coordination to secure an easement.

Project 4 – Bowles, Arbor, and Elysian Pipeline Replacement

This project includes the replacement of approximately 857 feet of 8-inch diameter pipeline with 12-inch diameter pipe, dispersed over three locations in the community Big Bear City. All pipelines are located within existing, paved roadways as follows:

- Bowles Street - replace a 98-foot long pipe segment with a slope of 0.0026 that is at 88 percent capacity under existing conditions and projected 90 percent under future conditions

- Arbor Lane – replace a 284-foot stretch along Arbor Lane, between Sequoia Drive and Mt. Doble Drive, that is below 90 percent capacity under both existing and future conditions

- Elysian Boulevard – Replace the 237-foot pipeline from the intersection at North Shore Drive to the eastern terminus of Elysian Blvd. Approximately 84 feet of this pipeline is at 92 percent capacity under both existing and future conditions, while the remaining 391 feet is at 75 percent capacity

The pipelines will be replaced via open trench excavation. Existing pipe will be removed or abandoned in place. The anticipated construction schedule is 4 to 6 months, but because the project is linear work, it will be continuously moving along the three streets, so that individual residents will not be adversely affected for the entirety of the construction schedule, but rather only a few weeks. Pipelines to be replaced are located within residential neighborhoods. Temporary traffic control measures will be installed to maintain drive access during construction. Traffic control may include the temporary closure of a travel lane in one direction with traffic flow alternating through the open lane; a flag person may also be utilized. Figure 7 identifies the locations for Project 4.

Project 5 – Alternatives Evaluation and Design of Kern Lift Station Parking Space (KLSPS)

The Kern Lift Station is located in the community of Sugarloaf, on the north side of Kern Avenue (Figure 8). Unlike all other lift stations throughout the District's collection system, the Kern Lift Station does not contain a designated parking space for maintenance trucks, which in turn forces District staff to temporarily park in the residential road. This becomes an obstruction to oncoming traffic but more importantly, makes it difficult to perform maintenance activities when larger or more equipment is needed. This project would likely include investigation into property ownership and title reports, surveying efforts, a feasibility and alternatives evaluation, and preparation of a complete Plans, Specifications, and Estimates (PS&E) package.

Project 6 – Allowance for EAMS Recommendations - Moonridge

Project 6 is the implementation of Project 3, the Easement Accessibility and Maintenance Study for a pipeline located in the Moonridge area. This project will allow the District to move forward with the action detailed in the recommendations report to acquire the necessary easements and construct/maintain an access road along the pipeline route. The facilities are identified on Figure 6.

Project 7 – Division Lift Station Pump Replacement

The Division Lift Station is located on Division Drive in the community of Big Bear City (Figure 9). The District has indicated that this lift station is the most difficult to maintain out of the seven lift

stations. Specifically, the existing Division pumps commonly have difficulties priming. Project 7 includes the replacement of the pumps and valves at this lift station.

Pumps and valves within the building will be replaced by hand. Existing pumps, valves, and materials removed will be recycled or disposed of appropriately. Construction equipment may be mobilized on-site to construct a new bypass vault within the property fence line. Construction may also occur outside of the fence line to remove and replace valves within the existing bypass well with straight pipe. The anticipated construction schedule is 4 to 6 months.

Project 8 – Allowance for KLSP Recommendations

The Kern Lift Station is located at 44378 Baldwin Drive, at the intersection of Kern Avenue. It is located on a gentle downslope, but lacks off-street parking.

Project 8 is the implementation of Project 5, the Alternatives Evaluation and Design of the Kern Lift Station Parking Space. This project will allow the District to move forward with the parking space design identified in Project 5. This includes the construction bid process and construction of the paved parking space. The Kern Lift Station is identified on Figure 8.

Project 9 – Gildart Sewer Upgrades (Division and Rainbow Relief)

Project 9 includes the installation of a new 12-inch diameter sewer main extending approximately 950 feet down Gildart Drive, from Rainbow Boulevard to West Aeroplane Boulevard (Figure 10). This Project will relieve the capacity constrained Division Drive and Rainbow Boulevard pipelines by intercepting the flow upstream and directing a percentage down the new Gildart Drive pipeline. All six segments that make up the Division Drive portion of this Project are categorized as over-capacity under existing and future conditions. Four of the six Division pipeline segments, in addition to two of the three Rainbow pipeline segments, are estimated to be at 100 percent capacity under future conditions.

Project 9 also includes the replacement of 564 feet of pipeline within Gildart Drive, between Mountain Lane and Rainbow Boulevard (Figure 10). The replacement will occur over the course of three consecutive pipe segments and will involve upgrading 10- and 12-inch diameter pipeline to 15- and 18-inch pipe, respectively. Of these three pipe segments, only one is over capacity under existing conditions. Under future conditions, all three pipelines would be over capacity because currently they are at 75 percent and 80 percent capacity.

The pipelines will be replaced via open trench excavation. Existing sewer pipelines to be replaced will be removed or abandoned in place. The anticipated construction schedule is 4 to 6 months, but because the project is linear work, it will be continuously moving along Gildart Drive, so that individual residents will not be adversely affected for the entirety of the construction schedule, but rather only a few weeks. Temporary traffic control measures will be installed to maintain drive access during construction. Traffic control may include the temporary closure of a travel lane in one direction with traffic flow alternating through the open lane; a flag person may also be utilized.

Project 10 – Shore and Drake Lift Station Pump Replacements

The Shore and Drake Lift Station are located in the community of Big Bear City (Figure 11). Installed in 1973, the Shore and Drake Lift Station pumps and valves are nearing the end of their design life. The two pump rebuild projects completed in 1996 assisted with prolonging the life span of the pumps at each lift station, however, Project 10 will replace the pumps and valves by 2023 when the pumps reach fifty (50) years of age.

Pumps and valves within the building will be replaced by hand. Existing pumps, valves, and material removed will be recycled or disposed of appropriately. The anticipated construction schedule is 4 to 6 months.

Project 11 – Sequoia and West Meadow Pipeline Replacement

Project 11 (Figure 12) includes the replacement of two 8-inch diameter pipe segments, totaling approximately 398 feet, with 10- and 12-inch pipe. The pipeline to be replaced with 10-inch diameter pipe extends south down Sequoia Drive, 355 feet from Arbor Lane. This pipeline exceeds the capacity criteria in both scenarios reaching 77 percent capacity under existing conditions and 80 percent capacity under future conditions. The second pipe, to be replaced with 12-inch diameter, extends 43 feet along West Meadow Drive at the crossing of Greenway Drive. This relatively short segment of pipe has a very gradual slope of 0.0019 resulting in a future pipeline capacity utilization of 75 percent.

Pumps and valves within building will be replaced by hand. Existing pumps, valves, and material removed will be recycled or disposed of appropriately. The anticipated construction schedule is 4 to 6 months, but because the project is linear work will be continuous moving along Sequoia Drive and West Meadow Drive, so that individual residents will not be adversely affected for the entirety of the construction schedule, but rather only a few weeks. Temporary traffic control measures will be installed to maintain drive access during construction. Traffic control may include the temporary closure of a travel lane in one direction with traffic flow alternating through the open lane; a flag person may also be utilized.

Project 12– Kern, Orange, Erwin, and Imperial Lift Station Pump Replacements

Project 12 includes the replacement of the pumps and valves at the Kern, Orange, and Imperial Lift Stations located in the community of Sugarloaf and at the Erwin Lift Station located in the community of Erwin Lake. As of 2016, the Kern, Orange, and Imperial Lift Stations are 40 years of age while the Erwin Lift Station is 38 years old. As with the Shore and Drake Lift Stations, all lift station pumps included in this project were rebuilt in the mid-1990s, and the pumps should be replaced between 2023 and 2026. Additionally, the District may consider upgrading to the Xpeller impellers for the Orange, Erwin, and Imperial lift stations.

Pumps and valves within each building will be replaced by hand. Existing pumps, valves, and material removed will be recycled or disposed of appropriately. The anticipated construction schedule is 4 to 6 months. The locations for Project 12 are shown on Figure 13.

Project 13 – Pipeline Conditional Records Assessment

The recommended Pipeline Conditional Records Assessment is an effort to assist the District in assessing the condition of the collection system gravity mains upon generating 8-10 years' worth of observation and maintenance data utilizing the District's newly acquired infraMAP software. These data will allow for the production of trends and a conditional rating system allowing the District to identify areas of aging or damaged infrastructure and assign them priority ratings for replacement or maintenance.

Project 14 – Rehabilitation of Lift Station Wet Wells and Bypass Wells

Project 14 involves rehabilitating the lift station's wet wells and bypass wells based on the findings of the Lift Station Corrosion Assessment (Project 2). This project may be implemented at all seven lift stations.

Rehabilitation will primarily consist of cementitious repair including grout placement for void fill and the addition of a monolithic lining. Project 14 will likely include the mobilization of a concrete mixer truck and spray application. The anticipated construction schedule is 2 to 5 months.

Project 15 – Rehabilitation of Lift Station Dry Wells

Similar to Project 14, Project 15 includes the necessary rehabilitation of dry wells at each lift station in response to the results of the corrosion assessment completed in Project 2. Project 15 may occur at all seven lift stations. Rehabilitation will likely include the application of a protective coating, such as modified epoxy paint, to the interior walls of the wells. Additional rehabilitation may include replacement of the sacrificial anodes and upgrades to the cathodic protection system for the wet well.

SECTION 2 – REGULATORY FRAMEWORK

The District has determined that implementation of the 2017 Sewer Master Plan projects meets the California Environmental Quality Act (CEQA) Guidelines Section 15378 definition of a project. CEQA Guidelines Section 15378 defines a Project as the following:

(a) "Project" means the whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment.

In accordance with CEQA (Public Resources Code Sections 21000-21177) and the State CEQA Guidelines, this Initial Study has been prepared to determine whether implementation of the proposed 2017 Sewer Master Plan that would result from the construction, operation and maintenance of the District's sewer system may have the potential to cause significant impacts on the environment. In accordance with Section 15063 of the State CEQA Guidelines, this Initial Study is a preliminary analysis prepared by the Big Bear City Community Service District, acting as Lead Agency to inform decision makers, other affected agencies, and the public of potential environmental impacts associated with the implementation of the proposed 2017 Sewer Maser Plan.

Organization of the Initial Study

The Initial Study is organized as follows:

Introduction: Provides the regulatory context for the review including a brief summary of the CEQA process.

Project Information: Provides fundamental Project information, such as the Project description and Project location, described in text and figures.

Lead Agency Determination: Identifies environmental factors potentially affected by the Project and identifies the Lead Agency's determination based on the initial evaluation.

Mitigated Negative Declaration: Prepared when a determination can be made that no significant environmental effects will occur because revisions to the Project have been made or mitigation measures will be implemented which will reduce all potentially significant impacts to less than significant levels.

Mitigation Measures: Identifies objectives, criteria, and specific procedures to administer the District's responsibilities under CEQA.

Evaluating Environmental Impacts: Provides the parameters the District uses when determining the level of impact.

CEQA Checklist: A series of questions by environmental topic, with responses based on the analysis of the proposed Project for each environmental issue.

References: Includes a list of references and various resources utilized in preparing the analysis.

SECTION 3 – ENVIRONMENTAL CHECKLIST FORM

1. Project Title: Big Bear City Community Services District
   Sewer Master Plan Implementation

2. Lead Agency Name: Big Bear Community Services District
   Address: 139 E. Big Bear Boulevard, Big Bear City, CA 92314

3. Contact Person: Nathan Zamorano, Sewer Department Superintendent
   Phone Number: (909) 584-4007

4. Project Location: Big Bear City
   Topographic Quad (USGS 7.5'): Big Bear City
   Topographic Quad Coordinates: Sections 11-15 & 20, T2N, R1E
   Topographic Quad: (USGS 7.5'): Moonridge
   Topographic Quad Coordinates: Section 22-24, T2N, R1E
   Latitude: 34.430006 N general
   Longitude: 116.838792WW

5. Project Sponsor's Name and Address: Big Bear Community Services District
   139 E. Big Bear Boulevard, Big Bear City, CA 92314

6. General Plan Designation: N/A

7. Zoning Classification: N/A

8. Project Description:

The Big Bear City Community Services District (District or BBCCSD) proposes to undertake 15 capital improvement projects throughout its service area over the next 17 to 20 years as identified in its updated Sewer Master Plan (SMP). Projects generally include installing flow monitoring devices, conducting various assessments, replacement of various pipelines, replacement of various lift stations, and various easement acquisitions to conduct maintenance on existing facilities.

The District provides wastewater collection to an approximately 11.5-square mile service area which includes Big Bear City and the Sugarloaf, Moonridge, and Erwin Lake communities in the unincorporated area of San Bernardino County. In 2017, the District updated its SMP to aid in the planning for future growth and ongoing maintenance of the collection system (WSC, Inc., May 2017). The SMP identifies capacity constrained sewer mains, assesses lift station conditions and provides a prioritized list of recommended capital improvement projects spanning out to Fiscal Year 2035. The District currently operates under an SMP that was prepared in 2002 which provided system growth projections and projects through Fiscal Year 2021.

A detailed Project Description is provided in Section 1 of this document.

The 15 projects that are the subject of this environmental evaluation can be placed in three categories: (1) Study/Monitoring Only (no physical change to the environment); (2) minimal impacts associated with the replacement of pumps and valves or well rehabilitation within the existing lift stations; or (3) the replacement of sewer pipelines or the development of a new access

road to an existing pipeline. Table 3 shows each project within its respective category from the preparation of a study or a monitoring project with no physical change to the environment, to the replacement of sewer pipelines where impacts including soil disturbance, air emissions, excessive noise, etc. could occur.

Table 3
PROJECT CATEGORIES

Study/Monitoring Only (No Change to the Environment)		**Replacement or Rehabilitation of Existing Facilities (Minimal Impacts)**		**Replacement of Pipelines or Development of Additional Access Easement (Physical Changes to the Environment)**	
No.	**Project**	**No.**	**Project**	**No.**	**Project**
1	Flow Monitoring	7	Division Lift Station Pump Replacement	4	Bowles, Arbor, and Elysian Pipeline Replacement
2	Lift Station Corrosion Assessment	10	Shore and Drake Lift Station Pump Replacements	6	Allowance for Easement Accessibility Maintenance Study Recommendations (Moonridge area facilities)
3	Easement Accessibility and Maintenance Study (EASM)	12	Kern, Orange, Erwin and Imperial Lift Station Pump Replacements	8	Allowance for Kern Lift Parking Space Recommendations (Kern Lift Station Parking Lot)
5	Alternative Evaluation and Design of the Kern Lift Station Parking Space (KLPS)	14	Rehabilitation of Lift Station Wet Wells and Bypass Wells	9	Gildart Sewer Upgrades (Division and Rainbow Relief)
13	Pipeline Conditional Records Assessment	15	Rehabilitation of Lift Station Dry Wells	11	Sequoia and W Meadow Pipeline Replacement

Source: BBCCSD District Sewer Master Plan, Section 10, Recommended Projects, WSC Inc., May 2017.

9. Surrounding land uses and setting (Briefly describe the project's surroundings):

The District's service area is approximately 11.5 square miles encompassing the unincorporated communities of Big Bear City, Sugarloaf, Moonridge and Erwin Lake, which are characterized as mountain communities that are largely single family residential with a commercial area generally along Big Bear Blvd. Most of the project facilities will be installed within existing rights-of-way (ROW). A mix of urban, suburban, and open space uses border these ROWs within the community of Big Bear City and the surrounding area served by the Community Services District.

10. Lead Agency Discretionary Actions:

Discretionary actions that may be taken by the Lead Agency include, but are not limited to, the following:

- Funding of the various project categories in Table 3 for implementation.

11. Other agencies whose approval is required (e.g., permits, financing approval, or participation agreement):

    - Work within City/County limits. The project area is located entirely within the unincorporated communities of Big Bear City, Sugarloaf, Moonridge and Erwin Lake community of Big Bear City, in San Bernardino County. However, because the District is also a public agency, not subject to the County jurisdiction, no County permits are required other than encroachment permits when conducting activities within County owned property or easements.

    - Construction Compliance – Stormwater Discharge. Construction projects that disturb 1 acre of land or more are required to obtain coverage under the NPDES General Permit for Construction Activities (General Construction Permit), which requires the applicant to file a notice of intent (NOI) to discharge stormwater and to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP includes an overview of the Best Management Practices (BMPs) that would be implemented to prevent soil erosion and discharge of other construction-related pollutants that could contaminate nearby water resources. The District will prepare a SWPPP for the project if the disturbance area exceeds 1 acre.

    - There is a low probability of conducting activities that will adversely impact stream channels or endangered species, but if such effects will occur, the District will obtain regulatory permits from the appropriate agencies such as the U.S. Army Corps of Engineers, Regional Water Quality Control Board, California Department of Fish and Wildlife, and U.S. Fish and Wildlife Service.

12. Have California Native American tribes traditionally and cultural affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, has consultation begun?

    Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code section 21083.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3(c) contains provisions specific to confidentiality.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Energy
☐ Geology / Soils	☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials
☐ Hydrology & Water Quality	☐ Land Use / Planning	☐ Mineral Resources
☐ Noise	☐ Population / Housing	☐ Public Services
☐ Recreation	☐ Transportation	☐ Tribal Cultural Resources
☐ Utilities / Service Systems	☐ Wildfire	☐ Mandatory Findings of Significance

DETERMINATION (To be completed by the Lead Agency)

On the basis of this initial evaluation, the following finding is made:

☐	The proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
☐	Although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
☐	The proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
☐	The proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
☐	Although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Tom Dodson & Associates
Prepared by

Date

Lead Agency (signature)
Big Bear City Community Services District

7-22-19
Date

EVALUATION OF ENVIRONMENTAL IMPACTS:

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

   a) Earlier Analysis Used. Identify and state where they are available for review.
   b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
   c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:

   a) the significance criteria or threshold, if any, used to evaluate each question; and
   b) the mitigation measure identified, if any, to reduce the impact to less than significance.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
I. AESTHETICS: Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning or other regulations governing scenic quality?	☐	☐	☐	☒
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

SUBSTANTIATION

Environmental Setting

The District's service area encompasses approximately 11.5 square miles within developed portions of the unincorporated communities of Big Bear City, Moonridge and Sugarloaf. Figure 2 identifies the District's service area. Sewer pipelines, lift stations and related infrastructure already exist within the service area.

Impact Analysis

As identified in Table , of the 15 projects that are the subject if this environmental analysis, five projects (1, 2, 3, 5 and 13 would not result in a physical change to the environment because the projects are either studies or assessments of existing conditions to determine the best course of action to take to address an issue; five projects (7, 10, 12, 14, and 15) would result in the replacement or rehabilitation of the District's existing pumps, valves and wells within the existing Lift Station sites, with no additional site disturbance anticipated; four projects (4, 8, 9, and 11) would result in the replacement of existing sewer pipelines where the District would be required to trench, stockpile and access the pipeline within existing roads or shoulders. Project 6, requires the development of a new access road within easements (identified in Project 3) along a 1.5-mile length of an existing pipeline in the community of Moonridge.

a) Have a substantial adverse effect on a scenic vista?

No Impact – The CEQA Guidelines do not provide a definition of what constitutes a "scenic vista" or "scenic resource" or a reference as to from what vantage point(s) the scenic vista and/or resource, if any, should be observed. However, a scenic vista can generally be defined as a viewpoint from a public vantage point that provides expansive views of a highly-valued landscape for the benefit of the general public. Common examples include undeveloped hillsides, ridgelines, and open space areas that provide a unifying visual backdrop to a developed area. Scenic resources are those landscape patterns and features that are visually or aesthetically pleasing and that contribute affirmatively to the definition of a distinct community or region such as trees, rock outcroppings, and historic buildings.

As stated above, sewer pipelines, lift stations and related infrastructure already exist within the Service Area. Projects 1, 2, 3, 5, and 13 would not result in a change in the physical environment therefore, imple-

mentation has no potential to result in a substantial adverse effect on a scenic vista. Likewise, the replacement of pumps and valves, and the rehabilitation of wells within the confines of the District's lift station sites would not result in a substantial adverse effect on a scenic vista because no new structures are proposed.

Finally, the proposed projects that would require ground disturbance will be completed at or below grade; either underground replacement of pipelines or the development of vehicle access along the existing 1.5 miles of pipeline in the Moonridge area. Upon completion of the proposed improvements, none of the projects would substantially alter the existing visual character of the communities. Therefore, the projects identified in the District's Sewer Master Plan would not have a substantial adverse effect on a scenic vista.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact – There is no State scenic highway within the District's service area, however, the County of San Bernardino has designated State Route 38 between Yucaipa and Big Bear City as a scenic highway. Therefore, the proposed projects will not damage any scenic resources within or adjacent a scenic State highway.

Regarding the status of State Route 38 as a County designated scenic highway, none of the District's proposed projects are located within or near State Route 38. Therefore, no impact to a designated scenic highway would occur.

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning or other regulations governing scenic quality?

No impact – As described in response I.b, sewer pipelines, lift stations and related infrastructure already exist within the Service Area. Projects 1, 2, 3, 5, and 13 consist of studies or monitoring tasks that would not result in a change in the physical environment. Likewise, the replacement of pumps and valves, and the rehabilitation of wells within the confines of the District's lift station sites would not alter the existing visual character or quality in the vicinity of the lift stations because no new structures are proposed. Finally, the proposed projects that would require ground disturbance will be completed at or below grade; either underground replacement of pipelines or the development of vehicle access at ground level along the existing 1.5 miles of pipeline in the Moonridge area. Upon completion of the proposed improvements, none of the projects would substantially degrade the existing visual character of the communities or open space areas. Therefore, the projects identified in the District's Sewer Master Plan would not substantially degrade the existing visual character or quality of the facility sites or surrounding areas.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

No Impact – The District is not proposing to install lighting, and all temporary construction work will be conducted during the daytime hours. Therefore, there will be no impact.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
II. AGRICULTURE AND FORESTRY RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☒	☐
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☒	☐
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

SUBSTANTIATION

Environmental Setting

The District's service area encompasses approximately 11.5 square miles within developed portions of the unincorporated communities of Big Bear City, Lake Erwin and Sugarloaf. Only Project 6 is located within a relatively undeveloped area in the community of Moonridge in a forested area (Figure 6). Sewer pipelines, lift stations and related infrastructure already exist within the Service Area.

Farmland
The San Bernardino Mountain area of San Bernardino County has not been mapped by the California Department of Conservation in its Farmland Mapping and Monitoring Program. The area is identified as Other Land, land that is not included in any other mapping category. Land uses within this category may include low density rural development, brush/timbre/wetland/riparian areas, areas not suitable for

agriculture and urban development. The areas in which the proposed SMP projects are proposed are largely residential areas. There are no commercial agricultural activities anywhere in the Big Bear Valley.

Forest Land
The District's service area is located within the boundary of the San Bernardino National Forest. However, most of the projects proposed under the District's SMP would all be implemented largely on private land within areas designated for residential use and where residences are located adjacent to or in the immediate vicinity of this infrastructure such that timberland production on National Forest land would not be affected.

Impact Analysis

a) Convert Prime Farmland, Unique Farmland or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No Impact – The District's service area encompasses a largely residential area in the communities of Big Bear City, Sugarloaf, Moonridge and Lake Erwin and no sites designated for Prime or Unique farmland or Farmland of Statewide Importance has been identified (California Department of Conservation, Farmland Mapping and Monitoring Program accessed June 8, 2018) in Big Bear Valley. Therefore, implementation of the proposed SMP projects has no potential to adversely affect farmland.

b) Conflict with existing zoning for agricultural use or a Williamson Act contract?

No Impact – As discussed above, the District's service area encompasses a largely residential area. There are no sites in agricultural production in the Big Bear Valley, so there are no parcels under a Williamson Act contract. Therefore, implementation of the proposed SMP projects has no potential to adversely affect farmland under a Williamson Act contract.

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

Less Than Significant Impact – Forest land is defined in Public Resources Code section 12220(g) as "land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits." The District's service area encompasses a largely residential area in the communities of Big Bear City, Sugarloaf, Moonridge and Lake Erwin. Bear Valley Community Plan zoning designations range from Single Residential (BV RS) to Rural Living with minimum lots size of 20 acres (BV RL-20). Portions of this private land do support "forest land." However, the SMP proposed projects will affect only existing facilities and with the exception of the proposed access road in the Moonridge area will not affect any existing forest land. Some trees may need to be removed as part of creating the access road, but the net loss can be considered a thinning of the forest adjacent to the underground sewer line to protect this infrastructure. Therefore, implementation of the proposed projects would not conflict with existing zoning for, or cause rezoning of forest land, timberland, or timberland zoned Timberland Production. A less than significant impact is identified.

d) Result in the loss of forest land or conversion of forest land to non-forest use?

Less Than Significant Impact – As discussed in II.c above, the District's service area encompasses a largely residential area in the communities of Big Bear City, Sugarloaf, Moonridge and Lake Erwin. Implementation of the proposed projects includes the removal of limited areas of forest land or conversion of forest land to non-forest use, i.e., an access road along sewer infrastructure where a limited number of trees may be removed.

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

No Impact – As discussed above in II.a through II.d, implementation of the District's proposed projects would not result in the conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use. The property where tree removal will occur is assigned for residential and other urban/suburban uses, not to permanent forest preservation. Therefore, there is no impact from the potential loss of some trees in support of the proposed project.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

SUBSTANTIATION: Refer to the air quality and greenhouse gas technical study in Appendix 1, titled "*Air Quality and GHG Impact Analysis, Big Bear City Community Services District Sewer Master PIan Project, Big Bear, California*" prepared by Giroux & Associates dated July 5, 2018.

Environmental Setting

The project area is in the San Bernardino Mountains. The area is characterized by an alpine climate, with substantial winter precipitation in the form of winter snow because of its high elevation. Snowfall, as measured at lake level, averages 61.8 inches each year (although upwards of 100 inches can accumulate on the forested ridges bordering the lake, above 8,000 feet). Snow has fallen in every month except July and August. There are normally 16.5 days each year with measurable snow (0.1 inch or more).

On average, the Bear Valley area receives approximately 24 inches of precipitation per year, with a sharp transition between the western edge of the Valley at the dam and the eastern edge at Baldwin Lake. Historical precipitation consists of both rainfall and snowfall, Within the Big Bear watershed, the precipitation varies with location. The west end of the lake, at the Big Bear dam, receives 24 inches per year.

Daily temperatures in the summer are from 60°F to 70°F. Temperatures in the winter average approximately 35°F to 40°F. According to the National Weather Service, the warmest month at Big Bear is July, when the average high is 80.7°F and the average low is 47.1°F. The coolest month is January, with an average high of 47.1°F and an average low of 20.7°F. There is an average of 1.2 days each year with highs of 90°F or higher. The highest temperature recorded at Big Bear was 94°F last recorded on July 15, 1998. The record lowest temperature was -25°F on January 29, 1979.

Table 4
AMBIENT AIR QUALITY STANDARDS

Pollutant	Average Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O3)	1 Hour	0.09 ppm (180 µg/m3)	Ultraviolet Photometry	–	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m3)		0.070 ppm (137 µg/m3)		
Respirable Particulate Matter (PM10)	24 Hour	50 µg/m3	Gravimetric or Beta Attenuation	150 µg/m3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m3		–		
Fine Particulate Matter (PM2.5)	24 Hour	–	–	35 µg/m3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m3	Gravimetric or Beta Attenuation	15 µg/m3		
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m3)	–	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9 ppm (10 mg/m3)		9 ppm (10 mg/m3)	–	
	8 Hour (Lake Tahoe)	6 ppm (7 g/m3)		–	–	
Nitrogen Dioxide (NO2) [8]	1 Hour	0.18 ppm (339 µg/m3)	Gas Phase Chemiluminescence	100 ppb (118 pg/m3)	–	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m3)		0.053 ppm (100 µg/m3)	Same as Primary Standard	
Sulfur Dioxide (SO2) [9]	1 Hour	0.25 ppm (655 µg/m3)	Ultraviolet Fluorescence	75 ppb (196 pg/m3)	–	Ultraviolet Flourescense; Spectrophotometry (Paraosaniline Method)
	3 Hour	–		–	0.5 ppm (1300 µg/m3)	
	24 Hour	0.04 ppm (105 µg/m3)		0.14 ppm (for certain areas) [9]	–	
	Annual Arithmetic Mean	–		0.030 ppm (for certain areas) [9]	–	
Lead 8 [10,11]	30-Day Average	1.5 µg/m3	Atomic Absorption	–	–	–
	Calendar Quarter	–		1.5 µg/m3 (for certain areas) [11]	Same as Primary Standard	High Volume Sampler and Atomic Absorption
	Rolling 3-Month Avg	–		0.15 µg/m3)		
Visibility Reducing Particles [12]	8 Hour	See footnote 12	Beta Attenuation and Transmittance through Filter Tape	**No Federal Standards**		
Sulfates	24 Hour	25 µg/m3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m3)	Ultraviolet Fluorescence			
Vinyl Chloride [10]	24 Hour	0.01 ppm (26 µg/m3)	Gas Chromatography			

Footnotes

1 California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended 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 averages or 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 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 3 years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current federal policies.

3 Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25̊C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25̊C 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 procedure 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 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 EPA.

8 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.

9 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.

10 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.

11 The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 j.tg/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.

12 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.

In order to gauge the significance of the air quality impacts of the proposed project, those impacts, together with existing background air quality levels, must be compared to the applicable ambient air quality standards. These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect those people most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise, called "sensitive receptors." Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed. Recent research has shown, however, that chronic exposure to ozone (the primary ingredient in photochemical smog) may lead to adverse respiratory health even at concentrations close to the ambient standard. Health effects of the major air pollutants (criteria pollutants) are summarized in Table 5. For more detail on the air quality standards and current policies refer to the detailed study in Appendix 1.

Baseline Air Quality

Existing and probable future levels of air quality in the project area can be best inferred from ambient air quality measurements conducted by the SCAQMD. The data resource in closest proximity to the project site is the Big Bear City Monitoring Station. However, this station only monitors small particulates (PM-2.5). The closest available data for ozone and large particulates (PM-10) is the Crestline Monitoring Station. Data for carbon monoxide and nitrogen oxide were obtained from the San Bernardino 4th Street Monitoring Station. Summary data compiled from these resources is provided in Table 6. Findings are summarized below:

Photochemical smog (ozone) levels frequently exceed standards at Crestline. The 8-hour state ozone standard has been exceeded an average of 26 percent of all days in the past four years near the project site while the 1-hour state standard has been violated an average of 14 percent of all days. While ozone levels are still high, they are much lower than 10 to 20 years ago.

Measurements of carbon monoxide have shown very low baseline levels in comparison to the most stringent one- and eight-hour standards.

Respirable dust (PM-10) levels very rarely exceed the state or federal standard PM-10 standard. There have been no violations in the last four years of either standards.

A substantial fraction of PM-10 is comprised of small diameter particulates capable of being inhaled into deep lung tissue (PM-2.5). However, PM-2.5 readings rarely exceed the federal 24-hour PM-2.5 ambient standard (two times in the last four years).

Although complete attainment of every clean air standard is not yet imminent, extrapolation of the steady improvement trend suggests that such attainment could occur within the reasonably near future. The most current regional attainment emissions forecast for ozone precursors (ROG and NOx) and for carbon monoxide (CO) and for particulate matter are shown in Table 7. Substantial reductions in emissions of ROG, NOx and CO are forecast to continue throughout the next several decades. Unless new particulate control programs are implemented, PM-10 and PM-2.5 are forecast to slightly increase.

Table 5
HEALTH EFFECTS OF MAJOR CRITERIA POLLUTANTS

Pollutants	Sources	Primary Effects
Carbon Monoxide (CO)	• Incomplete combustion of fuels and other carbon-containing substances, such as motor exhaust. • Natural events, such as decomposition of organic matter.	• Reduced tolerance for exercise. • Impairment of mental function. • Impairment of fetal development. • Death at high levels of exposure. • Aggravation of some heart diseases (angina).
Nitrogen Dioxide (NO_2)	• Motor vehicle exhaust. • High temperature stationary combustion. • Atmospheric reactions.	• Aggravation of respiratory illness. • Reduced visibility. • Reduced plant growth. • Formation of acid rain.
Ozone (O_3)	• Atmospheric reaction of organic gases with nitrogen oxides in sunlight.	• Aggravation of respiratory and cardiovascular diseases. • Irritation of eyes. • Impairment of cardiopulmonary function. • Plant leaf injury.
Lead (Pb)	• Contaminated soil.	• Impairment of blood function and nerve construction. • Behavioral and hearing problems in children.
Respirable Particulate Matter (PM-10)	• Stationary combustion of solid fuels. • Construction activities. • Industrial processes. • Atmospheric chemical reactions.	• Reduced lung function. • Aggravation of the effects of gaseous pollutants. • Aggravation of respiratory and cardio respiratory diseases. • Increased cough and chest discomfort. • Soiling. • Reduced visibility.
Fine Particulate Matter (PM-2.5)	• Fuel combustion in motor vehicles, equipment, and industrial sources. • Residential and agricultural burning. • Industrial processes. • Also, formed from photochemical reactions of other pollutants, including NOx, sulfur oxides, and organics.	• Increases respiratory disease. • Lung damage. • Cancer and premature death. • Reduces visibility and results in surface soiling.
Sulfur Dioxide (SO_2)	• Combustion of sulfur-containing fossil fuels. • Smelting of sulfur-bearing metal ores. • Industrial processes.	• Aggravation of respiratory diseases (asthma, emphysema). • Reduced lung function. • Irritation of eyes. • Reduced visibility. • Plant injury. • Deterioration of metals, textiles, leather, finishes, coatings, etc.

Source: California Air Resources Board, 2002

Table 6
AIR QUALITY MONITORING SUMMARY 2013-2016
(Number of Days Standards Were Exceeded and Maximum Levels During Such Violations)
(Entries shown as ratios = samples exceeding standards/samples taken)

Pollutant/Standard	2013	2014	2015	2016
Ozone				
1-Hour > 0.09 ppm (S)	45	50	46	64
8-Hour > 0.07 ppm (S)	101	97	86	103
8- Hour > 0.075 ppm (F)	72	68	61	80
Max. 1-Hour Conc. (ppm)	0.120	0.130	0.144	0.163
Max. 8-Hour Conc. (ppm)	0.105	0.106	0.127	0.121
Carbon Monoxide				
8-Hour > 9. ppm (S, F)	0	0	0	0
Max 8-Hour Conc. (ppm)	1.7	2.4	2.3	2.2
Nitrogen Dioxide				
1-Hour > 0.18 ppm (S)	0	0	0	0
Max. 1-Hour Conc. (ppm)	0.072	0.073	0.089	0.060
Respirable Particulates (PM-10) [1]				
24-Hour > 50 $\mu g/m^3$ (S)	0/60	0/61	0/57	0/61
24-Hour > 150 $\mu g/m^3$ (F)	0/60	0/61	0/57	0/61
Max. 24-Hr. Conc. ($\mu g/m^3$)	32.	47.	41.	46.
Fine Particulates (PM-2.5) [1]				
24-Hour > 35 $\mu g/m^3$ (F)	1/59	0/56	1/55	0/55
Max. 24-Hr. Conc. ($\mu g/m^3$)	35.5	24.2	39.4	28.4

S=State Standard; F=Federal Standard
Source: South Coast AQMD; Crestline Monitoring Station for Ozone and PM-10.
San Bernardino 4th Street Monitoring Station for CO and NO_2.
Big Bear City Monitoring Station for PM-2.5.

Table 7
SOUTH COAST AIR BASIN EMISSIONS FORECASTS (Emissions in tons/day)

Pollutant	2015[a]	2020[b]	2025[b]	2030[b]
NOx	357	289	266	257
VOC	400	393	393	391
PM-10	161	165	170	172
PM-2.5	67	68	70	71

[a]2015 Base Year.
[b]With current emissions reduction programs and adopted growth forecasts.
Source: California Air Resources Board, 2013 Almanac of Air Quality

Standards of Significance

Air quality impacts are considered "significant" if they cause clean air standards to be violated where they are currently met, or if they "substantially" contribute to an existing violation of standards. Any substantial emissions of air contaminants for which there is no safe exposure, or nuisance emissions such as dust or odors, would also be considered a significant impact.

Appendix G of the California CEQA Guidelines offers the following five tests of air quality impact significance. A project would have a potentially significant impact if it:

a. Conflicts with or obstructs implementation of the applicable air quality plan.
b. Results in a cumulatively considerable net increase of any criteria pollutants for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors). Refer to Table 8 for SCAQMD significant emission thresholds.
c. Exposes sensitive receptors to substantial pollutant concentrations.
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Air quality impacts generally occur on two scales of motion. Near an individual source of emissions or a collection of sources such as a crowded intersection or parking lot, levels of those pollutants that are emitted in their already unhealthful form will be highest. Carbon monoxide (CO) is an example of such a pollutant. Primary pollutant impacts can generally be evaluated directly in comparison to appropriate clean air standards. Violations of these standards where they are currently met, or a measurable worsening of an existing or future violation, would be considered a significant impact. Many particulates, especially fugitive dust emissions, are also primary pollutants. Because of the non-attainment status of the South Coast Air Basin (SCAB) for PM-10, an aggressive dust control program is required to control fugitive dust during project construction.

Many pollutants, however, require time to transform from a more benign form to a more unhealthful contaminant. Their impact occurs regionally far from the source. Their incremental regional impact is minute on an individual basis and cannot be quantified except through complex photochemical computer models. Analysis of significance of such emissions is based upon a specified amount of emissions (pounds, tons, etc.) even though there is no way to translate those emissions directly into a corresponding ambient air quality impact.

Because of the chemical complexity of primary versus secondary pollutants, the SCAQMD has designated significant emissions levels as surrogates for evaluating regional air quality impact significance independent of chemical transformation processes. Projects with daily emissions that exceed any of the following emission thresholds (Table 8) are recommended by the SCAQMD to be considered significant under CEQA guidelines.

Table 8
DAILY EMISSIONS THRESHOLDS

Pollutant	Construction	Operations
ROG	75	55
NOx	100	55
CO	550	550
PM-10	150	150
PM-2.5	55	55
SOx	150	150
Lead	3	3

Source: SCAQMD CEQA Air Quality Handbook, November, 1993 Rev.

In its CEQA Handbook, the SCAQMD also states that additional indicators should be used as screening criteria to determine the need for further analysis with respect to air quality. The additional indicators are as follows:

- Project could interfere with the attainment of the federal or state ambient air quality standards by either violating or contributing to an existing or projected air quality violation
- Project could result in population increases within the regional statistical area which would be in excess of that projected in the AQMP and in other than planned locations for the project's build-out year.
- Project could generate vehicle trips that cause a CO hot spot.

Impact Analysis

a) Conflicts with or obstructs implementation of the applicable air quality plan?

Less Than Significant Impact – The District is proposing to implement a number of projects over a 20-year period as various components of its facilities such as pumps and valves, near 50 years of age. As identified in Table 3, of the 15 projects that are the subject of this environmental analysis, five projects (1, 2, 3, 5 and 13) would not result in a physical change to the environment because the projects are either studies or assessments of existing conditions to determine the best course of action to take to address an issue, or to collect data to assist the District in system operation and maintenance; five projects (7, 10, 12, 14, and 15) would result in the replacement or rehabilitation of the District's existing pumps, valves and wells within the existing lift station sites (seven sites), with no additional site disturbance anticipated; three projects (4, 9, and 11) would result in the replacement of existing sewer pipelines where the District would be required to trench, stockpile and access the pipeline within existing roads or shoulders; one project (8) would result in the acquisition of additional land and the construction of a parking area at the Kern Lift Station; and one project (6) requires the acquisition of new access easements and the development of a new access road, along a 1.5 mile length of the existing pipelines through an undeveloped area in the community of Moonridge.

Replacement of sewer lines (projects 4, 9, and 11) would require trenching approximately 2,205 linear feet in existing rights-of-way, to increase capacity in areas where population growth is anticipated. The trenches are anticipated to be 5 feet wide and up to up to 8 feet deep for a total removal and temporary stockpiling of 3,267 cubic yards of soil. In addition, Project 6 is the development of new access roads along a 1.5 mile stretch to provide access for inspection and maintenance of an existing pipeline. A graded dirt road is assumed to be 20-feet wide will be installed. Assuming the road is 1.5 miles (about 8,000 lineal feet) in

length, the total area of disturbance is estimated to be about 160,000 square feet. This project will require grading and development of an unpaved access road encompassing about 3.67 acres.

The proposed project does not directly relate to the AQMP in that there are no specific air quality programs or regulations governing water or wastewater improvement projects. Conformity with adopted plans, forecasts and programs relative to population, housing, employment and land use is the primary yardstick by which impact significance of planned growth is determined. The SCAQMD, however, while acknowledging that the AQMP is a growth-accommodating document, does not favor designating regional impacts as less-than-significant just because the proposed development is consistent with regional growth projections. Air quality impact consistency for the proposed project has therefore been analyzed on a project-specific basis.

Criterion 1 - Increase in the Frequency or Severity of Violations?
The proposed projects that have the potential to result in an increase in the frequency or severity of violations are limited to those projects that would cause a physical impact on the environment associated with construction. These are limited to projects 4, 6, 8, 9, and 11. Impacts are associated with the disturbance of soils from trenching and stockpiling for a short duration, and the operation of typical construction equipment (e.g. backhoe, pickup and flatbed trucks, etc.). Some trenches will be located within the shoulders of existing roads but others may be within the street such that repaving of some road sections would be necessary.

During construction, the project must comply with applicable SCAQMD rules and regulations. Minimal emissions are associated with the operation of the project once construction is completed and limited to maintenance of the lift stations and ongoing monitoring of the District's system, both of which occur under existing conditions. The following are rules the proposed projects may be required to comply with.

SCAQMD Rule 402 prohibits, "a person from discharging 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."

SCAQMD Rule 403 governs emissions of fugitive dust during construction and operation activities. Compliance with this rule is achieved through application of standard Best Management Practices, such as application of water or chemical stabilizers to disturbed soils, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 miles per hour, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph.

Rule 403 requires that fugitive dust be controlled with best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source, or in the case of the District's pipeline replacement project and the creation of a new access road (Project 6) limited to the disturbed area of these alignments. In addition, SCAQMD Rule 403 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance offsite (construction sites). Applicable dust suppression techniques from Rule 403 are summarized herein. Implementation of these dust suppression techniques can reduce the fugitive dust generation (and thus the PM_{10} component). Compliance with these rules would reduce impacts on nearby sensitive receptors (residents).

SCAQMD Rule 1108 governs the sale, use, and manufacturing of asphalt and limits the volatile organic compound (VOC) content in asphalt used in the South Coast Air Basin. This rule regulates the VOC content of asphalt used during construction. Therefore, all asphalt used during construction of the project must comply with SCAQMD Rule 1108.

Criterion 2 - Exceed Assumptions in the AQMP?
Consistency with the AQMP assumptions is determined by performing an analysis of the proposed project with the assumptions in the AQMP. The emphasis of this criterion is to ensure that the analyses conducted

for the proposed project are based on the same forecasts as the AQMP. Emissions from project construction will not exceed emission significance thresholds as documented below.

However, with regard to the proposed projects, there are no new air emissions associated with the proposed sewer pipelines and new lift station components once construction is completed. Operation and maintenance of the District's system will be similar to activities that occur currently and emissions from electricity consumption (lift stations) should be reduced as fossil fuel consumption is reduced in the future and more efficient pumps are installed in the lift stations. Some small increment of new emissions from the use of the new access road along a 1.5-mile alignment in Moonridge will occur, but access will be controlled to this new road and only one trip per day is anticipated along its length in the future. The District's proposed projects would be consistent with the General Plan land use designation within the communities where the facilities are located. Therefore, the proposed projects would not exceed the AQMP assumptions. Therefore, a less than significant impact will occur.

b) Results in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Less Than Significant Impact – Construction required to complete the Big Bear City Community Services District (BBCCSD) Sewer Master Plan involves the activities described in the Project Description. Estimated construction emissions were modeled using CalEEMod2016.3.2 to identify maximum daily emissions for each pollutant during project construction using an appropriate equipment fleet for the indicated project activities and durations. As noted, much of the project work will be accomplished using hand tools. Only heavy diesel equipment is modeled in CalEEMod. Therefore, hand tools are not included in this analysis as they would not emit exhaust emissions.

The following construction fleet and schedule was modeled in CalEEMod as shown in Table 9.

Utilizing this indicated equipment fleet and durations shown in Table 9 the following worst-case daily construction emissions are calculated by CalEEMod and are listed in Table 10.

Peak daily construction activity emissions are estimated to be well below SCAQMD CEQA thresholds without the need for added mitigation even if worst case activities were to occur simultaneously.

A sewer rehabilitation project will not have any associated operational impacts. The project will not generate only minimal any additional trips over existing conditions (an estimated one additional trip per day) and electrical consumption for pump use is anticipated to be the same as or slightly less than the current equipment. Therefore, the project does not create any operational emissions.

Table 9
CalEEMod CONSTRUCTION ACTIVITY EQUIPMENT FLEET AND WORKDAYS

Pipeline Install (2,700 LF)

Demo Roadway and Trench 1 month	1 Loader/Backhoe
	2 Trencher
	1 Concrete Saw
	2 Air Compressors
Install Pipe 3 months	2 Forklifts
	1 Welder
	1 Loader/Backhoe
Backfill and Pave 2 months	2 Concrete Pumps
	1 Paver
	2 Loader/Backhoes
	1 Roller
	1 Mixer

Lift Station Rehabilitation

Cement Repair 3 months	1 Concrete Mixer
	1 Pump
	2 Air Compressors
Apply Epoxy Coating 3 months	2 Air Compressors
	1 Pressure Washer

Table 10
CONSTRUCTION ACTIVITY EMISSIONS MAXIMUM DAILY EMISSIONS (pounds/day)

Maximal Construction Emissions	ROG	NOx	CO	SO_2	PM-10	PM-2.5
Year 2019						
Pipeline Installation	1.9	15.0	15.2	0.0	1.5	1.1
Lift Station Rehab	0.9	3.9	6.7	0.0	0.4	0.4
Total Project	**2.8**	**18.0**	**21.9**	**0.0**	**1.9**	**1.5**
SCAQMD Thresholds	75	100	550	150	150	55

c) Exposes sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact – Construction equipment exhaust contains carcinogenic compounds within the diesel exhaust particulates. The toxicity of diesel exhaust is evaluated relative to a 24-hour per day, 365 days per year, 70-year lifetime exposure. The SCAQMD does not generally require the analysis of construction-related diesel emissions relative to health risk due to the short period for which the majority of diesel exhaust would occur. Health risk analyses are typically assessed over a 9-, 30-, or 70-year timeframe and not over a relatively brief construction period due to the lack of health risk associated with such a brief exposure.

The SCAQMD has developed analysis parameters to evaluate ambient air quality on a local level in addition to the more regional emissions-based thresholds of significance. These analysis elements are called Localized Significance Thresholds (LSTs). LSTs were developed in response to Governing Board's

Environmental Justice Enhancement Initiative 1-4 and the LST methodology was provisionally adopted in October 2003 and formally approved by SCAQMD's Mobile Source Committee in February 2005.

Use of an LST analysis for a project is optional. For the proposed project, the primary source of possible LST impact would be during construction. LSTs are applicable for a sensitive receptor where it is possible that an individual could remain for 24 hours such as a residence, hospital or convalescent facility.

LSTs are only applicable to the following criteria pollutants: oxides of nitrogen (NOx), carbon monoxide (CO), and particulate matter (PM-10 and PM-2.5). LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor.

LST screening tables are available for 25, 50, 100, 200 and 500-meter source-receptor distances. For this project, the worst-case conditions for 25 meters was used.

The SCAQMD has issued guidance on applying CalEEMod to LSTs. LST pollutant screening level concentration data is currently published for 1, 2 and 5-acre sites for varying distances. For this project, the most stringent thresholds for a 1-acre site were applied.

The following thresholds and emissions in Table 11 are therefore determined (pounds per day):

Table 11
LST AND PROJECT EMISSIONS (pounds/day)

LST 1 acre/25 meters East San Bernardino Mountains	**CO**	**NOx**	**PM-10**	**PM-2.5**
LST Thresholds	775	118	4	4
Max On-Site Emissions				
Pipeline Installation	15	15	2	1
Lift Station Rehab	7	4	<1	<1
Total	**23**	**19**	**3**	**2**
Significant?	No	No	No	No

CalEEMod Output in Appendix

LSTs were compared to the maximum daily construction activities. As seen in Table 11, emissions meet the LST for construction thresholds. LST impacts are less-than-significant without the need for additional mitigation.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less Than Significant Impact – For projects where construction equipment is required, equipment would generate odors from the combustion of fuels. However, the determination of an impact from project-generated odors is dependent on a number of variables including:

- Nature of the odor source;
- Frequency of odor generation (e.g., daily, seasonal, activity-specific);
- Intensity of the odor (e.g., concentration);
- Wind direction (e.g., upwind or downwind); and
- Sensitivity of the receptor.

Project operations (pumping and conveyance) are essentially a closed system with negligible odor potential. Regarding construction repairs, the system will be drained prior to any improvements to the lift stations. Odors will therefore not be detectable during application of the epoxy coating or cement repairs or pump repair. Good painting practice (low wind speeds and high efficiency sprayers) will minimize overspray and paint transport.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
IV. BIOLOGICAL RESOURCES: Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

SUBSTANTIATION: Refer to the biology technical study for this project titled "*Biological Resources Assessment and Jurisdictional Delineation for the Big Bear City Community Services District Sewer Master Plan*" prepared by Jacobs Engineering Group dated December 2018. A copy of this document is provided in Appendix 2.

Environmental Setting

The project area is within Big Bear City, near the east end of Big Bear Lake, which is situated in the eastern end of Bear Valley in the San Bernardino Mountains. The Bear Valley area is subject to both seasonal and annual variations in temperature and precipitation. Average annual maximum temperatures peak at 80.8 degrees Fahrenheit (°F) in July and fall to an average annual minimum temperature of 20.3°F in January. Average annual precipitation is greatest from November through April and reaches a peak in January (4.49 inches). Precipitation is lowest in the month of June (0.14 inches). Annual total precipitation averages about 22 inches and annual total snowfall averages 62.6 inches.

The topography of the project area ranges from near-level paved streets to steeply-sloped and hilly along the Moonridge Pipelines alignment. Elevation on site ranges from approximately 6,725 feet above mean sea level (amsl) at Project 10 – Shore Pump Replacement, to 7,125 feet amsl at Project 12 – Orange Pump Replacement.

Hydrologically, the project area is situated partially within the Baldwin Hydrologic Sub-Area (HSA 801.73) and partially within the Bear Valley HSA (HAS 801.71). The Baldwin HSA comprises a 22,789-acre drainage area and the Bear Valley HSA comprises a 34,333-acre drainage area, both within the larger Santa Ana Watershed (HUC 18070203). The Santa Ana River is the major hydrogeomorphic feature within the Santa Ana Watershed. One of several tributaries to the Santa Ana River is Bear Creek, which flows from Big Bear Lake through the Bear Valley Dam located on at the westernmost (downstream) end of Big Bear Lake. Big Bear Lake is one of the head waters of the Santa Ana River Watershed.

Soils within the project area are comprised primarily of Morical, very deep-Hecker families complex, 2 to 15 and 15 to 30 percent slopes. Morical family soils consist of a profile comprised of gravelly loam, gravelly clay loam, to gravelly sandy loam that are derived from alluvium. These soil types are well drained with a high to very high runoff class. Hecker family soils consist of a profile comprised of gravelly fine sandy loam, very gravelly sandy clay loam, to extremely gravelly sandy loam that are derived from alluvium. These soil types are well drained with a medium to high runoff class.

The District's service area consists of approximately 11.5 square miles encompassing the unincorporated communities of Big Bear City, Sugarloaf, Moonridge and Erwin Lake, which are characterized as mountain communities that are largely single family residential with a limited commercial area located generally along Big Bear Boulevard. The general project vicinity consists of a mix of urban and suburban environments and undeveloped forest. Land uses consist primarily of residential development, including paved roads, utility alignments and open space. Habitat within the undeveloped portions of the project area (i.e. Project 6 – Moonridge Pipelines alignment) includes *Pinus jeffreyi* Forest Alliance (Jeffrey pine forest) and *Salix lasiolepis* Shrubland Alliance (arroyo willow thickets).

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Less Than Significant With Mitigation Incorporated – No State- and/or federally-listed threatened or endangered species were observed within the project area during the field survey. Of the project components that represent a physical change in the environment or which will cause physical disturbance, only the proposed Moonridge Pipelines access road construction (Project 6), the KLSPS construction (Project 8) and a portion of the Gildart Sewer Upgrades (Project 9) components were identified as having any potential to impact sensitive biological resources and/or jurisdictional waters. All other project components are within already disturbed residential areas consisting of paved streets and existing structures/facilities and will not result in any impacts to sensitive biological resources or jurisdictional waters.

The KLSPS site is within an undeveloped disturbed site that is adjacent Jeffrey pine forest habitat and the Moonridge Pipeline alignment is mostly within relatively undisturbed Jeffrey pine forest and arroyo willow thicket habitats. The habitats within and/or adjacent these project components could potentially support several sensitive species, including the State- and federally-listed as endangered SWFL, the State-listed as threatened southern rubber boa, the federally-listed as threatened ash-gray paintbrush, Bear Valley sandwort and southern mountain buckwheat and the federally-listed as endangered San Bernardino Mountains bladderpod.

There is arroyo willow thicket habitat within portions of the Moonridge Pipelines alignment that is potentially suitable to support the State- and federally-listed as endangered SWFL. However, this species has not been documented within the project area and the nearest documented SWFL occurrence is approximately 4.3 miles west of the northernmost end of the Moonridge Pipelines alignment, within similar habitat in Metcalf Creek. Given that it is not currently known whether SWFL occur within the riparian habitat found in and adjacent the Moonridge Pipelines alignment, project-related impacts to this species can not accurately be assessed at this time. Therefore, it is recommended that focused protocol-level presence/absence surveys for SWFL be conducted to determine whether this species would potentially be impacted by the proposed project and what measures may be needed to avoid, minimize and/or mitigate potential impacts.

If SWFL are detected within the project impact area during protocol presence/absence surveys, then construction of the proposed access road along the Moonridge Pipelines alignment could potentially impact this species. Given that SWFL is both State- and federally-listed as endangered, authorization from both the USFWS and the CDFW would be required prior to construction of the proposed access road or any other project-related activities that could potentially result in any direct or indirect impacts to this species.

There is suitable habitat for the State-listed as threatened southern rubber boa within the Moonridge Pipelines alignment and adjacent undeveloped areas. Additionally, there are several documented rubber boa occurrences within 2.5 miles of the project area, in similar mixed conifer forest habitat. Thus, construction of the proposed access road along the Moonridge Pipelines alignment could potentially impact this species. Therefore, the following protective measures are recommended to avoid and/or minimize potential project-related impacts to this species:

- Exclusion fence (drift fence or similar material) should be installed around the entire proposed construction footprint, wherever there is suitable rubber boa habitat within or adjacent the proposed Moonridge Pipelines access road footprint, to prevent rubber boa from entering the project site during construction.

- Following installation of the exclusion fence, initial ground disturbance activities including clearing and grubbing and removal of all surface cover within the project footprint, including fallen logs, duff layer, and other debris should be conducted under the supervision of a qualified biologist, familiar with rubber boa and their habits.

Although the above-listed measures are recommended to minimize potential impacts to rubber boa, it may not be possible to completely avoid impacting this species during construction of the proposed access road along the Moonridge Pipelines alignment. Therefore, an Incidental Take Permit, issued by the CDFW, pursuant Section 2081 of the CESA, would be likely be required.

The environmental conditions required by several sensitive plant species, including the federally-listed ash-gray paintbrush, Bear Valley sandwort, southern mountain buckwheat and San Bernardino Mountains bladderpod, are present within portions of the Moonridge Pipelines alignment, as well as in the habitat adjacent the KLSPS site. Additionally, all four of these listed plant species have been documented within 1 mile of the project impact area. Therefore, focused botanical surveys were conducted within the undeveloped portions of the project area that contained the appropriate environmental conditions for these species, in accordance with the CDFW's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (2009). The survey was conducted during the appropriate time of year, when the target species were both evident and identifiable, and all four target species were identifiable at known reference sites prior to survey. The result of the focused botanical survey is that no State- or federally-listed plant species were observed within the survey area and ash-gray paintbrush, Bear Valley sandwort, southern mountain buckwheat and San Bernardino Mountains bladderpod are all considered absent from the survey area at the time of survey. Therefore, the proposed project is not likely to result in any impacts to sensitive plant species.

Sensitive Species Mitigation Measures

BIO-1 ***Focused protocol-level presence/absence surveys for SWFL shall be conducted prior to disturbance of SWFL habitat to determine whether this species would potentially be impacted by the proposed project and what measures may be needed to avoid, minimize and/or mitigate potential impacts. If SWFL are detected within the project impact area, authorization from both the USFWS and the CDFW would be required prior to construction of the proposed access road or any other project-related activities that could potentially result in any direct or indirect impacts to this species.***

BIO-2 ***The following protective measures shall be implemented to avoid and/or minimize potential project-related impacts to this southern rubber boa:***

- ***A preconstruction survey for southern rubber boa (SRB) shall be conducted within the project footprint prior to ground disturbance within suitable habitat. If no SRB are detected, an exclusion fence (drift fence or similar material) should be installed around the entire proposed construction footprint, wherever there is suitable rubber boa habitat within or adjacent the proposed Moonridge Pipelines access road footprint, to prevent rubber boa from entering the project site during construction.***
- ***Following installation of the exclusion fence, initial ground disturbance activities including clearing and grubbing and removal of all surface cover within the project footprint, including fallen logs, duff layer, and other debris should be conducted under the supervision of a qualified biologist, familiar with rubber boa and their habits.***

BIO-3 Although the above-listed measures are recommended to minimize potential impacts to rubber boa after a negative survey, it may not be possible to completely avoid impacting this species during construction of the proposed access road along the Moonridge Pipelines alignment. Therefore, an Incidental Take Permit, issued by the CDFW, pursuant Section 2081 of the CESA, shall be obtained and the required mitigation identified in this permit shall be implemented.

With implementation of the preceding measures**,** potentially significant impacts to sensitive species can be reduced to a less than significant adverse impact.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?
c) Have a substantial adverse effect on federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Less Than Significant With Mitigation Incorporated – *Drainages A and B, as defined in Appendix 2, are jurisdictional intermittent streams that are subject to the Clean Water Act and Fish and Game Code under the jurisdictions of USACE, RWQCB, and CDFW, respectively. Therefore, it recommended that the proposed access road along the Moonridge Pipelines alignment (Project 6), as well as the segment of the Gildart Sewer Upgrades (Project 9) that is located between Sugarloaf Boulevard and Mountain Lane, be constructed outside of the jurisdictional limits of Drainages A and B. However, if these intermittent streams cannot be avoided, any proposed permanent or temporary impacts to these jurisdictional water features would require a Streambed Alteration Agreement from the CDFW, as well as CWA Sections 401/404 permits from the RWQCB and Corps, respectively.*

USACE 404 Permit
The two most common types of permits issued by USACE under Section 404 of the CWA to authorize the discharge of dredged or fill material into WoUS are: a nation-wide permit (NWP) or an individual permit (IP). NWPs are general permits for specific categories of activities that result in minimal impacts to aquatic resources. The discharge must not cause the loss of greater than ½ acre to WoUS, including the loss of no more than 300 linear feet of streambed. Projects that would exceed these limits would require an IP.

Regional Water Quality Control Board 401 Certification
The project area is within the jurisdiction of the Santa Ana RWQCB (Regional Board 8). Under Section 401 of the CWA, the RWQCB must certify that the discharge of dredged or fill material into WUS does not violate state water quality standards. The RWQCB also regulates impacts to WSC under the Porter Cologne Water Quality Control Act through issuance of a Construction General Permit, State General Waste Discharge Order, or Waste Discharge Requirements, depending upon the level of impact and the waterway. In

addition to the formal application materials and fee (based on area of impact), a copy of the appropriate California Environmental Quality Act (CEQA) documentation must be included with the application.

Streambed Alteration Agreement
A FGC Section 1602 Streambed Alteration Agreement is required for all activities that alter streams and lakes and their associated riparian habitat. In addition to the formal application materials and fee (based on cost of the Project), a copy of the appropriate CEQA documentation must be included with the application.

Mitigation is provided to ensure that any disturbance within jurisdictional waters of the IS or State are fully offset.

Jurisdictional Waters/Wetlands/Riparian Habitat Mitigation Measure

BIO-4 The project will be implemented such that no discharge of fill into the channel, including no impacts to the bed or bank, occurs. If the project is unable to comply with this requirement, then prior to discharge of fill or streambed alteration of either of the channels along the project alignment, BBCCSD shall obtain regulatory permits from the U.S. Army Corps of Engineers, Santa Ana Regional Water Quality Control Board and the California Department of Fish and Game. Mitigation can be provided by purchasing into any authorized mitigation bank; by selecting a site of comparable acreage near the site and enhancing it with a native riparian habitat or invasive species removal in accordance with a habitat mitigation plan approved by regulatory agencies; or by acquiring sufficient compensating habitat to meet regulatory agency requirements. Typically, regulatory agencies require mitigation for jurisdictional waters without any riparian or wetland habitat to be mitigated at a 1:1 ratio. For loss of any riparian or other wetland areas, the mitigation ratio will begin at 2:1 and the ratio will rise based on the type of habitat, habitat quality, and presence of sensitive or listed plants or animals in the affected area. A revegetation plan using native riparian vegetation common to the project area shall be prepared and reviewed and approved by the appropriate regulatory agencies. The agencies can impose greater mitigation requirements in their permits, but BBCCSD will utilize the ratios outlined above as the minimum required to offset or compensate for impacts to jurisdictional waters, riparian areas or other wetlands.

With implementation of the preceding measure, potentially significant impacts to jurisdictional waters or riparian/wetland habitat can be reduced to a less than significant adverse impact.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less Than Significant With Mitigation Incorporated – The proposed project will disturb specific locations in the Bear Valley, but no movement corridors were identified that will experience a significant adverse impact that could reduce or eliminate such movement. The only wildlife nursery sites that may be adversely impacted by the proposed project are nesting bird sites. The following mitigation measure shall be implemented to control this potential for impact to a less than significant level.

Nesting Bird Mitigation Measure

BIO-5 Bird nesting season generally extends from February 1 through September 15 in southern California and specifically, April 15 through August 31 for migratory passerine birds. To the extent feasible, construction in areas with

nesting birds shall avoid the identified nesting season. To avoid impacts to nesting birds (common and special status) during the nesting season, a qualified Avian Biologist will conduct pre-construction nesting bird surveys (NBS) prior to project-related disturbance to nestable vegetation to identify any active nests. If no active nests are found, no further action will be required. If an active nest is found, the biologist will set appropriate no-work buffers around the nest which will be based upon the nesting species, its sensitivity to disturbance, nesting stage and expected types, intensity and duration of disturbance. The nests and buffer zones shall be field checked weekly by a qualified biological monitor. The approved no-work buffer zone shall be clearly marked in the field, within which no disturbance activity shall commence until the qualified biologist has determined the young birds have successfully fledged and the nest is inactive.

With implementation of the preceding measure**,** potentially significant impacts to jurisdictional waters or riparian/wetland habitat can be reduced to a less than significant adverse impact**.**

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impact – The project area encompasses unincorporated land under the jurisdiction of San Bernardino County. The County has no specific policies or ordinances that protect biological resources, including trees. With no potential for adverse impact no mitigation is required.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact – The Sewer Master Plan project area does not contain any areas covered by a Habitat Conservation Plan, Natural Community Conservation Plan, or other approved habitat conservation plan. Therefore, the proposed project has no potential to conflict with such designated plans. With no potential for adverse impact no mitigation is required.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
V. CULTURAL RESOURCES: Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

SUBSTANTIATION: Refer to the cultural resources technical study for this project titled "*Cultural Resources Sensitivity Assessment Big Bear City Community Services District Sewer Master Plan*" prepared by CRM TECH dated February 7, 2019. A copy of this document is provided in Appendix 3.

Environmental Setting

In summary, more than 250 historical/archaeological resources were previously identified within the scope of the records search, with approximately 140 of them being of prehistoric origin. The existing prehistoric hunter-gatherer settlement-subsistence model developed by past studies in inland southern California suggests that long-term settlement was more likely to occur on elevated terraces, hills, and finger ridges near reliable sources of water, while valley floors were mostly used for resource procurement, traveling, and opportunistic camping during these activities. An overview level analysis of the distribution of prehistoric cultural resources in and near the APE appears to confirm this model, with sites and isolates noticeably concentrated in elevated areas, often facing meadows and water bodies on the valley floor. Geoarchaeological data in the APE also supports this pattern, with geomorphic features painting a picture of prehistoric archaeological sensitivity mirroring the distribution pattern of known resources in and near the APE. Figure 2 of Appendix 3 shows the culturally sensitive areas in the District.

The approximately 100 known historic-period resources in the APE are concentrated mostly in areas that have been developed during the early and middle parts of the 20th century, as are built environment features, especially buildings, that are potentially more than 50 years old but are yet to be surveyed, recorded, and evaluated. The largest concentration of these is in the northwestern portion of the APE, in and around the community Big Bear City, with smaller and less dense concentrations in and around the older neighborhoods of Moonridge, Sugarloaf, and Erwin Lake. A fifth concentration around the southern shore of Baldwin Lake is notable for potential cultural remains associated with the early lumber, mining, and resort industries, including the Gold Hill Mine District, rather than buildings from the post-1910s era. Based on the research results summarized above, CRM TECH has delineated in the APE several areas of increased sensitivity for cultural resources from the prehistoric and historic eras (Figure 2, Appendix 3)

Impact Analysis

a) Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5?

Less Than Significant With Mitigation Incorporated – Five of the District's projects (Projects 1, 2, 3, 5, and 13) consist of studies or data collection with no physical change to the environment; five other projects (Projects 7, 10, 12, 14 and 15) would be limited to replacement or rehabilitation of existing pumps, valves and wells. The remaining projects (Projects 4, 6, 8, 9 and 11) would result in ground disturbance, either trenching and stockpiling (Projects 4, 9 and 11) in existing rights-of-way (streets or shoulders of the road), grading and paving of a new parking space (Project 8) or grading of new access easements along a 1.5-mile

route adjacent to an existing pipeline in the Moonridge area). A comparison of project locations with ground disturbance to sensitive areas identified on Figure 2 of Appendix 3 indicates a potential to encounter sensitive cultural resources for projects 4, 6, 8, 9 and 11. The following mitigation measure shall be implemented to ensure that historic and pre-historic resources below the ground surface are not damaged as a result of accidental exposure during construction.

CUL-1 ***At project sites 4, 6. 8, 9 and 11 BBCCSD shall have Native American and professional Archaeologist monitor all ground disturbing activities. The monitors shall have the authority to stop and redirect construction in the event that historical or cultural resources are encountered during on site ground disturbance activities. If significant cultural resources are encountered, adequate funding will be provided by the BBCCSD to collect, curate and report on these resources. At all other sites with ground disturbance, BBCCSD shall have a professional archaeologist available to come to a site where possible cultural resources have been exposed. If significant cultural resources are encountered, adequate funding will be provided by the BBCCSD to collect, curate and report on these resources.***

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?

Less Than Significant With Mitigation Incorporated – Five of the District's projects (Projects 1, 2, 3, 5, and 13) consist of studies or data collection with no physical change to the environment; five other projects (Projects 7, 10, 12, 14 and 15) would be limited to replacement or rehabilitation of existing pumps, valves and wells. The remaining projects (Projects 4, 6, 8, 9 and 11) would result in ground disturbance, either trenching and stockpiling (Projects 4, 9 and 11) in existing rights-of-way (streets or shoulders of the road), grading and paving of a new parking space (Project 8) or grading of new access easements along a 1.5-mile route adjacent to an existing pipeline in the Moonridge area). A comparison of project locations with ground disturbance to sensitive areas identified on Figure 2 of Appendix 3 indicates a potential to encounter sensitive cultural resources for projects 4, 6, 8, 9 and 11. Mitigation measure CUL-1 shall be implemented to ensure that pre-historic resources below the ground surface are not damaged as a result of accidental exposure during construction.

c) Disturb any human remains, including those interred outside of formal cemeteries?

Less Than Significant With Mitigation Incorporated – The likelihood that grading/excavation of the project site would disturb any human remains, including those interred outside of formal cemeteries is unlikely because five projects would not involve site disturbance (Projects 1, 2, 3, 5, and 13) five other projects (Projects 7, 10, 12, 14 and 15) would be limited to replacement or rehabilitation of existing pumps, valves and wells at existing lift stations. Three projects (Projects 4, 9 and 11) involve trenching and stockpiling of soil for replacement sewer pipelines are along routes that have already been disturbed with the installation of the original sewer pipelines. Project 8 is limited to grading and paving of a new parking space adjacent to the Kern lift station with no excavation proposed. Finally, Project 6 represents the establishment of access easements along an existing 1.5-mile pipeline where some segments of the pipeline are not accessible. This project would involve some grading to provide vehicle access, but substantial excavation is not likely to be necessary.

Although the possibility of unearthing a grave site is remote, nevertheless, the District must take action in the event that human remains are unearthed. **Mitigation Measure CUL-2** would ensure the proper management of human remains if encountered on the project site. With the implementation of this measure, impacts would be less than significant.

CUL-2 ***In the event of the discovery or recognition of any human remains in any location other than a dedicated cemetery, protocols and procedures noted in the Public Resources Code Section 5097.98, the California Government Code Section 27491, and the Health and Safety Code Section 7050.5 for***

the treatment of human remains encountered at archaeological sites will be followed. The procedures listed below shall be followed where human remains are encountered:

- ***There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:***
  - ***The Coroner is contacted to determine that no investigation of the cause of death is required, and***
  - ***If the Coroner determines the remains are Native American the Native American Heritage Commission (NAHC) shall be contacted within 24 hours. NAHC will identify the person or persons it believes to be the most likely descended from the deceased Native American. The Most Likely Descendent (MLD) may make recommendations to the County for the excavation work.***
- ***The Native American human remains and associated funerary items that are removed from the site may be reburied at a location mutually agreed upon by the Applicant, Lead Agency, and the MLD(s). If reinterment of human remains cannot be accomplished at the time of discovery, the MLD(s) shall either take temporary possession of the remains or identify a location for the temporary but secure storage of the remains.***
- ***In consultation between the lead agency and the MLD, additional measures, such as focused archaeological excavations, may be required to determine the extent of burials or ensure the recovery of all elements of the burial.***

With implementation of the preceding measures**,** potentially significant impacts to cultural resources can be reduced to a less than significant adverse impact**.**

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
VI. ENERGY: Would the project:				
a) Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operations?	☐	☐	☒	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

SUBSTANTIATION

a) Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operations?

Less Than Significant Impact – The proposed project consists of installing sewer pipelines and making other sewer system improvements, including lift or pump stations. Energy consumption encompasses many different activities. For example, construction can include the following activities: delivery of equipment and material to a site from some location (note it also requires energy to manufacture the equipment and material, such as the PVC pipelines); employee trips to work, possibly offsite for lunch (or a visit by a catering truck), travel home, and occasionally leaving a site for an appointment or checking another job; use of equipment onsite (electric or petroleum fueled); and sometimes demolition and disposal of construction waste. For the proposed project the number of employees will be limited due to the small size of the project and area. Also, minimal demolition (asphalt roadways) will be required for this overall project. To minimize energy costs of construction debris management, mitigation has been established to require diversion of all material subject to recycling. Energy consumption by equipment will be reduced by requiring shutdowns when equipment is not in use after five minutes and ensuring equipment is being operated within proper operating parameters (tune-ups) to minimize emissions and fuel consumption. These requirements are consistent with State and regional rules and regulations. Under the construction scenario outlined above, the proposed project will not result in wasteful, inefficient, or unnecessary energy consumption during construction.

The proposed project will ultimately allow wastewater collection facilities to be installed. The wastewater will be delivered to the existing WWTP through a mix of gravity flow mains and force mains which will require electricity to pump the wastewater against grade (uphill). To minimize energy costs the lift station will be equipped with efficient pumps and the wastewater treatment plant implements energy conservation to minimize overall energy costs of operating the WWTP, including use of solar facilities.

Further, Southern California Edison (SCE) is presently in compliance with State renewable energy supply requirements and SCE will supply electricity to the project. Under the operational/occupancy scenario for the proposed project, the proposed project will not result in wasteful, inefficient, or unnecessary energy consumption that could result in a significant adverse impact to energy issues. No mitigation is required.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less Than Significant Impact – Based on the analysis in the preceding discussion, the proposed project will not conflict with current State energy efficiency or electricity supply requirements or any local plans or programs for renewable energy or energy efficiency requirements. No mitigation is required.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
VII. GEOLOGY AND SOILS: Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
(i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
(ii) Strong seismic ground shaking?	☐	☐	☒	☐
(iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
(iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in onsite or offsite land-slide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontolo-gical resource or site or unique geologic feature?	☐	☐	☒	☐

SUBSTANTIATION

Environmental Setting

The District's service area is located in the center of the San Bernardino Mountains, which are bounded on their west side by the San Andreas fault. In the late Quaternary, forces associated with plate motions at the boundary of the North American and Pacific plates, and subsequent crustal adjustments, have elevated the mountains to their present elevations of between 6,000 and 11,500 feet above mean sea level (City of Big Bear Lake, August 23, 1999).

Soils

The US Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) identifies soils within the District's service area as generally sandy loam and loamy sand, and somewhat excessively drained to well drained, and have a moderate to high potential for erosion. In general, the soils matrix found

within the Project areas were determined to be primarily of the Morical, very deep-Hecker families complex, which has a moderate potential for erosion.

Expansive soils are considered those that contain a significant amount of clay and are subject to swelling as a response to changes in water content. Soils with a high content of expansive material can form cracks in drier seasons, and impact building loads. In the Big Bear Lake area, expansive soils are not considered a hazard because the soils contain little clay and are primarily derived from the regional granitic bedrock. (City of Big Bear Lake, August 23, 1999).

Faults

The San Bernardino Mountains are part of the Transverse Ranges of Southern California, a mountain chain formed by tectonic forces between the North American and Pacific Plates along the San Andreas Fault. Within the San Bernardino Mountains area, the San Andreas fault makes a left-step and bends to trend in a more westerly direction (City of Big Bear Lake, August 23, 1999).

And while there are no Alquist-Priolo faults or other faults that are mapped directly within the Big Bear area, an unnamed fault in the Big Bear area resulted in a 6.4 magnitude earthquake on June 28, 1992. Throughout southern California, numerous unnamed and "blind" faults pose an additional emerging threat to the area's communities (City of Big Bear Lake, August 23, 1999).

Landslides

Seismically induced landslides and rock falls may occur in areas with steep slopes. The County of San Bernardino Geologic Hazard Overlay for the Big Bear Lake area identifies that the hillside along the north shore, between approximately Big Bear Dam to Grout Bay is an area that has a high potential for a landslide. None of the District's service area is within areas susceptible to landslides.

Liquefaction

Liquefaction is a term used to describe a condition that occurs when saturated sandy soil loses strength and cohesion due to ground shaking during an earthquake. Lateral spreading occurs when liquefaction of a subsurface layer causes the mass to flow down the slope, moving blocks of ground at the surface. Areas at risk of lateral spreading are generally considered to be coincident with potential liquefaction areas.

The County of San Bernardino Geologic Hazard Overlay map Panel FI 10C for Big Bear Lake and the City of Big Bear Lake General Plan Hazards Element identify that the area between Big Bear Lake and Baldwin Lake, including the airport area, are susceptible to liquefaction due to the presence of alluvium and alluvium and shallow ground water (ie, less than 50 feet). Projects in this area include pipeline replacements for Project 4 (Bowles, Arbor and Elysian), Project 9 (Gildart Sewer Updates), Project 11 (Sequoia and W. Meadow Pipeline Replacement), Project 7 (Division Lift Station Pump Replacement), and Project 10 (Shore and Drake Lift Station Pump Replacement).

Impact Analysis

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i. Rupture of a known earthquake fault, as delineated on the most recent Alquist Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

No impact – There are no known active faults projecting toward or extending through the project sites. Additionally, although the sites are within a seismically active area of southern California the they are not situated within a designated State of California Earthquake Fault Zone. Therefore, ground rupture along a known earthquake fault would not occur on site. Also, note that none of the facilities identified in the Master Plan are designed to be occupied by humans.

ii. Strong seismic ground shaking?

Less Than Significant Impact – There are a number of active faults that could produce significant ground shaking within the District's service area during a major earthquake. The closest known active fault to the District's service area is the North Frontal Fault Zone located approximately 10 miles north of the project site; it has a maximum magnitude moment of 7.0. Strong seismic groundshaking could occur within the District's service area during an earthquake event. However, none of the District's projects include the development of any new structures. Five of the District's projects (Projects 1, 2, 3, 5, and 13) consist of studies or data collection with no physical change to the environment; five other projects (Projects 7, 10, 12, 14 and 15) would be limited to replacement or rehabilitation of existing pumps, valves and wells within existing lift station sites. The remaining projects (Projects 4, 6, 8, 9 and 11) would result in ground disturbance, either trenching and stockpiling (Projects 4, 9 and 11) in existing rights-of-way (streets or shoulders of the road), grading and paving of a new parking space (Project 8) or grading of new access easements along a 1.5-mile route adjacent to an existing pipeline in the Moonridge area). None of these projects would be subjected to any additional threats not already experienced in the service area under existing conditions. Therefore, this impact is considered to be less than significant.

iii. Seismic related ground failure, including liquefaction?

Less Than Significant Impact – Seismic related groundshaking could cause liquefaction, the loss of soil strength in saturated soils due to an applied stress such as shaking associated with earthquakes. According to the County's Geologic Hazards Maps (Panel F110C), a portion of the District's service area is located in in a Zone of Suspected Liquefaction Susceptibility. Projects in this area include pipeline replacements for Project 4 (Bowles, Arbor and Elysian), Project 9 (Gildart Sewer Updates), Project 11 (Sequoia and W. Meadow Pipeline Replacement), Project 7 (Division Lift Station Pump Replacement), and Project 10 (Shore and Drake Lift Station Pump Replacement). None of the Projects involve creating habitable structures. Additionally, the District's replacement projects will be designed to the latest engineering standards to accommodate ground shift.

iv. Landslides?

Less Than Significant Impact – The District's service area is within the Big Bear Lake area, in which some areas are prone to landslides. However, according to the San Bernardino County Geologic Hazards Maps, none of the Project areas are within areas prone to landslides. Therefore, there is a less than significant impact.

b) Result in substantial soil erosion or the loss of topsoil?

Less Than Significant Impact – Soils within the District's service area are generally moderately erosive. Soils will be excavated and/or stockpiled for the pipeline replacements (Projects 4 and 11) and the parking lot at the Kern Lift Station (Project 8) and the new access road for the Moonridge area facilities (Project 6). The soil removed during the projects operations will be subject to mandatory BMPs that include covering the material, refilling the pipeline excavations as required, securing the material from re-entering roadways and drainages, and/or transporting the material off-site for reuse; therefore, there implementation of these projects will not result in substantial soil erosion or the loss of topsoil. No mitigation is required.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction or collapse?

Less Than Significant Impact – The Project is located within young alluvium where groundwater is anticipated to be approximately 150 feet below ground surface, and no potential for liquefaction has been identified. Therefore, the impact of this criterion is less than significant.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

No Impact – The Project is not designed for human habitation; therefore, there is no impact.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

No Impact – The project does not propose the use of septic tanks or alternative wastewater disposal systems. Therefore, there is no impact.

f) *Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?*

Less Than Significant Impact – Because no unique geologic features are present on site and the lack of sediments that may contain paleontological resources, the likelihood of impacting paleontological resources is low to negligible. Therefore, there will be a less than significant impact to paleontological resources. No mitigation is proposed for this issue.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
VIII. GREENHOUSE GAS EMISSIONS: Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

SUBSTANTIATION: Refer to the air quality and greenhouse gas technical study in Appendix 1, titled "*Air Quality and GHG Impact Analysis, Big Bear City Community Services District Sewer Master Plan Project, Big Bear, California*" prepared by Giroux & Associates dated July 5, 2018.

Background

According to CEQA Guidelines Section 15064.4, when making a determination of the significance of greenhouse gas emissions, the "lead agency shall have discretion to determine, in the context of a particular project, whether to (1) use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use." Moreover, CEQA Guidelines Section 15064.7(c) provides that "a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts" on the condition that "the decision of the lead agency to adopt such thresholds is supported by substantial evidence."

San Bernardino County GHG Reduction Plan
In September 2011, the County of San Bernardino adopted a Greenhouse Gas Emissions (GHG) Reduction Plan (September 2011) ("GHG Plan"). The GHG Plan presents a comprehensive set of actions to reduce the County's GHG emissions to 15 percent below 2007 levels by 2020, consistent with the State's AB 32 Scoping Plan. A review standard of 3,000 metric tons of CO_2 equivalent ($MTCO_2e$) per year is used to identify projects that require the use of Screening Tables or a project-specific technical analysis to quantify and mitigate project emissions.

Impact Analysis

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

Less Than Significant Impact – Five of the District's projects (Projects 1, 2, 3, 5, and 13) consist of studies or data collection with no physical change to the environment; including GHG emissions. Five projects (Projects 7, 10, 12, 14 and 15) would be limited to replacement or rehabilitation of existing pumps, valves and wells within existing lift station sites. The potential for these projects to results in GHG emissions is limited to the operation of equipment during replacement or rehabilitation activities which constitute temporary short-term tasks. The worst-case scenario for maximum GHG emissions would be if all construction activities occur in the same calendar year. The CalEEMod2016.3.2 computer model predicts that the construction activities will generate the annual CO_2e emissions identified in Table 12.

Table 12
Construction Emissions (Metric Tons CO_2e)

Year 2019	CO_2e
Pipeline	92.4
Lift station Rehab	45.0
Total	137.4

CalEEMod Output provided in appendix

GHG impacts from construction are considered less-than-significant as they are below the adopted 3,000 MT threshold.

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

Less Than Significant Impact – Implementation of the District's projects can be categorized as maintenance of existing sewer facilities either: (1) studies and assessments to evaluate the District's infrastructure; (2) replacement of existing valves and pumps and rehabilitation of wells; or (3) development of a new parking space at an existing lift station or the development of a new access road along an existing pipeline for inspection/maintenance purposes. The District's projects are not growth inducing and would not result in an increase in the emissions of GHGs.

An informal project partnership led by the San Bernardino Associated Governments (SANDBAG) in compiling an inventory and evaluation of GHG reduction measures that could be adopted by the Partnership. The City of Big Bear has cooperated with this effort and a San Bernardino County Regional Greenhouse Gas Reduction Plan was finalized in March 2014.

The study showed that the largest source of GHG emissions in the region are combustion of transportation fuels and the use of electricity and natural gas by residential and commercial buildings. Off-road construction equipment, even in year 2020 comprises a fraction (1.5%) of emissions generated by on-road transportation and energy use. Thus, except for short-term construction emissions, the project is GHG neutral and the small amount of construction equipment employed for use for completion of this project is not significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
IX. HAZARDS AND HAZARDOUS MATERIALS: Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☒	☐
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☒	☐	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☒	☐	☐

SUBSTANTIATION

Environmental Setting

The District's service area is made up largely residential neighborhoods in the unincorporated communities of Big Bear City, Lake Erwin and Sugarloaf, and within an undeveloped forested area in the community of Moonridge. Figure 2 shows the District's service area.

The State's Department of Toxic Substances Control (DTSC) Envirostor database was accessed (June 19, 2018) to determine if the project sites were located at or near any sites identified as hazardous sites. No hazardous sites in the vicinity of the project sites were identified.

The District's service area is located in a San Bernardino County Fire Safety Overlay District. The Big Bear City Airport is located within the community of Big Bear City in the District's service area.

Impact Analysis

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less Than Significant Impact – Five of the District's projects (Projects 1, 2, 3, 5, and 13) consist of studies or data collection with no physical change to the environment. Therefore, implementation of these project would not create a significant hazard. Five projects (Projects 7, 10, 12, 14 and 15) would be limited to replacement or rehabilitation of existing pumps, valves and wells within existing lift station sites. District personnel or contractors would use relatively small amounts of hazardous materials, such as fuels and lubricants to complete these projects. However, because the amounts would be small and would be handled by experienced personnel, the use of such materials would not create a significant hazard.

Three of the remaining projects (Projects 4, 9 and 11) would be completed using typical construction equipment and vehicles, all of which operate using various fuels, lubricants, antifreeze, etc. However, these materials would be incidental to the equipment and vehicles and would not be transported. The construction projects do not include any maintenance of equipment or vehicles within the project sites (linear trenches, stockpiles, staging areas), therefore, the use or disposal of hazardous materials is not anticipated. Project 8 is limited to the grading and paving of a new parking space at the Kern Lift Station. This project would cause minimal disturbance and require minimal asphalt paving to complete. Finally, Project 8 is the development of a new access road along a 1.5-mile route adjacent to an existing pipeline in the Moonridge area. The new road would be graded and stabilized with decomposed granite or similar material in order to allow the District to periodically inspect and repair the pipeline. No transport, use or disposal of hazardous materials is anticipated to occur during the development of this access road. Therefore, impacts will be less than significant.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less Than Significant Impact – See response to VIII.a.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Less Than Significant Impact – As discussed above in VIII.a, five of the District's projects (Projects 1, 2, 3, 5, and 13) consist of studies or data collection that would not result in any physical change in the environment or the use of hazardous materials. Five of the projects (Projects 7, 10, 12, 14 and 15) will be completed within the existing lift station sites where hazardous substances would be limited to lubricants. Of the remaining five projects, one (Project 8 consists of the development of a parking site at the Kern lift station to accommodate off-street parking for a maintenance vehicle, and one (Project 6) consists of establishing (grading and road stabilization to accommodate all-weather conditions) access easements along segments of an existing 1.5-mile pipeline located in the Moonridge area. The remaining three projects (4, 9, and 11) are limited to the replacement of existing sewer lines.

Of all the Projects, only Projects 8 and 12 (Kern and Orange Lift Station Pump replacements and Parking Lot for Kern Lift Station) and Project 10 (Drake Lift Station Pump Replacement) exist within one-quarter of a mile of schools - Baldwin Lake Elementary and Big Bear High School.

However, none of these projects would utilize or result in emissions of acutely hazardous substances that would create a significant hazard to the public or the environment through the release of hazardous materials. Therefore, this impact would be less than significant.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No Impact – The District's service area encompasses approximately 11.5 square miles. In reviewing the State's Department of Toxic Substances Control (DTSC) web site, Envirostor (accessed June 19, 2018) none of the District's lift stations or proposed pipeline replacement sites were located on or near sites included on a list of hazardous materials sites. Therefore, there is no impact.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

Less Than Significant Impact – Five of the District's projects (Projects 1, 2, 3, 5, and 13) consist of studies or data collection that would not place people within the airport safety zone. Some of the District's lift stations, Division (Project 7), and Shore and Drake (Project 10) are located in Big Bear City within proximity of the Big Bear Airport. Likewise, Projects 4, 9 and 11 involving the replacement of sewer pipeline, would all occur within close proximity of the airport. However, there are no new habitable structures associated with the District's projects that would be located within the vicinity, and once construction is complete, no construction crews will be located in the area. The remaining projects are located outside the airport's safety zone in Moonridge, Lake Erwin or Sugarloaf. Therefore, this impact is considered to be less than significant.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less Than Significant With Mitigation Incorporated – Five of the District's projects (Projects 1, 2, 3, 5, and 13) consist of studies or data collection that would not result in the interference of an emergency response plan or an emergency evacuation plan. Five of the projects (Projects 7, 10, 12, 14 and 15) will be completed within the existing lift station sites were construction equipment and vehicles can be accommodated on site. Of the remaining five projects, one (Project 8 consists of the development of a parking site at the Kern lift station to accommodate off-street parking for a maintenance vehicle, and one (Project 6) consists of establishing (grading and road stabilization to accommodate all-weather conditions) access easements along segments of an existing 1.5-mile pipeline located in the Moonridge area. Neither of these projects would result in an impediment to the implementation of emergency plans. The remaining three projects (4, 9 and 11) involve trenching, stockpiling of excavated soil, and staging and using construction equipment along a number of residential streets in the Big Bear City area. For these projects, there is a potential to interfere with an emergency plan, unless precautions are taken to ensure that access to and from residences is maintained and that emergency vehicles would have access. The pipelines will be replaced via open trench excavation. Existing sewer pipelines to be replaced will be removed or abandoned in place. The anticipated construction schedule is 4 to 6 months and will require that temporary traffic control measures be implemented to maintain drive access during construction. Traffic control may include the temporary closure of a travel lane in one direction with traffic flow alternating through the open lane. Signage and flag people will be required to ensure safety during construction. **Mitigation Measure HAZ-1** requires that this will be set forth in a traffic control plan to be developed by the construction contractor and provided to the District, and the San Bernardino County Sheriff and Fire Departments.

g) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

Less Than Significant With Mitigation Incorporated – The District's service area and the larger Bear Valley area is located within a County Fire Safety Overlay District. The Fire Safety (FS) Overlay established by Sections 82.01.020 (Land Use Plan and Land Use Zoning Districts) and 82.01.030 (Overlays) was created to provide greater public safety in areas prone to wildland brush fires, by establishing additional development standards for these areas. According to the County's Development Code Chapter 82.13, present and future development within the Fire Safety Overlay is exposed to the impacts of wildland fires and other natural hazards primarily due to native fuel types, topography, and prevailing weather conditions such as Santa Ana winds. These factors contribute to the potential of extreme wild land fire behavior conditions.

Development Code requirements were established for land uses where habitable structures are developed such as residential neighborhoods, commercial shopping areas, schools, etc. The proposed projects are divided into three categories: (1) projects that are limited to studies and data collection would not result in the development of any habitable structures (Projects 1, 2, 3, 5 and 13); (2) projects involving the

replacement of pumps and valves or rehabilitation of wells all within the confines of the District's seven lift stations that would not result in the development of habitable structures (Projects 7, 10, 12, 14 and 15); or (3) projects that consist of the replacement of existing underground sewer pipelines (Projects 4, 9 and 11), the development of a parking space at the Kern lift station (Project 8); or the establishment of access easements on properties along segments of an existing 1.5-mile pipeline (Project 6), again not resulting in the development of habitable structures.

Although there is a low risk of a fire from construction or operation of the District's facilities, because the District's service area is within the County's Fire Safety Overlay District area, **Mitigation Measure HAZ-2** is incorporated to ensure the potential risk is less than significant.

Mitigation Measure

HAZ-1 ***Prior to commencement of construction activities for Projects 4, 9 and 11 (pipeline replacement), the construction contractor shall prepare and submit a Traffic Control Plan to the District and the San Bernardino County Sheriff's Department and Fire Department showing how access to neighborhoods and individual residences will be maintained to ensure that emergency access will not be interrupted. The Plan must be approved by these agencies prior to the start of construction activities.***

HAZ-2 ***During construction, all staging areas and areas slated for construction using spark-producing equipment will be cleared of dried vegetation or other material that could ignite. Spark arresting equipment shall be in good working order. The District shall require all vehicles and crews working at the project sites to have access to functional fire extinguishers at all times. The contractor shall also provide a safety plan for the implementation of additional protocols when the National Weather Service issues a Red Flag Warning. Such protocols should address smoking and fire rules, storage and parking areas, use of gasoline-powered tools, use of spark arresters on construction equipment, road closures, use of a fire guard, fire suppression tools, fire suppression equipment, and training requirements.***

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
X. HYDROLOGY AND WATER QUALITY: Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☐	☒	☐	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	☐	☐	☐	☐
(i) result in substantial erosion or siltation onsite or offsite?	☐	☐	☒	☐
(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite?	☐	☐	☒	☐
(iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?; or,	☐	☐	☐	☒
(iv) impede or redirect flood flows?	☐	☐	☐	☒
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

SUBSTANTIATION

Environmental Setting

The District's service area is approximately 11.5 square miles located in southwest San Bernardino County near the City of Big Bear Lake. Big Bear City is located on the shores of Big Bear Lake, situated at an elevation of approximately 6,500 feet. The service area where District projects are proposed is made up largely residential neighborhoods in the unincorporated communities of Big Bear City, Lake Erwin and Sugarloaf, and within an undeveloped forested area in the community of Moonridge. Figure 2 shows the District's service area.

Located in the Big Bear Valley, elevations within the District range from 6,710 feet above mean sea level (amsl) in the north to 7,470 feet in the southwest corner. Bordering mountain ranges include Gold Mountain to the north and Sugarloaf Mountain to the south, with respective peak elevations of approximately 8,230 and 9,950 feet.

The climate is a semi-arid, Mediterranean environment with cold winters, warm summers, and moderate rainfall. Average monthly evapotranspiration (ETo) is 1.8 inches. The Bear Valley's average monthly temperature ranges from about 32 to 62 degrees Fahrenheit (°F), with an average annual temperature of 47°F. Average annual values of ETo and precipitation are 51 inches and 22 inches, respectively. Records show that the average monthly precipitation ranges from about 0.1 inches to 4.5 inches.

Impact Analysis

a) Violate any water quality standards or waste discharge requirements?

Less Than Significant With Mitigation Incorporated – Five of the District's projects (Projects 1, 2, 3, 5, and 13) consist of studies or data collection that would not result in the violation of any water quality standards or waste discharge requirements. Five of the projects (Projects 7, 10, 12, 14 and 15) will be completed within the existing lift station sites, generally within the lift station building. Construction equipment and vehicles can be accommodated on all but one of the seven lift station sites and they are all paved. One of the District's projects (Project 8) is the development of a parking space at the Kern Lift Station to allow the District to pull into the lift station when maintenance or replacement of pumps and valves or the rehabilitation of the wells (Project 12).

Of the remaining four projects, one project (Project 6) consists of establishing (grading and road stabilization to accommodate all-weather conditions) access easements along segments of an existing 1.5-mile pipeline located in the Moonridge area. This project may disturb up to three acres for a 12-foot wide easement and equipment staging areas along the route. Grading and construction activities could expose soils to erosion from rainfall, runoff, and wind. Wind erosion could result in the generation of fugitive dust which is addressed in Section III, *Air Quality*. Erosion from runoff is more problematic because pollutants from heavy equipment or construction-related materials, such as diesel, gasoline, oils, grease, solvents, lubricants, or other petroleum products have the tendency to mix with water, and if not contained, would create the potential for a pollutant discharge from the project site.

To alleviate this potential and prior to site disturbance, the District's construction contractor must apply to the State Water Resources Control Board (SWRCB) for coverage under the Construction General Permit which applies to all stormwater discharges from projects where clearing, grading, and excavation result in soil disturbance of at least one acre or more. SWRCB shall issue a Waste Discharge Identification Number (WDID) that must be available for review along with the SWPPP at the project site during the construction period. The SWPPP must provide a list of Best Management Practices (BMPs) for the control and treatment of runoff from the project site.

While Project 6 consists of easement acquisition and new access road development for the pipeline in the Moonridge area, the potential has been identified to upgrade or improve the pipeline alignment to remove it from the creek. The potential area of disturbance for Project 6 could be up to 3 acres, depending on the scope of work. The Construction General Permit requires an applicant to prepare and implement a SWPPP, which would include a list of BMPs that would be implemented to prevent soil erosion and to contain the potential for discharge of construction-related pollutants that could contaminate nearby water resources. The SWPPP may include, but not be limited to, the following BMPs:

- Temporary Soil Stabilization: soil binders;
- Wind Erosion Control: watering of the construction site three times per day;
- Tracking Control: staging/storage area and street sweeping; and
- Waste Management and Materials Pollution Control: vehicle and equipment cleaning, concrete waste management, and contaminated soil management.

Periodic maintenance of the new unpaved access road would also be required so that erosion is controlled. One way to control runoff from the road is to establish berms along either side of the road to contain the runoff within the graded road. For Project 6, the District would be required to include the new unpaved

access road in its annual maintenance plan where the road would be routinely inspected and repaired as needed to ensure erosion control.

Projects 4, 9 and 11 involve the trenching of a new alignment adjacent to existing sewer pipelines in existing streets (Bowles, Arbor, Elysian, Gildart, Sequoia and Meadows). For the purposes of this analysis, the total area of disturbance is estimated to be approximately 0.5 acre based on a total of 2,572 linear feet approximately 8-feet wide (trench plus stockpile area). The Construction General Permit covers disturbance of one acre or more, therefore, the District's contractor would not be required to prepare and implement a SWPPP. However, the District is still subject to SCAQMD requirements to stabilize the stockpiles to control wind erosion (see Section III, Air Quality, above) and will require the contractor to implement BMPs to ensure that the stockpiles are stabilized. Therefore, impacts associated with construction of Projects 4, 9 and 11 would be less than significant.

HYD-1 ***Prior to the start of Project 6, a Storm Water Pollution Prevention Plan (SWPPP) must be prepared and a Notice of Intent must be filed with the State Water Resources Control Board (SWRCB) for project construction activities that will exceed 1 acre. The SWRCB shall issue a Waste Discharge Identification Number (WDID) that shall be available for review along with the SWPPP at the project site during the construction period. The SWPPP shall provide a list of Best Management Practices (BMPs) for the control and treatment of runoff from the project site. The SWPPP shall be available for review at the construction office or similar location during the construction period.***

HYD-2 ***Prior to operation of the new unpaved access road (Project 6), the District shall prepare a road inspection/maintenance plan that shall be incorporated into the District's operations and/or maintenance plan to ensure that the road will be routinely inspected and maintained as necessary during the life of the project.***

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

No Impact – The proposed projects will not substantially deplete groundwater supplies or substantially interfere with groundwater recharge. The proposed projects consist of (1) studies and data collection); (2) replacement of lift station pumps and valves and/or rehabilitation of wet and dry wells or bypass wells; and (3) the grading and operation of a new access road (Project 6) or the replacement of existing sewer pipelines (Projects 4, 9 and 11). The proposed sewer related projects will not utilize groundwater. Therefore, the District's projects will not substantially deplete groundwater supplies or interfere with groundwater recharge.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would:

(i) result in substantial erosion or siltation onsite or offsite?

Less Than Significant – The proposed projects consist of (1) studies and data collection); (2) replacement of lift station pumps and valves and/or rehabilitation of wet and dry wells or bypass wells; and (3) the grading and operation of a new access road (Project 6) or the replacement of existing sewer pipelines (Projects 4, 9 and 11). Only Project 6 has the potential to alter the existing drainage pattern of the area in which it will be developed. The project will be constructed in a manner that will not result in erosion and the District will include the new road in its operations/ maintenance planning effort in order to ensure through inspection and maintenance, that erosion or siltation would not occur. Therefore, there is a less than significant impact.

(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite?

Less Than Significant – Refer to Response c), above. Less than significant impacts would occur.

(iii) create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?

No Impact – The proposed projects consist of (1) studies and data collection); (2) replacement of lift station pumps and valves and/or rehabilitation of wet and dry wells or bypass wells which are self-contained; and (3) the grading and operation of a new access road (Project 6) or the replacement of existing sewer pipelines (Projects 4, 9 and 11). The areas in which the sewer pipeline replacement is proposed are all within existing residential neighborhoods. Once construction is completed, trenches will be backfilled and the new sewer pipelines will be underground, thus not impacts to a storm water drainage system would occur.

(iv) impede or redirect flood flows?

Less Than Significant – The District's projects that may be located within a flood inundation area associated with Big Bear Lake (i.e. Big Bear City area), would either take place within existing lift stations or would replace existing underground sewer lines. The projects would not result in the placement of new structures within a 100-year flood hazard area or impede or redirect flood flows. Also refer to Response a) above for a discussion of the District's SWPPP.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

Less Than Significant – Two factors affect hydrology impacts under this environmental issue. First, the only potential hazards within the project area would be a minor seiche adjacent to Big Bear Lake or exposure in flood hazard areas. However, the proposed project will not install new sewer lines within areas subject to a seiche or flood hazards. Existing sewer lines are part of the existing environment and any impacts to such lines due to project inundation would occur with or without the proposed project. Thus, potential impacts under this evaluation criterion are considered less than significant.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less Than Significant – The purpose of creating and implementing the Sewer Master Plan is to ensure continued compliance with the applicable Santa Ana River Basin Plan. As such, the proposed upgrades that will be installed in the sewer collection system will be supportive of the Basin Plan. There is no sustainable groundwater management plan in the Big Bear Valley and even if there was the proposed project would not result in any environmental changes that could conflict or obstruct the implementation of such a plan.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XI. LAND USE AND PLANNING: Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

SUBSTANTIATION

Environmental Setting

The District's service area encompasses approximately 11.5 square miles in the Big Bear Valley area of San Bernardino County located in the San Bernardino Mountains adjacent to the City of Big Bear Lake. With the exception of Project 6, all facilities that are the subject of this Initial Study are located within existing residential neighborhoods designed for single family homes. Project sites are located within the unincorporated communities of Big Bear City, Sugarloaf, Lake Erwin and Moonridge. Project 6 is located in a largely undeveloped area within the community of Moonridge.

Impact Analysis

a) Physically divide an established community?

No Impact – The proposed projects consist of 1) studies and data collection); 2) replacement of existing lift station pumps and valves and/or rehabilitation of wet and dry wells or bypass wells; and 3) the grading and operation of a new access road (Project 6) or the replacement of existing sewer pipelines (Projects 4, 9 and 11). Therefore, none of the projects would physically divide an established community and there will be no division of any community impacts.

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact – The District's projects are all related to the operation and maintenance of the District's sewer lines and lift stations within its service area. The project sites are all located in areas designated for residential uses and the provision of sewer service is compatible with residential uses. Therefore, there will be no conflict with applicable land use plans, policies or regulations.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XII. MINERAL RESOURCES: Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

SUBSTANTIATION:

Environmental Setting

The California Department of Conservation classifies lands into Mineral Resource Zones (MRZs) based on the known or inferred mineral resource potential of that land. The classification process is based solely on geology, without regard to land use or ownership. According to the City of Big Bear Lake General Plan, the State's Division of Mines and Geology released a report in 1999 identifying aggregate materials in the Big Bear Area Production- Consumption Region, a region encompassing the City and the surrounding unincorporated communities including Big Bear City, Lake Erwin, Moonridge and Sugarloaf. The City's General Plan can be accessed through the following website: http://worldcat.org/arcviewer/1/CBG/2007/02/06/0000058425/viewer/file1.html. The report showed that most of the mineral deposits identified were classified as Mineral Resources Zone 3 (MRZ-3); areas containing mineral deposits, the significance of which cannot be evaluated from available data. The primary goal of mineral land classification is to help ensure that the mineral resource potential of land is recognized and considered in the land use planning process.

Impact Analysis

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

No Impact – With the exception of Project 6 (development of a new 1.5-mile road) the District's projects that comprise elements other that studies and data collection, would all be completed within existing lift stations, or within established residential neighborhoods. Therefore, if mineral resources were located within the District's service area, the project sites are all within area that have been previously developed and therefore would not result in the loss of availability of mineral resources that would be of value to the region and the residents of the State. Regarding Project 6, this project is the development of a new 1.5-mile road which would not result in the loss of the availability of a mineral resource, as the road will not be paved. Therefore, there will be less than significant impacts.

b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

No Impact – Refer to Response a) above.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XIII. NOISE: Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of a project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐

SUBSTANTIATION

Environmental Setting

Noise is generally described as unwanted sound. Sound is a physical disturbance in a medium, such as air, that is capable of being detected by the human ear. Sound waves in air are caused by variations in pressure above and below the static value of atmospheric pressure. The unit of sound pressure ratio to the faintest sound detectable to a person with normal hearing is called a decibel (dB) on a logarithmic scale. The “pitch” (high or low) of the sound is a description of frequency, which is measured in Hertz (Hz). Most common environmental sounds are a composite of frequencies. A normal human ear can usually detect sounds within frequencies from 20 to 20,000 Hz. However, humans are most sensitive to frequencies in the range of 500 to 4,000 Hz.

Certain frequencies are given more “weight” during assessment because human hearing is not equally sensitive to all frequencies of sound. The A-weighted decibel (dBA) scale corresponds to the sensitivity range for human hearing. Noise levels capable of being heard by humans are measured in dBA. A noise level change of 3 dBA or less is barely perceptible to average human hearing. However, a 5 dBA change in noise level is clearly noticeable. A 10 dBA change is perceived as a doubling or halving of noise loudness, while a 20 dBA change is considered a “dramatic change” in loudness.

Sound from a source spreads out as it travels away from the source, and the sound pressure level diminishes with distance. Individual sound sources are considered “point sources” when the distance from the source is large compared to the size of the source (e.g., construction equipment, and turbines). Sound from a point source radiates hemispherically, which yields a 6 dB sound level reduction for each doubling of the distance from the source. If the sound source is long in one dimension, the source is considered a “line source,” (i.e., roadways and railroads). Sound from a line source radiates cylindrically, which typically yields a 3 dB sound level reduction for each doubling of the distance from the source.

The metrics for evaluating the community noise environment are based on measurements of the noise levels over a period of time. These metrics are used in order to characterize and evaluate the cumulative noise impacts. The Community Noise Equivalent Level (CNEL) represents a 24-hour A-weighted sound level average from midnight to midnight, where sound levels during the evening hours of 7:00 p.m. to 10:00 p.m. have an added 5 dB weighting, and nighttime hours of 10:00 p.m. to 7:00 a.m. have an added 10 dB weighting.

Noise standards typically apply to permanent activities. The recommended noise exposure levels are established for permanent noise sources and receptors where noise can be generated over a 24-hour period with penalties applied for permanent noise generated during the night time hours. Construction related noise is short term and generally considered a nuisance. Construction noise is generally not of sufficient magnitude that is considered health threatening.

Impact Analysis

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of a project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less Than Significant – With the exception of Project 6, all of the District's projects will be completed within existing single-family neighborhoods in Big Bear City, Sugarloaf and Lake Erwin. Project 6 is located in a relatively undeveloped area in the community of Moonridge. In compliance with Section 83.01.080 of the County of San Bernardino's Noise Ordinance, all grading/trenching and maintenance-related activities will be undertaken between the hours of 7:00 a.m. and 7:00 p.m., except Sundays and federal holidays. Therefore, noise generated by the heavy equipment will not violate County ordinances standards or requirements.

The proposed projects consist of (1) studies and data collection; (2) replacement of lift station pumps and valves and/or rehabilitation of wet and dry wells or bypass wells which are self-contained; and (3) the grading and operation of a new access road (Project 6), development of a new parking space at the Kern lift station (Project 8) or the replacement of existing sewer pipelines (Projects 4, 9 and 11). The areas in which the sewer pipeline replacement is proposed are all within existing residential neighborhoods. Once construction is completed, trenches will be backfilled and the new sewer pipelines will be underground, thus not substantial permanent increase in ambient noise levels would occur.

b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Less Than Significant – It is anticipated that none of the proposed projects will involve pile-driving activities typically associated with ground-borne vibration. There are three projects where trenching and stockpiling of materials (Project 4, 9 and 11) may generate intermittent vibration associated with construction equipment. However, this is anticipated to be minimal because contractors would use typical equipment such as a backhoe, flatbed truck pickup trucks and such. In addition, because these projects are linear and will be completed at several different locations, potential impacts to residents would be short term and intermittent. Once the sewer pipeline is laid in the trench and backfilled, construction will move to a different location. Therefore, this impact would be less than significant.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Less Than Significant – The District's service area lies within 2 miles of the Big Bear Airport. Projects proposed that require a physical change to the environment that require the use of heavy equipment in neighborhoods include pipeline replacements (Projects 4, 9 and 11), creating a maintenance road for the Moonridge easement (Project 6), and creating parking for the Kern Lift Station (Project 8). However, these are anticipated to be short-term in nature and will not expose people residing or working in the area to excessive noise. The District's projects do not include the development of residential or commercial properties. Therefore, no new residents or workers would be added to the area in the vicinity of the Big Bear Airport.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XIV. POPULATION AND HOUSING: Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

SUBSTANTIATION

Environmental Setting

With the exception of Project 6, the District's projects would all be completed within existing lift stations or along existing roads within residential neighborhoods. Project 6 is the development of an access road along a 1.5-mile alignment in an area of Moonridge that is not currently developed. None of the projects involve housing, or the construction of structures for housing.

Impact Analysis

a) *Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?*

No Impact – The projects would not induce population growth in the District's service area because none of the projects involve the extension of sewer service into new, previously undeveloped areas. Therefore, the Project does not indirectly induce an increase in population.

b) *Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?*

No Impact – With the exception of Project 6 (development of a new 1.5-mile road) the District's projects that comprise elements other that studies and data collection, would all be completed within existing lift stations, or within existing roadways in established residential neighborhoods. No housing would be displaced.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XV. PUBLIC SERVICES: Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered govern-mental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
a) Fire protection?	☐	☐	☒	☐
b) Police protection?	☐	☐	☒	☐
c) Schools?	☐	☐	☒	☐
d) Parks?	☐	☐	☒	☐
e) Other public facilities?	☐	☐	☒	☐

SUBSTANTIATION

Environmental Setting

The District's service area encompasses a number of unincorporated communities (Big Bear City, Lake Erwin, Moonridge and Sugarloaf) that are largely residential with some commercial or public land uses generally along Big Bear Boulevard. All the District's lift stations and proposed sewer pipeline replacement alignments are located within existing residential neighborhoods. Only the proposed new access road in the Moonridge area is situated in a relatively isolated location.

Impact Analysis

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: Fire protection? P*olice Protection? Schools? Parks? Other Services?*

Less Than Significant – The District's proposed projects are not population inducing and will not generate the need for any public services. Five of the District's projects (Projects 1, 2, 3, 5, and 13) consist of studies or data collection with no physical change to the environment; five other projects (Projects 7, 10, 12, 14 and 15) would be limited to replacement or rehabilitation of existing pumps, valves and wells within existing lift station sites. The remaining projects (Projects 4, 6, 8, 9 and 11) would result in ground disturbance, either trenching and stockpiling (Projects 4, 9 and 11) in existing rights-of-way (streets or shoulders of the road), grading and paving of a new parking space (Project 8) or grading of new access easements along a 1.5-mile route adjacent to an existing pipeline in the Moonridge area). Therefore, impacts to public services would be less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XVI. RECREATION:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

SUBSTANTIATION

Environmental Setting

The District's service area encompasses a number of unincorporated communities (Big Bear City, Lake Erwin, Moonridge and Sugarloaf) that are largely residential with some commercial or public land uses generally along Big Bear Boulevard. All the District's lift stations and proposed sewer pipeline replacement alignments are located within existing residential neighborhoods. Only the proposed new access road in the Moonridge area is situated in a relatively isolated location.

Impact Analysis

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

No Impact – Implementation of the District's proposed projects does not include the development of residential or other land uses that would cause a substantial increase in the use of existing neighborhood and regional parks or other recreational facilities. Substantial physical deterioration of local recreational facilities is not anticipated as a result of the proposed projects. There is no impact to this criterion.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No Impact – The proposed projects do not include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment. There is no impact to this criterion.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XVII. TRANSPORTATION: Would the project:				
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☒	☐	☐
b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	☐	☐	☒	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous inter-sections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
d) Result in inadequate emergency access?	☐	☒	☐	☐

SUBSTANTIATION

CEQA Section 15064.3, subdivision (b):
(1) Land Use Projects. Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high-quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be presumed to have a less than significant transportation impact.

(2) Transportation Projects. Transportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact. For roadway capacity projects, agencies have discretion to determine the appropriate measure of transportation impact consistent with CEQA and other applicable requirements. To the extent that such impacts have already been adequately addressed at a programmatic level, such as in a regional transportation plan EIR, a lead agency may tier from that analysis as provided in Section 15152.

(3) Qualitative Analysis. If existing models or methods are not available to estimate the vehicle miles traveled for the particular project being considered, a lead agency may analyze the project's vehicle miles traveled qualitatively. Such a qualitative analysis would evaluate factors such as the availability of transit, proximity to other destinations, etc. For many projects, a qualitative analysis of construction traffic may be appropriate.

(4) Methodology. A lead agency has discretion to choose the most appropriate methodology to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure. A lead agency may use models to estimate a project's vehicle miles traveled, and may revise those estimates to reflect professional judgment based on substantial evidence. Any assumptions used to estimate vehicle miles traveled and any revisions to model outputs should be documented and explained in the environmental document prepared for the project. The standard of adequacy in Section 15151 shall apply to the analysis described in this section.

Environmental Setting

The District provides wastewater collection to an approximately 11.5-square mile service area which includes Big Bear City and the Sugarloaf, Moonridge, and Lake Erwin communities in the unincorporated area of San Bernardino County. The District's SMP identifies capacity constrained sewer mains, assesses lift station conditions and provides a prioritized list of recommended capital improvement projects spanning out to Fiscal Year 2035.

With the exception of Project 6 which would allow the District to access an existing 1.5 miles of sewer pipeline, currently constrained due to private property access issues adjacent to the pipeline, these facilities are all located within existing lift stations or within existing streets.

Impact Analysis

a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

Less Than Significant With Mitigation – Projects 1, 2, 3, 5, and 13 are limited to data collection, monitoring or the completion of studies, and would not result in a conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system.

Projects 7, 10, 12, 14 and 15 consist of replacing pump and valves and upgrading wells within the District's seven lift station sites. Under existing conditions, six of the seven lift stations are located on sites where parking is provided, and/or vehicles can park along the shoulder of the road out of traffic lanes, to minimize impacts to vehicle flow through the neighborhoods. Therefore, implementation of these projects would not result in a conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system.

The District's projects include 4 projects that have the potential to interfere with traffic during construction – Projects 4, 8, 9 and 11. Projects 3, 9 and 11 consist of trenching and stockpiling of soil along a number of streets for a total of 2,852 linear feet. Streets that would be affected during construction are as follows:

- Project 4 – Combined total of 857 linear feet of sewer pipeline replacement in Bowles Street, Arbor Lane and Elysian Street
- Project 9 – Combined total of 1,514 linear feet of sewer pipeline replacement in Gildart Drive
- Project 11 – Combined total of 481 linear feet of sewer pipeline replacement in Sequoia Drive and West Meadow Drive

All Project activities will occur at or below grade (sewer pipeline replacement) or within the District's existing lift station sites. The streets that would be affected by projects 4, 9 and 11 are all local residential streets, narrow streets with no curb and gutter; unpaved shoulders. Therefore, during construction, no parking on the road shoulders would be allowed, and vehicle travel would likely be reduced to one lane, thus requiring signage and a flag person to direct traffic.

Project 8 would be limited to the construction of a new parking space at the Kern Lift Station located near the intersection of Kern Street and Baldwin Lane. Once the parking space has been constructed, replacement and rehabilitation activities at the lift station (Project 12) can be completed without adversely affecting the flow of traffic along these local streets. However, during construction vehicle traffic be reduced to one lane in order to accommodate equipment used to construct the parking space. Therefore, during construction, no parking on the road shoulders would be allowed, and vehicle travel would likely be reduced to one lane, thus requiring signage and a flag person to direct traffic.

Therefore, implementation of these projects would not result in *a c*onflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system with the implementation of **Mitigation Measure TRP-1**.

TRP-1 ***Prior to commencement of construction activities where traffic would be affected, the construction contractor shall prepare a Traffic Control Plan (TCP) to be submitted to the District and the San Bernardino County Sheriff's office for review and approval. Both the District and the Sheriff's office must approve the TCP for each project that will affect traffic along the local***

affected streets. The TCP shall be available at the construction site through the duration of the project.

b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?

Less Than Significant Impact – The new State CEQA Guidelines have shifted the focus of traffic evaluations from level of service and the flow of traffic to vehicle miles traveled (VMT). The proposed project will result in short-term construction trips, but will not alter the long-term trip generation associated with the management of the sewer collection system. The short-term construction traffic impacts will not result in a significant conflict with or be inconsistent with CEQA Guidelines Section 15064.3, Subdivision (b).

c) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less Than Significant – All Project activities will occur at or below grade (sewer pipeline replacement) or within the District's existing lift station sites. The streets that would be affected by projects 4, 9 and 11 are all local residential streets, narrow streets with no curb and gutter; unpaved shoulders. Likewise, Project 8, development of a new parking space, may also require that vehicle traffic be reduced to one lane in order to accommodate equipment used to construct the parking space. Therefore, during construction, no parking on the road shoulders would be allowed, and vehicle travel would likely be reduced to one lane, thus requiring signage and a flag person to direct traffic. However, these conditions are temporary and will not result in a permanent hazard from Project operations. Therefore, the impact is less than significant.

d) Result in inadequate emergency access?

Less Than Significant With Mitigation Incorporated – Construction equipment will utilize roadways to travel to and from the Project sites (lift stations and streets where sewer pipelines will be replaced). Transporting equipment will not block or create inadequate emergency access for public response as the vehicles and equipment would either be accommodated on site (lift station improvements) or be parked at a staging area when not in use (sewer pipeline replacement).

Many of the streets within the District's service area are very narrow (i.e., some 12 to 14 feet wide) which may pose a conflict with traffic and emergency access.

With regard to sewer replacement and the construction of the parking space at the Kern Lift Station, implementation of **Mitigation Measure TRP-1** will ensure that emergency vehicles will still be able to access neighborhoods should they be called.

With regard to residences that would be affected during construction of Projects 4,8, 9 and 11, **Mitigation Measure TRP-**2 is proposed which requires the construction contractor to notify all residents prior to the start of construction. Where driveways would be affected by trenching, at the end of the work day, if an open trench has the potential to block a driveway, the construction contractor shall use steel plates or similar trench cover that would allow residents to enter their property. When implemented, **Mitigation Measure TRP-2** will ensure that local residences will have access to their property and transportation route alternatives during short term construction activities. Mitigation measures are located at the end of this section.

TRP-2 Prior to commencement of construction activities on any of the streets where sewer pipeline replacement is proposed, the construction contractor shall notify the individual homeowners prior to trenching in order for residents to move their vehicles and plan alternative routes if necessary. If a trench remains is to remain open at the end of a work day, then a steel plate or similar trench cover shall be placed over the trench in order to provide residents with access to their property.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XVIII. TRIBAL CULTURAL RESOURCES: Would the project cause a substantial change in the significance of tribal cultural resources, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to the California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☒	☐	☐
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in sub-division (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

SUBSTANTIATION

A Tribal Resources is defined in the Public Resources Code section 21074 and includes the following:

- Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe that are either of the following: included or determined to be eligible for inclusion in the California Register of Historical Resources or included in a local register of historical resources as defined in subdivision (k) of Section 5020.1;
- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purpose of this paragraph, the lead agency shall consider the significance of the resources to a California American tribe;
- A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape;
- A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "non-unique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal resource if it conforms with the criteria of subdivision (a).

Less Than Significant With Mitigation Incorporated – The Community Services District initiated AB 52 consultation with the San Manuel Band of Mission Indians who previously notified the District. The tribe responded and requested that BBCCSD implement several mitigation measures. The following measures will be implemented to ensure that Tribal Cultural Resources are adequately addressed during any ground disturbing activity in support of the proposed project.

TRC-1 ***Retain a Native American Monitor/Consultant: The Project Applicant shall be required to retain and compensate for the services of a Tribal monitor/consultant who is both approved by the San Manuel Band of Mission***

Indians and is listed under the NAHC's Tribal Contact list for the area of the project location. This list is provided by the NAHC. The monitor/consultant will only be present on-site during the construction phases that involve ground disturbing activities. Ground disturbing activities are defined as activities that may include, but are not limited to, pavement removal, pot-holing or auguring, grubbing, tree removals, boring, grading, excavation, drilling, and trenching, within the project area. The Tribal Monitor/consultant will complete daily monitoring logs that will provide descriptions of the day's activities, including construction activities, locations, soil, and any cultural materials identified. The on-site monitoring shall end when the project site grading and excavation activities are completed, or when the Tribal Representatives and monitor/consultant have indicated that the site has a low potential for impacting Tribal Cultural Resources.

TRC-2 ***Unanticipated Discovery of Tribal Cultural and Archaeological Resources: Upon discovery of any archaeological resources, cease construction activities in the immediate vicinity of the find until the find can be assessed. All archaeological resources unearthed by project construction activities shall be evaluated by the qualified archaeologist and tribal monitor/consultant approved by the San Manuel Band of Mission Indians. If the resources are Native American in origin, the San Manuel shall coordinate with the landowner regarding treatment and curation of these resources. Typically, the Tribe will request reburial or preservation for educational purposes. Work may continue on other parts of the project while evaluation and, if necessary, mitigation takes place (CEQA Guidelines Section15064.5 [f]). If a resource is determined by the qualified archaeologist to constitute a "historical resource" or "unique archaeological resource", time allotment and funding sufficient to allow for implementation of avoidance measures, or appropriate mitigation, should be available. The treatment plan established for the resources shall be in accordance with CEQA Guidelines Section 15064.5(f) for historical resources.***

TRC-3 ***Public Resources Code Sections 21083.2(b) for unique archaeological resources. Preservation in place (i.e., avoidance) is the preferred manner of treatment. If preservation in place is not feasible, treatment may include implementation of archaeological data recovery excavations to remove the resource along with subsequent laboratory processing and analysis. Any historic archaeological material that is not Native American in origin shall be curated at a public, non-profit institution with a research interest in the material, if such an institution agrees to accept the material. If no institution accepts the archaeological material, they shall be offered to a local school or historical society in the area for educational purposes.***

TRC-4 ***Unanticipated Discovery of Human Remains and Associated Funerary Objects: Native American human remains are defined in PRC 5097.98 (d)(1) as an inhumation or cremation, and in any state of decomposition or skeletal completeness. Funerary objects, called associated grave goods in PRC 5097.98, are also to be treated according to this statute. Health and Safety Code 7050.5 dictates that any discoveries of human skeletal material shall be immediately reported to the County Coroner and excavation halted until the coroner has determined the nature of the remains. If the coroner recognizes the human remains to be those of a Native American or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the Native American Heritage Commission (NAHC) and PRC 5097.98 shall be followed.***

TRC-5 ***<u>Resource Assessment & Continuation of Work Protocol</u>: Upon discovery, the tribal and/or archaeological monitor/consultant/consultant will immediately divert work at minimum of 150 feet and place an exclusion zone around the burial. The monitor/consultant(s) will then notify the Tribe, the qualified lead archaeologist, and the construction manager who will call the coroner. Work will continue to be diverted while the coroner determines whether the remains are Native American. The discovery is to be kept confidential and secure to prevent any further disturbance. If the finds are determined to be Native American, the coroner will notify the NAHC as mandated by state law who will then appoint a Most Likely Descendent (MLD).***

TRC-6 ***<u>Professional Standards</u>: Archaeological and Native American monitoring and excavation during construction projects will be consistent with current professional standards. All feasible care to avoid any unnecessary disturbance, physical modification, or separation of human remains and associated funerary objects shall be taken. Principal personnel must meet the Secretary of Interior standards for archaeology and have a minimum of 10 years of experience as a principal investigator working with Native American archaeological sites in southern California. The Qualified Archaeologist shall ensure that all other personnel are appropriately trained and qualified.***

With the incorporation of these mitigation measures, as well as the mitigation identified under Cultural Resources, any impacts under these issues are considered less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XIX. UTILITIES AND SERVICE SYSTEMS: Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment, or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

SUBSTANTIATION

Environmental Setting

The District's collection system is comprised of approximately 114 miles of gravity sewer main, 2,842 manholes, 7 sewage lift stations, and 0.92 miles of force main. Approximately 87 percent of the gravity sewer is 8-inch diameter pipe, and 7 percent is 10-inch. Although not a part of the District's system, the Big Bear Area Regional Wastewater Agency (BBARWA) operates a trunk line, primarily 18 and 21-inches in diameter, that passes through the District's service area and collects District wastewater for delivery to the BBARWA wastewater treatment plant (WWTP).

As part pf the development of the District's SMP, BBARWA historical monthly sewer inflow data from the District's service area was obtained for years 1990 through 2014. Five years of data were evaluated (2010 to 2014), to determine an average annual flow (AAF) of 0.91 million gallons per day (MGD) from District sewer lines to the WWTP).

Impact Analysis

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment, or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Less Than Significant Impact – The proposed projects would not require the construction of any new utility infrastructure, other than the sewer lines and support facilities identified and evaluated in this document. Impacts from implementing the proposed project have been found to be less than significant with identified mitigation. The District's proposed projects to implement the Sewer Master Plan would not

result in the generation of wastewater in exceedance of wastewater treatment requirements. The projects represent a series of activities that when implemented will result in improved service to residents in the District's service area by upgrading facilities at the District's lift stations and replacing approximately 3,333 linear feet of sewer pipelines with larger pipelines in order to accommodate projected growth in the service area. Projects 1, 2, 3, 5, and 13 represent studies and data collection and would not result in the generation of wastewater. Projects 7, 10, 12, 14 and 15 represent facility maintenance and upgrades at the District's existing lift stations, including the replacement of pumps and valves, and the rehabilitation of wet and dry wells and bypass wells as needed. These projects would not result in an increase in wastewater generation. Project 6 includes the acquisition of access easements along an existing 1.5 miles of sewer pipeline that is currently inaccessible in some locations. Access to the sewer pipeline for inspection and maintenance activities would not result in an increase in wastewater generation. Likewise, Project 8, the development of a new parking space at the Kern Lift Station for a District vehicle to access the site would not result in an increase in wastewater generation.

Replacement of sewer pipelines in order to compensate for existing conditions where some lines are operating near capacity will be completed in three projects: 1) Project 4 – 1,378 linear feet of 8-inch with 12-inch sewer pipe; 2) Project 9, 950 feet of 8-inch with 12-inch sewer pipe and 564 feet of 10 – 12-inch sewer pipe with 15- 18-inch sewer pipe; and 3) Project 11, 441 feet of 8-inch with 12-inch sewer line.

The District is working closely with the Big Bear Area Regional Wastewater Agency (BBARWA), the agency operating the wastewater treatment plant. Although not a part of the District's system, the BBARWA operates a trunk line, primarily 18 and 21-inches in diameter, that passes through the District's service area and collects wastewater for delivery to the BBARWA wastewater treatment plant. In addition to BBCCSD wastewater, the BBARWA wastewater treatment plant receives sanitary sewer flow from County Service Area 53B and the City of Big Bear Lake. BBARWA operates under its own Long-Range Facilities Plan (Sewer Master Plan) that includes on-going maintenance and operation of its trunk line and Wastewater Treatment Plant (WWTP) as well as expansion projects to meet future wastewater treatment requirements. Projects related to the District's projects include expansion of the WWTP's hydraulic capacity and the installation of a parallel pipeline to BBARWA's Trunk Line that accepts flows from the District's sewer pipelines. Therefore, this impact is less than significant.

b) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

Less Than Significant – Construction activities for Projects may require water for some activities, including dust suppression during trenching/stockpiling (e.g. projects 4, 6, 8, 9 and 11). For these projects, as part of the District's SWPPP, a water truck would be used to spray the stockpiles to suppress dust. Therefore, this impact would be less than significant.

c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Less Than Significant – The District's projects would result in adequate capacity within its service area through the year 2035 as the District's SMP is a planning document that projected service area needs through the year 2035. Likewise, the BBARWA's SMP includes related projects that will also increase capacity as necessary throughout its service area which includes the District's service area. Implementation of these projects over the project 20-year period would ensure adequate capacity in the service area. Therefore, the impact is less than significant.

d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less Than Significant – Construction activities may generate small quantities of solid waste, inert materials, and green waste. All waste would be properly disposed of in accordance with federal, State, and local statutes and regulations. Therefore, the impact is less than significant.

e) Comply with federal, State, and local statutes and regulations related to solid waste?

No Impact – All solid waste generated by the District's projects during construction activities would be handled in accordance with all applicable federal, State, and local statutes and regulations. On-going operation and maintenance of the District's facilities would be similar to existing conditions and no new impacts are reasonably foreseeable. No impacts would occur under this criterion.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XX. WILDFIRE: If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☒	☐	☐
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire?	☐	☐	☐	☒
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☒	☐	☐
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☒	☐	☐

SUBSTANTIATION

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

Less Than Significant With Mitigation Implemented – Due to limited activities in existing roadways, a potential exists impair an adopted emergency response plan or evacuation plan. However, mitigation requiring traffic management measures (TR-1) to be implemented to ensure flow of traffic on affected roadways at all times, including during emergencies. No additional mitigation is required to ensure that this impact remains a less than significant impact.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire?

Less Than Significant With Mitigation Implemented – The proposed project is the implementation of a Sewer Master Plan and it will not involve exposure of any occupants to any future direct or indirect wildfire hazards.

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

Less Than Significant With Mitigation Implemented – The proposed project is the implementation of a Sewer Master Plan and it includes a new road to access existing sewer pipelines. By providing access to an additional area, this new road could exacerbate fire risks. To minimize this risk, the following mitigation measure will be implemented.

WILD-1 The District shall prevent public access to the new access road by installing effective signing and access controls that can only be opened by District personnel.

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

Less Than Significant With Mitigation Implemented – The proposed project consists of construction activities, mostly within existing developed area, but with a potential to cause fires during construction activities. Construction activities can be conducted in a fire same manner by avoiding high wind periods, using fire safe equipment, and implementing controls to minimize sparks and other activities that can initiate a fire. The following mitigation measure shall be implemented.

WILD-2 The District shall require construction contractors to submit a fire prevention plan for implementation in any areas where wildland fuel loads occur. This plan shall be submitted prior to initiating construction (except in emergencies), shall be reviewed and approved by the District and the CSD Fire Department prior to authorizing the contractor to proceed with construction.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact or Does Not Apply
XXI. MANDATORY FINDINGS OF SIGNIFICANCE:				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals?	☐	☐	☒	☐
c) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐
d) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

SUBSTANTIATION

Table 13 identifies each project by number, provides a description of the projects, and explains how each project has been evaluated in the Initial Study based on the potential for a project to cause a significant impact on the environment.

a) *Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?*

Less Than Significant With Mitigation Incorporated – The Project includes the repair and replacement of critical, aging wastewater infrastructure, primarily in developed areas. Two projects (Project 6 and Project 8) require development in previously undeveloped areas and therefore have the potential to impact sensitive habitat. However, there are no sensitive species of concern that will be impacted by the Projects because no sensitive species or critical habitat exists in the proposed project areas, and mitigation has been incorporated to reduce impacts to less than significant. There are no species of special concern that will be impacted by the remaining projects because none are present in the areas of the drilling sites, nor along the alignment.

Cultural resources with significant values were found in the areas for many of the projects. A potential exists to accidentally expose subsurface cultural resources during construction. Contingency mitigation measures are included in this document to address this potential impact and reduce it to a less than significant impact level. With implementation of the cultural resources mitigation measures, no significant adverse impacts to cultural resources will result from project implementation.

b) Does the project have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals?

Less Than Significant Impact – The proposed project consists of the implementation of the District proposed Sewer Master Plan. The specific projects include repairs to existing sewer facilities and a few new projects required to adequately support these facilities. Based on the analysis in this Initial Study, this project will not achieve short-term environmental goals to the detriment of long-term environmental goals. By enhancing the District's ability to protect long-term water quality of the water within the CSD's service area, the limited impacts associated with implementing the Master Plan is considered a long-term benefit to the community and area environment.

c) Does the project have impacts that are individually limited, but cumulatively considerable?

Less Than Significant With Mitigation Incorporated – The Big Bear area is anticipated to experience some growth over the life of the Project, although no major commercial/industrial developments have been identified that will occur during the same time as the District's projects.

Local roadways operate at or just below free-flow conditions, therefore, the Project is not likely to have a cumulative impact even if other projects are on-going in the area. Impacts were identified in the areas of Hazards and Hazardous Waste, Hydrology and Water Quality, Transportation and Traffic. However, mitigation measures have been identified that, when implemented, will result in less than significant impacts.

Therefore, based on data provided in this document, including the type of project proposed and its location, it is concluded that implementation of the proposed project will not result in impacts that are either individually or cumulatively considerable or significant when viewed in relation to past, present or probable future projects.

d) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Less Than Significant With Mitigation Incorporated – Aside from potential disruption of traffic during some of the construction activities, no significant adverse impacts to humans were identified in this study.

Based on the findings in this Initial Study, the Big Bear City Community Services District proposes to adopt a Mitigated Negative Declaration (MND) for the proposed Sewer Master Plan Project. A Notice of Intent to Adopt a Mitigated Negative Declaration (NOI) will be issued for this project by BBCCSD. The Initial Study and NOI will be circulated for 30 days of public comment because this project does involve state agencies as either a responsible or trustee agency. At the end of the 30-day review period, a final MND package will be prepared and it will be reviewed by District. The District will hold a future hearing for project adoption at the BBCCSD's Main Office, the date for which has not yet been determined. If you or your agency comments on the MND/NOI for this project, you will be notified about the meeting date in accordance with the requirements in Section 21092.5 of CEQA (statute).

———————

Note: Authority cited: Sections 21083 and 21083.05, Public Resources Code. Reference: Section 65088.4, Gov. Code; Sections 21080(c), 21080.1, 21080.3, 21083, 21083.05, 21083.3, 21093, 21094, 21095, and 21151, Public Resources Code; *Sundstrom v. County of Mendocino*,(1988) 202 Cal.App.3d 296; *Leonoff v. Monterey Board of Supervisors*, (1990) 222 Cal.App.3d 1337; *Eureka Citizens for Responsible Govt. v. City of Eureka* (2007) 147 Cal.App.4th 357; *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th at 1109; San *Franciscans Upholding the Downtown Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656.

Revised 2019
Authority: Public Resources Code sections 21083 and 21083.09
Reference: Public Resources Code sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3/ 21084.2 and 21084.3

Table 13
SUMMARY OF POTENTIAL IMPACTS BY PROJECT

Project Number	Description	Summary of Impacts
1	Flow Monitoring	No impact. This project would not result in any effects on the environment (soil disturbance, air emissions, excessive noise, etc.) because the project is limited to monitoring flows within existing pipelines.
2	Lift Station Corrosion Assessment	No impact. This project consists of the assessment of lift stations' wet and dry wells, including visual inspection, ultra-sonic thickness measurements, pit depth measurements, soil testing and interior coating evaluations within existing lift station sites where disturbance has previously occurred.
3	Easement Accessibility and Maintenance Study (EASM)	No impact. This project consists identifying parcels where easements will be required to access 1.5 miles of pipeline where access is currently restricted. This is a paper project that ultimately will be implemented in Project 6 Allowance for EAMS Recommendations.
4	Bowles, Arbor, and Elysian Pipeline Replacement	**Less Than Significant Impact With Mitigation Incorporated.** Temporary construction-related impacts associated with the replacement of approximately 1,378 linear feet of existing pipeline in three locations. Disturbance would include trenching, stockpiling, staging, vehicle access. Mitigation measures are identified in Hazards and Hazardous Materials and Traffic/Transportation sections and include provisions for allowing emergency access on narrow roadways, homeowner notification, and limited operations during Red Flag warnings.
5	Alternatives valuation and Design of the Kern Lift Station Parking Space (KLPS)	No impact. This project consists of an evaluation of design alternatives for a new parking space at the Kern Lift Station. This is a paper project that ultimately will be implemented in Project 8 Allow-ance for KLPS Recommendations.
6	Allowance for EAMS Recommendations	**Less Than Significant Impact.** Potential temp-orary construction and long-term operational impacts associated with the development of an access road along the 1.5 miles of sewer pipeline that is currently inaccessible.
7	Division Lift Station Pump Replacement	**Less Than Significant Impact.** Potential minimal temporary construction impacts associated with the replacement of existing pumps and valves which are enclosed within the existing lift station building located on a developed (paved and fenced) site.
8	Allowance for KLPS Recommendations	**Less Than Significant Impact.** Temporary construction impacts associated with grading, paving and striping a new parking space at an existing lift station site. Disturbance would include grading, paving, staging, vehicle access.

Project Number	Description	Summary of Impacts
9	Gildart Sewer Upgrades (Division and Rainbow Relief)	**Less Than Significant With Mitigation Incorporated.** Temporary construction impacts associated with the installation of 950 feet of a new 12-inch pipeline in Gildart Drive. Temporary disturbance would be required for the trench, stockpile area and access along the length of the open trench. Disturbance would include trenching, stockpiling, staging, vehicle access. Mitigation measures are identified in Hazards and Hazardous Materials and Traffic/Transportation sections and include provisions for allowing emergency access on narrow roadways, homeowner notification, and limited operations during Red Flag warnings.
10	Shore and Drake Lift Station Pump Replacements	**Less Than Significant Impact.** Potential minimal temporary construction impacts associated with the replacement of existing pumps and valves enclosed within each of the existing lift station buildings. Both lift stations are located on developed (paved and fenced) sites.
11	Sequoia and W Meadow Pipeline Replacement	**Less Than Significant With Mitigation Incorporated.** Temporary construction impacts associated with the installation of 800 feet of a new pipeline in Sequoia Drive and West Meadow Street. Temporary disturbance would be required for the trench, stockpile area and access along the length of the open trench. Disturbance would include trenching, stockpiling, staging, vehicle access. Mitigation measures are identified in Hazards and Hazardous Materials and Traffic/Transportation sections and include provisions for allowing emergency access on narrow roadways, homeowner notification, and limited operations during Red Flag warnings.
12	Kern, Orange, Erwin and Imperial Lift Station Pump Replacements	**Less Than Significant.** This project consists of the replacement of existing pumps and valves enclosed within each of the existing lift station buildings. Lift stations are all located on developed (paved and fenced) sites.
13	Pipeline Conditional Records Assessment	No impact. This project consists of data collection and assessment of observation and maintenance records to allow the District to evaluate trends and rate the condition of the systems infrastructure to better plan for future maintenance.
14	Rehabilitation of Lift Station Wet Wells and Bypass Wells	**Less Than Significant.** This project consists of the rehabilitation of existing wet wells and bypass wells based on the findings of Project 2 Lift Station Corrosion Assessment. Rehabilitation will be completed within each of the existing lift station buildings, or for wells located outside the building, within the limits of the site. Lift stations are all located on developed (paved and fenced) sites.

Project Number	Description	Summary of Impacts
15	Rehabilitation of Lift Station Dry Wells	**Less Than Significant.** This project consists of the rehabilitation of existing dry wells based on the findings of Project 2 Lift Station Corrosion Assessment. Rehabilitation will be completed within each of the existing lift station buildings, or for wells located outside the building, within the limits of the site. Lift stations are all located on developed (paved and fenced) sites.

Source: Big Bear City Community Service District Sewer Master Plan, Section 10, Recommended Projects, WSC Inc., May 2017.

SUMMARY OF MITIGATION MEASURES

Biological Resources

BIO-1 Focused protocol-level presence/absence surveys for SWFL shall be conducted prior to disturbance of SWFL habitat to determine whether this species would potentially be impacted by the proposed project and what measures may be needed to avoid, minimize and/or mitigate potential impacts. If SWFL are detected within the project impact area, authorization from both the USFWS and the CDFW would be required prior to construction of the proposed access road or any other project-related activities that could potentially result in any direct or indirect impacts to this species.

BIO-2 The following protective measures shall be implemented to avoid and/or minimize potential project-related impacts to this southern rubber boa:

- A preconstruction survey for southern rubber boa (SRB) shall be conducted within the project footprint prior to ground disturbance within suitable habitat. If no SRB are detected, an exclusion fence (drift fence or similar material) should be installed around the entire proposed construction footprint, wherever there is suitable rubber boa habitat within or adjacent the proposed Moonridge Pipelines access road footprint, to prevent rubber boa from entering the project site during construction.
- Following installation of the exclusion fence, initial ground disturbance activities including clearing and grubbing and removal of all surface cover within the project footprint, including fallen logs, duff layer, and other debris should be conducted under the supervision of a qualified biologist, familiar with rubber boa and their habits.

BIO-3 Although the above-listed measures are recommended to minimize potential impacts to rubber boa after a negative survey, it may not be possible to completely avoid impacting this species during construction of the proposed access road along the Moonridge Pipelines alignment. Therefore, an Incidental Take Permit, issued by the CDFW, pursuant Section 2081 of the CESA, shall be obtained and the required mitigation identified in this permit shall be implemented.

BIO-4 The project will be implemented such that no discharge of fill into the channel, including no impacts to the bed or bank, occurs. If the project is unable to comply with this requirement, then prior to discharge of fill or streambed alteration of either of the channels along the project alignment, BBCCSD shall obtain regulatory permits from the U.S. Army Corps of Engineers, Santa Ana Regional Water Quality Control Board and the California Department of Fish and Game. Mitigation can be provided by purchasing into any authorized mitigation bank; by selecting a site of comparable acreage near the site and enhancing it with a native riparian habitat or invasive species removal in accordance with a habitat mitigation plan approved by regulatory agencies; or by acquiring sufficient compensating habitat to meet regulatory agency requirements. Typically, regulatory agencies require mitigation for jurisdictional waters without any riparian or wetland habitat to be mitigated at a 1:1 ratio. For loss of any riparian or other wetland areas, the mitigation ratio will begin at 2:1 and the ratio will rise based on the type of habitat, habitat quality, and presence of sensitive or listed plants or animals in the affected area. A revegetation plan using native riparian vegetation common to the project area shall be prepared and reviewed and approved by the appropriate regulatory agencies. The agencies can impose greater mitigation requirements in their permits, but BBCCSD will utilize the ratios outlined above as the minimum required to offset or compensate for impacts to jurisdictional waters, riparian areas or other wetlands.

BIO-5 Bird nesting season generally extends from February 1 through September 15 in southern California and specifically, April 15 through August 31 for migratory passerine birds. To the extent feasible, construction in areas with nesting birds shall avoid the identified nesting season. To avoid impacts to nesting birds (common and special status) during the nesting season, a qualified Avian Biologist will conduct pre-construction nesting bird surveys (NBS) prior to project-related

disturbance to nestable vegetation to identify any active nests. If no active nests are found, no further action will be required. If an active nest is found, the biologist will set appropriate no-work buffers around the nest which will be based upon the nesting species, its sensitivity to disturbance, nesting stage and expected types, intensity and duration of disturbance. The nests and buffer zones shall be field checked weekly by a qualified biological monitor. The approved no-work buffer zone shall be clearly marked in the field, within which no disturbance activity shall commence until the qualified biologist has determined the young birds have successfully fledged and the nest is inactive.

Cultural Resources

CUL-1 At project sites 4, 6. 8, 9 and 11 BBCCSD shall have Native American and professional Archaeologist monitor all ground disturbing activities. The monitors shall have the authority to stop and redirect construction in the event that historical or cultural resources are encountered during on site ground disturbance activities. If significant cultural resources are encountered, adequate funding will be provided by the BBCCSD to collect, curate and report on these resources. At all other sites with ground disturbance, BBCCSD shall have a professional archaeologist available to come to a site where possible cultural resources have been exposed. If significant cultural resources are encountered, adequate funding will be provided by the BBCCSD to collect, curate and report on these resources.

CUL-2 In the event of the discovery or recognition of any human remains in any location other than a dedicated cemetery, protocols and procedures noted in the Public Resources Code Section 5097.98, the California Government Code Section 27491, and the Health and Safety Code Section 7050.5 for the treatment of human remains encountered at archaeological sites will be followed. The procedures listed below shall be followed where human remains are encountered:

- There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:
  - The Coroner is contacted to determine that no investigation of the cause of death is required, and
  - If the Coroner determines the remains are Native American the Native American Heritage Commission (NAHC) shall be contacted within 24 hours. NAHC will identify the person or persons it believes to be the most likely descended from the deceased Native American. The Most Likely Descendent (MLD) may make recommendations to the County for the excavation work.
- The Native American human remains and associated funerary items that are removed from the site may be reburied at a location mutually agreed upon by the Applicant, Lead Agency, and the MLD(s). If reinterment of human remains cannot be accomplished at the time of discovery, the MLD(s) shall either take temporary possession of the remains or identify a location for the temporary but secure storage of the remains.
- In consultation between the lead agency and the MLD, additional measures, such as focused archaeological excavations, may be required to determine the extent of burials or ensure the recovery of all elements of the burial.

Hazards and Hazardous Materials

HAZ-1 Prior to commencement of construction activities for Projects 4, 9 and 11 (pipeline replacement), the construction contractor shall prepare and submit a Traffic Control Plan to the District and the San Bernardino County Sheriff's Department and Fire Department showing how access to neighborhoods and individual residences will be maintained to ensure that emergency access will not be interrupted. The Plan must be approved by these agencies prior to the start of construction activities.

HAZ-2 During construction, all staging areas and areas slated for construction using spark-producing equipment will be cleared of dried vegetation or other material that could ignite. Spark arresting equipment shall be in good working order. The District shall require all vehicles and crews working at the project sites to have access to functional fire extinguishers at all times. The contractor shall also provide a safety plan for the implementation of additional protocols when the National Weather Service issues a Red Flag Warning. Such protocols should address smoking and fire rules, storage and parking areas, use of gasoline-powered tools, use of spark arresters on construction equipment, road closures, use of a fire guard, fire suppression tools, fire suppression equipment, and training requirements.

Hydrology and Water Quality

HYD-1 Prior to the start of Project 6, a Storm Water Pollution Prevention Plan (SWPPP) must be prepared and a Notice of Intent must be filed with the State Water Resources Control Board (SWRCB) for project construction activities that will exceed 1 acre. The SWRCB shall issue a Waste Discharge Identification Number (WDID) that shall be available for review along with the SWPPP at the project site during the construction period. The SWPPP shall provide a list of Best Management Practices (BMPs) for the control and treatment of runoff from the project site. The SWPPP shall be available for review at the construction office or similar location during the construction period.

HYD-2 Prior to operation of the new unpaved access road (Project 6), the District shall prepare a road inspection/maintenance plan that shall be incorporated into the District's operations and/or maintenance plan to ensure that the road will be routinely inspected and maintained as necessary during the life of the project.

Transportation

TRP -1 Prior to commencement of construction activities where traffic would be affected, the construction contractor shall prepare a Traffic Control Plan (TCP) to be submitted to the District and the San Bernardino County Sheriff's office for review and approval. Both the District and the Sheriff's office must approve the TCP for each project that will affect traffic along the local affected streets. The TCP shall be available at the construction site through the duration of the project.

TRP-2 Prior to commencement of construction activities on any of the streets where sewer pipeline replacement is proposed, the construction contractor shall notify the individual homeowners prior to trenching in order for residents to move their vehicles and plan alternative routes if necessary. If a trench remains is to remain open at the end of a work day, then a steel plate or similar trench cover shall be placed over the trench in order to provide residents with access to their property.

Tribal Cultural Resources

TRC-1 Retain a Native American Monitor/Consultant: The Project Applicant shall be required to retain and compensate for the services of a Tribal monitor/consultant who is both approved by the San Manuel Band of Mission Indians and is listed under the NAHC's Tribal Contact list for the area of the project location. This list is provided by the NAHC. The monitor/consultant will only be present on-site during the construction phases that involve ground disturbing activities. Ground disturbing activities are defined as activities that may include, but are not limited to, pavement removal, pot-holing or auguring, grubbing, tree removals, boring, grading, excavation, drilling, and trenching, within the project area. The Tribal Monitor/consultant will complete daily monitoring logs that will provide descriptions of the day's activities, including construction activities, locations, soil, and any cultural materials identified. The on-site monitoring shall end when the project site grading and excavation activities are completed, or when the Tribal Representatives and monitor/consultant have indicated that the site has a low potential for impacting Tribal Cultural Resources.

TRC-2 Unanticipated Discovery of Tribal Cultural and Archaeological Resources: Upon discovery of any archaeological resources, cease construction activities in the immediate vicinity of the find until the find can be assessed. All archaeological resources unearthed by project construction activities shall be evaluated by the qualified archaeologist and tribal monitor/consultant approved by the San Manuel Band of Mission Indians. If the resources are Native American in origin, the San Manuel shall coordinate with the landowner regarding treatment and curation of these resources. Typically, the Tribe will request reburial or preservation for educational purposes. Work may continue on other parts of the project while evaluation and, if necessary, mitigation takes place (CEQA Guidelines Section15064.5 [f]). If a resource is determined by the qualified archaeologist to constitute a "historical resource" or "unique archaeological resource", time allotment and funding sufficient to allow for implementation of avoidance measures, or appropriate mitigation, should be available. The treatment plan established for the resources shall be in accordance with CEQA Guidelines Section 15064.5(f) for historical resources.

TRC-3 Public Resources Code Sections 21083.2(b) for unique archaeological resources. Preservation in place (i.e., avoidance) is the preferred manner of treatment. If preservation in place is not feasible, treatment may include implementation of archaeological data recovery excavations to remove the resource along with subsequent laboratory processing and analysis. Any historic archaeological material that is not Native American in origin shall be curated at a public, non-profit institution with a research interest in the material, if such an institution agrees to accept the material. If no institution accepts the archaeological material, they shall be offered to a local school or historical society in the area for educational purposes.

TRC-4 Unanticipated Discovery of Human Remains and Associated Funerary Objects: Native American human remains are defined in PRC 5097.98 (d)(1) as an inhumation or cremation, and in any state of decomposition or skeletal completeness. Funerary objects, called associated grave goods in PRC 5097.98, are also to be treated according to this statute. Health and Safety Code 7050.5 dictates that any discoveries of human skeletal material shall be immediately reported to the County Coroner and excavation halted until the coroner has determined the nature of the remains. If the coroner recognizes the human remains to be those of a Native American or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the Native American Heritage Commission (NAHC) and PRC 5097.98 shall be followed.

TRC-5 Resource Assessment & Continuation of Work Protocol: Upon discovery, the tribal and/or archaeological monitor/consultant/consultant will immediately divert work at minimum of 150 feet and place an exclusion zone around the burial. The monitor/consultant(s) will then notify the Tribe, the qualified lead archaeologist, and the construction manager who will call the coroner. Work will continue to be diverted while the coroner determines whether the remains are Native American. The discovery is to be kept confidential and secure to prevent any further disturbance. If the finds are determined to be Native American, the coroner will notify the NAHC as mandated by state law who will then appoint a Most Likely Descendent (MLD).

TRC-6 Professional Standards: Archaeological and Native American monitoring and excavation during construction projects will be consistent with current professional standards. All feasible care to avoid any unnecessary disturbance, physical modification, or separation of human remains and associated funerary objects shall be taken. Principal personnel must meet the Secretary of Interior standards for archaeology and have a minimum of 10 years of experience as a principal investigator working with Native American archaeological sites in southern California. The Qualified Archaeologist shall ensure that all other personnel are appropriately trained and qualified.

Wildfire

WILD-1 The District shall prevent public access to the new access road by installing effective signing and access controls that can only be opened by District personnel.

WILD-2 The District shall require construction contractors to submit a fire prevention plan for implementation in any areas where wildland fuel loads occur. This plan shall be submitted prior to initiating construction (except in emergencies), shall be reviewed and approved by the District and the CSD Fire Department prior to authorizing the contractor to proceed with construction.

REFERENCES

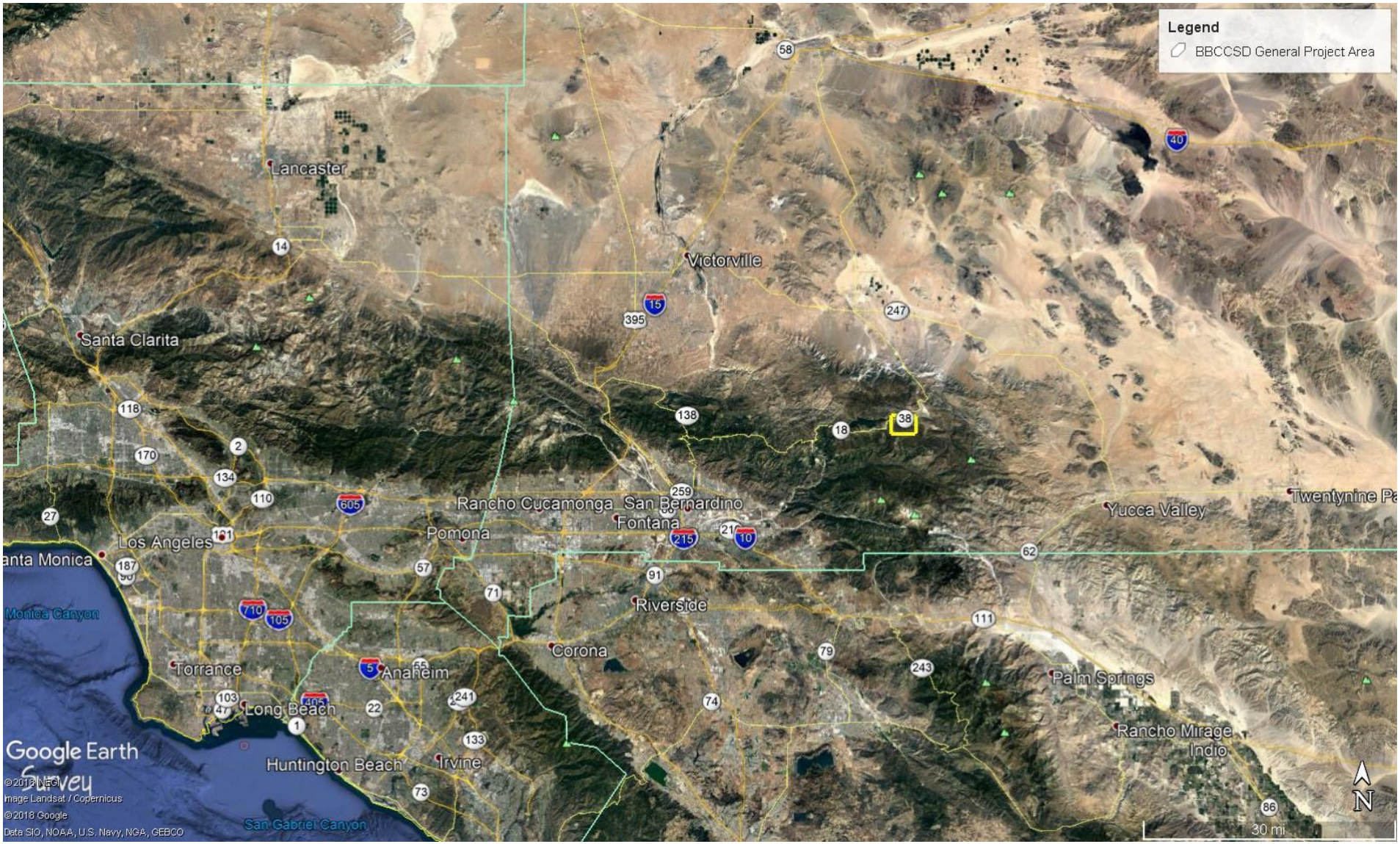
CRM TECH, “Cultural Resources Sensitivity Assessment, Big Bear City Community Services District Sewer Master Plan” dated February 7, 2019

Giroux & Associates, “Air Quality and GHG Impact Analysis for the Big Bear City Community Services District Sewer Master Plan Project” dated July 5, 2018

Jacobs Engineering Group, “Biological Resources Assessment and Jurisdictional Delineation for the Big Bear City Community Services District Sewer Master Plan” dated December 2018

Water Systems Consulting, Inc. (WSC, Inc.), “Sewer Master Plan for the Big Bear City Community Services District” dated May 5, 2017

FIGURES

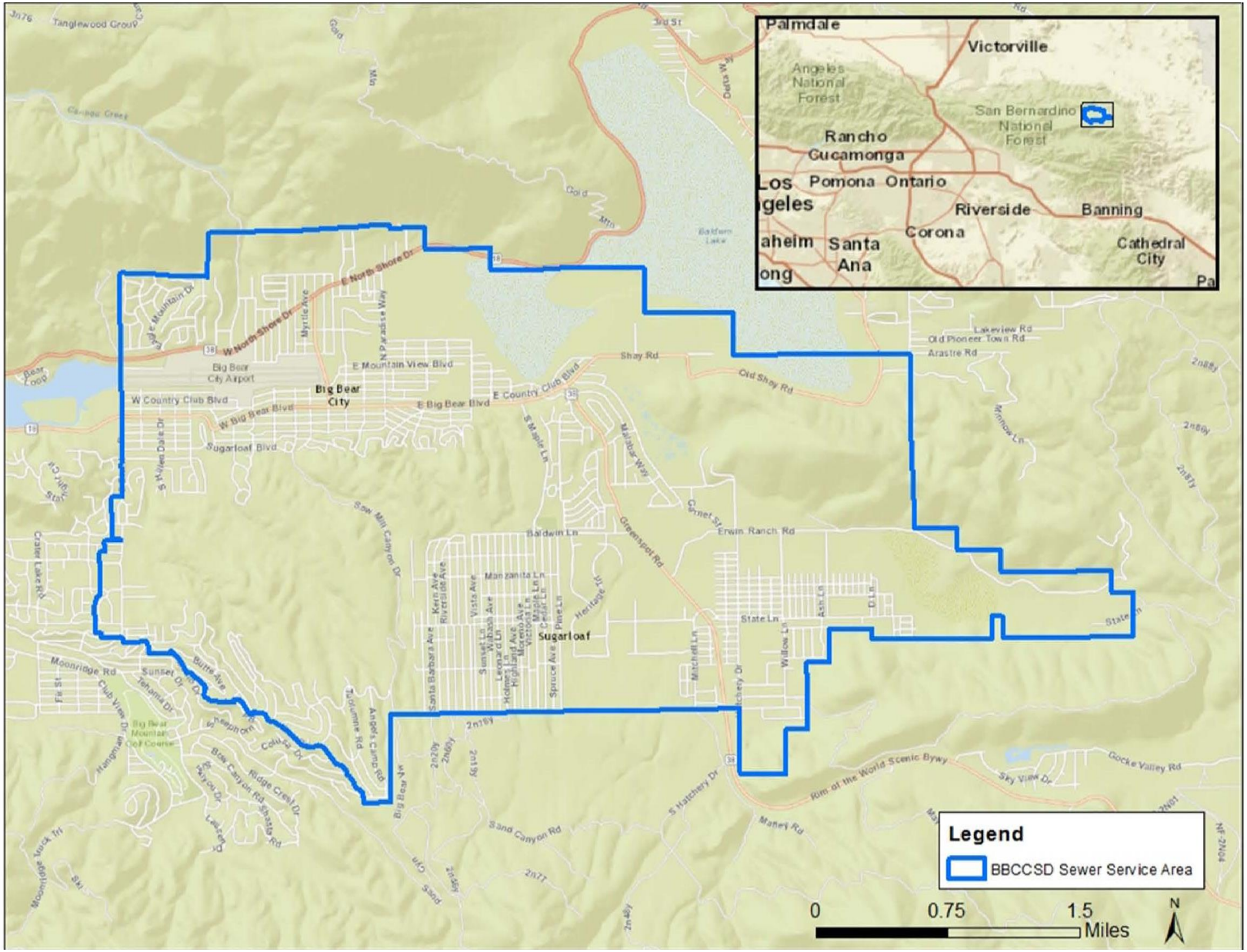


SOURCE: Google Earth

FIGURE 1

Tom Dodson & Associates
Environmental Consultants

Regional Location

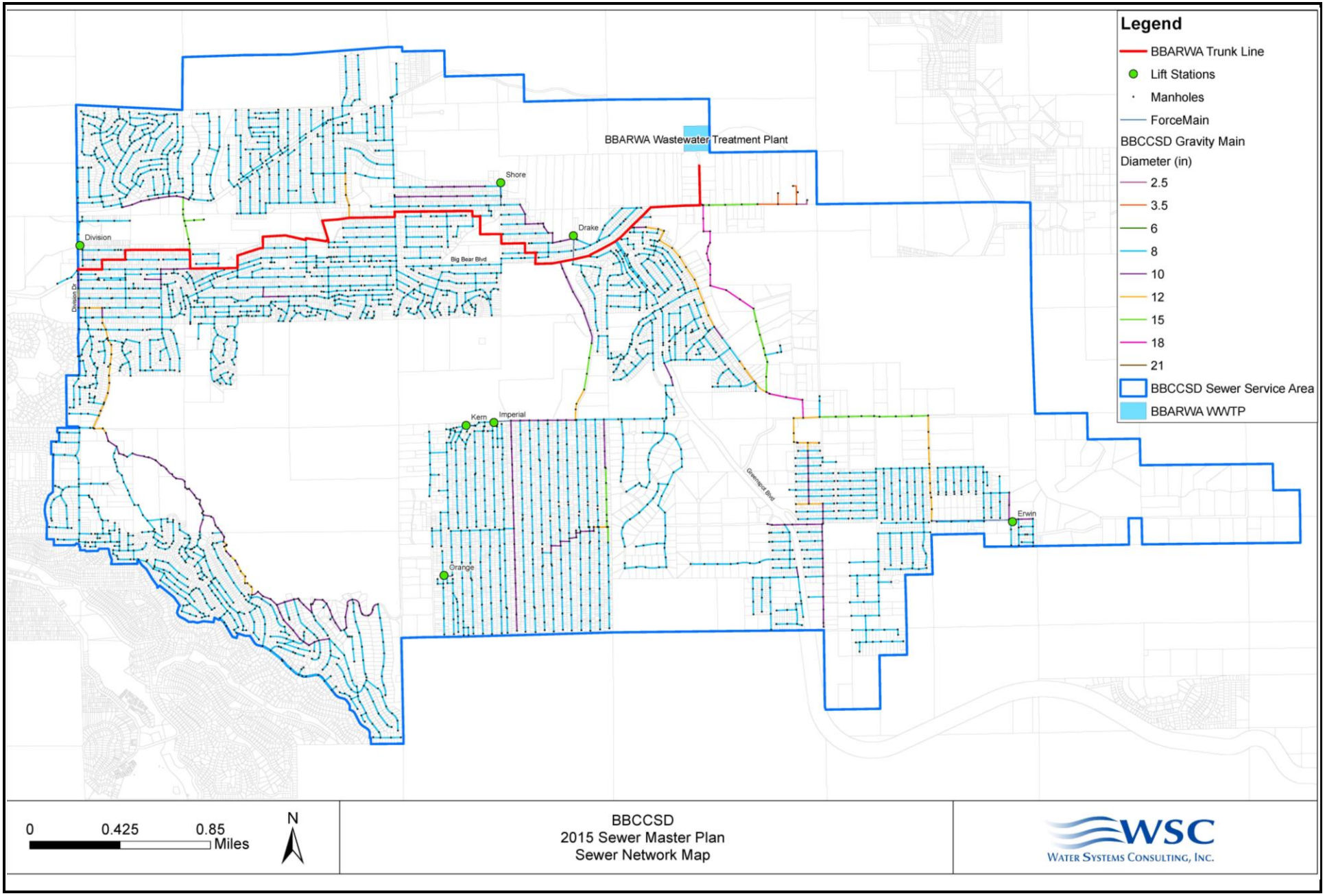


SOURCE: Google Earth

FIGURE 2

Tom Dodson & Associates
Environmental Consultants

District Service Area

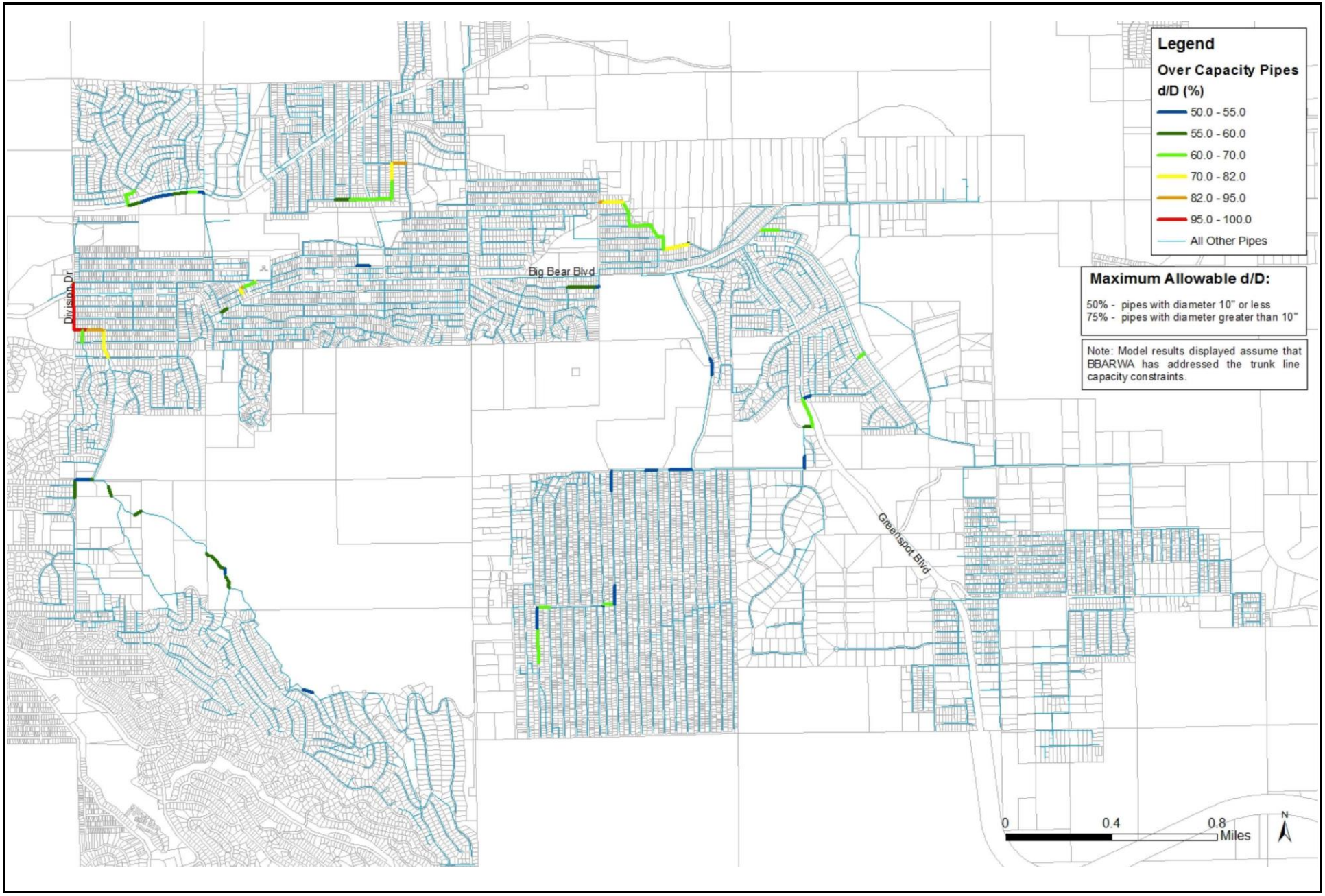


SOURCE: WSC, 5/5/2017, *Big Bear City Community Services District, Sewer Master Plan*

FIGURE 3

Tom Dodson & Associates
Environmental Consultants

District Facilities

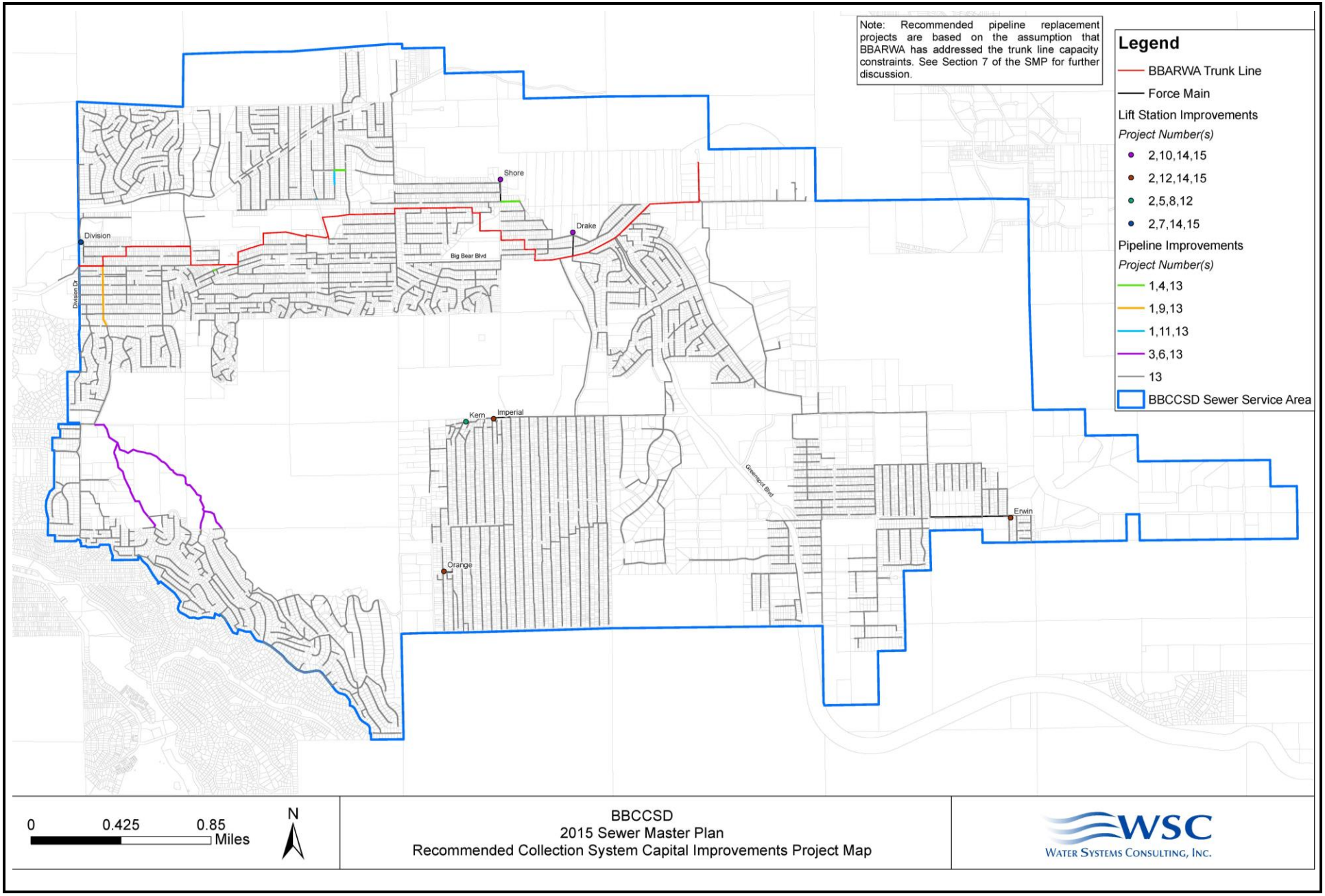


SOURCE: WSC, 5/5/2017, *Big Bear City Community Services District, Sewer Master Plan*

FIGURE 4

Tom Dodson & Associates
Environmental Consultants

Pipelines Over Capacity Under Future Conditions

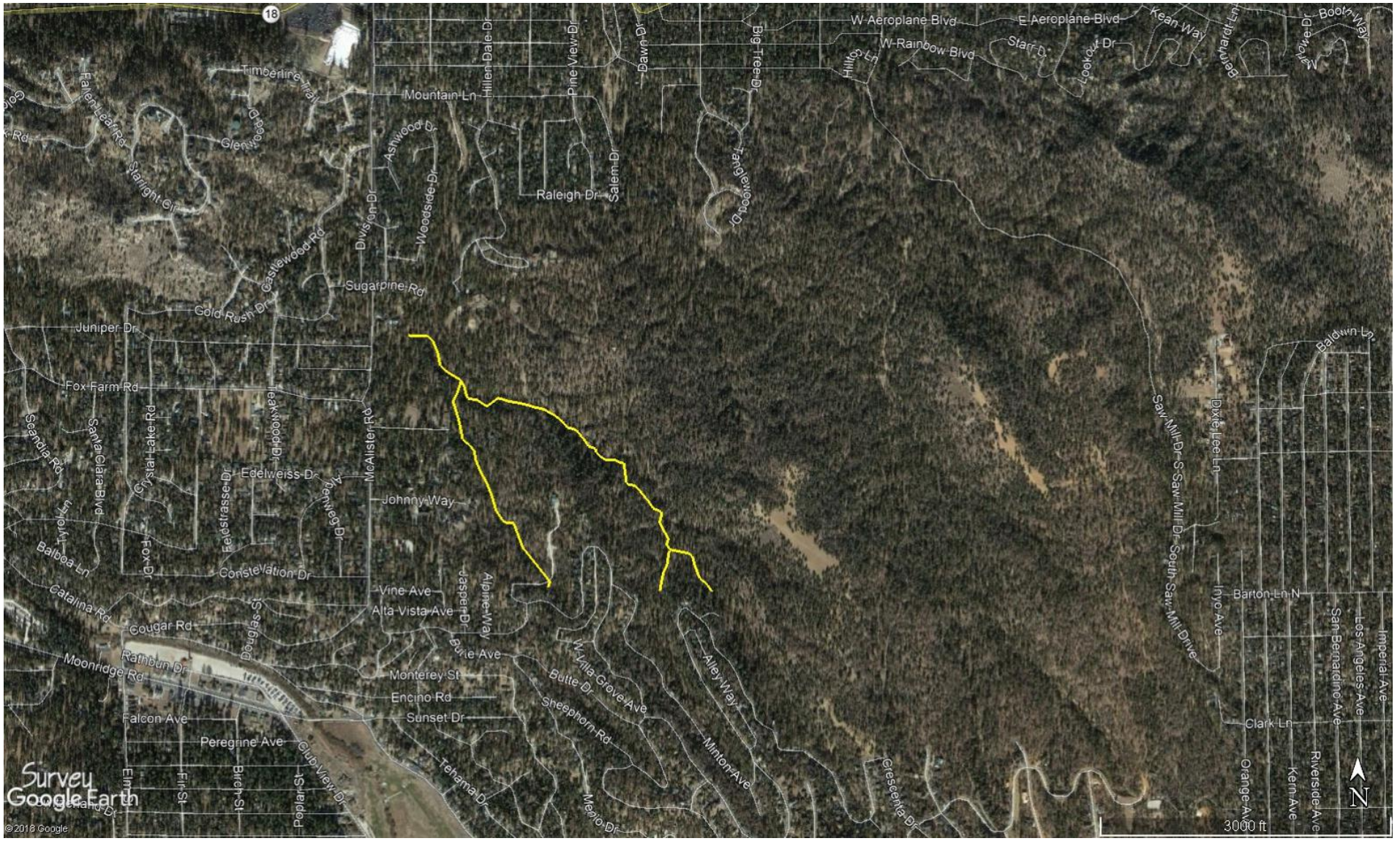


SOURCE: WSC, 5/5/2017, *Big Bear City Community Services District, Sewer Master Plan*

FIGURE 5

Tom Dodson & Associates
Environmental Consultants

Recommended Systems Improvements Map

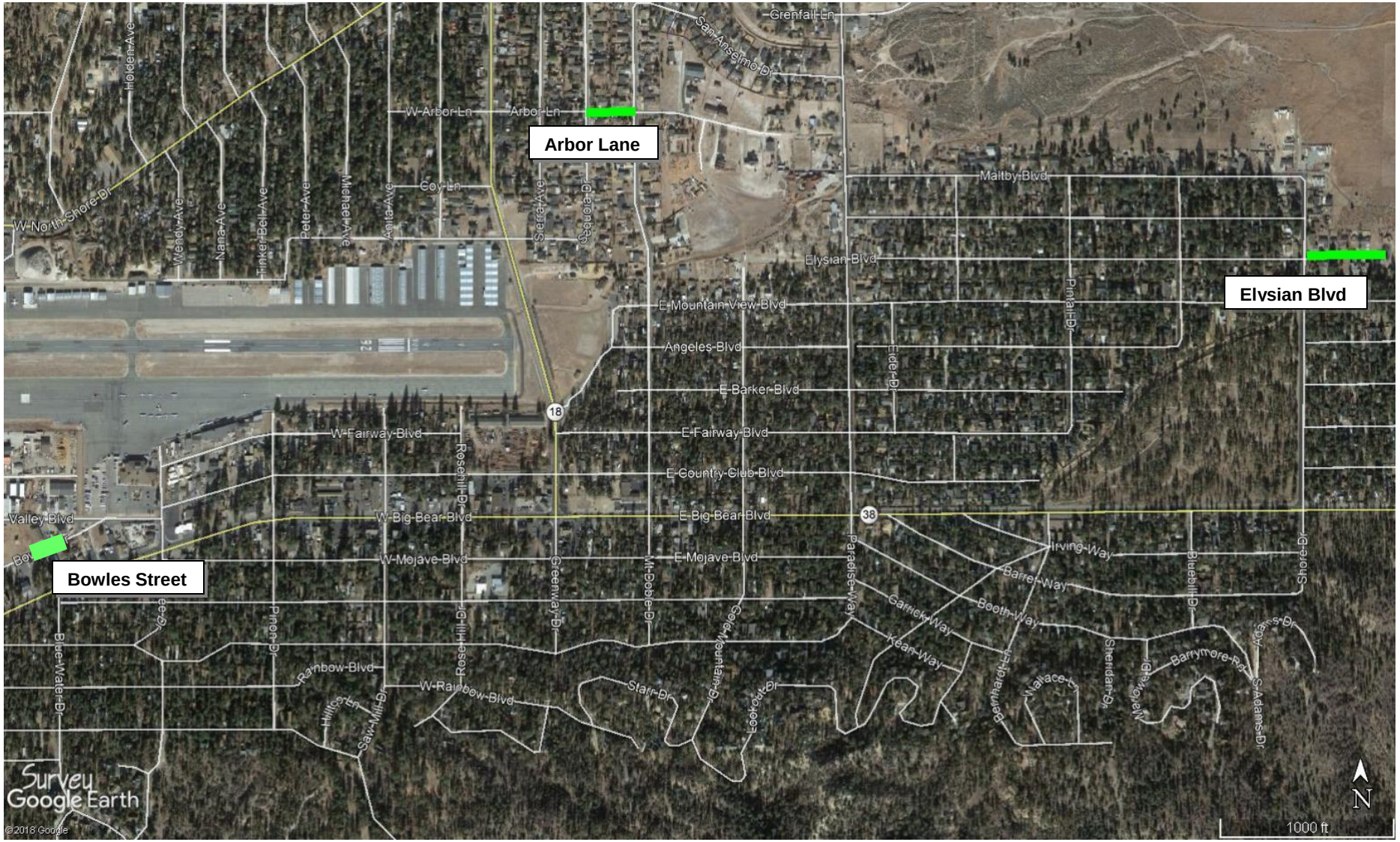


SOURCE: WSC, 5/5/2017, *Big Bear City Community Services District, Sewer Master Plan* and Google Earth

FIGURE 6

Tom Dodson & Associates
Environmental Consultants

Project 6 Location Map
Moonridge Area Facilities



SOURCE: WSC, 5/5/2017, *Big Bear City Community Services District, Sewer Master Plan*

FIGURE 7

Tom Dodson & Associates
Environmental Consultants

Project 4 Location Map

Bowles Street, Arbor Lane and Elysian Blvd. Pipeline Replacements

SOURCE: WSC, 5/5/2017, *Big Bear City Community Services District, Sewer Master Plan*

FIGURE 8

Tom Dodson & Associates
Environmental Consultants

Project 5 Location Map

Kern Avenue Pump Station (also location for Projects 8 and 12)

SOURCE: WSC, 5/5/2017, *Big Bear City Community Services District, Sewer Master Plan*

FIGURE 9

Tom Dodson & Associates
Environmental Consultants

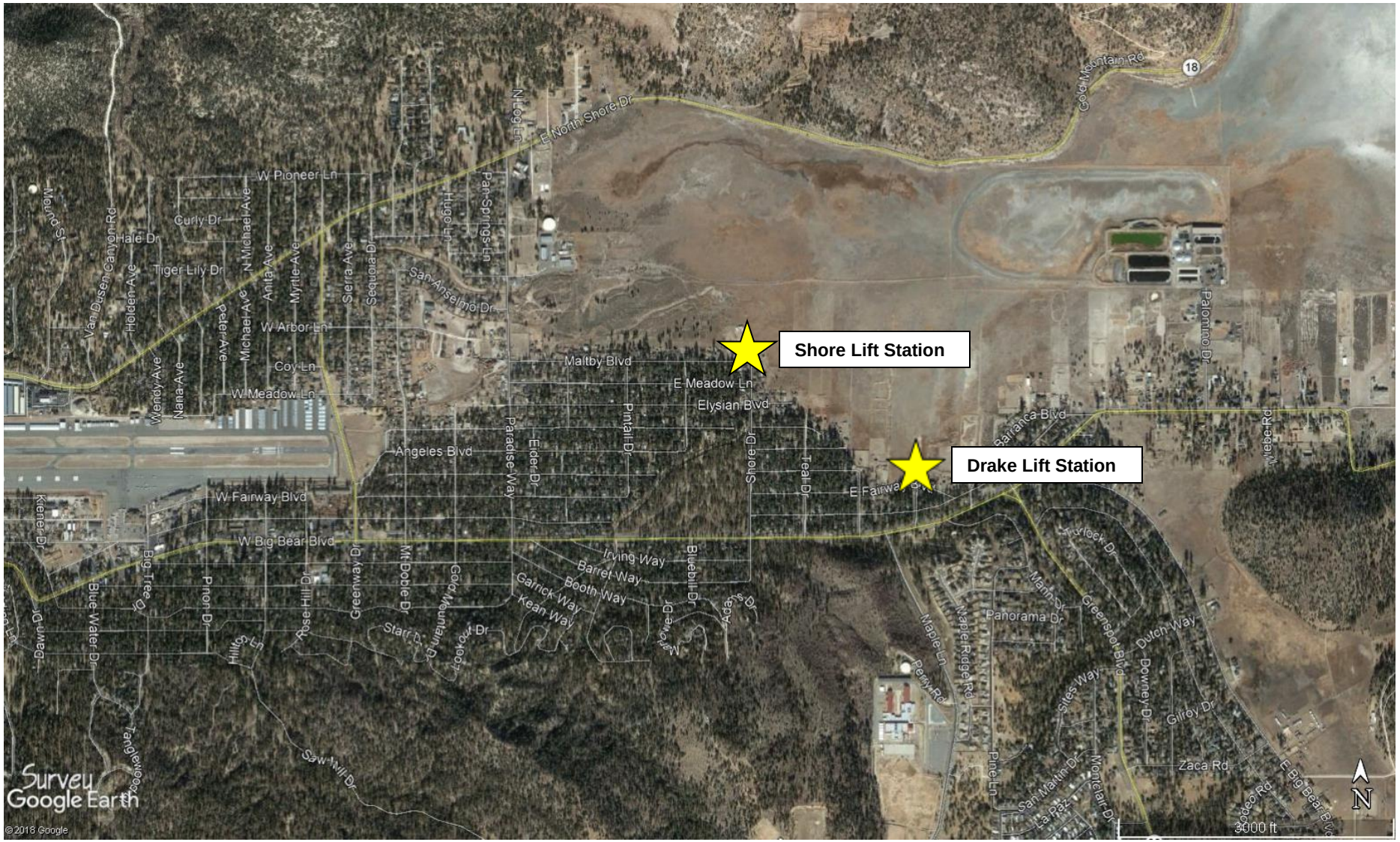
Project 7 Location Map
Division Drive Lift Station Pump Replacement

SOURCE: WSC, 5/5/2017, *Big Bear City Community Services District, Sewer Master Plan*

FIGURE 10

Tom Dodson & Associates
Environmental Consultants

Project 9 Location Map
Gildart Sewer Upgrades (Division and Rainbow Relief)



SOURCE: WSC, 5/5/2017, *Big Bear City Community Services District, Sewer Master Plan*

FIGURE 11

Tom Dodson & Associates
Environmental Consultants

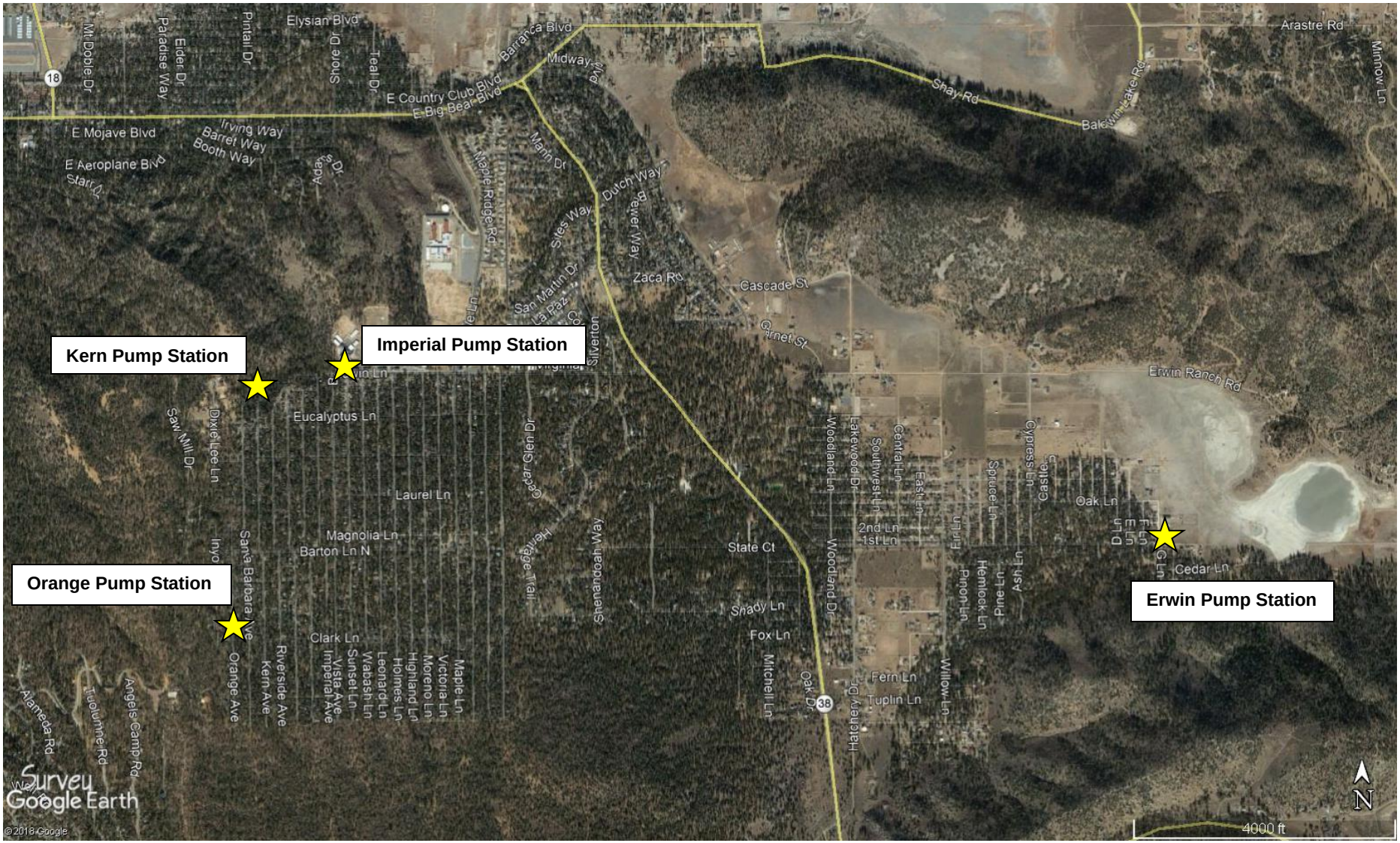
Project 10 Location Map
Shore and Drake Lift Station Pump Replacements

SOURCE: WSC, 5/5/2017, *Big Bear City Community Services District, Sewer Master Plan*

FIGURE 12

Tom Dodson & Associates
Environmental Consultants

Project 11 Location Map
Sequoia and West Meadow Pipeline Replacements



SOURCE: WSC, 5/5/2017, *Big Bear City Community Services District, Sewer Master Plan*

FIGURE 13

Tom Dodson & Associates
Environmental Consultants

Project 12 Location Map
Kern, Orange, Erwin and Imperial Lift Station Pump Replacements

APPENDIX 1

AIR QUALITY and GHG IMPACT ANALYSES

BIG BEAR CITY COMMUNITY SERVICES DISTRICT
SEWER MASTER PLAN
PROJECT

BIG BEAR, CALIFORNIA

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2150 N. Arrowhead Avenue
San Bernardino, California 92405

Date:

July 5, 2018

Project No.: P18-024 AQ

ATMOSPHERIC SETTING

The project area is in the San Bernardino Mountains. The area is characterized by an alpine climate, with substantial winter precipitation in the form of winter snow because of its high elevation. Snowfall, as measured at lake level, averages 61.8 inches each year (although upwards of 100 inches can accumulate on the forested ridges bordering the lake, above 8,000 feet). Snow has fallen in every month except July and August. There are normally 16.5 days each year with measurable snow (0.1 inch or more).

On average, the Bear Valley area receives approximately 24 inches of precipitation per year, with a sharp transition between the western edge of the Valley at the dam and the eastern edge at Baldwin Lake. Historical precipitation consists of both rainfall and snowfall, Within the Big Bear watershed, the precipitation varies with location. The west end of the lake, at the Big Bear dam, receives 14 inches per year.

Daily temperatures in the summer are from 60°F to 70°F. Temperatures in the winter average approximately 35 °F to 40 °F. According to the National Weather Service, the warmest month at Big Bear is July, when the average high is 80.7 °F and the average low is 47.1 °F. The coolest month is January, with an average high of 47.1 °F and an average low of 20.7 °F. There is an average of 1.2 days each year with highs of 90 °F or higher. The highest temperature recorded at Big Bear was 94 °F last recorded on July 15, 1998. The record lowest temperature was -25 °F on January 29, 1979.

AIR QUALITY SETTING

AMBIENT AIR QUALITY STANDARDS (AAQS)

In order to gauge the significance of the air quality impacts of the proposed project, those impacts, together with existing background air quality levels, must be compared to the applicable ambient air quality standards. These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect those people most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise, called "sensitive receptors." Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed. Recent research has shown, however, that chronic exposure to ozone (the primary ingredient in photochemical smog) may lead to adverse respiratory health even at concentrations close to the ambient standard.

National AAQS were established in 1971 for six pollution species with states retaining the option to add other pollutants, require more stringent compliance, or to include different exposure periods. The initial attainment deadline of 1977 was extended several times in air quality problem areas like Southern California. In 2003, the Environmental Protection Agency (EPA) adopted a rule, which extended and established a new attainment deadline for ozone for the year 2021. Because the State of California had established AAQS several years before the federal action and because of unique air quality problems introduced by the restrictive dispersion meteorology, there is considerable difference between state and national clean air standards. Those standards currently in effect in California are shown in Table 1. Sources and health effects of various pollutants are shown in Table 2.

The Federal Clean Air Act Amendments (CAAA) of 1990 required that the U.S. Environmental Protection Agency (EPA) review all national AAQS in light of currently known health effects. EPA was charged with modifying existing standards or promulgating new ones where appropriate. EPA subsequently developed standards for chronic ozone exposure (8+ hours per day) and for very small diameter particulate matter (called "PM-2.5"). New national AAQS were adopted in 1997 for these pollutants.

Planning and enforcement of the federal standards for PM-2.5 and for ozone (8-hour) were challenged by trucking and manufacturing organizations. In a unanimous decision, the U.S. Supreme Court ruled that EPA did not require specific congressional authorization to adopt national clean air standards. The Court also ruled that health-based standards did not require preparation of a cost-benefit analysis. The Court did find, however, that there was some inconsistency between existing and "new" standards in their required attainment schedules. Such attainment-planning schedule inconsistencies centered mainly on the 8-hour ozone standard. EPA subsequently agreed to downgrade the attainment designation for a large number of communities to “non-attainment” for the 8-hour ozone standard.

Table 1

Ambient Air Quality Standards						
Pollutant	**Averaging Time**	**California Standards** [1]		**National Standards** [2]		
		Concentration [3]	**Method** [4]	**Primary** [3,5]	**Secondary** [3,6]	**Method** [7]
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
Fine Particulate Matter (PM2.5)[9]	24 Hour	—	—	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[11]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[11]	—	
Lead[12,13]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3 (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m^3		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	**No National Standards**		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

See footnotes on next page …

For more information please call ARB-PIO at (916) 322-2990

California Air Resources Board (5/4/16)

Table 1 (continued)

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 $\mu g/m^3$ 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 October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

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

10. 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.

11. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 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 SO_2 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.

12. 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.

13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ 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.

14. 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.

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Table 2
Health Effects of Major Criteria Pollutants

Pollutants	Sources	Primary Effects
Carbon Monoxide (CO)	• Incomplete combustion of fuels and other carbon-containing substances, such as motor exhaust. • Natural events, such as decomposition of organic matter.	• Reduced tolerance for exercise. • Impairment of mental function. • Impairment of fetal development. • Death at high levels of exposure. • Aggravation of some heart diseases (angina).
Nitrogen Dioxide (NO_2)	• Motor vehicle exhaust. • High temperature stationary combustion. • Atmospheric reactions.	• Aggravation of respiratory illness. • Reduced visibility. • Reduced plant growth. • Formation of acid rain.
Ozone (O_3)	• Atmospheric reaction of organic gases with nitrogen oxides in sunlight.	• Aggravation of respiratory and cardiovascular diseases. • Irritation of eyes. • Impairment of cardiopulmonary function. • Plant leaf injury.
Lead (Pb)	• Contaminated soil.	• Impairment of blood function and nerve construction. • Behavioral and hearing problems in children.
Respirable Particulate Matter (PM-10)	• Stationary combustion of solid fuels. • Construction activities. • Industrial processes. • Atmospheric chemical reactions.	• Reduced lung function. • Aggravation of the effects of gaseous pollutants. • Aggravation of respiratory and cardio respiratory diseases. • Increased cough and chest discomfort. • Soiling. • Reduced visibility.
Fine Particulate Matter (PM-2.5)	• Fuel combustion in motor vehicles, equipment, and industrial sources. • Residential and agricultural burning. • Industrial processes. • Also, formed from photochemical reactions of other pollutants, including NOx, sulfur oxides, and organics.	• Increases respiratory disease. • Lung damage. • Cancer and premature death. • Reduces visibility and results in surface soiling.
Sulfur Dioxide (SO_2)	• Combustion of sulfur-containing fossil fuels. • Smelting of sulfur-bearing metal ores. • Industrial processes.	• Aggravation of respiratory diseases (asthma, emphysema). • Reduced lung function. • Irritation of eyes. • Reduced visibility. • Plant injury. • Deterioration of metals, textiles, leather, finishes, coatings, etc.

Source: California Air Resources Board, 2002.

Evaluation of the most current data on the health effects of inhalation of fine particulate matter prompted the California Air Resources Board (ARB) to recommend adoption of the statewide PM-2.5 standard that is more stringent than the federal standard. This standard was adopted in 2002. The State PM-2.5 standard is more of a goal in that it does not have specific attainment planning requirements like a federal clean air standard, but only requires continued progress towards attainment.

Similarly, the ARB extensively evaluated health effects of ozone exposure. A new state standard for an 8-hour ozone exposure was adopted in 2005, which aligned with the exposure period for the federal 8-hour standard. The California 8-hour ozone standard of 0.07 ppm is more stringent than the federal 8-hour standard of 0.075 ppm. The state standard, however, does not have a specific attainment deadline. California air quality jurisdictions are required to make steady progress towards attaining state standards, but there are no hard deadlines or any consequences of non-attainment. During the same re-evaluation process, the ARB adopted an annual state standard for nitrogen dioxide ($NO_{2)}$ that is more stringent than the corresponding federal standard and strengthened the state one-hour NO_2 standard.

As part of EPA's 2002 consent decree on clean air standards, a further review of airborne particulate matter (PM) and human health was initiated. A substantial modification of federal clean air standards for PM was promulgated in 2006. Standards for PM-2.5 were strengthened, a new class of PM in the 2.5 to 10 micron size was created, some PM-10 standards were revoked, and a distinction between rural and urban air quality was adopted. In December, 2012, the federal annual standard for PM-2.5 was reduced from 15 $\mu g/m^3$ to 12 $\mu g/m^3$ which matches the California AAQS. The severity of the basin's non-attainment status for PM-2.5 may be increased by this action and thus require accelerated planning for future PM-2.5 attainment.

In response to continuing evidence that ozone exposure at levels just meeting federal clean air standards is demonstrably unhealthful, EPA had proposed a further strengthening of the 8-hour standard. A new 8-hour ozone standard was adopted in 2015 after extensive analysis and public input. The adopted national 8-hour ozone standard is 0.07 ppm which matches the current California standard. It will require three years of ambient data collection, then 2 years of non-attainment findings and planning protocol adoption, then several years of plan development and approval. Final air quality plans for the new standard are likely to be adopted around 2022. Ultimate attainment of the new standard in ozone problem areas such as Southern California might be after 2025.

In 2010 a new federal one-hour primary standard for nitrogen dioxide (NO_2) was adopted. This standard is more stringent than the existing state standard. Based upon air quality monitoring data in the South Coast Air Basin, the California Air Resources Board has requested the EPA to designate the basin as being in attainment for this standard. The federal standard for sulfur dioxide (SO_2) was also recently revised. However, with minimal combustion of coal and mandatory use of low sulfur fuels in California, SO_2 is typically not a problem pollutant.

BASELINE AIR QUALITY

Existing and probable future levels of air quality in the project area can be best inferred from ambient air quality measurements conducted by the SCAQMD. The data resource in closest proximity to the project site is the Big Bear City Monitoring Station. However, this station only monitors small particulates (PM-2.5). The closest available data for ozone and large particulates (PM-10) is the Crestline Monitoring Station. Data for carbon monoxide and nitrogen oxide were obtained from the San Bernardino 4th Street Monitoring Station. Summary data compiled from these resources is provided in Table 3. Findings are summarized below:

Photochemical smog (ozone) levels frequently exceed standards at Crestline. The 8-hour state ozone standard has been exceeded an average of 26 percent of all days in the past four years near the project site while the 1-hour state standard has been violated an average of 14 percent of all days. While ozone levels are still high, they are much lower than 10 to 20 years ago.

Measurements of carbon monoxide have shown very low baseline levels in comparison to the most stringent one- and eight-hour standards.

Respirable dust (PM-10) levels very rarely exceed the state or federal standard PM-10 standard. There have been no violations in the last four years of either standards.

A substantial fraction of PM-10 is comprised of small diameter particulates capable of being inhaled into deep lung tissue (PM-2.5). However, PM-2.5 readings rarely exceed the federal 24-hour PM-2.5 ambient standard (two times in the last four years).

Although complete attainment of every clean air standard is not yet imminent, extrapolation of the steady improvement trend suggests that such attainment could occur within the reasonably near future.

TABLE 3
Air Quality Monitoring Summary (2013-2016)
(Number of Days Standards Were Exceeded, and
Maximum Levels During Such Violations)
(Entries shown as ratios = samples exceeding standard/samples taken)

Pollutant/Standard	2013	2014	2015	2016
Ozone				
1-Hour > 0.09 ppm (S)	45	50	46	64
8-Hour > 0.07 ppm (S)	101	97	86	103
8- Hour > 0.075 ppm (F)	72	68	61	80
Max. 1-Hour Conc. (ppm)	0.120	0.130	0.144	0.163
Max. 8-Hour Conc. (ppm)	0.105	0.106	0.127	0.121
Carbon Monoxide				
8- Hour > 9. ppm (S,F)	0	0	0	0
Max 8-hour Conc. (ppm)	1.7	2.4	2.3	2.2
Nitrogen Dioxide				
1-Hour > 0.18 ppm (S)	0	0	0	0
Max. 1-Hour Conc. (ppm)	0.072	0.073	0.089	0.060
Respirable Particulates (PM-10)				
24-hour > 50 $\mu g/m^3$ (S)	0/60	0/61	0/57	0/61
24-hour > 150 $\mu g/m^3$ (F)	0/60	0/61	0/57	0/61
Max. 24-Hr. Conc. ($\mu g/m^3$)	32.	47.	41.	46.
Fine Particulates (PM-2.5)				
24-Hour > 35 $\mu g/m^3$ (F)	1/59	0/56	1/55	0/55
Max. 24-Hr. Conc. ($\mu g/m^3$)	35.5	24.2	39.4	28.4

Source: South Coast Air Quality Management District;
Crestline Monitoring Station for Ozone and PM-10.
San Bernardino 4th Street Monitoring Station for CO and NO_2.
Big Bear City Monitoring Station for PM-2.5.

data: WWW.ARB.CA.GOV/ADAM/

AIR QUALITY PLANNING

The Federal Clean Air Act (1977 Amendments) required that designated agencies in any area of the nation not meeting national clean air standards must prepare a plan demonstrating the steps that would bring the area into compliance with all national standards. The SCAB could not meet the deadlines for ozone, nitrogen dioxide, carbon monoxide, or PM-10. In the SCAB, the agencies designated by the governor to develop regional air quality plans are the SCAQMD and the Southern California Association of Governments (SCAG). The two agencies first adopted an Air Quality Management Plan (AQMP) in 1979 and revised it several times as earlier attainment forecasts were shown to be overly optimistic.

The 1990 Federal Clean Air Act Amendment (CAAA) required that all states with air-sheds with "serious" or worse ozone problems submit a revision to the State Implementation Plan (SIP). Amendments to the SIP have been proposed, revised and approved over the past decade. The most current regional attainment emissions forecast for ozone precursors (ROG and NOx) and for carbon monoxide (CO) and for particulate matter are shown in Table 4. Substantial reductions in emissions of ROG, NOx and CO are forecast to continue throughout the next several decades. Unless new particulate control programs are implemented, PM-10 and PM-2.5 are forecast to slightly increase.

The Air Quality Management District (AQMD) adopted an updated clean air "blueprint" in August 2003. The 2003 Air Quality Management Plan (AQMP) was approved by the EPA in 2004. The AQMP outlined the air pollution measures needed to meet federal health-based standards for ozone by 2010 and for particulates (PM-10) by 2006. The 2003 AQMP was based upon the federal one-hour ozone standard which was revoked late in 2005 and replaced by an 8-hour federal standard. Because of the revocation of the hourly standard, a new air quality planning cycle was initiated.

With re-designation of the air basin as non-attainment for the 8-hour ozone standard, a new attainment plan was developed. This plan shifted most of the one-hour ozone standard attainment strategies to the 8-hour standard. As previously noted, the attainment date was to "slip" from 2010 to 2021. The updated attainment plan also includes strategies for ultimately meeting the federal PM-2.5 standard.

Because projected attainment by 2021 required control technologies that did not exist yet, the SCAQMD requested a voluntary "bump-up" from a "severe non-attainment" area to an "extreme non-attainment" designation for ozone. The extreme designation was to allow a longer time period for these technologies to develop. If attainment cannot be demonstrated within the specified deadline without relying on "black-box" measures, EPA would have been required to impose sanctions on the region had the bump-up request not been approved. In April 2010, the EPA approved the change in the non-attainment designation from "severe-17" to "extreme." This reclassification set a later attainment deadline (2024), but also required the air basin to adopt even more stringent emissions controls.

Table 4

South Coast Air Basin Emissions Forecasts (Emissions in tons/day)

Pollutant	2015[a]	2020[b]	2025[b]	2030[b]
NOx	357	289	266	257
VOC	400	393	393	391
PM-10	161	165	170	172
PM-2.5	67	68	70	71

[a]2015 Base Year.
[b]With current emissions reduction programs and adopted growth forecasts.
Source: California Air Resources Board, 2013 Almanac of Air Quality

In other air quality attainment plan reviews, EPA had disapproved part of the SCAB PM-2.5 attainment plan included in the AQMP. EPA stated that the current attainment plan relied on PM-2.5 control regulations that had not yet been approved or implemented. It was expected that a number of rules that were pending approval would remove the identified deficiencies. If these issues were not resolved within the next several years, federal funding sanctions for transportation projects could result. The 2012 AQMP included in the current California State Implementation Plan (SIP) was expected to remedy identified PM-2.5 planning deficiencies.

The federal Clean Air Act requires that non-attainment air basins have EPA approved attainment plans in place. This requirement includes the federal one-hour ozone standard even though that standard was revoked almost ten years ago. There was no approved attainment plan for the one-hour federal standard at the time of revocation. Through a legal quirk, the SCAQMD is now required to develop an AQMP for the long since revoked one-hour federal ozone standard. Because the current SIP for the basin contains a number of control measures for the 8-hour ozone standard that are equally effective for one-hour levels, the 2012 AQMP was believed to satisfy hourly attainment planning requirements.

AQMPs are required to be updated every three years. The 2012 AQMP was adopted in early 2013. An updated AQMP was required for completion in 2016. The 2016 AQMP was adopted by the SCAQMD Board in March, 2017, and has been submitted the California Air Resources Board for forwarding to the EPA. The 2016 AQMP acknowledges that motor vehicle emissions have been effectively controlled and that reductions in NOx, the continuing ozone problem pollutant, may need to come from major stationary sources (power plants, refineries, landfill flares, etc.) The current attainment deadlines for all federal non-attainment pollutants are now as follows:

8-hour ozone (70 ppb)	2032
Annual PM-2.5 (12 $\mu g/m^3$)	2025
8-hour ozone (75 ppb)	2024 (former standard)

1-hour ozone (120 ppb)	2023 (rescinded standard)
24-hour PM-2.5 (35 $\mu g/m^3$)	2019

The key challenge is that NOx emission levels, as a critical ozone precursor pollutant, are forecast to continue to exceed the levels that would allow the above deadlines to be met. Unless additional stringent NOx control measures are adopted and implemented, ozone attainment goals may not be met.

The proposed project does not directly relate to the AQMP in that there are no specific air quality programs or regulations governing water improvement projects. Conformity with adopted plans, forecasts and programs relative to population, housing, employment and land use is the primary yardstick by which impact significance of planned growth is determined. The SCAQMD, however, while acknowledging that the AQMP is a growth-accommodating document, does not favor designating regional impacts as less-than-significant just because the proposed development is consistent with regional growth projections. Air quality impact significance for the proposed project has therefore been analyzed on a project-specific basis.

AIR QUALITY IMPACT

STANDARDS OF SIGNIFICANCE

Air quality impacts are considered "significant" if they cause clean air standards to be violated where they are currently met, or if they "substantially" contribute to an existing violation of standards. Any substantial emissions of air contaminants for which there is no safe exposure, or nuisance emissions such as dust or odors, would also be considered a significant impact.

Appendix G of the California CEQA Guidelines offers the following five tests of air quality impact significance. A project would have a potentially significant impact if it:

a. Conflicts with or obstructs implementation of the applicable air quality plan.

b. Violates any air quality standard or contributes substantially to an existing or projected air quality violation.

c. Results in a cumulatively considerable net increase of any criteria pollutants for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

d. Exposes sensitive receptors to substantial pollutant concentrations.

e. Creates objectionable odors affecting a substantial number of people.

Primary Pollutants

Air quality impacts generally occur on two scales of motion. Near an individual source of emissions or a collection of sources such as a crowded intersection or parking lot, levels of those pollutants that are emitted in their already unhealthful form will be highest. Carbon monoxide (CO) is an example of such a pollutant. Primary pollutant impacts can generally be evaluated directly in comparison to appropriate clean air standards. Violations of these standards where they are currently met, or a measurable worsening of an existing or future violation, would be considered a significant impact. Many particulates, especially fugitive dust emissions, are also primary pollutants. Because of the non-attainment status of the South Coast Air Basin (SCAB) for PM-10, an aggressive dust control program is required to control fugitive dust during project construction.

Secondary Pollutants

Many pollutants, however, require time to transform from a more benign form to a more unhealthful contaminant. Their impact occurs regionally far from the source. Their incremental regional impact is minute on an individual basis and cannot be quantified except through complex photochemical computer models. Analysis of significance of such emissions is based

upon a specified amount of emissions (pounds, tons, etc.) even though there is no way to translate those emissions directly into a corresponding ambient air quality impact.

Because of the chemical complexity of primary versus secondary pollutants, the SCAQMD has designated significant emissions levels as surrogates for evaluating regional air quality impact significance independent of chemical transformation processes. Projects with daily emissions that exceed any of the following emission thresholds are recommended by the SCAQMD to be considered significant under CEQA guidelines.

Table 5
Daily Emissions Thresholds

Pollutant	Construction	Operations
ROG	75	55
NOx	100	55
CO	550	550
PM-10	150	150
PM-2.5	55	55
SOx	150	150
Lead	3	3

Source: SCAQMD CEQA Air Quality Handbook, November, 1993 Rev.

Additional Indicators

In its CEQA Handbook, the SCAQMD also states that additional indicators should be used as screening criteria to determine the need for further analysis with respect to air quality. The additional indicators are as follows:

- Project could interfere with the attainment of the federal or state ambient air quality standards by either violating or contributing to an existing or projected air quality violation

- Project could result in population increases within the regional statistical area which would be in excess of that projected in the AQMP and in other than planned locations for the project's build-out year.

- Project could generate vehicle trips that cause a CO hot spot.

CONSTRUCTION ACTIVITY IMPACTS

Construction required to complete the Big Bear City Community Services District (BBCCSD) Sewer Master Plan involves the following activities.

- Project 4 – Bowles, Arbor, and Elysian Pipeline Replacement
  This project includes the replacement of approximately 857 feet of 8 inch diameter pipeline with 12 inch diameter pipe. All pipelines are located within existing, paved roadways. The pipelines will be replaced via open trench excavation. Existing sewer pipeline to be replaced will be removed or abandoned in place. Construction will occur over a 4 to 6-month period.

- Project 7 – Division Lift Station Pump Replacement (Hand Tools)
  Because the Division Lift Station is difficult to maintain this project will replace the pumps and valves of the lift station. Pumps and valves within the building will be replaced by hand. The anticipated construction schedule is 4 to 6 months.

- Project 9 – Gildart Sewer Upgrades (Division and Rainbow Relief)
  Project 9 includes the installation of a new 12 inch diameter sewer main extending approximately 950 feet. This Project also includes the replacement of 564 feet of pipeline. The pipelines will be replaced via open trench excavation. Existing sewer pipelines to be replaced will be removed or abandoned in place. The anticipated construction schedule is 4 to 6 months.

- Project 10 – Shore and Drake Lift Station Pump Replacements
  Shore and Drake Lift Station pumps and valves are nearing the end of their design life. This project will replace the pumps and valves when the pumps reach fifty (50) years of age. Pumps and valves within building will be replaced by hand. The anticipated construction schedule is 4 to 6 months.

- Project 11 – Sequoia and W Meadow Pipeline Replacement
  Project 11 includes the replacement of two 8 inch diameter pipe segments, totaling approximately 398 feet, with 10 and 12 inch pipe.

- Project 12– Kern, Orange, Erwin, and Imperial Lift Station Pump Replacements
  Project includes the replacement of the pumps and valves at the Kern, Orange, and Imperial Lift Stations. Pumps and valves within building will be replaced by hand. The anticipated construction schedule is 4 to 6 months.

- Project 14 – Rehabilitation of Lift Station Wet Wells and Bypass Wells
  This project may occur at all seven lift stations. Rehabilitation will primarily consist of cementitious repair including grout placement for void fill and the addition of a monolithic lining. The Project will likely include the mobilization of a concrete mixer truck and spray application. The anticipated construction schedule is 2 to 5 months.

- Project 15 – Rehabilitation of Lift Station Dry Wells

Similar to Project 14, Project 15 includes the necessary rehabilitation of the lift station dry wells. This project may also occur at all seven lift stations. Rehabilitation will likely include the application of a protective coating, such as modified epoxy paint, to the interior walls of the wells. Additional rehabilitation may include replacement of the sacrificial anodes and upgrades to the cathodic protection system for the wet well.

CalEEMod was developed by the SCAQMD to provide a computer model by which to calculate both construction emissions and operational emissions from a variety of land use projects. It calculates both the daily maximum and annual average emissions for criteria pollutants as well as total or annual greenhouse gas (GHG) emissions.

Estimated construction emissions were modeled using CalEEMod2016.3.2 to identify maximum daily emissions for each pollutant during project construction using an appropriate equipment fleet for the indicated project activities and durations. As noted, much of the project work will be accomplished using hand tools. Only heavy diesel equipment is modeled in CalEEMod. Therefore, hand tools are not included in this analysis as they would not emit exhaust emissions.

The following construction fleet and schedule was modeled in CalEEMod as shown in Table 6.

Table 6
CalEEMod Construction Activity Equipment Fleet and Workdays

Pipeline Install
2,770 LF

Demo Roadway and Trench 1 month	1 Loader/Backhoe
	2 Trencher
	1 Concrete Saw
	2 Air Compressors
Install Pipe 3 months	2 Forklifts
	1 Welder
	1 Loader/Backhoe
Backfill and Pave 2 months	2 Concrete Pumps
	1 Paver
	2 Loader/Backhoes
	1 Roller
	1 Mixer

Lift Station Rehabilitation

Cement Repair 3 months	1 Concrete Mixer
	1 Pump
	2 Air Compressors
Apply Epoxy Coating 3 months	2 Air Compressors
	1 Pressure Washer

Utilizing this indicated equipment fleet and durations shown in Table 6 the following worst case daily construction emissions are calculated by CalEEMod and are listed in Table 7.

Table 7
Construction Activity Emissions
Maximum Daily Emissions (pounds/day)

Maximal Construction Emissions	**ROG**	**NOx**	**CO**	**SO_2**	**PM-10**	**PM-2.5**
Year 2019						
Pipeline Installation	1.9	15.0	15.2	0.0	1.5	1.1
Lift Station Rehab	0.9	3.9	6.7	0.0	0.4	0.4
Total Project	**2.8**	**18.0**	**21.9**	**0.0**	**1.9**	**1.5**
SCAQMD Thresholds	75	100	550	150	150	55

Peak daily construction activity emissions are estimated to be well below SCAQMD CEQA thresholds without the need for added mitigation even if worst case activities were to occur simultaneously.

Construction equipment exhaust contains carcinogenic compounds within the diesel exhaust particulates. The toxicity of diesel exhaust is evaluated relative to a 24-hour per day, 365 days per year, 70-year lifetime exposure. The SCAQMD does not generally require the analysis of construction-related diesel emissions relative to health risk due to the short period for which the majority of diesel exhaust would occur. Health risk analyses are typically assessed over a 9-, 30-, or 70-year timeframe and not over a relatively brief construction period due to the lack of health risk associated with such a brief exposure.

OPERATIONAL IMPACTS

A sewer rehabilitation project will not have any associated operational impacts. The project will not generate any additional trips over existing conditions and electrical consumption for pump use is anticipated to be the same as or slightly less than the current equipment. Therefore, the project does not create any operational emissions.

NEPA CONFORMITY

Annualized construction activity emissions were calculated by assuming all construction activities would occur during the same calendar year to represent a worst-case condition. The calculated emissions were then compared to the EPA *de minimis* emission thresholds that would allow for a federal conformity finding with Section 176c of the Clean Air Act.

If the project-related emissions from construction and operations are less than specified "*de minimis*" levels, no further SIP consistency demonstration is required. As stated, there are no operational emissions associated with this project. The SCAB is designated as a "extreme" non-attainment area for the federal 8-hour ozone standard. The basin is a non-attainment area for PM-2.5, and a maintenance area for PM-10. Based upon these designations, the following emissions levels are presumed evidence of SIP conformity:

VOC/ROG	-	10 tons/year
NOx	-	10 tons/year
PM-2.5	-	100 tons/year
PM-10	-	100 tons/year

Annual construction emissions were calculated with the CalEEMod computer model. Maximum annual project-related air pollution emissions relative to federal standard attainment designations and appropriate *de minimis* thresholds are shown in Table 8.

Table 8
Total Annual Construction Emissions
(tons/year)

Activity	ROG	NOx	CO	SO_2	PM-10	PM-2.5	CO_2
Maximal Construction Emissions							
Pipeline Installation	0.08	0.66	0.67	0.00	0.08	0.06	92.4
Lift Station Rehab	0.04	0.32	0.32	0.00	0.02	0.01	45.0
Total	**0.12**	**0.98**	**0.99**	**0.00**	**0.10**	**0.07**	**137.4**
NEPA Threshold	10	10	100	100	70	100	-

Maximum annual emissions are much less than their associated *de minimis* thresholds. A formal SIP consistency analysis is not required.

ODOR IMPACTS

Project operations (pumping and conveyance) are essentially a closed system with negligible odor potential. Regarding construction repairs, the system will be drained prior to any improvements to the lift stations. Odors will therefore not be detectable during application of the epoxy coating or cement repairs or pump repair. Good painting practice (low wind speeds and high efficiency sprayers) will minimize overspray and paint transport.

LOCALIZED SIGNIFICANCE THRESHOLDS

The SCAQMD has developed analysis parameters to evaluate ambient air quality on a local level in addition to the more regional emissions-based thresholds of significance. These analysis elements are called Localized Significance Thresholds (LSTs). LSTs were developed in response to Governing Board's Environmental Justice Enhancement Initiative 1-4 and the LST methodology was provisionally adopted in October 2003 and formally approved by SCAQMD's Mobile Source Committee in February 2005.

Use of an LST analysis for a project is optional. For the proposed project, the primary source of possible LST impact would be during construction. LSTs are applicable for a sensitive receptor where it is possible that an individual could remain for 24 hours such as a residence, hospital or convalescent facility.

LSTs are only applicable to the following criteria pollutants: oxides of nitrogen (NOx), carbon monoxide (CO), and particulate matter (PM-10 and PM-2.5). LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor.

LST screening tables are available for 25, 50, 100, 200 and 500 meter source-receptor distances. For this project, the worst case conditions for 25 meters was used.

The SCAQMD has issued guidance on applying CalEEMod to LSTs. LST pollutant screening level concentration data is currently published for 1, 2 and 5 acre sites for varying distances. For this project, the most stringent thresholds for a 1 acre site were applied.

The following thresholds and emissions in Table 9 are therefore determined (pounds per day):

Table 9
LST and Project Emissions (pounds/day)

LST 1 acre/25 meters East San Bernardino Mountains	**CO**	**NOx**	**PM-10**	**PM-2.5**
LST Thresholds	775	118	4	4
Max On-Site Emissions				
Pipeline Installation	15	15	2	1
Lift Station Rehab	7	4	<1	<1
Total	**23**	**19**	**3**	**2**
Significant?	No	No	No	No

CalEEMod Output in Appendix

LSTs were compared to the maximum daily construction activities. As seen in Table 9, emissions meet the LST for construction thresholds. LST impacts are less-than-significant without the need for additional mitigation.

CONSTRUCTION EMISSIONS MINIMIZATION

Construction activities are not anticipated to cause dust emissions to exceed SCAQMD CEQA thresholds. Nevertheless, emissions minimization through enhanced dust control measures is recommended for use because of the non-attainment status of the air and proximity of residential uses. Recommended measures include:

Fugitive Dust Control

- Apply soil stabilizers or moisten inactive areas.
- Water exposed surfaces as needed to avoid visible dust leaving the construction site (typically 2-3 times/day).
- Cover all stock piles with tarps at the end of each day or as needed.
- Provide water spray during loading and unloading of earthen materials.
- Minimize in-out traffic from construction zone
- Cover all trucks hauling dirt, sand, or loose material and require all trucks to maintain at least two feet of freeboard
- Sweep streets daily if visible soil material is carried out from the construction site

Similarly, ozone precursor emissions (ROG and NOx) are calculated to be below SCAQMD CEQA thresholds. However, because of the regional non-attainment for photochemical smog, the use of reasonably available control measures for diesel exhaust is recommended. Combustion emissions control options include:

Exhaust Emissions Control

- Utilize well-tuned off-road construction equipment.
- Establish a preference for contractors using Tier 3 or better rated heavy equipment.
- Enforce 5-minute idling limits for both on-road trucks and off-road equipment.

GREENHOUSE GAS EMISSIONS

"Greenhouse gases" (so called because of their role in trapping heat near the surface of the earth) emitted by human activity are implicated in global climate change, commonly referred to as "global warming." These greenhouse gases contribute to an increase in the temperature of the earth's atmosphere by transparency to short wavelength visible sunlight, but near opacity to outgoing terrestrial long wavelength heat radiation in some parts of the infrared spectrum. The principal greenhouse gases (GHGs) are carbon dioxide, methane, nitrous oxide, ozone, and water vapor. For purposes of planning and regulation, Section 15364.5 of the California Code of Regulations defines GHGs to include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. Fossil fuel consumption in the transportation sector (on-road motor vehicles, off-highway mobile sources, and aircraft) is the single largest source of GHG emissions, accounting for approximately half of GHG emissions globally. Industrial and commercial sources are the second largest contributors of GHG emissions with about one-fourth of total emissions.

California has passed several bills and the Governor has signed at least three executive orders regarding greenhouse gases. GHG statues and executive orders (EO) include AB 32, SB 1368, EO S-03-05, EO S-20-06 and EO S-01-07.

AB 32 is one of the most significant pieces of environmental legislation that California has adopted. Among other things, it is designed to maintain California's reputation as a "national and international leader on energy conservation and environmental stewardship." It will have wide-ranging effects on California businesses and lifestyles as well as far reaching effects on other states and countries. A unique aspect of AB 32, beyond its broad and wide-ranging mandatory provisions and dramatic GHG reductions are the short time frames within which it must be implemented. Major components of the AB 32 include:

- Require the monitoring and reporting of GHG emissions beginning with sources or categories of sources that contribute the most to statewide emissions.
- Requires immediate "early action" control programs on the most readily controlled GHG sources.
- Mandates that by 2020, California's GHG emissions be reduced to 1990 levels.
- Forces an overall reduction of GHG gases in California by 25-40%, from business as usual, to be achieved by 2020.
- Must complement efforts to achieve and maintain federal and state ambient air quality standards and to reduce toxic air contaminants.

Statewide, the framework for developing the implementing regulations for AB 32 is under way. Maximum GHG reductions are expected to derive from increased vehicle fuel efficiency, from greater use of renewable energy and from increased structural energy efficiency. Additionally, through the California Climate Action Registry (CCAR now called the Climate Action Reserve), general and industry-specific protocols for assessing and reporting GHG emissions have been

developed. GHG sources are categorized into direct sources (i.e. company owned) and indirect sources (i.e. not company owned). Direct sources include combustion emissions from on-and off-road mobile sources, and fugitive emissions. Indirect sources include off-site electricity generation and non-company owned mobile sources.

THRESHOLDS OF SIGNIFICANCE

In response to the requirements of SB97, the State Resources Agency developed guidelines for the treatment of GHG emissions under CEQA. These new guidelines became state laws as part of Title 14 of the California Code of Regulations in March of 2010. The CEQA Appendix G guidelines were modified to include GHG as a required analysis element. A project would have a potentially significant impact if it:

- Generates GHG emissions, directly or indirectly, that may have a significant impact on the environment, or,

- Conflicts with an applicable plan, policy or regulation adopted to reduce GHG emissions.

Section 15064.4 of the Code specifies how significance of GHG emissions is to be evaluated. The process is broken down into quantification of project-related GHG emissions, making a determination of significance, and specification of any appropriate mitigation if impacts are found to be potentially significant. At each of these steps, the new GHG guidelines afford the lead agency with substantial flexibility.

Emissions identification may be quantitative, qualitative or based on performance standards. CEQA guidelines allow the lead agency to "select the model or methodology it considers most appropriate." The most common practice for transportation/combustion GHG emissions quantification is to use a computer model such as CalEEMod, as was used in the ensuing analysis.

The significance of those emissions then must be evaluated; the selection of a threshold of significance must take into consideration what level of GHG emissions would be cumulatively considerable. The guidelines are clear that they do not support a zero net emissions threshold. If the lead agency does not have sufficient expertise in evaluating GHG impacts, it may rely on thresholds adopted by an agency with greater expertise.

On December 5, 2008 the SCAQMD Governing Board adopted an Interim quantitative GHG Significance Threshold for industrial projects where the SCAQMD is the lead agency (e.g., stationary source permit projects, rules, plans, etc.) of 10,000 Metric Tons (MT) CO_2 equivalent/year. In September 2010, the SCAQMD CEQA Significance Thresholds GHG Working Group released revisions which recommended a threshold of 3,000 MT CO_2e for all land use projects. This 3,000 MT/year recommendation has been used as a guideline for this analysis. In the absence of an adopted numerical threshold of significance, project related GHG emissions in excess of the guideline level are presumed to trigger a requirement for enhanced GHG reduction at the project level.

PROJECT RELATED GHG EMISSIONS GENERATION

Construction Activity GHG Emissions

The worst-case scenario for maximum GHG emissions would be if all construction activities occur in the same calendar year. The CalEEMod2016.3.2 computer model predicts that the construction activities will generate the annual CO_2e emissions identified in Table 9.

Table 9
Construction Emissions (Metric Tons CO_2e)

Year 2019	CO_2e
Pipeline	92.4
Lift Station Rehab	45.0
Total	137.4

CalEEMod Output provided in appendix

GHG impacts from construction are considered less-than-significant as they are below the adopted 3,000 MT threshold.

CONSISTENCY WITH GHG PLANS, PROGRAMS AND POLICIES

An informal project partnership led by the San Bernardino Associated Governments (SANDBAG) in compiling an inventory and evaluation of GHG reduction measures that could be adopted by the Partnership. The City of Big Bear has cooperated with this effort and a San Bernardino County Regional Greenhouse Gas Reduction Plan was finalized in March 2014.

The study showed that the largest source of GHG emissions in the region are combustion of transportation fuels and the use of electricity and natural gas by residential and commercial buildings. Off-road construction equipment, even in year 2020 comprises a fraction (1.5%) of emissions generated by on-road transportation and energy use.

Except for short term construction emissions, the project is GHG neutral and the small amount of construction equipment employed for use for completion of this project is not significant.

CALEEMOD2016.3.2 COMPUTER MODEL OUTPUT

PIPELINE INSTALLATION

- DAILY EMISISONS
- ANNUAL EMISSIONS

LIFT STATION REHABILITATION

- DAILY EMISISONS
- ANNUAL EMISSIONS

Big Bear Sewer Pipeline

San Bernardino-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	0.70	User Defined Unit	0.70	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 2770 lf

Construction Phase - Demo: 1 month, Pipeline Install: 3 months, Backfill and Pave: 2 months

Off-road Equipment - Demo: 1 concrete saw, 2 trenchers, 1 loader/backhoe, 2 air compressors

Off-road Equipment - Install Pipe: 1 loader/backhoe, 2 forklifts, 1 welder

Trips and VMT - 20 worker trips

Off-road Equipment - Backfill and Pave: 1 mixer, 2 pumps, 1 roller, 2 loader/backhoes, 2 pumps

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	20.00

Big Bear Sewer Pipeline - San Bernardino-South Coast County, Summer

tblConstructionPhase	NumDays	2.00	60.00
tblConstructionPhase	NumDays	5.00	40.00
tblConstructionPhase	PhaseEndDate	1/14/2019	1/28/2019
tblConstructionPhase	PhaseEndDate	1/17/2019	4/25/2019
tblConstructionPhase	PhaseEndDate	6/13/2019	6/25/2019
tblConstructionPhase	PhaseStartDate	1/16/2019	2/1/2019
tblConstructionPhase	PhaseStartDate	6/7/2019	5/1/2019
tblLandUse	LotAcreage	0.00	0.70
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	PhaseName		Paving
tblOffRoadEquipment	PhaseName		Demolition
tblOffRoadEquipment	PhaseName		Demolition
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Grading
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	WorkerTripNumber	10.00	20.00
tblTripsAndVMT	WorkerTripNumber	10.00	20.00
tblTripsAndVMT	WorkerTripNumber	18.00	20.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	1.9428	15.0061	15.1610	0.0249	0.9827	1.0520	1.4606	0.4749	1.0068	1.0661	0.0000	2,407.2595	2,407.2595	0.4472	0.0000	2,418.4403
Maximum	**1.9428**	**15.0061**	**15.1610**	**0.0249**	**0.9827**	**1.0520**	**1.4606**	**0.4749**	**1.0068**	**1.0661**	**0.0000**	**2,407.2595**	**2,407.2595**	**0.4472**	**0.0000**	**2,418.4403**

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					
2019	1.9428	9.2554	15.1610	0.0249	0.9827	1.0520	1.4606	0.4749	1.0068	1.0661	0.0000	2,407.2595	2,407.2595	0.4472	0.0000	2,418.4403
Maximum	**1.9428**	**9.2554**	**15.1610**	**0.0249**	**0.9827**	**1.0520**	**1.4606**	**0.4749**	**1.0068**	**1.0661**	**0.0000**	**2,407.2595**	**2,407.2595**	**0.4472**	**0.0000**	**2,418.4403**

Big Bear Sewer Pipeline - San Bernardino-South Coast County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**38.32**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-005	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.5000e-004	1.5000e-004	0.0000		1.6000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	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	**1.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.0000**	**1.6000e-004**

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	1.0000e-005	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.5000e-004	1.5000e-004	0.0000		1.6000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	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	**1.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.0000**	**1.6000e-004**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2019	1/28/2019	5	20	
2	Grading	Grading	2/1/2019	4/25/2019	5	60	
3	Paving	Paving	5/1/2019	6/25/2019	5	40	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Big Bear Sewer Pipeline - San Bernardino-South Coast County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Trenchers	2	6.00	78	0.50
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Paving	Pumps	2	6.00	84	0.74
Demolition	Air Compressors	2	6.00	78	0.48
Grading	Forklifts	2	6.00	89	0.20
Grading	Welders	1	6.00	46	0.45
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	0	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Paving	Tractors/Loaders/Backhoes	2	7.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	20.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	20.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2019

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	1.8242	14.9177	13.0903	0.0196		1.0505	1.0505		1.0054	1.0054		1,889.5024	1,889.5024	0.3215		1,897.5392
Total	**1.8242**	**14.9177**	**13.0903**	**0.0196**		**1.0505**	**1.0505**		**1.0054**	**1.0054**		**1,889.5024**	**1,889.5024**	**0.3215**		**1,897.5392**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1186	0.0789	0.9970	2.3400e-003	0.2236	1.5000e-003	0.2251	0.0593	1.3800e-003	0.0607		233.2832	233.2832	7.8200e-003		233.4787
Total	**0.1186**	**0.0789**	**0.9970**	**2.3400e-003**	**0.2236**	**1.5000e-003**	**0.2251**	**0.0593**	**1.3800e-003**	**0.0607**		**233.2832**	**233.2832**	**7.8200e-003**		**233.4787**

3.2 Demolition - 2019

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	1.8242	5.3416	13.0903	0.0196		1.0505	1.0505		1.0054	1.0054	0.0000	1,889.5024	1,889.5024	0.3215		1,897.5392
Total	**1.8242**	**5.3416**	**13.0903**	**0.0196**		**1.0505**	**1.0505**		**1.0054**	**1.0054**	**0.0000**	**1,889.5024**	**1,889.5024**	**0.3215**		**1,897.5392**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1186	0.0789	0.9970	2.3400e-003	0.2236	1.5000e-003	0.2251	0.0593	1.3800e-003	0.0607		233.2832	233.2832	7.8200e-003		233.4787
Total	**0.1186**	**0.0789**	**0.9970**	**2.3400e-003**	**0.2236**	**1.5000e-003**	**0.2251**	**0.0593**	**1.3800e-003**	**0.0607**		**233.2832**	**233.2832**	**7.8200e-003**		**233.4787**

3.3 Grading - 2019

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					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	0.8792	6.8774	6.6096	8.8800e-003		0.4756	0.4756		0.4436	0.4436		845.0366	845.0366	0.2441		851.1401
Total	**0.8792**	**6.8774**	**6.6096**	**8.8800e-003**	**0.7528**	**0.4756**	**1.2284**	**0.4138**	**0.4436**	**0.8573**		**845.0366**	**845.0366**	**0.2441**		**851.1401**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	3.5900e-003	0.1152	0.0234	2.7000e-004	6.4000e-003	7.2000e-004	7.1300e-003	1.8400e-003	6.9000e-004	2.5300e-003		28.8048	28.8048	1.9500e-003		28.8535
Worker	0.1186	0.0789	0.9970	2.3400e-003	0.2236	1.5000e-003	0.2251	0.0593	1.3800e-003	0.0607		233.2832	233.2832	7.8200e-003		233.4787
Total	**0.1222**	**0.1940**	**1.0204**	**2.6100e-003**	**0.2300**	**2.2200e-003**	**0.2322**	**0.0611**	**2.0700e-003**	**0.0632**		**262.0880**	**262.0880**	**9.7700e-003**		**262.3322**

3.3 Grading - 2019

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					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	0.8792	3.5061	6.6096	8.8800e-003		0.4756	0.4756		0.4436	0.4436	0.0000	845.0366	845.0366	0.2441		851.1401
Total	**0.8792**	**3.5061**	**6.6096**	**8.8800e-003**	**0.7528**	**0.4756**	**1.2284**	**0.4138**	**0.4436**	**0.8573**	**0.0000**	**845.0366**	**845.0366**	**0.2441**		**851.1401**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	3.5900e-003	0.1152	0.0234	2.7000e-004	6.4000e-003	7.2000e-004	7.1300e-003	1.8400e-003	6.9000e-004	2.5300e-003		28.8048	28.8048	1.9500e-003		28.8535
Worker	0.1186	0.0789	0.9970	2.3400e-003	0.2236	1.5000e-003	0.2251	0.0593	1.3800e-003	0.0607		233.2832	233.2832	7.8200e-003		233.4787
Total	**0.1222**	**0.1940**	**1.0204**	**2.6100e-003**	**0.2300**	**2.2200e-003**	**0.2322**	**0.0611**	**2.0700e-003**	**0.0632**		**262.0880**	**262.0880**	**9.7700e-003**		**262.3322**

3.4 Paving - 2019

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	1.6070	14.8121	14.1406	0.0222		0.9035	0.9035		0.8607	0.8607		2,145.1716	2,145.1716	0.4375		2,156.1081
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6070**	**14.8121**	**14.1406**	**0.0222**		**0.9035**	**0.9035**		**0.8607**	**0.8607**		**2,145.1716**	**2,145.1716**	**0.4375**		**2,156.1081**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	3.5900e-003	0.1152	0.0234	2.7000e-004	6.4000e-003	7.2000e-004	7.1300e-003	1.8400e-003	6.9000e-004	2.5300e-003		28.8048	28.8048	1.9500e-003		28.8535
Worker	0.1186	0.0789	0.9970	2.3400e-003	0.2236	1.5000e-003	0.2251	0.0593	1.3800e-003	0.0607		233.2832	233.2832	7.8200e-003		233.4787
Total	**0.1222**	**0.1940**	**1.0204**	**2.6100e-003**	**0.2300**	**2.2200e-003**	**0.2322**	**0.0611**	**2.0700e-003**	**0.0632**		**262.0880**	**262.0880**	**9.7700e-003**		**262.3322**

3.4 Paving - 2019

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	1.6070	9.0613	14.1406	0.0222		0.9035	0.9035		0.8607	0.8607	0.0000	2,145.1716	2,145.1716	0.4375		2,156.1081
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6070**	**9.0613**	**14.1406**	**0.0222**		**0.9035**	**0.9035**		**0.8607**	**0.8607**	**0.0000**	**2,145.1716**	**2,145.1716**	**0.4375**		**2,156.1081**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	3.5900e-003	0.1152	0.0234	2.7000e-004	6.4000e-003	7.2000e-004	7.1300e-003	1.8400e-003	6.9000e-004	2.5300e-003		28.8048	28.8048	1.9500e-003		28.8535
Worker	0.1186	0.0789	0.9970	2.3400e-003	0.2236	1.5000e-003	0.2251	0.0593	1.3800e-003	0.0607		233.2832	233.2832	7.8200e-003		233.4787
Total	**0.1222**	**0.1940**	**1.0204**	**2.6100e-003**	**0.2300**	**2.2200e-003**	**0.2322**	**0.0611**	**2.0700e-003**	**0.0632**		**262.0880**	**262.0880**	**9.7700e-003**		**262.3322**

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Industrial	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
User Defined Industrial	0.541740	0.038987	0.178620	0.126833	0.019742	0.005671	0.017070	0.060066	0.001326	0.001715	0.006244	0.000823	0.001163

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

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					
User Defined Industrial	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		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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					
User Defined Industrial	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		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.0000e-005	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.5000e-004	1.5000e-004	0.0000		1.6000e-004
Unmitigated	1.0000e-005	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.5000e-004	1.5000e-004	0.0000		1.6000e-004

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.5000e-004	1.5000e-004	0.0000		1.6000e-004
Total	**1.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.5000e-004**	**1.5000e-004**	**0.0000**		**1.6000e-004**

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.5000e-004	1.5000e-004	0.0000		1.6000e-004
Total	**1.0000e-005**	**0.0000**	**7.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.5000e-004**	**1.5000e-004**	**0.0000**		**1.6000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Big Bear Sewer Pipeline

San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	0.70	User Defined Unit	0.70	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 2770 lf

Construction Phase - Demo: 1 month, Pipeline Install: 3 months, Backfill and Pave: 2 months

Off-road Equipment - Demo: 1 concrete saw, 2 trenchers, 1 loader/backhoe, 2 air compressors

Off-road Equipment - Install Pipe: 1 loader/backhoe, 2 forklifts, 1 welder

Trips and VMT - 20 worker trips

Off-road Equipment - Backfill and Pave: 1 mixer, 2 pumps, 1 roller, 2 loader/backhoes, 2 pumps

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	20.00

Big Bear Sewer Pipeline - San Bernardino-South Coast County, Annual

tblConstructionPhase	NumDays	2.00	60.00
tblConstructionPhase	NumDays	5.00	40.00
tblConstructionPhase	PhaseEndDate	1/14/2019	1/28/2019
tblConstructionPhase	PhaseEndDate	1/17/2019	4/25/2019
tblConstructionPhase	PhaseEndDate	6/13/2019	6/25/2019
tblConstructionPhase	PhaseStartDate	1/16/2019	2/1/2019
tblConstructionPhase	PhaseStartDate	6/7/2019	5/1/2019
tblLandUse	LotAcreage	0.00	0.70
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	PhaseName		Paving
tblOffRoadEquipment	PhaseName		Demolition
tblOffRoadEquipment	PhaseName		Demolition
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Grading
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	WorkerTripNumber	10.00	20.00
tblTripsAndVMT	WorkerTripNumber	10.00	20.00
tblTripsAndVMT	WorkerTripNumber	18.00	20.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0834	0.6628	0.6650	1.0500e-003	0.0361	0.0430	0.0790	0.0160	0.0407	0.0567	0.0000	91.9870	91.9870	0.0180	0.0000	92.4363
Maximum	**0.0834**	**0.6628**	**0.6650**	**1.0500e-003**	**0.0361**	**0.0430**	**0.0790**	**0.0160**	**0.0407**	**0.0567**	**0.0000**	**91.9870**	**91.9870**	**0.0180**	**0.0000**	**92.4363**

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					
2019	0.0834	0.3509	0.6650	1.0500e-003	0.0361	0.0430	0.0790	0.0160	0.0407	0.0567	0.0000	91.9869	91.9869	0.0180	0.0000	92.4362
Maximum	**0.0834**	**0.3509**	**0.6650**	**1.0500e-003**	**0.0361**	**0.0430**	**0.0790**	**0.0160**	**0.0407**	**0.0567**	**0.0000**	**91.9869**	**91.9869**	**0.0180**	**0.0000**	**92.4362**

	ROG	NOx	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**	**47.06**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2019**	**3-31-2019**	0.3396	0.1728
2	**4-1-2019**	**6-30-2019**	0.4068	0.2617
		Highest	0.4068	0.2617

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

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	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2019	1/28/2019	5	20	
2	Grading	Grading	2/1/2019	4/25/2019	5	60	
3	Paving	Paving	5/1/2019	6/25/2019	5	40	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Trenchers	2	6.00	78	0.50
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Paving	Pumps	2	6.00	84	0.74
Demolition	Air Compressors	2	6.00	78	0.48
Grading	Forklifts	2	6.00	89	0.20
Grading	Welders	1	6.00	46	0.45
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	0	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Paving	Tractors/Loaders/Backhoes	2	7.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	20.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	20.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2019

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	0.0182	0.1492	0.1309	2.0000e-004		0.0105	0.0105		0.0101	0.0101	0.0000	17.1413	17.1413	2.9200e-003	0.0000	17.2142
Total	**0.0182**	**0.1492**	**0.1309**	**2.0000e-004**		**0.0105**	**0.0105**		**0.0101**	**0.0101**	**0.0000**	**17.1413**	**17.1413**	**2.9200e-003**	**0.0000**	**17.2142**

3.2 Demolition - 2019

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	1.0700e-003	8.7000e-004	8.6200e-003	2.0000e-005	2.1900e-003	2.0000e-005	2.2100e-003	5.8000e-004	1.0000e-005	6.0000e-004	0.0000	1.9401	1.9401	6.0000e-005	0.0000	1.9417
Total	**1.0700e-003**	**8.7000e-004**	**8.6200e-003**	**2.0000e-005**	**2.1900e-003**	**2.0000e-005**	**2.2100e-003**	**5.8000e-004**	**1.0000e-005**	**6.0000e-004**	**0.0000**	**1.9401**	**1.9401**	**6.0000e-005**	**0.0000**	**1.9417**

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	0.0182	0.0534	0.1309	2.0000e-004		0.0105	0.0105		0.0101	0.0101	0.0000	17.1413	17.1413	2.9200e-003	0.0000	17.2142
Total	**0.0182**	**0.0534**	**0.1309**	**2.0000e-004**		**0.0105**	**0.0105**		**0.0101**	**0.0101**	**0.0000**	**17.1413**	**17.1413**	**2.9200e-003**	**0.0000**	**17.2142**

3.2 Demolition - 2019

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	1.0700e-003	8.7000e-004	8.6200e-003	2.0000e-005	2.1900e-003	2.0000e-005	2.2100e-003	5.8000e-004	1.0000e-005	6.0000e-004	0.0000	1.9401	1.9401	6.0000e-005	0.0000	1.9417
Total	**1.0700e-003**	**8.7000e-004**	**8.6200e-003**	**2.0000e-005**	**2.1900e-003**	**2.0000e-005**	**2.2100e-003**	**5.8000e-004**	**1.0000e-005**	**6.0000e-004**	**0.0000**	**1.9401**	**1.9401**	**6.0000e-005**	**0.0000**	**1.9417**

3.3 Grading - 2019

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					0.0226	0.0000	0.0226	0.0124	0.0000	0.0124	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0264	0.2063	0.1983	2.7000e-004		0.0143	0.0143		0.0133	0.0133	0.0000	22.9981	22.9981	6.6400e-003	0.0000	23.1642
Total	**0.0264**	**0.2063**	**0.1983**	**2.7000e-004**	**0.0226**	**0.0143**	**0.0369**	**0.0124**	**0.0133**	**0.0257**	**0.0000**	**22.9981**	**22.9981**	**6.6400e-003**	**0.0000**	**23.1642**

3.3 Grading - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1000e-004	3.5000e-003	7.6000e-004	1.0000e-005	1.9000e-004	2.0000e-005	2.1000e-004	5.0000e-005	2.0000e-005	8.0000e-005	0.0000	0.7713	0.7713	6.0000e-005	0.0000	0.7726
Worker	3.2200e-003	2.6200e-003	0.0259	6.0000e-005	6.5800e-003	5.0000e-005	6.6200e-003	1.7500e-003	4.0000e-005	1.7900e-003	0.0000	5.8204	5.8204	1.9000e-004	0.0000	5.8252
Total	**3.3300e-003**	**6.1200e-003**	**0.0266**	**7.0000e-005**	**6.7700e-003**	**7.0000e-005**	**6.8300e-003**	**1.8000e-003**	**6.0000e-005**	**1.8700e-003**	**0.0000**	**6.5916**	**6.5916**	**2.5000e-004**	**0.0000**	**6.5978**

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					0.0226	0.0000	0.0226	0.0124	0.0000	0.0124	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0264	0.1052	0.1983	2.7000e-004		0.0143	0.0143		0.0133	0.0133	0.0000	22.9981	22.9981	6.6400e-003	0.0000	23.1642
Total	**0.0264**	**0.1052**	**0.1983**	**2.7000e-004**	**0.0226**	**0.0143**	**0.0369**	**0.0124**	**0.0133**	**0.0257**	**0.0000**	**22.9981**	**22.9981**	**6.6400e-003**	**0.0000**	**23.1642**

3.3 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1000e-004	3.5000e-003	7.6000e-004	1.0000e-005	1.9000e-004	2.0000e-005	2.1000e-004	5.0000e-005	2.0000e-005	8.0000e-005	0.0000	0.7713	0.7713	6.0000e-005	0.0000	0.7726
Worker	3.2200e-003	2.6200e-003	0.0259	6.0000e-005	6.5800e-003	5.0000e-005	6.6200e-003	1.7500e-003	4.0000e-005	1.7900e-003	0.0000	5.8204	5.8204	1.9000e-004	0.0000	5.8252
Total	**3.3300e-003**	**6.1200e-003**	**0.0266**	**7.0000e-005**	**6.7700e-003**	**7.0000e-005**	**6.8300e-003**	**1.8000e-003**	**6.0000e-005**	**1.8700e-003**	**0.0000**	**6.5916**	**6.5916**	**2.5000e-004**	**0.0000**	**6.5978**

3.4 Paving - 2019

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	0.0321	0.2962	0.2828	4.4000e-004		0.0181	0.0181		0.0172	0.0172	0.0000	38.9213	38.9213	7.9400e-003	0.0000	39.1198
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0321**	**0.2962**	**0.2828**	**4.4000e-004**		**0.0181**	**0.0181**		**0.0172**	**0.0172**	**0.0000**	**38.9213**	**38.9213**	**7.9400e-003**	**0.0000**	**39.1198**

3.4 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0000e-005	2.3400e-003	5.1000e-004	1.0000e-005	1.3000e-004	1.0000e-005	1.4000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.5142	0.5142	4.0000e-005	0.0000	0.5151
Worker	2.1500e-003	1.7500e-003	0.0172	4.0000e-005	4.3900e-003	3.0000e-005	4.4200e-003	1.1600e-003	3.0000e-005	1.1900e-003	0.0000	3.8803	3.8803	1.3000e-004	0.0000	3.8835
Total	**2.2200e-003**	**4.0900e-003**	**0.0177**	**5.0000e-005**	**4.5200e-003**	**4.0000e-005**	**4.5600e-003**	**1.2000e-003**	**4.0000e-005**	**1.2400e-003**	**0.0000**	**4.3944**	**4.3944**	**1.7000e-004**	**0.0000**	**4.3986**

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	0.0321	0.1812	0.2828	4.4000e-004		0.0181	0.0181		0.0172	0.0172	0.0000	38.9213	38.9213	7.9400e-003	0.0000	39.1197
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0321**	**0.1812**	**0.2828**	**4.4000e-004**		**0.0181**	**0.0181**		**0.0172**	**0.0172**	**0.0000**	**38.9213**	**38.9213**	**7.9400e-003**	**0.0000**	**39.1197**

3.4 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0000e-005	2.3400e-003	5.1000e-004	1.0000e-005	1.3000e-004	1.0000e-005	1.4000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.5142	0.5142	4.0000e-005	0.0000	0.5151
Worker	2.1500e-003	1.7500e-003	0.0172	4.0000e-005	4.3900e-003	3.0000e-005	4.4200e-003	1.1600e-003	3.0000e-005	1.1900e-003	0.0000	3.8803	3.8803	1.3000e-004	0.0000	3.8835
Total	**2.2200e-003**	**4.0900e-003**	**0.0177**	**5.0000e-005**	**4.5200e-003**	**4.0000e-005**	**4.5600e-003**	**1.2000e-003**	**4.0000e-005**	**1.2400e-003**	**0.0000**	**4.3944**	**4.3944**	**1.7000e-004**	**0.0000**	**4.3986**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Industrial	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
User Defined Industrial	0.541740	0.038987	0.178620	0.126833	0.019742	0.005671	0.017070	0.060066	0.001326	0.001715	0.006244	0.000823	0.001163

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	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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					
User Defined Industrial	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		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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					
User Defined Industrial	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		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Unmitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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

Big Bear Sewer Lift Station Rehab

San Bernardino-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	0.50	User Defined Unit	0.50	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - lift station rehab

Construction Phase - Cement Repair: 3 months, Application of Epoxy Coatings: 3 months

Off-road Equipment - Coating: 2 Air Compressors for Spraying, 1 Pressure Washer

Off-road Equipment - Cement Repair: 1 mixer, 1 pump, 2 air compressors

Trips and VMT -

Big Bear Sewer Lift Station Rehab - San Bernardino-South Coast County, Summer

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	60.00
tblConstructionPhase	NumDays	0.00	60.00
tblConstructionPhase	PhaseEndDate	12/31/2018	6/21/2019
tblConstructionPhase	PhaseEndDate	12/31/2018	3/25/2019
tblConstructionPhase	PhaseStartDate	1/1/2019	4/1/2019
tblOffRoadEquipment	OffRoadEquipmentType		Pressure Washers
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Architectural Coating
tblOffRoadEquipment	PhaseName		Paving
tblOffRoadEquipment	PhaseName		Paving

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	0.9297	6.8223	6.7498	0.0114	0.0000	0.4468	0.4468	0.0000	0.4468	0.4468	0.0000	1,068.0593	1,068.0593	0.0827	0.0000	1,070.1273
Maximum	**0.9297**	**6.8223**	**6.7498**	**0.0114**	**0.0000**	**0.4468**	**0.4468**	**0.0000**	**0.4468**	**0.4468**	**0.0000**	**1,068.0593**	**1,068.0593**	**0.0827**	**0.0000**	**1,070.1273**

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					
2019	0.9297	3.9469	6.7498	0.0114	0.0000	0.4468	0.4468	0.0000	0.4468	0.4468	0.0000	1,068.0593	1,068.0593	0.0827	0.0000	1,070.1273
Maximum	**0.9297**	**3.9469**	**6.7498**	**0.0114**	**0.0000**	**0.4468**	**0.4468**	**0.0000**	**0.4468**	**0.4468**	**0.0000**	**1,068.0593**	**1,068.0593**	**0.0827**	**0.0000**	**1,070.1273**

	ROG	NOx	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**	**42.15**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0000	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004
Total	**0.0000**	**0.0000**	**5.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.1000e-004**	**1.1000e-004**	**0.0000**		**1.2000e-004**

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	0.0000	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004
Total	**0.0000**	**0.0000**	**5.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.1000e-004**	**1.1000e-004**	**0.0000**		**1.2000e-004**

	ROG	NOx	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	Paving	Paving	1/1/2019	3/25/2019	5	60	
2	Architectural Coating	Architectural Coating	4/1/2019	6/21/2019	5	60	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	2	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Architectural Coating	Pressure Washers	1	4.00	13	0.30
Paving	Pumps	1	6.00	84	0.74
Paving	Air Compressors	2	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class

3.1 Mitigation Measures Construction

3.2 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9297	6.8223	6.7498	0.0114		0.4468	0.4468		0.4468	0.4468		1,068.0593	1,068.0593	0.0827		1,070.1273
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9297**	**6.8223**	**6.7498**	**0.0114**		**0.4468**	**0.4468**		**0.4468**	**0.4468**		**1,068.0593**	**1,068.0593**	**0.0827**		**1,070.1273**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9297	3.9469	6.7498	0.0114		0.4468	0.4468		0.4468	0.4468	0.0000	1,068.0593	1,068.0593	0.0827		1,070.1273
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9297**	**3.9469**	**6.7498**	**0.0114**		**0.4468**	**0.4468**		**0.4468**	**0.4468**	**0.0000**	**1,068.0593**	**1,068.0593**	**0.0827**		**1,070.1273**

3.3 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5557	3.8296	3.8052	6.2200e-003		0.2652	0.2652		0.2652	0.2652		582.4411	582.4411	0.0496		583.6804
Total	**0.5557**	**3.8296**	**3.8052**	**6.2200e-003**		**0.2652**	**0.2652**		**0.2652**	**0.2652**		**582.4411**	**582.4411**	**0.0496**		**583.6804**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5557	3.6708	3.8052	6.2200e-003		0.2652	0.2652		0.2652	0.2652	0.0000	582.4411	582.4411	0.0496		583.6804
Total	**0.5557**	**3.6708**	**3.8052**	**6.2200e-003**		**0.2652**	**0.2652**		**0.2652**	**0.2652**	**0.0000**	**582.4411**	**582.4411**	**0.0496**		**583.6804**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Total					

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

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004
Unmitigated	0.0000	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004
Total	**0.0000**	**0.0000**	**5.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.1000e-004**	**1.1000e-004**	**0.0000**		**1.2000e-004**

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004
Total	**0.0000**	**0.0000**	**5.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.1000e-004**	**1.1000e-004**	**0.0000**		**1.2000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Big Bear Sewer Lift Station Rehab

San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	0.50	User Defined Unit	0.50	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - lift station rehab

Construction Phase - Cement Repair: 3 months, Application of Epoxy Coatings: 3 months

Off-road Equipment - Coating: 2 Air Compressors for Spraying, 1 Pressure Washer

Off-road Equipment - Cement Repair: 1 mixer, 1 pump, 2 air compressors

Trips and VMT -

Big Bear Sewer Lift Station Rehab - San Bernardino-South Coast County, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	60.00
tblConstructionPhase	NumDays	0.00	60.00
tblConstructionPhase	PhaseEndDate	12/31/2018	6/21/2019
tblConstructionPhase	PhaseEndDate	12/31/2018	3/25/2019
tblConstructionPhase	PhaseStartDate	1/1/2019	4/1/2019
tblOffRoadEquipment	OffRoadEquipmentType		Pressure Washers
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Architectural Coating
tblOffRoadEquipment	PhaseName		Paving
tblOffRoadEquipment	PhaseName		Paving

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0446	0.3196	0.3167	5.3000e-004		0.0214	0.0214		0.0214	0.0214	0.0000	44.9193	44.9193	3.6000e-003	0.0000	45.0093
Maximum	**0.0446**	**0.3196**	**0.3167**	**5.3000e-004**		**0.0214**	**0.0214**		**0.0214**	**0.0214**	**0.0000**	**44.9193**	**44.9193**	**3.6000e-003**	**0.0000**	**45.0093**

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					
2019	0.0446	0.2285	0.3167	5.3000e-004		0.0214	0.0214		0.0214	0.0214	0.0000	44.9192	44.9192	3.6000e-003	0.0000	45.0092
Maximum	**0.0446**	**0.2285**	**0.3167**	**5.3000e-004**		**0.0214**	**0.0214**		**0.0214**	**0.0214**	**0.0000**	**44.9192**	**44.9192**	**3.6000e-003**	**0.0000**	**45.0092**

	ROG	NOx	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**	**28.48**	**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**

Big Bear Sewer Lift Station Rehab - San Bernardino-South Coast County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2019	3-31-2019	0.2326	0.1463
2	4-1-2019	6-30-2019	0.1284	0.1238
		Highest	0.2326	0.1463

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**					**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**					**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	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	Paving	Paving	1/1/2019	3/25/2019	5	60	
2	Architectural Coating	Architectural Coating	4/1/2019	6/21/2019	5	60	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	2	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Architectural Coating	Pressure Washers	1	4.00	13	0.30
Paving	Pumps	1	6.00	84	0.74
Paving	Air Compressors	2	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class

3.1 Mitigation Measures Construction

3.2 Paving - 2019

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	0.0279	0.2047	0.2025	3.4000e-004		0.0134	0.0134		0.0134	0.0134	0.0000	29.0678	29.0678	2.2500e-003	0.0000	29.1241
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0279**	**0.2047**	**0.2025**	**3.4000e-004**		**0.0134**	**0.0134**		**0.0134**	**0.0134**	**0.0000**	**29.0678**	**29.0678**	**2.2500e-003**	**0.0000**	**29.1241**

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	0.0279	0.1184	0.2025	3.4000e-004		0.0134	0.0134		0.0134	0.0134	0.0000	29.0678	29.0678	2.2500e-003	0.0000	29.1241
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0279**	**0.1184**	**0.2025**	**3.4000e-004**		**0.0134**	**0.0134**		**0.0134**	**0.0134**	**0.0000**	**29.0678**	**29.0678**	**2.2500e-003**	**0.0000**	**29.1241**

3.3 Architectural Coating - 2019

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	0.0167	0.1149	0.1142	1.9000e-004		7.9600e-003	7.9600e-003		7.9600e-003	7.9600e-003	0.0000	15.8515	15.8515	1.3500e-003	0.0000	15.8852
Total	**0.0167**	**0.1149**	**0.1142**	**1.9000e-004**		**7.9600e-003**	**7.9600e-003**		**7.9600e-003**	**7.9600e-003**	**0.0000**	**15.8515**	**15.8515**	**1.3500e-003**	**0.0000**	**15.8852**

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	0.0167	0.1101	0.1142	1.9000e-004		7.9600e-003	7.9600e-003		7.9600e-003	7.9600e-003	0.0000	15.8514	15.8514	1.3500e-003	0.0000	15.8852
Total	**0.0167**	**0.1101**	**0.1142**	**1.9000e-004**		**7.9600e-003**	**7.9600e-003**		**7.9600e-003**	**7.9600e-003**	**0.0000**	**15.8514**	**15.8514**	**1.3500e-003**	**0.0000**	**15.8852**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Total					

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

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**					**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**					**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX 2

Biological Resources Assessment
And Jurisdictional Delineation
For the Big Bear City Community Services District
Sewer Master Plan

Unincorporated area of Big Bear Lake, San Bernardino County
USGS – *Big Bear City* Quadrangle
Township 2N, Range 1E, Section 14
USGS – *Moonridge* Quadrangle
Township 2N, Range 1E, Section 22

Date Prepared: December 2018

Prepared for:

Big Bear City Community Services District
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On Behalf of:

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Table of Contents

1 Introduction

The Big Bear City Community Services District (District) provides wastewater collection to an approximately 11.5-square mile service area which includes Big Bear City and the Sugarloaf, Moonridge, and Erwin Lake communities in unincorporated San Bernardino County, California. In 2017, the District updated its Sewer Master Plan (SMP) to aid in the planning for future growth and ongoing maintenance of the collection system (WSC, May 2017). The SMP identifies capacity constrained sewer mains, assesses lift station conditions and provides a prioritized list of recommended capital improvement projects spanning out to Fiscal Year 2035. The District currently operates under an SMP that was prepared in 2002, which provided system growth projections and projects through Fiscal Year 2021.

The District proposes to undertake 15 capital improvement projects throughout its service area in compliance with its updated SMP. Projects generally include installing flow monitoring devices, conducting various assessments, replacement of various pipelines, replacement of various lift stations and various easement acquisitions to conduct maintenance on existing facilities.

On behalf of Tom Dodson and Associates (TDA), Jacobs Engineering Group (Jacobs) has prepared this Biological Resources Assessment (BRA) report for the District's updated SMP (project). The BRA fieldwork and focused sensitive species surveys were conducted by TDA sub-consultant Jericho Systems, Inc. (Jericho) for the project site in June 2018. The purpose of the BRA and focused surveys was to address potential effects of the project to designated critical habitats and/or any species currently listed or formally proposed for listing as endangered or threatened under the federal Endangered Species Act (ESA) and the California Endangered Species Act (CESA) or species designated as sensitive by the California Department of Fish and Wildlife (CDFW [formerly California Department of Fish and Game]) and/or the California Native Plant Society (CNPS).

The project area was assessed for sensitive species known to occur locally. Attention was focused on those State- and/or federally-listed as threatened or endangered species and California Fully Protected species that have been documented in the project vicinity, whose habitat requirements are present within or adjacent to the project site. Results of the focused surveys and habitat assessment are intended to provide sufficient baseline information to the project proponent and, if required, to federal and State regulatory agencies, including the U.S. Fish and Wildlife Service (USFWS) and CDFW, respectively, to determine if impacts will occur to sensitive biological resources and to identify mitigation measures to offset those impacts.

In addition to the BRA and focused surveys, Jericho biologists Todd White, Daniel Smith, and Eugene Jennings conducted a Jurisdictional Delineation (JD) of the project area. The purpose of the JD is to determine the extent of State and federal jurisdictional waters within the project area potentially subject to regulation by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA), Regional Water Quality Control Board (RWQCB) under Section 401 of the CWA and Porter Cologne Water Quality Control Act, and CDFW under Section 1602 of the California Fish and Game Code (FGC), respectively.

1.1 Project Location

The project is generally located within portions of Sections 11-15 and 22-24 of Township 2 North, Range 1 East, as well as within Section 20 of Township 2 North, Range 2 East, San Bernardino Base Meridian (SBBM). The project area is shown on the *Moonridge* and *Big Bear City* U. S. Geological Survey's (USGS) 7.5-Minute Series Quadrangle maps (Figures 1&2). The project area is east of Big Bear Lake and south/southwest of Baldwin Lake (dry), within Big Bear City and the Sugarloaf, Moonridge, and Erwin Lake communities in unincorporated San Bernardino County, California (Figure 2).

The project area is defined as all areas that may be impacted directly or indirectly by the proposed project. It encompasses the geographic extent of environmental changes (i.e. the physical, chemical and biotic effects) that will result directly and indirectly from the project. The impact areas within the project area for the District's SMP projects are:

- Bowles Street
- Arbor Lane
- Elysian Boulevard
- Sequoia Drive
- West Meadow Drive
- Gildart Drive, from Rainbow Boulevard to West Aeroplane Boulevard
- Moonridge easement alignment in an undeveloped area, with the northern boundary being just east of McAllister Road, and the southern boundaries being approximately Fenway Drive and Villa Grove Avenue
- Kern Lift Station, 44378 Baldwin Drive, at the intersection of Kern Avenue

1.2 Project Description

The 15 projects that are the subject of this biological evaluation can be placed in three categories: 1) Study/Monitoring Only (no physical change to the environment); 2) minimal impacts associated with the replacement of pumps and valves or well rehabilitation within the existing lift stations; or 3) to the replacement of sewer pipelines or the development of a new access road to an existing pipeline. Table 1 shows each project within its respective category from the preparation of a study or a monitoring project with no physical change to the environment, to the replacement of sewer pipelines where impacts including soil disturbance, air emissions, excessive noise, etc. could occur.

Table 1
Project Categories

Study/Monitoring Only		**Replacement or Rehabilitation of Existing Facilities**		**Replacement of Pipelines Or Development of Additional Access Easement**	
No.	**Project**	**No.**	**Project**	**No.**	**Project**
1	Flow Monitoring	7	Division Lift Station Pump Replacement	4	Bowles, Arbor, and Elysian Pipeline Replacement
2	Lift Station Corrosion Assessment	10	Shore and Drake Lift Station Pump Replacements	6	Allowance for Easement Accessibility Maintenance Study Recommendations - Moonridge
3	Easement Accessibility and Maintenance Study (EASM)	12	Kern, Orange, Erwin and Imperial Lift Station Pump Replacements	8	Allowance for Kern Lift Parking Space Recommendations
5	Alternative Evaluation and Design of the Kern Lift Station Parking Space (KLSPS)	14	Rehabilitation of Lift Station Wet Wells and Bypass Wells	9	Gildart Sewer Upgrades (Division and Rainbow Relief)
13	Pipeline Conditional Records Assessment	15	Rehabilitation of Lift Station Dry Wells	11	Sequoia and W Meadow Pipeline Replacement

Source: Big Bear City Community Service District Sewer Master Plan, Section 10, Recommended Projects, WSC, Inc, May 2017.

The biological evaluation will only focus on those activities which represent a physical change in the environment or which will cause physical disturbance. Those activities are identified as the following:

Project 4 – Bowles, Arbor, and Elysian Pipeline Replacement

This project includes the replacement of approximately 857 feet of 8-inch diameter pipeline with 12-inch diameter pipe, dispersed over three locations in the community Big Bear City. All pipelines are located within existing, paved roadways as follows:

- *Bowles Street* – replace a 98-foot long pipe segment with a slope of 0.0026 that is at 88 percent capacity under existing conditions and projected 90 percent under future conditions.

- *Arbor Lane* – replace a 284-foot stretch along Arbor Lane, between Sequoia Drive and Mt. Doble Drive, that is below 90 percent capacity under both existing and future conditions.

- *Elysian Boulevard* – Replace the 237-foot pipeline from the intersection at North Shore Drive to the eastern terminus of Elysian Blvd. Approximately 84 feet of this pipeline is at 92 percent capacity under both existing and future conditions, while the remaining 391 feet is at 75 percent capacity.

The pipelines will be replaced via open trench excavation. Existing pipe will be removed or abandoned in place. The anticipated construction schedule is 4 to 6 months, but because the project is linear work will be continuous moving along the three streets, so that individual residents will not be adversely affected for the entirety of the construction schedule, but rather only a few weeks. Pipelines to be replaced are located within residential neighborhoods. Temporary traffic control measures will be installed to maintain drive access during construction. Traffic control may include the temporary closure of a travel lane in one direction with traffic flow alternating through the open lane; a flag person may also be utilized.

Project 6 – Allowance for EAMS Recommendations - Moonridge

Project 6 is the implementation of Project 3, the Easement Accessibility and Maintenance Study. This project will allow the District to move forward with the action detailed in the recommendations report to acquire the necessary easements and construct/maintain an access road along the pipeline route.

Project 8 – Allowance for Kern Lift Station Parking Space (KLSPS) Recommendations

The Kern Lift Station is located at 44378 Baldwin Drive, at the intersection of Kern Avenue. It is located on a gentle downslope, but lacks off-street parking. Project 8 is the implementation of Project 5, the Alternatives Evaluation and Design of the Kern Lift Station Parking Space. This project will allow the District to move forward with the parking space design identified in Project 5. This includes the construction bid process and construction of the paved parking space.

Project 9 – Gildart Sewer Upgrades (Division and Rainbow Relief)

Project 9 includes the installation of a new 12-inch diameter sewer main extending approximately 950 feet down Gildart Drive, from Rainbow Boulevard to West Aeroplane Boulevard (Figures 4&11). This Project will relieve the capacity constrained Division Drive and Rainbow Boulevard pipelines by intercepting the flow upstream and directing a percentage down the new Gildart Drive pipeline. All six segments that make up the Division Drive portion of this Project are categorized as over-capacity under existing and future

conditions. Four of the six Division pipeline segments, in addition to two of the three Rainbow pipeline segments, are estimated to be at 100 percent capacity under future conditions.

Project 9 also includes the replacement of 564 feet of pipeline within Gildart Drive, between Mountain Lane and Rainbow Boulevard (Figures 4&11). The replacement will occur over the course of three consecutive pipe segments and will involve upgrading 10- and 12-inch diameter pipeline to 15- and 18-inch pipe, respectively. Of these three pipe segments, only one is over capacity under existing conditions. Under future conditions, all three pipelines would be over capacity because currently they are at 75 percent and 80 percent capacity.

The pipelines will be replaced via open trench excavation. Existing sewer pipelines to be replaced will be removed or abandoned in place. The anticipated construction schedule is 4 to 6 months, but because the project is linear work, it will be continuous moving along Gildart Drive, so that individual residents will not be adversely affected for the entirety of the construction schedule, but rather only a few weeks. Temporary traffic control measures will be installed to maintain drive access during construction. Traffic control may include the temporary closure of a travel lane in one direction with traffic flow alternating through the open lane; a flag person may also be utilized.

Project 11 – Sequoia and West Meadow Pipeline Replacement

Project 11 includes the replacement of two 8-inch diameter pipe segments, totaling approximately 398 feet, with 10- and 12-inch pipe. The pipeline to be replaced with 10-inch diameter pipe extends south down Sequoia Drive, 355 feet from Arbor Lane. This pipeline exceeds the capacity criteria in both scenarios, reaching 77 percent capacity under existing conditions and 80 percent capacity under future conditions.

The second pipe, to be replaced with 12-inch diameter, extends 43 feet along West Meadow Drive at the crossing of Greenway Drive. This relatively short segment of pipe has a very gradual slope of 0.0019 resulting in a future pipeline capacity utilization of 75 percent.

The anticipated construction schedule is 4 to 6 months, but because the project is linear work will be continuous moving along Sequoia Drive and West Meadow Drive, so that individual residents will not be adversely affected for the entirety of the construction schedule, but rather only a few weeks. Temporary traffic control measures will be installed to maintain drive access during construction. Traffic control may include the temporary closure of a travel lane in one direction with traffic flow alternating through the open lane; a flag person may also be utilized.

1.3 Environmental Setting

The project area is within Big Bear City, near the east end of Big Bear Lake, which is situated in the eastern end of Big Bear Valley in the San Bernardino Mountains. The Big Bear Valley area is subject to both seasonal and annual variations in temperature and precipitation. Average annual maximum temperatures peak at 80.8 degrees Fahrenheit (° F) in July and fall to an average annual minimum temperature of 20.3° F in January. Average annual precipitation is greatest from November through April and reaches a peak in January (4.49 inches). Precipitation is lowest in the month of June (0.14 inches). Annual total precipitation averages 21.84 inches and annual total snowfall averages 62.6 inches.

The topography of the project area ranges from near-level paved streets to steeply-sloped and hilly along the Moonridge Pipelines alignment. Elevation on site ranges from approximately 6,725 feet above mean sea level (amsl) at Project 10 – Shore Pump Replacement, to 7,125 feet amsl at Project 12 – Orange Pump Replacement.

Hydrologically, the project area is situated partially within the Baldwin Hydrologic Sub-Area (HSA 801.73) and partially within the Bear Valley HSA (HAS 801.71). The Baldwin HSA comprises a 22,789-acre drainage area and the Bear Valley HSA comprises a 34,333-acre drainage area, both within the larger Santa Ana Watershed (HUC 18070203). The Santa Ana River is the major hydrogeomorphic feature within the Santa Ana Watershed. One of several tributaries to the Santa Ana River is Bear Creek, which outflows from Big Bear Lake from the Bear Valley Dam located on at the westernmost (downstream) end of Big Bear Lake. Big Bear Lake is one of the head waters of the Santa Ana River Watershed.

Soils within the project area are comprised primarily of Morical, very deep-Hecker families complex, 2 to 15 and 15 to 30 percent slopes. Morical family soils consist of a profile comprised of gravelly loam, gravelly clay loam, to gravelly sandy loam that are derived from alluvium. These soil types are well drained with a high to very high runoff class. Hecker family soils consist of a profile comprised of gravelly fine sandy loam, very gravelly sandy clay loam, to extremely gravelly sandy loam that are derived from alluvium. These soil types are well drained with a medium to high runoff class.

The District's service area is approximately 11.5 square miles encompassing the unincorporated communities of Big Bear City, Sugarloaf, Moonridge and Erwin Lake, which are characterized as mountain communities that are largely single family residential with a commercial area generally along Big Bear Boulevard. The general project vicinity consists of urban environments and undeveloped forest. Land uses consist primarily of residential development, including paved roads, utilities alignments and open space. Habitat within the undeveloped portions of the project area (i.e. Project 6 – Moonridge Pipelines alignment) includes *Pinus jeffreyi* Forest Alliance (Jeffrey pine forest) and *Salix lasiolepis* Shrubland Alliance (arroyo willow thickets).

2 Assessment Methodology

2.1 Biological Resources Assessment and Focused Surveys

Data regarding biological resources on the project site were obtained through literature review and field investigations. Prior to performing the surveys, available databases and documentation relevant to the project area were reviewed for documented occurrences of sensitive species in the project vicinity (approximately 3 miles). The U.S. Fish and Wildlife Service (USFWS) threatened and endangered species occurrence data overlay and the most recent versions of the California Natural Diversity Database (CNDDB) and California Native Plant Society Electronic Inventory (CNPSEI) databases were searched for sensitive species data on the *Moonridge, Big Bear City, Fawnskin, Big Bear Lake, Onyx Peak* and *Rattlesnake Canyon* USGS 7.5-Minute Series Quadrangles. The project area is situated partially within the northern portion of the *Moonridge* quad and partially within the southern portion of the *Big Bear City* quad, and the site's proximity to the *Fawnskin, Big Bear Lake, Onyx Peak* and *Rattlesnake Canyon* quads lead to their inclusion in the review. These databases contain records of reported occurrences of State- and federally-listed species or otherwise sensitive species and habitats that may occur within the vicinity of the project site (approximately 3 miles). Other available technical information on the biological resources of the area was also reviewed including previous surveys and recent findings.

Biological Resources Assessment

Jericho biologists Daniel Smith, Eugene Jennings and Todd White conducted a biological resources assessment of the project area on June 6 and June 13, 2018. The survey area encompassed the entire planned disturbance area and included 100 percent coverage of the site(s), as well as an approximately 200-foot buffer area surrounding the site, where feasible and appropriate. Wildlife species were detected during field surveys by sight, calls, tracks, scat, or other sign. In addition to species observed, expected wildlife usage of the site was determined per known habitat preferences of regional wildlife species and knowledge

of their relative distributions in the area. The focus of the faunal species surveys was to identify potential habitat for special status wildlife within the project area.

Focused Sensitive Plant Species Survey

A focused botanical survey was also conducted by Jericho biologists Daniel Smith, Eugene Jennings and Todd White on June 6 and June 13, 2018. In accordance with the CDFW's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (2009), the survey was conducted during the appropriate time of year, when the target species were both evident and identifiable. The target species consisted of those State- and/or federally-listed plant species that have been documented in the project vicinity (approximately 3 miles), whose habitat requirements are present within the vicinity of the project area. Target species included:

- Ash-gray paintbrush (*Castilleja cinerea*);
- Big Bear Valley sandwort (*Eremogone ursina*);
- Southern mountain buckwheat (*Eriogonum kennedyi* var. *austromontanum*); and
- San Bernardino Mountains bladderpod (*Physaria kingii* ssp. *bernardina*).

Prior to conducting the survey, Jericho biologists visited multiple reference sites within the Big Bear area, where the target species are known to occur, to determine whether the target species were identifiable at the time of the survey and to obtain a visual image of the target species, associated habitat, and associated natural community(ies). The reference sites that were visited prior to survey included previously documented occurrences within the Big Bear area, near the Aspen Glen Picnic Area (Big Bear Valley sandwort), the Eagle Point Rare Plant Preserve (ash-gray paintbrush and southern mountain buckwheat) and the vicinity of Holcomb Valley/Caribou Creek (San Bernardino Mountains bladderpod). All four target species were evident and identifiable at the reference sites prior to survey. During the survey, 100 percent visual coverage of the undeveloped portions of the project area that contained the appropriate environmental conditions for the target species was achieved by walking transects spaced approximately 20 feet apart.

2.2 Jurisdictional Delineation

On June 6 and June 13, 2018, Jericho biologists Daniel Smith, Eugene Jennings and Todd White also evaluated the project area for the presence of riverine/riparian/wetland habitat and jurisdictional waters, i.e. Waters of the U.S. (WoUS), as regulated by the USACE and RWQCB, and/or jurisdictional streambed and associated riparian habitat as regulated by the CDFW.

Prior to the field visit, aerial photographs of the project area 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 USFWS National Wetland Inventory and Environmental Protection Agency (EPA) Water Program "My Waters" data layer were also reviewed to determine whether any hydrologic features and wetland areas had been documented within the vicinity of the site(s). Similarly, the United States Department of Agriculture (USDA) – Natural Resources Conservation Service (NRCS) Web Soil Survey was reviewed for soil types found within the project area to identify the soil series in the area and to check these soils to determine whether they are regionally identified as hydric soils. Upstream and downstream connectivity of waterways (if present) were reviewed in the field and on aerial photographs and topographic maps to determine jurisdictional status.

The delineation was conducted on foot and was based on aerial maps; global positioning units were used to assist in determining the limits of jurisdictional waters. Suspected jurisdictional areas were checked for

the presence of definable channels and/or wetland vegetation, riparian habitat, soils, and hydrology. The JD was conducted in accordance with regulations set forth in 33CFR part 328 and the USACE guidance documents referenced below:

- *USACE Wetlands Research Program Technical Report Y-87-1 (on-line edition), Wetlands Delineation Manual, Environmental Laboratory, 1987 (Wetland Delineation Manual).*
- *USACE Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0), May 2010.*
- *USACE Minimum Standards for Acceptance of Preliminary Wetlands Delineations, November 30, 2001 (Minimum Standards).*
- *USACE Jurisdictional Determination Form Instructional Guidebook, May 30, 2007 (JD Form Guidebook).*
- *USACE A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States, August 2014 (Delineation Manual).*

The project area was carefully assessed for indicators of active surface flow (presence of hydrophytic vegetation, staining, cracked soil, ponding, etc.). All apparent flow regimes and corresponding hydrogeomorphic features were subsequently identified. The lateral extent of USACE jurisdiction is measured at the Ordinary High Water Mark (OHWM), which is 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.

Evaluation of CDFW jurisdiction followed guidance in the FGC. Specifically, CDFW jurisdiction would occur where a stream has a definite course showing evidence of where waters rise to their highest level and to the extent of associated riparian vegetation. Here the bank-full width was used to mark the lateral extent of the jurisdictional areas.

To be considered a *jurisdictional wetland* under the federal CWA, Section 404, an area must possess three (3) wetland characteristics: hydrophytic *vegetation*, hydric *soils*, and wetland *hydrology*.

- *Hydrophytic vegetation*: Hydrophytic vegetation is plant life that grows, and is typically adapted for life, in permanently or periodically saturated soils. The hydrophytic vegetation criterion is met if more than 50 percent of the dominant plant species from all strata (tree, shrub, and herb layers) is considered hydrophytic. Hydrophytic species are those included on the *2016 National Wetland Plant List (Western Mountains, Valleys & Coast Region)* (Lichvar, 2016). Each species on the list is rated per a wetland indicator category, as shown in Table 2. To be considered hydrophytic, the species must have *wetland indicator status*, i.e., be rated as OBL, FACW or FAC.

Table 2. Wetland Indicator Vegetation Categories

Category	Probability
Obligate Wetland (OBL)	Almost always occur in wetlands (estimated probability >99%)
Facultative Wetland (FACW)	Usually occur in wetlands (estimated probability 67 to 99%)
Facultative (FAC)	Equally likely to occur in wetlands and non-wetlands (estimated probability 34 to 66%)
Facultative Upland (FACU)	Usually occur in non-wetlands (estimated probability 67 to 99%)
Obligate Upland (UPL)	Almost always occur in non-wetlands (estimated probability >99%)

- *Hydric Soil*: Soil maps from the USDA-NRCS Web Soil Survey (USDA 2018) were reviewed for

soil types found within the project area. Hydric soils are saturated or inundated long enough during the growing season to develop anaerobic conditions that favor growth and regeneration of hydrophytic vegetation. There are several indirect indicators that may signify the presence of hydric soils including hydrogen sulfide generation, the presence of iron and manganese concretions, certain soil colors, gleying, and the presence of mottling. Generally, hydric soils are dark in color or may be gleyed (bluish, greenish, or grayish), resulting from soil development under anoxic (without oxygen) conditions. Bright mottles within an otherwise dark soil matrix indicate periodic saturation with intervening periods of soil aeration. Hydric indicators are particularly difficult to observe in sandy soils, which are often recently deposited soils of flood plains (entisols) and usually lack sufficient fines (clay and silt) and organic material to allow use of soil color as a reliable indicator of hydric conditions. Hydric soil indicators in sandy soils include accumulations of organic matter in the surface horizon, vertical streaking of subsurface horizons by organic matter, and organic pans.

The hydric soil criterion is satisfied at a location if soils in the area can be inferred or observed to have a high groundwater table, if there is evidence of prolonged soil saturation, or if there are any indicators suggesting a long-term reducing environment in the upper part of the soil profile. Reducing conditions are most easily assessed using soil color. Soil colors were evaluated using the Munsell Soil Color Charts (Gretag/Macbeth, 2000). Soil pits were dug to an approximate depth of 18 inches to evaluate soil profiles for indications of anaerobic and redoximorphic (hydric) conditions in the subsurface.

- *Wetland Hydrology*: The wetland hydrology criterion is satisfied at a location based upon conclusions inferred from field observations that indicate an area has a high probability of being inundated or saturated (flooded, ponded, or tidally influenced) long enough during the growing season to develop anaerobic conditions in the surface soil environment, especially the root zone (USACE, 1987 and 2008b).

3 Results

Table 3 (below) lists weather conditions for all fieldwork conducted on site.

Table 3. Survey Weather Conditions

Date	% Cloud Cover	Wind (mph)	Temperature (° F)	Precipitation
06/04/18	0	0-5	52-88	0
06/13/18	0	0-5	53-89	0

3.1 Existing Biological and Physical Conditions

The project area consists of a mix of urban environments and natural habitats. Most of the project impacts are within already disturbed residential areas consisting of paved streets and existing structures/facilities. However, the Kern Lift Station Parking Space (KLSPS) and Moonridge pipeline components are within undeveloped sites. The KLSPS site is within a disturbed cleared site immediately adjacent the existing Kern Lift Station, along the north side of Baldwin Lane. The KLSPS site is within a disturbed area consisting of bare ground, bordered by residential development to the south and Jeffrey pine forest habitat to the north. The Moonridge Pipelines alignment is primarily within relatively undisturbed open space, with a small segment located in a residential area. The habitats found within the Moonridge Pipelines alignment include Jeffrey pine forest and arroyo willow thicket habitats. The remainder of the project components are within developed sites consisting primarily of paved roads and existing structures/facilities.

3.1.1 Habitat

The habitats within the undeveloped portions of the project area, as well as the dominant plant species within these habitats are detailed below:

- *Salix lasiolepis* Shrubland Alliance – A portion of the Moonridge Pipelines alignment (Project 6) consists of *Salix lasiolepis* Shrubland Alliance (arroyo willow thicket) habitat. This habitat is present within the unnamed jurisdictional drainage that intersects the Project 6 alignment (see Section 3.3). Where this habitat exists within the project area, it is dominated by arroyo willow (*Salix lasiolepis*). Other tree/shrub species conspicuous within this habitat on site include pale leaved service berry (*Amelanchier utahensis*) and wild rose (*Rosa* sp.).

- *Pinus jeffreyi* Forest Alliance – The upland portion of the Moonridge Pipelines alignment (Project 6), which does not consist of arroyo willow thicket, as well as the undeveloped areas adjacent the other project components, consists primarily of *Pinus jeffreyi* Forest Alliance (Jeffrey pine forest). Where this habitat exists within the project area, it is primarily dominated by Jeffrey pine (*Pinus jeffreyi*). Within some portions of the Project 6 alignment, the Jeffrey pine forest is co-dominated by Jeffrey pine, Sierra juniper (*Juniperus grandis*) and black oak (*Quercus kelloggii*). Other tree/shrub species conspicuous within this habitat on site include pale leaved service berry, manzanita (*Arctostaphylos* sp.), big sagebrush (*Artemisia tridentata*), mountain whitethorn (*Ceanothus cordulatus*) and curl leaved mountain mahogany (*Cercocarpus ledifolius* var. *intermontanus*), desert mountain mahogany (*Cercocarpus ledifolius*).

A complete list of all plant species identified within the project area is included in Appendix A (attached).

3.1.2 Wildlife

3.1.2.1 Amphibians and Reptiles

No amphibian species were observed or otherwise detected within the project area during reconnaissance survey. The only reptile species observed within the project area was southern sagebrush lizard (*Sceloporus graciosus vandenburgianus*). Other common species expected to occur within the project area include southern Pacific rattlesnake (*Crotalus oreganus helleri*), coast mountain kingsnake (*Lampropeltis multifasciata*), San Diego gophersnake (*Pituophis catenifer annectens*) and Skilton's skink (P*lestiodon skiltonianus skiltonianus*).

3.1.2.2 Birds

Birds were the most observed wildlife group during survey and species observed or otherwise detected in the project area during the reconnaissance-level survey included white-throated swift (*Aeronautes saxatalis*), California scrub jay (*Aphelocoma californica*), great horned owl (*Bubo virginianus*), red-tailed hawk (*Buteo jamaicensis*), northern flicker (*Colaptes auratus*), common raven (*Corvus corax*), Steller's jay (*Cyanocitta stelleri*), dark-eyed junco (*Junco hyemalis*), band-tailed pigeon (*Patagioenas fasciata*), cliff swallow (*Petrochelidon pyrrhonota*), hairy woodpecker (*Picoides villosus*), mountain chickadee (*Poecile gambeli*), western bluebird (*Sialia mexicana*), pygmy nuthatch (*Sitta pygmaea*), lesser goldfinch (*Spinus psaltria*), red-breasted sapsucker (*Sphyrapicus ruber*), violet-green swallow (*Tachycineta thalassina*), and mourning dove (*Zenaida macroura*).

3.1.2.3 Mammals

Identification of mammals within the project area was generally determined by physical evidence rather than direct visual identification. This is because 1) many of the mammal species that potentially occur onsite are nocturnal and would not have been active during the survey and 2) no mammal trapping was

performed. Mammal species observed or otherwise detected during the reconnaissance-level survey included western gray squirrel (*Sciurus griseus*) and chipmunk (*Tamias* sp.). Other common species expected to occur within the project area include coyote (*Canis latrans*), bobcat (*Lynx rufus*), mule deer (*Odocoileus hemionus*), deer mouse (*Peromyscus maniculatus*), racoon (*Procyon lotor*), gray fox (*Urocyon cinereoargenteus*), and black bear (*Ursus americanus*).

3.2 Special Status Species

Per the CNDDB, CNPSEI, and other relevant literature and databases, 110 sensitive species (73 plant species, 35 animal species) and two sensitive habitats have been documented in the *Moonridge, Big Bear City, Fawnskin, Big Bear Lake, Onyx Peak* and *Rattlesnake Canyon* USGS 7.5-Minute Series Quadrangles. This list of sensitive species and habitats includes any State- and/or federally-listed threatened or endangered species, California Fully Protected species, CDFW designated Species of Special Concern (SSC), and otherwise Special Animals. "Special Animals" is a general term that refers to all the taxa the CNDDB is interested in tracking, regardless of their legal or protection status. This list is also referred to as the list of "species at risk" or "special status species." The CDFW considers the taxa on this list to be those of greatest conservation need.

There are 20 State- and/or federally-listed or Candidate species documented within the *Moonridge, Big Bear City, Fawnskin, Big Bear Lake, Onyx Peak* and *Rattlesnake Canyon* quads. Of those 20 State- and/or federally-listed species, only the following seven have been documented in the project vicinity (approximately 3 miles) and whose habitat requirements are present within the project impact area:

- Ash-gray paintbrush (*Castilleja cinerea*)
- Southern rubber boa (*Charina umbratica*)
- Southwestern willow-flycatcher (*Empidonax traillii extimus*)
- Bear Valley sandwort (*Eremogone ursina*)
- Southern mountain buckwheat (*Eriogonum kennedyi* var. *austromontanum*)
- Bald eagle (*Haliaeetus leucocephalus*)
- San Bernardino Mountains bladderpod (*Physaria kingii* ssp. *bernardina*)

State- and/or federally-listed species that have been documented within the project vicinity, whose habitat requirements are not present within the project impact area (e.g., species requiring meadow or aquatic habitats) are not included in the analysis below. An analysis of the likelihood for occurrence of all CNDDB sensitive species documented in the *Moonridge, Big Bear City, Fawnskin, Big Bear Lake, Onyx Peak* and *Rattlesnake Canyon* quads is provided in Table 4. This analysis considers species' range as well as documentation within the vicinity of the subject parcel and includes the habitat requirements for each species and the potential for their occurrence on the site, based on required habitat elements and range relative to the current site conditions.

3.2.1 Special Status Wildlife

No State- and/or federally-listed threatened or endangered, or other sensitive wildlife species were observed on site during surveys. As previously discussed, the project area consists of a mix of urban environments and natural habitats and most of the project impacts are within already developed sites consisting primarily of paved roads and existing structures/facilities. However, the KLSPS site is within an undeveloped disturbed site that is adjacent Jeffrey pine forest habitat and the Moonridge Pipeline alignment is mostly within relatively undisturbed Jeffrey pine forest and arroyo willow thicket habitats. These habitats are suitable to support several sensitive wildlife species identified in the literature review (Table 4) and several sensitive species have been documented within the project vicinity (approximately 3 miles).

Southwestern willow flycatcher – Endangered (Federal and State)

The southwestern willow flycatcher (SWFL) is a State- and federally-listed endangered bird species. This willow flycatcher breeds in dense riparian habitats along rivers, streams, and other wetlands. They have been documented to establish territories in elevations ranging from sea level to 2,590 meters amsl (Sogge 1997). Plant species closely associated with the flycatcher include willows (*Salix* sp.), boxelder (*Acer negungo*) and mulefat (*Baccharis salicifolia*), with an overstory of cottonwood (*Populus fremontii*) (62 FR 39129). Occupied habitat is generally dominated by shrubs and trees 4 to 7 meters or more in height, which provide dense lower and mid-story vegetation approximately 7 meters aboveground. This dense vegetation is often interspersed with open water, small openings, or sparse vegetation, creating a mosaic that is not uniformly dense (62 FR 39129). SWFL generally begin to arrive from their wintering range in Central America and establish breeding territories by mid-March to late-March.

A rapid decrease in the numbers of SWFL in California and other southwestern states prompted the USFWS to designate it as a Category 1 candidate species in 1991. One year later in 1992, the California Fish and Game Commission listed the species as endangered, under the California Endangered Species Act (CESA) of 1970. On July 23, 1993, the SWFL was proposed for listing as endangered by the USFWS and was then listed as Federally endangered on February 27, 1995, under the Endangered Species Act (ESA) of 1973 (60 FR 10694). The USFWS designated revised critical habitat for this species in 2013 (78 FR 343 534).

> *Findings*: There is arroyo willow thicket habitat that may be suitable for SWFL, within the Moonridge Pipelines alignment (Project 6). This habitat is primarily within the unnamed intermittent stream that flows along the pipeline alignment from south to north. Per the CNDDB, there is one documented SWFL occurrence within the *Moonridge, Big Bear City, Fawnskin, Big Bear Lake, Onyx Peak* and *Rattlesnake Canyon* quads, approximately 4.3 miles west of the northernmost end of the Moonridge Pipeline alignment, within similar habitat in Metcalf Creek. One adult SWFL was detected within suitable habitat in Metcalf Creek, by vocalizations on several occasions in the summer of 2001. Additionally, one juvenile SWFL was observed in September of 2001, in the same area (CNDDB, 2017). There are no other documented occurrences for this species in the project area and the project area is not within or adjacent any USFWS designated SWFL critical habitat.
>
> No focused SWFL surveys were conducted within the project area. It is not known whether SWFL occur within the project area, or whether the construction of an access road along the Moonridge Pipelines alignment would impact this species. Protocol-level focused surveys would be necessary to determine whether the suitable habitat within the project area is occupied by SWFL and whether the project could potentially impact to this species.

Bald eagle – Delisted (Federal)/ Endangered (State)

The bald eagle (BAEA) was a federally-listed species until 2007 when it was delisted because of the increase in population. However, it remains a State-listed endangered species and is covered under the Migratory Bird Treaty Act (MBTA). BAEA are distinguished by a white head and white tail feathers, are powerful, brown birds that may weigh 14 pounds and have a wingspan of 8 feet. Male eagles are smaller, weighing as much as 10 pounds and have a wingspan of 6 feet. Sometimes confused with Golden Eagles, BAEA are mostly dark brown until they are four to five years old and acquire their characteristic coloring. They live near rivers, lakes, and marshes where they can find fish, their staple food. BAEA will also feed on waterfowl, turtles, rabbits, snakes, and other small animals and carrion. BAEA require a good food base, perching areas, and nesting sites. Their habitat includes estuaries, large lakes, reservoirs, rivers, and some seacoasts (CDFW 2016). In winter, the birds congregate near open water in tall trees for spotting

prey and night roosts for sheltering (CDFW 1999). They mate for life, choosing the tops of large trees to build nests, which they typically use and enlarge each year. In most of California, the breeding season lasts from about January through July or August (CDFW 2016). Nests may reach 10 feet across and weigh a half ton. They may also have one or more alternate nests within their breeding territory (CDFW 2016). The young eagles are flying within three months and are on their own about a month later.

Perches in the immediate vicinity of lakeshores form an essential habitat requirement for BAEA in the Big Bear Valley and the major threat to the continued existence of wintering BAEA in this area comes from development and modification of habitat near the shoreline (Walter and Garrett 1981).

> *Findings*: The U.S. Forest Service (USFS) conducts annual surveys for BAEA in the San Bernardino Mountains. Migrating BAEA have long been documented to overwinter at Big Bear Lake. During a two-year study of the wintering BAEA population in the Big Bear Valley, it was estimated that about 30 individuals wintered in the Big Bear Valley. The wintering period for migrating BAEA in the Big Bear Valley area is generally December through March, with the first eagles arriving in mid-November and the last eagles leaving in early April (Walter and Garrett 1981). The highest numbers of wintering eagles in the area is in January and early February (Walter and Garrett 1981).
>
> Since 2012, at least one resident pair has been documented, which nested successfully in 2012 and 2015. These eagles typically nest in the Grout Bay Picnic Area near the Big Bear Lake shore, approximately 10 miles northwest of the subject parcel.
>
> Although several of the project components, namely Projects 10 and 4, are near the Baldwin Lake shoreline and BAEA have been documented along the Baldwin Lake shoreline, no aspect of the project will impact this species. Projects 10 and 4 are within already developed sites consisting of existing facilities and paved roads and no suitable perching or nesting habitat will be impacted by the project. Therefore, the proposed project is not likely to impact BAEA and no further investigation relative to this species is warranted or required.

Southern rubber boa – Threatened (State)

The State-listed as threatened southern rubber boa (rubber boa) is a small, rather stout-bodied snake with smooth scales and a blunt head and tail (Stewart et al. 2005). Adults grow to about 49.5-55.9 centimeters (cm) in length. Adults are light brown or tan in dorsal color with an unmarked yellow venter; juveniles are pale without a distinct margin between dorsal and ventral coloration (Stewart et al. 2005). Rubber boas are primarily fossorial and are rarely encountered on the surface, except on days and nights of high humidity and overcast sky. During warm months, it is active at night and on overcast days. It hibernates during winter, usually in crevices in rocky outcrops. Other potential hibernacula may be rotting stumps.

Typical habitat for this species is mixed conifer-oak forest or woodland dominated by two or more of the following species: Jeffrey pine (*Pinus jeffreyi*), yellow pine (*P. ponderosa*), sugar pine (*P. lambertiana*), incense cedar (*Calocedrus decurrens*), white fir (*Abies concolor*), and black oak (*Quercus kelloggii*) (Stewart et al., 2005). Rubber boas are usually found near streams or wet meadows or within or under surface objects with good moisture retaining properties such as rotting logs (CDFW 2014). Much of the literature suggests that the rubber boa prefers mixed conifer-oak forests and woodlands between 5,000 and 8,000 feet in elevation, especially in canyons and on cool, north facing slopes (CDFW 1987). However, the factors of overriding importance seem to be access to hibernation sites below the frost line and access to damp soil (Keasler 1982).

> *Findings*: Per the literature review, the nearest documented southern rubber boa occurrence (2015)

is approximately 1.8 miles northwest of the Moonridge Pipelines alignment, on the north side of Big Bear Lake (CDFW pers. comm.). Additionally, there are documented rubber boa occurrences approximately 2.2 miles southwest and 2.3 miles northeast of the Moonridge Pipelines alignment, respectively (CDFW pers. comm.).

The Moonridge Pipelines alignment and adjacent undeveloped areas do provide some habitat suitable to support rubber boa. There are fallen logs, tree stumps and other ground cover that could potentially provide hibernacula during the winter, as well as maintain soil moisture during the dry months. Additionally, the pipeline alignment is partially within an intermittent stream, which could potentially provide some soil moisture for extended periods during the dry months. Furthermore, there are several documented rubber boa occurrences within the general project vicinity, in similar mixed conifer forest habitat. Therefore, habitat within the Moonridge Pipelines alignment and adjacent undeveloped areas is suitable to support rubber boa and construction of an access road along the pipeline route could potentially impact this species. Measures to avoid, minimize and/or mitigate impacts to rubber boa are warranted and recommended.

3.2.2 Special Status Plants

No State- and/or federally-listed threatened or endangered, or other sensitive plant species were observed on site during surveys. However, the environmental conditions required by several sensitive plant species identified in the literature review (Table 4), including several State- and/or federally-listed species, are present within and adjacent portions of the Moonridge Pipelines alignment, as well as within the abitat adjacent the KLSPS site. Furthermore, several sensitive plant species have been documented within the project vicinity (approximately 3 miles). Therefore, in addition to the biological resources assessment survey, focused botanical surveys were conducted within and adjacent the project site, wherever suitable conditions for the target species were present.

Ash-gray paintbrush – Threatened (Federal)

The federally-listed as threatened ash-gray paintbrush is a hemiparasitic, perennial herb in the broomrape family (Orobanchaceae), with several ascending to decumbent (trailing) grayish stems sprouting from the rootcrown. The stems are 1 to 2 decimeters (4 to 8 inches) tall (Munz 1974, p. 795). Ash-gray paintbrush is distinguished from other species of *Castilleja* within its range by its perennial nature, ashy-puberulent (covered with short hairs) stems and leaves, yellowish or reddish flowers, with calyx lobes of equal length (Wetherwax et al. 2012, p. 957). Host plants include *Eriogonum kennedyi* var. *austromontanum*, *Eriogonum kennedyi* var. *kennedyi*, *Eriogonum wrightii* var. *subscaposum*, *Artemisia tridentata* ssp. *tridentata*, *Artemisia nova*, and other *Artemisia* taxa (USFWS 2013). However, because this species also possesses photosynthetic green leaves that can produce sugars, it is termed hemiparasitic and does not require a host plant species for its survival (USFWS 2013). This species occupies the meadow/forest ecotone (transitional area of vegetation between two different plant communities) of the San Bernardino Mountains at elevations between 1,800 and 3,300 meters (5,905 to 10,827 feet.) and has been recorded in the following ecological communities: pebble plains, dry and wet forest meadows, mixed conifer forests, open pine forests, and pinyon-juniper woodlands (USFWS 2013). However, the primary habitat for this species is pebble plains, supporting one or more of the host plant species for ash-gray paintbrush (USFWS 2013). This species typically blooms from June to August (Calflora 2018).

Findings: Per the literature review, ash-gray paintbrush has been documented in the immediate vicinity of the Moonridge Pipelines alignment, as well as within approximately 0.15 miles east and west of the KLSPS site, respectively (CNDDB 2018). Additionally, the environmental requirements for this species are present within portions of the Moonridge Pipeline alignment. The site contains mixed conifer forest and supports two of the known host plant species for ash-gray

paintbrush including *Eriogonum wrightii* and *Artemisia tridentata.* Therefore, focused botanical surveys were conducted for this species. The result of the focused botanical survey is that no ash-gray paintbrush were observed on site during survey and this species is considered absent from the project impact area at the time of survey.

Big Bear Valley sandwort – Threatened (Federal)

The federally-listed as threatened Big Bear Valley sandwort is a low, tufted perennial herb in the pink family (Caryophyllaceae). Individual plants are green, with stems from 10 to 18 centimeters (3.9 to 7.1 inches) long. The leaves are opposite and 0.5 to 1 centimeter (0.2 to 0.39 inches) long. The flowers are white, five-petaled, and arranged in open cymes (clusters). The petals are 0.2 to 0.45 centimeters (0.1 to 0.18 inches) long (USFWS 2015). This species is found in pebble plain habitat in the northeastern San Bernardino Mountains of southwest San Bernardino County at elevations between 1,950 and 2,100 meters (6,393 to 6,885 feet.) (USFWS 2015). Pebble plains are treeless, open patches within pine forests and pinyon-juniper woodlands (USFS 2002, pp. 12, 15). Big Bear Valley sandwort is typically found within pebble plain habitat and is one of three indicator plant species, along with *Eriogonum kennedyi* var. *austromontanum*, and *Ivesia argyrocoma* var. *argyrocoma* defining a pebble plain (USFWS 2015). This species typically blooms from May to August (Calflora 2018).

Findings: Per the literature review, Big Bear Valley sandwort has been documented within the immediate vicinity of both the Moonridge Pipelines alignment and the KLSPS site (CNDDB 2018). The result of the focused botanical survey is that no Big Bear Valley sandwort were observed on site during survey. Furthermore, Big Bear Valley sandwort is typically found in pebble plain habitat, which does not exist within the project impact area. Therefore, this species is not likely to occur within the Moonridge Pipelines alignment and is considered absent from the project impact area at the time of survey.

Southern mountain buckwheat – Threatened (Federal)

The federally-listed as threatened southern mountain buckwheat is a woody-based, cushion-like, perennial plant in the buckwheat family (Polygonaceae). Individual plants are 8 to 15 centimeters (3.1 to 5.9 inches) tall, with stems forming loose, leafy mats, 14 to 36 centimeters (5.5 to 14.1 inches) wide. The leaves are oblanceolate (broadest above the middle and tapering toward the base) and 0.5 to 1 centimeter (0.2 to 0.4 inches) long, with dense white hair. The inflorescences (flower clusters) are 8 to 15 centimeters (3.2 to 5.9 inches) high, bearing head-like inflorescences. The perianth is white to rose and composed of inner and outer lobes that are similar in appearance (USFWS 2015). This species is found in pebble plain habitat in the northeastern San Bernardino Mountains of southwest San Bernardino County at elevations between 2,000 and 2,200 meters (6,557 to 7,213 feet.) (USFWS 2015). Southern mountain buckwheat is typically found within pebble plain habitat and is one of three indicator plant species, along with *Eremogone ursina*, and *Ivesia argyrocoma* var. *argyrocoma* defining a pebble plain (USFWS 2015). This species typically blooms from June to September (Calflora 2018).

Findings: Per the literature review, southern mountain buckwheat has been documented within the immediate vicinity of both the Moonridge Pipelines alignment and the KLSPS site (CNDDB 2018). The result of the focused botanical survey is that no southern mountain buckwheat were observed on site during survey. Furthermore, southern mountain buckwheat is typically found in pebble plain habitat, which does not exist within the project impact area. Therefore, this species is not likely to occur within the Moonridge Pipelines alignment and is considered absent from the project impact area at the time of survey.

San Bernardino Mountains bladderpod – Endangered (Federal)

The federally-listed as endangerd San Bernardino Mountains bladderpod is a silvery, short-lived perennial in the mustard family (Brassicaceae), reaching 5 to 15 centimeters (2 to 6 inches) in height (USFWS 2009). The outer basal leaves are diamond-shaped to round, and the inner leaves are elliptic with petioles 2 to 5 centimeters (0.8 to 2 inches) long. The flower petals are yellow, and the fruits are spherical, pubescent, two-chambered, and contain 2 to 4 seeds per chamber (USFWS 2009). This species is typically found within single leaf pinyon-mountain juniper and white fir forest on dolomite soils and gentle to moderate slopes at elevations between 2,098 and 2,700 meters (6,883 and 8,800 feet.) in the San Bernardino Mountains (USFWS 2009). This species typically blooms from May to June (Calflora 2018).

> *Findings*: Per the literature review, the nearest documented San Bernardino Mountains bladderpod occurrence (1996) is within 0.5 mile northwest of the KLSPS site (CNDDB 2018). Additionally, there is a more recent occurrence (2012) located approximately 1.3 miles north of the northernmost end of the Moonridge Pipeline alignment (CNDDB 2018). The result of the focused botanical survey is that no San Bernardino Mountains bladderpod were observed on site during survey. Therefore, this species is considered absent from the project impact area at the time of survey.

3.3 Jurisdictional Delineation

The project area is situated partially within the Baldwin Hydrologic Sub-Area (HSA 801.73) and partially within the Bear Valley HSA (HAS 801.71), which comprise a combined 57,122-acre drainage area within the larger Santa Ana Watershed (HUC 18070203). This watershed is primarily within San Bernardino County and includes Riverside and Orange Counties with a small portion of Los Angeles County. The Santa Ana Watershed is bound on the north by the Mojave and Southern Mojave Watersheds, on the southeast by the Whitewater and San Jacinto Watersheds, and on the west by the San Gabriel, Seal Beach, Newport Bay, and Aliso-San Onofre Watersheds. The Santa Ana Watershed encompasses a portion of the San Gabriel and San Bernardino Mountains in the south and is approximately 3,000 square miles in area. The Santa Ana River is the major hydrogeomorphic feature within the Santa Ana Watershed. The closest tributary to the Santa Ana River is Bear Creek, which outflows from the Big Bear Dam at the western end of Big Bear Lake, approximately 6.5 miles west of the Moonridge Pipelines component of the project area. Big Bear Lake and Baldwin Lake, which overflows into Big Bear Lake, are the major receiving waters within the Big Bear Valley.

Waters of the U.S.

The USACE has authority to permit the discharge of dredged or fill material in WoUS under Section 404 CWA. WoUS are defined as: "All waters used in interstate or foreign commerce; all interstate waters including interstate wetlands; all other waters such as intrastate lakes, rivers, streams (including intermittent and ephemeral streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes or natural ponds, where the use, degradation, or destruction of which could affect interstate commerce; impoundments of these waters; tributaries of these waters; or wetlands adjacent to these waters" (Section 404 of the CWA; 33 CFR 328.3 (a). CWA jurisdiction exists over the following:

1. all traditional navigable waters (TNWs);
2. all wetlands adjacent to TNWs;
3. non-navigable tributaries of TNWs that are relatively permanent waters (RPWs) i.e., tributaries that typically flow year-round or have continuous flow at least seasonally; and
4. every water body determined to have a significant nexus with TNWs.

There are two unnamed intermittent streams within the project impact area (Figures 11&12). The two

drainages (Drainage A and Drainage B) generally flow south to north and converge before ultimately terminating at Stanfield Marsh, which is a man-made wetland that overflows into Big Bear Lake. These drainages are seasonally-flooded intermittent streams that flow for extended periods early in the growing season, likely during rain events and the snow melt, and would therefore be classified as non-RPWs by the USACE.

Drainage A is situated in the western portion of the subject parcel and extends south to north from the southern boundary of the subject parcel. Drainage A originates approximately 0.5 mile south (upstream) of the southernmost end of the Moonridge Pipelines alignment and terminates at Stanfield Marsh, approximately 0.5 mile northwest (downstream) of where Project 9 (Gildart Sewer Upgrades) crosses Sugarloaf Boulevard. Drainage B originates approximately 0.4 mile south (upstream) of the southernmost end of the Moonridge Pipelines alignment and converges with Drainage A, generally within the area around the southern end of the Moonridge Pipelines alignment (Figure 12). Portions of both Drainages intersect with the Moonridge Pipelines alignment, which is situated partially within and partially parallel to these drainages (Figure 12). Additionally, the segment of Project 9 (Gildart Sewer Upgrades) that is located between Sugarloaf Boulevard and Mountain Lane, is partially within a portion of Drainage A that consists of man-made channel (Figure 11).

Drainage B converges with Drainage A, which terminates at Stanfield Marsh. Approximately 6.5 miles west (downstream) of where Drainage A terminates at Stanfield Marsh (which overflows into Big Bear Lake), Big Bear Lake overflows into Bear Creek at the Big Bear Lake Dam. Bear Creek is a RPW that is tributary to the Santa Ana River, which is also a RPW. The Bear Creek/Santa Ana River confluence is located approximately 9 miles southwest (downstream) of the Big Bear Lake Dam. The Santa Ana River terminates approximately 80 river miles downstream of the Bear Creek/Santa Ana River confluence at the Pacific Ocean, a TNW. Therefore, Drainage A and Drainage B have a surface water connection to a TNW. Due to the connectivity of these two intermittent streams to Big Bear Lake and the Santa Ana River, the USACE would consider these features to have a "significant nexus" with a TNW and thus, they are jurisdictional WoUS subject to regulation by the USACE under Section 404 of the CWA.

USACE Wetlands

Areas meeting all three wetland parameters would be designated as USACE wetlands, if they are adjacent to jurisdictional WoUS, or otherwise determined to have a significant nexus to a TNW. Due to the absence of hydric soils within the project impact area, there are no wetland WoUS on site.

State Lake/Streambed

Drainage A and Drainage B would both be subject to regulation by the CDFW under Section 1602 of the FGC. These intermittent streams both have an identifiable bed and bank, which define the maximal extent of the features. Additionally, Drainage A contains riparian habitat (arroyo willow thicket). Therefore, Drainage A and Drainage B would fall under CDFW jurisdiction.

4 Conclusions and Recommendations

4.1 Sensitive Biological Resources

A biological resources assessment survey was conducted by Jericho biologists in June 2018 to identify potential habitat for special status wildlife within the project area. Additionally, Jericho conducted a focused botanical survey for State- and/or federally-listed plant species that have been documented in the project vicinity, whose habitat requirements are present within the vicinity of the project area.

No State- and/or federally-listed threatened or endangered species were observed within the project area during the field survey. Of the project components that represent a physical change in the environment or which will cause physical disturbance, only the proposed Moonridge Pipelines access road construction (Project 6), the KLSPS construction (Project 8) and a portion of the Gildart Sewer Upgrades (Project 9) components were identified as having any potential to impact sensitive biological resources and/or jurisdictional waters. All other project components are within already disturbed residential areas consisting of paved streets and existing structures/facilities and will not result in any impacts to sensitive biological resources or jurisdictional waters.

The KLSPS site is within an undeveloped disturbed site that is adjacent Jeffrey pine forest habitat and the Moonridge Pipeline alignment is mostly within relatively undisturbed Jeffrey pine forest and arroyo willow thicket habitats. The habitats within and/or adjacent these project components could potentially support several sensitive species, including the State- and federally-listed as endangered SWFL, the State-listed as threatened southern rubber boa, the federally-listed as threatened ash-gray paintbrush, Bear Valley sandwort and southern mountain buckwheat and the federally-listed as endangered San Bernardino Mountains bladderpod.

Southwestern willow flycatcher

There is arroyo willow thicket habitat within portions of the Moonridge Pipelines alignment that is potentially suitable to support the State- and federally-listed as endangered SWFL. However, this species has not been documented within the project area and the nearest documented SWFL occurrence is approximately 4.3 miles west of the northernmost end of the Moonridge Pipelines alignment, within similar habitat in Metcalf Creek. Given that it is not currently known whether SWFL occur within the riparian habitat found in and adjacent the Moonridge Pipelines alignment, project-related impacts to this species can not accurately be assessed at this time. Therefore, it is recommended that focused protocol-level presence/absence surveys for SWFL be conducted to determine whether this species would potentially be impacted by the proposed project and what measures may be needed to avoid, minimize and/or mitigate potential impacts.

If SWFL are detected within the project impact area during protocol presence/absence surveys, then construction of the proposed access road along the Moonridge Pipelines alignment could potentially impact this species. Given that SWFL is both State- and federally-listed as endangered, authorization from both the USFWS and the CDFW would be required prior to construction of the proposed access road or any other project-related activities that could potentially result in any direct or indirect impacts to this species.

Southern rubber boa

There is suitable habitat for the State-listed as threatened southern rubber boa within the Moonridge Pipelines alignment and adjacent undeveloped areas. Additionally, there are several documented rubber boa occurrences within 2.5 miles of the project area, in similar mixed conifer forest habitat. Thus, construction of the proposed access road along the Moonridge Pipelines alignment could potentially impact this species. Therefore, the following protective measures are recommended to avoid and/or minimize potential project-related impacts to this species:

- Ø Exclusion fence (drift fence or similar material) should be installed around the entire proposed construction footprint, wherever there is suitable rubber boa habitat within or adjacent the proposed Moonridge Pipelines access road footprint, to prevent rubber boa from entering the project site during construction.

- Ø Following installation of the exclusion fence, initial ground disturbance activities including

clearing and grubbing and removal of all surface cover within the project footprint, including fallen logs, duff layer, and other debris should be conducted under the supervision of a qualified biologist, familiar with rubber boa and their habits.

Although the above-listed measures are recommended to minimize potential impacts to rubber boa, it may not be possible to completely avoid impacting this species during construction of the proposed access road along the Moonridge Pipelines alignment. Therefore, an Incidental Take Permit, issued by the CDFW, pursuant Section 2081 of the CESA, would be likely be required. Per the CDFW Incidental Take Permit Criteria:

> *"Section 2081 subdivision (b) of the Fish and Game Code allows CDFW to issue an incidental take permit for a species listed as candidate, threatened, or endangered only if specific criteria are met. These criteria are reiterated in Title 14 of the California Code of Regulations, Sections 783.4 subdivisions (a) and (b), and are as follows:*
>
> 1. *The authorized take is **incidental to an otherwise lawful activity**;*
> 2. *The impacts of the authorized take are **minimized and fully mitigated**;*
> 3. *The measures required to minimize and fully mitigate the impacts of the authorized take:*
>   i. *are **roughly proportional** in extent to the impact of the taking on the species,*
>   ii. ***maintain the applicant's objectives** to the greatest extent possible, and*
>   iii. *may be **successfully implemented by the applicant**;*
> 4. ***Adequate funding** is provided to implement the required minimization and mitigation measures and to monitor compliance with and the effectiveness of the measures; and*
> 5. *Issuance of the permit **will not jeopardize the continued existence of a CESA-listed species.***
>
> *The terms and conditions of the permit will be determined by CDFW and must ensure that the issuance criteria in items 1 through 5 above are met."*

Sensitive Plant Species

The environmental conditions required by several sensitive plant species, including the federally-listed ash-gray paintbrush, Bear Valley sandwort, southern mountain buckwheat and San Bernardino Mountains bladderpod, are present within portions of the Moonridge Pipelines alignment, as well as in the habitat adjacent the KLSPS site. Additionally, all four of these listed plant species have been documented within 1 mile of the project impact area. Therefore, focused botanical surveys were conducted within the undeveloped portions of the project area that contained the appropriate environmental conditions for these species, in accordance with the CDFW's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (2009). The survey was conducted during the appropriate time of year, when the target species were both evident and identifiable, and all four target species were identifiable at known reference sites prior to survey. The result of the focused botanical survey is that no State- or federally-listed plant species were observed within the survey area and ash-gray paintbrush, Bear Valley sandwort, southern mountain buckwheat and San Bernardino Mountains bladderpod are all considered absent from the survey area at the time of survey. Therefore, the proposed project is not likely to result in any impacts to sensitive plant species.

Nesting Birds

There is habitat within the project area that is suitable to support nesting birds, including both natural and urban environments. As discussed, most birds are protected by the MBTA. In general, impacts to all bird species (common and special status) can be avoided by conducting work outside of the nesting season, which is generally February to September. However, if all work cannot be conducted outside of nesting season, the following is recommended:

- Bird nesting season generally extends from February 1 through September 15 in southern California and specifically, April 15 through August 31 for migratory passerine birds. To avoid impacts to nesting birds (common and special status) during the nesting season, a qualified Avian Biologist will conduct pre-construction NBS prior to project-related disturbance to nestable vegetation to identify any active nests. If no active nests are found, no further action will be required. If an active nest is found, the biologist will set appropriate no-work buffers around the nest which will be based upon the nesting species, its sensitivity to disturbance, nesting stage and expected types, intensity and duration of disturbance. The nests and buffer zones shall be field checked weekly by a qualified biological monitor. The approved no-work buffer zone shall be clearly marked in the field, within which no disturbance activity shall commence until the qualified biologist has determined the young birds have successfully fledged and the nest is inactive.

4.2 Jurisdictional Waters

Drainages A and B are jurisdictional intermittent streams that are subject to the CWA and FGC under the jurisdictions of USACE, RWQCB, and CDFW, respectively. Therefore, it recommended that the proposed access road along the Moonridge Pipelines alignment (Project 6), as well as the segment of the Gildart Sewer Upgrades (Project 9) that is located between Sugarloaf Boulevard and Mountain Lane, be constructed outside of the jurisdictional limits of Drainages A and B. However, if these intermittent streams cannot be avoided, any proposed permanent or temporary impacts to these jurisdictional water features would require a Streambed Alteration Agreement from the CDFW, as well as CWA Sections 401/404 permits from the RWQCB and Corps, respectively.

USACE 404 Permit

The two most common types of permits issued by USACE under Section 404 of the CWA to authorize the discharge of dredged or fill material into WoUS are: a nation-wide permit (NWP) or an individual permit (IP). NWPs are general permits for specific categories of activities that result in minimal impacts to aquatic resources. The discharge must not cause the loss of greater than ½ acre to WoUS, including the loss of no more than 300 linear feet of streambed. Projects that would exceed these limits would require an IP.

Regional Water Quality Control Board 401 Certification

The project area is within the jurisdiction of the Santa Ana RWQCB (Regional Board 8). Under Section 401 of the CWA, the RWQCB must certify that the discharge of dredged or fill material into WUS does not violate state water quality standards. The RWQCB also regulates impacts to WSC under the Porter Cologne Water Quality Control Act through issuance of a Construction General Permit, State General Waste Discharge Order, or Waste Discharge Requirements, depending upon the level of impact and the waterway. In addition to the formal application materials and fee (based on area of impact), a copy of the appropriate California Environmental Quality Act (CEQA) documentation must be included with the application.

Streambed Alteration Agreement

A FGC Section 1602 Streambed Alteration Agreement is required for all activities that alter streams and lakes and their associated riparian habitat. In addition to the formal application materials and fee (based on cost of the Project), a copy of the appropriate CEQA documentation must be included with the application.

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ADDITIONAL TABLES

Table 4. CNDDB Species and Habitats Documented Within the *Moonridge, Big Bear City, Fawnskin, Big Bear Lake, Onyx Peak* and *Rattlesnake Canyon* USGS 7.5-Minute Series Quadrangles

Scientific Name	Common Name	Listing Status State/ Federal	Other Status	Habitat	Occurrence Potential
Acanthoscyphus parishii var. *cienegensis*	Cienega Seca oxytheca	None/ None	G4?T2; S2; CNPS: 1B.3	Upper montane coniferous forest, pinyon and juniper woodland, Joshua tree woodland. Dry gravelly banks and granitic sand. 1920-2560 m.	Although some of the environmental conditions required by this species are present within the project area, the nearest documented occurrence is approx. 6 miles SE of the project impact area. Occurrence potential is **low**.
Acanthoscyphus parishii var. *goodmaniana*	Cushenbury oxytheca	Endangered/ None	G4?T1; S1; CNPS: 1B.1	Pinyon and juniper woodland. On limestone talus and rocky slopes. 1400-2350 m.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Accipiter cooperii	Cooper's hawk	None/ None	G5; S4; CDFW: WL	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	There is some suitable habitat for this species within the Moonridge Pipelines alignment (Project 6 component), but the nearest documented occurrence is approx. 8.6 miles NW of the project area, on the desert slopes of the San Bernardino Mountains. Occurrence potential is **moderate**.
Anniella stebbinsi	southern California legless lizard	None/ None	G3; S3; CDFW: SSC	Generally south of the Transverse Range, extending to northwestern Baja California. Occurs in sandy or loose loamy soils under sparse vegetation. Disjunct populations in the Tehachapi and Piute Mountains in Kern County. Variety of habitats; generally in moist, loose soil. They prefer soils with a high moisture content.	There is some suitable habitat for this species within the Moonridge Pipelines alignment (Project 6 component), but the nearest documented occurrence is approx. 4.2 miles NE of the project area. Occurrence potential is **moderate**.
Antennaria marginata	white-margined everlasting	None/ None	G4G5; S1; CNPS: 2B.3	Lower montane coniferous forest, upper montane coniferous forest. Dry woods. 2070-3355 m.	Although some of the environmental conditions required by this species are present within the project area, the nearest documented occurrence is approx. 6.2 miles S of the project impact area and this species has not been documented in the Big Bear Valley. Occurrence potential is **low**.

Scientific Name	Common Name	Listing Status State/ Federal	Other Status	Habitat	Occurrence Potential
Aquila chrysaetos	golden eagle	None/ None	G5; S3; CDFW: FP	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	The nearest documented occurrence for this species is approx. 6.7 miles N of the project area, on the desert slopes of the San Bernardino Mountains. This species has not been documented nesting in the Big Bear Valley area. Occurrence potential is **low**.
Arenaria lanuginosa var. *saxosa*	rock sandwort	None/ None	G5T5; S2; CNPS: 2B.3	Subalpine coniferous forest, upper montane coniferous forest. Mesic, sandy sites. 1920-2935 m.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Astragalus albens	Cushenbury milk-vetch	Endangered/ None	G1; S1; CNPS: 1B.1	Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland. Sandy or stony flats, rocky hillsides, canyon washes, and fans, on carbonate or mixed granitic-calcareous debris. 1185-1950 m.	The project area is outside the known elevation range for this species and the environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Astragalus bernardinus	San Bernardino milk-vetch	None/ None	G3; S3; CNPS: 1B.2	Joshua tree woodland, pinyon and juniper woodland. Granitic or carbonate substrates. 290-2290 m.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Astragalus lentiginosus var. *sierrae*	Big Bear Valley milk-vetch	None/ None	G5T2; S2; CNPS: 1B.2	Mojavean desert scrub, meadows and seeps, pinyon and juniper woodland, upper montane coniferous forest. Stony meadows and open pinewoods; sandy and gravelly soils in a variety of habitats. 1710-3230 m.	Some of the environmental conditions required by this species are present within the Moonridge Pipelines alignment (Project 6 component) and the nearest documented occurrence is approx. 1.4 miles SW of the project impact area. Occurrence potential is **moderate**.
Astragalus leucolobus	Big Bear Valley woollypod	None/ None	G2; S2; CNPS: 1B.2	Lower montane coniferous forest, pebble plain, pinyon and juniper woodland, upper montane coniferous forest. Dry pine woods, gravelly knolls among sagebrush, or stony lake shores in the pine belt. 1460-2895 m.	Some of the environmental conditions required by this species are present within the Moonridge Pipelines alignment (Project 6 component) and this species has been documented in the immediate project vicinity. Occurrence potential is **high**.

Scientific Name	Common Name	Listing Status State/ Federal	Other Status	Habitat	Occurrence Potential
Astragalus tidestromii	Tidestrom's milk-vetch	None/ None	G3; S2; CNPS: 2B.2	Mojavean desert scrub. Washes, in sandy or gravelly soil. On limestone. 765-1575 m.	The project area is outside the known elevation range for this species and the environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Atriplex parishii	Parish's brittlescale	None/ None	G1G2; S1; CNPS: 1B.1	Vernal pools, chenopod scrub, playas. Usually on drying alkali flats with fine soils. 5-1420 m.	The project area is outside the known elevation range for this species and the environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Berberis fremontii	Fremont barberry	None/ None	G5; S3; CNPS: 2B.3	Pinyon and juniper woodland, Joshua tree woodland. Rocky, sometimes granitic. 1140-1770 m.	The project area is outside the known elevation range for this species and the environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Boechera dispar	pinyon rockcress	None/ None	G3; S3; CNPS: 2B.3	Joshua tree woodland, pinyon and juniper woodland, Mojavean desert scrub. Granitic, gravelly slopes and mesas. Often under desert shrubs which support it as it grows. 1005-2805 m.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Boechera lincolnensis	Lincoln rockcress	None/ None	G4G5; S3; CNPS: 2B.3	Chenopod scrub, Mojavean desert scrub. On limestone. 880-2410 m.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Boechera parishii	Parish's rockcress	None/ None	G2; S2; CNPS: 1B.2	Pebble plain, pinyon and juniper woodland, upper montane coniferous forest. Generally found on pebble plains on clay soil with quartzite cobbles; sometimes on limestone. 1825-2805 m.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Boechera shockleyi	Shockley's rockcress	None/ None	G3; S2; CNPS: 2B.2	Pinyon and juniper woodland. On ridges, rocky outcrops and openings on limestone or quartzite. 875-2515 m.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Bombus caliginosus	obscure bumble bee	None/ None	G4?; S1S2	Coastal areas from Santa Barbara county to north to Washington state. Food plant genera include *Baccharis, Cirsium, Lupinus, Lotus, Grindelia* and *Phacelia*.	The only documented occurrence within the 6-quad CNDDB search is a historical collection (1933) from approx. 6.3 miles SW of the project impact area. Occurrence potential is **low**.

Scientific Name	Common Name	Listing Status State/ Federal	Other Status	Habitat	Occurrence Potential
Bombus crotchii	Crotch bumble bee	None/ None	G3G4; S1S2	Coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include *Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia,* and *Eriogonum*.	Some of the food plant genera for this species are present within the project area, but the nearest documented occurrence is approx. 9.9 miles NW of the project impact area. Occurrence potential is **low**.
Bombus morrisoni	Morrison bumble bee	None/ None	G4G5; S1S2	From the Sierra-Cascade ranges eastward across the intermountain west. Food plant genera include *Cirsium, Cleome, Helianthus, Lupinus, Chrysothamnus,* and *Melilotus*.	Some of the food plant genera for this species are present within the project area, but the only documented occurrence within the 6-quad CNDDB search is approx. 5 miles NW of the project impact area. Occurrence potential is **low-moderate**.
Botrychium crenulatum	scalloped moonwort	None/ None	G4; S3; CNPS: 2B.2	Bogs and fens, meadows and seeps, upper montane coniferous forest, lower montane coniferous forest, marshes and swamps. Moist meadows, freshwater marsh, and near creeks. 1185-3110 m.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Calochortus palmeri var. *palmeri*	Palmer's mariposa-lily	None/ None	G3T2; S2; CNPS: 1B.2	Meadows and seeps, chaparral, lower montane coniferous forest. Vernally moist places in yellow-pine forest, chaparral. 195-2530 m.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Calochortus plummerae	Plummer's mariposa-lily	None/ None	G4; S4; CNPS: 4.2	Coastal scrub, chaparral, valley and foothill grassland, cismontane woodland, lower montane coniferous forest. Occurs on rocky and sandy sites, usually of granitic or alluvial material. Can be very common after fire. 60-2500 m.	Although some of the environmental conditions required by this species are present within the project area, the nearest documented occurrence is approx. 2.5 miles S of the project impact area and this species has not been documented in the Big Bear Valley. Occurrence potential is **low**.
Calochortus striatus	alkali mariposa-lily	None/ None	G3?; S2S3; CNPS: 1B.2	Chaparral, chenopod scrub, Mojavean desert scrub, meadows and seeps. Alkaline meadows and ephemeral washes. 70-1600m.	The project area is outside the known elevation range for this species and the environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.

Scientific Name	Common Name	Listing Status State/ Federal	Other Status	Habitat	Occurrence Potential
Calyptridium pygmaeum	pygmy pussypaws	None/ None	G1G2; S1S2; CNPS: 1B.2	Upper montane coniferous forest, subalpine coniferous forest. Sandy or gravelly sites. 2145-3415 m.	Although some of the environmental conditions required by this species are present within the project area, the nearest documented occurrence is approx. 3.7 miles N of the project impact area. Occurrence potential is **low**.
Carex occidentalis	western sedge	None/ None	G4; S3; CNPS: 2B.3	Lower montane coniferous forest, meadows and seeps. 1645-3135 m.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Castilleja cinerea	ash-gray paintbrush	Threatened/ None	G1G2; S1S2; CNPS: 1B.2	Pebble plains, upper montane coniferous forest, Mojavean desert scrub, meadows, pinyon and juniper woodland. Endemic to the San Bernardino Mountains, in clay openings; often in meadow edges. 725-2745 m.	Some of the environmental conditions required by this species are present within the Moonridge Pipelines alignment (Project 6 component) and this species has been documented in the project vicinity. However, the result of focused botanical surveys conducted by Jericho biologists during the summer of 2018 was negative, and this species is considered absent from the project impact area at the time of survey. Occurrence potential is **low**.
Castilleja lasiorhyncha	San Bernardino Mountains owl's-clover	None/ None	G2?; S2?; CNPS: 1B.2	Meadows and seeps, pebble plain, upper montane coniferous forest, chaparral, riparian woodland. Mesic to drying soils in open areas of stream and meadow margins or in vernally wet areas. 1140-2320 m.	Some of the environmental conditions required by this species are present within the Moonridge Pipelines alignment (Project 6 component) and the nearest documented occurrence is approx. 1 mile NW of the project impact area. Occurrence potential is **moderate**.
Chaetodipus fallax pallidus	pallid San Diego pocket mouse	None/ None	G5T34; S3S4; CDFW: SSC	Desert border areas in eastern San Diego County in desert wash, desert scrub, desert succulent scrub, pinyon-juniper, etc. Sandy, herbaceous areas, usually in association with rocks or coarse gravel.	There is no suitable habitat for this species within the project area. Occurrence potential is **low**.

Scientific Name	Common Name	Listing Status State/ Federal	Other Status	Habitat	Occurrence Potential
Charina umbratica	southern rubber boa	None/ Threatened	G2G3; S2S3	Known from the San Bernardino and San Jacinto mountains; found in a variety of montane forest habitats. Snakes resembling *C. umbratica* reported from Mt. Pinos and Tehachapi mountains group with *C. bottae* based on mtDNA. Further research needed. Found in vicinity of streams or wet meadows; requires loose, moist soil for burrowing; seeks cover in rotting logs, rock outcrops, and under surface litter.	There is some suitable habitat to support this species within the Moonridge Pipelines alignment and the nearest documented occurrence is approx. 1.8 miles NW of the project impact area. Occurrence potential is **moderate**.
Chorizanthe xanti var. *leucotheca*	white-bracted spineflower	None/ None	G4T3; S3; CNPS: 1B.2	Mojavean desert scrub, pinyon and juniper woodland, coastal scrub (alluvial fans). Sandy or gravelly places. 365-1830 m.	The project area is outside the known elevation range for this species and the environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Claytonia lanceolata var. *peirsonii*	Peirson's spring beauty	None/ None	G5T1Q; S1; CNPS: 3.1	Upper montane coniferous forest, subalpine coniferous forest. Granitic scree slopes, often with a sandy or fine soil component and granitic cobbles; N aspect. 2375-2500 m.	The project area is outside the known elevation range for this species. Occurrence potential is **low**.
Corynorhinus townsendii	Townsend's big-eared bat	None/ None	G3G4; S2; CDFW: SSC	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	There are no suitable roosting sites for this species in the project area and there is a high-level of human disturbance within the project vicinity. Occurrence potential is **low**.
Cymopterus multinervatus	purple-nerve cymopterus	None/ None	G4G5; S2; CNPS: 2B.2	Mojavean desert scrub, pinyon and juniper woodland. Sandy or gravelly places. 765-2195 m.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Drymocallis cuneifolia var. *cuneifolia*	wedgeleaf woodbeauty	None/ None	G2T1; S1; CNPS: 1B.1	Upper montane coniferous forest, riparian scrub. Sometimes on carbonate. 1520-2220 m.	Although some of the environmental conditions required by this species are present within the project area, the nearest documented occurrence is approx. 6.6 miles NW of the project impact area. Occurrence potential is **low**.

Scientific Name	Common Name	Listing Status State/ Federal	Other Status	Habitat	Occurrence Potential
Dryopteris filix-mas	male fern	None/ None	G5; S2; CNPS: 2B.3	Upper montane coniferous forest. In granite crevices. 1855-3075 m.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Dudleya abramsii ssp. *affinis*	San Bernardino Mountains dudleya	None/ None	G4T2; S2; CNPS: 1B.2	Pebble (pavement) plain, upper montane coniferous forest, pinyon and juniper woodland. Outcrops, granite or quartzite, rarely limestone. 1200-2425 m.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Empidonax traillii extimus	southwestern willow flycatcher	Endangered/ Endangered	G5T2; S1	Riparian woodlands in Southern California.	There is some suitable habitat to support this species within the Moonridge Pipelines alignment. However, the only documented occurrence within the 6-quad CNDDB search is approx. 4.3 miles W of the project impact area. Occurrence potential is **low**.
Ensatina eschscholtzii klauberi	large-blotched salamander	None/ None	G5T2?; S3; CDFW: WL	Found in conifer and woodland associations. Found in leaf litter, decaying logs and shrubs in heavily forested areas.	There is some suitable habitat for this species within the Moonridge Pipelines alignment (Project 6 component), but the nearest documented occurrence is approx. 6 miles N of the project area, on the desert slopes of the San Bernardino Mountains. Occurrence potential is **low**.
Eremogone ursina	Big Bear Valley sandwort	Threatened/ None	G1; S1; CNPS: 1B.2	Pebble plain, pinyon and juniper woodland, meadows and seeps. Mesic, rocky sites. 1795-2895 m.	Some of the environmental conditions required by this species are present within the Moonridge Pipelines alignment (Project 6 component) and this species has been documented in the project vicinity. However, the result of focused botanical surveys conducted by Jericho biologists during the summer of 2018 was negative, and this species is considered absent from the project impact area at the time of survey. Occurrence potential is **low**.
Erigeron parishii	Parish's daisy	Threatened/ None	G2; S2; CNPS: 1B.1	Mojavean desert scrub, pinyon and juniper woodland. Often on carbonate; limestone mountain slopes; often associated with drainages. Sometimes on granite. 1050-2245 m.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.

Scientific Name	Common Name	Listing Status State/ Federal	Other Status	Habitat	Occurrence Potential
Eriogonum evanidum	vanishing wild buckwheat	None/ None	G2; S1; CNPS: 1B.1	Chaparral, cismontane woodland, lower montane coniferous forest, pinyon and juniper woodland. Sandy sites. 975-2240 m.	Although some of the environmental conditions required by this species are present within the project area, the only documented occurrence in the project vicinity is a historical collection from 1931. The next nearest documented occurrences for this species are approx. 3-4 miles NW of the project impact area, in Holcomb Valley. Occurrence potential is **low**.
Eriogonum kennedyi var. *alpigenum*	southern alpine buckwheat	None/ None	G4T3; S3; CNPS: 1B.3	Alpine boulder and rock fields, subalpine coniferous forest. Dry granitic gravel. 2500-3415 m.	The project area is outside the known elevation range for this species. Occurrence potential is **low**.
Eriogonum kennedyi var. *austromontanum*	southern mountain buckwheat	Threatened/ None	G4T2; S2; CNPS: 1B.2	Pebble (pavement) plain, lower montane coniferous forest. Usually found in pebble plain habitats. 1765-3020 m.	Some of the environmental conditions required by this species are present within the Moonridge Pipelines alignment (Project 6 component) and this species has been documented in the project vicinity. However, the result of focused botanical surveys conducted by Jericho biologists during the summer of 2018 was negative, and this species is considered absent from the project impact area at the time of survey. Occurrence potential is **low**.
Eriogonum microthecum var. *johnstonii*	Johnston's buckwheat	None/ None	G5T2; S2; CNPS: 1B.3	Subalpine coniferous forest, upper montane coniferous forest. Slopes and ridges on granite or limestone. 1829-2926 sq. km.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Eriogonum microthecum var. *lacus-ursi*	Bear Lake buckwheat	None/ None	G5T1; S1; CNPS: 1B.1	Lower montane coniferous forest, Great Basin scrub. Clay outcrops. 2000-2100 m.	Only known extant populations are approx. 2.5 miles W of the project impact area; on the S shore of Big Bear Lake. Occurrence potential is **low**.
Eriogonum ovalifolium var. *vineum*	Cushenbury buckwheat	Endangered/ None	G5T1; S1; CNPS: 1B.1	Mojavean desert scrub, pinyon and juniper woodland, Joshua tree woodland. Limestone mountain slopes. Dry, usually rocky places. 1430-2440 m.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.

Scientific Name	Common Name	Listing Status State/ Federal	Other Status	Habitat	Occurrence Potential
Erythranthe exigua	San Bernardino Mountains monkeyflower	None/ None	G2; S2; CNPS: 1B.2	Meadows and seeps, pebble plains, upper montane coniferous forest. Seeps and sandy sometimes disturbed soil in moist drainages of annual streams; clay soils. 2060-2630 m.	Some of the environmental conditions required by this species are present within the Moonridge Pipelines alignment (Project 6 component) and the nearest documented occurrence is approx. 0.9 mile NW of the project impact area. Occurrence potential is **moderate**.
Erythranthe purpurea	little purple monkeyflower	None/ None	G2; S2; CNPS: 1B.2	Meadows and seeps, pebble plain, upper montane coniferous forest. Dry clay or gravelly soils under Jeffrey pines, along annual streams or vernal springs and seeps. 2045-2290 m.	Some of the environmental conditions required by this species are present within the Moonridge Pipelines alignment (Project 6 component) and the nearest documented occurrence is approx. 0.9 mile NW of the project impact area. Occurrence potential is **moderate**.
Euchloe hyantis andrewsi	Andrew's marble butterfly	None/ None	G3G4T1; S1	Inhabits yellow pine forest near Lake Arrowhead and Big Bear Lake, San Bernardino Mountains, San Bernardino Co, 5,000-6,000 ft. Hostplants are *Streptanthus bernardinus* and *Arabis holboellii* var *pinetorum*; larval foodplant is *Descurainia richardsonii*.	The project area is outside the known elevation range for this species. Occurrence potential is **low**.
Gasterosteus aculeatus williamsoni	unarmored threespine stickleback	Endangered/ Endangered	G5T1; S1; CDFW: FP	Weedy pools, backwaters, and among emergent vegetation at the stream edge in small Southern California streams. Cool (<24 C), clear water with abundant vegetation.	The aquatic habitats this species requires are absent from the project area. Occurrence potential is **low**.
Gentiana fremontii	Fremont's gentian	None/ None	G4; S2; CNPS: 2B.3	Meadows and seeps, upper montane coniferous forest. Wet mountain meadows. 2400-2700 m.	The project area is outside the known elevation range for this species. Occurrence potential is **low**.
Gilia leptantha ssp. *leptantha*	San Bernardino gilia	None/ None	G4T2; S2; CNPS: 1B.3	Lower montane coniferous forest. Sandy or gravelly sites. 1520-2595 m.	Although some of the environmental conditions required by this species are present within the project area, the nearest documented occurrence is approx. 2.1 miles S of the project impact area. Occurrence potential is **low-moderate**.

Scientific Name	Common Name	Listing Status State/ Federal	Other Status	Habitat	Occurrence Potential
Glaucomys oregonensis californicus	San Bernardino flying squirrel	None/ None	G5T1T2; S1S2; CDFW: SSC	Known from black oak or white fir dominated woodlands between 5,200-8,500 ft in the San Bernardino and San Jacinto ranges. May be extirpated from San Jacinto range. Needs cavities in trees/snags for nests and cover. Needs nearby water.	The habitat within the Moonridge Pipelines alignment (Project 6 component) is suitable to support this species and the nearest documented occurrence is approx. 1 mile S of the project impact area. Occurrence potential is **moderate-high**.
Gopherus agassizii	desert tortoise	Threatened/ Threatened	G3; S2S3	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	There is no suitable habitat for this species within the project area. Occurrence potential is **low**.
Haliaeetus leucocephalus	bald eagle	Delisted/ Endangered	G5; S3; CDFW: FP	Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water. Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.	There is some suitable lakeshore habitat (Baldwin Lake) for this species near project components 10 and 4, and this species has been documented near these areas. Occurrence potential is **high**.
Heuchera parishii	Parish's alumroot	None/ None	G3; S3; CNPS: 1B.3	Lower montane coniferous forest, subalpine coniferous forest, upper montane coniferous forest, alpine boulder and rock field. Rocky places. Sometimes on carbonate. 1340-3505 m.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Horkelia wilderae	Barton Flats horkelia	None/ None	G1; S1; CNPS: 1B.1	Lower montane coniferous forest, upper montane coniferous forest, chaparral. On rocky, north aspects in openings that hold persistent snowdrifts. 1980-2895 m.	Although some of the environmental conditions required by this species are present within the project area, the nearest documented occurrence is approx. 4.5 miles SW of the project impact area and this species has not been documented in the Big Bear Valley. Occurrence potential is **low**.

Scientific Name	Common Name	Listing Status State/ Federal	Other Status	Habitat	Occurrence Potential
Hulsea vestita ssp. *pygmaea*	pygmy hulsea	None/ None	G5T1; S1; CNPS: 1B.3	Alpine boulder and rock field, subalpine coniferous forest. Gravelly sites; on granite. 2860-3502 m.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Hydroporus simplex	simple hydroporus diving beetle	None/ None	G1?; S1?	Known from aquatic habitats in Tuolumne and San Bernardino counties.	The aquatic habitats this species requires are absent from the project area. Occurrence potential is **low**.
Icteria virens	yellow-breasted chat	None/ None	G5; S3; CDFW: SSC	Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft. of ground.	The habitat within the Moonridge Pipelines alignment (Project 6 component) is suitable to support this species, but the nearest documented occurrence is approx. 7.9 miles N of the project area, on the desert slopes of the San Bernardino Mountains. Occurrence potential is **moderate**.
Ivesia argyrocoma var. *argyrocoma*	silver-haired ivesia	None/ None	G2T2; S2; CNPS: 1B.2	Meadows and seeps, pebble plains, upper montane coniferous forest. In pebble plains and meadows with other rare plants. 1490-2960 m.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Lampropeltis zonata (parvirubra)	California mountain kingsnake (San Bernardino population)	None/ None	G4G5; S2?; CDFW: WL	Bigcone spruce and chaparral at lower elevations. Black oak, incense cedar, Jeffrey pine and ponderosa pine at higher elevations. Well-lit canyons with rocky outcrops or rocky talus.	The habitat within the Moonridge Pipelines alignment (Project 6 component) is suitable to support this species, but the nearest documented occurrence is approx. 6.7 miles NW of the project area. Occurrence potential is **moderate**.
Lewisia brachycalyx	short-sepaled lewisia	None/ None	G4; S2; CNPS: 2B.2	Lower montane coniferous forest, meadows and seeps. Dry to moist meadows in rich loam. 1370-2450 m.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Lilium parryi	lemon lily	None/ None	G3; S3; CNPS: 1B.2	Lower montane coniferous forest, meadows and seeps, riparian forest, upper montane coniferous forest. Wet, mountainous terrain; generally in forested areas; on shady edges of streams, in open boggy meadows and seeps. 625-2930 m.	Some of the environmental conditions required by this species are present within the Moonridge Pipelines alignment (Project 6 component) and the nearest documented occurrence is approx. 1.3 miles S of the project impact area. Occurrence potential is **moderate**.

Scientific Name	Common Name	Listing Status State/ Federal	Other Status	Habitat	Occurrence Potential
Linanthus killipii	Baldwin Lake linanthus	None/ None	G1; S1; CNPS: 1B.2	Alkaline meadows, pebble plain, pinyon and juniper woodland, Joshua tree woodland. Usually on pebble plains with other rare species. 1645-2645 m.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Linanthus maculatus ssp. *maculatus*	Little San Bernardino Mountains linanthus	None/ None	G2T2; S2; CNPS: 1B.2	Desert dunes, Sonoran desert scrub, Mojavean desert scrub, Joshua tree woodland. Sandy places. Usually in light-colored quartz sand; often in wash or bajada. 135-1220 m.	The project area is outside the known elevation range for this species and the environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Linanthus orcuttii	Orcutt's linanthus	None/ None	G3; S2; CNPS: 1B.3	Chaparral, lower montane coniferous forest, pinyon and juniper woodland. Sometimes in disturbed areas; often in gravelly clearings. 915-2145 m.	The only documented occurrences within the 6-quad CNDDB search are approx. 7.2 and 9 miles SE of the project impact area, respectively. Occurrence potential is **low**.
Malaxis monophyllos var. *brachypoda*	white bog adder's-mouth	None/ None	G4?T4; S1; CNPS: 2B.1	Meadows and seeps, bogs and fens, upper montane coniferous forest. Hillside bogs and mesic meadows. 2375-2560 m.	The project area is outside the known elevation range for this species. Occurrence potential is **low**.
Myotis ciliolabrum	western small-footed myotis	None/ None	G5; S3	Wide range of habitats mostly arid wooded and brushy uplands near water. Seeks cover in caves, buildings, mines, and crevices. Prefers open stands in forests and woodlands. Requires drinking water. Feeds on a wide variety of small flying insects.	There are no suitable sites for this species within the project impact area and the nearest documented occurrence is approx. 6.3 miles E of the project area, on the desert slopes of the San Bernardino Mountains. Occurrence potential is **low**.
Myotis evotis	long-eared myotis	None/ None	G5; S3	Found in all brush, woodland and forest habitats from sea level to about 9,000 ft. Prefers coniferous woodlands and forests. Nursery colonies in buildings, crevices, spaces under bark, and snags. Caves used primarily as night roosts.	There is some suitable nursery habitat for this species within the Moonridge Pipelines alignment (Project 6 component), but the nearest documented occurrence is approx. 4.6 miles NW of the project impact area, within Holcomb Valley. Occurrence potential is **low-moderate**.

Scientific Name	Common Name	Listing Status State/ Federal	Other Status	Habitat	Occurrence Potential
Myotis thysanodes	fringed myotis	None/ None	G4; S3	In a wide variety of habitats, optimal habitats are pinyon-juniper, valley foothill hardwood and hardwood-conifer. Uses caves, mines, buildings or crevices for maternity colonies and roosts.	There are no suitable roosting or maternity sites for this species within the project impact area and the nearest documented occurrence is approx. 4.6 miles NW of the project impact area, within Holcomb Valley. Occurrence potential is **low**.
Myotis volans	long-legged myotis	None/ None	G5; S3	Most common in woodland and forest habitats above 4,000 ft. Trees are important day roosts; caves and mines are night roosts. Nursery colonies usually under bark or in hollow trees, but occasionally in crevices or buildings.	The habitat within the Moonridge Pipelines alignment (Project 6 component) is suitable to support this species, but the nearest documented occurrence is approx. 6.3 miles E of the project area, on the desert slopes of the San Bernardino Mountains. Occurrence potential is **moderate**.
Myotis yumanensis	Yuma myotis	None/ None	G5; S4	Optimal habitats are open forests and woodlands with sources of water over which to feed. Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings or crevices.	Only one documented occurrence for this species within the 6-quad CNDDB search from approx. 4.4 miles NW of the project area, within Holcomb Valley. Occurrence potential is **low**.
Navarretia peninsularis	Baja navarretia	None/ None	G3; S2; CNPS: 1B.2	Lower montane coniferous forest, chaparral, meadows and seeps, pinyon and juniper woodland. Wet areas in open forest. 1150-2365 m.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Neotamias speciosus speciosus	lodgepole chipmunk	None/ None	G4T2T3; S2S3	Summits of isolated Piute, San Bernardino, and San Jacinto mountains. Usually found in open-canopy forests. Habitat is usually lodgepole pine forests in the San Bernardino Mountains and chinquapin slopes in the San Jacinto Mountains.	There is some suitable habitat for this species within the project area and this species has been documented in the general project vicinity. Occurrence potential is **moderate**.

Scientific Name	Common Name	Listing Status State/ Federal	Other Status	Habitat	Occurrence Potential
Oncorhynchus mykiss irideus pop. 10	steelhead - southern California DPS	Endangered/ None	G5T1Q; S1	Federal listing refers to populations from Santa Maria River south to southern extent of range (San Mateo Creek in San Diego County). Southern steelhead likely have greater physiological tolerances to warmer water and more variable conditions.	The aquatic habitat this species requires is absent from the project area. Occurrence potential is **low**.
Oreonana vestita	woolly mountain-parsley	None/ None	G3; S3; CNPS: 1B.3	Subalpine coniferous forest, upper montane coniferous forest, lower montane coniferous forest. High ridges; on scree, talus, or gravel. 1615-3500 m.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Oxytropis oreophila var. *oreophila*	rock-loving oxytrope	None/ None	G5T4T5; S2; CNPS: 2B.3	Alpine boulder and rock field, subalpine coniferous forest. Gravelly or rocky sites. 2615-3505 m.	The project area is outside the known elevation range for this species. Occurrence potential is **low**.
Packera bernardina	San Bernardino ragwort	None/ None	G2; S2; CNPS: 1B.2	Meadows and seeps, pebble plains, upper montane coniferous forest. Mesic, sometimes alkaline meadows, and dry rocky slopes. 1615-2470 m.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Paranomada californica	California cuckoo bee	None/ None	G1; S1		Insufficient information available to assess occurrence potential.
Pebble Plains	Pebble Plains	None/ None	G1; S1.1		This habitat is **absent** from the project area.
Perideridia parishii ssp. *parishii*	Parish's yampah	None/ None	G4T3T4; S2; CNPS: 2B.2	Lower montane coniferous forest, meadows and seeps, upper montane coniferous forest. Damp meadows or along streambeds-prefers an open pine canopy. 1470-2530 m.	Some of the environmental conditions required by this species are present within the Moonridge Pipelines alignment (Project 6 component) and the nearest documented occurrence is approx. 1.5 miles W of the project impact area. Occurrence potential is **moderate**.

Scientific Name	Common Name	Listing Status State/ Federal	Other Status	Habitat	Occurrence Potential
Phlox dolichantha	Big Bear Valley phlox	None/ None	G2; S2; CNPS: 1B.2	Pebble plains, upper montane coniferous forest. Sloping hillsides, in shade under pines and *Quercus kelloggii*, with heavy pine litter; also in openings. 1980-2805 m.	Some of the environmental conditions required by this species are present within the Moonridge Pipelines alignment (Project 6 component) and this species has been documented in the immediate project vicinity. Occurrence potential is **high**.
Phrynosoma blainvillii	coast horned lizard	None/ None	G3G4; S3S4; CDFW: SSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	There is some suitable habitat for this species within the project area, but the nearest documented occurrence is approx. 5.2 miles NE of the project impact area. Occurrence potential is **low**.
Physaria kingii ssp. *bernardina*	San Bernardino Mountains bladderpod	Endangered/ None	G5T1; S1; CNPS: 1B.1	Pinyon and juniper woodland, lower montane coniferous forest, subalpine coniferous forest. Dry sandy to rocky carbonate soils. 1850-2700 m.	Some of the environmental conditions required by this species are present within the Moonridge Pipelines alignment (Project 6 component) and this species has been documented in the project vicinity. However, the result of focused botanical surveys conducted by Jericho biologists during the summer of 2018 was negative, and this species is considered absent from the project impact area at the time of survey. Occurrence potential is **low**.
Piranga rubra	summer tanager	None/ None	G5; S1; CDFW: SSC	Summer resident of desert riparian along lower Colorado River, and locally elsewhere in California deserts. Requires cottonwood-willow riparian for nesting and foraging; prefers older, dense stands along streams.	There is no suitable habitat for this species within the project area. Occurrence potential is **low**.
Poa atropurpurea	San Bernardino blue grass	Endangered/ None	G2; S2; CNPS: 1B.2	Meadows and seeps. Mesic meadows of open pine forests and grassy slopes, loamy alluvial to sandy loam soil. 1255-2655 m.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.

Scientific Name	Common Name	Listing Status State/ Federal	Other Status	Habitat	Occurrence Potential
Poliomintha incana	frosted mint	None/ None	G5; SH; CNPS: 2A	Lower montane coniferous forest. In boggy soil. 1600-1700 m.	The project area is outside the known elevation range for this species and the environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Psychomastax deserticola	desert monkey grasshopper	None/ None	G1G2; S1S2	Occurs in very arid environments in the vicinity of the San Bernardino Mountains. Known to occur on chamise (*Adenostoma fasciculatum*).	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Pyrrocoma uniflora var. *gossypina*	Bear Valley pyrrocoma	None/ None	G5T1; S1; CNPS: 1B.2	Pebble plain, meadows and seeps. Meadows, meadow edges, and along streams in or near pebble plain habitat. 2040-2280 m.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Rana muscosa	southern mountain yellow-legged frog	Endangered/ Endangered	G1; S1; CDFW: WL	Federal listing refers to populations in the San Gabriel, San Jacinto and San Bernardino mountains (southern DPS). Northern DPS was determined to warrant listing as endangered, Apr 2014, effective Jun 30, 2014. Always encountered within a few feet of water. Tadpoles may require 2 - 4 yrs. to complete their aquatic development.	The aquatic habitat this species requires is absent from the project area. Occurrence potential is **low**.
Rosa woodsii var. *glabrata*	Cushenbury rose	None/ None	G5T1; S1; CNPS: 1B.1	Mojavean desert scrub. Springs. 1095-1220 m.	The project area is outside the known elevation range for this species and the environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Saltugilia latimeri	Latimer's woodland-gilia	None/ None	G3; S3; CNPS: 1B.2	Chaparral, Mojavean desert scrub, pinyon and juniper woodland. Rocky or sandy substrate; sometimes in washes, sometimes limestone. 120-2200 m.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.

Scientific Name	Common Name	Listing Status State/ Federal	Other Status	Habitat	Occurrence Potential
Sidalcea hickmanii ssp. *parishii*	Parish's checkerbloom	None/ Rare	G3T1; S1; CNPS: 1B.2	Chaparral, cismontane woodland, lower montane coniferous forest. Disturbed burned or cleared areas on dry, rocky slopes, in fuel breaks and fire roads along the mountain summits. 1095-2135 m.	Although some of the environmental conditions required by this species are present within the project area, the nearest documented occurrence is approx. 4.1 miles S of the project impact area and this species has not been documented in the Big Bear Valley. Occurrence potential is **low**.
Sidalcea malviflora ssp. *dolosa*	Bear Valley checkerbloom	None/ None	G5T2; S2; CNPS: 1B.2	Meadows and seeps, riparian woodland, lower montane coniferous forest, upper montane coniferous forest. Known from wet areas within forested habitats. Affected by hydrological changes. 1575-2590 m.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Sidalcea pedata	bird-foot checkerbloom	Endangered/ Endangered	G1; S1; CNPS: 1B.1	Meadows and seeps, pebble plains. Vernally mesic sites in meadows or pebble plains. 1840-2305 m.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Siphateles bicolor mohavensis	Mohave tui chub	Endangered/ Endangered	G4T1; S1; CDFW: FP	Endemic to the Mojave River basin, adapted to alkaline, mineralized waters. Needs deep pools, ponds, or slough-like areas. Needs vegetation for spawning.	The aquatic habitat this species requires is absent from the project area. Occurrence potential is **low**.
Sisyrinchium longipes	timberland blue-eyed grass	None/ None	G3G4; S1; CNPS: 2B.2	Meadows and seeps. Mesic areas in meadows; seeps. 2060 m.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Southern California Threespine Stickleback Stream	Southern California Threespine Stickleback Stream	None/ None	GNR; SNR		This habitat is **absent** from the project area.
Sphenopholis obtusata	prairie wedge grass	None/ None	G5; S2; CNPS: 2B.2	Cismontane woodland, meadows and seeps. Open moist sites, along rivers and springs, alkaline desert seeps. 15-2625 m.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Streptanthus bernardinus	Laguna Mountains jewelflower	None/ None	G3G4; S3S4; CNPS: 4.3	Chaparral, lower montane coniferous forest. Clay or decomposed granite soils; sometimes in disturbed areas such as stream sides or roadcuts. 1440-2500 m.	The only documented occurrences within the 6-quad CNDDB search are approx. 6.2 and 7.7 miles NW of the project impact area, respectively. Occurrence potential is **low**.

Scientific Name	Common Name	Listing Status State/ Federal	Other Status	Habitat	Occurrence Potential
Streptanthus campestris	southern jewelflower	None/ None	G3; S3; CNPS: 1B.3	Chaparral, lower montane coniferous forest, pinyon and juniper woodland. Open, rocky areas. 605-2590 m.	Although some of the environmental conditions required by this species are present within the project area, the nearest documented occurrence is approx. 2.7 miles SE of the project impact area. Occurrence potential is **low-moderate**.
Symphyotrichum defoliatum	San Bernardino aster	None/ None	G2; S2; CNPS: 1B.2	Meadows and seeps, cismontane woodland, coastal scrub, lower montane coniferous forest, marshes and swamps, valley and foothill grassland. Vernally mesic grassland or near ditches, streams and springs; disturbed areas. 3-2045 m.	Although some of the environmental conditions required by this species are present within the project area, the nearest documented occurrence is approx. 2.7 miles SE of the project impact area. Occurrence potential is **low-moderate**.
Taraxacum californicum	California dandelion	Endangered/ None	G1G2; S1S2; CNPS: 1B.1	Meadows and seeps. Mesic meadows, usually free of taller vegetation. 1620-2590 m.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.
Taxidea taxus	American badger	None/ None	G5; S3; CDFW: SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	The only documented occurrence for this species within the 6-quad CNDDB search is a historical collection (1949) and this species has not been documented in the Big Bear Valley. Occurrence potential is **low**.
Thamnophis hammondii	two-striped gartersnake	None/ None	G4; S3S4; CDFW: SSC	Coastal California from vicinity of Salinas to northwest Baja California. From sea to about 7,000 ft elevation. Highly aquatic, found in or near permanent fresh water. Often along streams with rocky beds and riparian growth.	There is no suitable habitat for this species within the project area. Occurrence potential is **low**.
Thelypodium stenopetalum	slender-petaled thelypodium	Endangered/ Endangered	G1; S1; CNPS: 1B.1	Meadows and seeps. Seasonally moist alkaline clay soils; associated with seeps and springs in the pebble plains. 2045-2240 m.	The environmental conditions this species requires are absent from the project area. Occurrence potential is **low**.

Scientific Name	Common Name	Listing Status State/ Federal	Other Status	Habitat	Occurrence Potential
Viola pinetorum ssp. *grisea*	grey-leaved violet	None/ None	G4G5T3; S3; CNPS: 1B.3	Subalpine coniferous forest, upper montane coniferous forest, meadows and seeps. Dry mountain peaks and slopes. 1580-3700 m.	The only documented occurrence for this species within the 6-quad CNDDB search is a historical collection (1886) from the general area of Big Bear Valley. Occurrence potential is **low**.

Coding and Terms

E = Endangered T = Threatened C = Candidate FP = Fully Protected SSC = Species of Special Concern R = Rare WL = Watch List

State Species of Special Concern: An administrative designation given to vertebrate species that appear to be vulnerable to extinction because of declining populations, limited acreages, and/or continuing threats. Raptor and owls are protected under section 3502.5 of the California Fish and Game code: "It is unlawful to take, possess or destroy any birds in the orders Falconiformes or Strigiformes or to take, possess or destroy the nest or eggs of any such bird."

State Fully Protected: The classification of Fully Protected was the State's initial effort in the 1960's to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, mammals, amphibians and reptiles. Fully Protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.

Global Rankings (Species or Natural Community Level):

G1 = Critically Imperiled – At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.
G2 = Imperiled – At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors.
G3 = Vulnerable – At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors.
G4 = Apparently Secure – Uncommon but not rare; some cause for long-term concern due to declines or other factors.
G5 = Secure – Common; widespread and abundant.

Subspecies Level: Taxa which are subspecies or varieties receive a taxon rank (T-rank**)** attached to their G-rank. Where the G-rank reflects the condition of the entire species, the T-rank reflects the global situation of just the subspecies. For example: the Point Reyes mountain beaver, *Aplodontia rufa* ssp. *phaea* is ranked G5T2. The G-rank refers to the whole species range i.e., *Aplodontia rufa.* The T-rank refers only to the global condition of ssp. *phaea*.

State Ranking:

S1 = Critically Imperiled – Critically imperiled in the State because of extreme rarity (often 5 or fewer populations) or because of factor(s) such as very steep declines making it especially vulnerable to extirpation from the State.
S2 = Imperiled – Imperiled in the State because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the State.
S3 = Vulnerable – Vulnerable in the State due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation from the State.
S4 = Apparently Secure – Uncommon but not rare in the State; some cause for long-term concern due to declines or other factors.
S5 = Secure – Common, widespread, and abundant in the State.

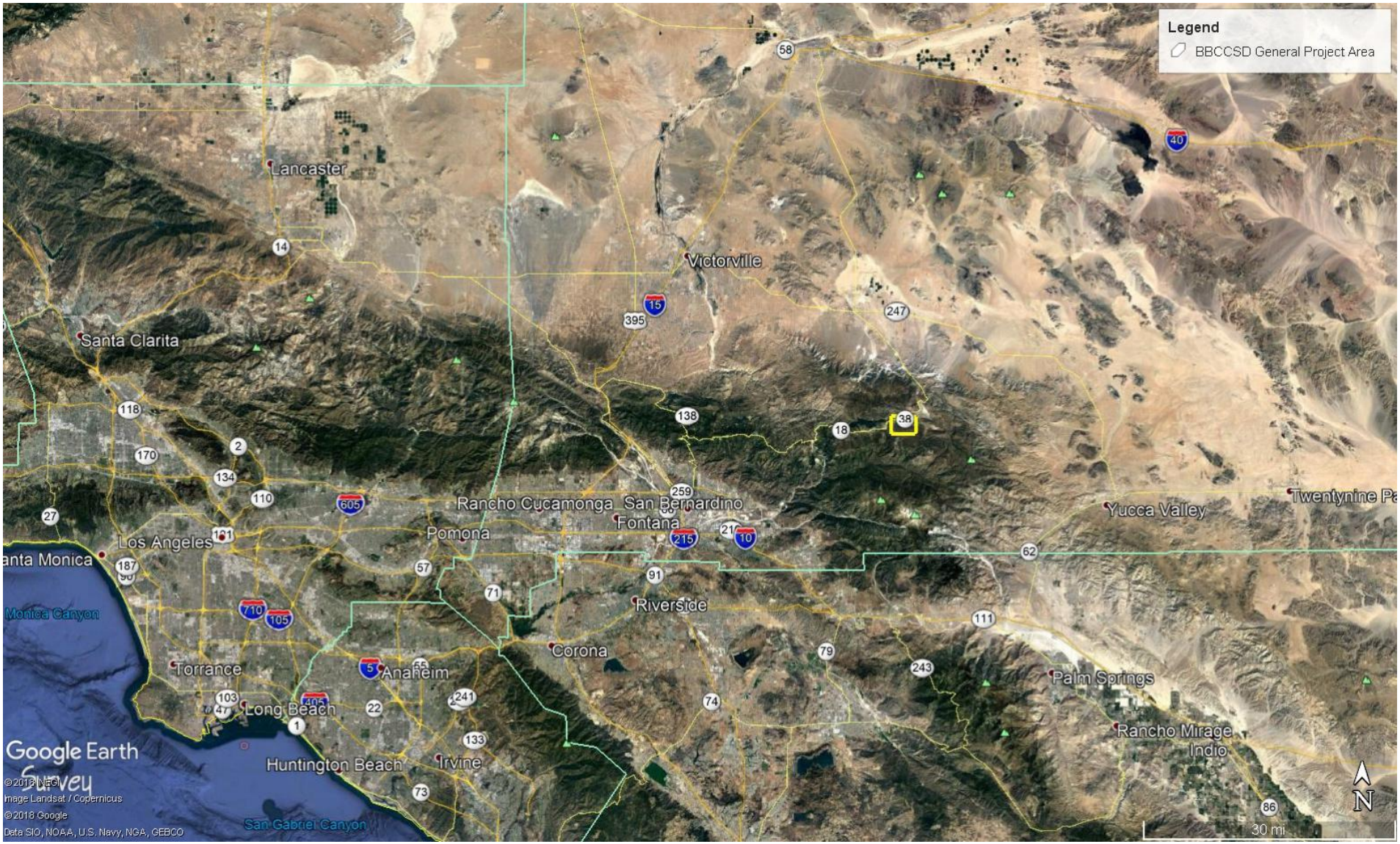
California Rare Plant Rankings (CNPS List):

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 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 (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

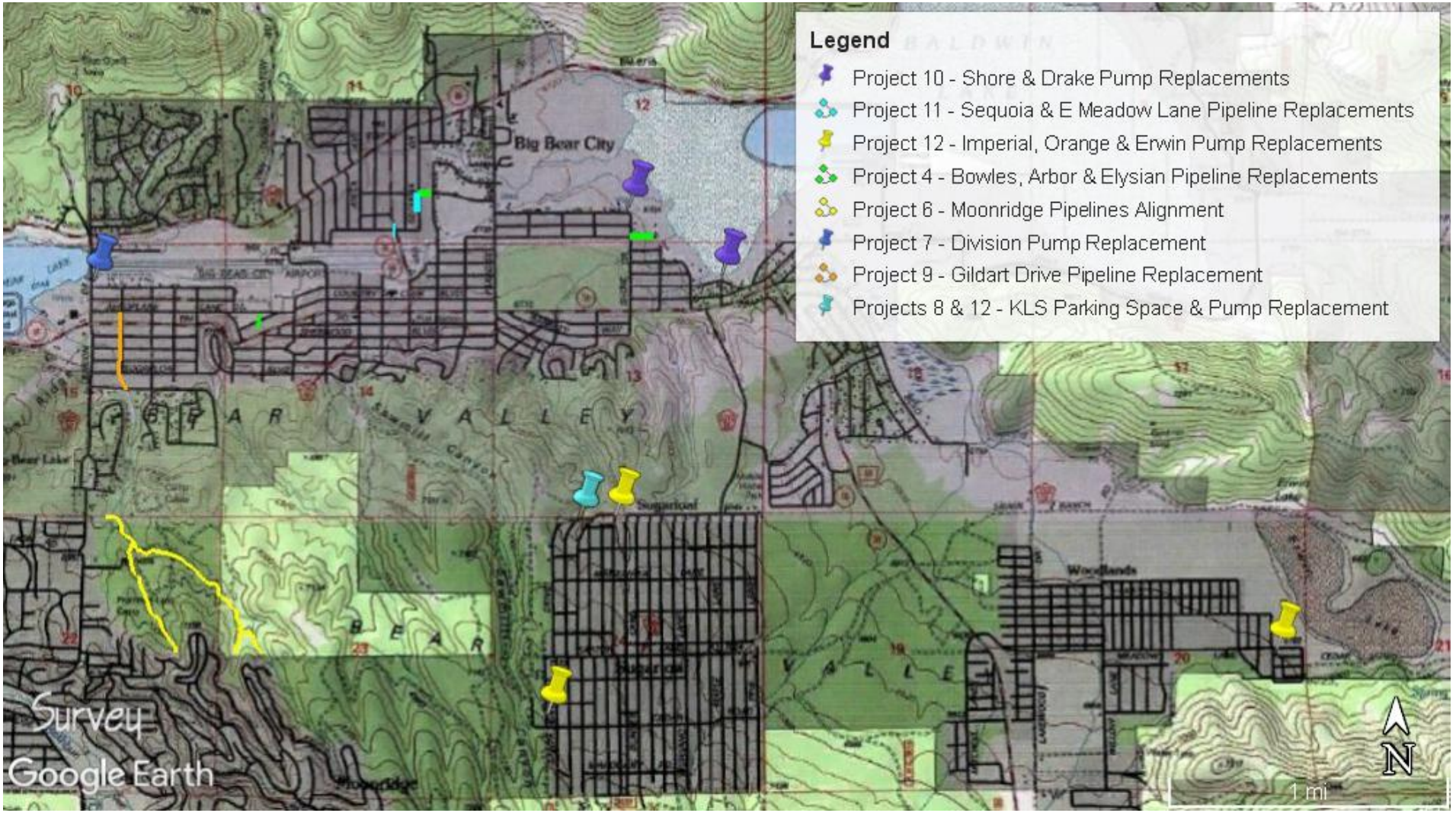
FIGURES



SOURCE: Google Earth

FIGURE 1

Regional Location

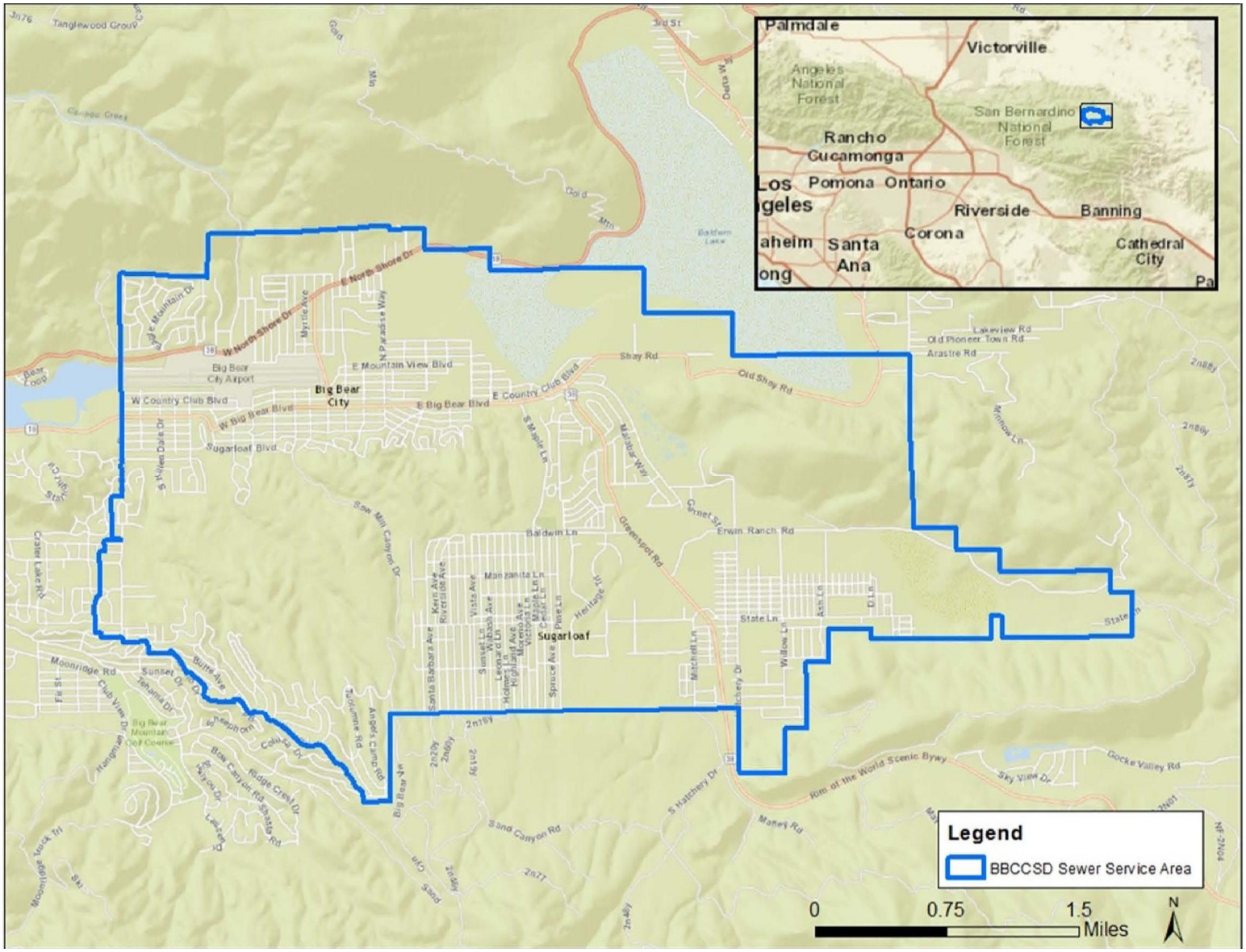


SOURCE: Google Earth

FIGURE 2

JACOBS™

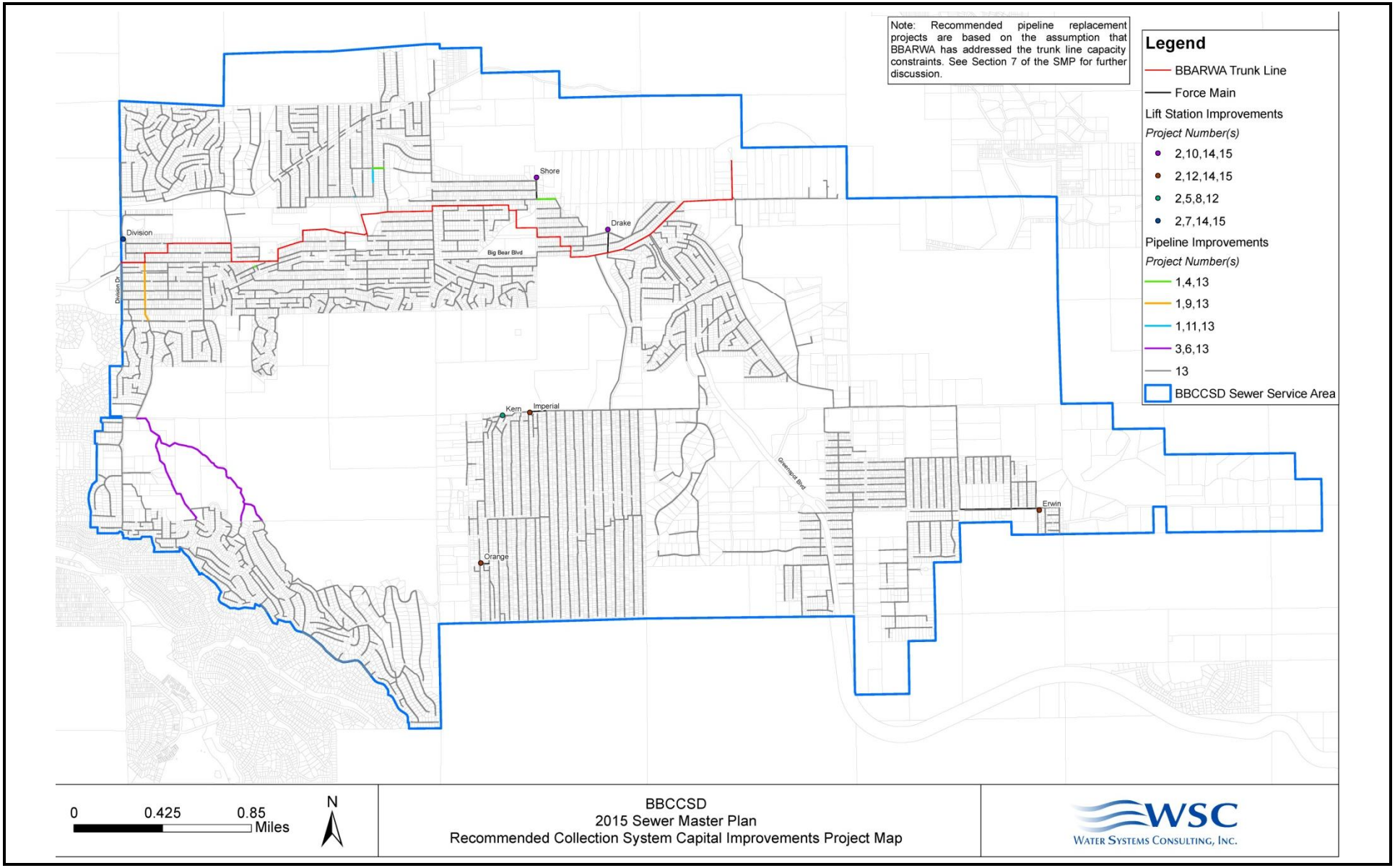
Regional Location



SOURCE: WSC, 5/5/2017, *Big Bear City Community Services District, Sewer Master Plan*

FIGURE 3

District Service Area

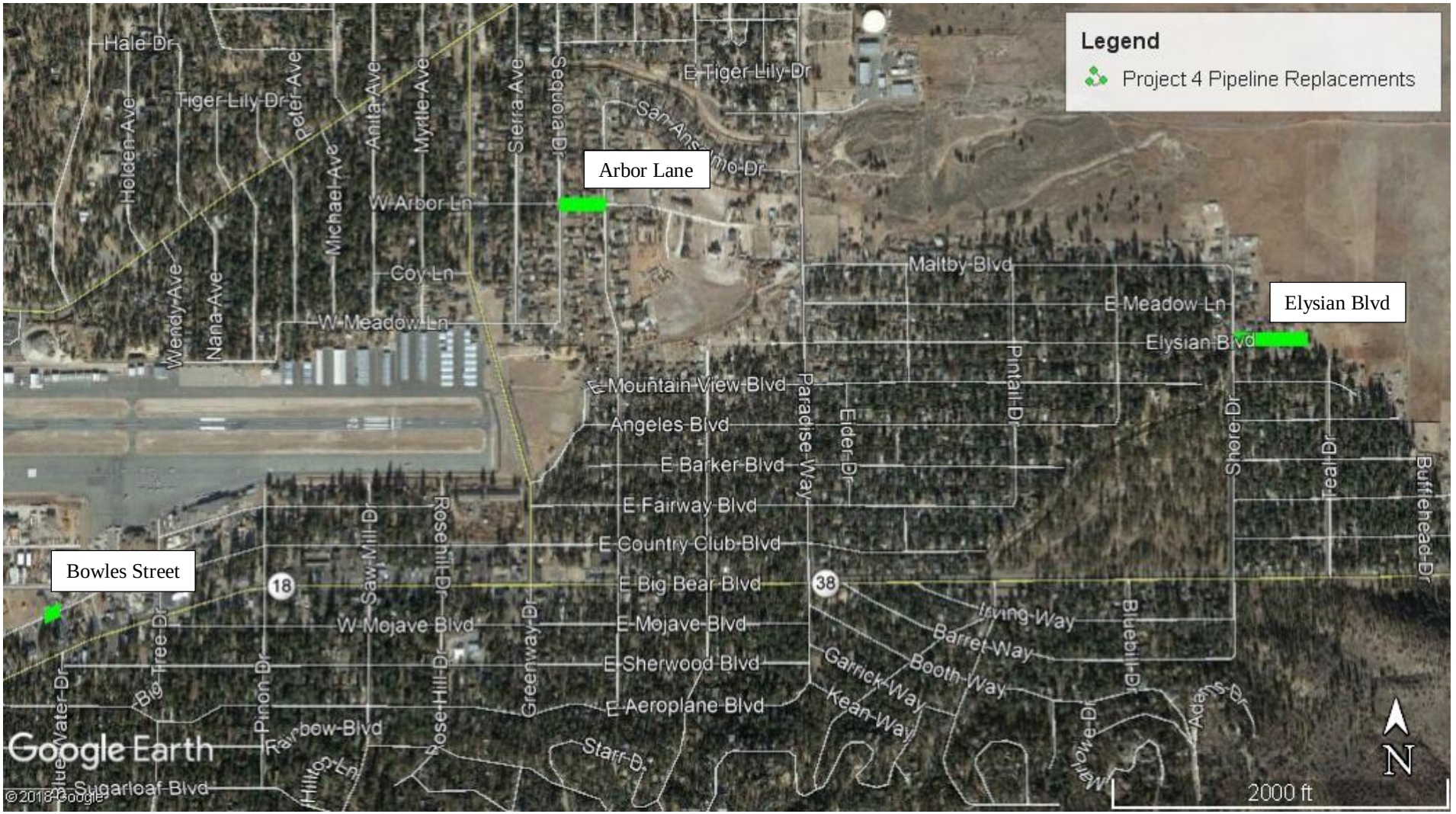


SOURCE: WSC, 5/5/2017, *Big Bear City Community Services District, Sewer Master Plan*

FIGURE 4

JACOBS™

Recommended Systems Improvements Map



SOURCE: WSC, 5/5/2017, *Big Bear City Community Services District, Sewer Master Plan* and Google Earth

FIGURE 5

JACOBS™

Project 4 Location Map

Bowles Street, Arbor Lane & Elysian Blvd. Pipeline Replacements

SOURCE: WSC, 5/5/2017, *Big Bear City Community Services District, Sewer Master Plan* and Google Earth

FIGURE 6

JACOBS™

Project 11 Location Map

Sequoia Drive & W Meadow Lane Pipeline Replacements

SOURCE: WSC, 5/5/2017, *Big Bear City Community Services District, Sewer Master Plan* and Google Earth

FIGURE 7

JACOBS™

Project 7 Location Map

Division Drive Lift Station Pump Replacement

SOURCE: WSC, 5/5/2017, *Big Bear City Community Services District, Sewer Master Plan* and Google Earth

FIGURE 8

JACOBS™

Project 10 Location Map

Shore Drive & Drake Drive Lift Station Pump Replacements

SOURCE: WSC, 5/5/2017, *Big Bear City Community Services District, Sewer Master Plan* and Google Earth

FIGURE 9

JACOBS™

Projects 8 & 12 Location Map

Kern Lift Station Parking Space & Kern, Imperial & Orange Lift Station Pump Replacements

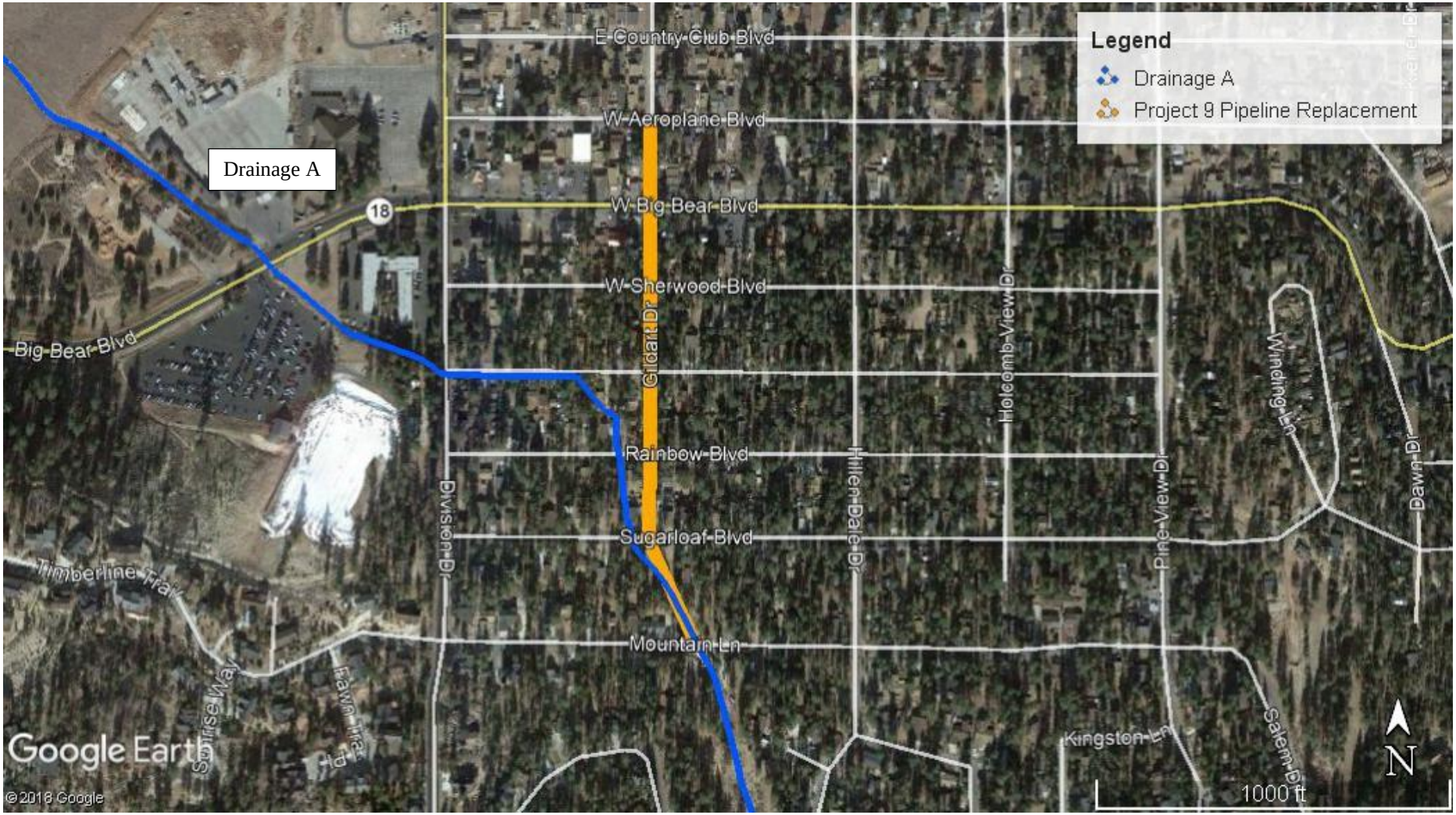
SOURCE: WSC, 5/5/2017, *Big Bear City Community Services District, Sewer Master Plan* and Google Earth

FIGURE 10

JACOBS™

Project 12 Location Map (cont.)

Erwin Lift Station Pump Replacement



SOURCE: WSC, 5/5/2017, *Big Bear City Community Services District, Sewer Master Plan* and Google Earth

FIGURE 11

JACOBS™

Project 9 Location Map

Gildart Drive Pipeline Replacement

SOURCE: WSC, 5/5/2017, *Big Bear City Community Services District, Sewer Master Plan* and Google Earth

FIGURE 12

JACOBS™

Project 6 Location Map

Moonridge Pipelines Alignment

SITE PHOTOGRAPHS

	Photo 1. Project 7 – Division Pump Replacement; looking east at existing pump house facility from N Division Drive.
	Photo 2. Project 10 – Shore Pump Replacement; aerial view of the existing pump house facility from corner of Maltby Boulevard and Shore Drive.

Photo 3. Project 10 – Drake Pump Replacement; looking north at existing pump house facility from intersection of E Fairway Boulevard and Drake Drive.

Photo 4. Project 12 – Imperial Pump Replacement; looking southeast at existing pump house facility from corner of Baldwin Lane and Imperial Avenue.

Photo 5. Project 12 – Orange Pump Replacement; looking northeast at existing pump house facility from Orange Avenue.

Photo 6. Project 12 – Erwin Pump Replacement; looking southeast at existing pump house facility from corner of State Lane and G Lane.

Photo 7. Project 12 – Kern Pump Replacement; looking northeast at existing pump house facility from Baldwin Lane.

Photo 8. Projects 12 & 8 – Kern Pump Replacement and KLSPS; looking northwest at existing pump house facility and KLSPS site from Baldwin Lane. KLSPS site in the far ground, behind the pump house.

Photo 9. Project 4 – Elysian Boulevard Pipeline Replacement; looking east along the pipeline alignment from the corner of Elysian Boulevard and Shore Drive.

Photo 10. Project 4 – Arbor Lane Pipeline Replacement; looking west along the pipeline alignment from the corner of Arbor Lane and Mt. Doble Drive.

Photo 11. Project 4 – Bowles Drive Pipeline Replacement; aerial view of the pipeline alignment from the north side of Bowles Drive.

Photo 12. Project 11 – Sequoia Drive Pipeline Replacement; looking north along the pipeline alignment from Sequoia Drive, toward the intersection of Sequoia Drive and Arbor Lane.

Photo 13. Project 9 – Gildart Drive Pipeline Replacement; looking south along the pipeline alignment from intersection of Gildart Drive and W Aeroplane Boulevard.

Photo 14. Project 9 – Gildart Drive Pipeline Replacement; looking south along the pipeline alignment from intersection of Gildart Drive and W Big Bear Boulevard.

Photo 15. Project 9 – Gildart Drive Pipeline Replacement; looking south along the pipeline alignment and Drainage A, from intersection of Gildart Drive and Sugarloaf Boulevard.

Photo 16. Project 9 – Gildart Drive Pipeline Replacement; looking north along the pipeline alignment, where the alignment overlaps Drainage A, from intersection of Gildart Drive and Mountain Lane.

Photo 17. Moonridge Pipelines alignment within arroyo willow thicket habitat in Drainage A.

Photo 18. Moonridge Pipelines alignment where it parallels Drainage A.

Photo 19. Moonridge Pipelines alignment; looking south (upstream) along alignment from within Drainage A.

Photo 20. Moonridge Pipelines alignment; looking north along alignment from west of Drainage A.

Appendix A

List of Plant Species Observed within the Project Survey Area

Scientific Name	Common Name	Life Form
Alliaceae	**Onion Family**	
Allium sp.	onion	Perennial herb
Asteraceae	**Aster Family**	
Antennaria dimorpha	gray cushion pussytoes	perennial herb
Antennaria rosea	rose pussytoes	perennial herb
Artemisia ludoviciana	mugwort	perennial herb
Artemisia tridentata	big sagebrush	shrub
Chrysothamnus viscidiflorus	sticky leaved rabbitbrush	shrub
Ericameria nauseosa	rubber rabbitbrush	shrub
Gutierrezia sarothrae	matchweed	shrub
Hulsea vestita ssp. *parryi*	Parry's hulsea	perennial herb
Lessingia glandulifera var. *glandulifera*	sticky lessingia	annual herb
Boraginaceae	**Borage Family**	
Cryptantha sp.	forget me not	annual herb
Brassicaceae	**Mustard Family**	
Caulanthus major	slender wild cabbage	perennial herb
Descurainia pinnata	yellow tansy mustard	annual herb
Erysimum capitatum	wallflower	perennial herb
Cactaceae	**Cactus Family**	
Opuntia basilaris	beavertail cactus	shrub (stem succulent)
Caryophyllaceae	**Carnation Family**	
Silene verecunda	Dolores campion	annual herb
Chenopodiaceae	**Goosefoot Family**	
Chenopodium fremontii	Fremont's goosefoot	shrub
Cupressaceae	**Cypress Family**	

Calocedrus decurrens	incense cedar	tree
Juniperus grandis	Sierra juniper	tree
Ericaceae	**Heath Family**	
Arctostaphylos sp.	manzanita	shrub
Fabaceae	**Pea Family**	
Astragalus purshii var. *lectulus*	Pursh's milk vetch	perennial herb
Lupinus sp.	lupine	perennial herb
Fagaceae	**Beech Family**	
Quercus kelloggii	black oak	tree
Liliaceae	**Lilly Family**	
Calochortus invenustus	plain mariposa lily	perennial herb
Onagraceae	**Evening Primrose Family**	
Gayophytum diffusum	spreading groundsmoke	annual herb
Oenothera californica	California evening primrose	perennial herb
Orobanchaceae	**Broomrape Family**	
Aphyllon californicum ssp. *feudgei*	California broomrape	perennial herb (parasitic)
Castilleja applegatei	pine Indian paintbrush	perennial herb
Papaveraceae	**Poppy Family**	
Argemone munita	prickly poppy	annual, perennial herb
Pinaceae	**Pine Family**	
Abies concolor	white fir	tree
Pinus jeffreyi	Jeffrey pine	tree
Pinus ponderosa	yellow pine	tree

Plantaginaceae	**Plantain family**	
Penstemon caesius	San Bernardino beardtongue	perennial herb
Poaceae	**Grass Family**	
*Bromus tectorum***	cheatgrass**	annual grass
Elymus elymoides	squirrel tail grass	perennial grass
Elymus triticoides	beardless wild rye	perennial grass
Hordeum jubatum	fox tail barley	perennial grass
*Poa pratensis***	Kentucky blue grass**	perennial grass
Poa secunda	pine blue grass	Perennial grass
Stipa occidentalis	western needlegrass	perennial grass
Polemoniaceae	**Phlox Family**	
Leptosiphon breviculus	Mojave linanthus	annual herb
Polygonaceae	**Buckwheat Family**	
Eriogonum davidsonii	Davidson buckwheat	annual herb
Eriogonum umbellatum var. *munzii*	Munz's buckwheat	perennial herb
Eriogonum wrightii var. *subscaposum*	Wright's buckwheat	perennial herb, shrub
Rhamnaceae	**Buckthorn Family**	
Ceanothus cordulatus	mountain whitethorn	shrub
Rosaceae	**Rose Family**	
Amelanchier utahensis	pale leaved serviceberry	shrub
Cercocarpus ledifolius var. *intermontanus*	curl leaf mountain mahogany	tree, shrub
Purshia tridentata var. *glandulosa*	antelope brush	shrub
Rosa californica	California wild rose	shrub
Salicaceae	**Willow Family**	
Salix lasiolepis	arroyo willow	tree, shrub

**invasive, non-native

Appendix B

Regulatory Framework

Federal Endangered Species Act (ESA)

The U.S. Fish and Wildlife Service (USFWS) administers the federal ESA of 1973. The ESA provides a legal mechanism for listing species as either threatened or endangered, and a process of protection for those species listed. Section 9 of the ESA prohibits "take" of threatened or endangered species. The term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct. "Take" can include adverse modification of habitats used by a threatened or endangered species during any portion of its life history. Under the regulations of the ESA, the USFWS may authorize "take" when it is incidental to, but not the purpose of, an otherwise lawful act. Take authorization can be obtained under Section 7 or Section 10 of the act.

California Endangered Species Act (CESA)

The CDFW, formerly Fish and Game, administers the State CESA. The State of California considers an endangered species one whose prospects of survival and reproduction are in immediate jeopardy. A threatened species is one present in such small numbers throughout its range that it is likely to become an endangered species soon, in the absence of special protection or management. And a rare species is one present in such small numbers throughout its range that it may become endangered if its present environment worsens. Rare species applies to California native plants. Further, all raptors and their nests are protected under Section 3503.5 of the California Fish and Game Code (FGC). Species that are California fully protected include those protected by special legislation for various reasons, such as the California condor. Species of Special Concern (SSC) is an informal designation used by CDFW for some declining wildlife species that are not proposed for listing as threatened or endangered. This designation does not provide legal protection, but signifies that these species are recognized as sensitive by CDFW.

Migratory Bird Treaty Act (MBTA)

Nesting birds are protected under the federal Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C 703-711). The MBTA provides protection for nesting birds that are both residents and migrants whether or not they are considered sensitive by resource agencies. The MBTA prohibits take of nearly all native birds. The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed under 50 CFR 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). The direct injury or death of a migratory bird, due to construction activities or other construction-related disturbance that causes nest abandonment, nestling abandonment, or forced fledging would be considered take under federal law. The USFWS, in coordination with the CDFW administers the MBTA. CDFW's authoritative nexus to MBTA is provided in FGC Sections 3503.5 which protects all birds of prey and their nests and FGC Section 3800 which protects all non-game birds that occur naturally in the State.

Clean Water Act (CWA)

The CWA is the principal federal law that governs pollution in the nation's lakes, rivers, and coastal waters. Originally enacted in 1972 as a series of amendments to the Federal Water Pollution Control Act of 1948, the Act was last amended in 1987. The overriding purpose of the CWA is to "restore and maintain the chemical, physical and biological integrity of the nation's waters." The statute employs a variety of regulatory and non-regulatory tools to eliminate the discharge of pollutants into the nation's waters and achieve water quality that is both "swimmable and fishable".

Under Section 404 of the CWA, the Corps has primary federal responsibility for administering regulations

that concern the discharge of dredged or fill material into WoUS (including wetlands). WoUS are defined as: "All waters used in interstate or foreign commerce; all interstate waters including interstate wetlands; all other waters such as intrastate lakes, rivers, streams (including intermittent and ephemeral streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes or natural ponds, where the use, degradation, or destruction of which could affect interstate commerce; impoundments of these waters; tributaries of these waters; or wetlands adjacent to these waters" (Section 404 of the CWA; 33 CFR 328).

The limit of the Corps jurisdiction for non-tidal waters (including non-tidal perennial and intermittent watercourses and tributaries to such watercourses) in the absence of adjacent wetlands is defined by the ordinary high water mark (OHWM). The OHWM is defined as: "The 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" (Section 404 of the CWA; 33 CFR 328). Wetlands are defined as: "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (Section 404 of the CWA; 33 CFR 328).

Porter-Cologne Water Quality Control Act (Porter-Cologne)

The Porter-Cologne Water Quality Control Act (Porter-Cologne) is the principal State law that governs water protection efforts in California. Porter-Cologne establishes the State Water Resources Control Board (SWRCB) and each of the nine Regional Water Quality Control Boards (RWQCBs) as the principal state agencies for coordinating and controlling water quality in California. The RWQCB's regulatory jurisdiction is pursuant to Section 401 of the Federal CWA. The RWQCB typically regulates discharges of dredged or fill material into WoUS. However, they also have regulatory authority over waste discharges into Waters of the State, which may be isolated, under Porter-Cologne. In the absence of a nexus with the Corps, the RWQCB requires the submittal of a Waste Discharge Requirement (WDR) application, which must include a copy of the project Storm Water Pollution Prevention Plan (SWPPP) and a copy of the project Water Quality Management Plan (WQMP), otherwise called a Standard Urban Stormwater Management Plan (SUSMP). The RWQCB's role is to ensure that disturbances in the stream channel do not cause water quality degradation.

California Fish and Game Code (FGC)

Sections 1600 to 1616 of the California FGC require any person, state, or local government agency or public utility to notify the CDFW before beginning any activity that will substantially modify a river, stream, or lake. If it is determined that the activity could substantially adversely impact an existing fish and wildlife resource, then a Lake or Streambed Alteration Agreement is required.

Like the Corps and RWQCB, the CDFW also regulates discharges of dredged or fill material. The regulatory jurisdiction of CDFW is much broader however, than Corps or RWQCB jurisdictions. CDFW regulates **all** activities that alter streams and lakes and their associated habitats. The CDFW, through provisions of the FGC Sections 1601-1603 is empowered to issue agreements for any alteration of a river, stream, or lake where fish or wildlife resources may be adversely affected. Streams (and rivers) are defined by the presence of a channel bed and banks and at least an intermittent flow of water. The CDFW typically extends the limits of their jurisdiction laterally beyond the channel banks for streams that support riparian vegetation. In these situations, the outer edge of the riparian vegetation is generally used as the lateral extent of the stream and CDFW jurisdiction. CDFW regulates wetland areas only to the extent that those wetlands are a part of a river, stream, or lake as defined by CDFW.

APPENDIX 3

CRM TECH
1016 E. Cooley Drive, Suite A/B
Colton, CA 92324

February 7, 2019

Tom Dodson, President
Tom Dodson & Associates
2150 N. Arrowhead Avenue
San Bernardino, CA 92405

Re: Cultural Resources Sensitivity Assessment
Big Bear City Community Services District Sewer Master Plan
Big Bear City Area, San Bernardino County, California
CRM TECH Contract No. 3358

Dear Mr. Dodson:

At your request, CRM TECH performed a preliminary cultural resources study for the Big Bear City Community Services District's (BBCCSD) Sewer Master Plan. The scope of the proposed master plan, or the Area of Potential Effects (APE), encompasses the approximately 11.5-square-mile BBCCSD sewer service area, located east of the Big Bear Lake reservoir and south of the seasonal Baldwin Lake, in and around the unincorporated communities of Big Bear City, Moonridge, Sugarloaf, and Erwin Lake (Figure 1). It consists of all or portions of Sections 10-15, 22-24, and 26 of T2N R1E and Sections 7, 8, 17-22, and 29 of T2N R2E, San Bernardino Baseline and Meridian (Figure 1).

The study is part of the environmental review process for the proposed project, as required by the BBCCSD in compliance with the California Environmental Quality Act (CEQA) and Section 106 of the National Historic Preservation Act. The purpose of the study is to identify any "historic properties," as defined by Section 106, "historical resource," as defined by CEQA, or potential "historic properties"/"historical resources" that may have been recorded within or adjacent to the APE and to assess the sensitivity of the APE for such properties. In order to accomplish these objectives, CRM TECH conducted a cultural resources records search, pursued geoarchaeological and historical background research, and contacted pertinent Native American representatives. This letter provides a brief summary of the methods, results, and final conclusion of these research procedures.

Records Search

The cultural resources records search was conducted on June 18, June 27, and July 11, 2018, by CRM TECH archaeologists Ben Kerridge, M.A., and Nina Gallardo, B.A, at the South Central Coastal Information Center (SCCIC), California State University, Fullerton, which is the State of California's official cultural resource records repository for the County of San Bernardino. During the records search, Kerridge and Gallardo examined maps and records on file at the SCCIC for previously identified cultural resources and existing studies within the APE or a quarter-mile radius. Previously identified cultural resources include properties designated as California Historical

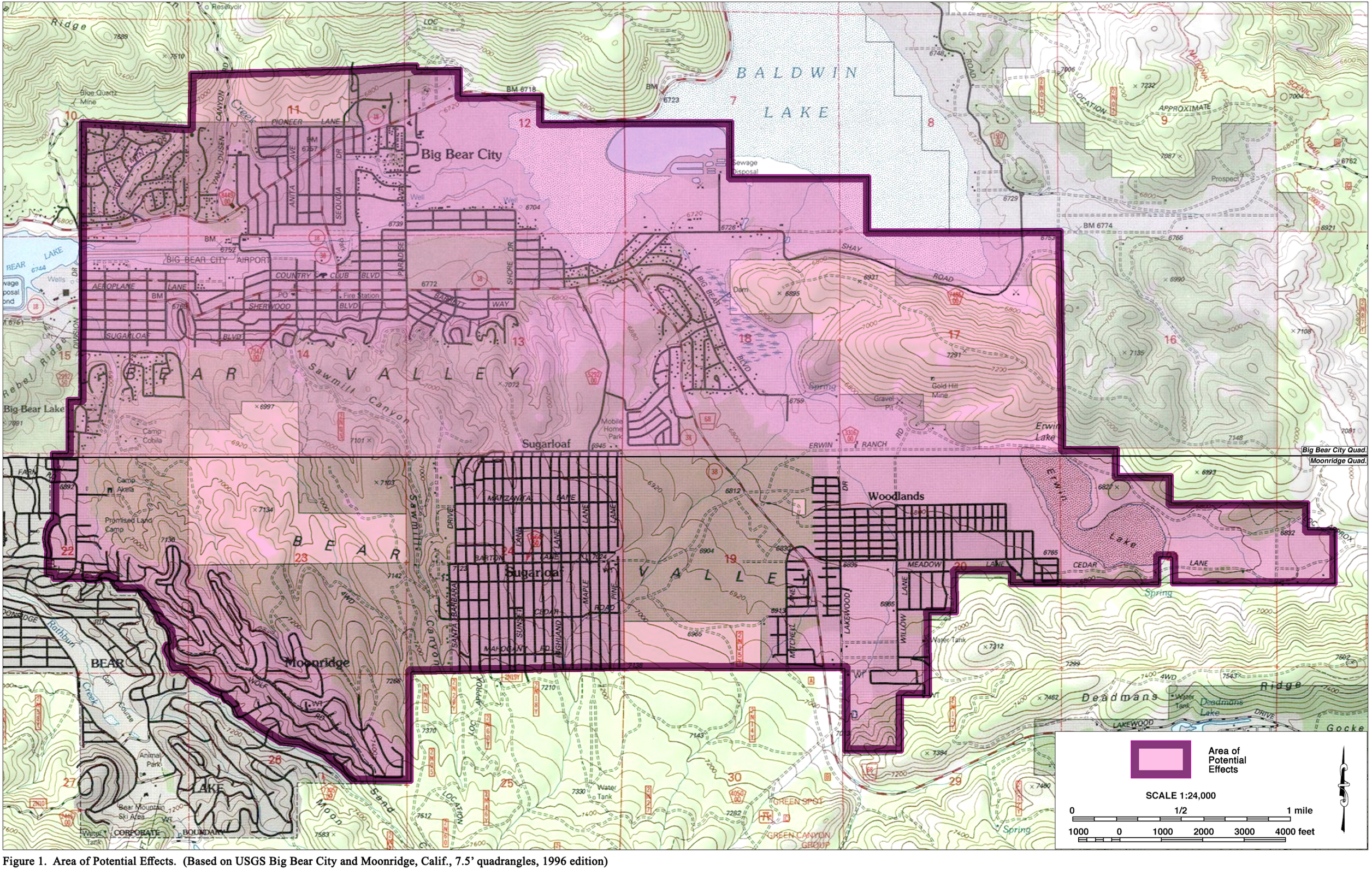


Figure 1. Area of Potential Effects. (Based on USGS Big Bear City and Moonridge, Calif., 7.5' quadrangles, 1996 edition)

Landmarks, Points of Historical Interest, or San Bernardino County Historical Landmarks, as well as those listed in the National Register of Historic Places, the California Register of Historical Resources, or the California Historical Resources Inventory.

The records search yielded at least 130 previous cultural resources studies on various portions of the APE and/or the land within the quarter-mile scope of the records search. In all, more than 80 percent of the area within the scope of the records search has been surveyed, resulting in the identification of at least 190 recorded historical/archaeological sites, five "pending" sites, and 55 isolates (i.e., localities with fewer than three artifacts).

Among these known cultural resources, 95 sites and 46 isolates are of prehistoric (i.e., Native American) origin, and at least 33 of these sites have been determined eligible for listing in the National Register of Historic Places. The sites include the former location of Native American villages, temporary campsites, bedrock milling features, lithic scatters, and ceramic scatters. Many of these are located within the boundaries of six prehistoric archaeological districts that have been delineated in or near the APE, Crystal Valley, Deadmans Ridge, Pan Hots Springs, Shay Meadow, Shay Road, and Upper Bear Valley. The prehistoric sites and isolates are generally concentrated along canyons, ridges, and lakeshores. Based on geographical features that would have been relevant in prehistoric times, these resources can be grouped into three major clusters.

The first major cluster runs from the western shore of Baldwin Lake along the south-facing slopes north of Big Bear City to the northwestern end of the APE, centered in the northern portions of Sections 10-12, T2N R1E. Some sites within the Pan Hot Springs District, especially 36-000935 (a large village site), once encroached into residential neighborhoods of Big Bear City in the east half of Section 11 and west half of Section 12. In Section 10 and the west half of 11, the Upper Bear Valley District is largely confined to areas to the north and west of the Eagle Mountain neighborhood.

The second major cluster is located south of Baldwin Lake, in the south halves of Sections 7 and 8 and the north halves of Sections 17 and 18, T2N R2E. These sites and isolates in this cluster are concentrated mainly around mountain peaks or on the slopes south of Shay Road, but also include some fairly large sites on the southeastern shore of Baldwin Lake. Some of them were considered parts of the Shay Road and Shay Meadow Districts.

The third major cluster of prehistoric sites and isolates lies to the southeast of the second cluster, concentrated around Erwin Lake and Deadmans Ridge. These sites are mostly concentrated in the southeast quarter of Section 17, the east half of Section 20, the north half of Section 21, and the west half of Section 22, T2N R2E. Altogether, this cluster consists of more than 30 resources and includes the Deadmans Ridge District and the Crystal Valley District. Some of these resources have been recorded within and adjacent to the eastern end of the Woodlands residential community, but the majority of them appear to have been found on western-facing slopes of the nearby hillsides.

The other 95 sites and 6 isolates identified within the scope of the records search date to the historic period and 34 of these sites also have been found eligible for the National Register of Historic Places. The majority of the historic-period sites consist of buildings, structural foundations, roads,

refuse deposits, mining features, and wells. A few of the more notable sites include Baldwin Lake itself, State Route 18 (Rim of the World Drive), and the Gold Hill Mine District, which comprises four sites in the south half of Section 17, T2N R2E,. The historic-period sites and isolates in or near the APE are concentrated in particular around the southern shore of Baldwin Lake, including the upland areas south of the lake, and the older residential neighborhoods in Big Bear City and Woodlands.

Geoarchaeological Profile

As part of the research procedures, CRM TECH geologist Harry M. Quinn, M.S., pursued geoarchaeological research to assess the APE's potential for the deposition and preservation of subsurface cultural deposits from the prehistoric period. Sources consulted for this purpose included primarily topographic, geologic, and soil maps and reports pertaining to the Big Bear Valley area. Findings from these sources were used to develop a geomorphologic history of the APE and address geoarchaeological sensitivity of the vertical APE.

Big Bear Lake, a reservoir created in the 1880s, was not present in prehistoric times when the Serrano people occupied the Big Bear Valley. Baldwin Lake, however, is a natural lake and, along with the streams and intermittent streams that fed and drained it, would have been a year-round water source, possibly with aquatic wildlife that would have attracted water fowl and other game.

Dibblee (2008) mapped the surface geology in the APE as **Qa**, **Qoa**, **Qof**, **Qm**, and **Sq**. **Qa** represents alluvial silt, sand, and gravel of valley areas, Holocene in age. **Qoa** is older alluvium, cobble gravel, and sand of Pleistocene age, poorly bedded to non-bedded. **Qof** is older fanglomerates of poorly sorted subrounded fragments up to three feet in diameter, poorly to well-bedded, gray in color, and Pleistocene age. **Qm** is quartz monzonite of Cretaceous age, and **Sq** is quartzite of Paleozoic age.

Based on Dibblee's observations, **Qa** is recent alluvium that would have been present on the surface when the pre-Contact Serrano were living in the Big Bear Valley. This soil type probably supported both forests and meadows, which would have been used by the aboriginal population for habitation and resource gathering, including hunting for both large and small game. These areas may contain buried deposits, especially near known habitation and resource processing sites.

Qoa and **Qof** are both Pleistocene-age sediments consisting mainly of cobble gravels and sand, with the **Qof** also containing larger boulders. The cobbles would have made good manos, pestles, and other small milling tools. Some of the larger ones, as with the boulders, could have been used for milling stations and making metates and mortars. For the most part, these soils are much more indurated than **Qa** but could still support small camp sites and resource processing stations.

Sq is mainly quartzite, which is a valuable material for making chipped-stone tools as well as bedrock milling features, portable metates, and other milling tools. Similarly, **Qm** is quartz monzonite and could also have been used for bedrock and portable milling tools. The ground surface in these areas, however, is likely too hard for substantial deposits of buried prehistoric artifacts.

Native American Input

On June 22, 2018, CRM TECH requested from the State of California Native American Heritage Commission (NAHC) a records search in the commission's Sacred Lands File (see App. 1). In response, the NAHC stated in a letter dated June 27 that the Sacred Lands File identified unspecified Native American cultural resources in the APE and referred further inquiry regarding the location and nature of such resources to the San Manuel Band of Mission Indians and the Morongo Band of Mission Indians (see App. 1). In the meantime, the NAHC provided a referral list of 11 other tribes in the region for additional contact (see App. 1).

Upon receiving the NAHC's reply, CRM TECH sent written requests for comments to the designated spokespersons of a total five local tribes. As the APE is located in the heart of the traditional homeland of the Serrano people, CRM TECH focused the consultation efforts on tribes of Serrano heritage, including San Manuel and Morongo. Additionally, the Soboba Band of Luiseño Indians, who had previously expressed interest in the San Bernardino area, was also contacted. The five tribal representatives consulted for this project are listed below:

- Alicia Benally, Cultural Resource Specialist, Morongo Band of Mission Indians;
- Donna Yocum, Chairperson, San Fernando Band of Mission Indians;
- Lee Clauss, Cultural Resources Director, San Manuel Band of Mission Indians;
- Mark Cochrane, Chairperson, Serrano Nation of Indians;
- Joseph Ontiveros, Tribal Historic Preservation Officer, Soboba Band of Luiseño Indians.

The request letters were sent to the tribal representatives on July 18, 2018, and follow-up telephone solicitations were carried out on August 3 and August 24. As of this time, two of the five tribes have responded in writing, and a third one has offered comments by telephone (see App. 1). Among them, the San Manuel Band and the Morongo Band both identified the APE as a part of their ancestral territories, with the San Manuel Band pointing out the sacredness of the area to its members, and both tribes requested further participation in project planning and tribal review of the cultural resources study. The Serrano Nation of Indians, meanwhile, requested to be notified of any Native American cultural resource discoveries during the project.

Historical Overview

A general historical background review was also completed on the APE using published literature in local history and ethnohistory, U.S. General Land Office land survey plat maps dated 1858, U.S. Geological Survey topographic maps dated 1902-1954, and aerial photographs taken in 1938-1995. The historic maps are collected at the Science Library of the University of California, Riverside, and the California Desert District of the U.S. Bureau of Land Management, located in Moreno Valley. The aerial photographs are available at the Nationwide Environmental Title Research (NETR) Online website.

According these sources, the Big Bear Valley area was home to at least two clans of the Serrano people, Yuhavetum (or Yuhaaviatam) and Pervetum, until a series of punitive expeditions in 1866-1870 resulted in the death or displacement of almost all remaining Serrano population in the San Bernardino Mountains (Strong 1929:11). It is well-documented in ethnographic literature that the

area around Baldwin Lake figures prominently in the Serrano creation story (Kroeber 1925:619; Ramos 2009). In the 1850s, the presence of an "Indian trail" across the northern portion of the APE corroborated the ethnohistorical account of the Serrano settlements in the Big Bear Valley, but no other made-made features were noted in or near the APE at the time (GLO 1858a; 1858b).

During the 1850s, the San Bernardino Mountains became the scene of a booming lumber industry as well as repeated gold "strikes," which began to transform the landscape in the Big Bear Valley (Robinson 1989: 44-51). However, the lumber mills were concentrated mainly in the western portion of the mountain range, while the gold mines were located mostly on the hillside to the north of the Big Bear Valley and in the Holcomb Valley further to the north (*ibid.*). In and near the APE, the lumber and mining industries were represented by Elias J. "Lucky" Baldwin's Gold Mountain Mine at the northern end of Baldwin Lake (about one mile from the APE), the Lakeview Mill at the western end of the lake (just outside the northern boundary of the APE), and the Gold Hill Mine on a ridge at the southern end of the lake (in the northeastern portion of the APE; USGS 1902-1954).

In the late 19th and the early 20th centuries, the Big Bear Valley was well-known as a premium summer grazing ground for sheep and cattle (Robinson 1989:85). James W. Smart's Upper IS Ranch, established in 1882 some two miles northeast of the APE, was one of the most prominent cattle ranches in the valley (*ibid.*; USGS 1902). In the meantime, the creation of Big Bear Lake, an irrigation reservoir for citrus growers in the Redlands colony "down the hill," in 1883-1884 gave rise to a tourist industry that completely altered the course and pace of growth in the valley (Atchley 1980:21-22).

After the completion of Rim of the World Drive (now State Route 18) in 1915, in particular, the unique alpine climate of the Big Bear Valley made it a popular resort destination in summer and winter alike, and further brought about a gradual land boom in residential development, starting initially with summer homes (Robinson 1989:187-189). While no major settlements were noted in the APE in 1899, by the 1940s-1950s the core residential districts of such communities as Big Bear City, Moonridge, Sugarloaf, and Erwin Lake (Woodlands) had all taken shape and hosted many buildings (USGS 1902-1954; NETR Online 1938; 1953). Since then, further residential and commercial development has continued in the APE to the modern era, but the overall distribution pattern of such development has largely remained unaltered (NETR Online 1953-1995).

Summary

In summary, more than 250 historical/archaeological resources were previously identified within the scope of the records search, with approximately 140 of them being of prehistoric origin. The existing prehistoric hunter-gatherer settlement-subsistence model developed by past studies in inland southern California suggests that long-term settlement was more likely to occur on elevated terraces, hills, and finger ridges near reliable sources of water, while valley floors were mostly used for resource procurement, traveling, and opportunistic camping during these activities. An overview-level analysis of the distribution of prehistoric cultural resources in and near the APE appears to confirm this model, with sites and isolates noticeably concentrated in elevated areas, often facing meadows and waterbodies on the valley floor. Geoarchaeological data in the APE also supports this pattern, with geomorphic features painting a picture of prehistoric archaeological sensitivity mirroring the distribution pattern of known resources in and near the APE.

The approximately 100 known historic-period resources in the APE are concentrated mostly in areas that have been developed during the early and middle parts of the 20th century, as are built-environment features, especially buildings, that are potentially more than 50 years old but are yet to be surveyed, recorded, and evaluated. The largest concentration of these is in the northwestern portion of the APE, in and around the community Big Bear City, with smaller and less dense concentrations in and around the older neighborhoods of Moonridge, Sugarloaf, and Erwin Lake. A fifth concentration around the southern shore of Baldwin Lake is notable for potential cultural remains associated with the early lumber, mining, and resort industries, including the Gold Hill Mine District, rather than buildings from the post-1910s era.

Based on the research results summarized above, CRM TECH has delineated in the APE several areas of increased sensitivity for cultural resources from the prehistoric and historic eras (Figure 2). It should be noted, however, that such broad-scale sensitivity assessment is based on an overview-level analysis of existing data to serve the need of the BBCCSD in overall project planning, and does not constitute a systematic identification and inventory of potential "historic properties"/"historical resources" for Section 106- or CEQA-compliance purposes. Once the specific boundaries have been established for a project that may affect "historic properties" or "historical resources," a standard Phase I cultural resources survey may be necessary to determined the presence or absence of such resources within or immediately adjacent to those boundaries.

Thank you for this opportunity to be of service. If you have any questions or need further information regarding the research results presented above, please do not hesitate to contact our office.

Sincerely,

Bai "Tom" Tang, M.A.
Principal, CRM TECH

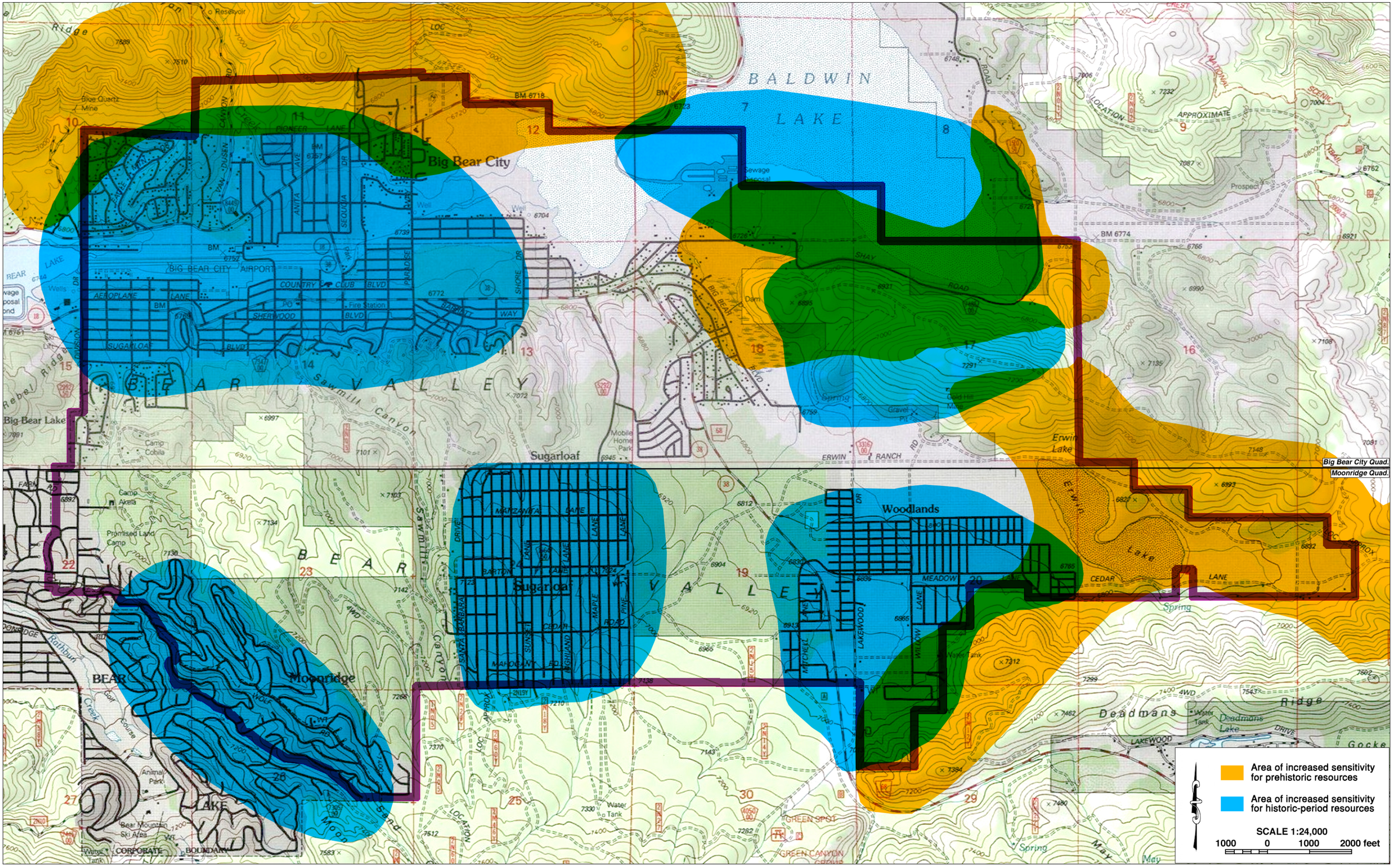


Figure 2. Cultural resource sensitivity assessment.

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1858a Plat Map: Township No. 2 North Range No. 1 East, SBBM; surveyed in 1857-1858.
1858b Plat Map: Township No. 2 North Range No. 2 East, SBBM; surveyed in 1857.

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1938-1995 Aerial photographs of the project vicinity, taken in 1938, 1953, 1969, and 1995. http://www.historicaerials.com.

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1989 *The San Bernardinos: The Mountain Country from Cajon Pass to Oak Glen, Two Centuries of Changing Use*. Big Santa Anita Historical Society, Arcadia, California.

Strong, William Duncan
1929 *Aboriginal Society in Southern California*. University of California Publications in American Archaeology and Ethnology 26. Reprinted by Malki Museum Press, Banning, Calif., 1972.

USGS (United States Geological Survey, U.S. Department of the Interior)
1902 Map: San Gorgonio, Calif. (30', 1:125,000); surveyed in 1899.
1947 Map: Lucerne Valley, Calif. (15', 1:62,500); aerial photographs taken in 1945.
1954 Map: San Gorgonio Mountain, Calif. (15', 1:62,500); aerial photographs taken in 1952, field-checked in 1954.

APPENDIX 1

CORRESPONDENCE WITH NATIVE AMERICAN REPRESENTATIVES*

(Confidential)

* Five local Native American representatives were contacted; a sample letter is included in this appendix.

SACRED LANDS FILE & NATIVE AMERICAN CONTACTS LIST REQUEST

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Boulevard, Suite 100
West Sacramento, CA 95691
(916)373-3710
(916)373-5471 (Fax)
nahc@pacbell.net

Project: Proposed Big Bear City Community Services District Sewer Master Plan (CRM TECH No. 3353A)

County: San Bernardino

USGS Quadrangle Name: Big Bear City and Moonridge, Calif. (see attached map)

Township 2 North **Range** 1 East SB **BM; Section(s)** 10-15, 22-24, and 26

Township 2 North **Range** 2 East SB **BM; Section(s)** 7, 8, 17-22, and 29

Company/Firm/Agency: CRM TECH

Contact Person: Nina Gallardo

Street Address: 1016 E. Cooley Drive, Suite A/B

City: Colton, CA **Zip:** 92324

Phone: (909) 824-6400 **Fax:** (909) 824-6405

Email: ngallardo@crmtech.us

Project Description: The components of this project including replacing some pipelines, installing monitoring devices, and replacing and upgrading other equipment. The project area encompasses approximately 11.5 square miles.

June 22, 2018

NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
1550 Harbor Blvd., ROOM 100
West SACRAMENTO, CA 95691
(916) 373-3710

June 27, 2018

Nina Gallardo
CRM TECH

Sent by E-mail: ngallardo@crmtech.us

RE: Proposed Big Bear City Community Services District Sewer Master Plan (CRM TECH No. 3353A) Project, City of Big Bear City; Big Bear City and Moonridge USGS Quadrangles, San Bernardino County, California

Dear Ms. Gallardo:

Attached is a list of tribes that have cultural and traditional affiliation to the areas of potential project effect (APE) referenced above. I suggest you contact all of those listed, if they cannot supply information, they might recommend others with specific knowledge. The list should provide a starting place to locate areas of potential adverse impact within the APE. By contacting all those on the list, your organization will be better able to respond to claims of failure to consult, as may be required under particular state statutes. If a response has not been received within two weeks of notification, the Native American Heritage Commission (NAHC) requests that you follow-up with a telephone call to ensure that the project information has been received.

THIS INFORMATION IS CONFIDENTIAL! PLEASE DO NOT INCLUDE IN PUBLIC DOCUMENTS.
A record search of the Native American Heritage Commission (NAHC) *Sacred Lands File* (SLF) was completed for the area of potential project effect (APE) for the above referenced project. Sites have been located within the APE you provided that may be impacted by the project. Please immediately contact the San Manuel Band of Mission Indians at (909) 864-8933 AND the Morongo Band of Mission Indians at (951) 849-8807 for more information.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance, we are able to assure that our lists contain current information. If you have any questions, please contact me at my email address: gayle.totton@nahc.ca.gov.

Sincerely,

Gayle Totton

Gayle Totton, M.A., PhD.
Associate Governmental Program Analyst
(916) 373-3714

Native American Heritage Commission
Native American Contact List
San Bernardino County
6/27/2018

Agua Caliente Band of Cahuilla Indians
Patricia Garcia-Plotkin, Director
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264 — Luiseno
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 — Luiseno
Phone: (760) 699 - 6800
Fax: (760) 699-6919

Augustine Band of Cahuilla Mission Indians
Amanda Vance, Chairperson
P.O. Box 846 — Cahuilla
Coachella, CA, 92236
Phone: (760) 398 - 4722
Fax: (760) 369-7161
hhaines@augustinetribe.com

Cabazon Band of Mission Indians
Doug Welmas, Chairperson
84-245 Indio Springs Parkway — Cahuilla
Indio, CA, 92203
Phone: (760) 342 - 2593
Fax: (760) 347-7880
jstapp@cabazonindians-nsn.gov

Cahuilla Band of Indians
Daniel Salgado, Chairperson
52701 U.S. Highway 371 — Cahuilla
Anza, CA, 92539
Phone: (951) 763 - 5549
Fax: (951) 763-2808
Chairman@cahuilla.net

Los Coyotes Band of Mission Indians
Shane Chapparosa, Chairperson
P.O. Box 189 — Cahuilla
Warner Springs, CA, 92086-0189
Phone: (760) 782 - 0711
Fax: (760) 782-0712
Chapparosa@msn.com

Los Coyotes Band of Mission Indians
John Perada, Environmental Director
P. O. Box 189 — Cahuilla
Warner Springs, CA, 92086
Phone: (760) 782 - 0712
Fax: (760) 782-2730

Morongo Band of Mission Indians
Denisa Torres, Cultural Resources Manager
12700 Pumarra Rroad — Cahuilla
Banning, CA, 92220 — Serrano
Phone: (951) 849 - 8807
Fax: (951) 922-8146
dtorres@morongo-nsn.gov

Morongo Band of Mission Indians
Robert Martin, Chairperson
12700 Pumarra Rroad — Cahuilla
Banning, CA, 92220 — Serrano
Phone: (951) 849 - 8807
Fax: (951) 922-8146
dtorres@morongo-nsn.gov

Ramona Band of Cahuilla Mission Indians
John Gomez, Environmental Coordinator
P. O. Box 391670 — Cahuilla
Anza, CA, 92539
Phone: (951) 763 - 4105
Fax: (951) 763-4325
jgomez@ramonatribe.com

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Big Bear City Community Services District Sewer Master Plan Project, San Bernardino County.

Native American Heritage Commission
Native American Contact List
San Bernardino County
6/27/2018

Ramona Band of Cahuilla Mission Indians
Joseph Hamilton, Chairperson
P.O. Box 391670 — Cahuilla
Anza, CA, 92539
Phone: (951) 763 - 4105
Fax: (951) 763-4325
admin@ramonatribe.com

San Fernando Band of Mission Indians
Donna Yocum, Chairperson
P.O. Box 221838 — Kitanemuk
Newhall, CA, 91322 — Serrano
Phone: (503) 539 - 0933 — Tataviam
Fax: (503) 574-3308
ddyocum@comcast.net

San Manuel Band of Mission Indians
Lee Clauss, Director of Cultural Resources
26569 Community Center Drive — Serrano
Highland, CA, 92346
Phone: (909) 864 - 8933
Fax: (909) 864-3370
lclauss@sanmanuel-nsn.gov

Santa Rosa Band of Mission Indians
Steven Estrada, Chairperson
P.O. Box 391820 — Cahuilla
Anza, CA, 92539
Phone: (951) 659 - 2700
Fax: (951) 659-2228
mflaxbeard@santarosacahuilla-nsn.gov

Serrano Nation of Mission Indians
Goldie Walker, Chairperson
P.O. Box 343 — Serrano
Patton, CA, 92369
Phone: (909) 528 - 9027

Soboba Band of Luiseno Indians
Joseph Ontiveros, Cultural Resource Department
P.O. BOX 487 — Cahuilla
San Jacinto, CA, 92581 — Luiseno
Phone: (951) 663 - 5279
Fax: (951) 654-4198
jontiveros@soboba-nsn.gov

Soboba Band of Luiseno Indians
Scott Cozart, Chairperson
P. O. Box 487 — Cahuilla
San Jacinto, CA, 92583 — Luiseno
Phone: (951) 654 - 2765
Fax: (951) 654-4198
jontiveros@soboba-nsn.gov

Torres-Martinez Desert Cahuilla Indians
Michael Mirelez, Cultural Resource Coordinator
P.O. Box 1160 — Cahuilla
Thermal, CA, 92274
Phone: (760) 399 - 0022
Fax: (760) 397-8146
mmirelez@tmdci.org

Twenty-Nine Palms Band of Mission Indians
Darrell Mike, Chairperson
46-200 Harrison Place — Chemehuevi
Coachella, CA, 92236
Phone: (760) 863 - 2444
Fax: (760) 863-2449
29chairman@29palmsbomi-nsn.gov

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

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This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Big Bear City Community Services District Sewer Master Plan Project, San Bernardino County.

July 18, 2018

Lee Clauss, Director of Cultural Resources
San Manuel Band of Mission Indians
26569 Community Center Drive
Highland, CA 92346

RE: Big Bear City Community Services District Sewer Master Plan
Big Bear City, Sugarloaf, Moonridge, and Erwin Lake, San Bernardino County, California
CRM TECH Contract #3358

Dear Ms. Clauss:

I am writing to bring your attention to an ongoing CEQA-Plus study for the proposed project referenced above, which entails improvements to the Big Bear City Community Services District (BBCCSD) sewer collection system and facilities within an approximately 11.5-square-mile area, including replacement of various pipelines, installing monitoring devices, and equipment replacement and facility upgrades. The Area of Potential Effects (APE) for the undertaking lies mostly at the locations of existing pipelines and structures within the BBCCSD, which includes Big Bear City and the adjoining communities of Sugarloaf, Moonridge, and Erwin Lake. The accompanying map, based on the USGS Big Bear City and Moonridge, Calif., 7.5' quadrangles, depict the APE in various sections within T2N R1E and T2N R2E, SBBM.

In a letter dated June 27, 2018, the Native American Heritage Commission reports that the sacred lands record search did identify Native American cultural resources within the APE that may be impacted by the undertaking and recommends that the San Manuel Band of Mission Indians and the Morongo Band of Mission Indians, as well as other local tribes, be contacted for further information (see attached). Therefore, as part of the cultural resources study for this project, I am writing to request your input on potential Native American cultural resources in or near the APE.

Please respond at your earliest convenience if you have any specific knowledge of sacred/religious sites or other sites of Native American traditional cultural value in or near the APE, or any other information to consider during the cultural resources investigations. Any information or concerns may be forwarded to CRM TECH by telephone, e-mail, facsimile, or standard mail. Requests for documentation or information we cannot provide will be forwarded to our client and/or the lead agency, namely the Big Bear City Community Services District.

We would also like to clarify that, as the cultural resources consultant for the project, CRM TECH is not involved in the AB 52-compliance process or in government-to-government consultations. The purpose of this letter is to seek any information that you may have to help us determine if there are cultural resources in or near the project area that we should be aware of and to help us assess the sensitivity of the APE. Thank you for your time and effort in addressing this important matter.

Respectfully,

Nina Gallardo
Project Archaeologist/Native American liaison
CRM TECH
Email: ngallardo@crmtech.us

Encl.: NAHC response letter and project location map

From: Jessica Mauck <JMauck@sanmanuel-nsn.gov>
Sent: Thursday, July 19, 2018 3:21 PM
To: ngallardo@crmtech.us
Subject: RE: NA Scoping Letter for the Proposed Big Bear City Community Services District Sewer Master Plan, Big Bear City, Sugarloaf, Moonridge, and Erwin Lake, San Bernardino Co (CRM TECH #3358)

Hi Nina,

Thank you for reaching out. There have been quite a few project notices coming in from the Big Bear area, but I was looking for this one. We have received some documentation from the Lead Agency (through Tom Dodson) and have elected to consult on this project given the sacredness of the area. Tribe is currently awaiting the receipt of multiple documents that are in preparation, but SMBMI's comments will likely be passed along to CRM Tech post-review of the cultural report.

Regards,

Jessica Mauck
CULTURAL RESOURCES ANALYST
O: (909) 864-8933 x3249
M: (909) 725-9054
26569 Community Center Drive, Highland California 92346

MORONGO BAND OF MISSION INDIANS
TRIBAL HISTORIC PRESERVATION OFFICE
12700 PUMARRA RD BANNING, CA 92220
OFFICE 951-755-5059 FAX 951-572-6004

Date: 8/3/2018

Re:
CRM TECH: Big Bear City Community Service Center Project

Dear,
Nina Gallardo
Project Archaeologist/Native American Liaison
CRM TECH

Thank you for contacting the Morongo Band of Mission Indians (MBMI) Cultural Heritage Department regarding the above referenced project(s). After conducting a preliminary review of the project, the tribe would like to respectfully issue the following comments and/or requests:

☐ The project is located outside of the Tribe's aboriginal territory and is not within an area considered to be a traditional use area or one in which the Tribe has cultural ties. We recommend contacting the appropriate tribe(s) who may have cultural affiliations to the project area. We have no further comments at this time.

☒ The project is located within the Tribe's aboriginal territory or in an area considered to be a traditional use area or one in which the Tribe has cultural ties. In order to further evaluate the project for potential impacts to tribal cultural resources, we would like to formally request the following:

- ☒ A thorough records search be conducted by contacting one of the California Historical Resources Information System (CHRIS) Archaeological Information Centers and a copy of the search results be provided to the tribe.
- ☒ Tribal monitor participation during the initial pedestrian field survey of the Phase I Study of the project and a copy of the results of that study. In the event the pedestrian survey has already been conducted, MBMI requests a copy of the Phase I study be provided to the tribe as soon as it can be made available.
- ☐ MBMI Tribal Cultural Resource Monitor(s) be present during all required ground disturbing activities pertaining to the project.

Please be aware that this letter is merely intended to notify your office that the tribe has received your letter requesting tribal consultation for the above mentioned project and is requesting to engage in consultation. Specific details regarding the tribe's involvement in the project must be discussed on a project by project basis during the tribal consultation process. This letter does not constitute "meaningful" tribal consultation nor does it conclude the consultation process. Under federal and state

law, “meaningful” consultation is understood to be an ongoing government-to-government process and may involve requests for additional information, phone conferences and/or face-to-face meetings.

Sincerely,

Tribal Historic Preservation Office
Morongo Band of Mission Indians
Email: thpo@morongo-nsn.gov
Phone: (951) 755-5059

TELEPHONE LOG

Name	Tribe/Affiliation	Telephone Contacts	Comments
Alicia Benally, Morongo Cultural Resource Specialist	Morongo Band of Mission Indians	11:16 am, August 3, 2018	The Morongo Tribal Historic Preservation Office responded in a letter dated August 3, 2018 (copy attached).
Donna Yocum, Chairperson	San Fernando Band of Mission Indians	12:19 pm, August 3, 2018 2:18 pm, August 24, 2018	Left voice messages; no response to date.
Lee Clauss, Director of Cultural Resources	San Manuel Band of Mission Indians	None	Jessica Mauck, Cultural Resources Analyst, responded by e-mail on July 19, 2018 (copy attached).
Mark Cochrane, Chairperson	Serrano Nation of Indians	12:24 pm, August 3, 2018	Mr. Cochrane stated that the tribe wished to be notified if any Native American cultural resources were uncovered during the project.
Joseph Ontiveros, Tribal Historic Preservation Officer	Soboba Band of Luiseño Indians	12:28 pm, August 3, 2018 2:21 pm, August 24, 2018	Left voice messages; no response to date.