S Wells PFAS Groundwater Treatment and Disinfection Facility Project

Draft Initial Study – Mitigated Negative Declaration

prepared by

Santa Clarita Valley Water Agency
26521 Summit Circle
Santa Clarita, California 91350
Contact: Orlando Moreno, P.E., Senior Engineer

prepared with the assistance of

Rincon Consultants, Inc.
250 East 1st Street, Suite 1400
Los Angeles, California 90012

November 2022

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Environmental Scientists | Planners | Engineers
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Initial Study

1. Project Title

S Wells PFAS Groundwater Treatment and Disinfection Facility Project

2. Lead Agency Name and Address

Santa Clarita Valley Water Agency
26521 Summit Circle
Santa Clarita, California 91350

3. Contact Person and Phone Number

Orlando Moreno, P.E., Senior Engineer
(661) 705-7253

4. Project Location

The project site is comprised of three existing well locations (Wells S6, S7, and S8); the proposed Well S9 and treatment/disinfection facility; three locations of proposed pipeline alignments; the location of proposed roundabout improvements, and the location of the proposed construction staging and laydown area. Each of these locations is described in detail in Table 1. See Figure 1 for a map of the regional project location and Figure 2 for a map of the project site location in a local context. Figure 3 shows site photographs of the existing site and facilities. Access to the project site is provided primarily via Bridgeport Lane.

5. Project Sponsor's Name and Address

Santa Clarita Valley Water Agency
26521 Summit Circle
Santa Clarita, California 91350

6. General Plan Designation

Specific Plan (North Valencia Specific Plan)

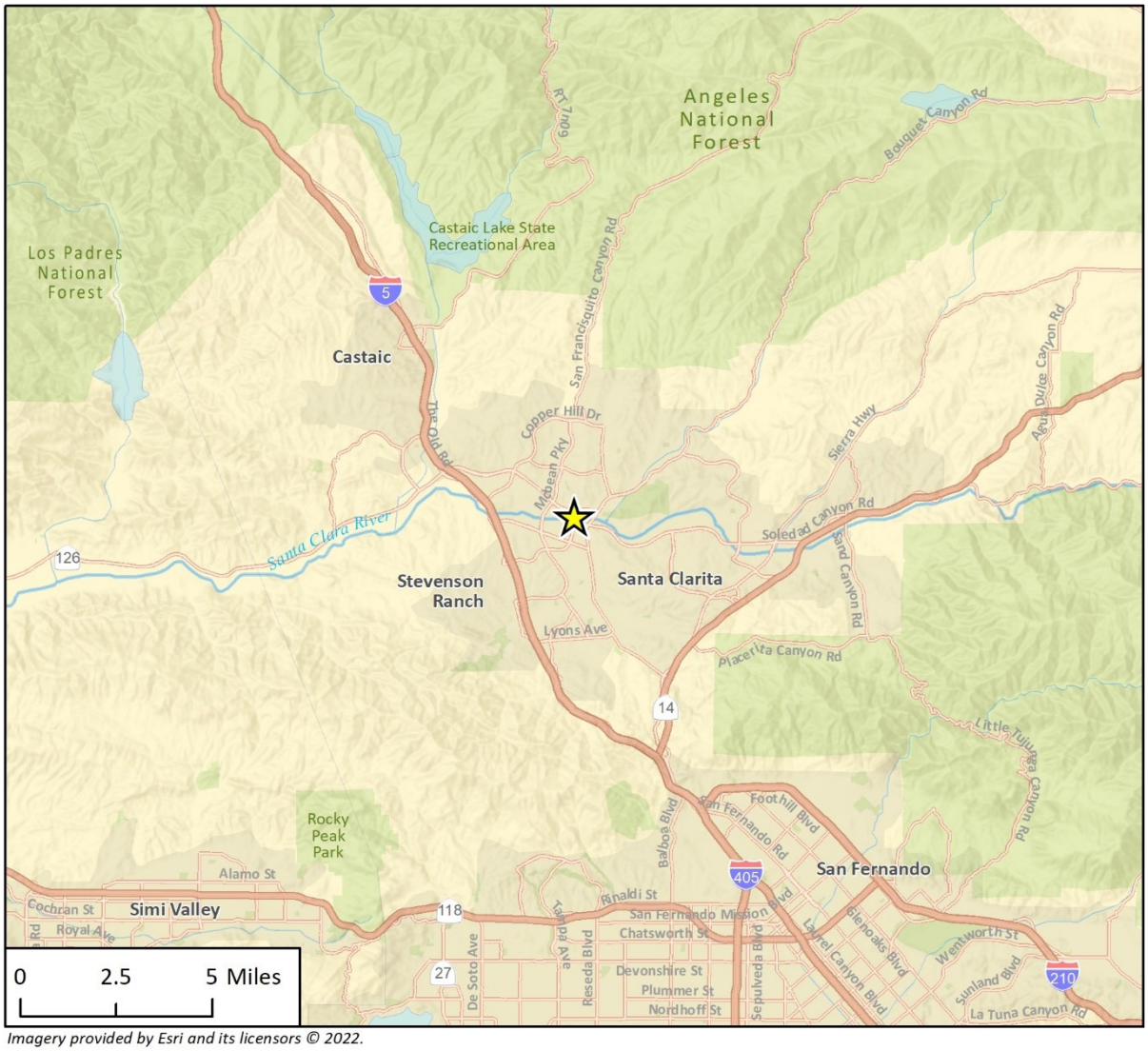
7. Zoning

Specific Plan-Open Space (North Valencia Specific Plan)

Table 1 Project Component Location Details

Project Component	Assessor's Parcel Numbers (APN)	Description
Existing Wells S6, S7, and S8	2811-073-001, 2811-065-014, and 2811-065-015	Three existing groundwater wells and appurtenant equipment sites owned by SCV Water.
New Well S9 and Treatment and Disinfection Facility	2811-065-912	A 3.26-acre parcel located along Bridgeport Lane and south of Bridgeport Park. Consists of open space land and is owned by the City of Santa Clarita.
Pipeline Interconnection Alignment	2811-071-901	An approximately 830-foot-long linear area that runs north/south through Bridgeport Lane and Bridgeport Park between the project site and the westbound lane of Newhall Ranch Road. Consists of a roadway and a grass field.
Well S8 Influent Pipeline Alignment	2811-065-015	An approximately 400-foot-long linear area that runs primarily east/west along the northern half of the existing Santa Clara River Trail from the western boundary of the project site to the existing Well S8 location. Consists of an existing multi-use bicycle and pedestrian path.
Well S7 Storm Drain Pipeline Alignment	2811-065-014	An approximately 840-foot-long linear area that runs primarily east/west along the southern half of the existing Santa Clara River Trail from a point south of the Bridgeport Lane/Bayside Lane intersection to the existing Well S7 location. Consists of an existing multi-use bicycle and pedestrian path.
Roundabout Improvements	Public right-of-way	Consists of two existing roadway roundabout features at the intersections of Parkwood Lane/Bridgeport Lane and Bayside Lane/Bridgeport Lane at the edge of a residential neighborhood.
Construction Staging and Laydown Area	2811-065-912, 2811-001-284, and 2811-066-902	Consists of undeveloped, disturbed land immediately east of the proposed site for Well S9 and treatment and disinfection facility.

Figure 1 Regional Project Location



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Project Location

N

Figure 2 Project Site Location

Figure 3 Representative Site Photographs

Photograph 1. Bridgeport Park, view from the southeast.

Photograph 2. Proposed treatment and disinfection facility site, view from the northeast.

Photograph 3. Existing S6 well enclosure, view from the west.

Photograph 4. View of Santa Clara River Trail near location of proposed Well S7 storm drain pipeline alignment, view from the west.

8. Description of Project

Background

The Santa Clarita Valley Water Agency (SCV Water) operates 3 existing wells (S6, S7 and S8) located along the north side of the Santa Clara River between McBean Parkway and Parkwood Lane within the Bridgeport community in the city of Santa Clarita. The three wells generate up to a total of 6,000 gallons per minute of potable water that is distributed to the Valencia Division service area. The wells were taken offline due to the detection of per- and polyfluoroalkyl (PFAS) substances that exceeded the State's response levels. To make up for the loss of groundwater production, SCV Water has relied on the purchase of additional imported water supplies to meet local demand.

Project Description

The S Wells PFAS Groundwater Treatment and Disinfection Facility Project (herein referred to as "proposed project" or "project") involves construction of a PFAS groundwater treatment and disinfection facility and associated pipelines. The proposed facility would restore the use of Wells S6, S7 and S8 and would reduce SCV Water's dependency on imported water. In addition, a new groundwater well (S9) and a chloramine disinfection building would be constructed. The new S9 well would produce an additional 1,000 gallons per minute of potable water that would also be filtered through the proposed PFAS treatment system before distribution to SCV Water customers. The new Well S9 would serve as a replacement for the existing Mitchell 5A Well that is being abandoned by a private developer as part of the Vista Canyon Plaza Development; therefore, the new Well S9 would not result in a net increase in SCV Water's overall annual basin-wide groundwater extraction levels.

Groundwater Treatment and Disinfection Facility and Well S9

Components of the proposed groundwater treatment and disinfection facility would include up to eight ion-exchange vessels approximately 15 feet in height, a new S9 groundwater well head, control panels, a pre-filter station, a one-story chloramine disinfection building, piping, and appurtenances. The facility would be enclosed with an up to approximately 15-foot-high decorative wall and architectural paneling to screen the treatment vessels and improvements. Vehicular access to the site would be provided by two 30-foot-wide driveways with motorized gates along Bridgeport Lane. For additional security, the pedestrian doors at the facility would be equipped with a key fob system. The project also includes installation of an underground 12-inch drainage pipeline connection between the proposed treatment and disinfection facility and the existing 30-inch drainage outlet pipeline that is located along the eastern portion of the treatment and disinfection facility location. The proposed drainage pipeline would collect and convey on-site stormwater runoff as well as groundwater produced during periodic installation and water quality testing of new resin media in the treatment vessels to the existing storm drain pipeline to the east of the site, which ultimately outlets to the Santa Clara River approximately 135 feet south of the project site. In addition, the facility may include a bench or bicycle pull-out along the Santa Clara River Trail that includes signage with information on the proposed groundwater treatment and disinfection facility.

Pipelines

The project would include the installation of three pipelines. The first pipeline would consist of approximately 850 linear feet of water pipeline that would extend from the groundwater treatment and disinfection facility north through Bridgeport Park to an interconnection with SCV Water's existing distribution system in Newhall Ranch Road. The second pipeline would consist of

approximately 400 linear feet of water pipeline installed primarily east/west immediately north of the existing Santa Clara River Trail from the western boundary of the project site to the existing Well S8 location. The pipeline would proceed west from the groundwater treatment and disinfection facility to Well S8 and would convey raw water flows from Wells S6, S7, and S8 to the proposed groundwater treatment and disinfection facility. The third pipeline would consist of approximately 840 linear feet of storm drain pipeline installed primarily east/west along the southern half of the existing Santa Clara River Trail from a point south of the Bridgeport Lane/Bayside Lane intersection to the existing Well S7 location. This pipeline would convey stormwater flows and pumped groundwater that currently sheet flow from the site to an existing 30-inch stormwater drain pipeline that ultimately outlets to the river. This discharge would be covered under SCV Water's existing Statewide General Permit for Drinking Water System Discharges to the Waters of the United States No 4DW0768. The Santa Clara River Trail would be restored to its existing condition or better upon completion of construction.

Existing Well Improvements

The project includes improvements, such as submersible pump replacement and electrical panel upgrades, at the existing Wells S6, S7, and S8. All work would be completed within the existing, fenced facility footprints for these wells in previously disturbed areas with the exception of Well S6 where minor piping improvements would be conducted in landscaped areas immediately north of the well site. No new noise-generating equipment would be installed. Shrubs and ground cover would be removed as needed during installation of these improvements, but no trees would be altered or removed. Landscaping would be replaced with new planting upon completion of construction activities.

Roundabout Improvements

The project would include street and curb improvements to two roundabouts located at the intersection of Parkwood Lane/Bridgeport Lane and Bayside Lane/Bridgeport Lane to accommodate periodic site access by large trucks during construction and various midsize delivery trucks and semitrucks during operation. The improvements would primarily consist of reducing the radius of the center circle and median bulbs at each roundabout.

Construction

Construction of the proposed project would occur between April 2024 and October 2025.[1] Construction activities would typically occur between 7:00 a.m. and 7:00 p.m., Monday through Friday. For the proposed Well S9, two, non-consecutive three-week periods of 24-hour construction activities would be required, one for initial pilot borehole drilling and testing and one for installation of final casing. Temporary construction lighting during well drilling activities would be shielded and directed downwards away from nearby residences.

The maximum depth of excavation would be nine feet for project components within the proposed groundwater treatment and disinfection facility with the exception of Well S9, which would be drilled to a depth of approximately 250 feet with a borehole up to approximately 36 inches in diameter. All pipelines outside the groundwater treatment and disinfection facility would have a maximum depth of excavation of 5.5 feet. Improvements to existing wells and the roundabout

[1] At this time, the schedule for construction of Well S9 is uncertain due to funding considerations. However, for the purposes of this analysis, it is conservatively assumed that Well S9 would be constructed simultaneously with the groundwater treatment and disinfection facility because simultaneous construction would result in higher daily air pollutant emission levels and noise levels.

would only require surficial ground disturbance, if any. Approximately 3,000 cubic yards (cy) of soil would be imported to the site, and approximately 3,500 cy of soil would be exported from the site. Soil would be transported using haul trucks with capacities of 10 cubic yards, and exported soil would be disposed of at the Chiquita Canyon Landfill or other local landfill. If temporary lane or road closures are needed during the proposed roundabout improvements, signage and traffic control measures would be implemented, including a flag person to direct traffic flows.

Temporary closure of one lane of the Santa Clara River Trail may be necessary during construction of pipelines near the trail, and this lane would be resurfaced upon completion of construction activities if damage from construction equipment occurs. In addition, in order to maintain cyclists' access and safety along the bike trail immediately south of the project site, construction fencing would be placed along the southern edge of the project site, and signage notifying trail users of ongoing construction activities would be posted along the path. In addition, to minimize impacts to users of Bridgeport Park, the construction work area through the park would be fenced, and the pipeline would be constructed in segments with any exposed trenches covered with plate when construction activities are not occurring. SCV Water would also implement the following best management practices (BMPs) during project construction activities to minimize conflicts with recreational usage of Bridgeport Park and the Santa Clara River Trail:

- Construction activities within Bridgeport Park would be limited to hours outside peak recreational hours to the extent feasible (i.e., limit work to the hours of 7:00 a.m. to 3:00 p.m. on weekdays with no work occurring on weekends).
- Overnight construction staging and materials laydown would not occur in Bridgeport Park or its parking lot.
- Construction workers would be prohibited from parking in the parking lot for Bridgeport Park.
- Residences within 1,000 feet of Bridgeport Park, residences within 1,000 feet of the segments of the Santa Clara River Trail that would be affected by project construction, Bridgeport Elementary School, and recreational sports organizations that utilize Bridgeport Park would be notified of upcoming construction activities affecting Bridgeport Park and the Santa Clara River Trail. The notification would include an approximate construction timeframe for these activities, a details on any planned closures or disruptions to recreational users, and a summary of project measures that will be implemented to protect recreational users (e.g., fencing, signage, detours).

Construction materials would be staged on a dirt lot directly east of the project site. Construction personnel would park along Bridgeport Lane and the staging area. An average of 10 to 20 construction workers would be on site on any given day. Delivery and haul trucks would access the site from Newhall Ranch Road either by using Parkwood Lane and Bridgeport Lane or by traveling along the maintenance road that runs along the eastern edge of Bridgeport Park.

Ten trees are proposed for removal to accommodate the proposed project, including one coast live oak (*Quercus agrifolia*), five London plane (*Platanus acerifolia*), and four western sycamore (*Platanus racemosa*), all of which are located at the site of the proposed groundwater treatment and disinfection facility. Minor utility relocations within the project site boundaries may be required for irrigation lines and electrical conduits that supply the irrigation controllers.

Operation and Maintenance

Under the proposed project, Wells S6, S7, and S8 would be reactivated, and the proposed S9 groundwater well would be brought online. The wells and treatment facility would operate 24 hours per day, 365 days per year. Operation of the proposed project would require approximately 2,300 to 2,700 kilowatt-hours (kWh) of electricity daily, or approximately 840 to 986 megawatt-hours (MWh) annually.[2] Approximately one to two maintenance staff would visit the project site daily. Resin media would be replaced two to three times a year, which would require the use of a semitruck for delivery. In addition, chemical deliveries to the proposed disinfection building would occur approximately twice a month via a midsize delivery truck. Maintenance vehicles would park within the proposed groundwater treatment and disinfection facility. The vessels would have a life expectancy of approximately 30 to 50 years and may be re-coated approximately every 10 years.

Lighting would be provided within the enclosed facility and would be set on a timer controlled at the entrance of the project site. Sodium hypochlorite (chlorine) and liquid ammonium sulfate would be stored at the proposed facility in a completely enclosed structure with proper containment and venting. Sodium hypochlorite is a liquid disinfection agent added to the water and is commonly referred to as "bleach." Sodium hypochlorite is not the equivalent of chlorine gas, and chlorine gas would not be used or released during project operation. The chemicals stored on site would not be considered hazardous due to low concentrations of ammonia and chlorine. However, in accordance with standard operating practice, SCV Water would submit an emergency response/contingency plan as part of a Hazardous Materials Business Plan to the California Environmental Reporting System for the proposed facility.

9. Surrounding Land Uses and Setting

Surrounding land uses in the project site vicinity include Bridgeport Elementary School to the west; Bridgeport Park to the west, east, and north; the Santa Clara River to the south; residential development to the east; and undeveloped disturbed/landscaped areas to the west and east.

10. Other Public Agencies Whose Approval is Required

SCV Water is the lead agency for this project. Because the proposed project is located in an area designated as Open Space by the North Valencia Specific Plan, the project would require a permit from the Santa Clarita City Manager prior to any vegetation removal (Santa Clarita Municipal Code Section 14.10.060). According to Government Code Section 53091, building and zoning ordinances of a county or city shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water. As such, the project would not be subject to the City's building and zoning ordinances (Santa Clarita Municipal Code Titles 17 and 18), which include the City's oak tree preservation ordinance. However, SCV Water would voluntarily comply with the City's oak tree preservation ordinance during implementation of the proposed project. SCV Water would also obtain a Parkway Tree Permit pursuant to the City's Parkway Trees Ordinance for removal of western sycamore and London plane trees.

[2] Electricity estimate based on 12-month billing period for a similar SCV Water groundwater treatment and disinfection facility for the N Wells (Moreno 2022).

Environmental Factors Potentially Affected

This project would potentially affect the environmental factors checked below, involving at least one impact that is "Potentially Significant" or "Less than Significant with Mitigation Incorporated" 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

Based on this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

■ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions to the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "less than significant with mitigation incorporated" 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.

☐ I find that although the proposed project could have a significant effect on the environment, because all potential 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.

Rick Vasilopulos	11/15/202
Signature	Date
Rick Vasilopulos	Water Resources Planner
Printed Name	Title

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Environmental Checklist

1 Aesthetics

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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 a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	■	☐
d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	☐	☐	■	☐

a. Would the project have a substantial adverse effect on a scenic vista?

According to the City of Santa Clarita's General Plan Conservation and Open Space Element, scenic vistas (termed "viewsheds") are defined by defined by physical features that frame the boundaries or context of one or more scenic resources and may include views of both natural and built environments. The City defines "scenic resources" as natural open spaces, topographic formations, and landscapes that contribute to a high level of visual quality, including lakes, rivers and streams, mountain meadows, oak woodlands, parks, trails, nature preserves, sculpture gardens, and similar features (City of Santa Clarita 2011). The project site is adjacent to the Santa Clara River, which may be considered a scenic vista under the City's General Plan. Distant views of the Santa Susana Mountains to the south are also visible from the project site vicinity.

Public views of the Santa Clara River and the Santa Susana Mountains are primarily visible to motorists on Bridgeport Lane and users of Bridgeport Park and the Santa Clara River Trail. Views of

these features seen by motorists on Bridgeport Lane and users of Bridgeport Park are limited and intermittent due to topography and intervening vegetation.

The project would not obscure the views of the Santa Clara River and Santa Susana Mountains from the Santa Clara River Trail because these features are located to the south of the trail and the proposed facilities would be located on the north side of the trail. The proposed groundwater treatment and disinfection facility would include components approximately 15 feet in height and would be enclosed with an up to approximately 15-foot-high decorative wall and architectural paneling to screen the treatment vessels and improvements along with landscaping. This project component would reduce public views of the Santa Clara River and Santa Susana Mountains as seen from Bridgeport Lane and Bridgeport Park. However, existing views of both are already limited by existing vegetation and topography. Furthermore, views of these features would remain available and readily accessible to the public from the Santa Clara River Trail, located immediately south of the proposed facilities. Other project components such as improvements to Wells S6, S7, and S8 and the roundabouts as well as installation of belowground pipelines would have no potential to interfere with scenic vistas given the change in existing conditions would be minimal upon the completion of construction. Therefore, the project would not have a substantial adverse effect on a scenic vista, and impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

According to California Department of Transportation (Caltrans), there are no officially designated State scenic highways within the vicinity of the project site (Caltrans 2018). The nearest eligible State scenic highway is State Route (SR) 2 (Angeles Crest Highway), approximately 24 miles southeast of the project site. Due to the distance between SR 2 and the project site, the project would not be visible from this highway. Therefore, no impact to scenic resources within view of a state scenic highway would occur.

NO IMPACT

c. Would the project, 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 a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

According to Public Resources Code Section 21071(a), Santa Clarita is classified as an urbanized area because its population is more than 100,000 persons (United States Census Bureau 2021). The project site is zoned as Specific Plan-Open Space (North Valencia Specific Plan). According to Government Code Section 53091, building and zoning ordinances of a county or city shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water. As such, the project would not be subject to the City's building and zoning ordinances (Santa Clarita Municipal Code Titles 17 and 18). Although the project would be required to obtain a permit from the Santa Clarita City Manager prior to any vegetation removal (Santa Clarita Municipal Code Section 14.10.060), this permit does not specifically relate to scenic quality. Therefore, the primary regulations governing scenic quality applicable to the project site are contained in the City's General Plan Conservation and Open Space Element.

The project would not alter the scenic character of local topographic features, view corridors, major water bodies, oak woodlands, coastal sage, or views from designated routes, gateways, and vista points along roadways because none are present at or near the project site. Therefore, the project would be consistent with Objectives CO 6.1 through 6.5 in the City's General Plan Conservation and Open Space Element. Furthermore, pursuant to Objective CO 6.6 and its related policies in the City's General Plan Conservation and Open Space Element, the project would not result in significant adverse impacts to the scenic environment related to lighting (discussed under threshold [d] below), air pollution (discussed in Section 3, *Air Quality*), billboards, scenic viewpoints or viewsheds (discussed under threshold [a] above), and aboveground utility lines (City of Santa Clarita 2011). Therefore, the project would not conflict with applicable zoning and other regulations governing scenic quality. Impacts would be less than significant.

Although not required under CEQA due to the project's location in an urbanized area, the following discussion on project impacts to the existing visual character and quality of public views of the project site and its surroundings is provided for informational purposes and public disclosure. Public views of the project site and its surroundings are primarily visible to motorists on Bridgeport Lane and users of Bridgeport Park and the Santa Clara River Trail. The project would change the existing visual character of the groundwater treatment and disinfection facility parcel from landscaped open space to an enclosed treatment facility. However, the proposed facility would be designed to blend with the existing landscaping and surroundings by utilizing decorative walls, architectural paneling, and landscaping to screen the facility. As noted under item (a), this project component would reduce public views of the surrounding area, which includes views of the Santa Clara River and Santa Susana Mountains as seen from Bridgeport Lane and Bridgeport Park. However, existing views of both are already limited by existing vegetation and topography. Furthermore, views of these features would remain available and readily accessible to the public from the Santa Clara River Trail, located immediately south of the proposed facilities. Other project components such as improvements to Wells S6, S7, and S8 and the roundabouts as well as installation of belowground pipelines would not alter the existing visual character and quality given the change in existing conditions would be minimal upon the completion of construction.

LESS THAN SIGNIFICANT IMPACT

d. Would the project create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?

Project construction would occur primarily during daytime hours and generally would not require the use of lighting. Nighttime lighting would be temporarily and intermittently used over the course two non-consecutive three-week periods during initial pilot borehole drilling and testing and installation of final casing. In addition, construction lighting may be required during the early morning hours in winter months. As described under, *Description of Project*, lighting would be aimed downward and directed away from residences. In addition, nighttime construction would be temporary and intermittent, lasting approximately six weeks in total. Furthermore, construction would occur near existing street lighting located along Bridgeport Lane, which already provides a source of nighttime lighting in the project site vicinity. Consequently, temporary and short-term construction lighting would not constitute a substantial new light source with the potential to adversely affect nighttime views in the area. Therefore, construction activities would not create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the vicinity of the project site. Impacts would be less than significant.

Upon completion of construction, none of the proposed project components would produce glare. Lighting would be provided within the enclosed facility and would be set on a timer controlled at the entrance of the project site. The facility would primarily be accessed during daytime hours and would rarely be accessed at night (typically only during emergency situations), at which time the lighting would be utilized. Therefore, project operation would not create a new source of substantial light or glare that would adversely affect daytime or nighttime views. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

2 Agriculture and Forestry Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on 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?	☐	☐	☐	■

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

b. Would the project conflict with existing zoning for agricultural use or a Williamson Act contract?

c. Would the project 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. Would the project result in the loss of forest land or conversion of forest land to non-forest use?

e. Would the project 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?

The project site is currently vacant and is zoned as Specific Plan-Open Space (North Valencia Specific Plan). According to the California Department of Conservation's (DOC) Farmland Mapping and Monitoring Program, the project site is designated as Urban and Built-Up Land and Other Land (DOC 2016. The project site is surrounded by Bridgeport Elementary School and open space to the west, the Santa Clara River to the south, residential development and open space to the east, and Bridgeport Park to the north. As such, the project would not convert land designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use. The project site is not zoned for agricultural use, timberland or forest land; is not under a Williamson Act Contract; and does not contain forest land. The project site is not located adjacent to farmland or forestland; therefore, the project would not lead to the conversion of these types of land to non-agricultural or non-forest uses, respectively. Therefore, no impact to agriculture and forestry resources would occur.

NO IMPACT

3 Air Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☐	■	☐

Air Quality Standards and Attainment

The project site is located within the South Coast Air Basin (SCAB), which is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east, and includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the San Gorgonio Pass area in Riverside County. The SCAB is under the regulatory jurisdiction of the South Coast Air Quality Management District (SCAQMD), which is required to monitor air pollutant levels to ensure National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) are met and, if they are not met, to develop strategies to meet the standards.

Depending on whether the standards are met or exceeded, the SCAB is classified as being in "attainment" or "nonattainment" for air quality. The SCAB is in nonattainment for the NAAQS for ozone and particulate matter 2.5 microns or less in diameter ($PM_{2.5}$) and the CAAQS for ozone, particulate matter 10 microns or less in diameter (PM_{10}), and $PM_{2.5}$. The Los Angeles County portion of the SCAB is also in nonattainment for lead (SCAQMD 2017). The SCAB is designated unclassifiable or in attainment for all other NAAQS and CAAQS. Because the SCAB currently exceeds several NAAQS and CAAQS, the SCAQMD is required to implement strategies to reduce pollutant levels to recognized acceptable standards.

Air Quality Management

Under State law, the SCAQMD is required to prepare a plan for air quality improvement for pollutants for which the SCAB is in nonattainment. The SCAQMD has adopted its 2016 Air Quality Management Plan (AQMP), which provides a strategy for the attainment of the NAAQS and CAAQS.

Each iteration of the AQMP is an update of the previous plan and has a 20-year horizon. The latest AQMP, the 2016 AQMP, was adopted on March 3, 2017. The 2016 AQMP incorporates new scientific data and notable regulatory actions that have occurred since adoption of the 2012 AQMP, including the approval of the new 8-hour ozone NAAQS of 0.070 parts per million that was finalized in 2015. The 2016 AQMP builds upon the approaches taken in the 2012 AQMP for the attainment of federal particulate matter and ozone standards and highlights the significant amount of reductions to be achieved. It emphasizes the need for interagency planning to identify additional strategies to achieve reductions within the timeframes allowed under the federal Clean Air Act, especially in the area of mobile sources. The 2016 AQMP also includes attainment demonstrations of the new 8-hour ozone NAAQS and vehicle miles travelled (VMT) emissions offsets, pursuant to recent United States Environmental Protection Agency (U.S. EPA) requirements (SCAQMD 2017).

Thresholds of Significance

The SCAQMD provides numerical thresholds to analyze the significance of a project's construction and operational impacts to regional air quality. These thresholds, which are listed in Table 2, are designed such that a project generating emissions below the thresholds would not have an individually or cumulatively significant impact to the air quality in the SCAB.

Table 2 Regional Air Quality Thresholds of Significance

	Regional Maximum Daily Thresholds (pounds/day)	
Pollutant	**Construction**	**Operation**
NO_X	100	55
VOC	75	55
PM_{10}	150	150
$PM_{2.5}$	55	55
SO_X	150	150
CO	550	550
Lead	3	3

NO_X: nitrogen oxides; VOC: volatile organic compounds; PM_{10}: particulate matter 10 microns or less in diameter; $PM_{2.5}$: particulate matter 2.5 microns or less in diameter; SO_X: sulfur oxides; CO: carbon monoxide; SCAQMD = South Coast Air Quality Management District

Source: SCAQMD 2019

In addition to the above regional significance thresholds, the SCAQMD has developed Localized Significance Thresholds (LSTs) in response to the Governing Board's Environmental Justice Enhancement Initiative (1-4), which was prepared to update the CEQA Air Quality Handbook. LSTs were devised in response to concern regarding exposure of individuals to criteria pollutants in local communities and have been developed for nitrogen oxides, carbon monoxide, PM_{10}, and $PM_{2.5}$. LSTs represent the maximum emissions from a project that will not cause or contribute to an air quality exceedance of the most stringent applicable NAAQS or CAAQS at the nearest sensitive receptor, taking into consideration ambient concentrations in each source receptor area (SRA), distance to the sensitive receptor, and project size. LSTs only apply to emissions within a fixed stationary location and are not applicable to mobile sources, such as cars on a roadway (SCAQMD 2008). According to the SCAQMD (2008a) *Final Localized Significance Thresholds Methodology*, the use of LSTs is voluntary, to be implemented at the discretion of local agencies.

The project is located within SRA 13, which covers the Santa Clarita Valley. LSTs have been developed for emissions within construction areas up to five acres in size. The SCAQMD provides lookup tables for sites that measure up to one, two, or five acres. The total footprint of the proposed project site is approximately 2.9 acres. Pursuant to SCAQMD guidance, the LSTs for a two-acre site were used to provide a conservative estimate of project impacts.

LSTs are provided for receptors at a distance of 82 to 1,640 feet (25 to 500 meters) from the project site boundary. The sensitive receptors closest to the project site are residences approximately 40 feet, or approximately six meters, to the north of the proposed roundabout improvements area. This analysis conservatively uses LSTs for sensitive receptors at a distance of 25 meters. LSTs for construction in SRA 13 on a two-acre site at a distance of 25 meters from sensitive receptors are shown in Table 3.

Table 3 SCAQMD LSTs for Construction

Pollutant	LSTs for a 2-acre Site in SRA 13 for a Receptor within 25 Meters (pounds/day)
Gradual conversion of NO_x to NO_2	163
CO	877
PM_{10}	6
$PM_{2.5}$	4

LST: Localized Significance Threshold; SRA: Source Receptor Area; NO_X: nitrogen oxides; NO_2: nitrogen dioxide; PM_{10}: particulate matter 10 microns or less in diameter; $PM_{2.5}$: particulate matter 2.5 microns or less in diameter; CO: carbon monoxide; SCAQMD = South Coast Air Quality Management District

Source: SCAQMD 2009

Applicable SCAQMD Rules and Regulations

The following SCAQMD rules and regulations would be applicable to the proposed project:

- **Rule 403 (Fugitive Dust).** Rule 403 requires the implementation of best available dust control measures during active operations capable of generating fugitive dust.
- **Rule 1113 (Architectural Coatings).** Rule 1113 limits the volatile organic compound content of architectural coatings.

Methodology

Air pollutant emissions generated by project construction and operation were estimated using the California Emissions Estimator Model (CalEEMod), version 2020.4.0. CalEEMod uses project-specific information, including the project's land uses, square footages for different uses, and location, to model a project's construction and operational emissions. The analysis reflects the construction and operation of the project as described under *Description of Project*.

Construction emissions modeled include emissions generated by construction equipment used on-site and emissions generated by vehicle trips associated with construction, such as worker and vendor trips. CalEEMod estimates construction emissions by multiplying the amount of time equipment is in operation by emission factors. Construction of the proposed project was analyzed based on the construction schedule and construction equipment list provided by SCV Water staff. It is assumed all construction equipment would be diesel-powered. An average of 10 to 20 construction workers would be on site daily. This analysis assumes the project would comply with all

applicable regulatory standards. In particular, the project would comply with SCAQMD Rule 403 (Fugitive Dust).

Operational emissions modeled include area source emissions and mobile source emissions (i.e., vehicle emissions).[3] Area source emissions are generated by landscape maintenance equipment, consumer products, and architectural coatings. Mobile source emissions are generated by vehicle trips to and from the project site. For the air quality analysis, it was assumed maximum daily emissions would be generated on a day during which the two daily SCV Water operator visits, semi-monthly chemical deliveries, and tri-annual resin replacement visit coincide, which would equate to 8 roundtrip vehicle trips. In this scenario of maximum daily trips, approximately 50 percent of trips would be made using a light-duty truck (the SCV Water operator visits), approximately 25 percent of trips would be made using a medium-duty truck (the chemical delivery visit), and approximately 25 percent of trips would be made using a semitruck (the resin replacement visit). It is unlikely that this scenario of maximum daily trips would occur; however, it is used in this analysis to provide a conservative estimate of project impacts.

a. Would the project conflict with or obstruct implementation of the applicable air quality plan?

A project may be inconsistent with the AQMP if it would generate population, housing, or employment growth exceeding the forecasts used in the development of the AQMP. The project does not include new housing or businesses. Although project operation may require one to two new SCV Water employees, these employees would likely be sourced from the existing regional workforce given the nature of the employment opportunities. Furthermore, the proposed facility would restore the use of Wells S6, S7 and S8, and the new S9 well would serve as a replacement for the existing Mitchell 5A Well that is being abandoned by a private developer as part of the Vista Canyon Plaza Development. The purpose of the proposed project is to reduce SCV Water's dependence on imported water supplies by restoring its groundwater production capacity. The proposed project would not result in an increase in SCV Water's basin-wide groundwater pumping as compared to baseline conditions when Wells S6, S7, S8, and the Mitchell 5A well were operational; thus, the project would not provide an additional source of water supply to serve new population growth. Therefore, the project would not directly or indirectly generate population, housing, or employment growth in exceedance of the demographic forecasts underlying the emissions estimates included the SCAQMD 2016 AQMP. As a result, the project would not conflict with or obstruct implementation of the AQMP. No impact would occur.

NO IMPACT

b. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

The SCAB is designated nonattainment for the NAAQS for ozone and $PM_{2.5}$ and the CAAQS for ozone, PM_{10}, and $PM_{2.5}$. The following subsections discuss criteria pollutant emissions associated with construction and operation of the proposed project.

[3] CalEEMod only calculates direct emissions of criteria pollutants from energy sources that combust on site, such as natural gas used in a building (California Air Pollution Control Officers Association 2021). The project would not include natural gas usage. In addition, CalEEMod does not calculate or attribute emissions of criteria pollutants from electricity generation to individual projects because fossil fuel power plants are existing stationary sources permitted by air districts and/or the U.S. EPA, and they are subject to local, state and federal control measures. Criteria pollutant emissions from power plants are associated with the power plants themselves, and not individual projects or electricity users. Therefore, air pollutant emissions from energy usage were not quantified (California Air Pollution Control Officers Association 2021).

Construction Emissions

Project construction would generate temporary air pollutant emissions associated with fugitive dust (PM_{10} and $PM_{2.5}$) and exhaust emissions from heavy construction equipment and construction vehicles. Table 4 summarizes the estimated maximum daily emissions of pollutants during project construction. As shown therein, construction-related emissions would not exceed SCAQMD regional or localized significance thresholds. Therefore, project construction would not 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. Impacts would be less than significant.

Table 4 Construction Emissions (pounds/day)

	Emissions (pounds per day)					
Construction Year	**VOC**	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
2024	3	26	32	< 1	5	2
2025	1	12	14	< 1	1	< 1
Total Maximum Daily Emissions	**3**	**26**	**32**	**< 1**	**5**	**2**
SCAQMD Regional Thresholds	75	100	550	150	150	55
Threshold Exceeded?	No	No	No	No	No	No
Maximum Daily On-site Emissions	**3**	**25**	**29**	**< 1**	**4**	**2**
SCAQMD Localized Significance Thresholds	N/A	163	877	N/A	6	4
Threshold Exceeded?	N/A	No	No	N/A	No	No

VOC = volatile organic compounds; NO_x = nitrogen oxides; CO = carbon monoxide; SO_2 = sulfur oxides; PM_{10}: particulate matter 10 microns or less in diameter; $PM_{2.5}$: particulate matter 2.5 microns or less in diameter
Notes: Some numbers may not add up precisely due to rounding. Maximum on-site emissions are the highest emissions that would occur on the project site from on-site sources, such as heavy construction equipment and architectural coatings, and excludes off-site emissions from sources such as construction worker vehicle trips and haul truck trips. All emissions were estimated using CalEEMod. See Appendix B for CalEEMod output files.

Operational Emissions

The primary source of operational emissions associated with the proposed project would be daily vehicle trips by staff for maintenance activities (i.e., mobile sources). Other sources would include landscape maintenance and the off-gassing of coatings used for paved surfaces (i.e., area sources). Table 5 summarizes maximum daily pollutant emissions during operation of the project.

Table 5 Operational Emissions

	Estimated Maximum Daily Emissions (pounds/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Area	< 1	< 1	< 1	< 1	< 1	< 1
Mobile	< 1	< 1	< 1	< 1	< 1	< 1
Total	**< 1**	**< 1**	**< 1**	**< 1**	**< 1**	**< 1**
SCAQMD Thresholds	55	55	550	150	150	55
Threshold Exceeded?	n/a	No	No	n/a	No	No

VOC: volatile organic compounds; NO_X: nitrogen oxides; CO: carbon monoxide; SO_X: sulfur oxides; PM_{10}: particulate matter 10 microns or less in diameter; $PM_{2.5}$: particulate matter 2.5 microns or less in diameter; SCAQMD: South Coast Air Quality Management District

See Appendix A for modeling results.

Notes: Emissions presented are the highest of the winter and summer modeled emissions. Numbers may not add up due to rounding.

As shown in Table 5, operational emissions from the proposed project would not exceed the SCAQMD thresholds for any criteria pollutant. Therefore, project operation would not result in a cumulatively considerable net increase of any criteria pollutant for which the SCAB is non-attainment under an applicable NAAQS or CAAQS. In addition, the sodium hypochlorite and liquid ammonium sulfate stored on site would be completely enclosed with proper containment and venting, and their usage would not result in criteria air pollutant emissions. Operational impacts associated with criteria air pollutant emissions would be less than significant.

LESS THAN SIGNIFICANT IMPACT

c. Would the project expose sensitive receptors to substantial pollutant concentrations?

Certain population groups, such as children, the elderly, and people with health problems, are particularly sensitive to air pollution. Sensitive receptors are defined as land uses that are more likely to be used by these population groups and include health care facilities, retirement homes, school and playground facilities, and residential areas. The project site is located adjacent to multiple residential neighborhoods and Bridgeport Elementary School. However, as discussed under item (b) above, the project's construction and operational emissions of criteria air pollutants would not exceed the SCAQMD regional thresholds or LSTs, which are designed to be protective of public health as it relates to criteria air pollutant emissions.

The following subsections discuss the potential for the proposed project to expose sensitive receptors to substantial concentrations of carbon monoxide and toxic air contaminants (TACs).

Carbon Monoxide Hotspots

A carbon monoxide hotspot is a localized concentration of carbon monoxide that is above the state one-hour or eight-hour standards of 20.0 parts per million and 9.0 parts per million, respectively. Localized carbon monoxide hotspots generally occur at intersections with heavy peak hour traffic. Specifically, hotspots can be created at intersections where traffic volumes are high and there is heavy congestion. The entire SCAB is a federal carbon monoxide maintenance area. The closest carbon monoxide monitoring station to the project site is the U.S. EPA monitoring station located at 22224 Placerita Canyon Road in Santa Clarita. In 2021, the Santa Clarita monitoring station detected a maximum eight-hour maximum carbon monoxide concentration of 0.6 parts per million, which is substantially below the state and federal eight-hour standard of 9.0 parts per million (U.S. EPA 2022a).

As shown in Table 4, project construction would generate maximum daily carbon monoxide emissions of approximately 28 pounds per day, which is well below the SCAQMD regional threshold of 550 pounds per day. In addition, maximum daily on-site carbon monoxide emissions during construction activities would be approximately 26 pounds per day, which is well below the LST threshold of 877 pounds per day. Additionally, as shown in Table 5, project operation would generate operational maximum daily carbon monoxide emissions of less than one pound per day, which is well below the SCAQMD regional threshold of 550 pounds. Both SCAQMD regional thresholds and LSTs are designed to be protective of public health. Based on the low background level of carbon monoxide in the project area, ever-improving vehicle emissions standards for new cars in accordance with state and federal regulations, and the project's low level of operational carbon monoxide emissions, the project would not create new hotspots or contribute substantially to existing hotspots. Therefore, the project would not expose sensitive receptors to substantial carbon monoxide concentrations, and impacts would be less than significant.

Toxic Air Contaminants

TACs are a diverse group of air pollutants that may cause or contribute to an increase in deaths or serious illness or that may pose a present or potential hazard to human health. TACs include both organic and inorganic chemical substances that may be emitted from a variety of common sources, including gasoline stations, motor vehicles, dry cleaners, industrial operations, painting operations, and research and teaching facilities. TACs are different than the criteria pollutants previously discussed because ambient air quality standards have not been established for TACs. TACs occurring at extremely low levels may still cause health effects, and it is typically difficult to identify levels of exposure that do not produce adverse health effects. TAC impacts are described by carcinogenic risk and by chronic (i.e., of long duration) and acute (i.e., severe but of short duration) adverse effects on human health.

Project construction is expected to occur over an approximately 18-month period and would result in the generation of diesel particulate matter (DPM) emissions from the use of off-road diesel equipment required for site grading and excavation, paving, and other construction activities as well as from on-road diesel equipment used to bring materials to and from the project site. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of individual cancer risk. "Individual Cancer Risk" is the likelihood a person continuously exposed to concentrations of TACs over a 70-year lifetime will contract cancer based on the use of standard risk assessment methodology. SCAQMD CEQA guidance does not require preparation of a health risk assessment for short-term construction emissions. Therefore, it is not necessary to evaluate long-term cancer impacts from construction activities that occur over a relatively short duration. In addition, there would be no residual emissions or corresponding individual cancer risk after construction is complete. Furthermore, with ongoing implementation of U.S. EPA and California Air Resources Board (CARB) requirements for cleaner fuels, off-road diesel engine retrofits, and new, low-emission diesel engine types, DPM emissions from construction equipment would be substantially reduced as compared to uncontrolled emissions. Therefore, project construction would not expose sensitive receptors to substantial concentrations of TACs, and impacts would be less than significant.

CARB's (2005) *Air Quality and Land Use Handbook: A Community Health Perspective* provides recommendations regarding the siting of new sensitive land uses near potential sources of air toxic emissions (e.g., freeways, distribution centers, rail yards, ports, refineries, chrome plating facilities, dry cleaners, and gasoline dispensing facilities). SCAQMD adopted similar recommendations in its

Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning (2005). The proposed project includes water treatment facilities, which are not identified as a land use emitting substantial TAC concentrations. The project does not include any stationary sources of TAC emissions, such as back-up generators. Although project operation would require occasional deliveries of chemicals twice a month and resin replacement media two to three times a year, the use of diesel-fueled trucks for these activities would not represent a source of substantial TAC emissions given the limited and infrequent nature of these vehicle trips. Furthermore, truck drivers would be required to comply with the provisions of California Code of Regulations Title 13 Section 2485, which prohibits diesel-fueled commercial motor vehicles from idling for more than five minutes and would minimize on-site TAC emissions. Therefore, project operation would not expose sensitive receptors to substantial concentrations of TACs, and operational impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

d. Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

During construction, the project would generate oil and diesel fuel odors from use of heavy equipment as well as odors related to asphalt paving. The odors would be limited to the construction period, would be temporary, and would dissipate rapidly with distance. Therefore, project construction would not result in other emissions, such as those leading to odors, adversely affecting a substantial number of people. Impacts would be less than significant.

The SCAQMD (1993) *CEQA Air Quality Handbook* identifies land uses associated with odor complaints to be agricultural uses, wastewater treatment plants, chemical and food processing plants, composting, refineries, landfills, dairies, and fiberglass molding. The proposed project does not consist of any of these land uses known to generate odors. In addition, the proposed water treatment process would be fully enclosed and would not include components generating odors. Therefore, project operation would not result in other emissions, such as those leading to odors, adversely affecting a substantial number of people. No impact would occur.

LESS THAN SIGNIFICANT IMPACT

4 Biological Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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, or 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?	☐	☐	☐	■

Regulatory authority over biological resources is shared by federal, State, and local authorities under a variety of statutes and guidelines. Primary authority for general biological resources lies within the land use control and planning authority of local jurisdictions (in this instance, the City of Santa Clarita). The California Department of Fish and Wildlife (CDFW) is a trustee agency for biological resources throughout the State under CEQA and also has direct jurisdiction under the California Fish and Game Code (CFGC). Under the California and federal Endangered Species Acts, CDFW and the United States Fish and Wildlife Service (USFWS) also have direct regulatory authority over species formally listed as threatened or endangered and species protected by the Migratory Bird Treaty Act (MBTA).

The following analysis is based primarily on the Biological Resources Assessment (BRA) prepared for the project by Rincon Consultants, Inc. (Rincon), which is included as Appendix B. For the purposes of this analysis, the Study Area is comprised of project site as well as a 100-foot buffer around those features in order to capture potential direct and indirect impacts to biological resources. As part of the BRA, Rincon conducted a field reconnaissance survey of the Study Area in February and August 2022.

a. Would the project 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?

Special status species are defined as those plants and animals that are:

- Species listed as threatened or endangered under the Federal Endangered Species Act (FESA); species that are under review may be included if there is a reasonable expectation of listing within the life of the project;
- Species listed as candidate, rare, threatened, or endangered under the California Endangered Species Act (CESA) or Native Plant Protection Act;
- Species designated as Fully Protected, Species of Special Concern, or Watch List by the CFGC or CDFW;
- Species designated as locally important by the City and/or otherwise protected through ordinance or local policy; and/or
- Plants occurring on lists 1 through 4 of the California Native Plant Society (CNPS) California Rare Plant Rank system.

Special Status Plant Species

Thirty-nine special status plant species were identified within a nine-quadrangle database search of the project site. Of these, 16 special status plant species have a low potential to occur in the coastal scrub (California sagebrush scrub and scale broom scrub) habitat within the southern portion of the project site, located outside the limits of the project footprint. The remaining 23 species are not expected to occur within the project site based on the lack of suitable habitat and the non-detection of special status plant species during field reconnaissance surveys. Implementation of the project would result in impacts to the developed, disturbed, or ornamental land cover types that do not provide suitable habitat for special status plant species (Appendix B). Therefore, no impacts to special status plant species would occur.

Special Status Wildlife Species

Suitable habitat for California legless lizard, coastal whiptail, coast horned lizard, and San Diego black-tailed jackrabbit species only occurs within the bed and banks of the Santa Clara River, as well as within the coastal scrub vegetation (i.e., California sagebrush scrub, scale broom scrub) beyond the top of bank of the Santa Clara River. These areas are outside the project footprint and would not be directly affected. Therefore, direct impacts to California legless lizard, coastal whiptail, coast horned lizard, and San Diego black-tailed jackrabbit would not occur. However, if individuals are present during project construction, potential indirect impacts could result from noise, vibrations, and dust, which could cause individuals to flush out of cover and become exposed to predators or vehicle strikes. Therefore, implementation of Mitigation Measures BIO-1 and BIO-2 would be required to reduce indirect impacts to California legless lizard, coastal whiptail, coast horned lizard, and San Diego black-tailed jackrabbit to a less-than-significant level.

Direct impacts to aquatic and semi-aquatic species, including arroyo toad and western pond turtle, would not occur because ground disturbance would not occur within the riparian corridor of the Santa Clara River and instead would be confined to the developed, ornamental, and disturbed land cover types to the north of the Santa Clara River that do not provide suitable habitat for these species. However, potentially significant indirect impacts to special status wildlife species may occur as a result of groundwater extraction via the existing Wells S6, S7, and S8 and the new Well S9. The Fremont cottonwood forest and woodland vegetation community located near the project site is identified as a potential groundwater dependent ecosystem (GDE) that provides suitable habitat for special status aquatic and semi-aquatic species (Santa Clarita Valley Groundwater Sustainability Agency [SCV GSA] 2022). Although SCV Water would not increase basin-wide groundwater extraction, reactivated operation of existing Wells S6, S7, and S8 in conjunction with operation of the new Well S9 could deplete local groundwater levels beyond the minimum thresholds for depletion of interconnected surface waters established in the Santa Clara River Valley East Groundwater Subbasin Groundwater Sustainability Plan (GSP) and could thus impact the Fremont cottonwood forest and woodland vegetation community. As a result, implementation of Mitigation Measure BIO-3 would be required to reduce potential indirect impacts to arroyo toad and western pond turtle to a less-than-significant level.

The coastal scrub and Fremont cottonwood forest and woodland vegetation communities within the project site provide suitable habitat for special status avian species, including least Bell's vireo. No direct impacts to the species would occur because suitable nesting and foraging habitat would not be directly impacted by the project. However, if least Bell's vireo is present within the vicinity of the project during construction, the proposed project has the potential to indirectly impact the species if construction noise, dust, and other human disturbances cause a nest to fail. Additionally, depleted local groundwater levels could negatively impact suitable habitat for least Bell's vireo within the Fremont cottonwood forest and woodland vegetation community should this habitat be a GDE. Therefore, implementation of Mitigation Measures BIO-3 and BIO-4 would be required to reduce potential indirect impacts to least Bell's vireo to a less-than-significant level.

The project site contains habitat with the potential to support special status birds, including resident and migrant passerine species and raptors protected under the CFGC and the MBTA. Although no nests were observed during the field reconnaissance surveys, bird nesting habitat is present in the trees and shrubs occurring in and adjacent to the project site, and raptors could nest within the taller trees in the area. Therefore, the project could result in direct or indirect impacts to nesting birds. Direct impacts may include mortality from vehicle or equipment strikes as foraging birds move through the project site and physical impacts to active nests within the project site. Indirect impacts

could result from noise, vibrations, and dust from construction activities throughout the project site. Noise, vibrations, and dust can cause birds to flush out of cover and become exposed to predators or vehicle strikes. Adults may not return to nests, predators may feed on eggs or chicks in unprotected nests, and/or vibrations could cause eggs to fall out of nests. Noise, dust, and vibrations may also cause avian species to leave regular foraging areas that are within and adjacent to the project site. If construction activities occur during the nesting season (generally February 1 to August 31), noise, vibrations, and dust can also cause nest failures. Therefore, implementation of Mitigation Measure BIO-5 would be required to reduce potential direct and indirect impacts to nesting birds to a less-than-significant level.

Mitigation Measure

BIO-1 Worker's Environmental Awareness Program

Prior to initiation of all construction activities (including staging and mobilization), all personnel associated with project construction shall attend a Worker's Environmental Awareness Program training, conducted by a qualified biologist, to assist workers in recognizing special status biological resources with the potential to occur within the project site. This training shall include information about all special-status species determined to be present or to have a moderate or high potential to occur on site. The training shall also address protected nesting birds and sensitive habitats.

The specifics of this program shall include identification of special status species and habitats, a description of the regulatory status and general ecological characteristics of special status resources, and a review of the limits of construction and measures required to avoid and minimize impacts to biological resources within the project site. A fact sheet conveying this information shall also be prepared for distribution to all contractors, their employees, and other personnel involved with construction of the project. All employees shall sign a form provided by the trainer documenting they attended the Worker's Environmental Awareness Program and understand the information presented. The crew foreman shall be responsible for ensuring crew members adhere to the guidelines and restrictions designed to avoid impacts to special status species. If new construction personnel are added to the project, the crew foreman shall ensure the new personnel receive the Worker's Environmental Awareness Program training before starting work.

BIO-2 General Best Management Practices

Construction personnel shall adhere to the following general BMP requirements:

- No project construction, activities, and equipment staging shall occur within bed and banks of the Santa Clara River. Any work, including operation of loaders, dozers, drilling rigs, cranes, and vehicles shall not occur on the south side of the existing fencing associated with the Santa Clara River Trail to reduce impacts to special status wildlife species that may occur within the riparian habitat. The contractor shall advise all workers of the intent of the protection measures prior to the start of project construction and activities. No vegetation shall be removed from the channel, bed, or banks of the Santa Clara River.
- Project-related vehicles shall observe a five-mile-per-hour speed limit within the unpaved limits of construction.
- All open trenches shall be fenced and sloped to prevent entrapment of wildlife species.
- Excavated material from trenching along the Santa Clara River Trail shall be side cast away from the Santa Clara River to prevent sediment deposition within the river.

- All hollow posts and pipes shall be capped, and metal fence stakes shall be plugged with bolts or other plugging materials to prevent wildlife entrapment and mortality.
- All food-related trash items such as wrappers, cans, bottles, and food scraps generated during project construction shall be disposed of in closed containers only and removed daily from the project site.
- All nighttime lighting shall be shielded and downcast to avoid potential impacts to wildlife migration.
- No deliberate feeding of wildlife shall be allowed.
- No pets shall be allowed on the project site.
- No firearms shall be allowed on the project site.
- If vehicle or equipment maintenance is necessary, it shall be performed in the designated staging areas.
- During construction, heavy equipment shall be operated in accordance with standard BMPs. All equipment used on-site shall be properly maintained to avoid leaks of oil, fuel, or residues. The contractor shall prevent oil, petroleum products, or any other pollutants from contaminating the soil or entering a watercourse (dry or otherwise). When vehicles or equipment are stationary, mats or drip pans shall be placed below vehicles to contain fluid leaks. Provisions shall be in place to remediate any accidental spills.
- Materials shall be stored on impervious surfaces or plastic ground covers to prevent any spills or leakage and shall be at least 50 feet from drainage features.
- Construction materials and spoils shall be protected from stormwater runoff using temporary perimeter sediment barriers such as berms, silt fences, fiber rolls, covers, sand/gravel bags, and straw bale barriers, as appropriate.
- While encounters with special status species are not likely or anticipated, any worker who inadvertently injures or kills a special status species or finds one dead, injured, or entrapped shall immediately report the incident to the construction foreman or biological monitor. The construction foreman or biological monitor shall immediately notify SCV Water. SCV Water shall follow up with written notification to USFWS and/or CDFW within five working days of the incident. All observations of special status species shall be recorded on California Natural Diversity Database field sheets and sent to CDFW by SCV Water or a qualified biological monitor.
- Before starting or moving construction vehicles, especially after a few days of non-operation, operators shall inspect under all vehicles to avoid impacts to any wildlife that may have sought refuge under equipment. All large building materials and pieces with crevices where wildlife can potentially hide shall be inspected before moving. If wildlife is detected, a qualified biologist shall move wildlife out of harm's way or temporarily stop activities until the animal leaves the area.

BIO-3 Groundwater Pumping Regime Management

SCV Water shall establish a groundwater pumping regime for Wells S6, S7, S8, and S9 in accordance with the sustainable management criteria for depletion of interconnected surface waters outlined in the most recently adopted iteration of the Santa Clara River Valley East Groundwater Subbasin GSP. SCV Water shall monitor groundwater wells at this location by utilizing the monitoring well previously installed within the potential GDE area that may be affected by the proposed project (currently identified as GDE-A in the GSP). Should the trigger level outlined in the GSP for the GDE

areas near the project site (currently identified as "Santa Clara River Below Mouth of Bouquet Canyon" in the GSP) be exceeded at the monitoring location, SCV Water shall implement an evaluation program that includes reviewing whether the low water levels and water level trends are caused by groundwater extraction at Wells S6, S7, S8, and/or S9 and whether the undesirable results to GDEs outlined in the GSP arising from groundwater extraction are anticipated to occur. If significant and unreasonable effects are anticipated from groundwater extraction, SCV Water shall implement the necessary management actions in a timely manner to resolve the exceedance of the trigger level for the GDE area. Management actions may include but are not limited to shifting pumping to another location, reducing or halting pumping at Wells S6, S7, S8, and/or S9, and/or increasing the quantity of imported water.

BIO-4 Least Bell's Vireo Pre-construction Surveys

Prior to the initiation of project construction activities within or adjacent to suitable nesting habitat during least Bell's vireo breeding season (March 15 through September 15), a qualified biologist with experience surveying for least Bell's vireo shall conduct at least three focused surveys following USFWS-established protocols to determine whether breeding least Bell's vireos are present. Focused surveys shall be completed within the project site and a 500-foot buffer. If least Bell's vireo is present, the biologist shall determine its breeding territory, and no construction shall take place within 500 feet of the breeding territory from March 15 through September 15.

BIO-5 Protection of Nesting Birds

Project-related activities shall occur outside of the bird breeding season (generally February 1 to August 31) to the extent practicable. If construction must occur within the bird breeding season, then no more than three days prior to the initiation of ground-disturbing activities (including, but not limited to vegetation removal, site preparation, grading, excavation, and trenching) within the project site, a nesting bird pre-construction survey shall be conducted by a qualified biologist within the disturbance footprint plus a 100-foot buffer (300-foot for raptors), where feasible. If the proposed project is phased or construction activities stop for more than one week, a subsequent pre-construction nesting bird survey shall be required within three days prior to each phase of construction.

Pre-construction nesting bird surveys shall be conducted during the time of day when birds are active and shall factor in sufficient time to perform this survey adequately and completely. A report of the nesting bird survey results, if applicable, shall be submitted to SCV Water for review and approval.

If no nesting birds are observed during pre-construction surveys, no further actions are necessary. If nests are found, an appropriate avoidance buffer ranging in size from 25 to 50 feet for passerines, and up to 300 feet for raptors depending upon the species and the proposed work activity, shall be determined, and demarcated by a qualified biologist with bright orange construction fencing or other suitable material. Active nests shall be monitored at a minimum of once per week until it has been determined the young have fledged the nest. No ground disturbance or vegetation removal shall occur within this buffer until the qualified biologist confirms breeding/nesting has ended, and all the young have fledged.

Significance after Mitigation

Implementation of Mitigation Measure BIO-1 would require training all construction personnel in identifying special status wildlife species, and Mitigation Measure BIO-2 would involvement

implementation of general BMPs that are protective of special status wildlife species. Implementation of Mitigation Measure BIO-3 would result in sustainable pumping of groundwater from Wells S6, S7, S8, and S9 such that indirect impacts to the potential GDE and associated special status wildlife species would be avoided. Implementation of Mitigation Measure BIO-4 would minimize the potential for project construction activities to impact least Bell's vireo implementation of focused surveys for least Bell's vireo prior to construction and, if present, establishment of buffers around breeding territory. Implementation of Mitigation Measure BIO-5 would reduce the potential for project construction activities to directly or indirectly impact active bird nests through a pre-construction nesting bird survey and establishment of avoidance buffers around active nests, if present. In conjunction, implementation of these measures would reduce project impacts to special-status wildlife species to a less-than-significant level.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

b. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Two sensitive plant communities (Fremont cottonwood forest and woodland and scale broom scrub) occur in the southern portion of the project site within the floodplain of the Santa Clara River. No direct impacts to these plant communities would occur as a result of the project because they are not located within the project footprint and the project would only result in impacts to the developed, disturbed, or ornamental land cover types (Appendix B).

The project has the potential to indirectly impact sensitive plant communities as a result of groundwater extraction via the existing Wells S6, S7, and S8 and the new Well S9. The Fremont cottonwood forest and woodland vegetation community located near the project site is identified as a potential GDE (SCV GSA 2022). Although SCV Water would not increase basin-wide groundwater extraction, reactivated operation of the existing Wells S6, S7, and S8 in conjunction with operation of the new Well S9 could deplete local groundwater levels beyond the minimum thresholds for depletion of interconnected surface waters established in the Santa Clara River Valley East Groundwater Subbasin GSP and could thus impact sensitive plant communities occurring within the southern portion of the project site if they are dependent upon groundwater (Appendix B). Therefore, implementation of Mitigation Measure BIO-3 would be required to reduce this potential indirect impact to sensitive plant communities to a less-than-significant level.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

c. Would the project 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?

No direct impacts would occur to jurisdictional waters and wetlands within the project site because none are present within the project footprint. If project construction occurs during the rainy season, jurisdictional waters and wetlands may be indirectly impacted after a rain event should stormwater runoff result in effects such as increased turbidity, altered pH, and/or decreased dissolved oxygen levels. Therefore, implementation of the stormwater control BMPs (e.g., berms, silt fences, fiber rolls) described in Mitigation Measure BIO-2 would be required to reduce potential indirect impacts to jurisdictional waters and wetlands during construction to a less-than-significant level.

During operation, the project has the potential to indirectly impact the hydrology of the Santa Clara River as a result of groundwater extraction via the existing Wells S6, S7, and S8 and the new Well S9. Although SCV Water would not increase basin-wide groundwater extraction, reactivated operation of existing Wells S6, S7, and S8 in conjunction with operation of the new Well S9 has the potential to deplete local groundwater levels beyond the minimum thresholds for depletion of interconnected surface waters established in the Santa Clara River Valley East Groundwater Subbasin GSP and could thus impact the hydrology of the Santa Clara River. As a result, implementation of Mitigation Measure BIO-3 would be required to reduce this potential indirect impact to hydrology of the Santa Clara River to a less-than-significant level.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

d. Would the project 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?

The Santa Clara River channel in the southern portion of the project site may provide movement pathways for mobile species such as mule deer and coyote. No direct impacts to the Santa Clara River would occur as part of the proposed project, and pipeline installation conducted parallel to the Santa Clara River would not interfere with wildlife movement because the construction work areas would be fenced, the pipelines would be constructed in segments with any exposed trenches covered with plate when construction activities are not occurring, and the pipelines would be located underground following completion of the project. Therefore, direct impacts to wildlife movement would not occur as a result of the project.

Potential indirect impacts to wildlife movement could occur through lighting of the project site during construction, which could deter wildlife migration at night. As such, implementation of Mitigation Measure BIO-2, including the provision for all lighting to be shielded and downcast, would be required to reduce indirect impacts to wildlife movement to a less-than-significant level.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

e. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The City's General Plan contains objectives and policies for biological resources that are relevant to the proposed project given its location and/or proposed activities. These objectives and policies focus on conservation of existing natural areas; restoration of damaged natural vegetation; protection of wetlands, oak trees and other indigenous woodlands and endangered or threatened species and habitat; and protection of biological resources in Significant Ecological Areas (SEAs) and significant wildlife corridors (City of Santa Clarita 2011). In compliance with these objectives and policies, the project would not impact any SEA (e.g., the Santa Clara River) or wildlife movement corridors. Additionally, as described in threshold (d), the project would not significantly interfere with wildlife movement (Appendix B).

According to Government Code Section 53091, building and zoning ordinances of a county or city shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water. As such, the project would not be subject to the North Valencia Specific Plan, which establishes additional zoning regulations for the project area, or the City's building and zoning ordinances (Santa Clarita Municipal Code Titles 17 and 18), which include the City of Santa Clarita Oak Tree Preservation Ordinance. Nevertheless, SCV Water would voluntarily

comply with the City's oak tree preservation ordinance during implementation of the proposed project; therefore, it is conservatively included in this analysis.

One coast live oak tree protected by the City's Oak Tree Preservation Ordinance, and nine trees (four western sycamore trees and five London plane trees) protected by the Parkway Trees Ordinance would be removed as part of the proposed project. As noted, SCV Water would voluntarily obtain an Oak Tree Removal permit from the City for removal of the coast live oak tree and would obtain a Parkway Tree Permit from the City for removal of the western sycamore and London plane trees (Appendix B). Therefore, with regulatory compliance, no impacts related to local policies and ordinances protecting biological resources would occur.

NO IMPACT

f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The project site is not located within any Habitat Conservation Plans, Natural Community Conservation Plans, or other approved local, regional, or state habitat conservation plan area (Appendix B). Therefore, no impact would occur.

NO IMPACT

5 Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☐	■	☐

This section provides an analysis of the project's impacts on cultural resources, including historical and archaeological resources as well as human remains. CEQA requires a lead agency determine whether a project may have a significant effect on historical resources (Public Resources Code [PRC] Section 21084.1). A historical resource is a resource listed in, or determined to be eligible for listing in, the California Register of Historical Resources (CRHR); a resource included in a local register of historical resources; or any object, building, structure, site, area, place, record, or manuscript a lead agency determines to be historically significant (CEQA Guidelines Section 15064.5[a][1-3]).

A resource shall be considered historically significant if it:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. Has yielded, or may be likely to yield, information important in prehistory or history.

In addition, if it can be demonstrated that a project would cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that resources cannot be left undisturbed, mitigation measures are required (PRC Section 21083.2[a-b]). PRC Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information;
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type; or

3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

The impact analysis included here is organized based on the cultural resources thresholds included in CEQA Guidelines Appendix G: Environmental Checklist Form. Threshold A broadly refers to historical resources. To more clearly differentiate between archaeological and built environment resources, the analysis under threshold (a) is limited to built environment resources. Archaeological resources, including those that may be considered historical resources pursuant to CEQA Guidelines Section 15064.5 and those that may be considered unique archaeological resources pursuant to PRC Section 21083.2, are considered under threshold (b).

Methodology and Results of Cultural Resources Assessment Report

In 2022, Rincon conducted a cultural resources investigation and analysis of the project site. This analysis included a cultural resources records search of the California Historical Resources Information System at the South Central Coast Information Center (SCCIC), located at California State University, Fullerton, and a Native American Heritage Commission (NAHC) Sacred Lands File (SLF) search. Rincon also conducted a pedestrian survey of the project footprint for all locations as part of the study (Nichols, et al. 2022).

The SCCIC records search was performed to identify previously conducted cultural resources studies as well as previously recorded cultural resources within the project site and a 0.5-mile radius surrounding it. The records search included a review of available records at the SCCIC as well as the National Register of Historic Places, the CRHR, the Office of Historic Preservation Historic Properties Directory, the California Inventory of Historic Resources, the Archaeological Determinations of Eligibility list, and historical maps. The SCCIC records search identified 35 cultural resources studies conducted within a 0.5-mile radius of the project site, eight of which included portions of the project site. Approximately 100 percent of the project site has been previously studied in the last 50 years. The SCCIC search identified one previously recorded cultural resource (P-19-186861), which consists of a historic-era set of paired transmission lines, within a 0.5-mile radius of the project site. This resource is not within or adjacent to the project site (Nichols et. al 2022).

Rincon requested a search of the SLF from the NAHC to identify the potential for cultural resources within the project site and to obtain contact information for Native Americans groups or individuals who may have knowledge of resources within the project site. The SLF search was returned with positive results, which indicates the NAHC identified a potentially sensitive tribal cultural resource within the project area. The NAHC reviews the SLF by quadrangle map, which provides a large area to review to determine a positive or negative results response.

As part of its AB 52 consultation process, which is further detailed in Section 18, *Tribal Cultural Resources*, SCV Water prepared and sent letters to the Gabrieleño Band of Mission Indians-Kizh Nation, the Torres Martinez Desert Cahuilla Indians, the Fernandeño Tatavium Band of Mission Indians (FTBMI), and the San Gabriel Band of Mission Indians to request information on potential tribal cultural resources in the project vicinity that may be impacted by project development. SCV Water received one response via email from the FTBMI on August 9, 2022, requesting formal consultation and additional project information. The results of consultation are summarized in Section 18, *Tribal Cultural Resources*. As stated therein, the FTBMI indicated the presence of two tribal cultural resources within one mile of the project site. No known sacred sites or tribal cultural resources have been specifically identified within the project site.

a. Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

The SCCIC search identified one previously recorded historic-period built environment cultural resource (a historic-era set of paired transmission lines) within a 0.5-mile radius of the project site. However, no resources were identified within or adjacent to the project site as part of the records search or the pedestrian survey (Nichols et. al 2022). Therefore, the project would not cause a substantial adverse change in the significance of a historical resource, and no impact would occur.

NO IMPACT

b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

As indicated in the Cultural Resources Assessment, no archaeological resources have been identified within or adjacent to the project site. The SLF search was returned with positive results and has documented a potentially sensitive tribal cultural resource within the project site vicinity. In addition, the project site is located adjacent to the Santa Clara River, and the project site is primarily composed of alluvial sedimentation. Precontact-era archaeological sites often exist along waterways and are buried by alluvial sedimentation. The positive results of the SLF search, proximity to water, and alluvial soils indicate the potential for subsurface archaeological sensitivity within the project site (Nichols et. al 2022). Therefore, if a previously unknown archaeological resource us encountered during construction, the project would potentially cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5. Implementation of Mitigation Measure CR-1 and CR-2 would be required to reduce impacts to a less-than-significant level.

Mitigation Measure

CR-1 Worker's Environmental Awareness Program

A qualified archaeologist and a representative from a locally-affiliated Native American Tribe shall be retained to conduct a worker's environmental awareness program training on archaeological and tribal cultural resource sensitivity for all construction personnel prior to the commencement of any ground-disturbing activities. The qualified archaeologist shall meet or exceed the Secretary of Interior's Professional Qualification Standards for archaeology (National Park Service 1983). The training shall include a description of the types of cultural material that may be encountered, cultural and tribal sensitivity issues, regulatory issues, and the proper protocol for treatment of the materials in the event of a find.

CR-2 Unanticipated Discovery of Cultural Resources

In the event that archaeological resources are unexpectedly encountered during ground-disturbing activities, work within 60 feet of the find shall halt and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service 1983) shall be contacted immediately to evaluate the resource. If the resource is determined by the qualified archaeologist to be prehistoric and/or of Native American origin, then a Native American representative (e.g., FTBMI) shall also be contacted to participate in the evaluation of the resource. Should the find be deemed significant, as defined by CEQA, SCV Water shall retain a professional Native American monitor procured by the FTBMI to observe all remaining ground-disturbing activities including, but not limited to, excavating, digging, trenching, plowing, drilling,

grading, leveling, clearing, auguring, stripping topsoil or similar activity, and archaeological work. If the qualified archaeologist and/or Native American representative determines it to be appropriate, archaeological testing for CRHR eligibility shall be completed. If the resource proves to be eligible for the CRHR and significant impacts to the resource cannot be avoided via project redesign, a qualified archaeologist, in coordination with a Native American representative (e.g., FTBMI) if the resource is Native American in origin, shall prepare a data recovery plan tailored to the physical nature and characteristics of the resource, pursuant to the requirements of CEQA Guidelines Section 15126.4(b)(3)(C). The data recovery plan shall identify data recovery excavation methods, measurable objectives, and data thresholds to reduce any significant impacts to cultural resources related to the resource. Pursuant to the data recovery plan, the qualified archaeologist and Native American representative (e.g., FTBMI), as appropriate, shall recover and document the scientifically consequential information that justifies the resource's significance. SCV Water shall review and approve the treatment plan and archaeological testing as appropriate, and the resulting documentation shall be submitted to the regional repository of the California Historical Resources Information System, pursuant to CEQA Guidelines Section 15126.4(b)(3)(C).

Significance after Mitigation

Mitigation Measures CR-1 and CR-2 would minimize the potential for impacts related to unexpected discoveries of archaeological resources to occur through the implementation of a Worker's Environmental Awareness Program training prior to construction and appropriate procedures for evaluation and treatment should any discoveries be made during construction. Therefore, implementation of Mitigation Measures CR-1 and CR-2 would reduce impacts to archaeological resources to a less-than-significant level.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

c. Would the project disturb any human remains, including those interred outside of formal cemeteries?

No known human remains have been documented within the project site or the immediate vicinity (Nichols et al. 2022). While the project site is unlikely to contain human remains, the potential for the recovery of human remains during ground-disturbing activities is always a possibility. If human remains are found, existing regulations outlined in California Health and Safety Code Section 7050.5 state no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. In the event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be prehistoric or Native American in origin, the Coroner will notify the NAHC, which will determine and notify a most likely descendant. The most likely descendant shall complete the inspection of the site within 48 hours of being granted access and provide recommendations as to the treatment of the remains to the landowner. Therefore, with adherence to existing regulations, impacts to human remains would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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6 Energy

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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 operation?	☐	☐	☐	■
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	■

As a state, California is one of the lowest per capita energy users in the United States, ranked 48th in the nation, due to its energy efficiency programs and mild climate (United States Energy Information Administration 2022). Electricity and natural gas are primarily consumed by the built environment for lighting, appliances, heating and cooling systems, fireplaces, and other uses such as industrial processes in addition to being consumed by alternative fuel vehicles. Most of California's electricity is generated in state with approximately 30 percent imported from the Northwest and Southwest in 20192021 however, the state relies on out-of-state natural gas imports for nearly 90 percent of its supply (California Energy Commission [CEC] 2022a and 2022b). In addition, approximately 34 percent of California's electricity supply comes from renewable energy sources, such as wind, solar photovoltaic, geothermal, and biomass (CEC 2022a). In 2018, Senate Bill 100 accelerated the state's Renewable Portfolio Standards Program, codified in the Public Utilities Act, by requiring electricity providers to increase procurement from eligible renewable energy and zero-carbon resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045. Electricity would be supplied to the project by Southern California Edison.

Petroleum fuels are primarily consumed by on-road and off-road equipment in addition to some industrial processes, with California being one of the top petroleum-producing states in the nation (CEC 2022c). Gasoline, which is used by light-duty cars, pickup trucks, and sport utility vehicles, is the most used transportation fuel in California with 12.6 billion gallons sold in 2020 (CEC 2021). Diesel, which is used primarily by heavy duty-trucks, delivery vehicles, buses, trains, ships, boats and barges, farm equipment, and heavy-duty construction and military vehicles, is the second most used fuel in California with 1.7 billion gallons sold in 2021e (CEC 2021).

Energy consumption is directly related to environmental quality in that the consumption of nonrenewable energy resources releases criteria air pollutant and greenhouse gas (GHG) emissions into the atmosphere. The environmental impacts of air pollutant and GHG emissions associated with the project's energy consumption are discussed in detail in Section 3, *Air Quality*, and Section 8, *Greenhouse Gas Emissions*, respectively.

a. Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Construction Energy Consumption

Energy use during project construction would be primarily in the form of fuel consumption to operate heavy equipment, light-duty vehicles, machinery, and generators. Temporary grid power may also be provided to construction trailers or electric construction equipment. Table 6 summarizes the anticipated energy consumption from construction equipment and vehicles, including construction worker trips to and from the project site. As shown therein, project construction would require approximately 7,466 gallons of gasoline fuel and approximately 91,266 gallons of diesel fuel.

Table 6 Energy Use during Project Construction

	Fuel Consumption (Gallons)	
Source	**Gasoline**	**Diesel**
Construction Equipment & Hauling Trips	–	91,168
Construction Worker Vehicle Trips	7,454	–

See Appendix A for CalEEMod outputs and Appendix D for energy calculation sheets.

Energy use during construction would be temporary in nature, and construction equipment used would be typical of similar-sized construction projects in the region. In addition, construction contractors would be required to comply with the provisions of California Code of Regulations Title 13, Sections 2449 and 2485, which prohibit diesel-fueled commercial motor vehicles and off-road diesel vehicles from idling for more than five minutes, which would minimize unnecessary fuel consumption. Construction equipment would be subject to the USEPA Construction Equipment Fuel Efficiency Standard (40 Code of Federal Regulations Parts 1039, 1065, and 1068), which would minimize inefficient fuel consumption. Furthermore, in the interest of cost efficiency, construction contractors would not utilize fuel in a manner that is wasteful or unnecessary. Therefore, project construction would not result in a potential impact due to wasteful, inefficient, or unnecessary consumption of energy resources, and no construction-related energy impact would occur.

Operational Energy Consumption

Operation of the project would contribute to regional energy demand by consuming electricity and gasoline and diesel fuels. Electricity would be used for groundwater pumping, water treatment, and lighting, among other purposes. Gasoline and diesel consumption would be associated with vehicle trips generated by SCV Water staff, chemical deliveries, and resin replacement. Table 7 summarizes estimated operational energy consumption for the proposed project. As shown therein, project operation would require approximately 689 gallons of gasoline fuel, 61 gallons of diesel fuel, and approximately 840 to 986 megawatt-hours of electricity per year.

Table 7 Estimated Project Annual Operational Energy Consumption

Source	Energy Consumption[1]	
Gasoline Fuel (SCV Water Staff Visits)	689 gallons	75.6 MMBtu
Diesel Fuel (Chemical Deliveries and Resin Replacements)	61 gallons	7.8 MMBtu
Electricity[2]	840 to 986 MWh	2,866 to 3,364 MMBtu

MMBtu = million metric British thermal units; MWh = megawatt-hours

[1] Energy consumption is converted to MMBtu for each source.

[2] Calculated based on electricity consumption for similar existing groundwater treatment and disinfection facility for the N Wells (Moreno 2022).

See Appendix D for transportation energy calculation sheets.

The project would be required to comply with all standards set in the latest iteration of the California Building Standards Code (California Code of Regulations Title 24), which would minimize the wasteful, inefficient, or unnecessary consumption of energy resources by the built environment during operation. CALGreen (California Code of Regulations Title 24, Part 11) requires implementation of energy-efficient light fixtures and building materials into the design of new construction projects. Furthermore, the 2022 Building Energy Efficiency Standards (California Code of Regulations Title 24, Part 6) require newly constructed buildings to meet energy performance standards set by the CEC. These standards are specifically crafted for new buildings to result in energy efficient performance so that the buildings do not result in wasteful, inefficient, or unnecessary consumption of energy. Moreover, the groundwater treatment and disinfection facility would be necessary to treat groundwater affected by PFAS contamination, thus enabling SCV Water to continue providing safe, potable water to its service area. Furthermore, in the interest of cost efficiency, SCV Water would not utilize electricity for groundwater pumping or the treatment process in a manner that is wasteful or inefficient. Therefore, project operation would not result in potentially significant environmental effects due to the wasteful, inefficient, or unnecessary consumption of energy, and no impact would occur.

NO IMPACT

b. Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

SCV Water has not adopted specific renewable energy or energy efficiency plans with which the project could comply. As mentioned above, SB 100 mandates 100 percent clean electricity for California by 2045. Because the proposed project would be powered by the existing electricity grid, the project would eventually be powered by renewable energy mandated by SB 100 and would not conflict with this statewide plan. The proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and no impact would occur.

NO IMPACT

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7 Geology and Soils

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
1. 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?	☐	☐	■	☐
2. Strong seismic ground shaking?	☐	☐	■	☐
3. Seismic-related ground failure, including liquefaction?	☐	☐	■	☐
4. 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 on- or off-site landslide, 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?	☐	☐	☐	■

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	■	☐	☐

a.1. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving 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?

a.2. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?

Like much of California, the project site is located in a seismically active region. The United States Geological Survey defines active faults as those that have had surface displacement within the Holocene period (approximately the last 11,000 years). Potentially active faults are those that have had surface displacement during the last 1.6 million years, and inactive faults have not had surface displacement within that period. According to the DOC, a majority of the project site is located in an Alquist-Priolo Fault Zone associated with the San Gabriel Fault Line (DOC 2015 and 2022).

The project involves construction of water infrastructure and would not involve placement of habitable structures, thereby minimizing the potential to result in loss, injury, or death involving fault rupture and strong seismic ground-shaking. Because most of California is susceptible to strong ground shaking from severe earthquakes and the project's location within an earthquake fault zone, development of the project could expose project structures to strong seismic ground shaking. However, the project would be designed and constructed in accordance with state and local building codes to reduce the potential for exposure of structures to seismic risks to the maximum extent feasible. The project would be required to comply with the seismic safety requirements in the latest iteration of the California Building Code (CBC). Compliance with such requirements would reduce seismic ground shaking impacts to the maximum extent practicable with current engineering practices. In addition, the facility would be unmanned and would not have permanent on-site personnel. The proposed groundwater treatment and disinfection facility would not be located adjacent to any residences, school buildings, or other structures and therefore would not impact those structures or their occupants should seismic ground shaking compromise the structural integrity of these components. Therefore, the project would not increase or exacerbate fault rupture or seismic ground shaking hazards at adjacent properties. In the event fault rupture or seismic ground shaking compromises the pipelines or facilities during operation, SCV Water would temporarily shut-off processes and conduct emergency repairs as soon as practicable. Therefore, the project would not cause substantial adverse effects including the risk of loss, injury, or death involving rupture of known fault or strong seismic ground shaking, and impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

a.3. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?

Liquefaction is the sudden loss of soil shear strength due to a rapid increase of soil pore water pressures caused by cyclic loading from a seismic event. This means a liquefied soil acts more like a fluid than a solid when shaken during an earthquake. The project site is located in a liquefaction zone (DOC 2022). Soils therefore have the potential to liquefy during a seismic event, and seismically induced liquefaction could potentially damage the proposed water treatment plant in the event of an earthquake, resulting in joint failure or leakage from the pipeline. As discussed under thresholds (a.1) and (a.2), the project would be constructed in accordance with the current seismic design provisions of the CBC. In the event seismically induced liquefaction compromises the pipelines or facilities during operation, SCV Water would temporarily shut-off water pumping, treatment, and conveyance processes and conduct emergency repairs as soon as practicable. In addition, the project involves construction of water infrastructure and would not involve placement of habitable structures within a liquefaction-prone area, thereby minimizing the potential to result in loss, injury, or death involving seismic-related ground failure due to liquefaction. Furthermore, the project would not involve groundwater injection or other activities that could exacerbate the existing liquefaction hazard. As a result, with adherence to existing regulatory requirements, the proposed project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

a.4. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

The proposed project is located in a relatively flat area that is not within or near an earthquake-induced landslide hazard zone (United States Geological Survey [USGS] 2022). Therefore, the project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides. No impact would occur.

NO IMPACT

c. Would the project 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 on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

Subsidence occurs when a large portion of the land is displaced vertically, usually due to the withdrawal of groundwater, oil, or natural gas. The proposed project would restore the use of the S6, S7 and S8 wells and includes construction of the new S9 groundwater well. Restoring use of Wells S6, S7, S8 would not result in an increase in SCV Water's groundwater pumping at this location as compared to baseline conditions when these three wells were operational. The new Well S9 would serve as a replacement for the existing Mitchell 5A Well that is being abandoned and would not result in a net increase in SCV Water's overall annual basin-wide groundwater extraction levels. As described in the drawdown study for Well S9, the proposed Well S9 would lower the water table locally by approximately one to two feet (Richard C. Slade & Associates LLC 2022). A one-to-two-foot change in the water table would not be expected to result in a subsidence event. Furthermore, SCV Water would manage its pumping regime at Wells S6, S7, S8, and S9 in accordance with the provisions of the Santa Clara River Valley East Groundwater Subbasin GSP, which includes metrics for monitoring and addressing subsidence issues (SCV GSA 2022). Therefore, the proposed project would not result in soil instability such that subsidence would occur. In addition, as described in threshold (a.3), the proposed project would result in soil instability related to liquefaction.

Consequently, impacts related to the instability of soil or geologic units would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project result in substantial soil erosion or the loss of topsoil?

Ground-disturbing activities associated with project construction may result in the removal of some topsoil. Construction activities would be subject to the National Pollutant Discharge Elimination System (NPDES) Construction General Permit which requires the development of a Storm Water Pollution Prevention Plan (SWPPP) developed by a certified Qualified SWPPP Developer. The SWPPP includes project-specific BMPs to control erosion, sediment release, and otherwise reduce the potential for discharge of pollutants from construction into stormwater. Typical BMPs would include, but would not be limited to, use of silt fences, fiber rolls, stabilized construction entrances/exists, storm drain inlet protection, wind erosion control, stockpile management, and materials storage and vehicle and equipment cleaning, fueling, and maintenance procedures that minimize the discharge of spills and leaks. Erosion from construction activities would thus be controlled through implementation of BMPs outlined in the SWPPP required by the NPDES Construction General Permit. Therefore, construction impacts related to soil erosion would be less than significant.

Project operation would have minimal potential to result in erosion because no ground-disturbing activities would occur. The project includes installation of an underground storm drain pipeline from a point south of the Bridgeport Lane/Bayside Lane intersection to the existing Well S7 location. This pipeline would convey stormwater flows and pumped groundwater that currently sheet flow from the site into the river to an existing 30-inch stormwater drain pipeline that ultimately outlets to the river. In addition, the proposed groundwater treatment and disinfection facility would include a drainage pipeline connection between the proposed treatment facility and the existing 30-inch SCV Water storm drainage outlet pipeline on the eastern portion of the treatment facility location. The proposed drainage pipeline would collect and convey on-site stormwater runoff and groundwater produced during periodic installation and water quality testing of new resin media in the treatment vessels to the existing stormwater drainage outlet approximately 135 feet south of the project site. Both discharges would be covered under SCV Water's existing Statewide General Permit for Drinking Water System Discharges to the Waters of the United States No. 4DW0768. As required under this permit, SCV would be required to implement BMPs that would minimize sediment discharge via use of erosion control measures such as use of flow diffusers or the construction of check dams to slow flows. The BMPs required by this NPDES permit would thus minimize potential erosion associated with stormwater discharges during project operation. As such, operational impacts related to soil erosion would be less than significant.

LESS THAN SIGNIFICANT IMPACT

d. Would the project 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?

Expansive soils are highly compressible, clay-based soils that tend to expand as they absorb water and shrink as water is drawn away. Expansive soils can result in structural damage when foundations are not designed to account for soil expansion potential. The project site is composed of Hanford sandy loam, 0 to 2 percent slopes (12.5 percent clay), Hanford sandy loam, 2 to 9 percent slopes (12.5 percent clay), Riverwash (2.3 percent clay), Sandy alluvial land (10.9 percent clay) (United States Department of Agriculture 2022). Due to the lack of clay content of the on-site

soils, the potential for expansive soils to occur is low. In addition, the project does not include construction of habitable structures. Therefore, the proposed project would not create substantial direct or indirect risks to life or property as a result of expansive soils, and impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

e. Would the project 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?

The proposed project would not include the use of septic tanks or alternative wastewater disposal systems. Therefore, no impact would occur.

NO IMPACT

f. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Paleontological resources, or fossils, are the evidence of once-living organisms preserved in the rock record. They include both the fossilized remains of ancient plants and animals and the traces thereof (e.g., trackways, imprints, burrows, etc.). Paleontological resources are not found in "soil" but are contained within the geologic deposits or bedrock that underlies the soil layer. Typically, fossils are greater than 5,000 years old (i.e., older than middle Holocene in age) and are typically preserved in sedimentary rocks. Although rare, fossils can also be preserved in volcanic rocks and low-grade metamorphic rocks under certain conditions (Society of Vertebrate Paleontology [SVP] 2010). Fossils occur in a non-continuous and often unpredictable distribution within some sedimentary units, and the potential for fossils to occur within sedimentary units depends on several factors. It is possible to evaluate the potential for geologic units to contain scientifically important paleontological resources and therefore evaluate the potential for project impacts to those resources.

Rincon evaluated the paleontological sensitivity of the geologic units that underlie the project site to assess the project's potential to result in significant impacts to scientifically important paleontological resources. The analysis was based on the results of a paleontological locality search and a review of existing information in the scientific literature regarding known fossils within geologic units mapped at the project site. According to the SVP (2010) classification system, geologic units can be assigned a high, low, undetermined, or no potential for containing scientifically significant nonrenewable paleontological resources. Following the literature review, a paleontological sensitivity classification was assigned to each geologic unit mapped within the project site. This criterion is based on rock units within which vertebrate or significant invertebrate fossils have been determined by previous studies to be present or likely to be present. The potential for impacts to significant paleontological resources is based on the potential for ground disturbance to directly impact paleontologically sensitive geologic units.

The project site is underlain by two geologic units: Quaternary stream channel deposits and Quaternary alluvium (Figure 4; Dibblee and Ehrenspeck 1996). A third geologic unit, the Saugus Formation, is exposed at the surface less than 100 feet north of the northern edge of the project site, indicating that it is likely the Saugus Formation is present at shallow depths (i.e., less than five feet below the surface) within the project site. Rincon requested a formal records search from the Natural History Museum of Los Angeles County on March 5, 2022. This search recovered no known

fossil localities within the project site (Bell 2022). However, the search indicated that several fossil localities have been recovered from the same geologic units underlying the project site (Saugus Formation and unnamed Quaternary alluvium).

The distribution, characteristics, and paleontological sensitivity of each geologic unit mapped within the project site, or likely to occur at shallow depths within the project site, are discussed below:

- **Quaternary stream channel deposits (Qg)** underlie the southern part of the project site, nearest the Santa Clara River (Figure 4). Quaternary stream channel deposits underlie active stream channels and consist of gravel and sand (Dibblee and Ehrenspeck 1996). Areas mapped as Quaternary stream channel deposits experience active deposition, so the sediments are too young to preserve paleontological resources. Therefore, Quaternary stream channel deposits has **low paleontological sensitivity.**
- **Quaternary alluvium (Qa)** underlies much of the northern part of the project site (Figure 4). Quaternary alluvium is Holocene in age and consists of gravel, sand, and clay (Dibblee and Ehrenspeck 1996). Due to their Holocene age, Quaternary alluvium may be too young to preserve paleontological resources, but they may be underlain by older sediments in the subsurface. The project site located at the edge of the modern depositional basin as evidenced by the increase in elevation and surficial exposure of an older geologic unit (Saugus Formation) immediately north of the site. Therefore, Quaternary alluvium deposits may be as thin as a few feet, underlain by the highly sensitive Saugus Formation. Therefore, Quaternary alluvium has **low paleontological sensitivity.**
- The **Saugus Formation (QTs)** is exposed at the surface less than 100 feet north of the project site, making it highly likely that this geologic unit underlies the project site at shallow depths, perhaps as little as five feet (Figure 4). The Saugus Formation is Pleistocene to Pliocene in age and consists of light gray to reddish-brown, weakly lithified, conglomerate and sandstone with small areas of siltstone (Dibblee and Ehrenspeck 1996). Several fossil localities have been recovered from the Saugus Formation, bearing taxa such as horses (Equidae), rodents (Rodentia), rabbits (Leporidae), lizards (Squamata), birds, lizards, and invertebrates (Mollusca) (Bell 2022; Jefferson 2010; Paleobiology Database 2022; University of California Museum of Paleontology 2022). Given this fossil-producing history, the Saugus Formation has **high paleontological sensitivity.**

Ground disturbance associated with the proposed improvements to Wells S6, S7, and S8 and the roundabouts as well as use of the construction staging and laydown area would only require surficial ground disturbance in previously disturbed sediments with low paleontological sensitivity (Figure 4). As a result, these project components would result in less-than-significant impacts to paleontological resources.

Trenching for the proposed pipelines would reach up to approximately 5.5 feet in depth. The two pipelines that would be placed parallel to the Santa Clara River Trail would result in disturbance of Quaternary alluvium and Quaternary stream channel deposits, which have low paleontological sensitivity (Figure 4). As a result, these project components would result in less-than-significant impacts to paleontological resources. The proposed north-south pipeline through Bridgeport Park would primarily result in disturbance of Quaternary alluvium (low paleontological sensitivity); however, the northern end of this alignment is approximately 150 feet south of surficial exposures of the Saugus Formation, which has high paleontological sensitivity and could be present in this area as shallow as five feet below ground surface. Given the proximity of this sensitive geologic unit to the pipeline alignment, a 5.5-foot-deep trench would have the potential to result in disturbance to

the Saugus Formation. However, the new north-south pipeline would connect the proposed groundwater treatment and disinfection facility to the existing SCV Water pipeline that runs beneath Newhall Ranch Road, meaning that sediments underlying the northern end of the alignment for the proposed north-south pipeline at and near the point of interconnection have been previously disturbed in conjunction with installation of the existing SCV Water pipeline. Therefore, this project component would also result in less-than-significant impacts to paleontological resources.

The location of the proposed groundwater treatment and disinfection facility and Well S9 is mapped as Quaternary stream channel deposits (Figure 4); however, the well is expected to reach 250 feet below the surface. Cross-sections based on well logs and inferred stratigraphic structure by Dibblee and Ehrenspeck (1996) suggest that Quaternary stream channel deposits and Quaternary alluvium are approximately 100 feet thick along this stretch of the Santa Clara River and are underlain by the Saugus Formation. Therefore, drilling for Well S9 would have the potential to result in disturbance of the Saugus Formation and may significantly impact paleontological resources, if present. Given that the borehole for Well S9 would be approximately 36 inches in diameter, recognizable, significant paleontological resources may be discovered during construction. Therefore, the project would potentially directly or indirectly destroy a unique paleontological resource or site or unique geologic feature, and implementation of Mitigation Measure GEO-1 would be required to reduce impacts associated with drilling Well S9 to a less-than-significant level.

Mitigation Measure

GEO-1 Paleontological Resources Mitigation and Monitoring Plan

SCV Water shall implement the following paleontological resources mitigation and monitoring plan prior to and during construction of Well S9:

- **Qualified Professional Paleontologist.** Prior to excavation, SCV Water shall retain a Qualified Professional Paleontologist, which is defined by the SVP (2010) as an individual, preferably with an M.S. or Ph.D. in paleontology or geology, who is experienced with paleontological procedures and techniques, who is knowledgeable in the geology of California, and who has worked as a paleontological mitigation project supervisor for at least two years. The Qualified Professional Paleontologist shall direct all mitigation measures related to paleontological resources.
- **Paleontological Worker Environmental Awareness Program.** Prior to the start of construction, the Qualified Professional Paleontologist or their designee shall conduct a paleontological Worker Environmental Awareness Program (WEAP) training for construction personnel regarding the appearance of fossils and the procedures for notifying paleontological staff should fossils be discovered by construction staff.
- **Paleontological Monitoring.** Paleontological monitoring shall be conducted during drilling for Well S9. Paleontological monitoring shall be conducted by a paleontological monitor with experience with collection and salvage of paleontological resources and who meets the minimum standards of the SVP (2010) for a Paleontological Resources Monitor. The duration and frequency of the monitoring shall be determined by the Qualified Professional Paleontologist based on the observation of the geologic setting from initial ground disturbance and nature of the drilling activity, and subject to review and approval by SCV Water. In the event of a fossil discovery by the paleontological monitor or construction personnel, all work in the immediate vicinity of the find shall cease. A Qualified Professional Paleontologist shall evaluate

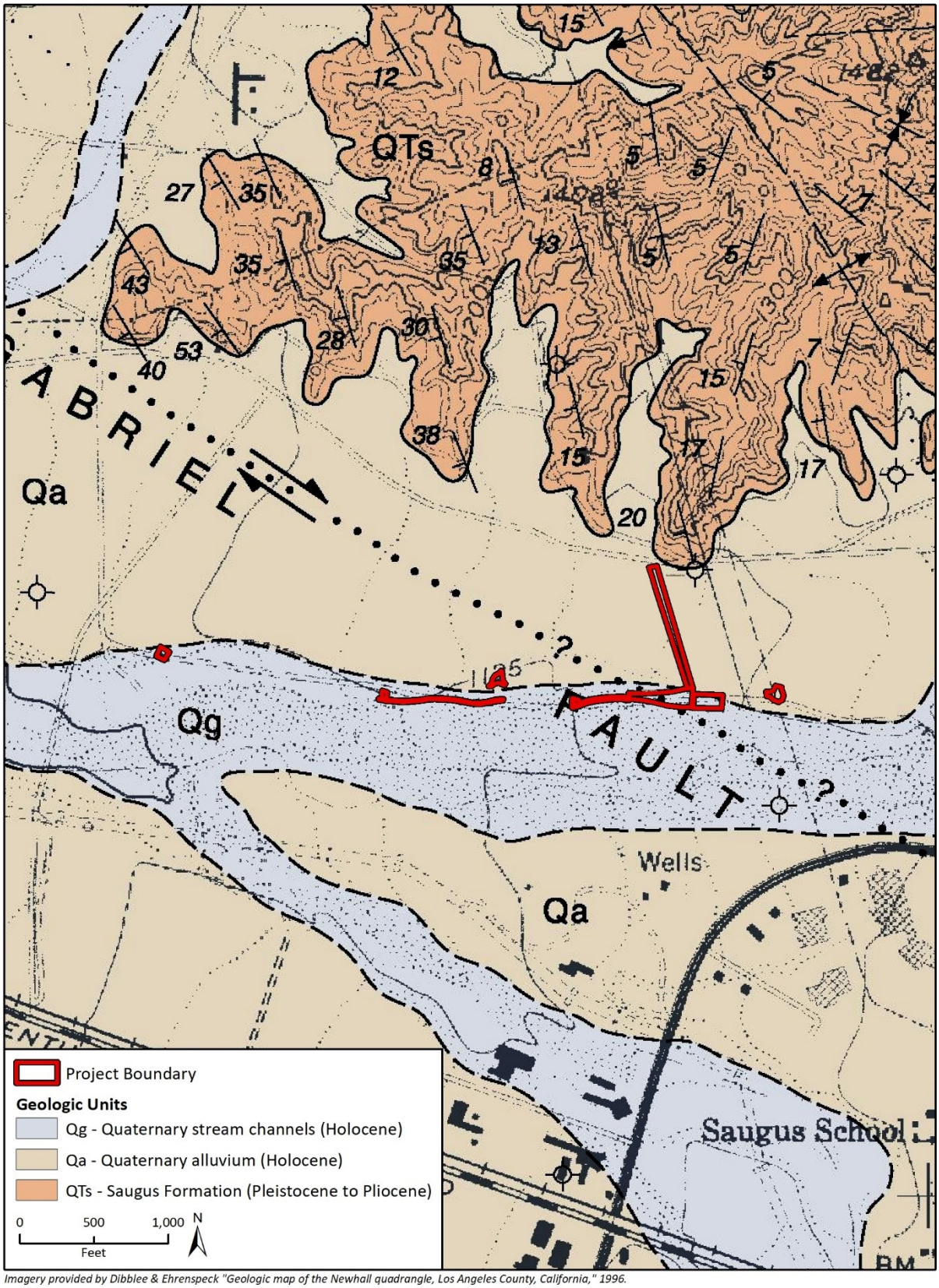
the find before restarting construction activity in the area. If it is determined that the fossil(s) is (are) scientifically significant, the Qualified Professional Paleontologist shall complete the following conditions to mitigate impacts to significant fossil resources:

- **Fossil Salvage.** If a paleontological resource is discovered, the monitor shall have the authority to temporarily divert construction equipment around the find, when doing so is safe and does not compromise the structural integrity of the construction work, until the find is assessed for scientific significance and collected in a safe and timely manner.
- **Fossil Preparation and Curation**. Once salvaged, significant fossils shall be identified to the lowest possible taxonomic level, prepared to a curation-ready condition, and curated in a scientific institution with a permanent paleontological collection along with all pertinent field notes, photos, data, and maps. Fossils of undetermined significance at the time of collection may also warrant curation at the discretion of the Qualified Professional Paleontologist.

- **Final Paleontological Mitigation Report.** Upon completion of drilling for Well S9 (and curation of fossils if necessary) the Qualified Professional Paleontologist shall prepare a final report describing the results of the paleontological monitoring efforts associated with the project. The report shall include a summary of the field and laboratory methods, an overview of the project geology and paleontology, a list of taxa recovered (if any), an analysis of fossils recovered (if any) and their scientific significance, and recommendations. The report shall be submitted to the SCV Water. If the monitoring efforts produced fossils, then a copy of the report shall also be submitted to the designated museum repository.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

Figure 4 Geologic Map of the Project Site



Imagery provided by Dibblee & Ehrenspeck "Geologic map of the Newhall quadrangle, Los Angeles County, California," 1996.

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8 Greenhouse Gas Emissions

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☐	☐	■

Overview of Climate Change and Greenhouse Gases

Climate change is the observed increase in the average temperature of the Earth's atmosphere and oceans along with other substantial changes in climate (such as wind patterns, precipitation, and storms) over an extended period of time. Climate change is the result of numerous, cumulative sources of GHG emissions contributing to the "greenhouse effect," a natural occurrence which takes place in the Earth's atmosphere and helps regulate the temperature of the planet. The majority of radiation from the sun hits the Earth's surface and warms it. The surface, in turn, radiates heat back towards the atmosphere in the form of infrared radiation. Gases and clouds in the atmosphere trap and prevent some of this heat from escaping into space and re-radiate it in all directions.

GHG emissions occur both naturally and as a result of human activities, such as fossil fuel burning, decomposition of landfill wastes, raising livestock, deforestation, and some agricultural practices. GHGs produced by human activities include carbon dioxide (CO_2), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Different types of GHGs have varying global warming potentials (GWP). The GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally, 100 years). Because GHGs absorb different amounts of heat, a common reference gas (CO_2) is used to relate the amount of heat absorbed to the amount of the gas emitted, referred to as "carbon dioxide equivalent" (CO_2e), which is the amount of GHG emitted multiplied by its GWP. Carbon dioxide has a 100-year GWP of one. By contrast, methane has a GWP of 30, meaning its global warming effect is 30 times greater than CO_2 on a molecule per molecule basis (Intergovernmental Panel on Climate Change [IPCC] 2021).[4]

The United Nations IPCC expressed that the rise and continued growth of atmospheric CO_2 concentrations is unequivocally due to human activities in its Sixth Assessment Report (2021). Human influence has warmed the atmosphere, ocean, and land, which has led the climate to warm at an unprecedented rate in the last 2,000 years. It is estimated that between the period of 1850

[4] The Intergovernmental Panel on Climate Change's (2021) *Sixth Assessment Report* determined that methane has a GWP of 30. However, the 2017 Climate Change Scoping Plan published by the California Air Resources Board uses a GWP of 25 for methane, consistent with the Intergovernmental Panel on Climate Change's (2007) *Fourth Assessment Report*. Therefore, this analysis utilizes a GWP of 25.

through 2019, that a total of 2,390 gigatonnes of anthropogenic CO_2 was emitted. It is likely that anthropogenic activities have increased the global surface temperature by approximately 1.1 degrees Celsius between the years 2010 through 2019 (IPCC 2021). Furthermore, since the late 1700s, estimated concentrations of CO_2, methane, and nitrous oxide in the atmosphere have increased by over 43 percent, 156 percent, and 17 percent, respectively, primarily due to human activity (U.S. EPA 2022b). Emissions resulting from human activities are thereby contributing to an average increase in Earth's temperature. Potential climate change impacts in California may include loss of snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years (State of California 2018).

Regulatory Framework

In response to climate change, California implemented Assembly Bill (AB) 32, the "California Global Warming Solutions Act of 2006." AB 32 required the reduction of statewide GHG emissions to 1990 emissions levels (essentially a 15 percent reduction below 2005 emission levels) by 2020 and the adoption of rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions reductions. On September 8, 2016, the Governor signed Senate Bill 32 into law, extending AB 32 by requiring the State to further reduce GHG emissions to 40 percent below 1990 levels by 2030 (the other provisions of AB 32 remain unchanged). On December 14, 2017, CARB adopted the 2017 Scoping Plan, which provides a framework for achieving the 2030 target. The 2017 Scoping Plan relies on the continuation and expansion of existing policies and regulations, such as the Cap-and-Trade Program and the Low Carbon Fuel Standard, and implementation of recently adopted policies and legislation, such as SB 1383 (aimed at reducing short-lived climate pollutants including methane, hydrofluorocarbon gases, and anthropogenic black carbon) and SB 100 (discussed further below). The 2017 Scoping Plan also puts an increased emphasis on innovation, adoption of existing technology, and strategic investment to support its strategies. As with the 2013 Scoping Plan Update, the 2017 Scoping Plan does not provide project-level thresholds for land use development. Instead, it recommends local governments adopt policies and locally-appropriate quantitative thresholds consistent with a statewide per capita goal of six metric tons (MT) of CO_2e by 2030 and two MT of CO_2e by 2050 (CARB 2017).

Other relevant state laws and regulations include SB 100, which supports the reduction of GHG emissions from the electricity sector by accelerating the state's Renewables Portfolio Standard Program. SB 100 requires electricity providers to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045.

Significance Thresholds

The vast majority of individual projects do not generate sufficient GHG emissions to directly influence climate change. However, physical changes caused by a project can contribute incrementally to cumulative effects that are significant, even if individual changes resulting from a project are limited. The issue of climate change typically involves an analysis of whether a project's contribution towards an impact would be cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (CEQA Guidelines Section 15064[h][1]). The CEQA Guidelines provide regulatory direction for the analysis and mitigation of GHG emissions appearing in CEQA documents, while giving lead agencies

the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHGs and climate change impacts.

In guidance provided by the SCAQMD's GHG CEQA Significance Threshold Working Group in September 2010, SCAQMD considered a tiered approach to determine the significance of residential, commercial, and mixed-use projects. The draft tiered approach is outlined in meeting minutes dated September 29, 2010 and consists of the following (SCAQMD 2010):

- **Tier 1.** If the project is exempt from further environmental analysis under existing statutory or categorical exemptions, there is a presumption of less-than-significant impacts with respect to climate change. If not, then the Tier 2 threshold should be considered.
- **Tier 2.** Consists of determining whether or not the project is consistent with a GHG reduction plan that may be part of a local general plan, for example. The concept embodied in this tier is equivalent to the existing concept of consistency in CEQA Guidelines Section 15064(h)(3), 15125(d), or 15152(a). Under this tier, if the proposed project is consistent with the qualifying local GHG reduction plan, it would not result in significant impacts related to GHG emissions. If there is no adopted plan, then the Tier 3 approach would be appropriate.
- **Tier 3.** Establishes a screening significance threshold level to determine significance. The Working Group has provided a recommendation of 3,000 MT of CO_2e per year for land use projects for which SCAQMD is not the lead agency.
- **Tier 4.** Establishes a service population threshold to determine significance. The Working Group has provided a recommendation of 4.8 MT of CO_2e per year for land use projects.

Under Tier 2, project impacts related to GHG emissions would be less-than-significant if a project is consistent with an approved local or regional plan. SCV Water has not adopted a plan for the reduction of GHG emissions; therefore, Tier 2 does not apply, and the GHG emissions analysis for the project cannot be streamlined via CEQA Guidelines Section 15183.5. Therefore, for the purposes of this analysis, the bright-line threshold of 3,000 MT of CO_2e per year is considered to be the best available method for determining the significance of GHG emissions associated with the proposed project.[5]

Methodology

The project's construction emissions and operational GHG emissions from area and mobile sources were estimated using CalEEMod version 2020.4.0 generally in accordance with the methodology outlined in Section 3, *Air Quality*. The SCAQMD recommends amortizing construction-related emissions over a 30-year period in conjunction with a project's operational emissions (SCAQMD 2008b). In accordance with the SCAQMD's recommendation, GHG emissions from project construction were amortized over a 30-year period (the estimated minimum project lifetime), then compared to the threshold of significance. For the purposes of calculating annual GHG emissions under operational conditions, this analysis conservatively accounts for 1,460 one-way maintenance trips, 48 one-way chemical delivery trips, and six one-way resin replacement trips. It was assumed approximately 96.4 percent of vehicles visiting the site annually would be light-duty trucks (for SCV Water operator visits), approximately 3.2 percent would be medium-duty vehicles (for chemical delivery visits), and approximately 0.4 percent would semitrucks (for resin replacement visits).

[5] Because the project would neither directly nor indirectly generate new population, comparison to a per capita or per service population threshold is not appropriate. In addition, because the project would not involve an industrial stationary source requiring SCAQMD permitting, this analysis conservatively uses the lower GHG threshold for development projects of 3,000 MT of CO_2e per year instead of the higher industrial GHG threshold of 10,000 MT of CO_2e per year.

Operational emissions associated with annual electricity consumption were calculated outside CalEEMod by multiplying the anticipated energy use by the carbon intensity factors of SCE-supplied electricity, which were sourced from CalEEMod.

a. Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

Construction and operation of the proposed project would generate GHG emissions. This analysis considers the combined impact of GHG emissions from both construction and operation. Calculations of CO_2, methane, and nitrous oxide emissions are provided to identify the magnitude of potential project effects. Construction of the proposed project would generate temporary GHG emissions primarily as a result of operation of construction equipment on site as well as from vehicles transporting construction workers to and from the project site and heavy trucks to transport building materials and soil export. As shown in Table 8, construction of the proposed project would generate an estimated total of 511 MT of CO_2e. Amortized over a 30-year period (the estimated minimum project lifetime), construction of the proposed project would generate an estimated 17 MT of CO_2e per year.

Table 8 Estimated Construction GHG Emissions

Year	Project Emissions (MT of CO_2e)
Total	7511
Total Amortized over 30 Years	17

MT = metric tons; CO2e = carbon dioxide equivalents
See Appendix A for CalEEMod worksheets.

Operation of the proposed project would generate GHG emissions associated with area sources (e.g., landscape maintenance), energy usage, and vehicle trips. As shown in Table 9, annual operational emissions generated by the proposed project combined with amortized construction emissions would total approximately 197 MT of CO_2e per year. Therefore, project emissions would not exceed the threshold of 3,000 MT of CO_2e per year.

Table 9 Combined Annual Emissions of Greenhouse Gases

Emission Source	Annual Emissions (MT of CO_2e per year)
Construction	17
Operational	
Area	<1
Energy[1]	176
Mobile	4
Total	**197**
Threshold	3,000
Threshold Exceeded?	No

MT = metric tons; CO2e = carbon dioxide equivalents; MWh = megawatt-hours
[1] Estimated based on the upper estimate for the project's electricity consumption of 986 MWh.
See Appendix B for modeling results.

Furthermore, one of the primary sources of GHG emissions associated with the pumping, conveyance, treatment, and distribution of water and wastewater is the use of energy. The 2017

Scoping Plan acknowledges that "the water-energy nexus provides opportunities for conservation of these natural resources as well as reductions of GHG emissions" (CARB 2017). The 2017 Scoping Plan also points to groundwater remediation as a means of "meeting new water demands and sustaining prosperity" (CARB 2017). Statewide emissions reduction strategies for the water sector are aimed at reducing the energy intensity of water, which is "the amount of energy required to take a unit of water from its origin (such as a river or aquifer) and extract and convey it to its end use" (CARB 2017).

The following goals from the 2017 Scoping Plan would be applicable to the proposed project:

- Develop and support more reliable water supplies for people, agriculture, and the environment, provided by a more resilient, diversified, sustainably managed water resources system with a focus on actions that provide direct GHG reductions.
- Reduce the carbon footprint of water systems and water uses for both surface and groundwater supplies through integrated strategies that reduce GHG emissions while meeting the needs of a growing population, improving public safety, fostering environmental stewardship, aiding in adaptation to climate change, and supporting a stable economy.

The purpose of the project is to restore the use of Wells S6, S7 and S8 and install a new Well S9 to serve as a replacement for the Mitchell 5A well, thereby reducing SCV Water's dependency on imported water. Ultimately, this would have the benefit of reducing GHG emissions associated with energy used to transport imported potable water to SCV Water's service area. Furthermore, as shown in Table 9, the majority of project-related GHG emissions would be generated by electricity used to power the treatment process. Therefore, as the requirements of the Renewables Portfolio Standard continue to phase in through 2045, annual GHG emissions generated by project operation would decrease correspondingly. As a result, the project would be consistent with the State's long-term climate goals and strategies as outlined in the 2017 Scoping Plan. Given that project emissions would not exceed the threshold of 3,000 MT of CO_2e per year and the project would be consistent with the 2017 Scoping Plan, project-related GHG emissions would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

SCV Water has not adopted a GHG emissions reduction plan; therefore, there are no local GHG reduction plans that would apply to the proposed project. As such, the primary applicable plan for reducing GHG emissions is CARB's 2017 Scoping Plan. As discussed under threshold (a), the project would be consistent with the State's 2017 Scoping Plan and its goal to use groundwater remediation as a way of reducing the energy intensity (and corresponding GHG emissions intensity) of water supplies. No impact would occur.

NO IMPACT

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9 Hazards and Hazardous Materials

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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 0.25 mile of an existing or proposed school?	☐	■	☐	☐
d. Be located on a site that is included on a list of hazardous material 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 in 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?	☐	■	☐	☐

a. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Construction of the proposed project would temporarily increase the transport and use of hazardous materials during the use of construction vehicles and equipment. Limited quantities of miscellaneous hazardous substances, such as diesel fuel, oil, solvents, and other similar materials, would be brought onto the project site, used, and stored during the construction period. Any use of potentially hazardous materials during construction of the proposed project would be required to comply with all local, state, and federal regulations regarding the handling of hazardous materials, which would minimize the potential for the project to create a significant hazard to the public or the environment. These materials would be disposed off-site in accordance with applicable laws pertaining to the handling and disposal of hazardous waste. The transport, use, and storage of hazardous materials during construction would be conducted in accordance with applicable federal and State laws, such as the Hazardous Materials Transportation Act, California Hazardous Material Management Act, and California Code of Regulations, Title 22.

During operation, sodium hypochlorite (chlorine) and liquid ammonium sulfate would be stored at the proposed facility in a completely enclosed structure with proper containment and venting. Sodium hypochlorite is a liquid disinfection agent added to the water and is commonly referred to as “bleach.” Sodium hypochlorite is not the equivalent of chlorine gas, and chlorine gas would not be used or released during project operation. Chemical deliveries to the proposed disinfection building would occur approximately twice a month, and these materials would be contained within vessels specifically engineered for safe storage. Furthermore, the chemicals stored on site would not be considered hazardous due to low concentrations of ammonia and chlorine. However, in accordance with standard operating practice, SCV Water would submit an emergency response/contingency plan as part of a Hazardous Materials Business Plan to the California Environmental Reporting System for the proposed facility. Spent resin from the PFAS treatment vessels, which may be considered a hazardous waste depending on the concentration of PFAS, would be removed two to three times a year by the resin supplier who would be required to transport and dispose of the material in accordance with all applicable regulations, such as the Hazardous Materials Transportation Act, California Hazardous Material Management Act, and California Code of Regulations, Title 22. Compliance with existing local, state, and federal regulations regarding the handling of hazardous materials during construction and operation would not expose the public or the environment to a significant hazard through the routine transport, use, or disposal of hazardous materials. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. Would the project 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?

The presence of hazardous materials during project construction activities, including but not limited to ground-disturbing activities, could result in an accidental upset or release of hazardous materials if they are not properly stored and secured. Hazardous materials used during project construction would be disposed of off-site in accordance with all applicable laws and regulations, including but not limited to the CBC and California Fire Code, as well the regulations of the federal and state Occupational Safety and Health Administrations. Nonetheless, upset or accident conditions could result in the unanticipated spill or release of hazardous materials such as vehicle and equipment fuels during project construction, potentially introducing a hazard to the public and/or the

environment, which could result in a potentially significant impact especially if materials are released into the Santa Clara River. Therefore, implementation of Mitigation Measure HAZ-1 would be required to provide an additional level of safety during project construction, thereby reducing the potential impact to the public and environment due to release of hazardous materials during upset or accident conditions to a less-than-significant level.

As discussed under item (a), operation and maintenance of the project would involve the routine use and storage of sodium hypochlorite and liquid ammonium sulfate, which are not considered hazardous materials. Spent resin from the PFAS treatment vessels, which may be considered a hazardous waste depending on the concentration of PFAS, would be removed two to three times a year by the resin supplier who would be required to transport and dispose of the material in accordance with all applicable regulations, such as the Hazardous Materials Transportation Act, California Hazardous Material Management Act, and California Code of Regulations, Title 22. Because of the static nature of the spent resin, any accidents occurring during the removal, transport, and disposal of the resin would be unlikely to create a significant hazard to the public or the environment. Therefore, project operation would not 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.

Mitigation Measure

HAZ-1 Hazardous Materials Management and Spill Control Plan

SCV Water shall require its construction contractor(s) to submit a Hazardous Materials Management and Spill Control Plan (HMMSCP), including a project-specific contingency plan for hazardous materials and waste operations to SCV Water for review and approval. The HMMSCP shall establish policies and procedures consistent with applicable codes and regulations, including, but not limited to, the California Building and Fire Codes, as well as regulations promulgated by the United States Department of Labor, United States Occupational Safety and Health Administration, and California Division of Occupational Safety and Health. The HMMSCP shall articulate hazardous materials handling practices to prevent the accidental spill or release of hazardous materials during project construction.

Significance after Mitigation

Mitigation Measure HAZ-1 would require preparation and implementation of a HMMSCP with appropriate procedures to implement in the event of an accidental spill or release of hazardous materials during project construction. Therefore, implementation of Mitigation Measure HAZ-1 would reduce impacts to the public or the environment related to the release of hazardous materials into the environment during reasonably foreseeable upset and accident conditions to a less-than-significant level.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

c. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?

The nearest school to the project site is Bridgeport Elementary School, located approximately 75 feet east of the nearest project component (the proposed roundabout improvements area at the intersection of Bridgeport and Bayside Lanes) and approximately 170 feet north of the proposed

groundwater treatment and disinfection facility. As discussed under thresholds (a) and (b), the transport, use, and storage of hazardous materials during construction and operation of the project would be conducted in accordance with applicable State and federal laws. Hazardous materials associated with project operation, including sodium hypochlorite and liquid ammonium sulfate, would not produce hazardous air emissions under normal operating conditions when handled properly by trained personnel (i.e., the SCV Water operators). In addition, sodium hypochlorite is not the equivalent of chlorine gas, and chlorine gas would not be used or released during project operation. Furthermore, implementation of Mitigation Measure HAZ-1 would be required to provide an additional level of safety during project construction, thereby reducing the potential for accidental spills of hazardous materials to affect Bridgeport Elementary School. As a result, impacts would be less than significant.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

d. Would the project be located on a site that is included on a list of hazardous material 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?

The following databases and listings compiled pursuant to Government Code Section 65962.5 were reviewed on February 3, 2022, for known hazardous materials contamination at the project site:

- State Water Resources Control Board - GeoTracker search for leaking underground storage tanks (LUST) and other cleanup sites (SWRCB 2022);
- California Department of Toxic Substances Control - EnviroStor database for hazardous waste facilities or known contamination sites (California Department of Toxic Substances Control 2022); and
- USEPA Superfund Enterprise Management System Search (U.S. EPA 2022c).

The project site is not listed in the above environmental databases, and no other listed sites are located within 1,000 feet of the project site. Therefore, the project would not create a significant hazard to the public or the environment related to location on a hazardous materials site. No impact would occur.

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 or excessive noise for people residing or working in the project area?

The closest public airport to the project site is Whiteman Airport, located approximately 14 miles to the southeast of the project site. Therefore, the site is not located in an area covered by an airport land use plan or within two miles of a public or public use airport. As such, the project would not result in a safety hazard or excessive aircraft noise for people working at the project site during construction or operation. No impact would occur.

NO IMPACT

f. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

During project construction, equipment staging would primarily occur on site and on vacant land directly east of the project site and would not require lane or road closures. However, during

construction of the proposed roundabout improvements, it is likely that a lane or road closure at the two affected intersections would be required. Newhall Ranch Road may also require lane or road closures during construction of the interconnection pipeline. These closures could slow traffic through the local area and thereby affect implementation of emergency response and emergency evacuation plans. Therefore, impacts during project construction would be potentially significant, and implementation of Mitigation Measure HAZ-2 would be required to reduce impacts to a less-than-significant level.

The project does not include changes to the existing street system that could result in inadequate emergency access, and project operation and maintenance would not introduce new activities or substantial operational traffic with the potential to interfere with emergency response and evacuations. Rather, the roundabout improvements at the project site would likely provide enhanced access for emergency responders and evacuation orders. Therefore, no operational impacts related to emergency response plans and emergency evacuation plans would occur.

Mitigation Measure

HAZ-2 Traffic Control Plan

SCV Water shall require the project contractor(s) to prepare and implement a traffic control plan that specifies how traffic will be safely and efficiently redirected during lane closures. All work shall comply with the Work Area Traffic Control Handbook, which conforms to the standards and guidance of the California Manual on Uniform Traffic Control Devices. Traffic control measures for lane and road closures shall be included, and priority access shall be given to emergency vehicles. The traffic control plan shall also include requirements to notify local emergency response providers and all residences within 1,000 feet at least one week prior to the start of work when lane or road closures are required.

Significance after Mitigation

Mitigation Measure HAZ-2 would require the project contractor(s) to safely redirect traffic, utilize traffic control measures, and give emergency response providers advance notification and priority access such that the potential to impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan would be minimized. Therefore, implementation of Mitigation Measure HAZ-2 would reduce impacts to a less-than-significant level.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

g. Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

As discussed in Section 20, *Wildfire,* the project site is not located in a State Responsibility Area or designated as a Very High Fire Hazard Severity Zone (VHFHSZ) (California Department of Forestry and Fire Protection [CAL FIRE] 2022a). The nearest VHFHSZ is located approximately 0.5 mile southeast of the project site within undeveloped land southeast of the intersection of Bouquet Canyon Road and Soledad Canyon Road. Commercial development, arterial roadways, and the Santa Clara River are present between the project site and the VHFHSZ. The presence of such features creates a buffer from the project site to the VHFHSZ and minimizes chance of exposure to wildland fires. However, the project site is adjacent to brush-covered open space vegetation including highly combustible native plant communities which could pose a fire risk. Heavy duty equipment used during construction that may produce sparks that could ignite vegetation would be limited through

regulatory compliance. California PRC Section 4442 mandates the use of spark arrestors, which prevent the emission of flammable debris from exhaust on earth-moving and portable construction equipment with internal combustion engines that are operating on any forest-covered, brush-covered, or grass-covered land. PRC Section 4428 requires construction contractors to maintain fire suppression equipment during the highest fire danger period (April 1 to December 1) when operating on or near any forest-covered, brush-covered, or grass-covered land. These regulations would minimize the risk of fire resulting from project construction activities. Nevertheless, construction activities would have the potential to result in wildland fires due to proximity to brush-covered land, and impacts would be potentially significant. Implementation of Mitigation Measure HAZ-3 would be required to reduce construction impacts to a less-than-significant level.

Project operation would not include component with the potential to ignite wildland fires. Therefore, project operation would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires, and no impact would occur.

Mitigation Measures

HAZ-3 Fire Hazards Measures

During project construction, staging areas and other areas designated for construction shall be cleared of dried vegetation and other materials that could ignite. Construction equipment with spark arrestors shall be maintained in good working order. In addition, construction crews shall have a spotter during electrical installation activities who shall stop work should accidental sparks or other fire-inducing hazards occur. The spotter and construction crews shall take immediate action to remediate the hazard to safe conditions. Electrical work shall continue when approval by a site manager is granted that the hazard has been remediated. Other construction equipment, including those with hot vehicle catalytic converters, shall be kept in good working order and used only within cleared construction areas. During project construction, contractors shall require vehicles and crews to have access to functional fire extinguishers.

Significance after Mitigation

Mitigation Measure HAZ-3 would require the project contractor(s) to implement fire prevention measures such that the potential to ignite wildland fires would be minimized. Therefore, implementation of Mitigation Measure HAZ-3 would reduce impacts to a less-than-significant level.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

10 Hydrology and Water Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	■	☐	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that 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 on- or off-site;	☐	☐	■	☐
(ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	☐	☐	■	☐
(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?	☐	■	☐	☐

a. Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Construction

As stormwater flows over a construction site, it can pick up sediment, debris, and chemicals, and transport them to receiving water bodies. Temporary site preparation and trenching activities associated with the project may result in soil erosion. Construction activities could also affect water quality in the event of an accidental fuel or hazardous materials leak or spill. Receiving water bodies in the vicinity of the project site including the Santa Clara River to the south.

As previously discussed in Section 7, *Geology and Soils*, construction activities would be required to comply with the NPDES Construction General Permit (Order No. 2009-2009-DWQ, as amended) because project construction would disturb more than one acre of land. The NPDES Construction General Permit requires preparation and implementation of a project-specific SWPPP, which requires operators to implement pollution prevention controls to minimize the discharge of pollutants from stormwater and spilled or leaked materials. Such controls include installation of silt fencing and sandbag barriers, covering of stockpiles, use of desilting basins, and post-construction revegetation and drainage requirements. In addition, pursuant to the NPDES Construction General Permit requirements, inspections would be conducted on the project site once every seven calendar days and within 24 hours of a 0.25-inch storm event. Compliance with applicable regulatory requirements would minimize potential surface water quality impacts associated with sediment erosion during project construction.

There is potential for accidental leaks and spills of hazardous materials at the surface during project construction, which could result in potentially significant impacts to water quality if hazardous materials enter the Santa Clara River. Mitigation Measure HAZ-1, as described in Section 9, *Hazards and Hazardous Materials*, would reduce the potential for accidental leaks and spills of hazardous materials by requiring preparation and implementation of an HMMSCP. With implementation of Mitigation Measure HAZ-1, project construction would not violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality, and impacts would be less than significant.

Operation

The proposed project consists of a groundwater treatment and disinfection facility, new groundwater well, and associated infrastructure improvements. The project includes installation of an underground storm drain pipeline from a point south of the Bridgeport Lane/Bayside Lane intersection to the existing Well S7 location. This pipeline would convey stormwater flows and pumped groundwater that currently sheet flow from the site into the river to an existing 30-inch stormwater drain pipeline that ultimately outlets to the river. In addition, the proposed groundwater treatment and disinfection facility would include a drainage pipeline connection between the proposed treatment facility and the existing 30-inch SCV Water storm drainage outlet pipeline on the eastern portion of the treatment facility location. The proposed drainage pipeline would collect and convey on-site stormwater runoff and groundwater produced during periodic installation and water quality testing of new resin media in the treatment vessels to the existing stormwater drainage outlet approximately 135 feet south of the project site. Both discharges would be covered under SCV Water's existing Statewide General Permit for Drinking Water System Discharges to the Waters of the United States No 4DW0768 and thus would be required to comply with the water quality standards established in this permit. As such, project operation would not

violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality. Impacts would be less than significant.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

b. Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

The project site overlies the Santa Clara River Valley East Groundwater Subbasin (California Department of Water Resources 2006). The Santa Clara River Valley East Groundwater Subbasin is designated as a high-priority groundwater basin under the Sustainable Groundwater Management Act (SGMA) but is not critically over-drafted (SCV GSA 2022). The SCV GSA manages the basin and has adopted the Santa Clara River Valley East Groundwater Subbasin GSP to guide its efforts (SCV GSA 2022).

The proposed groundwater treatment and disinfection facility would restore the use of Wells S6, S7 and S8, and the new Well S9 would serve as a replacement for the existing Mitchell 5A Well that is being abandoned by a private developer as part of the Vista Canyon Plaza Development. The purpose of the proposed project is to reduce SCV Water's dependence on imported water supplies by restoring its groundwater production capacity. The proposed project would not result in an increase in SCV Water's basin-wide groundwater pumping as compared to baseline conditions when Wells S6, S7, S8, and the Mitchell 5A well were operational. Thus, the project would not substantially decrease basin-wide groundwater supplies such that the project may impede sustainable groundwater management of the basin, and no impact would occur.

As discussed in Section 4, *Biological Resources*, reactivated operation of existing Wells S6, S7, and S8 in conjunction with operation of the new Well S9 could deplete local groundwater levels beyond the minimum thresholds for depletion of interconnected surface waters established in the Santa Clara River Valley East Groundwater Subbasin GSP and could thus impact the Fremont cottonwood forest and woodland vegetation community located near the project site, which is identified as a potential GDE in the Santa Clara River Valley East Groundwater Subbasin GSP. Implementation of Mitigation Measure BIO-3 would be required to achieve sustainable groundwater extraction such that the project would not substantially decrease local groundwater supplies such that the project may impede sustainable groundwater management of the basin. Impacts would be less than significant with mitigation incorporated.

The project would increase impervious surfaces on the project site through construction of the proposed groundwater treatment and disinfection facility. However, stormwater runoff from the groundwater treatment and disinfection facility would be discharged the existing storm drainage outlet pipeline to the Santa Clara River where it would have the opportunity to percolate into the underlying groundwater basin. Therefore, the project would not interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin, and impacts would be less than significant.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

c.(i) Would the project 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 result in substantial erosion or siltation on- or off-site?

c.(ii) Would the project 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 substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

c.(iii) Would the project 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 that would 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?

c.(iv) Would the project 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 impede or redirect flood flows?

The project site does not include any streams or rivers and is not located within a 100- or 500-year flood zone (Federal Emergency Management Agency 2021). The proposed project would not result in alterations to the course of the nearby Santa Clara River. The project would increase impervious surfaces at the location of the proposed groundwater treatment and disinfection facility and new Well S9. Under existing conditions, stormwater currently sheet flows from this location to the Santa Clara River and onto Bridgeport Lane. Under the proposed project, stormwater runoff from the facility would be directed to a new underground 12-inch drainage pipeline connection that would connect to the existing 30-inch SCV Water storm drainage outlet pipeline on the eastern portion of the treatment facility location. The drainage pipeline would collect and convey on-site stormwater runoff and groundwater produced during periodic installation and water quality testing of new resin media in the treatment vessels to the existing stormwater drainage outlet approximately 135 feet south of the project site. In addition, the project includes installation of an underground storm drain pipeline from a point south of the Bridgeport Lane/Bayside Lane intersection to the existing Well S7 location. This pipeline would convey stormwater flows and pumped groundwater that currently sheet flow from the site into the river to an existing 30-inch stormwater drain pipeline that ultimately outlets to the river. Stormwater runoff discharges from both pipelines would be required to comply with the SCV Water's existing Statewide General Permit for Drinking Water System Discharges to the Waters of the United States No 4DW0768. Pursuant to this permit, SCV Water would be required to implement BMPs that would minimize sediment discharge via the use of erosion control measures such as use of flow diffusers or the construction of check dams to slow flow. Furthermore, the net change in surface runoff discharged to the Santa Clara River from this location as compared to existing conditions would be minimal under the proposed project because runoff from this location currently partially discharges to the river. As such, the addition of impervious surfaces would not result in substantial erosion or siltation; increase the rate or amount of surface runoff such that on- or off-site flooding occurs; exceed stormwater drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flood flows. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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

The nearest body of water that could be subject to seiche is Castaic Lake, approximately 7.5 miles north of the project site. Given this distance, the project site is not at risk of inundation due to

seiche. The project site is approximately 40 miles east from the Pacific Ocean and is therefore not located in a tsunami hazard zone. Additionally, the project site is not located within a flood hazard zone (Federal Emergency Management Agency 2021). Therefore, the project site is not at risk of inundation and would no potential to release of pollutants due to project inundation. No impact would occur.

NO IMPACT

e. Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

The project is subject to the requirements of the Los Angeles Regional Water Quality Control Board's Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties (Los Angeles Regional Water Quality Control Board 2014). As described under threshold (a), the project would be required to comply with the NPDES Construction General Permit to protect water quality during construction. The NPDES Construction General Permit requires preparation and implementation of a project specific SWPPP, which requires operators to implement pollution prevention controls to minimize the discharge of pollutants from stormwater and spilled or leaked materials. Compliance with applicable regulatory requirements would minimize potential surface water quality impacts associated with sediment erosion during project construction. In addition, pursuant to the requirements of SCV Water's existing Statewide General Permit for Drinking Water System Discharges to the Waters of the United States No 4DW0768, SCV Water would be required to implement BMPs that would minimize sediment discharge in stormwater runoff during project operation via the use of erosion control measures such as use of flow diffusers or the construction of check dams to slow flow. As a result, the project would not conflict with or obstruct implementation of the applicable water quality control plan, and impacts would be less than significant.

The project site overlies the Santa Clara River Valley East Groundwater Subbasin, which is subject to the Santa Clara River Valley East Groundwater Subbasin GSP (SCV GSA 2022). As discussed under threshold (b), the proposed project would not result in a change in the amount of groundwater extracted by SCV Water from the Santa Clara River Valley East Groundwater Subbasin and would not substantially interfere with groundwater recharge. In addition, as discussed in Section 4, *Biological Resources*, the project would not result in adverse impacts to groundwater-dependent ecosystems with implementation of Mitigation Measure BIO-3. Accordingly, the proposed project would not conflict with or obstruct implementation of the Santa Clara River Valley East Groundwater Subbasin GSP. Impacts would be less than significant with mitigation incorporated.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

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11 Land Use and Planning

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	■	☐	☐

a. Would the project physically divide an established community?

The project consists of improvements and construction to water infrastructure and transportation facilities in a residential area in the city of Santa Clarita. Improvements to Wells S6, S7, and S8 as well as the two roundabouts would not change their location or function. The proposed pipelines would be located underground and would not result in permanent surficial changes to the public's ability to use Bridgeport Park or the Santa Clara River Trail upon the completion of construction. The proposed groundwater treatment and disinfection facility and Well S9 would not divide the community because they would be located on a vacant site bounded by Bridgeport Lane to the north, the Santa Clara River Trail to the south, and open space to the east and west. Therefore, the project would not physically divide an established community, and no impact would occur.

NO IMPACT

b. Would the project 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?

The project consists of improvements and construction to water infrastructure and transportation facilities on a parcel zoned Specific Plan-Open Space (North Valencia Specific Plan). However, according to Government Code Section 53091, building and zoning ordinances of a county or city shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water. As such, the project would not be subject to the City's building and zoning ordinances (Santa Clarita Municipal Code Titles 17 and 18) or the North Valencia Specific Plan, which establishes additional zoning regulations for the project area. However, SCV Water would obtain the required vegetation removal permit from the Santa Clarita City Manager prior to any vegetation removal (Santa Clarita Municipal Code Section 14.10.060).

The City of Santa Clarita General Plan includes Objective LU 7.2 for water service, which states that the City shall "ensure an adequate water supply to meet the demands of growth" (City of Santa Clarita 2011). Objective CO 4.2 also aims to "work with water providers and other agencies to identify and implement programs to increase water supplies to meet the needs of future growth" (City of Santa Clarita 2011). The proposed project would enable SCV Water to continue providing its

existing customers with a safe, reliable water supply by enabling SCV Water to reactivate Wells S6, S7, and S8 and maintain their groundwater production capacity through installation of Well S9 as a replacement for the Mitchell 5A well. Therefore, the project would further implementation of Objective LU 7.2 and Objective CO 4.2 by constructing water infrastructure improvements to meet necessary water supply requirements, protect the long-term security of water supplies, and safeguard groundwater quality. The project would also be consistent with the Open Space land use designation because open space can be used for managed production of resources, such as groundwater, according to the City's General Plan Conservation and Open Space Element. In addition, in furtherance of Goal LU 6 of the City's General Plan Land Use Element, the proposed groundwater treatment and disinfection facility would be enclosed with an up to approximately 15-foot-high decorative wall and architectural paneling to screen the treatment vessels and improvements, which would facilitate the creation of a scenic and beautiful urban environment. For all other issue areas, the project would result in no impact, less than significant impacts, or less than significant impacts with the incorporation of mitigation measures, as detailed throughout this Initial Study. For example, the project would be required to obtain a permit from the Santa Clarita City Manager prior to any vegetation removal pursuant to Santa Clarita Municipal Code Section 14.10.060), and as discussed in Section 13, *Noise*, noise generated during project construction and operation would be consistent with the noise regulations of Santa Clarita Municipal Code Chapter 11.40 with implementation of Mitigation Measure N-1 for drilling activities associated with the new Well S9. In addition, as discussed in Section 1, *Aesthetics*, the project would be consistent with Objectives CO 6.1 through 6.6 in the City's General Plan Conservation and Open Space Element as they relate to scenic quality. As such, the project would not cause a significant environmental impact due to a conflict with the land use plans, policies, and regulations of the City of Santa Clarita adopted for the purpose of avoiding or mitigating an environmental effect. Impacts would be less than significant with mitigation incorporated.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

12 Mineral Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☐	☐	■

a. Would the project 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. Would the project 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?

The project site is currently vacant and is zoned as Specific Plan-Open Space (North Valencia Specific Plan). The project site is surrounded by Bridgeport Elementary School and open space to the west, the Santa Clara River to the south, residential development and open space to the east, and residential development and Bridgeport Park to the north. According to the City's General Plan Final EIR, the project site is in an area with a Mineral Resource Zone 2 designation, which indicates the presence of significant aggregate resources (City of Santa Clarita 2010). However, the site is not designated or zoned for mineral resource extraction, and no mineral resource extraction activities are currently occurring on site. Additionally, the nearby residential and school uses are not compatible with mineral extraction activities. Furthermore, the project would not preclude future use of the site for mineral resource extraction. Therefore, the project would result in no impacts to mineral resources.

NO IMPACT

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13 Noise

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project result in:				
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the 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?	☐	☐	☐	■

Overview of Noise and Vibration

Noise

Sound is a vibratory disturbance created by a moving or vibrating source, which is capable of being detected by the hearing organs. Noise is defined as sound that is loud, unpleasant, unexpected, or undesired and may therefore be classified as a more specific group of sounds. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and, in the extreme, hearing impairment (California Department of Transportation [Caltrans] 2013).

Noise levels are commonly measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound pressure levels so they are consistent with the human hearing response, which is most sensitive to frequencies around 4,000 Hertz and less sensitive to frequencies around and below 100 Hertz. Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used to measure earthquake magnitudes. A doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; dividing the energy in half would result in a 3 dB decrease (Caltrans 2013).

Human perception of noise has no simple correlation with sound energy. The perception of sound is not linear in terms of dBA or in terms of sound energy. Two sources do not “sound twice as loud” as

one source. It is widely accepted that the average healthy ear can barely perceive changes of 3 dBA, increase or decrease (i.e., twice the sound energy); that a change of 5 dBA is readily perceptible (eight times the sound energy); and that an increase (or decrease) of 10 dBA sounds twice (half) as loud (10.5 times the sound energy) (Caltrans 2013).

Sound changes in both level and frequency spectrum as it travels from the source to the receiver. The most obvious change is the decrease in level as the distance from the source increases. The manner by which noise reduces with distance depends on factors such as the type of sources (e.g., point or line, the path the sound will travel, site conditions, and obstructions). Noise levels from a point source typically attenuate, or drop off, at a rate of 6 dBA per doubling of distance (e.g., construction, industrial machinery, ventilation units). Noise from a line source (e.g., roadway, pipeline, railroad) typically attenuates at about 3 dBA per doubling of distance (Caltrans 2013). Noise levels may also be reduced by intervening structures; the amount of attenuation provided by this "shielding" depends on the size of the object and the frequencies of the noise levels. Natural terrain features such as hills and dense woods, and man-made features such as buildings and walls, can significantly alter noise levels. Generally, any large structure blocking the line of sight will provide at least a 5-dBA reduction in source noise levels at the receiver (Federal Highway Administration [FHWA] 2011).

The impact of noise is not a function of loudness alone. The time of day when noise occurs and the duration of the noise are also important factors of project noise impact. Most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors have been developed. L_{eq} is one of the most frequently used noise metrics; it considers both duration and sound power level. The L_{eq} is defined as the single steady-state A-weighted sound level equal to the average sound energy over a time period. When no time period is specified, a 1-hour period is assumed. The L_{max} is the highest noise level within the sampling period, and the L_{min} is the lowest noise level within the measuring period. Normal conversational levels are in the 60 to 65-dBA L_{eq} range; ambient noise levels greater than 65 dBA L_{eq} can interrupt conversations (Federal Transit Administration [FTA] 2018).

Vibration

Groundborne vibration of concern in environmental analysis consists of the oscillatory waves that move from a source through the ground to adjacent buildings or structures, and vibration energy may propagate through the buildings or structures. Vibration may be felt, may manifest as an audible low-frequency rumbling noise (referred to as groundborne noise), and may cause windows, items on shelves, and pictures on walls to rattle. Although groundborne vibration is sometimes noticeable in outdoor environments, it is almost never annoying to people who are outdoors. The primary concern from vibration is that it can be intrusive and annoying to building occupants at vibration-sensitive land uses and may cause structural damage.

Typically, ground-borne vibration generated by manmade activities attenuates rapidly as distance from the source of the vibration increases. Vibration amplitudes are usually expressed in peak particle velocity (PPV) or root mean squared (RMS) vibration velocity. The PPV and RMS velocity are normally described in inches per second (in/sec). PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is often used as it corresponds to the stresses that are experienced by buildings (Caltrans 2020).

High levels of groundborne vibration may cause damage to nearby building or structures; at lower levels, groundborne vibration may cause minor cosmetic (i.e., non-structural damage) such as

cracks. These vibration levels are nearly exclusively associated with high impact activities such as blasting, pile-driving, vibratory compaction, demolition, drilling, or excavation.

Sensitive Receivers

Noise exposure goals for various types of land uses reflect the varying noise sensitivities associated with those uses. The City's Noise Element describes noise-sensitive land uses as housing, schools, medical facilities, libraries, social care facilities, and similar facilities (City of Santa Clarita 2011). The nearest noise-sensitive receivers to the project site consist of residences, which are located approximately 20 feet to the north and west of both proposed roundabout improvements areas, and Bridgeport Elementary School, which is located approximately 70 feet to the east of the proposed roundabout improvements area located at Bridgeport and Bayside Lanes.

Vibration sensitive receivers are similar to noise sensitive receivers and includes residences and institutional uses, such as schools, churches, and hospitals. However, vibration sensitive receivers also include buildings where vibrations may interfere with vibration-sensitive equipment, which can affected by levels that may be well below those associated with human annoyance.

Project Noise Setting

The most common source of noise in the project site vicinity is vehicular traffic along Bridgeport Lane. To characterize ambient sound levels at and near the project site, three 15-minute sound level measurements were conducted along Bridgeport Lane on Wednesday, February 23, 2022 at the locations shown in Figure 5. An Extech, Model 407780A, ANSI Type 2 integrating sound level meter was used to conduct the measurements. Table 10 summarizes the results of the noise measurements, and detailed sound level measurement data are included in Appendix E.

Figure 5 Noise Measurement Locations

Table 10 Project Site Noise Monitoring Results – Short Term

Measurement	Location	Sample Times	Approximate Distance to Primary Noise Source	L_{eq} (dBA)	L_{max} (dBA)	Notes
NM1	South of project site along Santa Clara River Trail	8:25 – 8:40 a.m.	Approximately 180 feet to centerline of Bridgeport Lane	59	76	Low traffic flows (14 to 15 passenger vehicles); secondary noise sources included students on playground at Bridgeport Elementary School.
NM2	Along Bridgeport Lane adjacent to Bridgeport Elementary School	9:15 – 9:30 a.m.	Approximately 35 feet to centerline of Bridgeport Lane	58	72	
NM 3	Southeastern corner of Bridgeport Park adjacent to residences along Waterway Lane	9:38 – 9:53 a.m.	Approximately 100 feet to centerline of Bridgeport Lane	56	65	Low traffic flows (8 passenger vehicles); maintenance workers initiated leaf blowing nearby at the end of the measurement.

Detailed sound level measurement data are included in Appendix E. See Figure 5 for noise measurement locations.

Regulatory Setting

Chapter 11.44 of the Santa Clarita Municipal Code contains the City's noise regulations. Section 11.40.040 establishes operational noise level limits at residential, commercial, and manufacturing uses, which are shown in Table 11.

Table 11 City of Santa Clarita Noise Limits

Land Use[1]	Time	Noise Limit (dB)[2]
Residential	Day (7:00 a.m. to 9:00 p.m.)	65
Residential	Night (9:00 p.m. to 7:00 a.m.)	55
Commercial/manufacturing	Day (7:00 a.m. to 9:00 p.m.)	80
Commercial/manufacturing	Night (9:00 p.m. to 7:00 a.m.)	70

[1] At the boundary line between a residential property and a commercial and manufacturing property, the noise level of the quieter zone shall be used.

[2] Corrections to Noise Limits. The numerical limits above shall be adjusted by the following corrections, where the following noise conditions exist:

- Correction of -5 dB for repetitive impulsive noise
- Correction of -5 dB for steady whine, screech or hum
- The following corrections apply to daytime hours only:
  - Correction of +5 dB for noise occurring more than five but less than 15 minutes per hour
  - Correction of +10 dB for noise occurring more than one but less than five minutes per hour
  - Correction of +20 dB for noise occurring less than 1 minute per hour

Source: Santa Clarita Municipal Code Section 11.40.040

Santa Clarita Municipal Code Section 11.44.070 states, "any noise level from the use or operation of any machinery, equipment, pump, fan, air conditioning apparatus, refrigerating equipment, motor vehicle, or other mechanical or electrical device, or in repairing or rebuilding any motor vehicle, which exceeds the noise limits as set forth in Section 11.44.040 at any property line, or, if a condominium or rental units, within any condominium or rental unit within the complex, shall be a violation of this chapter."

Section 11.44.080 states that no person shall engage in any construction work which requires a building permit from the City on sites within 300 feet of a residentially zoned property, except between the hours of 7:00 a.m. to 7:00 p.m., Monday through Friday, and 8:00 a.m. to 6:00 p.m. on Saturday. Further, no work shall be performed on the following public holidays: New Year's Day, Independence Day, Thanksgiving, Christmas, Memorial Day and Labor Day. According to previous noise reports conducted in the City, City staff have indicated that construction work performed in conformance with Santa Clarita Municipal Code Section 11.44.080 is exempt from Santa Clarita Municipal Code Section 11.44.070 (Impact Sciences, Inc. 2010).

Significance Thresholds

Construction Noise

Although daytime construction activity is exempt from compliance with Santa Clarita Municipal Code Section 11.44.070 if it occurs in conformance with Santa Clarita Municipal Code Section 11.44.080, for purposes of this analysis, the FTA Transit Noise and Vibration Impact Assessment (2018) criteria will be used. The FTA provides reasonable criteria for assessing construction noise impacts based on the potential for adverse community reaction. For residential uses, the daytime noise threshold is 80 dBA L_{eq} for an 8-hour period. This threshold is also conservatively utilized to evaluate daytime construction noise impacts at Bridgeport Elementary School.

Nighttime construction activities between 7:00 p.m. and 7:00 a.m. would be required for drilling Well S9 and would therefore be subject to the noise level limits contained in Santa Clarita Municipal Code Section 11.44.070. As a result, the nighttime noise level limit of 55 dBA L_{eq} for residential uses is utilized to evaluate the significance of nighttime construction noise impacts associated with well drilling (see Table 11).

Operational Noise

The noise level limits contained in Santa Clarita Municipal Code Section 11.40.040 were utilized to evaluate the project's operational noise impacts (see Table 11).

Vibration

Vibration limits used in this analysis to determine a potential impact to local land uses from construction activities, such as blasting, pile-driving, vibratory compaction, demolition, drilling, or excavation, are based on information contained in the Caltrans (2020) *Transportation and Construction Vibration Guidance Manual* and the FTA (2018) *Transit Noise and Vibration Impact Assessment Manual*. Maximum vibration limits recommended by the American Association of State Highway and Transportation Officials (AASHTO) are identified in Table 12.

Table 12 AASHTO Maximum Vibration Levels for Preventing Damage

Type of Situation	Limiting Velocity (in/sec)
Historic sites or other critical locations	0.1
Residential buildings, plastered walls	0.2–0.3
Residential buildings in good repair with gypsum board walls	0.4–0.5
Engineered structures, without plaster	1.0–1.5

in/sec = inches per second; AASHTO = American Association of State Highway and Transportation Officials
Source: Caltrans 2020

Based on AASHTO recommendations, limiting vibration levels to below 0.2 in/sec PPV at residential structures would prevent structural damage regardless of building construction type. These limits are applicable regardless of the frequency of the source. However, as shown in Table 13 and Table 14, potential human annoyance associated with vibration is usually different if it is generated by a steady state or a transient vibration source.

Table 13 Human Response to Steady State Vibration

PPV (in/sec)	Human Response
3.6 (at 2 Hz)–0.4 (at 20 Hz)	Very disturbing
0.7 (at 2 Hz)–0.17 (at 20 Hz)	Disturbing
0.10	Strongly perceptible
0.035	Distinctly perceptible
0.012	Slightly perceptible

PPV = peak particle velocity; Hz = hertz
Source: Caltrans 2020

Table 14 Human Response to Transient Vibration

PPV (in/sec)	Human Response
2.0	Severe
0.9	Strongly perceptible
0.24	Distinctly perceptible
0.035	Barely perceptible

PPV = peak particle velocity
Source: Caltrans 2020

As shown in Table 13, the vibration level threshold at which steady vibration sources are considered to be distinctly perceptible is 0.035 in/sec PPV. However, as shown in Table 14, the vibration level threshold at which transient vibration sources (such as construction equipment) are considered to be distinctly perceptible is 0.24 in/sec PPV. This analysis uses the distinctly perceptible threshold for purposes of assessing vibration impacts.

Noise Level Increases over Ambient Noise Levels

The operational and construction noise limits used in this analysis are set at reasonable levels at which a substantial noise level increase as compared to ambient noise levels would occur. Operational noise limits are lower than construction noise limits because continuous, permanent

operational noise sources typically result in adverse community reaction associated with a smaller increase in ambient noise levels. In comparison, the magnitude of an increase in ambient noise levels associated with temporary, daytime construction activities typically results in a less adverse reaction. Furthermore, these noise limits are tailored to specific land uses; for example, the noise limits for residential land uses are lower than those for commercial land uses. The difference in noise limits for each land use indicates that the noise limits inherently account for typical ambient noise levels associated with each land use. Therefore, an increase in ambient noise levels that exceeds these absolute limits would also be considered a substantial increase above ambient noise levels. As such, a separate evaluation of the magnitude of noise level increases over ambient noise levels would not provide additional analytical information regarding noise impacts and therefore is not included in this analysis.

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

Construction Noise

Construction noise was estimated using the FHWA Roadway Construction Noise Model (RCNM). RCNM predicts construction noise levels for a variety of construction operations based on empirical data and the application of acoustical propagation formulas. Using RCNM, construction noise levels were estimated at noise sensitive receivers near the project site. RCNM provides reference noise levels for standard construction equipment, with an attenuation rate of 6 dBA per doubling of distance for stationary equipment.

Variation in power imposes additional complexity in characterizing the noise source level from construction equipment. Power variation is accounted for by describing the noise at a reference distance from the equipment operating at full power and adjusting it based on the duty cycle of the activity to determine the L_{eq} of the operation (FTA 2018). Each phase of construction has a specific equipment mix, depending on the work to be accomplished during that phase. Each phase also has its own noise characteristics; some will have higher continuous noise levels than others, and some have high-impact noise levels.

Construction activity would result in temporary noise in the project site vicinity, exposing surrounding nearby receivers to increased noise levels. Construction noise would typically be higher during the heavier periods of initial construction (i.e., grading and equipment installation) and would be lower during the later construction phases (i.e., paving and site restoration). Typical heavy construction equipment during project grading could include dozers, loaders, and graders. It is assumed diesel engines would power all construction equipment. Construction equipment would not all operate at the same time or location. In addition, construction equipment would not be in constant use during each day of construction.

Project construction would occur over an approximately 18-month period, and the nearest sensitive receivers to construction would be residences and Bridgeport Elementary School. The distances between the center of the construction area for each project component and the nearest noise-sensitive receivers are presented in Table 15 as well as the type of construction activities that would occur at each location.

Table 15 Nearest Noise-Sensitive Receivers to Construction Activities

Project Component	Distance from Center of Construction Area to Nearest Noise-Sensitive Receiver	Type of Construction Activities
Existing Well S6	100 feet (residences to the east)	Site preparation, equipment installation
Existing Well S7	110 feet (residences to the north)	Site preparation, equipment installation
Existing Well S8	110 feet (Bridgeport Elementary School to the north)	Site preparation, equipment installation
Groundwater Treatment and Disinfection Facility	435 feet (Bridgeport Elementary School to the northwest)	Site preparation, grading, equipment installation, well drilling, paving, site restoration
New Well S9	165 feet (Bridgeport Elementary School to the northwest during daytime hours) / 360 feet (residences to the east during nighttime hours)	Site preparation, grading, equipment installation, well drilling, paving, site restoration
Pipeline Interconnection Alignment	230 feet (residences to the north)	Site preparation, grading, equipment installation, site restoration
Well S8 Influent Pipeline Alignment	110 feet (Bridgeport Elementary School to the north)	Site preparation, equipment installation, paving, site restoration
Well S7 Storm Drain Pipeline Alignment	155 feet (residences to the north)	Site preparation, equipment installation, paving, site restoration
Roundabout Improvements	60 feet (residences to the north and west)	Site preparation, paving, site restoration

Construction would occur primarily between the hours of 7:00 a.m. to 7:00 p.m., Monday through Friday, which is the timeframe during which construction is exempt from compliance with the City of Santa Clarita's noise standards, with the exception of 24-well drilling activities for the new S9 well, which would occur for two, non-consecutive periods of three weeks. Estimated construction noise levels at the nearest sensitive receivers during the loudest phase of construction activities at each project component are summarized in Table 16. As shown therein, daytime construction activities at all project components would not exceed the daytime noise threshold of 80 dBA L_{eq} at the nearest sensitive receivers. However, nighttime construction activities associated with well drilling for the new Well S9 would exceed the nighttime noise threshold of 55 dBA L_{eq} at nearby residences. Therefore, project construction would result in the generation of a substantial temporary increase in ambient noise levels in the vicinity of the project in excess of local standards, and implementation of Mitigation Measure N-1 would be required to reduce impacts to a less-than-significant level.

Table 16 Estimated Construction Noise Levels by Project Component

Project Component	Loudest Construction Phase (Construction Equipment)	Estimated Noise at Nearest Sensitive Receivers (dBA L_{eq})	Daytime Threshold[1]	Threshold Exceeded?	Nighttime Threshold[3]	Threshold Exceeded?
Existing Well S6	Equipment Installation (Backhoe, Crane, Generator)	74	80	No	N/A	N/A
Existing Well S7	Equipment Installation (Backhoe, Crane, Generator)	73	80	No	N/A	N/A
Existing Well S8	Equipment Installation (Backhoe, Crane, Generator)	73	80	No	N/A	N/A
Groundwater Treatment and Disinfection Facility	Grading (Backhoe, Compactor, Dozer)	62	80	No	N/A	N/A
New Well S9[3]	Well Drilling (Bore/Drill Rig, Generator, Crane [daytime only])	71 (daytime) / 63 (nighttime)[4]	80	No	55	Yes
Pipeline Interconnection Alignment	Grading (Backhoe, Compactor, Dozer)	68	80	No	N/A	N/A
Well S8 Influent Pipeline Alignment	Equipment Installation (Backhoe, Crane, Generator)	73	80	No	N/A	N/A
Well S7 Storm Drain Pipeline Alignment	Equipment Installation (Backhoe, Crane, Generator)	70	80	No	N/A	N/A
Roundabout Improvements	Grading (Backhoe, Compactor)[5]	77	80	No	N/A	N/A

See Appendix E for RCNM data sheets.

[1] FTA 2018

[2] Santa Clarita Municipal Code Section 11.44.070

[3] Well drilling activities would occur for 24 hours a day; therefore, these activities would be subject to both the daytime and nighttime thresholds.

[4] Bridgeport Elementary School is the nearest noise-sensitive receiver to the location of the new Well S9 but is only noise-sensitive during daytime school hours when students, faculty, and staff are present. Consequently, the nearest sensitive receiver to the proposed Well S9 location during nighttime hours are residential properties to the east of the project site, which approximately 360 feet to the east and further from the proposed Well S9 location as compared to Bridgeport Elementary School. Therefore, estimated nighttime noise levels are lower than estimated daytime noise levels due to the increased distance of the nearest sensitive receiver from well drilling activities.

[5] Given the limited space of the proposed roundabout improvements area, only two pieces of construction equipment would likely be in operation at any given time.

Operational Mechanical Equipment

On-site noise sources would include mechanical equipment, specifically two 100-horsepower (hp) pumps to be installed at the proposed groundwater treatment and disinfection facility. (No new noise-generating equipment would be installed as part of the improvements completed for the existing Wells S6, S7, and S8.) To analyze noise impacts from the pumps, a reference noise level measured for a 100-hp pump on a water treatment plant was used (Padre Dam Municipal Water District 2015). This 100-hp pump produced a sound power level of approximately 93.2 dBA. With a doubling of noise energy, noise levels increase by 3 dBA; therefore, it is assumed that simultaneous operation of two 100-hp pumps would generate a sound level of approximately 96.2 dBA, which equates to a sound pressure level of approximately 88.2 dBA L_{eq} at 3.3 feet.

The proposed groundwater treatment and disinfection facility would be enclosed with an up to approximately 15-foot-high decorative wall, which would provide at least a 5-dBA reduction in noise levels at nearby sensitive receivers. Assuming a standard distance attenuation of 6 dBA per doubling of distance and a noise level reduction of 5 dBA due to the surrounding wall, the proposed pumps would generate operational noise levels of approximately 41 dBA L_{eq} at the nearest sensitive receives, which are residences located approximately 425 feet from the proposed pump location. This noise level would not exceed the City's daytime noise level limit of 65 dBA L_{eq} or nighttime noise level limit of 55 dBA L_{eq} (see Table 11). Therefore, operational mechanical equipment would not result in the generation of a substantial permanent increase in ambient noise levels in the vicinity of the project in excess of local standards, and impacts would be less than significant.

Operational Traffic

The project would involve one to two daily maintenance trips to the project site as well as infrequent trips for semimonthly chemical deliveries and resin media replacement two to three times a year. This level of vehicle trips would represent a negligible increase over existing traffic and thus would result in a negligible noise increase. Therefore, operational traffic would not result in the generation of a substantial permanent increase in ambient noise levels in the vicinity of the project in excess of local standards, and impacts would be less than significant.

Mitigation Measures

N-1 Construction Noise Reduction Plan

SCV Water shall implement a Construction Noise Reduction Plan prior to and during 24-hour well drilling activities for the new Well S9. A disturbance coordinator shall be designated for the project to implement the provisions of the plan. At a minimum, the Construction Noise Reduction Plan shall include the following requirements:

- Whenever feasible, construction activities shall be scheduled to avoid operating several pieces of equipment simultaneously.
- Maximum physical separation, as far as practicable, shall be maintained between construction equipment and adjacent residences.
- All heavy-duty stationary construction equipment shall be placed so that emitted noise is directed away from the nearest sensitive receivers.

- All equipment, fixed or mobile, shall be operated with closed engine doors and shall be equipped with properly operating and maintained mufflers consistent with manufacturers' standards.
- SCV Water shall include construction specification requirements for installation and maintenance of temporary sound barriers and/or blankets during construction activities. The temporary sound barriers and/or blankets shall be installed around the construction site boundaries. The temporary barriers/blankets shall have a minimum sound transmission loss of 8 dB and noise reduction coefficient of 0.75. Additionally, the temporary barriers/blankets shall be of sufficient height to intercept the line of sight between the noise-generating source of the construction equipment (i.e., the exhaust) used for well drilling and nearby residential receivers. If temporary blankets are used instead of a barrier, they shall be of sufficient height to extend from the top of the temporary construction fence and drape on the ground or be sealed at the ground. The temporary barriers/blankets shall be a minimum of 15 feet in height. The temporary barriers/blankets shall have grommets along the top edge with exterior grade hooks, and loop fasteners along the vertical edges with overlapping seams, with a minimum overlap of 2 inches. Alternatively, if the groundwater treatment and disinfection facility has been constructed prior to drilling the new Well S9, SCV Water may achieve compliance with this measure by demonstrating that the walls surrounding the groundwater treatment and disinfection facility are sufficient to achieve an 8-dB noise level reduction at the nearest sensitive receivers.
- A non-automated "hotline" telephone number for registering construction noise complaints shall be posted at construction site and shall be provided to all residences within 1,000 feet of the project site along with the estimated schedule for 24-hour well drilling activities. The disturbance coordinator shall determine the cause of noise complaints and institute actions warranted to correct the issue. All complaints shall be logged noting the date, time, complainant's name, nature of the complaint, and any corrective action taken.
- At least two weeks prior to well drilling activities, but no more than one month in advance, written notification shall be provided to residents located within 1,000 feet of the project site identifying the type, duration, and frequency of 24-hour well drilling construction activities.

Significance After Mitigation

Implementation of Mitigation Measure N-1 would entail the use of several noise reduction measures, including mufflers and temporary sound barriers, during well drilling activities for the new Well S9. Temporary sound barriers would reduce nighttime construction noise levels from well drilling activities by approximately 9 dBA to approximately 54 dBA L_{eq} (see Appendix E for barrier calculations). The mitigated nighttime construction noise level would therefore fall below the City's nighttime noise level limit of 55 dBA L_{eq} for residential land uses. As a result, implementation of Mitigation Measure N-1 would reduce nighttime construction noise impacts to a less-than-significant level.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

b. Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Construction

Construction activities have the greatest potential to generate ground-borne vibration affecting nearby receivers, especially during grading and well drilling. The main vibratory sources during construction would be bulldozers, loaded trucks, and a drill rig. Neither blasting nor pile driving would be required for construction of the project. Construction vibration estimates are based on vibration levels reported by Caltrans and the FTA (Caltrans 2013; FTA 2018). Table 17 shows typical vibration levels for various pieces of construction equipment used in the assessment of construction vibration (FTA 2018). As shown therein, construction vibration levels at the nearest structures would not exceed the thresholds for structural damage, human annoyance associated with transient vibration sources, or human annoyance associated with steady state vibration sources. Therefore, project construction would not result in the generation of excessive groundborne vibration or groundborne noise levels, and impacts would be less than significant.

Table 17 Vibration Levels at Sensitive Receivers

Equipment	Distance from Nearest Building	Estimated PPV at Nearest Building (in/sec)
Bore/Drill Rig[1]	365 feet	0.005
Large Bulldozer	25 feet	0.089
Loaded Truck	35 feet	0.05
Threshold for Structural Damage[2]	**–**	**0.2**
Threshold Exceeded?	–	No
Threshold for Human Annoyance (Transient Sources)[3]	**–**	**0.24**
Threshold Exceeded for Bulldozer and Loaded Truck?	–	No
Threshold for Human Annoyance (Steady State Sources)[4]	**–**	**0.035**
Threshold Exceeded for Bore/Drill Rig?	–	No

PPV = peak particle velocity; in/sec = inches per second

[1] Vibration levels measured for caisson drilling were used to approximate vibration levels from well drilling using a bore/drill rig.

[2] The threshold for structural damage is based on the minimum vibration level for preventing damage to residential building with plastered walls (see Table 12).

[3] The threshold for human annoyance is based on the level of vibration from transient sources (e.g., bulldozers, loaded trucks) that is distinctly perceptible (see Table 14).

[4] The threshold for human annoyance is based on the level of vibration from steady state sources (e.g., bore/drill rig) that is distinctly perceptible (see Table 13).

See Appendix E for vibration analysis worksheets.

Operation

The project does not include any substantial vibration sources associated with operation. Therefore, project operation would not result in the generation of excessive groundborne vibration or groundborne noise levels, and no impact would occur.

LESS THAN SIGNIFICANT IMPACT

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?

The nearest airport to the project site is Whiteman Airport, located approximately 14 miles to the southeast. Therefore, the project would not expose people working at the project site to excessive airport noise levels, and no impact would occur.

NO IMPACT

14 Population and Housing

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☐	■
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	■

a. Would the project induce substantial unplanned 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)?

The proposed project would not result in the construction of new homes and therefore would not directly induce substantial unplanned population growth. The project involves construction of a groundwater treatment and disinfection facility and the new S9 well. The proposed facility would enable SCV Water to restore the use of Wells S6, S7 and S8, and the new S9 well would serve as a replacement for the existing Mitchell 5A Well that is being abandoned by a private developer as part of the Vista Canyon Plaza Development. The purpose of the proposed project is to reduce SCV Water's dependence on imported water supplies by restoring its groundwater production capacity. The proposed project would not result in an increase in SCV Water's basin-wide groundwater pumping as compared to baseline conditions when Wells S6, S7, S8, and the Mitchell 5A well were operational; thus, the project would not provide an additional source of water supplies to serve new population growth. Rather, the project would enable SCV Water to continue providing its existing customers with a safe, reliable water supply. As such, the proposed project would not increase water supply such that it would facilitate the development of land that previously could not be developed due to water service constraints. In addition, although project operation may require one to two new SCV Water employees, these employees would likely be sourced from the existing regional workforce given the nature of the employment opportunities and would not have the potential to induce substantial unplanned population growth. Therefore, the project would not induce substantial unplanned population growth in the area, either directly or indirectly. No impact would occur.

NO IMPACT

b. Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

The proposed project involves construction of a groundwater treatment and disinfection facility, a new groundwater well, and associated pipelines as well as improvements to existing wells and roundabouts. The project would not include demolition of existing housing. As such, the project would not displace people or housing, and no impact would occur.

NO IMPACT

15 Public Services

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the 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:				
1. Fire protection?	☐	☐	☐	■
2. Police protection?	☐	☐	☐	■
3. Schools?	☐	☐	☐	■
4. Parks?	☐	☐	■	☐
5. Other public facilities?	☐	☐	☐	■

a.1. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, or the need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

a.2. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered police protection facilities, or the need for new or physically altered police protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

a.3. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered schools, or the need for new or physically altered schools, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives?

As discussed in Section 14, *Population and Housing*, the proposed project would not directly or indirectly induce population growth that may increase demand for fire protection services, police protection services, or schools. The proposed project would not include features or facilities

requiring additional or unusual fire protection resources during operation. In the event of the unexpected need for fire protection for the project, the closest fire station is the Los Angeles County Fire Department Fire Station No. 126, located approximately 0.8 mile to the southwest of the project site. Additionally, the project would include security measures that would minimize the need for additional police protection services, such as new perimeter fencing and motorized gates. Pedestrian doors would also be outfitted with a key fob system. Therefore, no impact to fire protection, police protection, or schools would occur.

NO IMPACT

a.4. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered parks, or the need for new or physically altered parks, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives?

As discussed in Section 14, *Population and Housing*, the proposed project would not directly or indirectly induce population growth that may increase demand for parks. Project construction would require temporary closure of a portion of Bridgeport Park during installation of the north-south pipeline and may require temporary closure of one lane of the Santa Clara River Trail during construction of pipelines near the trail. To minimize impacts to users of Bridgeport Park, the construction work area through the park would be fenced, and the pipeline would be constructed in segments with any exposed trenches covered with plate when construction activities are not occurring. These closures would result in temporary disruptions to park visitors and trail users, who may choose to use other nearby parks, such as Valencia Heritage Park (approximately 0.6 mile to the east), during project construction instead. However, this temporary disruption to use of Bridgeport Park and the Santa Clara River Trail would be temporary, lasting for only a portion of the approximately 18-month construction period, and would not be substantial enough to necessitate the provision of new or physically altered parks to accommodate the re-directed demand for parks. Furthermore, the portions of Bridgeport Park and the Santa Clara River Trail disturbed by construction activities would be restored to their existing condition or better upon completion of construction. Specifically, the Santa Clara River Trail would be resurfaced upon completion of construction activities if damage from construction equipment occurs. Therefore, the proposed project would not result in substantial adverse physical impacts associated with the provision of new or physically altered parks, or the need for new or physically altered parks, the construction of which could cause significant environmental impacts. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

a.5. Would the project result in substantial adverse physical impacts associated with the provision of other new or physically altered public facilities, or the need for other new or physically altered public facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

As discussed in Section 14, *Population and Housing*, the proposed project would not directly or indirectly induce population growth that may increase demand other public facilities, such as libraries. Therefore, no impact to other public facilities would occur.

NO IMPACT

16 Recreation

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?	☐	☐	☐	■

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?

As discussed in Section 15, *Public Services*, project construction would require temporary closure of a portion of Bridgeport Park during installation of the north-south pipeline and may require temporary closure of one lane of the Santa Clara River Trail during construction of pipelines near the trail. To minimize impacts to users of Bridgeport Park, the construction work area through the park would be fenced, and the pipeline would be constructed in segments with any exposed trenches covered with plate when construction activities are not occurring. These closures would result in temporary disruptions to park visitors and trail users, who may choose to use other nearby parks and recreational facilities, such as Valencia Heritage Park (approximately 0.6 mile to the east), during project construction instead. This disruption to use of Bridgeport Park and the Santa Clara River Trail would be temporary, lasting for only a portion of the approximately 18-month construction period. Although temporary closure of Bridgeport Park may result in an incremental and temporary increase in the use of surrounding parks such as Valencia Heritage Park, the temporary closure would not be substantial enough to cause substantial physical deterioration of this park or other existing neighborhood and regional parks and recreational facilities. Therefore, construction impacts related to recreation would be less than significant. Furthermore, as outlined in *Project Description*, SCV Water would implement a suite of BMPs during project construction activities to minimize conflicts with recreational usage of Bridgeport Park and the Santa Clara River Trail, including use of temporary fencing, limiting hours of construction within Bridgeport Park to outside peak recreational hours to the extent feasible, restricting the location of overnight construction staging and materials laydown, prohibiting construction worker parking in the parking lot for Bridgeport Park, and notification of local residents and other park users of the project construction schedule.

Upon completion of construction, the portions of Bridgeport Park and the Santa Clara River Trail disturbed by project construction activities would be restored to their existing condition or better.

The project would not result in ongoing, long-term impacts to Bridgeport Park and the Santa Clara River Trail; therefore, operational impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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?

The project would involve construction of a groundwater treatment and disinfection facility, new S9 well, and associated pipelines as well as improvements to three existing wells and two roundabouts. The project may include a bench or bicycle pull-out along the Santa Clara River Trail that includes signage with information on the treatment facility, the environmental effects of which are analyzed and mitigated throughout this document. Therefore, no additional environmental impacts associated with the relocation and construction of water facilities would occur.

NO IMPACT

17 Transportation

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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 intersections) or incompatible use (e.g., farm equipment)?	☐	☐	■	☐
d. Result in inadequate emergency access?	☐	■	☐	☐

a. Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

The project site is located primarily along a local residential street – Bridgeport Lane. Bridgeport Lane does not have any bicycle lanes or transit facilities. Sidewalks are present along the westbound lane of Bridgeport Lane, and the Santa Clara River Trail is adjacent to the project site to the south. During construction, fencing would be placed along the southern edge of the project site, and signage notifying trail users of ongoing construction activities would be posted along the path. Temporary closure of one lane of the Santa Clara River Trail may be necessary during construction of pipelines near the trail. In addition to traversing Bridgeport Lane, installation of the interconnection pipeline would traverse Newhall Rach Road, which has four lanes of traffic in each direction, sidewalks along both sides, several Santa Clarita Transit bus stops, and no bicycle lanes in the project area. The nearest transit facility to the project site is the Newhall Ranch Road/Grandview Drive bus stop located approximately 0.1 mile west of the interconnection pipeline alignment. Temporary closure of lanes along Newhall Ranch Road and Bridgeport Lane may be required during construction of the interconnection pipeline. Construction activities within Newhall Ranch Road would be short-term (approximately one week) and at least one lane would be maintained open to traffic. Temporary road or lane closures of small portions of Bridgeport Lane, Bayside Lane, and Parkwood Lane may be needed as well during the proposed roundabout improvements. Should lane or road closures be required, signage and traffic control measures, including a flag person to direct traffic flows, would be implemented.

Project construction would require vehicle trips including construction workers traveling to and from the project site, haul trucks (including for export of excavated soil materials), and other trucks associated with equipment, material, and concrete deliveries. Heavy-duty equipment would

primarily be staged be staged on a vacant lot directly east of the project site, reducing the need for daily vehicle trips. The number of vehicle trips associated with construction workers would be minimal with approximately 10 to 20 workers on site daily during construction. Approximately 10 to 11 delivery and haul truck trips would occur per day during construction. Construction-related traffic would be short-term and would cease upon completion of construction activities. Construction-related vehicle trips would be infrequent, and drivers would be required to comply with local traffic control measures (e.g., stop signs) and posted speed limits. Project construction activities would occur primarily along Bridgeport Lane, which is a low-volume roadway with no bicycle or transit facilities and which does not provide vehicular access to Bridgeport Elementary School. Nevertheless, the presence of heavy construction vehicles and temporary lane closures on Newhall Ranch Road could contribute to congestion if heavy truck traffic is traveling to and from the project site or lane closures occur during school drop-off and pick-up hours. In addition, temporary lane closures on Newhall Ranch Road would have the potential to affect the provision of transit by Santa Clarita Transit given the proximity of multiple bus stops to the project area. Therefore, project construction may conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities, and impacts would be potentially significant. Implementation of Mitigation Measure T-1 would be required to reduce impacts to a less-than-significant level.

Operational activities of the proposed project would require one to two maintenance staff daily, resin media replacement approximately two to three times per year, and chemical deliveries approximately twice a month. At most, the project would generate eight daily one-way trips if daily site visits, the resin media replacement visit, and the chemical delivery visit occur on the same day. Given the minimal number of trips generated, operational impacts related to adopted policies, plans, or programs addressing the circulation system, including public transit, bicycle, or pedestrian facilities would be less than significant.

Mitigation Measure

T-1 Address Potential Transportation Congestion Conflicts

SCV Water shall inform Bridgeport Elementary School of the anticipated construction timeframe at least two weeks in advance of the start of construction activities so that Bridgeport Elementary School may notify parents and guardians of students of the potential for construction traffic along Newhall Ranch Road. In addition, at the project's pre-construction meeting(s), SCV Water shall inform its construction contractor(s) and their personnel of the potential for construction traffic along Newhall Ranch Road and construction activities within Newhall Ranch Road to contribute to congestion associated with school pick-up and drop-off times (i.e., 7:30 a.m. to 8:10 a.m. on weekdays; 1:40 p.m. to 3:15 p.m. on all weekdays except Wednesdays, 1:15 p.m. to 2:05 p.m. on Wednesdays).

T-2 Address Potential Transit Service Conflicts

SCV Water shall notify Santa Clarita Transit at least two weeks in advance of the start of construction activities within Newhall Ranch Road. In addition, priority access shall be given to Santa Clarita Transit buses during any lane closures of Newhall Ranch Road.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

b. Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?

CEQA Guidelines Section 15064.3(b) identifies criteria for evaluating transportation impacts. Specifically, the guidelines state VMT exceeding an applicable threshold of significance may indicate a significant impact. According to CEQA Guidelines Section 15064.3(b)(3), a lead agency may include a qualitative analysis of operational and construction traffic. A VMT calculation is typically conducted on a daily or annual basis to determine operational usage of a project. Construction of the proposed project would result in a minimal, short-term increase in local VMT as a result of construction-related worker traffic, material and equipment deliveries, and construction activities. However, VMT generated from construction-related traffic would cease once construction is completed.

The Governor's Office of Planning and Research *Technical Advisory on Evaluating Transportation Impacts in CEQA* (2018) states, "Projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant VMT impact." As discussed under threshold (a), project operation and maintenance activities would generate approximately eight daily trips if daily site visits, the resin media replacement visit, and the chemical delivery visit occur on the same day. This level of daily traffic would not exceed the VMT screening level of 110 trips per day. As a result, impacts associated with VMT would be less than significant.

LESS THAN SIGNIFICANT IMPACT

c. Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?

The proposed project would involve the construction of two 30-foot-wide driveways with motorized gates along Bridgeport Lane. No sharp curves or dangerous intersections are proposed. The driveways would be utilized by SCV Water staff and delivery vehicles and would not be open to the public. Temporary closure of one lane of the Santa Clara River Trail may be necessary during construction of pipelines near the trail. To maintain cyclists' access during construction along the bike trail, construction fencing would be placed along the southern edge of the project site, and signage notifying trail users of ongoing construction activities would be posted along the path. In addition, this lane would be resurfaced upon completion of construction activities if damage from construction equipment occurs. Therefore, the project would not substantially increase hazards due to a geometric design feature or incompatible use during construction or operation. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

d. Would the project result in inadequate emergency access?

As discussed in Section 9, *Hazards and Hazardous Materials,* it is likely that lane or road closures along Parkwood Lane, Bridgeport Lane, and Bayside Lane would be required during construction of the proposed roundabout improvements. Newhall Ranch Road may also require lane closures during construction of the interconnection pipeline. These closures could slow traffic through the local area and thereby may result in inadequate emergency access. Therefore, impacts during project construction would be potentially significant, and implementation of Mitigation Measure HAZ-2 would be required. This measure would require contractors to prepare and implement a traffic control plan that specifies how traffic will be safely and efficiently redirected during lane closures. During operation, the project would provide adequate site access for emergency response

with two 30-foot-wide access driveways. In addition, the proposed roundabout improvements at the project site would likely provide enhanced access for emergency responders. Therefore, project operation would not result in inadequate emergency access, and operational impacts would be less than significant.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

18 Tribal Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in a Public Resources Code Section 21074 as either a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a 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)?	☐	■	☐	☐
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 subdivision (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.	☐	■	☐	☐

AB 52 of 2015 expanded CEQA by defining a new resource category, "tribal cultural resources." AB 52 states, "a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment" (PRC Section 21084.2). It further states the lead agency shall establish measures to avoid impacts altering the significant characteristics of a tribal cultural resource, when feasible (PRC Section 21084.3). PRC Sections 21074(a)(1)(A-B) define tribal cultural resources as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" and are:

1. Listed or eligible for listing in the CRHR or in a local register of historical resources as defined in PRC Section 5020.1(k), or
2. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in PRC Section 5024.1(c). In applying

these criteria, the lead agency shall consider the significance of the resource to a California Native American tribe.

AB 52 also establishes a formal consultation process for California tribes regarding those resources. The consultation process must be completed before a CEQA document can be certified or adopted. Under AB 52, lead agencies are required to "begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project." Native American tribes to be included in the process are those having requested notice of projects proposed in the jurisdiction of the lead agency.

On August 9, 2022, SCV Water distributed AB 52 consultation letters for the proposed project, including project information, map, and contact information, to four Native American Tribes. The Native American contacts provided with an AB 52 consultation letters include the following list of recipients:

- Fernandeño Tataviam Band of Mission Indians (FTBMI)
- Gabrieleño Band of Mission Indians – Kizh Nation
- Torres Martinez Desert Cahuilla Indians
- San Gabriel Band of Mission Indians

Under AB 52, Native American tribes have 30 days to respond and request further project information and formal consultation. All letters were received by August 9, 2022. Therefore, the consultation request period for all tribes closed on September 9, 2022.

SCV Water received one response letter from Jairo F. Avila of FTBMI, who submitted a formal request for tribal consultation and additional project information on August 9, 2022. SCV Water provided the FTBMI with the project information requested, including excavation depth, the results of the SLF search, and the cultural resources assessment via emails on August 23, 2022 and October 20, 2022. Sarah Brunzell, FTBMI Cultural Resources Management Division Manager, notified SCV Water via email on October 27, 2022, that she was assuming the consultation responsibilities previously held by Jairo F. Avila and requested a map of the project limits. On October 27, 2022, SCV Water responded with a map of the project limits and the draft mitigation measures for cultural and paleontological resources for review. On November 1, 2022, Sarah Brunzell provided recommended revisions to the draft cultural resources mitigation measures and requested a final copy of the mitigation measures. SCV Water provided a final copy of the mitigation measures revised in accordance with FTBMI's recommendations. On November 8, 2022, SCV Water held a consultation meeting with Sarah Brunzell and Kimia Fatehi, FTMBI Chief of Staff. The results of this meeting are summarized below. SCV Water concluded consultation with consensus on November 15, 2022.

a. *Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code Section 21074 that is 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)?*

b. *Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074 that is 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 Public Resources Code Section 5024.1?*

The NAHC SLF search was returned with positive results. One Native American Tribe, the FTBMI, requested consultation under AB 52. During the consultation meeting held on November 8, 2022, Sarah Brunzell of the FTBMI indicated the presence of two tribal cultural resources within one mile of the project site and expressed concerns about the tribal cultural resource sensitivity of the project site. As a result, Sarah Brunzell requested full-time Native American monitoring of initial ground-disturbing activities for construction of the proposed groundwater treatment and disinfection facility and associated Well S9. The requested revisions to Mitigation Measures CR-1 and CR-2 provided by the FTBMI on November 1, 2022 were incorporated in Section 5, *Cultural Resources*. In addition, Mitigation Measure TCR-1 has been included in response to the FTBMI's request for full-time Native American monitoring of initial ground-disturbing activities for construction of the proposed groundwater treatment and disinfection facility and associated Well S9. Furthermore, as indicated in Section 5, *Cultural Resources*, SCV Water would be required to comply with existing regulations outlined in California Health and Safety Code Section 7050.5 should human remains be inadvertently discovered during construction. Implementation of Mitigation Measures CR-1, CR-2, and TCR-1 along with regulatory compliance with California Health and Safety Code Section 7050.5 would be required to reduce impacts to tribal cultural resources to a less-than-significant level.

Mitigation Measure

TCR-1 Native American Monitoring

SCV Water shall retain a professional Native American monitor from a locally-affiliated tribe to observe all clearing, grubbing, and grading operations within the proposed impact areas for the groundwater treatment and disinfection facility and associated Well S9. As a consulting tribe on the project, the FTBMI will be given the right of first refusal to provide monitoring assistance. If cultural resources are encountered, the Native American monitor shall have the authority to request ground-disturbing activities cease within 60 feet of the discovery to assess and document potential finds in real time. One monitor shall be required on-site for all ground-disturbing activities for the proposed groundwater treatment and disinfection facility and associated Well S9. However, if ground-disturbing activities occur in more than one area within the footprint of the proposed groundwater treatment and disinfection facility and associated Well S9 at the same time, then the parties may mutually agree to an additional monitor to ensure that simultaneously occurring ground-disturbing activities receive thorough levels of monitoring coverage. Native American monitoring may be reduced to spot-checking or eliminated at the discretion of the monitor, in consultation with SCV Water, as warranted by conditions such as encountering bedrock, sediments being excavated are fill, or negative findings during the first 60 percent of rough grading. If monitoring is reduced to spot-checking, spot-checking shall occur when ground disturbance moves to a new location within the footprint of the proposed groundwater treatment and disinfection

facility and associated Well S9 and when ground disturbance will extend to depths not previously reached (unless those depths are within bedrock).

Significance after Mitigation

Implementation of Mitigation Measure TCR-1 as well as Mitigation Measures CR-1 and CR-2 (described in Section 5, *Cultural Resources*) would reduce potential impacts to tribal cultural resources to a less-than-significant level by requiring Native American monitoring of ground disturbance during construction of the proposed groundwater treatment and disinfection facility and associated Well S9, implementation of a Worker's Environmental Awareness Program training prior to construction for all project components, and appropriate procedures for evaluation and treatment should any discoveries be made during construction for all project components.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

19 Utilities and Service Systems

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water 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?	☐	☐	■	☐

a. Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Water

The proposed project would involve the construction of water treatment and conveyance infrastructure, the environmental effects of which are analyzed and mitigated throughout this

document. Therefore, no additional environmental impacts associated with the relocation and construction of water facilities would occur.

Wastewater Treatment

The project would not require permanent on-site personnel and does not include the installation of restroom facilities. Therefore, no wastewater would be generated, and the project would not result the construction or relocation of additional new or expanded wastewater facilities. No impact would occur.

Stormwater Drainage

As discussed in Section 10, *Hydrology and Water Quality*, the project would minimally alter drainage patterns on site. The project also includes installation of an underground 12-inch drainage pipeline connection between the proposed groundwater treatment and disinfection facility and the existing 30-inch SCV Water storm drainage outlet pipeline on the eastern portion of the treatment facility location. The project also includes approximately 840 linear feet of storm drain pipeline to be installed primarily east/west along the southern half of the existing Santa Clara River Trail from a point south of the Bridgeport Lane/Bayside Lane intersection to the existing Well S7 location. This pipeline would convey stormwater flows and pumped groundwater that currently sheet flow from the site into the river to an existing 30-inch stormwater drain pipeline that ultimately outlets to the river. The environmental effects of these stormwater drainage improvements are analyzed and mitigated throughout this document. Therefore, no additional environmental impacts associated with the relocation and construction of stormwater drainage facilities would occur.

Electric Power

As discussed in Section 6, *Energy*, project operation would increase electricity consumption at the project site by approximately 840 to 986 MWh; however, the facility would tie-in to existing electrical lines adjacent to the project site with a new transformer and meter installed on the project site, the environmental effects of which are analyzed and mitigated throughout this document. Therefore, no additional environmental impacts associated with the relocation and construction of electric power facilities would occur.

Natural Gas

The project would not involve any components requiring natural gas service and would not involve the relocation of existing natural gas facilities. Therefore, no impact related to natural gas facilities would occur.

Telecommunications

The proposed project would not require the installation of telecommunication facilities. Therefore, no impacts related to telecommunications facilities would occur.

LESS THAN SIGNIFICANT IMPACT

b. Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

The project involves construction of a groundwater treatment and disinfection facility and new Well S9. The proposed facility would enable SCV Water to restore the use of Wells S6, S7 and S8, and the

new Well S9 would serve as a replacement for the existing Mitchell 5A Well that is being abandoned by a private developer as part of the Vista Canyon Plaza Development. The purpose of the proposed project is to reduce SCV Water's dependence on imported water supplies by restoring its groundwater production capacity. The proposed project would not result in an increase in SCV Water's basin-wide groundwater pumping as compared to baseline conditions when Wells S6, S7, S8 and the Mitchell 5A Well were operational; thus, the project would not provide an additional source of water supplies to serve new population growth. Rather, the project would enable SCV Water to continue providing its existing customers with a safe, reliable water supply in accordance with the SCV Water Urban Water Management Plan and the Santa Clara River Valley East Groundwater Subbasin GSP. Therefore, no impacts to water supply would occur.

NO IMPACT

c. Would the project 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?

The project would not require permanent on-site personnel and does not include the installation of restroom facilities. Therefore, no wastewater would be generated, and the project would not result in a determination by the Santa Clarita Valley Sanitation District that it does not have adequate capacity to serve the project's projected demand in addition to its existing commitments. No impact would occur.

NO IMPACT

d. Would the project 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. Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Chiquita Canyon Landfill would receive solid waste generated by the proposed project. The landfill is located approximately 5.6 miles west of the project site and has a permitted capacity of 110.3 million cubic yards and a maximum permitted throughput of 12,000 tons per day. As of August 2018, the remaining capacity at the landfill was approximately 60.4 million cubic yards. Chiquita Canyon Landfill accepts a variety of waste, including inert, industrial, construction/ demolition, green materials, and mixed municipal waste (California Department of Resources Recycling and Recovery 2022).

Project construction would temporarily generate solid waste, including approximately 3,500 cubic yards of excavated soil to be exported from the project site. Construction-generated solid waste would be disposed of in accordance with all applicable federal, State, and local statutes and regulations. Given the minimal level of demolition debris, Chiquita Canyon Landfill would have the capacity to accept non-hazardous solid waste generated by project construction activities. Once constructed, solid waste produced by project operation would primarily include spent resin media from the treatment vessels. The spent resin, which may be considered a hazardous waste depending on the concentration of PFAS, would be removed two to three times a year by the resin supplier who would be required to transport and dispose of the material at a licensed hazardous waste disposal facility in accordance with all applicable regulations, such as the Hazardous Materials

Transportation Act, California Hazardous Material Management Act, and California Code of Regulations, Title 22. The project would not generate solid waste in excess of State or local standards, and would comply with all federal, State, and local management statutes and regulations, including those for hazardous waste in the event that spent resin is determined to be hazardous waste. Disposal of hazardous waste would occur at licensed hazardous waste disposal facilities. The project would not impair the attainment of solid waste reduction goals. Therefore, impacts to solid waste would be less than significant.

LESS THAN SIGNIFICANT IMPACT

20 Wildfire

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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 a 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 downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	■

The entire coastal southern California region is prone to large wildfires due to its hot, dry climate and expansive coverage of ignitable vegetation. During the autumn and winter months, strong offshore Santa Ana wind events carry dry, desert air and can fan fast-moving fires that spread rapidly from heavily-vegetated wilderness and mountainous areas into developed communities. Santa Clarita is urbanized but is surrounded by undeveloped open space. The area is prone to regular brush fires, particularly during summer heat waves, which can pose a safety risk. Recent fires in the project site vicinity include the 1,525-acre Soledad Fire east of Santa Clarita in July 2020, the 650-acre North Fire near Castaic north of Santa Clarita in April 2021, and the 5,208-acre Route Fire near Castaic in August 2022 (CAL FIRE 2022b).

While a natural ecological process in coastal chaparral and forest systems, wildfire return intervals have decreased throughout southern California, resulting in more frequent ecological disturbance, loss of biodiversity, and colonization by non-native grass species (United States Forest Service 2018). Furthermore, post-fire conditions leave exposed mountain slopes and hillsides vulnerable to surface

erosion and runoff. Debris flows during post-fire rainy seasons can pose a risk to life and property and occur with little warning. In southern California, as little as 0.3 inch of rain in 30 minutes can produce debris flows on post-fire landscapes (USGS 2018).

The project site is not located in a designated VHFHSZ or a State Responsibility Area (SRA), but the nearest VHFHSZ is located approximately 0.5 mile to the southeast of the project site (CAL FIRE 2022a). Therefore, for the purposes of this analysis, the project site is considered to be located near a VHFHSZ. In addition, as discussed in Section 9, *Hazards and Hazardous Materials,* the project site is adjacent to brush-covered open space vegetated with native plant communities, which are highly combustible.

a. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

The City of Santa Clarita's Local Hazard Mitigation Plan (2021) sets forth hazard mitigation strategies related to a variety of threats, including wildfire. Strategies towards mitigating wildfire include working with the Los Angeles Fire Department to enhance emergency service and increase the efficiency of response times, enhance outreach and education programs on wildfires, encourage and increase communication among wildland/urban interface property owners, and enhancing the City's Urban Forestry ability to manage wildfire events. The proposed project does not include components that would interfere with implementation of the City's Local Hazard Mitigation Plan.

As discussed in Section 9, *Hazards and Hazardous Materials*, construction of the proposed treatment facilities would require temporary lane or road closures that could impede emergency response during project construction by slowing traffic and thereby affect implementation of emergency response and emergency evacuation plans. As a result, impacts during project construction would be potentially significant, and implementation of Mitigation Measure HAZ-2 would be required to reduce impacts to a less-than-significant level.

The project does not include changes to the existing street system that could result in inadequate emergency access, and project operation and maintenance would not introduce new activities or substantial operational traffic with the potential to interfere with emergency response and evacuations. Rather, the roundabout improvements at the project site would likely provide enhanced access for emergency responders and evacuation orders. Therefore, no operational impacts related to emergency response plans and emergency evacuation plans would occur.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

b. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project, 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 a wildfire?

As discussed in Section 9, *Hazards and Hazardous Materials,* project operation would not involve activities with potential wildfire ignition risk. However, project construction in proximity to vegetated areas would have the potential to result in wildfire ignition. Potential ignition sources may include sparks from exhaust pipes, discarded cigarette butts, contact of mufflers with dry grass, other sources of sparks or flame, and spills or releases of flammable materials such as gasoline. Therefore, the project may exacerbate wildfire risks during construction, and impacts would be potentially significant. Implementation of Mitigation Measure HAZ-3 (outlined in Section 9, *Hazards*

and Hazardous Materials), which includes a suite of fire prevention measures for construction activities, would reduce impacts to a less-than-significant level.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

c. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project 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. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project expose people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

The proposed project consists of the construction of a groundwater treatment and disinfection facility, pipelines, and a new groundwater well as well as improvements to existing groundwater wells and roundabouts. As discussed in Section 19, *Utilities and Service Systems,* the project would not result in the relocation or construction of new or expanded utility infrastructure beyond those facilities included in the proposed project. The project would not include roads, fuel breaks, emergency water sources, or aboveground power lines that would exacerbate fire risk or result in temporary or ongoing impacts to the environment. Furthermore, the proposed project does not include habitable structures and would therefore not expose people to significant risks as a result of runoff, post-fire slop instability, or drainage changes. Therefore, no impacts would occur.

NO IMPACT

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21 Mandatory Findings of Significance

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Does the project:				
a. 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. 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)?	☐	☐	■	☐
c. Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	■	☐	☐

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?

As discussed in Section 4, *Biological Resources*, the proposed project would not substantially reduce the habitat of fish and wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, eliminate a plant or animal community, or substantially reduce the number or restrict the range of a rare or endangered plant or animal. In addition, as discussed in Section 5, *Cultural Resources*, the project would not eliminate important examples of the major periods of

California history or prehistory because none are known to be present in the project area. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

b. 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)?

As described in the discussion of environmental checklist Sections 1 through 20, with respect to all environmental issues, the proposed project would not result in significant and unmitigable impacts to the environment. All anticipated impacts associated with project construction and operation would be either less than significant or less than significant with mitigation incorporated. This is largely because project construction activities would be temporary, and project operational activities would result in generally minimal alterations to the environmental baseline condition.

Cumulative impacts could occur if the construction of other projects occurs at the same time as the proposed project and in the same geographic scope, such that the effects of similar impacts of multiple projects combine to create greater levels of impact than would occur at the project-level. Project impacts are primarily temporary, localized effects that would occur during project activities. The residential community in which the project site is located is entirely built out; therefore, no specific future development projects in the immediate vicinity are anticipated to occur in the same timeframe as the project. The impacts of the project on existing local environmental conditions are detailed throughout this Initial Study, and the project would not combine with other existing and future projects to create cumulative impacts related to localized issues such as aesthetics, biological resources, cultural resources, geology and soils, noise, and transportation. Other resources inherently address cumulative impacts, including air quality, greenhouse gas emissions, and hydrology. As discussed in Section 3, *Air Quality*, and Section 8, *Greenhouse Gas Emissions*, the project would not generate emissions in exceed of the applicable air pollutant and GHG emission thresholds and would comply with the SCAQMD's 2016 AQMP and CARB's 2017 Scoping Plan. Air pollutant and GHG emissions thresholds are designed such that a project that generates emissions below the thresholds would not have an individually or cumulatively considerable impact. Consequently, the project would not generate cumulatively considerable impacts to air quality or GHG emissions. Similarly, as discussed in Section 4, *Biological Resources*, and Section 10, *Hydrology and Water Quality,* the project would comply with provisions set forth within the Santa Clara River Valley East Groundwater Subbasin GSP, which is a plan designed to address cumulative impacts to groundwater supplies, with implementation of Mitigation Measure BIO-3. As a result, the project would not have a cumulatively considerable impact on sustainable groundwater basin management with mitigation incorporated.

Given the above discussion, the project would not result in a cumulatively considerable contribution to a significant cumulative impact. Impacts would be less than significant.

LESS THAN SIGNIFICANT IMPACT

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

In general, impacts to human beings are associated with air quality, hazards and hazardous materials, and noise impacts. As detailed in Section 3, *Air Quality*, the project would not result,

either directly or indirectly, in substantial adverse effects related to air quality. As discussed in Section 9, *Hazards and Hazardous Materials*, implementation of Mitigation Measures HAZ-1, HAZ-2, and HAZ-3 as well as compliance with applicable rules and regulations would reduce potential impacts on human beings related to hazards and hazardous materials to a less-than-significant level. As discussed in Section 13, *Noise*, implementation of Mitigation Measure N-1 would reduce potential impacts on human beings related to nighttime construction noise to a less-than-significant level. Therefore, impacts to human beings would be less than significant with mitigation incorporated.

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Appendix A

Air Quality and Greenhouse Gas Modeling

S Wells PFAS Groundwater Treatment and Disinfection Facility Project AQ - South Coast AQMD Air District, Winter

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

S Wells PFAS Groundwater Treatment and Disinfection Facility Project AQ

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	12.87	1000sqft	0.30	12,870.00	0
Other Non-Asphalt Surfaces	112.64	1000sqft	2.59	112,639.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2025
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Project is located in SCAQMD. SCE is the utility provider.

Land Use - Other Non-Asphalt Surfaces for the water treatment facility, multiple pipeline improvement areas, and existing well improvements areas and Other Asphalt Surfaces for the two roundabout improvements areas

Construction Phase - Provided by Data Request.

Off-road Equipment - Provided by SCV Water

Off-road Equipment - Provided by SCV Water

Off-road Equipment - Provided by SCV Water

Off-road Equipment - Provided by SCV Water

Off-road Equipment - Provided by SCV Water

Off-road Equipment - Provided by SCV Water

Off-road Equipment - Provided by SCV Water

S Wells PFAS Groundwater Treatment and Disinfection Facility Project AQ - South Coast AQMD Air District, Winter

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

Trips and VMT - Haul trip adjusted to Chiquita Canyon Landfill 6.8 miles 1 way. (6,500 CY of soil divided by 10 CY of capacity truck = 650 Haul trips) * 2 for both ways

Grading - 3,000 CY imported soil and 3,500 CY exported.

Vehicle Trips - 8 weekday trips (i.e., max daily trips if 2 staff visit, the chemical delivery occurs, and the resin replacement occurs)

Construction Off-road Equipment Mitigation - Vehicle Speed 15 mph for SCAQMD Rule 403 compliance

Fleet Mix - Fleet mix for max daily trips if 2 staff visit, the chemical delivery occurs, and the resin replacement occurs

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	3.00	44.00
tblConstructionPhase	NumDays	6.00	20.00
tblConstructionPhase	NumDays	220.00	43.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	3.00	44.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblFleetMix	HHD	9.2160e-003	0.25
tblFleetMix	LDA	0.54	0.00
tblFleetMix	LDT1	0.06	0.00
tblFleetMix	LDT2	0.19	0.50
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	6.5330e-003	0.00
tblFleetMix	MCY	0.02	0.00
tblFleetMix	MDV	0.13	0.00
tblFleetMix	MH	3.6570e-003	0.00
tblFleetMix	MHD	0.01	0.25
tblFleetMix	OBUS	8.1400e-004	0.00
tblFleetMix	SBUS	7.5300e-004	0.00
tblFleetMix	UBUS	4.9700e-004	0.00
tblGrading	MaterialExported	0.00	3,500.00

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

tblGrading	MaterialImported	0.00	3,000.00
tblLandUse	LandUseSquareFeet	112,640.00	112,639.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Equipment Installation
tblOffRoadEquipment	PhaseName		Well Drilling
tblOffRoadEquipment	PhaseName		Equipment Installation
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Paving
tblOffRoadEquipment	PhaseName		Site Restoration
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Equipment Installation
tblOffRoadEquipment	PhaseName		Site Restoration
tblOffRoadEquipment	UsageHours	8.00	24.00

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

tblTripsAndVMT	HaulingTripLength	20.00	6.80
tblTripsAndVMT	HaulingTripNumber	813.00	1,300.00
tblTripsAndVMT	WorkerTripNumber	18.00	20.00
tblTripsAndVMT	WorkerTripNumber	15.00	20.00
tblTripsAndVMT	WorkerTripNumber	53.00	40.00
tblTripsAndVMT	WorkerTripNumber	53.00	20.00
tblTripsAndVMT	WorkerTripNumber	18.00	20.00
tblTripsAndVMT	WorkerTripNumber	13.00	20.00
tblVehicleTrips	CC_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	WD_TR	0.00	0.08

2.0 Emissions Summary

S Wells PFAS Groundwater Treatment and Disinfection Facility Project AQ - South Coast AQMD Air District, Winter

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

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	2.9170	26.4417	31.6504	0.0901	8.3666	1.0015	8.9371	3.7671	0.9595	4.2639	0.0000	8,744.9761	8,744.9761	1.6996	0.2418	8,826.6079
2025	1.2803	11.5501	13.5027	0.0362	1.8143	0.4296	1.9306	0.2311	0.4054	0.5626	0.0000	3,516.1931	3,516.1931	0.7127	0.0663	3,553.7721
Maximum	**2.9170**	**26.4417**	**31.6504**	**0.0901**	**8.3666**	**1.0015**	**8.9371**	**3.7671**	**0.9595**	**4.2639**	**0.0000**	**8,744.9761**	**8,744.9761**	**1.6996**	**0.2418**	**8,826.6079**

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					
2024	2.9170	26.4417	31.6504	0.0901	3.9741	1.0015	4.5124	1.7863	0.9595	2.2831	0.0000	8,744.9761	8,744.9761	1.6996	0.2418	8,826.6079
2025	1.2803	11.5501	13.5027	0.0362	0.9394	0.4296	1.0557	0.1573	0.4054	0.5626	0.0000	3,516.1931	3,516.1931	0.7127	0.0663	3,553.7721
Maximum	**2.9170**	**26.4417**	**31.6504**	**0.0901**	**3.9741**	**1.0015**	**4.5124**	**1.7863**	**0.9595**	**2.2831**	**0.0000**	**8,744.9761**	**8,744.9761**	**1.6996**	**0.2418**	**8,826.6079**

S Wells PFAS Groundwater Treatment and Disinfection Facility Project AQ - South Coast AQMD Air District, Winter

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	51.74	0.00	48.76	51.39	0.00	41.04	0.00	0.00	0.00	0.00	0.00	0.00

S Wells PFAS Groundwater Treatment and Disinfection Facility Project AQ - South Coast AQMD Air District, Winter

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0552	1.2000e-004	0.0128	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0275	0.0275	7.0000e-005		0.0293
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	0.0106	0.2022	0.1564	1.1900e-003	0.0637	1.3000e-003	0.0650	0.0177	1.2400e-003	0.0189		127.7803	127.7803	4.3300e-003	0.0154	132.4900
Total	**0.0658**	**0.2023**	**0.1692**	**1.1900e-003**	**0.0637**	**1.3500e-003**	**0.0651**	**0.0177**	**1.2900e-003**	**0.0190**		**127.8078**	**127.8078**	**4.4000e-003**	**0.0154**	**132.5192**

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	0.0552	1.2000e-004	0.0128	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0275	0.0275	7.0000e-005		0.0293
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	0.0106	0.2022	0.1564	1.1900e-003	0.0637	1.3000e-003	0.0650	0.0177	1.2400e-003	0.0189		127.7803	127.7803	4.3300e-003	0.0154	132.4900
Total	**0.0658**	**0.2023**	**0.1692**	**1.1900e-003**	**0.0637**	**1.3500e-003**	**0.0651**	**0.0177**	**1.2900e-003**	**0.0190**		**127.8078**	**127.8078**	**4.4000e-003**	**0.0154**	**132.5192**

S Wells PFAS Groundwater Treatment and Disinfection Facility Project AQ - South Coast AQMD Air District, Winter

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

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/1/2024	5/30/2024	5	44	
2	Grading	Grading	6/1/2024	6/30/2024	5	20	
3	Equipment Installation	Building Construction	7/1/2024	5/2/2025	5	220	
4	Well Drilling	Building Construction	7/1/2024	8/12/2024	7	43	
5	Paving	Paving	5/3/2025	5/30/2025	5	20	
6	Site Restoration	Site Preparation	6/3/2025	8/1/2025	5	44	

Acres of Grading (Site Preparation Phase): 88

Acres of Grading (Grading Phase): 21

Acres of Paving: 2.89

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
Site Preparation	Bore/Drill Rigs	1	8.00	221	0.50
Site Preparation	Excavators	1	8.00	158	0.38
Site Preparation	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Grading	Excavators	1	8.00	158	0.38

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

Grading	Plate Compactors	1	8.00	8	0.43
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Equipment Installation	Bore/Drill Rigs	1	8.00	221	0.50
Equipment Installation	Cement and Mortar Mixers	2	8.00	9	0.56
Equipment Installation	Cranes	1	8.00	231	0.29
Equipment Installation	Forklifts	1	7.00	89	0.20
Equipment Installation	Generator Sets	1	8.00	84	0.74
Equipment Installation	Skid Steer Loaders	1	8.00	65	0.37
Equipment Installation	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Well Drilling	Bore/Drill Rigs	1	24.00	221	0.50
Well Drilling	Generator Sets	1	24.00	84	0.74
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Forklifts	1	8.00	89	0.20
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Restoration	Forklifts	1	8.00	89	0.20
Site Restoration	Skid Steer Loaders	1	8.00	65	0.37
Site Restoration	Tractors/Loaders/Backhoes	1	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
Site Preparation	7	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	20.00	0.00	1,300.00	14.70	6.90	6.80	LD_Mix	HDT_Mix	HHDT
Equipment Installation	11	40.00	21.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Drilling	9	20.00	21.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Restoration	5	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

S Wells PFAS Groundwater Treatment and Disinfection Facility Project AQ - South Coast AQMD Air District, Winter

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

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1431	0.0000	8.1431	3.5393	0.0000	3.5393			0.0000			0.0000
Off-Road	1.3377	12.9659	12.3468	0.0286		0.5692	0.5692		0.5237	0.5237		2,772.7015	2,772.7015	0.8968		2,795.1202
Total	**1.3377**	**12.9659**	**12.3468**	**0.0286**	**8.1431**	**0.5692**	**8.7123**	**3.5393**	**0.5237**	**4.0629**		**2,772.7015**	**2,772.7015**	**0.8968**		**2,795.1202**

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

3.2 Site Preparation - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0632	0.0419	0.5942	1.7900e-003	0.2236	1.2100e-003	0.2248	0.0593	1.1100e-003	0.0604		184.7161	184.7161	4.4100e-003	4.4600e-003	186.1562
Total	**0.0632**	**0.0419**	**0.5942**	**1.7900e-003**	**0.2236**	**1.2100e-003**	**0.2248**	**0.0593**	**1.1100e-003**	**0.0604**		**184.7161**	**184.7161**	**4.4100e-003**	**4.4600e-003**	**186.1562**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.6644	0.0000	3.6644	1.5927	0.0000	1.5927			0.0000			0.0000
Off-Road	1.3377	12.9659	12.3468	0.0286		0.5692	0.5692		0.5237	0.5237	0.0000	2,772.7015	2,772.7015	0.8968		2,795.1202
Total	**1.3377**	**12.9659**	**12.3468**	**0.0286**	**3.6644**	**0.5692**	**4.2336**	**1.5927**	**0.5237**	**2.1163**	**0.0000**	**2,772.7015**	**2,772.7015**	**0.8968**		**2,795.1202**

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

3.2 Site Preparation - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0632	0.0419	0.5942	1.7900e-003	0.2236	1.2100e-003	0.2248	0.0593	1.1100e-003	0.0604		184.7161	184.7161	4.4100e-003	4.4600e-003	186.1562
Total	**0.0632**	**0.0419**	**0.5942**	**1.7900e-003**	**0.2236**	**1.2100e-003**	**0.2248**	**0.0593**	**1.1100e-003**	**0.0604**		**184.7161**	**184.7161**	**4.4100e-003**	**4.4600e-003**	**186.1562**

3.3 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.4735	0.0000	7.4735	3.6015	0.0000	3.6015			0.0000			0.0000
Off-Road	1.1673	11.3163	10.5189	0.0196		0.5163	0.5163		0.4758	0.4758		1,889.8176	1,889.8176	0.6036		1,904.9084
Total	**1.1673**	**11.3163**	**10.5189**	**0.0196**	**7.4735**	**0.5163**	**7.9898**	**3.6015**	**0.4758**	**4.0774**		**1,889.8176**	**1,889.8176**	**0.6036**		**1,904.9084**

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

3.3 Grading - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0852	3.6394	1.4480	0.0136	0.3875	0.0208	0.4082	0.1063	0.0199	0.1261		1,494.1135	1,494.1135	0.0805	0.2373	1,566.8529
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0632	0.0419	0.5942	1.7900e-003	0.2236	1.2100e-003	0.2248	0.0593	1.1100e-003	0.0604		184.7161	184.7161	4.4100e-003	4.4600e-003	186.1562
Total	**0.1483**	**3.6813**	**2.0422**	**0.0154**	**0.6110**	**0.0220**	**0.6330**	**0.1656**	**0.0210**	**0.1865**		**1,678.8296**	**1,678.8296**	**0.0849**	**0.2418**	**1,753.0091**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3631	0.0000	3.3631	1.6207	0.0000	1.6207			0.0000			0.0000
Off-Road	1.1673	11.3163	10.5189	0.0196		0.5163	0.5163		0.4758	0.4758	0.0000	1,889.8176	1,889.8176	0.6036		1,904.9084
Total	**1.1673**	**11.3163**	**10.5189**	**0.0196**	**3.3631**	**0.5163**	**3.8794**	**1.6207**	**0.4758**	**2.0965**	**0.0000**	**1,889.8176**	**1,889.8176**	**0.6036**		**1,904.9084**

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

3.3 Grading - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0852	3.6394	1.4480	0.0136	0.3875	0.0208	0.4082	0.1063	0.0199	0.1261		1,494.1135	1,494.1135	0.0805	0.2373	1,566.8529
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0632	0.0419	0.5942	1.7900e-003	0.2236	1.2100e-003	0.2248	0.0593	1.1100e-003	0.0604		184.7161	184.7161	4.4100e-003	4.4600e-003	186.1562
Total	**0.1483**	**3.6813**	**2.0422**	**0.0154**	**0.6110**	**0.0220**	**0.6330**	**0.1656**	**0.0210**	**0.1865**		**1,678.8296**	**1,678.8296**	**0.0849**	**0.2418**	**1,753.0091**

3.4 Equipment Installation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1975	11.3719	12.1518	0.0290		0.4689	0.4689		0.4425	0.4425		2,756.6572	2,756.6572	0.6931		2,773.9843
Total	**1.1975**	**11.3719**	**12.1518**	**0.0290**		**0.4689**	**0.4689**		**0.4425**	**0.4425**		**2,756.6572**	**2,756.6572**	**0.6931**		**2,773.9843**

S Wells PFAS Groundwater Treatment and Disinfection Facility Project AQ - South Coast AQMD Air District, Winter

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

3.4 Equipment Installation - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0217	0.8038	0.3047	3.7700e-003	0.1345	4.4700e-003	0.1389	0.0387	4.2800e-003	0.0430		406.4884	406.4884	0.0138	0.0590	424.4091
Worker	0.1263	0.0838	1.1883	3.5800e-003	0.4471	2.4100e-003	0.4495	0.1186	2.2200e-003	0.1208		369.4322	369.4322	8.8200e-003	8.9200e-003	372.3123
Total	**0.1480**	**0.8876**	**1.4930**	**7.3500e-003**	**0.5816**	**6.8800e-003**	**0.5885**	**0.1573**	**6.5000e-003**	**0.1638**		**775.9207**	**775.9207**	**0.0226**	**0.0679**	**796.7214**

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	1.1975	11.3719	12.1518	0.0290		0.4689	0.4689		0.4425	0.4425	0.0000	2,756.6572	2,756.6572	0.6931		2,773.9843
Total	**1.1975**	**11.3719**	**12.1518**	**0.0290**		**0.4689**	**0.4689**		**0.4425**	**0.4425**	**0.0000**	**2,756.6572**	**2,756.6572**	**0.6931**		**2,773.9843**

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

3.4 Equipment Installation - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0217	0.8038	0.3047	3.7700e-003	0.1345	4.4700e-003	0.1389	0.0387	4.2800e-003	0.0430		406.4884	406.4884	0.0138	0.0590	424.4091
Worker	0.1263	0.0838	1.1883	3.5800e-003	0.4471	2.4100e-003	0.4495	0.1186	2.2200e-003	0.1208		369.4322	369.4322	8.8200e-003	8.9200e-003	372.3123
Total	**0.1480**	**0.8876**	**1.4930**	**7.3500e-003**	**0.5816**	**6.8800e-003**	**0.5885**	**0.1573**	**6.5000e-003**	**0.1638**		**775.9207**	**775.9207**	**0.0226**	**0.0679**	**796.7214**

3.4 Equipment Installation - 2025

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	1.1405	10.6748	12.0924	0.0290		0.4229	0.4229		0.3989	0.3989		2,756.6874	2,756.6874	0.6909		2,773.9600
Total	**1.1405**	**10.6748**	**12.0924**	**0.0290**		**0.4229**	**0.4229**		**0.3989**	**0.3989**		**2,756.6874**	**2,756.6874**	**0.6909**		**2,773.9600**

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

3.4 Equipment Installation - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0211	0.8000	0.3002	3.7000e-003	0.1345	4.4900e-003	0.1390	0.0387	4.2900e-003	0.0430		399.0905	399.0905	0.0138	0.0580	416.7114
Worker	0.1187	0.0754	1.1101	3.4600e-003	0.4471	2.3000e-003	0.4494	0.1186	2.1200e-003	0.1207		360.4152	360.4152	7.9700e-003	8.3400e-003	363.1007
Total	**0.1399**	**0.8754**	**1.4102**	**7.1600e-003**	**0.5816**	**6.7900e-003**	**0.5884**	**0.1573**	**6.4100e-003**	**0.1637**		**759.5057**	**759.5057**	**0.0218**	**0.0663**	**779.8121**

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	1.1405	10.6748	12.0924	0.0290		0.4229	0.4229		0.3989	0.3989	0.0000	2,756.6874	2,756.6874	0.6909		2,773.9600
Total	**1.1405**	**10.6748**	**12.0924**	**0.0290**		**0.4229**	**0.4229**		**0.3989**	**0.3989**	**0.0000**	**2,756.6874**	**2,756.6874**	**0.6909**		**2,773.9600**

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

3.4 Equipment Installation - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0211	0.8000	0.3002	3.7000e-003	0.1345	4.4900e-003	0.1390	0.0387	4.2900e-003	0.0430		399.0905	399.0905	0.0138	0.0580	416.7114
Worker	0.1187	0.0754	1.1101	3.4600e-003	0.4471	2.3000e-003	0.4494	0.1186	2.1200e-003	0.1207		360.4152	360.4152	7.9700e-003	8.3400e-003	363.1007
Total	**0.1399**	**0.8754**	**1.4102**	**7.1600e-003**	**0.5816**	**6.7900e-003**	**0.5884**	**0.1573**	**6.4100e-003**	**0.1637**		**759.5057**	**759.5057**	**0.0218**	**0.0663**	**779.8121**

3.5 Well Drilling - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4867	13.3366	17.1067	0.0482		0.5201	0.5201		0.5051	0.5051		4,621.1937	4,621.1937	0.9657		4,645.3369
Total	**1.4867**	**13.3366**	**17.1067**	**0.0482**		**0.5201**	**0.5201**		**0.5051**	**0.5051**		**4,621.1937**	**4,621.1937**	**0.9657**		**4,645.3369**

S Wells PFAS Groundwater Treatment and Disinfection Facility Project AQ - South Coast AQMD Air District, Winter

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

3.5 Well Drilling - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0217	0.8038	0.3047	3.7700e-003	0.1345	4.4700e-003	0.1389	0.0387	4.2800e-003	0.0430		406.4884	406.4884	0.0138	0.0590	424.4091
Worker	0.0632	0.0419	0.5942	1.7900e-003	0.2236	1.2100e-003	0.2248	0.0593	1.1100e-003	0.0604		184.7161	184.7161	4.4100e-003	4.4600e-003	186.1562
Total	**0.0848**	**0.8457**	**0.8989**	**5.5600e-003**	**0.3580**	**5.6800e-003**	**0.3637**	**0.0980**	**5.3900e-003**	**0.1034**		**591.2045**	**591.2045**	**0.0182**	**0.0634**	**610.5653**

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	1.4867	13.3366	17.1067	0.0482		0.5201	0.5201		0.5051	0.5051	0.0000	4,621.1937	4,621.1937	0.9657		4,645.3369
Total	**1.4867**	**13.3366**	**17.1067**	**0.0482**		**0.5201**	**0.5201**		**0.5051**	**0.5051**	**0.0000**	**4,621.1937**	**4,621.1937**	**0.9657**		**4,645.3369**

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

3.5 Well Drilling - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0217	0.8038	0.3047	3.7700e-003	0.1345	4.4700e-003	0.1389	0.0387	4.2800e-003	0.0430		406.4884	406.4884	0.0138	0.0590	424.4091
Worker	0.0632	0.0419	0.5942	1.7900e-003	0.2236	1.2100e-003	0.2248	0.0593	1.1100e-003	0.0604		184.7161	184.7161	4.4100e-003	4.4600e-003	186.1562
Total	**0.0848**	**0.8457**	**0.8989**	**5.5600e-003**	**0.3580**	**5.6800e-003**	**0.3637**	**0.0980**	**5.3900e-003**	**0.1034**		**591.2045**	**591.2045**	**0.0182**	**0.0634**	**610.5653**

3.6 Paving - 2025

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	0.2778	2.5218	3.6718	5.3600e-003		0.1122	0.1122		0.1044	0.1044		500.6030	500.6030	0.1508		504.3733
Paving	0.0393					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.3171**	**2.5218**	**3.6718**	**5.3600e-003**		**0.1122**	**0.1122**		**0.1044**	**0.1044**		**500.6030**	**500.6030**	**0.1508**		**504.3733**

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

3.6 Paving - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0594	0.0377	0.5550	1.7300e-003	0.2236	1.1500e-003	0.2247	0.0593	1.0600e-003	0.0604		180.2076	180.2076	3.9900e-003	4.1700e-003	181.5504
Total	**0.0594**	**0.0377**	**0.5550**	**1.7300e-003**	**0.2236**	**1.1500e-003**	**0.2247**	**0.0593**	**1.0600e-003**	**0.0604**		**180.2076**	**180.2076**	**3.9900e-003**	**4.1700e-003**	**181.5504**

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	0.2778	2.5218	3.6718	5.3600e-003		0.1122	0.1122		0.1044	0.1044	0.0000	500.6030	500.6030	0.1508		504.3733
Paving	0.0393					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.3171**	**2.5218**	**3.6718**	**5.3600e-003**		**0.1122**	**0.1122**		**0.1044**	**0.1044**	**0.0000**	**500.6030**	**500.6030**	**0.1508**		**504.3733**

3.6 Paving - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0594	0.0377	0.5550	1.7300e-003	0.2236	1.1500e-003	0.2247	0.0593	1.0600e-003	0.0604		180.2076	180.2076	3.9900e-003	4.1700e-003	181.5504
Total	**0.0594**	**0.0377**	**0.5550**	**1.7300e-003**	**0.2236**	**1.1500e-003**	**0.2247**	**0.0593**	**1.0600e-003**	**0.0604**		**180.2076**	**180.2076**	**3.9900e-003**	**4.1700e-003**	**181.5504**

3.7 Site Restoration - 2025

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					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	0.2618	2.7788	4.4639	6.3300e-003		0.1152	0.1152		0.1060	0.1060		612.8047	612.8047	0.1982		617.7595
Total	**0.2618**	**2.7788**	**4.4639**	**6.3300e-003**	**1.5908**	**0.1152**	**1.7059**	**0.1718**	**0.1060**	**0.2777**		**612.8047**	**612.8047**	**0.1982**		**617.7595**

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

3.7 Site Restoration - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0594	0.0377	0.5550	1.7300e-003	0.2236	1.1500e-003	0.2247	0.0593	1.0600e-003	0.0604		180.2076	180.2076	3.9900e-003	4.1700e-003	181.5504
Total	**0.0594**	**0.0377**	**0.5550**	**1.7300e-003**	**0.2236**	**1.1500e-003**	**0.2247**	**0.0593**	**1.0600e-003**	**0.0604**		**180.2076**	**180.2076**	**3.9900e-003**	**4.1700e-003**	**181.5504**

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					0.7158	0.0000	0.7158	0.0773	0.0000	0.0773			0.0000			0.0000
Off-Road	0.2618	2.7788	4.4639	6.3300e-003		0.1152	0.1152		0.1060	0.1060	0.0000	612.8047	612.8047	0.1982		617.7595
Total	**0.2618**	**2.7788**	**4.4639**	**6.3300e-003**	**0.7158**	**0.1152**	**0.8310**	**0.0773**	**0.1060**	**0.1833**	**0.0000**	**612.8047**	**612.8047**	**0.1982**		**617.7595**

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

3.7 Site Restoration - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0594	0.0377	0.5550	1.7300e-003	0.2236	1.1500e-003	0.2247	0.0593	1.0600e-003	0.0604		180.2076	180.2076	3.9900e-003	4.1700e-003	181.5504
Total	**0.0594**	**0.0377**	**0.5550**	**1.7300e-003**	**0.2236**	**1.1500e-003**	**0.2247**	**0.0593**	**1.0600e-003**	**0.0604**		**180.2076**	**180.2076**	**3.9900e-003**	**4.1700e-003**	**181.5504**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0106	0.2022	0.1564	1.1900e-003	0.0637	1.3000e-003	0.0650	0.0177	1.2400e-003	0.0189		127.7803	127.7803	4.3300e-003	0.0154	132.4900
Unmitigated	0.0106	0.2022	0.1564	1.1900e-003	0.0637	1.3000e-003	0.0650	0.0177	1.2400e-003	0.0189		127.7803	127.7803	4.3300e-003	0.0154	132.4900

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	9.01	0.00	0.00	19,680	19,680
Total	9.01	0.00	0.00	19,680	19,680

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
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	100.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657
Other Non-Asphalt Surfaces	0.000000	0.000000	0.500000	0.000000	0.000000	0.000000	0.250000	0.250000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

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

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					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
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**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
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	0.0552	1.2000e-004	0.0128	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0275	0.0275	7.0000e-005		0.0293
Unmitigated	0.0552	1.2000e-004	0.0128	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0275	0.0275	7.0000e-005		0.0293

S Wells PFAS Groundwater Treatment and Disinfection Facility Project AQ - South Coast AQMD Air District, Winter

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

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	9.5600e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0445					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.1800e-003	1.2000e-004	0.0128	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0275	0.0275	7.0000e-005		0.0293
Total	**0.0552**	**1.2000e-004**	**0.0128**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0275**	**0.0275**	**7.0000e-005**		**0.0293**

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

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	9.5600e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0445					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.1800e-003	1.2000e-004	0.0128	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0275	0.0275	7.0000e-005		0.0293
Total	**0.0552**	**1.2000e-004**	**0.0128**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0275**	**0.0275**	**7.0000e-005**		**0.0293**

7.0 Water Detail

7.1 Mitigation Measures Water

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

8.0 Waste Detail

8.1 Mitigation Measures Waste

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

S Wells PFAS Groundwater Treatment and Disinfection Facility Project AQ - South Coast AQMD Air District, Summer

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

S Wells PFAS Groundwater Treatment and Disinfection Facility Project AQ

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	12.87	1000sqft	0.30	12,870.00	0
Other Non-Asphalt Surfaces	112.64	1000sqft	2.59	112,639.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2025
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Project is located in SCAQMD. SCE is the utility provider.

Land Use - Other Non-Asphalt Surfaces for the water treatment facility, multiple pipeline improvement areas, and existing well improvements areas and Other Asphalt Surfaces for the two roundabout improvements areas

Construction Phase - Provided by Data Request.

Off-road Equipment - Provided by SCV Water

Off-road Equipment - Provided by SCV Water

Off-road Equipment - Provided by SCV Water

Off-road Equipment - Provided by SCV Water

Off-road Equipment - Provided by SCV Water

Off-road Equipment - Provided by SCV Water

Off-road Equipment - Provided by SCV Water

S Wells PFAS Groundwater Treatment and Disinfection Facility Project AQ - South Coast AQMD Air District, Summer

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

Trips and VMT - Haul trip adjusted to Chiquita Canyon Landfill 6.8 miles 1 way. (6,500 CY of soil divided by 10 CY of capacity truck = 650 Haul trips) * 2 for both ways

Grading - 3,000 CY imported soil and 3,500 CY exported.

Vehicle Trips - 8 weekday trips (i.e., max daily trips if 2 staff visit, the chemical delivery occurs, and the resin replacement occurs)

Construction Off-road Equipment Mitigation - Vehicle Speed 15 mph for SCAQMD Rule 403 compliance

Fleet Mix - Fleet mix for max daily trips if 2 staff visit, the chemical delivery occurs, and the resin replacement occurs

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	220.00	43.00
tblConstructionPhase	NumDays	6.00	20.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	3.00	44.00
tblConstructionPhase	NumDays	3.00	44.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblFleetMix	HHD	9.2160e-003	0.25
tblFleetMix	LDA	0.54	0.00
tblFleetMix	LDT1	0.06	0.00
tblFleetMix	LDT2	0.19	0.50
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	6.5330e-003	0.00
tblFleetMix	MCY	0.02	0.00
tblFleetMix	MDV	0.13	0.00
tblFleetMix	MH	3.6570e-003	0.00
tblFleetMix	MHD	0.01	0.25
tblFleetMix	OBUS	8.1400e-004	0.00
tblFleetMix	SBUS	7.5300e-004	0.00
tblFleetMix	UBUS	4.9700e-004	0.00
tblGrading	AcresOfGrading	10.00	21.00

S Wells PFAS Groundwater Treatment and Disinfection Facility Project AQ - South Coast AQMD Air District, Summer

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

tblGrading	AcresOfGrading	22.00	88.00
tblGrading	MaterialExported	0.00	3,500.00
tblGrading	MaterialImported	0.00	3,000.00
tblLandUse	LandUseSquareFeet	112,640.00	112,639.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	8.00	24.00
tblTripsAndVMT	HaulingTripLength	20.00	6.80
tblTripsAndVMT	HaulingTripNumber	813.00	1,300.00
tblTripsAndVMT	WorkerTripNumber	13.00	20.00
tblTripsAndVMT	WorkerTripNumber	13.00	20.00
tblTripsAndVMT	WorkerTripNumber	53.00	40.00
tblTripsAndVMT	WorkerTripNumber	53.00	20.00
tblTripsAndVMT	WorkerTripNumber	8.00	20.00
tblTripsAndVMT	WorkerTripNumber	8.00	20.00
tblVehicleTrips	CC_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	WD_TR	0.00	0.08

2.0 Emissions Summary

S Wells PFAS Groundwater Treatment and Disinfection Facility Project AQ - South Coast AQMD Air District, Summer

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

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	2.9085	26.3551	31.8176	0.0904	8.3666	1.0015	8.9371	3.6016	0.9594	4.1233	0.0000	8,777.6036	8,777.6036	1.6995	0.2408	8,858.9142
2025	1.2744	11.5059	13.6084	0.0364	0.5816	0.4296	1.0112	0.1573	0.4053	0.5626	0.0000	3,537.6103	3,537.6103	0.7126	0.0657	3,575.0019
Maximum	**2.9085**	**26.3551**	**31.8176**	**0.0904**	**8.3666**	**1.0015**	**8.9371**	**3.6016**	**0.9594**	**4.1233**	**0.0000**	**8,777.6036**	**8,777.6036**	**1.6995**	**0.2408**	**8,858.9142**

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					
2024	2.9085	26.3551	31.8176	0.0904	3.8879	1.0015	4.4584	1.7118	0.9594	2.2085	0.0000	8,777.6036	8,777.6036	1.6995	0.2408	8,858.9142
2025	1.2744	11.5059	13.6084	0.0364	0.5816	0.4296	1.0112	0.1573	0.4053	0.5626	0.0000	3,537.6103	3,537.6103	0.7126	0.0657	3,575.0019
Maximum	**2.9085**	**26.3551**	**31.8176**	**0.0904**	**3.8879**	**1.0015**	**4.4584**	**1.7118**	**0.9594**	**2.2085**	**0.0000**	**8,777.6036**	**8,777.6036**	**1.6995**	**0.2408**	**8,858.9142**

S Wells PFAS Groundwater Treatment and Disinfection Facility Project AQ - South Coast AQMD Air District, Summer

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	50.05	0.00	45.02	50.28	0.00	40.86	0.00	0.00	0.00	0.00	0.00	0.00

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0552	1.2000e-004	0.0128	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0275	0.0275	7.0000e-005		0.0293
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	0.0114	0.1925	0.1603	1.2000e-003	0.0637	1.3000e-003	0.0650	0.0177	1.2300e-003	0.0189		128.9988	128.9988	4.3000e-003	0.0154	133.6859
Total	**0.0666**	**0.1926**	**0.1731**	**1.2000e-003**	**0.0637**	**1.3500e-003**	**0.0651**	**0.0177**	**1.2800e-003**	**0.0190**		**129.0263**	**129.0263**	**4.3700e-003**	**0.0154**	**133.7152**

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	0.0552	1.2000e-004	0.0128	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0275	0.0275	7.0000e-005		0.0293
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	0.0114	0.1925	0.1603	1.2000e-003	0.0637	1.3000e-003	0.0650	0.0177	1.2300e-003	0.0189		128.9988	128.9988	4.3000e-003	0.0154	133.6859
Total	**0.0666**	**0.1926**	**0.1731**	**1.2000e-003**	**0.0637**	**1.3500e-003**	**0.0651**	**0.0177**	**1.2800e-003**	**0.0190**		**129.0263**	**129.0263**	**4.3700e-003**	**0.0154**	**133.7152**

S Wells PFAS Groundwater Treatment and Disinfection Facility Project AQ - South Coast AQMD Air District, Summer

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

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/1/2024	5/30/2024	5	44	
2	Grading	Grading	6/1/2024	6/30/2024	5	20	
3	Equipment Installation	Building Construction	7/1/2024	5/2/2025	5	220	
4	Well Drilling	Building Construction	7/1/2024	8/12/2024	7	43	
5	Paving	Paving	5/3/2025	5/30/2025	5	20	
6	Site Restoration	Site Preparation	6/3/2025	8/1/2025	5	44	

Acres of Grading (Site Preparation Phase): 88

Acres of Grading (Grading Phase): 21

Acres of Paving: 2.89

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
Site Preparation	Bore/Drill Rigs	1	8.00	221	0.50
Site Preparation	Excavators	1	8.00	158	0.38
Site Preparation	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Grading	Excavators	1	8.00	158	0.38

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

Grading	Plate Compactors	1	8.00	8	0.43
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Equipment Installation	Bore/Drill Rigs	1	8.00	221	0.50
Equipment Installation	Cement and Mortar Mixers	2	8.00	9	0.56
Equipment Installation	Cranes	1	8.00	231	0.29
Equipment Installation	Forklifts	1	7.00	89	0.20
Equipment Installation	Generator Sets	1	8.00	84	0.74
Equipment Installation	Skid Steer Loaders	1	8.00	65	0.37
Equipment Installation	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Well Drilling	Bore/Drill Rigs	1	24.00	221	0.50
Well Drilling	Generator Sets	1	24.00	84	0.74
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Forklifts	1	8.00	89	0.20
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Restoration	Forklifts	1	8.00	89	0.20
Site Restoration	Skid Steer Loaders	1	8.00	65	0.37
Site Restoration	Tractors/Loaders/Backhoes	1	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
Site Preparation	5	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	5	20.00	0.00	1,300.00	14.70	6.90	6.80	LD_Mix	HDT_Mix	HHDT
Equipment Installation	8	40.00	21.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Drilling	2	20.00	21.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	3	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Restoration	3	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

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

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.1431	0.0000	8.1431	3.5393	0.0000	3.5393			0.0000			0.0000
Off-Road	1.3377	12.9659	12.3468	0.0286		0.5692	0.5692		0.5237	0.5237		2,772.7015	2,772.7015	0.8968		2,795.1202
Total	**1.3377**	**12.9659**	**12.3468**	**0.0286**	**8.1431**	**0.5692**	**8.7123**	**3.5393**	**0.5237**	**4.0629**		**2,772.7015**	**2,772.7015**	**0.8968**		**2,795.1202**

S Wells PFAS Groundwater Treatment and Disinfection Facility Project AQ - South Coast AQMD Air District, Summer

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

3.2 Site Preparation - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0597	0.0383	0.6562	1.9000e-003	0.2236	1.2100e-003	0.2248	0.0593	1.1100e-003	0.0604		196.0891	196.0891	4.3500e-003	4.2100e-003	197.4519
Total	**0.0597**	**0.0383**	**0.6562**	**1.9000e-003**	**0.2236**	**1.2100e-003**	**0.2248**	**0.0593**	**1.1100e-003**	**0.0604**		**196.0891**	**196.0891**	**4.3500e-003**	**4.2100e-003**	**197.4519**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.6644	0.0000	3.6644	1.5927	0.0000	1.5927			0.0000			0.0000
Off-Road	1.3377	12.9659	12.3468	0.0286		0.5692	0.5692		0.5237	0.5237	0.0000	2,772.7015	2,772.7015	0.8968		2,795.1202
Total	**1.3377**	**12.9659**	**12.3468**	**0.0286**	**3.6644**	**0.5692**	**4.2336**	**1.5927**	**0.5237**	**2.1163**	**0.0000**	**2,772.7015**	**2,772.7015**	**0.8968**		**2,795.1202**

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

3.2 Site Preparation - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0597	0.0383	0.6562	1.9000e-003	0.2236	1.2100e-003	0.2248	0.0593	1.1100e-003	0.0604		196.0891	196.0891	4.3500e-003	4.2100e-003	197.4519
Total	**0.0597**	**0.0383**	**0.6562**	**1.9000e-003**	**0.2236**	**1.2100e-003**	**0.2248**	**0.0593**	**1.1100e-003**	**0.0604**		**196.0891**	**196.0891**	**4.3500e-003**	**4.2100e-003**	**197.4519**

3.3 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.1724	0.0000	7.1724	3.4360	0.0000	3.4360			0.0000			0.0000
Off-Road	1.1673	11.3163	10.5189	0.0196		0.5163	0.5163		0.4758	0.4758		1,889.8176	1,889.8176	0.6036		1,904.9084
Total	**1.1673**	**11.3163**	**10.5189**	**0.0196**	**7.1724**	**0.5163**	**7.6887**	**3.4360**	**0.4758**	**3.9119**		**1,889.8176**	**1,889.8176**	**0.6036**		**1,904.9084**

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

3.3 Grading - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0945	3.4511	1.4152	0.0136	0.3875	0.0206	0.4081	0.1063	0.0197	0.1260		1,489.5257	1,489.5257	0.0810	0.2366	1,562.0610
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0597	0.0383	0.6562	1.9000e-003	0.2236	1.2100e-003	0.2248	0.0593	1.1100e-003	0.0604		196.0891	196.0891	4.3500e-003	4.2100e-003	197.4519
Total	**0.1542**	**3.4894**	**2.0714**	**0.0155**	**0.6110**	**0.0218**	**0.6329**	**0.1656**	**0.0208**	**0.1864**		**1,685.6148**	**1,685.6148**	**0.0854**	**0.2408**	**1,759.5129**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.2276	0.0000	3.2276	1.5462	0.0000	1.5462			0.0000			0.0000
Off-Road	1.1673	11.3163	10.5189	0.0196		0.5163	0.5163		0.4758	0.4758	0.0000	1,889.8176	1,889.8176	0.6036		1,904.9084
Total	**1.1673**	**11.3163**	**10.5189**	**0.0196**	**3.2276**	**0.5163**	**3.7439**	**1.5462**	**0.4758**	**2.0220**	**0.0000**	**1,889.8176**	**1,889.8176**	**0.6036**		**1,904.9084**

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

3.3 Grading - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0945	3.4511	1.4152	0.0136	0.3875	0.0206	0.4081	0.1063	0.0197	0.1260		1,489.5257	1,489.5257	0.0810	0.2366	1,562.0610
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0597	0.0383	0.6562	1.9000e-003	0.2236	1.2100e-003	0.2248	0.0593	1.1100e-003	0.0604		196.0891	196.0891	4.3500e-003	4.2100e-003	197.4519
Total	**0.1542**	**3.4894**	**2.0714**	**0.0155**	**0.6110**	**0.0218**	**0.6329**	**0.1656**	**0.0208**	**0.1864**		**1,685.6148**	**1,685.6148**	**0.0854**	**0.2408**	**1,759.5129**

3.4 Equipment Installation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1975	11.3719	12.1518	0.0290		0.4689	0.4689		0.4425	0.4425		2,756.6572	2,756.6572	0.6931		2,773.9843
Total	**1.1975**	**11.3719**	**12.1518**	**0.0290**		**0.4689**	**0.4689**		**0.4425**	**0.4425**		**2,756.6572**	**2,756.6572**	**0.6931**		**2,773.9843**

S Wells PFAS Groundwater Treatment and Disinfection Facility Project AQ - South Coast AQMD Air District, Summer

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

3.4 Equipment Installation - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0227	0.7658	0.2952	3.7600e-003	0.1345	4.4500e-003	0.1389	0.0387	4.2600e-003	0.0430		405.7428	405.7428	0.0138	0.0588	423.6187
Worker	0.1193	0.0767	1.3125	3.8000e-003	0.4471	2.4100e-003	0.4495	0.1186	2.2200e-003	0.1208		392.1781	392.1781	8.6900e-003	8.4200e-003	394.9038
Total	**0.1420**	**0.8424**	**1.6077**	**7.5600e-003**	**0.5816**	**6.8600e-003**	**0.5884**	**0.1573**	**6.4800e-003**	**0.1638**		**797.9209**	**797.9209**	**0.0225**	**0.0673**	**818.5225**

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	1.1975	11.3719	12.1518	0.0290		0.4689	0.4689		0.4425	0.4425	0.0000	2,756.6572	2,756.6572	0.6931		2,773.9843
Total	**1.1975**	**11.3719**	**12.1518**	**0.0290**		**0.4689**	**0.4689**		**0.4425**	**0.4425**	**0.0000**	**2,756.6572**	**2,756.6572**	**0.6931**		**2,773.9843**

S Wells PFAS Groundwater Treatment and Disinfection Facility Project AQ - South Coast AQMD Air District, Summer

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

3.4 Equipment Installation - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0227	0.7658	0.2952	3.7600e-003	0.1345	4.4500e-003	0.1389	0.0387	4.2600e-003	0.0430		405.7428	405.7428	0.0138	0.0588	423.6187
Worker	0.1193	0.0767	1.3125	3.8000e-003	0.4471	2.4100e-003	0.4495	0.1186	2.2200e-003	0.1208		392.1781	392.1781	8.6900e-003	8.4200e-003	394.9038
Total	**0.1420**	**0.8424**	**1.6077**	**7.5600e-003**	**0.5816**	**6.8600e-003**	**0.5884**	**0.1573**	**6.4800e-003**	**0.1638**		**797.9209**	**797.9209**	**0.0225**	**0.0673**	**818.5225**

3.4 Equipment Installation - 2025

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	1.1405	10.6748	12.0924	0.0290		0.4229	0.4229		0.3989	0.3989		2,756.6874	2,756.6874	0.6909		2,773.9600
Total	**1.1405**	**10.6748**	**12.0924**	**0.0290**		**0.4229**	**0.4229**		**0.3989**	**0.3989**		**2,756.6874**	**2,756.6874**	**0.6909**		**2,773.9600**

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

3.4 Equipment Installation - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0222	0.7621	0.2907	3.6900e-003	0.1345	4.4600e-003	0.1389	0.0387	4.2700e-003	0.0430		398.3474	398.3474	0.0139	0.0578	415.9247
Worker	0.1118	0.0689	1.2252	3.6700e-003	0.4471	2.3000e-003	0.4494	0.1186	2.1200e-003	0.1207		382.5755	382.5755	7.8400e-003	7.8700e-003	385.1172
Total	**0.1339**	**0.8311**	**1.5160**	**7.3600e-003**	**0.5816**	**6.7600e-003**	**0.5883**	**0.1573**	**6.3900e-003**	**0.1637**		**780.9229**	**780.9229**	**0.0217**	**0.0657**	**801.0419**

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	1.1405	10.6748	12.0924	0.0290		0.4229	0.4229		0.3989	0.3989	0.0000	2,756.6874	2,756.6874	0.6909		2,773.9600
Total	**1.1405**	**10.6748**	**12.0924**	**0.0290**		**0.4229**	**0.4229**		**0.3989**	**0.3989**	**0.0000**	**2,756.6874**	**2,756.6874**	**0.6909**		**2,773.9600**

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

3.4 Equipment Installation - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0222	0.7621	0.2907	3.6900e-003	0.1345	4.4600e-003	0.1389	0.0387	4.2700e-003	0.0430		398.3474	398.3474	0.0139	0.0578	415.9247
Worker	0.1118	0.0689	1.2252	3.6700e-003	0.4471	2.3000e-003	0.4494	0.1186	2.1200e-003	0.1207		382.5755	382.5755	7.8400e-003	7.8700e-003	385.1172
Total	**0.1339**	**0.8311**	**1.5160**	**7.3600e-003**	**0.5816**	**6.7600e-003**	**0.5883**	**0.1573**	**6.3900e-003**	**0.1637**		**780.9229**	**780.9229**	**0.0217**	**0.0657**	**801.0419**

3.5 Well Drilling - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4867	13.3366	17.1067	0.0482		0.5201	0.5201		0.5051	0.5051		4,621.1937	4,621.1937	0.9657		4,645.3369
Total	**1.4867**	**13.3366**	**17.1067**	**0.0482**		**0.5201**	**0.5201**		**0.5051**	**0.5051**		**4,621.1937**	**4,621.1937**	**0.9657**		**4,645.3369**

S Wells PFAS Groundwater Treatment and Disinfection Facility Project AQ - South Coast AQMD Air District, Summer

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

3.5 Well Drilling - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0227	0.7658	0.2952	3.7600e-003	0.1345	4.4500e-003	0.1389	0.0387	4.2600e-003	0.0430		405.7428	405.7428	0.0138	0.0588	423.6187
Worker	0.0597	0.0383	0.6562	1.9000e-003	0.2236	1.2100e-003	0.2248	0.0593	1.1100e-003	0.0604		196.0891	196.0891	4.3500e-003	4.2100e-003	197.4519
Total	**0.0823**	**0.8041**	**0.9514**	**5.6600e-003**	**0.3580**	**5.6600e-003**	**0.3637**	**0.0980**	**5.3700e-003**	**0.1034**		**601.8318**	**601.8318**	**0.0182**	**0.0630**	**621.0706**

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	1.4867	13.3366	17.1067	0.0482		0.5201	0.5201		0.5051	0.5051	0.0000	4,621.1937	4,621.1937	0.9657		4,645.3369
Total	**1.4867**	**13.3366**	**17.1067**	**0.0482**		**0.5201**	**0.5201**		**0.5051**	**0.5051**	**0.0000**	**4,621.1937**	**4,621.1937**	**0.9657**		**4,645.3369**

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

3.5 Well Drilling - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0227	0.7658	0.2952	3.7600e-003	0.1345	4.4500e-003	0.1389	0.0387	4.2600e-003	0.0430		405.7428	405.7428	0.0138	0.0588	423.6187
Worker	0.0597	0.0383	0.6562	1.9000e-003	0.2236	1.2100e-003	0.2248	0.0593	1.1100e-003	0.0604		196.0891	196.0891	4.3500e-003	4.2100e-003	197.4519
Total	**0.0823**	**0.8041**	**0.9514**	**5.6600e-003**	**0.3580**	**5.6600e-003**	**0.3637**	**0.0980**	**5.3700e-003**	**0.1034**		**601.8318**	**601.8318**	**0.0182**	**0.0630**	**621.0706**

3.6 Paving - 2025

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	0.2778	2.5218	3.6718	5.3600e-003		0.1122	0.1122		0.1044	0.1044		500.6030	500.6030	0.1508		504.3733
Paving	0.0393					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.3171**	**2.5218**	**3.6718**	**5.3600e-003**		**0.1122**	**0.1122**		**0.1044**	**0.1044**		**500.6030**	**500.6030**	**0.1508**		**504.3733**

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

3.6 Paving - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0559	0.0345	0.6126	1.8400e-003	0.2236	1.1500e-003	0.2247	0.0593	1.0600e-003	0.0604		191.2877	191.2877	3.9200e-003	3.9400e-003	192.5586
Total	**0.0559**	**0.0345**	**0.6126**	**1.8400e-003**	**0.2236**	**1.1500e-003**	**0.2247**	**0.0593**	**1.0600e-003**	**0.0604**		**191.2877**	**191.2877**	**3.9200e-003**	**3.9400e-003**	**192.5586**

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	0.2778	2.5218	3.6718	5.3600e-003		0.1122	0.1122		0.1044	0.1044	0.0000	500.6030	500.6030	0.1508		504.3733
Paving	0.0393					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.3171**	**2.5218**	**3.6718**	**5.3600e-003**		**0.1122**	**0.1122**		**0.1044**	**0.1044**	**0.0000**	**500.6030**	**500.6030**	**0.1508**		**504.3733**

3.6 Paving - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0559	0.0345	0.6126	1.8400e-003	0.2236	1.1500e-003	0.2247	0.0593	1.0600e-003	0.0604		191.2877	191.2877	3.9200e-003	3.9400e-003	192.5586
Total	**0.0559**	**0.0345**	**0.6126**	**1.8400e-003**	**0.2236**	**1.1500e-003**	**0.2247**	**0.0593**	**1.0600e-003**	**0.0604**		**191.2877**	**191.2877**	**3.9200e-003**	**3.9400e-003**	**192.5586**

3.7 Site Restoration - 2025

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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.2618	2.7788	4.4639	6.3300e-003		0.1152	0.1152		0.1060	0.1060		612.8047	612.8047	0.1982		617.7595
Total	**0.2618**	**2.7788**	**4.4639**	**6.3300e-003**	**0.0000**	**0.1152**	**0.1152**	**0.0000**	**0.1060**	**0.1060**		**612.8047**	**612.8047**	**0.1982**		**617.7595**

S Wells PFAS Groundwater Treatment and Disinfection Facility Project AQ - South Coast AQMD Air District, Summer

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

3.7 Site Restoration - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0559	0.0345	0.6126	1.8400e-003	0.2236	1.1500e-003	0.2247	0.0593	1.0600e-003	0.0604		191.2877	191.2877	3.9200e-003	3.9400e-003	192.5586
Total	**0.0559**	**0.0345**	**0.6126**	**1.8400e-003**	**0.2236**	**1.1500e-003**	**0.2247**	**0.0593**	**1.0600e-003**	**0.0604**		**191.2877**	**191.2877**	**3.9200e-003**	**3.9400e-003**	**192.5586**

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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.2618	2.7788	4.4639	6.3300e-003		0.1152	0.1152		0.1060	0.1060	0.0000	612.8047	612.8047	0.1982		617.7595
Total	**0.2618**	**2.7788**	**4.4639**	**6.3300e-003**	**0.0000**	**0.1152**	**0.1152**	**0.0000**	**0.1060**	**0.1060**	**0.0000**	**612.8047**	**612.8047**	**0.1982**		**617.7595**

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

3.7 Site Restoration - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0559	0.0345	0.6126	1.8400e-003	0.2236	1.1500e-003	0.2247	0.0593	1.0600e-003	0.0604		191.2877	191.2877	3.9200e-003	3.9400e-003	192.5586
Total	**0.0559**	**0.0345**	**0.6126**	**1.8400e-003**	**0.2236**	**1.1500e-003**	**0.2247**	**0.0593**	**1.0600e-003**	**0.0604**		**191.2877**	**191.2877**	**3.9200e-003**	**3.9400e-003**	**192.5586**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0114	0.1925	0.1603	1.2000e-003	0.0637	1.3000e-003	0.0650	0.0177	1.2300e-003	0.0189		128.9988	128.9988	4.3000e-003	0.0154	133.6859
Unmitigated	0.0114	0.1925	0.1603	1.2000e-003	0.0637	1.3000e-003	0.0650	0.0177	1.2300e-003	0.0189		128.9988	128.9988	4.3000e-003	0.0154	133.6859

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	9.01	0.00	0.00	19,680	19,680
Total	9.01	0.00	0.00	19,680	19,680

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
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	100.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657
Other Non-Asphalt Surfaces	0.000000	0.000000	0.500000	0.000000	0.000000	0.000000	0.250000	0.250000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

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

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					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
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**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
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	0.0552	1.2000e-004	0.0128	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0275	0.0275	7.0000e-005		0.0293
Unmitigated	0.0552	1.2000e-004	0.0128	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0275	0.0275	7.0000e-005		0.0293

S Wells PFAS Groundwater Treatment and Disinfection Facility Project AQ - South Coast AQMD Air District, Summer

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

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	9.5600e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0445					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.1800e-003	1.2000e-004	0.0128	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0275	0.0275	7.0000e-005		0.0293
Total	**0.0552**	**1.2000e-004**	**0.0128**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0275**	**0.0275**	**7.0000e-005**		**0.0293**

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

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	9.5600e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0445					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.1800e-003	1.2000e-004	0.0128	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0275	0.0275	7.0000e-005		0.0293
Total	**0.0552**	**1.2000e-004**	**0.0128**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0275**	**0.0275**	**7.0000e-005**		**0.0293**

7.0 Water Detail

7.1 Mitigation Measures Water

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

8.0 Waste Detail

8.1 Mitigation Measures Waste

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

S Wells PFAS Groundwater Treatment and Disinfection Facility Project GHG - South Coast AQMD Air District, Annual

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

S Wells PFAS Groundwater Treatment and Disinfection Facility Project GHG

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	12.87	1000sqft	0.30	12,870.00	0
Other Non-Asphalt Surfaces	112.64	1000sqft	2.59	112,639.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2025
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Project is located in SCAQMD. SCE is the utility provider.

Land Use - Other Non-Asphalt Surfaces for the water treatment facility, multiple pipeline improvement areas, and existing well improvements areas and Other Asphalt Surfaces for the two roundabout improvements areas

Construction Phase - Provided by SCV Water.

Off-road Equipment - Provided by SCV Water

Off-road Equipment - Provided by SCV Water

Off-road Equipment - Provided by SCV Water

Off-road Equipment - Provided by SCV Water

Off-road Equipment - Provided by SCV Water

Off-road Equipment - Provided by SCV Water

Trips and VMT - Haul trip adjusted to Chiquita Canyon Landfill 6.8 miles 1 way. (6,500 CY of soil divided by 10 CY of capacity truck = 650 Haul trips) * 2 for both ways

S Wells PFAS Groundwater Treatment and Disinfection Facility Project GHG - South Coast AQMD Air District, Annual

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

Grading - 3,000 CY imported soil and 3,500 CY exported.

Vehicle Trips - 784 trips per year for workers, deliveries, and resin replacement

Construction Off-road Equipment Mitigation - Vehicle Speed 15 mph for SCAQMD Rule 403 compliance

Fleet Mix - Fleet mix for 1460 worker trips, 48 delivery trips, and 6 resin replacement trips

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	220.00	43.00
tblConstructionPhase	NumDays	6.00	20.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	3.00	44.00
tblConstructionPhase	NumDays	3.00	44.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblFleetMix	HHD	9.2160e-003	3.9630e-003
tblFleetMix	LDA	0.54	0.00
tblFleetMix	LDT1	0.06	0.00
tblFleetMix	LDT2	0.19	0.96
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	6.5330e-003	0.00
tblFleetMix	MCY	0.02	0.00
tblFleetMix	MDV	0.13	0.00
tblFleetMix	MH	3.6570e-003	0.00
tblFleetMix	MHD	0.01	0.03
tblFleetMix	OBUS	8.1400e-004	0.00
tblFleetMix	SBUS	7.5300e-004	0.00
tblFleetMix	UBUS	4.9700e-004	0.00
tblGrading	MaterialExported	0.00	3,000.00
tblGrading	MaterialImported	0.00	3,500.00
tblLandUse	LandUseSquareFeet	112,640.00	112,639.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Equipment Installtion
tblOffRoadEquipment	PhaseName		Well Drilling
tblOffRoadEquipment	PhaseName		Equipment Installtion
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Paving
tblOffRoadEquipment	PhaseName		Site Restoration
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Equipment Installtion
tblOffRoadEquipment	PhaseName		Site Restoration
tblOffRoadEquipment	UsageHours	8.00	24.00
tblTripsAndVMT	HaulingTripLength	20.00	6.80
tblTripsAndVMT	HaulingTripNumber	813.00	1,300.00

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

tblTripsAndVMT	WorkerTripNumber	18.00	20.00
tblTripsAndVMT	WorkerTripNumber	15.00	20.00
tblTripsAndVMT	WorkerTripNumber	53.00	40.00
tblTripsAndVMT	WorkerTripNumber	53.00	20.00
tblTripsAndVMT	WorkerTripNumber	18.00	20.00
tblTripsAndVMT	WorkerTripNumber	13.00	20.00
tblVehicleTrips	CC_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	WD_TR	0.00	0.05

2.0 Emissions Summary

S Wells PFAS Groundwater Treatment and Disinfection Facility Project GHG - South Coast AQMD Air District, Annual

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

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	0.1470	1.3822	1.4586	4.1400e-003	0.3065	0.0533	0.3598	0.1274	0.0498	0.1772	0.0000	367.6871	367.6871	0.0848	7.5900e-003	372.0677
2025	0.0549	0.4905	0.5874	1.5500e-003	0.0672	0.0184	0.0856	0.0125	0.0171	0.0295	0.0000	137.7691	137.7691	0.0330	2.7700e-003	139.4195
Maximum	**0.1470**	**1.3822**	**1.4586**	**4.1400e-003**	**0.3065**	**0.0533**	**0.3598**	**0.1274**	**0.0498**	**0.1772**	**0.0000**	**367.6871**	**367.6871**	**0.0848**	**7.5900e-003**	**372.0677**

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					
2024	0.1470	1.3822	1.4586	4.1400e-003	0.1688	0.0533	0.2221	0.0657	0.0498	0.1155	0.0000	367.6867	367.6867	0.0848	7.5900e-003	372.0674
2025	0.0549	0.4905	0.5874	1.5500e-003	0.0479	0.0184	0.0663	0.0104	0.0171	0.0274	0.0000	137.7690	137.7690	0.0330	2.7700e-003	139.4194
Maximum	**0.1470**	**1.3822**	**1.4586**	**4.1400e-003**	**0.1688**	**0.0533**	**0.2221**	**0.0657**	**0.0498**	**0.1155**	**0.0000**	**367.6867**	**367.6867**	**0.0848**	**7.5900e-003**	**372.0674**

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**42.00**	**0.00**	**35.24**	**45.61**	**0.00**	**30.85**	**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)
2	**4-1-2024**	**6-30-2024**	0.4814	0.4814
3	**7-1-2024**	**9-30-2024**	0.6901	0.6901
4	**10-1-2024**	**12-31-2024**	0.3540	0.3540
5	**1-1-2025**	**3-31-2025**	0.3268	0.3268
6	**4-1-2025**	**6-30-2025**	0.1762	0.1762
7	**7-1-2025**	**9-30-2025**	0.0358	0.0358
		Highest	0.6901	0.6901

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0100	1.0000e-005	1.6000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.1100e-003	3.1100e-003	1.0000e-005	0.0000	3.3200e-003
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	1.0100e-003	1.7900e-003	0.0142	4.0000e-005	4.6300e-003	3.0000e-005	4.6600e-003	1.2400e-003	3.0000e-005	1.2600e-003	0.0000	4.2268	4.2268	1.2000e-004	1.6000e-004	4.2777
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	**0.0110**	**1.8000e-003**	**0.0158**	**4.0000e-005**	**4.6300e-003**	**4.0000e-005**	**4.6700e-003**	**1.2400e-003**	**4.0000e-005**	**1.2700e-003**	**0.0000**	**4.2299**	**4.2299**	**1.3000e-004**	**1.6000e-004**	**4.2811**

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

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0100	1.0000e-005	1.6000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.1100e-003	3.1100e-003	1.0000e-005	0.0000	3.3200e-003
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	1.0100e-003	1.7900e-003	0.0142	4.0000e-005	4.6300e-003	3.0000e-005	4.6600e-003	1.2400e-003	3.0000e-005	1.2600e-003	0.0000	4.2268	4.2268	1.2000e-004	1.6000e-004	4.2777
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	**0.0110**	**1.8000e-003**	**0.0158**	**4.0000e-005**	**4.6300e-003**	**4.0000e-005**	**4.6700e-003**	**1.2400e-003**	**4.0000e-005**	**1.2700e-003**	**0.0000**	**4.2299**	**4.2299**	**1.3000e-004**	**1.6000e-004**	**4.2811**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/1/2024	5/30/2024	5	44	
2	Grading	Grading	6/1/2024	6/30/2024	5	20	
3	Equipment Installtion	Building Construction	7/1/2024	5/2/2025	5	220	

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

4	Well Drilling	Building Construction	7/1/2024	8/12/2024	7	43	
5	Paving	Paving	5/3/2025	5/30/2025	5	20	
6	Site Restoration	Site Preparation	6/3/2025	8/1/2025	5	44	

Acres of Grading (Site Preparation Phase): 88

Acres of Grading (Grading Phase): 20

Acres of Paving: 2.89

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
Site Preparation	Bore/Drill Rigs	1	8.00	221	0.50
Site Preparation	Excavators	1	8.00	158	0.38
Site Preparation	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Plate Compactors	1	8.00	8	0.43
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Equipment Installtion	Bore/Drill Rigs	1	8.00	221	0.50
Equipment Installtion	Cement and Mortar Mixers	2	8.00	9	0.56
Equipment Installtion	Cranes	1	8.00	231	0.29
Equipment Installtion	Forklifts	1	7.00	89	0.20
Equipment Installtion	Skid Steer Loaders	1	8.00	65	0.37
Equipment Installtion	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Well Drilling	Bore/Drill Rigs	1	24.00	221	0.50
Well Drilling	Generator Sets	1	24.00	84	0.74
Paving	Cement and Mortar Mixers	1	8.00	9	0.56

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

Paving	Forklifts	1	8.00	89	0.20
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Restoration	Forklifts	1	8.00	89	0.20
Site Restoration	Skid Steer Loaders	1	8.00	65	0.37
Site Restoration	Tractors/Loaders/Backhoes	1	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
Site Preparation	7	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	20.00	0.00	1,300.00	14.70	6.90	6.80	LD_Mix	HDT_Mix	HHDT
Equipment Installtion	11	40.00	21.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Well Drilling	9	20.00	21.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Restoration	5	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

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

3.2 Site Preparation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1792	0.0000	0.1792	0.0779	0.0000	0.0779	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0294	0.2853	0.2716	6.3000e-004		0.0125	0.0125		0.0115	0.0115	0.0000	55.3378	55.3378	0.0179	0.0000	55.7852
Total	**0.0294**	**0.2853**	**0.2716**	**6.3000e-004**	**0.1792**	**0.0125**	**0.1917**	**0.0779**	**0.0115**	**0.0894**	**0.0000**	**55.3378**	**55.3378**	**0.0179**	**0.0000**	**55.7852**

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	1.2800e-003	9.4000e-004	0.0134	4.0000e-005	4.8300e-003	3.0000e-005	4.8500e-003	1.2800e-003	2.0000e-005	1.3100e-003	0.0000	3.7429	3.7429	9.0000e-005	9.0000e-005	3.7721
Total	**1.2800e-003**	**9.4000e-004**	**0.0134**	**4.0000e-005**	**4.8300e-003**	**3.0000e-005**	**4.8500e-003**	**1.2800e-003**	**2.0000e-005**	**1.3100e-003**	**0.0000**	**3.7429**	**3.7429**	**9.0000e-005**	**9.0000e-005**	**3.7721**

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

3.2 Site Preparation - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0806	0.0000	0.0806	0.0350	0.0000	0.0350	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0294	0.2853	0.2716	6.3000e-004		0.0125	0.0125		0.0115	0.0115	0.0000	55.3377	55.3377	0.0179	0.0000	55.7851
Total	**0.0294**	**0.2853**	**0.2716**	**6.3000e-004**	**0.0806**	**0.0125**	**0.0931**	**0.0350**	**0.0115**	**0.0466**	**0.0000**	**55.3377**	**55.3377**	**0.0179**	**0.0000**	**55.7851**

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	1.2800e-003	9.4000e-004	0.0134	4.0000e-005	4.8300e-003	3.0000e-005	4.8500e-003	1.2800e-003	2.0000e-005	1.3100e-003	0.0000	3.7429	3.7429	9.0000e-005	9.0000e-005	3.7721
Total	**1.2800e-003**	**9.4000e-004**	**0.0134**	**4.0000e-005**	**4.8300e-003**	**3.0000e-005**	**4.8500e-003**	**1.2800e-003**	**2.0000e-005**	**1.3100e-003**	**0.0000**	**3.7429**	**3.7429**	**9.0000e-005**	**9.0000e-005**	**3.7721**

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

3.3 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0712	0.0000	0.0712	0.0343	0.0000	0.0343	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0117	0.1132	0.1052	2.0000e-004		5.1600e-003	5.1600e-003		4.7600e-003	4.7600e-003	0.0000	17.1441	17.1441	5.4800e-003	0.0000	17.2810
Total	**0.0117**	**0.1132**	**0.1052**	**2.0000e-004**	**0.0712**	**5.1600e-003**	**0.0764**	**0.0343**	**4.7600e-003**	**0.0391**	**0.0000**	**17.1441**	**17.1441**	**5.4800e-003**	**0.0000**	**17.2810**

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	9.1000e-004	0.0362	0.0143	1.4000e-004	3.8100e-003	2.1000e-004	4.0200e-003	1.0500e-003	2.0000e-004	1.2500e-003	0.0000	13.5302	13.5302	7.3000e-004	2.1500e-003	14.1891
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.8000e-004	4.3000e-004	6.1100e-003	2.0000e-005	2.1900e-003	1.0000e-005	2.2100e-003	5.8000e-004	1.0000e-005	5.9000e-004	0.0000	1.7013	1.7013	4.0000e-005	4.0000e-005	1.7146
Total	**1.4900e-003**	**0.0367**	**0.0204**	**1.6000e-004**	**6.0000e-003**	**2.2000e-004**	**6.2300e-003**	**1.6300e-003**	**2.1000e-004**	**1.8400e-003**	**0.0000**	**15.2316**	**15.2316**	**7.7000e-004**	**2.1900e-003**	**15.9036**

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

3.3 Grading - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0320	0.0000	0.0320	0.0154	0.0000	0.0154	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0117	0.1132	0.1052	2.0000e-004		5.1600e-003	5.1600e-003		4.7600e-003	4.7600e-003	0.0000	17.1441	17.1441	5.4800e-003	0.0000	17.2810
Total	**0.0117**	**0.1132**	**0.1052**	**2.0000e-004**	**0.0320**	**5.1600e-003**	**0.0372**	**0.0154**	**4.7600e-003**	**0.0202**	**0.0000**	**17.1441**	**17.1441**	**5.4800e-003**	**0.0000**	**17.2810**

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	9.1000e-004	0.0362	0.0143	1.4000e-004	3.8100e-003	2.1000e-004	4.0200e-003	1.0500e-003	2.0000e-004	1.2500e-003	0.0000	13.5302	13.5302	7.3000e-004	2.1500e-003	14.1891
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.8000e-004	4.3000e-004	6.1100e-003	2.0000e-005	2.1900e-003	1.0000e-005	2.2100e-003	5.8000e-004	1.0000e-005	5.9000e-004	0.0000	1.7013	1.7013	4.0000e-005	4.0000e-005	1.7146
Total	**1.4900e-003**	**0.0367**	**0.0204**	**1.6000e-004**	**6.0000e-003**	**2.2000e-004**	**6.2300e-003**	**1.6300e-003**	**2.1000e-004**	**1.8400e-003**	**0.0000**	**15.2316**	**15.2316**	**7.7000e-004**	**2.1900e-003**	**15.9036**

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

3.4 Equipment Installtion - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0602	0.5826	0.5602	1.4800e-003		0.0236	0.0236		0.0219	0.0219	0.0000	127.7489	127.7489	0.0400	0.0000	128.7486
Total	**0.0602**	**0.5826**	**0.5602**	**1.4800e-003**		**0.0236**	**0.0236**		**0.0219**	**0.0219**	**0.0000**	**127.7489**	**127.7489**	**0.0400**	**0.0000**	**128.7486**

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	1.4600e-003	0.0530	0.0198	2.5000e-004	8.7400e-003	2.9000e-004	9.0300e-003	2.5200e-003	2.8000e-004	2.8000e-003	0.0000	24.3123	24.3123	8.3000e-004	3.5300e-003	25.3842
Worker	7.7000e-003	5.6500e-003	0.0806	2.4000e-004	0.0290	1.6000e-004	0.0291	7.6900e-003	1.5000e-004	7.8400e-003	0.0000	22.4577	22.4577	5.3000e-004	5.4000e-004	22.6326
Total	**9.1600e-003**	**0.0587**	**0.1004**	**4.9000e-004**	**0.0377**	**4.5000e-004**	**0.0382**	**0.0102**	**4.3000e-004**	**0.0106**	**0.0000**	**46.7700**	**46.7700**	**1.3600e-003**	**4.0700e-003**	**48.0168**

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

3.4 Equipment Installtion - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0602	0.5826	0.5602	1.4800e-003		0.0236	0.0236		0.0219	0.0219	0.0000	127.7488	127.7488	0.0400	0.0000	128.7485
Total	**0.0602**	**0.5826**	**0.5602**	**1.4800e-003**		**0.0236**	**0.0236**		**0.0219**	**0.0219**	**0.0000**	**127.7488**	**127.7488**	**0.0400**	**0.0000**	**128.7485**

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	1.4600e-003	0.0530	0.0198	2.5000e-004	8.7400e-003	2.9000e-004	9.0300e-003	2.5200e-003	2.8000e-004	2.8000e-003	0.0000	24.3123	24.3123	8.3000e-004	3.5300e-003	25.3842
Worker	7.7000e-003	5.6500e-003	0.0806	2.4000e-004	0.0290	1.6000e-004	0.0291	7.6900e-003	1.5000e-004	7.8400e-003	0.0000	22.4577	22.4577	5.3000e-004	5.4000e-004	22.6326
Total	**9.1600e-003**	**0.0587**	**0.1004**	**4.9000e-004**	**0.0377**	**4.5000e-004**	**0.0382**	**0.0102**	**4.3000e-004**	**0.0106**	**0.0000**	**46.7700**	**46.7700**	**1.3600e-003**	**4.0700e-003**	**48.0168**

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

3.4 Equipment Installtion - 2025

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	0.0385	0.3643	0.3711	9.9000e-004		0.0144	0.0144		0.0134	0.0134	0.0000	85.1672	85.1672	0.0267	0.0000	85.8336
Total	**0.0385**	**0.3643**	**0.3711**	**9.9000e-004**		**0.0144**	**0.0144**		**0.0134**	**0.0134**	**0.0000**	**85.1672**	**85.1672**	**0.0267**	**0.0000**	**85.8336**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.5000e-004	0.0352	0.0130	1.6000e-004	5.8300e-003	2.0000e-004	6.0200e-003	1.6800e-003	1.9000e-004	1.8700e-003	0.0000	15.9130	15.9130	5.5000e-004	2.3100e-003	16.6156
Worker	4.8100e-003	3.3900e-003	0.0502	1.5000e-004	0.0193	1.0000e-004	0.0194	5.1300e-003	9.0000e-005	5.2200e-003	0.0000	14.6059	14.6059	3.2000e-004	3.4000e-004	14.7146
Total	**5.7600e-003**	**0.0386**	**0.0632**	**3.1000e-004**	**0.0251**	**3.0000e-004**	**0.0254**	**6.8100e-003**	**2.8000e-004**	**7.0900e-003**	**0.0000**	**30.5189**	**30.5189**	**8.7000e-004**	**2.6500e-003**	**31.3302**

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

3.4 Equipment Installtion - 2025

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	0.0385	0.3643	0.3711	9.9000e-004		0.0144	0.0144		0.0134	0.0134	0.0000	85.1671	85.1671	0.0267	0.0000	85.8335
Total	**0.0385**	**0.3643**	**0.3711**	**9.9000e-004**		**0.0144**	**0.0144**		**0.0134**	**0.0134**	**0.0000**	**85.1671**	**85.1671**	**0.0267**	**0.0000**	**85.8335**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.5000e-004	0.0352	0.0130	1.6000e-004	5.8300e-003	2.0000e-004	6.0200e-003	1.6800e-003	1.9000e-004	1.8700e-003	0.0000	15.9130	15.9130	5.5000e-004	2.3100e-003	16.6156
Worker	4.8100e-003	3.3900e-003	0.0502	1.5000e-004	0.0193	1.0000e-004	0.0194	5.1300e-003	9.0000e-005	5.2200e-003	0.0000	14.6059	14.6059	3.2000e-004	3.4000e-004	14.7146
Total	**5.7600e-003**	**0.0386**	**0.0632**	**3.1000e-004**	**0.0251**	**3.0000e-004**	**0.0254**	**6.8100e-003**	**2.8000e-004**	**7.0900e-003**	**0.0000**	**30.5189**	**30.5189**	**8.7000e-004**	**2.6500e-003**	**31.3302**

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

3.5 Well Drilling - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0320	0.2867	0.3678	1.0400e-003		0.0112	0.0112		0.0109	0.0109	0.0000	90.1339	90.1339	0.0188	0.0000	90.6048
Total	**0.0320**	**0.2867**	**0.3678**	**1.0400e-003**		**0.0112**	**0.0112**		**0.0109**	**0.0109**	**0.0000**	**90.1339**	**90.1339**	**0.0188**	**0.0000**	**90.6048**

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	4.8000e-004	0.0173	6.4400e-003	8.0000e-005	2.8500e-003	1.0000e-004	2.9400e-003	8.2000e-004	9.0000e-005	9.1000e-004	0.0000	7.9199	7.9199	2.7000e-004	1.1500e-003	8.2691
Worker	1.2500e-003	9.2000e-004	0.0131	4.0000e-005	4.7200e-003	3.0000e-005	4.7400e-003	1.2500e-003	2.0000e-005	1.2800e-003	0.0000	3.6579	3.6579	9.0000e-005	9.0000e-005	3.6864
Total	**1.7300e-003**	**0.0182**	**0.0196**	**1.2000e-004**	**7.5700e-003**	**1.3000e-004**	**7.6800e-003**	**2.0700e-003**	**1.1000e-004**	**2.1900e-003**	**0.0000**	**11.5778**	**11.5778**	**3.6000e-004**	**1.2400e-003**	**11.9555**

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

3.5 Well Drilling - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0320	0.2867	0.3678	1.0400e-003		0.0112	0.0112		0.0109	0.0109	0.0000	90.1338	90.1338	0.0188	0.0000	90.6047
Total	**0.0320**	**0.2867**	**0.3678**	**1.0400e-003**		**0.0112**	**0.0112**		**0.0109**	**0.0109**	**0.0000**	**90.1338**	**90.1338**	**0.0188**	**0.0000**	**90.6047**

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	4.8000e-004	0.0173	6.4400e-003	8.0000e-005	2.8500e-003	1.0000e-004	2.9400e-003	8.2000e-004	9.0000e-005	9.1000e-004	0.0000	7.9199	7.9199	2.7000e-004	1.1500e-003	8.2691
Worker	1.2500e-003	9.2000e-004	0.0131	4.0000e-005	4.7200e-003	3.0000e-005	4.7400e-003	1.2500e-003	2.0000e-005	1.2800e-003	0.0000	3.6579	3.6579	9.0000e-005	9.0000e-005	3.6864
Total	**1.7300e-003**	**0.0182**	**0.0196**	**1.2000e-004**	**7.5700e-003**	**1.3000e-004**	**7.6800e-003**	**2.0700e-003**	**1.1000e-004**	**2.1900e-003**	**0.0000**	**11.5778**	**11.5778**	**3.6000e-004**	**1.2400e-003**	**11.9555**

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

3.6 Paving - 2025

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	2.7800e-003	0.0252	0.0367	5.0000e-005		1.1200e-003	1.1200e-003		1.0400e-003	1.0400e-003	0.0000	4.5414	4.5414	1.3700e-003	0.0000	4.5756
Paving	3.9000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.1700e-003**	**0.0252**	**0.0367**	**5.0000e-005**		**1.1200e-003**	**1.1200e-003**		**1.0400e-003**	**1.0400e-003**	**0.0000**	**4.5414**	**4.5414**	**1.3700e-003**	**0.0000**	**4.5756**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	3.9000e-004	5.7000e-003	2.0000e-005	2.1900e-003	1.0000e-005	2.2100e-003	5.8000e-004	1.0000e-005	5.9000e-004	0.0000	1.6598	1.6598	4.0000e-005	4.0000e-005	1.6721
Total	**5.5000e-004**	**3.9000e-004**	**5.7000e-003**	**2.0000e-005**	**2.1900e-003**	**1.0000e-005**	**2.2100e-003**	**5.8000e-004**	**1.0000e-005**	**5.9000e-004**	**0.0000**	**1.6598**	**1.6598**	**4.0000e-005**	**4.0000e-005**	**1.6721**

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

3.6 Paving - 2025

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	2.7800e-003	0.0252	0.0367	5.0000e-005		1.1200e-003	1.1200e-003		1.0400e-003	1.0400e-003	0.0000	4.5414	4.5414	1.3700e-003	0.0000	4.5756
Paving	3.9000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.1700e-003**	**0.0252**	**0.0367**	**5.0000e-005**		**1.1200e-003**	**1.1200e-003**		**1.0400e-003**	**1.0400e-003**	**0.0000**	**4.5414**	**4.5414**	**1.3700e-003**	**0.0000**	**4.5756**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5000e-004	3.9000e-004	5.7000e-003	2.0000e-005	2.1900e-003	1.0000e-005	2.2100e-003	5.8000e-004	1.0000e-005	5.9000e-004	0.0000	1.6598	1.6598	4.0000e-005	4.0000e-005	1.6721
Total	**5.5000e-004**	**3.9000e-004**	**5.7000e-003**	**2.0000e-005**	**2.1900e-003**	**1.0000e-005**	**2.2100e-003**	**5.8000e-004**	**1.0000e-005**	**5.9000e-004**	**0.0000**	**1.6598**	**1.6598**	**4.0000e-005**	**4.0000e-005**	**1.6721**

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

3.7 Site Restoration - 2025

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					0.0350	0.0000	0.0350	3.7800e-003	0.0000	3.7800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.7600e-003	0.0611	0.0982	1.4000e-004		2.5300e-003	2.5300e-003		2.3300e-003	2.3300e-003	0.0000	12.2304	12.2304	3.9600e-003	0.0000	12.3293
Total	**5.7600e-003**	**0.0611**	**0.0982**	**1.4000e-004**	**0.0350**	**2.5300e-003**	**0.0375**	**3.7800e-003**	**2.3300e-003**	**6.1100e-003**	**0.0000**	**12.2304**	**12.2304**	**3.9600e-003**	**0.0000**	**12.3293**

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	1.2000e-003	8.5000e-004	0.0126	4.0000e-005	4.8300e-003	3.0000e-005	4.8500e-003	1.2800e-003	2.0000e-005	1.3100e-003	0.0000	3.6515	3.6515	8.0000e-005	8.0000e-005	3.6787
Total	**1.2000e-003**	**8.5000e-004**	**0.0126**	**4.0000e-005**	**4.8300e-003**	**3.0000e-005**	**4.8500e-003**	**1.2800e-003**	**2.0000e-005**	**1.3100e-003**	**0.0000**	**3.6515**	**3.6515**	**8.0000e-005**	**8.0000e-005**	**3.6787**

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

3.7 Site Restoration - 2025

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					0.0158	0.0000	0.0158	1.7000e-003	0.0000	1.7000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.7600e-003	0.0611	0.0982	1.4000e-004		2.5300e-003	2.5300e-003		2.3300e-003	2.3300e-003	0.0000	12.2304	12.2304	3.9600e-003	0.0000	12.3293
Total	**5.7600e-003**	**0.0611**	**0.0982**	**1.4000e-004**	**0.0158**	**2.5300e-003**	**0.0183**	**1.7000e-003**	**2.3300e-003**	**4.0300e-003**	**0.0000**	**12.2304**	**12.2304**	**3.9600e-003**	**0.0000**	**12.3293**

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	1.2000e-003	8.5000e-004	0.0126	4.0000e-005	4.8300e-003	3.0000e-005	4.8500e-003	1.2800e-003	2.0000e-005	1.3100e-003	0.0000	3.6515	3.6515	8.0000e-005	8.0000e-005	3.6787
Total	**1.2000e-003**	**8.5000e-004**	**0.0126**	**4.0000e-005**	**4.8300e-003**	**3.0000e-005**	**4.8500e-003**	**1.2800e-003**	**2.0000e-005**	**1.3100e-003**	**0.0000**	**3.6515**	**3.6515**	**8.0000e-005**	**8.0000e-005**	**3.6787**

S Wells PFAS Groundwater Treatment and Disinfection Facility Project GHG - South Coast AQMD Air District, Annual

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.0100e-003	1.7900e-003	0.0142	4.0000e-005	4.6300e-003	3.0000e-005	4.6600e-003	1.2400e-003	3.0000e-005	1.2600e-003	0.0000	4.2268	4.2268	1.2000e-004	1.6000e-004	4.2777
Unmitigated	1.0100e-003	1.7900e-003	0.0142	4.0000e-005	4.6300e-003	3.0000e-005	4.6600e-003	1.2400e-003	3.0000e-005	1.2600e-003	0.0000	4.2268	4.2268	1.2000e-004	1.6000e-004	4.2777

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	5.63	0.00	0.00	12,300	12,300
Total	5.63	0.00	0.00	12,300	12,300

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
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	100.00	0.00	100	0	0

4.4 Fleet Mix

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

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.541709	0.062136	0.185590	0.128486	0.023783	0.006533	0.012157	0.009216	0.000814	0.000497	0.024669	0.000753	0.003657
Other Non-Asphalt Surfaces	0.000000	0.000000	0.964330	0.000000	0.000000	0.000000	0.031704	0.003963	0.000000	0.000000	0.000000	0.000000	0.000000

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

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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**

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					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

S Wells PFAS Groundwater Treatment and Disinfection Facility Project GHG - South Coast AQMD Air District, Annual

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

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	0.0100	1.0000e-005	1.6000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.1100e-003	3.1100e-003	1.0000e-005	0.0000	3.3200e-003
Unmitigated	0.0100	1.0000e-005	1.6000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.1100e-003	3.1100e-003	1.0000e-005	0.0000	3.3200e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.7500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	8.1100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.5000e-004	1.0000e-005	1.6000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.1100e-003	3.1100e-003	1.0000e-005	0.0000	3.3200e-003
Total	**0.0100**	**1.0000e-005**	**1.6000e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.1100e-003**	**3.1100e-003**	**1.0000e-005**	**0.0000**	**3.3200e-003**

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

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.7500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	8.1100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.5000e-004	1.0000e-005	1.6000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.1100e-003	3.1100e-003	1.0000e-005	0.0000	3.3200e-003
Total	**0.0100**	**1.0000e-005**	**1.6000e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.1100e-003**	**3.1100e-003**	**1.0000e-005**	**0.0000**	**3.3200e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

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

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	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			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	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			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	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			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	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			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

S Wells PFAS Groundwater Treatment and Disinfection Facility Project GHG - South Coast AQMD Air District, Annual

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

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

S Wells PFAS Groundwater Treatment and Disinfection Facility Project

Electricity GHG Emissions Estimation Tool

Total Estimated Electricity Usage (MWh)
986

GHG Emission Calculations

	Southern California Edison		CO_2e Conversion Calculations	
	Energy Intensity Factor (lbs/MWh)	Emissions (lbs)	Total CO_2e Emissions (lbs)	Total CO_2e Emissions (MT)
CO_2	390.98	385,506	385,506	175
CH_4	0.033	33	813	0
N_2O	0.004	4	1,175	1
			TOTAL GHG EMISSIONS FROM ELECTRICITY	**176**

Notes

- MWh = megawatt-hours; lbs = pounds; CO_2 = carbon dioxide, CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent; MT = metric tons; IPCC = Intergovernmental Panel on Climate Change; CARB = California Air Resources Board

- Energy intensity factors for SCE based on CalEEMod default values.

Appendix B

Biological Resources Assessment

S Wells PFAS Groundwater Treatment and Disinfection Facility

Biological Resources Assessment

prepared for

Santa Clarita Valley Water Agency
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Contact: Orlando Moreno, P.E., Senior Engineer

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November 2022

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Executive Summary

Rincon Consultants, Inc. has prepared this Biological Resources Assessment to document existing conditions and provide a basis for evaluation of potential impacts to biological resources from the Santa Clarita Valley Water Agency's (SCV Water) S Wells PFAS Groundwater Treatment and Disinfection Facility (project). The project involves construction of a per- and polyfluoroalkyl substances (PFAS) groundwater treatment and disinfection facility and associated pipelines. The proposed facility would restore the use of Wells S6, S7 and S8 and would reduce SCV Water's dependency on imported water. In addition, a new groundwater well (S9) and a chloramine disinfection building would be constructed. The project is located in the city of Santa Clarita in Los Angeles County, within and adjacent to Bridgeport Park to the north of the Santa Clara River.

The project site includes all project components (groundwater treatment and disinfection facility, underground pipelines, staging areas, and roundabout improvements). The Study Area surrounding the project site encompasses a 100-foot survey buffer. The Santa Clara River is located in the southern portion of the Study Area, and developed, disturbed, and ornamentally vegetated areas are located in the central and northern portions of the Study Area.

No special status plant species have a high or moderate potential to occur within the Study Area. Five special status wildlife species have a high potential to occur, including California legless lizard (*Anniella* spp.), coastal whiptail (*Aspidoscelis tigris stejnegeri*), western pond turtle (*Emys marmorata*), coast horned lizard (*Phrynosoma blainvillii*), and Cooper's hawk (*Accipiter cooperii*). Four species have a moderate potential to occur and include arroyo toad (*Anaxyrus californicus*), loggerhead shrike (*Lanius ludovicianus*), least Bell's vireo (*Vireo bellii pusillus*), and San Diego black-tailed jackrabbit (*Lepus californicus bennettii*). No federally-designated critical habitat occurs within the Study Area.

Additionally, two sensitive plant communities are located within the Study Area: Fremont cottonwood forest and woodland and scale broom scrub. The southern portion of the Study Area associated with the Santa Clara River channel and ornamental trees in the northern portion of the Study Area also provide potential nesting habitat for bird species protected under California Fish and Game Code Section 3503 and the federal Migratory Bird Treaty Act.

Approximately 2.87 acres of project impacts would occur within the developed, disturbed, and ornamental land cover types in the northern portion of the Study Area. No direct impacts would occur to natural vegetation communities associated with the Santa Clara River in the southern portion of the Study Area. Therefore, the project would not directly impact special status species, nesting birds, jurisdictional resources, or sensitive plant communities. Indirect impacts to special status avian species or nesting birds could occur through noise, vibrations, and dust from construction activities during construction. In addition, indirect impacts to special status wildlife species and sensitive plant communities could occur through the reactivated operation of existing Wells S6, S7, and S8 and operation of the new Well S9, which could lower localized groundwater levels and thereby reduce groundwater availability for potential groundwater dependent ecosystems along the Santa Clara River. Indirect impacts to jurisdictional waters and wetlands may also occur through processes such as increased turbidity, altered pH, and decreased dissolved oxygen levels. With implementation of avoidance and minimization measures BIO-1 through BIO-5, potential indirect impacts to special status species, sensitive plant communities, and jurisdictional resources would be reduced to less-than-significant levels.

One coast live oak (*Quercus agrifolia*) tree protected by the City of Santa Clarita Oak Tree Preservation Ordinance and nine trees (four western sycamore trees [*Platanus racemosa*] and five London plane trees [*Platanus acerifolia*]) protected by the Parkway Trees Ordinance occur within the Study Area, and removal is anticipated to be required to complete the project. SCV Water would voluntarily obtain an Oak Tree Removal permit from the city of Santa Clarita for removal of the coast live oak tree and would be required to obtain a Parkway Tree Permit from the city of Santa Clarita for removal of the western sycamore and London plane trees.

1 Introduction

Rincon Consultants, Inc. (Rincon) has prepared this Biological Resources Assessment (BRA) Report for the Santa Clarita Valley Water Agency (SCV Water) to document existing conditions and provide a basis for evaluation of potential impacts to special status and sensitive biological resources associated with the S Wells PFAS Groundwater Treatment and Disinfection Facility Project (project) in the city of Santa Clarita (City), Los Angeles County, California (Figure 1).

1.1 Project Location

The project site is located within the Santa Clarita Valley along Newhall Ranch Road, Bridgeport Park, Bridgeport Lane, and the Santa Clara River Trail to the north of the Santa Clara River (SCR; Figure 2a and Figure 2b). The project site is comprised of three existing well locations (Wells S6, S7, and S8), the location of the proposed Well S9, groundwater treatment and disinfection facility, three locations of pipeline alignments, two locations of roundabout improvements, and a construction staging and laydown area.

The approximate center of the project site is located at latitude 34.425675 and longitude -118.547677 (WGS84). The project site is located in Township 04 North, Range 16 West, Section 15 of the United States Geological Survey (USGS) *Newhall, California* 7.5-minute topographic quadrangle (USGS 2022a).

1.2 Project Description

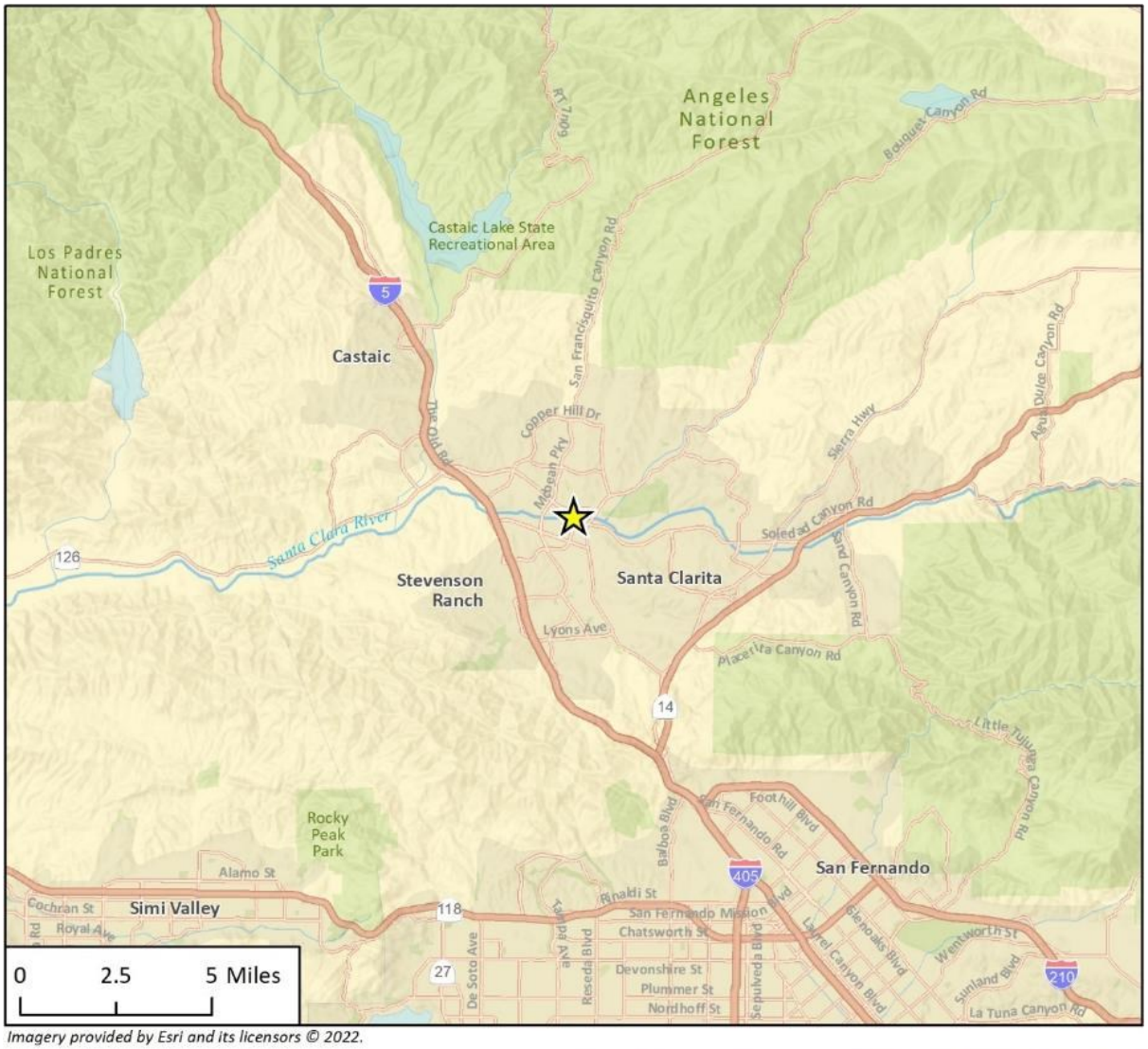
The Santa Clarita Valley Water Agency (SCV Water) operates three existing wells (S6, S7 and S8) located along the north side of the SCR between McBean Parkway and Parkwood Lane within the Bridgeport community in Santa Clarita. The three wells generate up to a total of 6,000 gallons per minute of potable water that is distributed to the Valencia Division service area. The wells were taken offline due to the detection of per- and polyfluoroalkyl substances (PFAS) that exceeded the State's response levels. To make up for the loss of groundwater production, SCV Water has relied on the purchase of additional imported water supplies to meet local demand.

The project involves construction of a PFAS groundwater treatment and disinfection facility and associated pipelines. The proposed facility would restore the use of Wells S6, S7 and S8 and would reduce SCV Water's dependency on imported water. In addition, a new groundwater well (S9) and a chloramine disinfection building would be constructed. The new S9 well would produce an additional 1,000 gallons per minute of potable water that would also be filtered through the proposed PFAS treatment system before distribution to SCV Water customers. The new Well S9 would serve as a replacement for the existing Mitchell 5A Well that is being abandoned by a private developer as part of the Vista Canyon Plaza Development; therefore, the new Well S9 would not result in a net increase in SCV Water's overall annual basin-wide groundwater extraction levels.

Groundwater Treatment and Disinfection Facility and Well S9

Components of the proposed groundwater treatment and disinfection facility would include up to eight ion-exchange vessels approximately 15 feet in height, a new S-9 groundwater well head, control panels, a pre-filter station, a one-story chloramine disinfection building, piping, and

Figure 1 Regional Location



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Project Location

N

Figure 2a Study Area – Eastern Extent

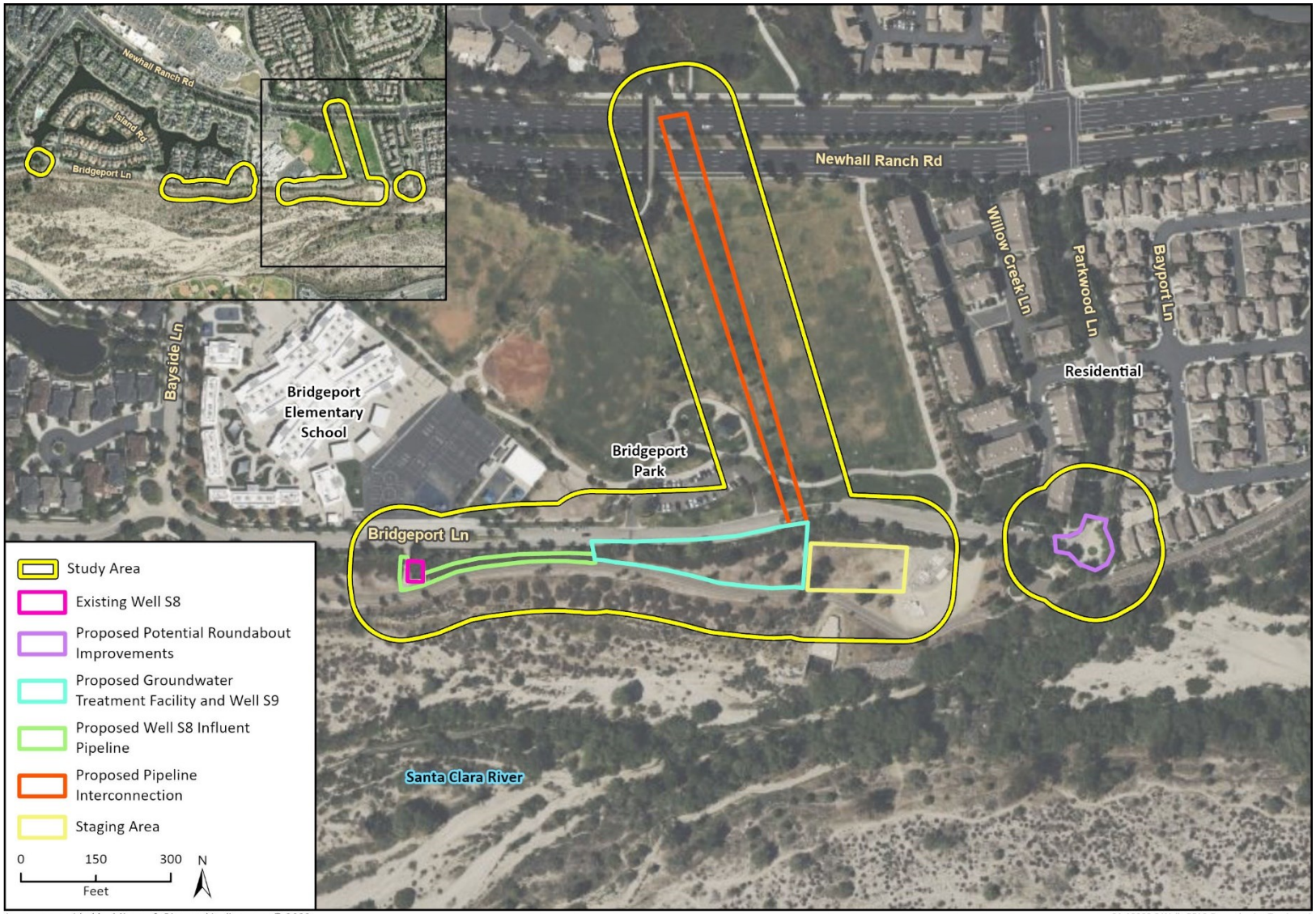
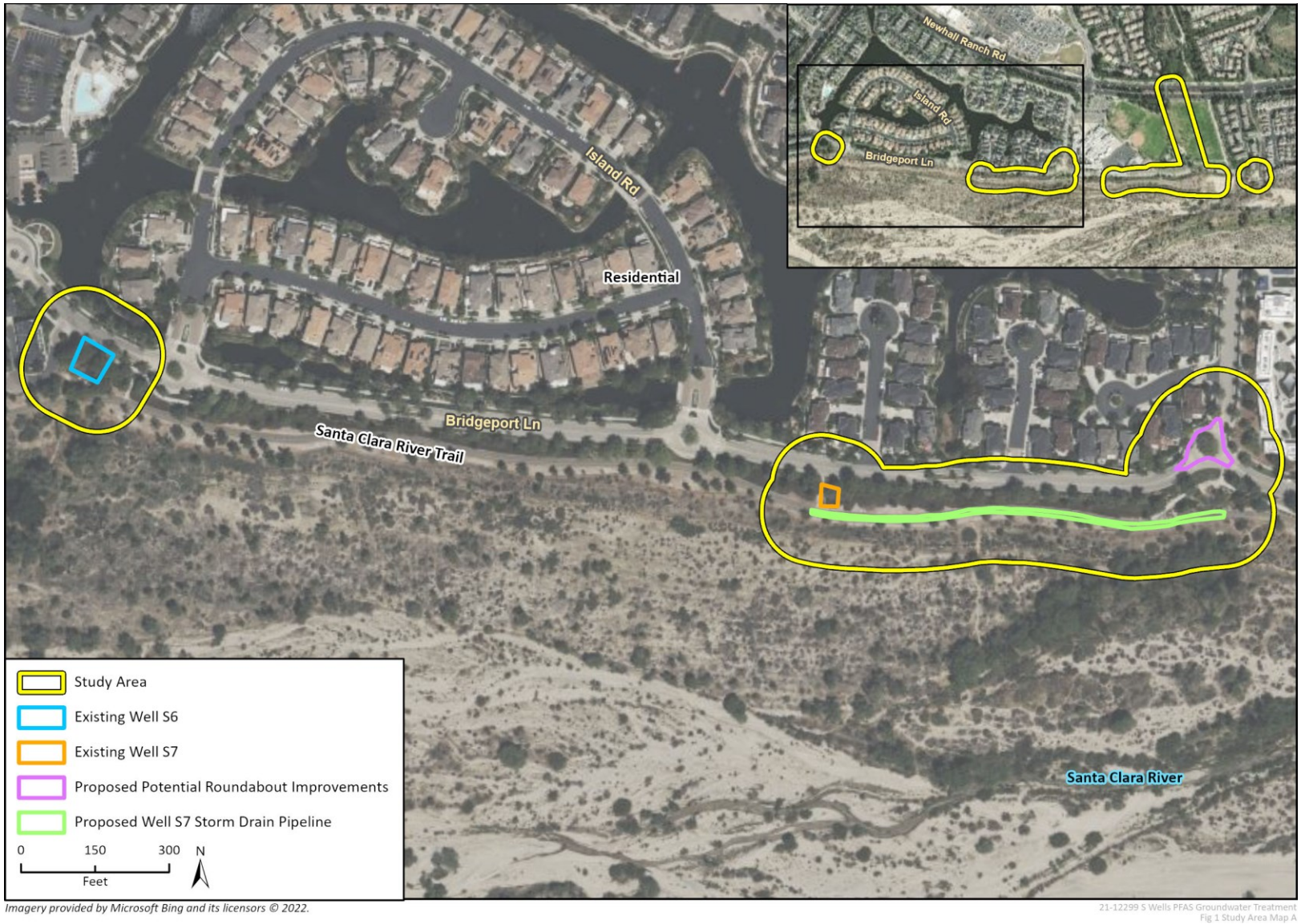


Figure 2b Study Area – Western Extent



architectural paneling to screen the treatment vessels and improvements. Vehicular access to the site would be provided by two 30-foot-wide driveways with motorized gates along Bridgeport Lane. The project also includes installation of an underground 12-inch drainage pipeline connection between the proposed treatment and disinfection facility and the existing 30-inch drainage outlet pipeline that is located along the eastern portion of the treatment and disinfection facility location. The proposed drainage pipeline would collect and convey on-site stormwater runoff and groundwater produced during periodic installation and water quality testing of new resin media in the treatment vessels to the existing stormwater drainage pipeline to the east of the site, which ultimately currently outlets to the SCR approximately 135 feet south of the project site.

Pipelines

The project would include the installation of three pipelines. The first pipeline would consist of approximately 850 linear feet of water pipeline that would extend from the groundwater treatment and disinfection facility north through Bridgeport Park to an interconnection with SCV Water's existing distribution system in Newhall Ranch Road. The second pipeline would consist of approximately 400 linear feet of water pipeline installed primarily east/west immediately north of the existing SCR Trail from the western boundary of the project site to the existing Well S8 location. The pipeline would proceed west from the groundwater treatment and disinfection facility to Well S8 and would convey raw water flows from Wells S6, S7, and S8 to the proposed groundwater treatment and disinfection facility. The third pipeline would consist of approximately 840 linear feet of storm drain pipeline installed primarily east/west along the southern half of the existing SCR Trail from a point south of the Bridgeport Lane/Bayside Lane intersection to the existing Well S7 location. This pipeline would convey stormwater flows and pumped groundwater that currently sheet flow from the site into the SCR to an existing 30-inch stormwater drain pipeline that ultimately outlets to the SCR. This discharge would be covered under SCV Water's existing Statewide General Permit for Drinking Water System Discharges to the Waters of the United States (No. 4DW0768). The SCR Trail would be restored to its existing condition or better upon completion of construction.

Existing Well Improvements

The project includes improvements, such as submersible pump replacement and electrical panel upgrades, at the existing Wells S6, S7, and S8. All work would be completed within the existing, fenced facility footprints for these wells in previously disturbed areas with the exception of Well S6 where minor piping improvements would be conducted in landscaped areas immediately north of the well site. No new noise-generating equipment would be installed. Shrubs and ground cover would be removed as needed during installation of these improvements, but no trees would be altered or removed. Landscaping would be replaced with new planting upon completion of construction activities.

Roundabout Improvements

The project would include street and curb improvements to two roundabouts located at the intersections of Parkwood Lane/ Bridgeport Lane and Bayside Lane/Bridgeport Lane to accommodate periodic site access by large trucks during construction and various midsize delivery trucks and semitrucks during operation.

Construction

Construction of the proposed project would occur approximately between April 2024 and October 2025. The maximum depth of excavation would be nine feet for all project components with the exception of the proposed S9 well, which would be drilled to a depth of approximately 250 feet. In order to maintain cyclists' access and safety along the SCR Trail immediately south of the project site, construction fencing would be placed along the southern edge of the project site, and signage notifying trail users of ongoing construction activities would be posted along the path. In addition, to minimize impacts to users of Bridgeport Park, the construction work area through the park would be fenced, and the pipeline would be constructed in segments with any exposed trenches covered with plate when construction activities are not occurring.

Construction materials would be staged on a dirt lot directly east of the project site. Construction personnel would park along Bridgeport Lane and within the staging area. Delivery and haul trucks would access the site from Newhall Ranch Road either by using Parkwood Lane and Bridgeport Lane or by traveling along the maintenance road that runs along the eastern edge of Bridgeport Park.

Ten trees are proposed for removal to accommodate the proposed project, including one coast live oak (*Quercus agrifolia*), five London plane (*Platanus acerifolia*), and four western sycamore (*Platanus racemosa*), all of which are located within the proposed groundwater treatment and disinfection facility. No utilities would be relocated as a result of the project.

Operation and Maintenance

Under the proposed project, Wells S6, S7, and S8 would be reactivated, and the proposed S9 groundwater well would be constructed. The wells and treatment facility would operate 24 hours per day, 365 days per year. Approximately one to two maintenance staff would visit the project site daily. Resin media would be replaced two to three times a year, which would require the use of a semitruck for delivery. In addition, chemical deliveries to the proposed disinfection building would occur approximately twice a month via a midsize delivery truck. Maintenance vehicles would park within the proposed groundwater treatment and disinfection facility.

Lighting would be provided within the enclosed facility and would be set on a timer controlled at the entrance of the project site. Sodium hypochlorite (chlorine) and liquid ammonium sulfate would be stored at the proposed facility in a completely enclosed structure with proper containment and venting.

2 Methodology

2.1 Regulatory Overview

Regulated or sensitive resources studied and analyzed herein include special status plant and animal species, nesting birds and raptors, sensitive plant communities, jurisdictional waters and wetlands, wildlife movement, and locally protected resources, such as protected trees. Regulatory authority over biological resources is shared by federal, state, and local authorities. Primary authority for regulation of general biological resources lies within the land use control and planning authority of local jurisdictions (in this instance, the City).

Definition of Special Status Species

For the purposes of this report, special status species include:

- Species listed as threatened or endangered under the Federal Endangered Species Act (FESA); species that are under review may be included if there is a reasonable expectation of listing within the life of the project;
- Species listed as candidate, rare, threatened, or endangered under the California Endangered Species Act (CESA) or Native Plant Protection Act;
- Species designated as Fully Protected, Species of Special Concern, or Watch List by the California Fish and Game Code (CFGC) or California Department of Fish and Wildlife (CDFW);
- Species designated as locally important by the City and/or otherwise protected through ordinance or local policy; and
- Plants occurring on lists 1 through 4 of the California Native Plant Society (CNPS) California Rare Plant Rank system.

Environmental Statutes

For the purpose of this report, the analysis of potential impacts to biological resources was guided by the following statutes (described in detail in Appendix A):

- California Environmental Quality Act (CEQA);
- FESA;
- CESA;
- Federal Clean Water Act (CWA);
- CFGC;
- Migratory Bird Treaty Act (MBTA);
- The Bald and Golden Eagle Protection Act;
- Porter-Cologne Water Quality Control Act;
- City of Santa Clarita General Plan; and
- Santa Clarita Municipal Code.

Guidelines for Determining CEQA Significance

The following threshold criteria, as defined by the CEQA Guidelines Appendix G Initial Study Checklist, were used to evaluate potential environmental effects. Based on these criteria, the proposed project would have a significant effect on biological resources if it would:

a) *Have substantial adverse effects, 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 CDFW 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, and regulations or by the CDFW 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.*

2.2 Literature Review

Queries of the United States Fish and Wildlife Service (USFWS) Information, Planning and Conservation System (USFWS 2022a), CDFW California Natural Diversity Database (CNDDB) (CDFW 2022a), and the CNPS Online Inventory of Rare, Threatened and Endangered Plants of California (CNPS 2022a) were conducted to obtain comprehensive information regarding state and federally listed species as well as other special status species considered to have potential to occur with the *Newhall, California* USGS 7.5-minute topographic quadrangle and the surrounding eight quadrangles (*Whitaker Peak, Warm Springs Mountain, Green Valley, Val Verde, Mint Canyon, Santa Susana, Oat Mountain, and San Fernando*). The results of these scientific database queries were compiled into a table that is presented in Appendix D.

In addition, the following resources were reviewed for information about the Study Area:

- Aerial photographs (Google Earth Pro 2022);
- *Newhall, California* USGS 7.5-minute topographic quadrangle (USGS 2022a);
- United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA NRCS 2022a);
- USFWS Critical Habitat Portal (USFWS 2022b);
- USFWS National Wetland Inventory (NWI) (USFWS 2022c); and
- USGS National Hydrography Dataset (NHD) (USGS 2022b).

2.3 Field Reconnaissance Survey

A field reconnaissance survey was conducted within the project site and a 100-foot buffer, hereby referred to as the Study Area. The survey was conducted to document the existing conditions and to evaluate the potential for presence of regulated biological resources in the Study Area, including special status plant and wildlife species, sensitive plant communities, potential jurisdictional waters of the U.S./State and wetlands, and habitat for federally and state protected nesting birds.

The field reconnaissance survey was conducted by Rincon Senior Biologist Robin Murray and Rincon Biologist Kyle Gern on February 23, 2022. Weather conditions during the survey included clear skies with temperatures ranging from 39 degrees Fahrenheit (°F) to 55°F and winds ranging from approximately two to 20 miles per hour. An additional reconnaissance survey was conducted by Kyle Gern on August 30, 2022 to survey new components that were added to the project. During this survey, skies were clear, temperatures ranged from 75°F to 90°F, and winds were approximately one mile per hour. The entire Study Area was surveyed on foot, and all biological resources encountered in the Study Area were recorded.

Representative photographs of the Study Area were taken (Appendix B), and an inventory of all plant and wildlife species observed was compiled (Appendix C). Natural and semi-natural vegetation community classification was based using *A Manual of California Vegetation, Second Edition* (MCV2; Sawyer et al. 2009), which establishes systematic classifications and definitions of vegetation communities. Updates to the MCV2 provided in the online database (CNPS 2022b) were taken into consideration. Each vegetation mapping unit was analyzed for characteristics to define the applicable vegetation community, such as dominant or co-dominant plant species and community membership rules. Additionally, land covers were characterized in areas that appeared to be altered by anthropogenic activities and were dominated by non-native or ornamental vegetation (e.g., ornamental, disturbed).

2.4 Jurisdictional Delineation

Information in the report related to jurisdictional waters is based on a formal jurisdictional delineation conducted by Rincon on February 23 and August 30, 2022. The delineation mapped and recorded the extent of potential waters of the U.S., CDFW-jurisdictional streambeds, and/or waters of the State. Current federal and state policies, methods, and guidelines were used to identify and delineate potential jurisdictional areas (described in Appendix A). Data collection in the Study Area was focused on areas containing a potential waterway, and Sample Points (SPs) were chosen at locations that were best representation of the conditions within the Study Area. The Ordinary High Water Mark (OHWM) and Wetland Determination Data Forms are included in Appendix E.

3 Existing Conditions

This section summarizes the existing conditions of the Study Area and results of biological resource field database inquiries and field surveys. Brief discussions regarding the general physical characteristics within the Study Area, the watershed and drainages, soils, vegetation and land cover types, and general wildlife species, are presented below. Representative photographs of the Study Area are provided in Appendix B, and complete lists of all plants and wildlife species observed within the Study Area are presented in Appendix C.

3.1 Physical Characteristics

The Study Area is situated in a region that is characterized by a Mediterranean climate with warm, dry summers and cool, wet winters. Average high temperatures range from 77 to 89°F and average low temperatures range from 61 to 68°F. The average annual precipitation in the region is 15.56 inches with the majority falling in February (Western Regional Climate Center 2022).

The topography of the Study Area is generally level. Elevation ranges between approximately 1,120 and 1,150 feet above mean sea level. In the northern and central portions of the Study Area north of the SCR, the terrain is generally flat. The southern portion of the Study Area slopes downward from the north to the south toward the SCR channel.

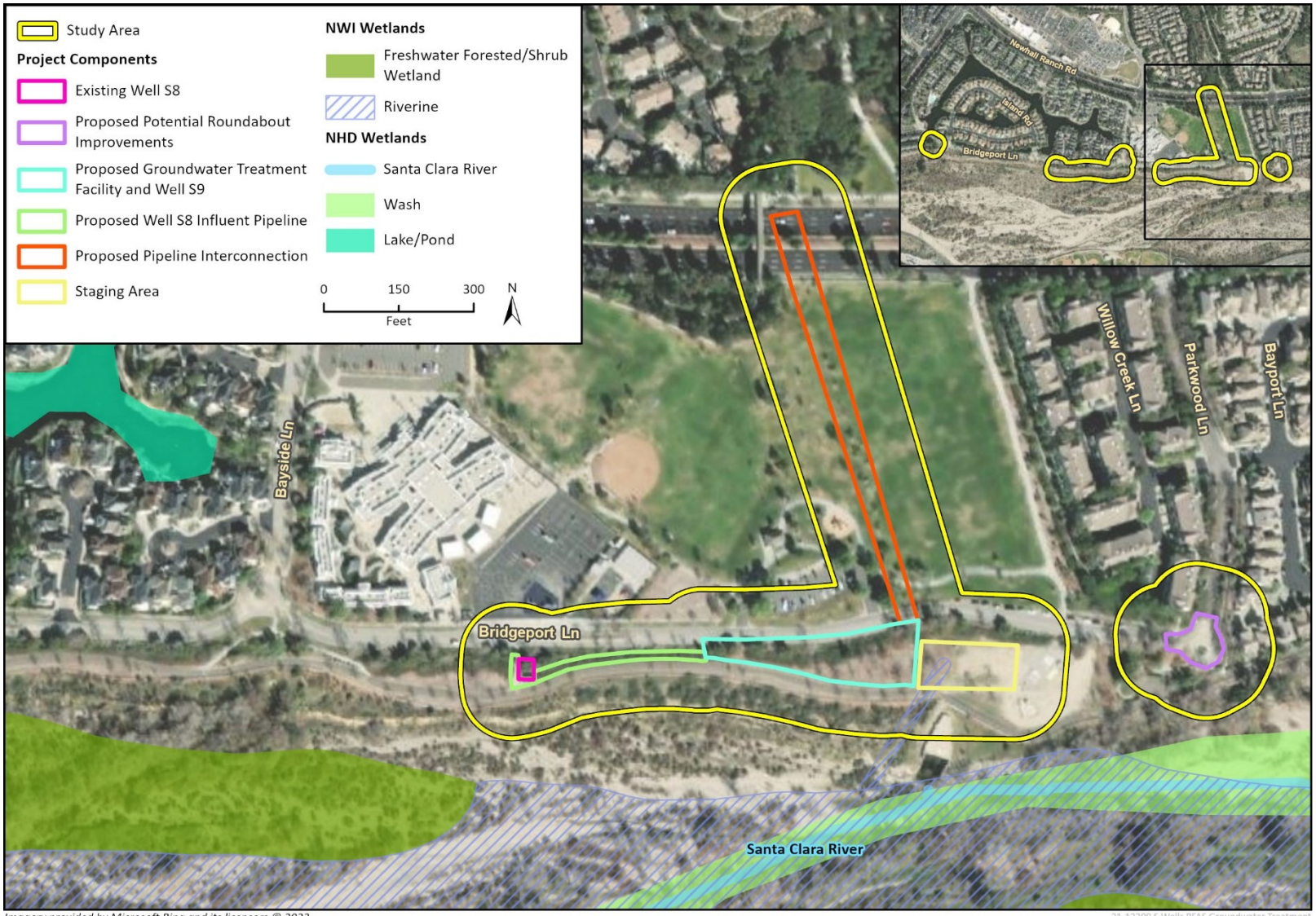
Watershed and Drainages

The Study Area is located within the SCR watershed (Hydrologic Unit Code [HUC]-8 Number [No.] 18070102; USGS 2022a). The SCR originates in the northern slopes of the San Gabriel Mountains in Los Angeles County, traverses Ventura County, and eventually flows into the Pacific Ocean between the cities of San Buenaventura (Ventura) and Oxnard. Significant tributaries within the watershed include Piru, Sespe, Santa Paula, Hopper, Pole, and Castaic Creeks; San Francisquito and Bouquet Canyon; and South Fork SCR. The hydrology of the SCR is highly variable, and flows vary seasonally.

Specifically, the Study Area is located within the Upper SCR Watershed (HUC-10 No. 1807010204), and the Salt Canyon-SCR (HUC-12 No. 180701020403) and San Francisquito Canyon (HUC-12 No. 180701020402) subwatersheds. The Upper SCR Watershed encompasses a total area of approximately 262,400 acres. Historical records and current observations indicate that the Upper SCR generally produces an intermittent flow regime, with flows increasing during the winter months (November through March), and declining throughout the summer months (USFWS 2022c). The SCR flows from east to west in the southern portion of the Study Area. The NWI identifies the SCR as an intermittent riverine system in the Study Area, which coincides with Rincon's field observations (Figure 3a and Figure 3b). The NWI also identifies portions of the SCR that are palustrine, seasonally flooded forested wetlands within the northern portion of the main SCR channel. The SCR flows in a southwesterly direction through the cities of Fillmore, Santa Paula, and Ventura and eventually connects to the Pacific Ocean, which is a Traditional Navigable Water (TNW). Approximately 0.3 mile east and upstream of the Study Area is the confluence between Dry Canyon Creek, Bouquet Canyon Creek, and the SCR.

The NHD identifies a lake/pond in the northwestern portion of the Study Area, which was confirmed in the field to be an existing artificial lake within the Bridgeport at Valencia housing development (Bridgeport Lake; Appendix B, Photograph 28). This lake/pond area is partially unmapped by the

Figure 3a NWI and NHD Resources - Eastern Extent



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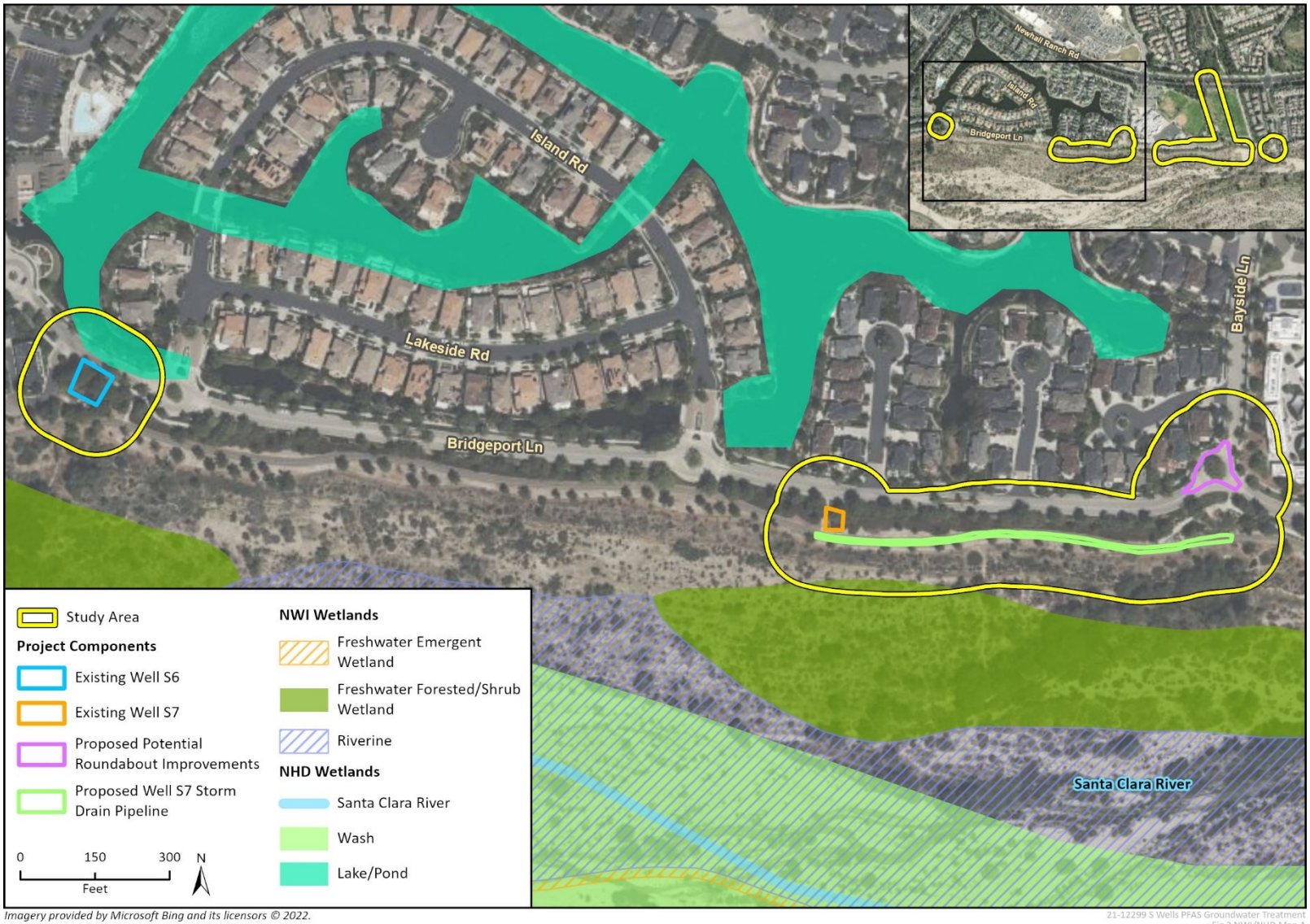
Additional data provided by NHD, 2022 and NWI 2022.

21-12299 S Wells PFAS Groundwater Treatment
Fig 2 NWI/NHD Map B

Figure 3b NWI and NHD Resources – Western Extent



NWI and NHD because a section of the pond occurs to the north of Bridgeport Lane between Island Road and East Island Road.

Four culvert outlets were identified along the northern bank of the SCR within and adjacent to the Study Area: one three-foot diameter concrete culvert outlet (Culvert Outlet 1; Appendix B, Photograph 10), one six-foot diameter concrete culvert outlet (Culvert Outlet 2; Appendix B, Photograph 29), one eight-foot-long by eight-foot-wide concrete box culvert outlet (Culvert Outlet 3; Appendix B, Photograph 30), and one two-foot diameter concrete culvert outlet (Culvert Outlet 4; Appendix B, Photograph 31). Culvert Outlet 2 is located within the Study Area, and Culvert Outlets 1, 3 and 4 are located just outside the Study Area boundary. Culvert Outlets 2 and 3 are mapped by the NHD. Culvert Outlets 1 and 4 are not mapped by the NWI or NHD. It is noted that mapping presented in the NHD and NWI provide useful context but are not a completely accurate depiction of current existing conditions or the extent of jurisdictional waters in the Study Area.

Soils

According to the NRCS Web Soil Survey, the Study Area includes five soil map units: (1) Hanford sandy loam, 0 to 2 percent slopes; (2) Metz loamy sand, 0 to 2 percent slopes; (3) Riverwash; (4) Sandy alluvial land; and (5) Saugus loam, 30 to 50 percent slopes, eroded (USDA NRCS 2022a; Figure 4a and Figure 4**Error! Not a valid bookmark self-reference.**b). Soils observed during the field survey are consistent with these map units. Hanford sandy loam, 0 to 2 percent slopes, Metz loamy sand, 0 to 2 percent slopes, riverwash, and sandy alluvial land are classified as hydric soils (USDA NRCS 2022b). The soil map units mapped within the Study Area are described in greater detail below.

Hanford Sandy Loam, 0 to 2 Percent Slopes

The Hanford series consists of very deep, well-drained soils that are typically located on stream bottoms and are formed in alluvium derived from granite. This series has a typical soil profile of sandy loam from zero to eight inches and fine sandy loam from eight to 70 inches. Hanford sandy loam, 0 to 2 percent slopes is found in the central portion of the Study Area and is listed as a hydric soil on the NRCS Hydric Soils List (USDA NRCS 2022b).

Metz Loamy Sand, 0 to 2 Percent Slopes

The Metz series consists of very deep, somewhat excessively drained soils that are typically located on alluvial fans and floodplains of river systems and formed in alluvium. This series has a typical soil profile of loamy sand from zero to seven inches and stratified sand to loamy sand from seven to 60 inches. Metz loamy sand, 0 to 2 percent slopes is found in the eastern portion of the Study Area and is listed as a hydric soil on the NRCS Hydric Soils List (USDA NRCS 2022b).

Riverwash

Riverwash occurs in the southern portion of the Study Area and is associated with the SCR channel. Riverwash soils are typically sandy, gravelly, or cobbly; are somewhat poorly drained; and experience frequent flooding. Riverwash is listed as a hydric soil on the NRCS Hydric Soils List (USDA NRCS 2022b).

Figure 4a USDA NRCS Soil Survey Mapping – Eastern Extent

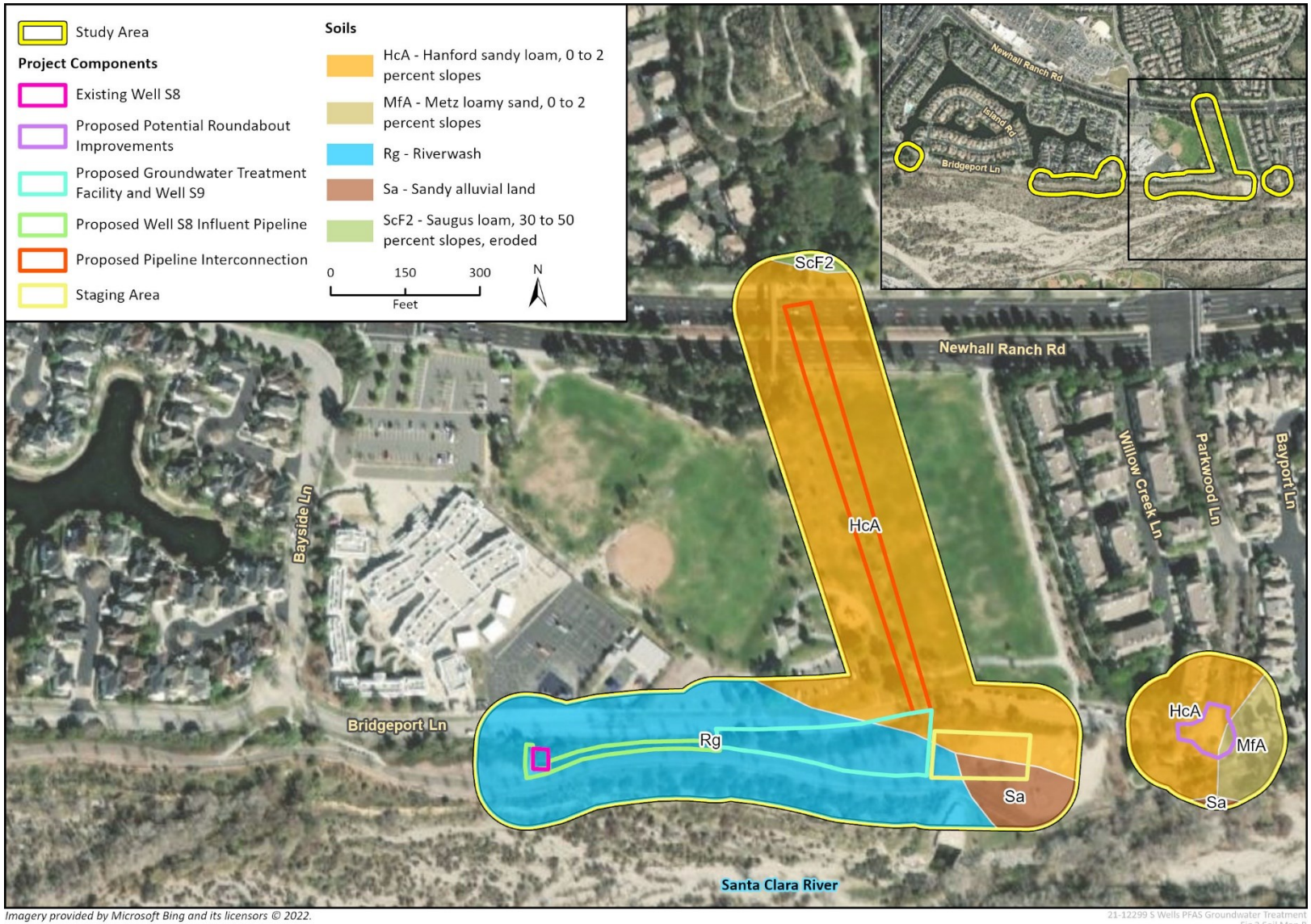
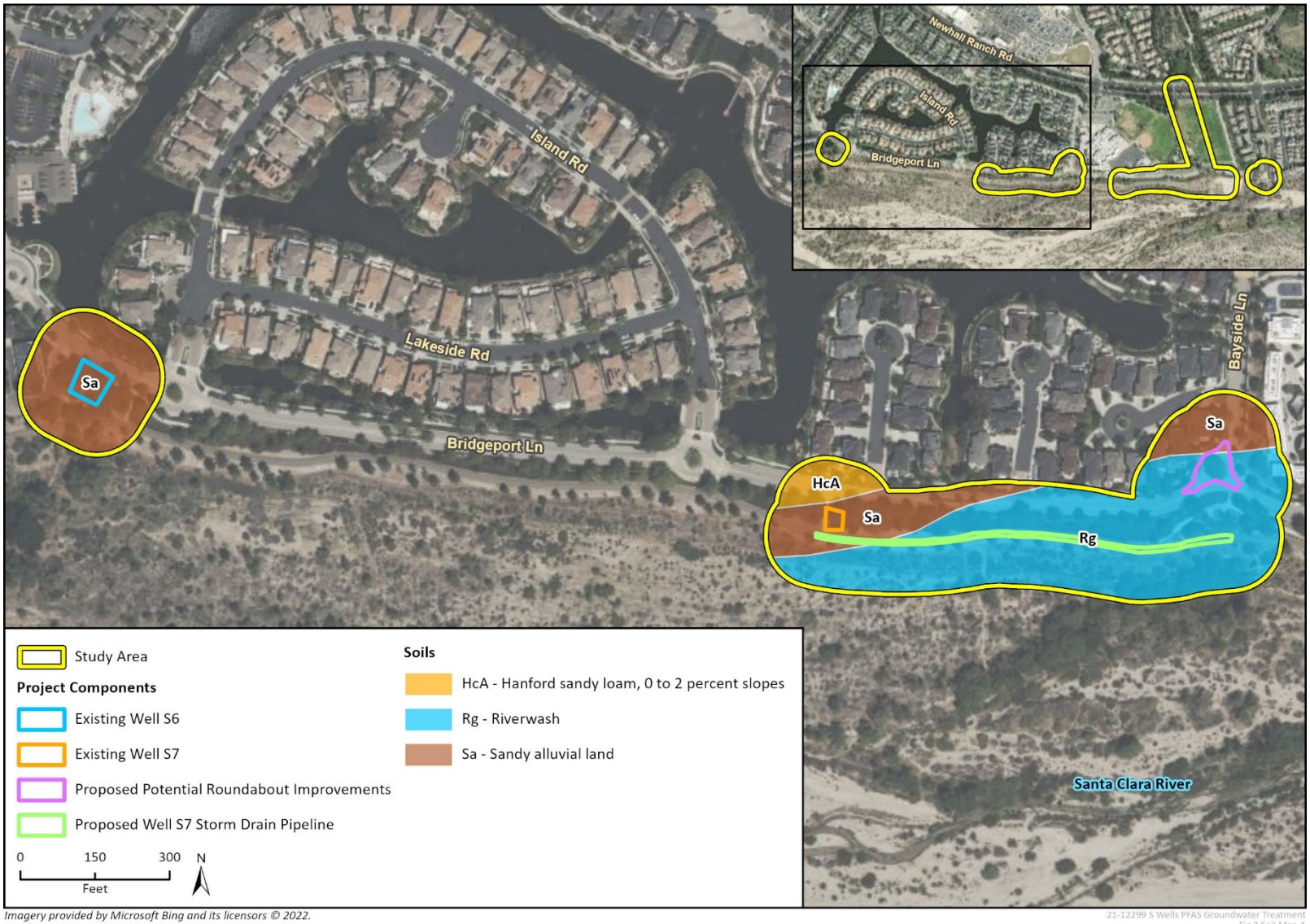


Figure 4b USDA NRCS Soil Survey Mapping – Western Extent



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Additional data provided by SSURGO, 2022.

21-12299 S Wells PFAS Groundwater Treatment
Fig 3 Soil Map A

Sandy Alluvial Land

Sandy alluvial land occurs in the southeastern portion of the Study Area and is associated with the SCR channel. Sandy alluvial land is typically found on the foot slopes of floodplains and is derived from alluvium. The typical soil profile is sand from zero to 10 inches, stratified sand to loam from 10 to 30 inches, and stratified gravelly sand to gravelly loam from 30 to 60 inches. The depth to water table is typically 10 inches. This soil series is listed as a hydric soil on the NRCS Hydric Soils List (USDA NRCS 2022b).

Saugus Loam, 30 to 50 Percent Slopes, Eroded

The Saugus series consists of well drained loamy soils that are formed in weakly consolidated alluvium derived from paralithic bedrock. This soil series often occurs on the backslope of hills. Saugus loam soils are not listed as hydric on the NRCS Hydric Soils List (USDA NRCS 2022b).

3.2 Vegetation and Other Land Cover

Three vegetation communities and four land cover types were identified within the Study Area as described below and depicted in Figure 5a and Figure 5b. A list of plant species encountered during the field reconnaissance survey is provided in Appendix C.

California Sagebrush Scrub

California sagebrush scrub (*Artemisia californica* Shrubland Alliance) is typically found along steep upland slopes that are rarely flooded, and low-gradient deposits along streams, between sea level and 3,940 feet (1,200 meters) in elevation (Sawyer et al. 2009). Soils are typically alluvial or colluvial derived. California sagebrush (*Artemisia californica*) contributes to at least 60 percent relative cover in the shrub layer. This vegetation community is ranked G5S5 and is not considered sensitive (CDFW 2022b).

Within the Study Area, this vegetation community occurs along the northern bank of the SCR and extends to the fence line adjacent to the Santa Clara River Trail in the central and western portions of the Study Area (Appendix B, Photographs 4 and 11). California sagebrush is dominant in the shrub layer, with California buckwheat (*Eriogonum fasciculatum*), big sagebrush (*Artemisia tridentata*), white sage (*Salvia apiana*), and deerweed (*Acmispon glaber*) present as subdominant species in the shrub layer. The herbaceous layer is dominated by exotic annual grasses and forbs and includes species such as ripgut brome (*Bromus diandrus*), slender wild oat (*Avena barbata*), and black mustard (*Brassica nigra*).

Developed

Developed areas consist of buildings, other infrastructure, and paved areas with little to no vegetation (e.g., concrete outfall structure, paved roads, SCR Trail, and buildings).

Disturbed

Ruderal plants grow in disturbed areas as a result of recent and continual surface soil disturbance. Disturbed areas typically contain a high percentage of bare ground and are dominated by non-native species. Due to the low plant species diversity and predominance of invasive weeds in most disturbed areas, the habitat value of this vegetation type is generally low, and these areas do not conform to a defined alliance in *A Manual of California Vegetation* (Sawyer et al. 2009).

Figure 5a Vegetation Communities and Land Cover Types – Eastern Extent

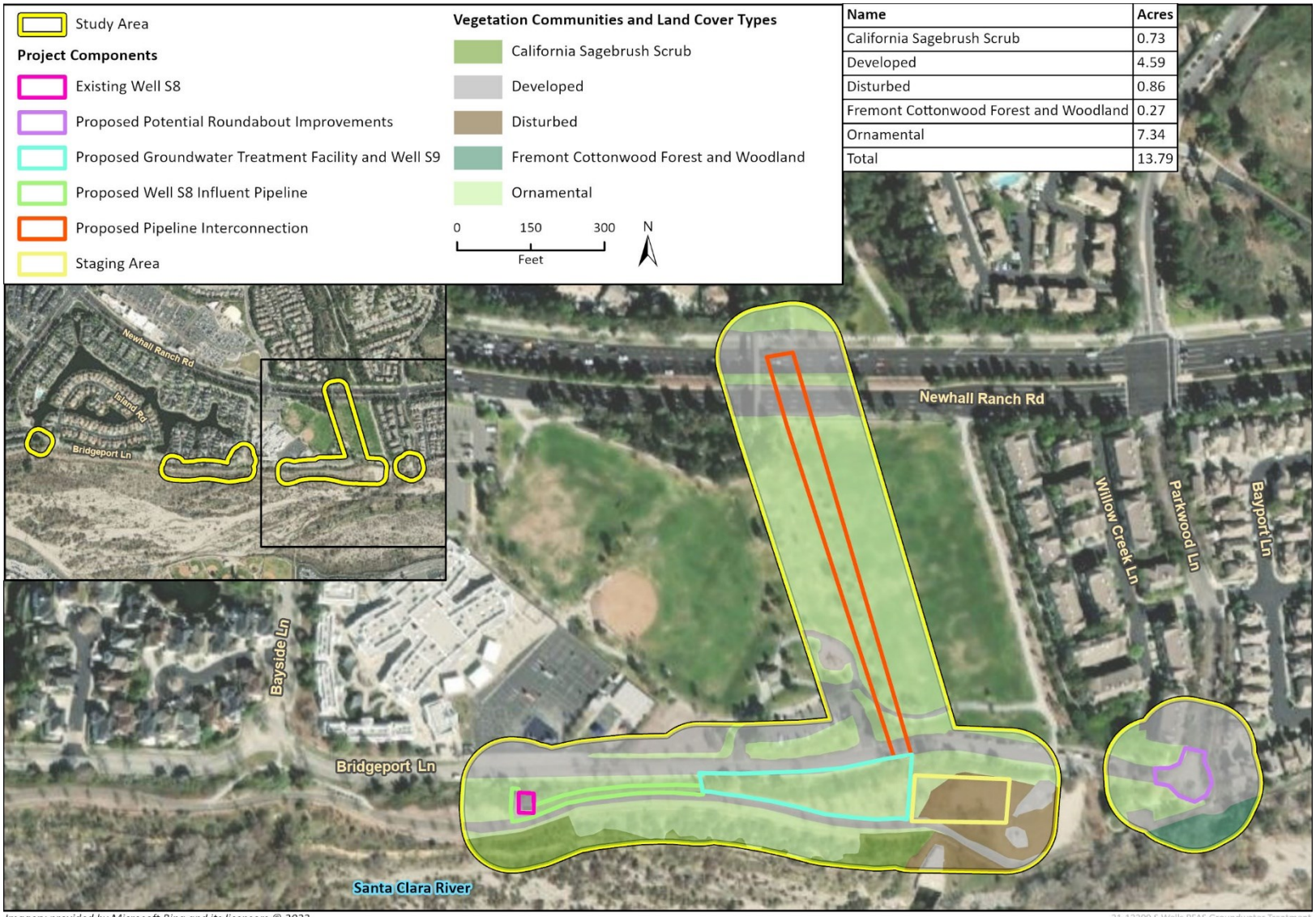

Figure 5b Vegetation Communities and Land Cover Types – Western Extent

Name	Acres
California Sagebrush Scrub	1.61
Developed	2.6
Fremont Cottonwood Forest and Woodland	0.62
Open Water	0.13
Ornamental	2.33
Scale Broom Scrub	0.26
Total	7.55

Development is present north of the SCR in the Study Area (Figure 5a and Figure 5b). Developed areas are also present along the northern bank of the SCR, and include existing concrete rip rap (Appendix B, Photograph 10) and the outfall structure (Appendix B, Photograph 9).

The disturbed land cover type occurs adjacent to existing development (e.g., outfall structure, water infrastructure) in the eastern portion of the Study Area (Figure 5a and Figure 5b). Non-native species commonly observed within this land cover type include annual non-native grasses, black mustard, and telegraph weed (*Heterotheca grandiflora*).

Fremont Cottonwood Forest and Woodland

Fremont cottonwood forest and woodland (*Populus fremontii* Forest and Woodland Alliance) is characterized by areas dominated by Fremont cottonwood (*Populus fremontii* ssp. *fremontii*) in the tree canopy with willows (*Salix* spp.) and other riparian trees such as western sycamore (*Platanus racemosa*) present as well. Fremont cottonwood accounts for approximately 10 to 80 percent absolute cover and greater than 50 percent relative cover in the tree layer. The tree canopy is typically continuous to open, the shrub layer intermittent to open, and the herbaceous layer variable (Sawyer et al. 2009). This alliance can be found on floodplains, along low-gradient rivers and perennial or seasonally intermittent streams, near springs, in canyons, on alluvial fans, and in valleys with a dependable subsurface water supply that varies considerably during the year. Fremont cottonwood forest and woodland is ranked G4S3 and is considered a sensitive natural community by CDFW (CDFW 2022b).

The Fremont cottonwood forest and woodland vegetation community is present along the northern bank of the SCR adjacent to the active channel within the Study Area and outside the project footprint (Figure 5a and Figure 5b). Within the Study Area, Fremont cottonwood is dominant in the tree layer, with arroyo willow (*Salix lasiolepis*), red willow (*Salix laevigata*), and tamarisk (*Tamarix ramosissima*) present as subdominant in the tree layer (Appendix B, Photograph 15). The shrub layer is dominated by mulefat (*Baccharis salicifolia*), with castor bean (*Ricinus communis*) and tree tobacco (*Nicotiana glauca*) present as subdominant species. Commonly observed herbaceous species include giant reed (*Arundo donax*), tall evening primrose (*Oenothera elata*), field hedge parsley (*Torilis arvensis*), and ripgut brome. This vegetation community is potentially a groundwater dependent ecosystem (GDE) that is identified as GDE-A in the Santa Clara River Valley East Groundwater Subbasin Groundwater Sustainability Plan (GSP; Santa Clarita Valley Groundwater Sustainability Agency [SCV GSA] 2022).[1]

Open Water

The open water land cover type consists of areas with standing water that lacks a natural or artificial canopy. Open water is present in the artificial lake in the western portion of the Study Area north of the existing Well S6. This lake is associated with the Bridgeport at Valencia housing development to the north of the existing Well S6.

[1] Table 5-6 of the GSP indicates that GDE-A might not be within an actual GDE area (SCV GSA 2022). However, for the purposes of this analysis, this area is conservatively treated as a GDE.

Ornamental

The ornamental land cover type does not occur naturally and includes plants that are grown and planted for ornamental landscaping purposes. It is typically located adjacent to developed areas and is not a natural community defined in *A Manual of California Vegetation* (Sawyer et al. 2009).

This land cover type is present throughout the Study Area to the north of the SCR (Figure 5a and Figure 5b). Within the Study Area, species commonly associated with this vegetation community include London plane, Peruvian pepper (*Schinus molle*), evergreen pear (*Pyrus kawakamii*), shamel ash (*Fraxinus udhei*), and bank catclaw (*Acacia redolens*). Some ornamentally planted native trees such as coast live oak and western sycamore are also present within the ornamental land cover type (Appendix B, Photographs 1 through 3 and 7).

Scale Broom Scrub

Scale broom scrub (*Lepidospartum squamatum* Shrubland Alliance) is characterized by dominant, co-dominant, or conspicuous scale broom in a shrub canopy that is open to continuous, with emergent plants in low cover and an herbaceous layer that is variable and may be grassy. Shrubs are less than 6.5 feet tall. Scale broom scrub is found in areas that are intermittently or rarely flooded, and on low-gradient alluvial deposits along streams, washes, and fans. Elevation ranges from 164 to 4,921 feet (Sawyer et al. 2009). Scale broom scrub is ranked G3S3 and is identified by the CDFW as a sensitive natural community (CDFW 2022b).

The scale broom scrub vegetation community occurs in the southern portion of the Study Area within the floodplain of the SCR and outside the project footprint (Figure 5a and Figure 5b). Within the Study Area, native species commonly associated with this vegetation community include scale broom, chaparral yucca (*Hesperoyucca whipplei*), California buckwheat, and big sagebrush. Non-native species observed within the vegetation community include various annual non-native grasses and forbs such as black mustard, redstem filaree (*Erodium cicutarium*), and red brome (*Bromus rubens*).

3.3 General Wildlife

A total of 11 wildlife species were observed during the field reconnaissance surveys (Appendix C). Common mammalian species occurring in the region include coyote (*Canis latrans*), domesticated dog (*Canus lupus familiaris*), and domesticated cat (*Felis catus*). Common avian species in the region include common raven (*Corvus corax*), American crow (*Corvus brachyrhynchos*), and great egret (*Ardea alba*), among others. These species, with the exception of domesticated dog, would be expected to use the Study Area for foraging, nesting, and/or shelter.

4 Sensitive Biological Resources

Local, state, and federal agencies regulate special status species and other sensitive biological resources and may require an assessment of their presence or potential presence to be conducted on-site prior to the approval of proposed development on a property. This section discusses sensitive biological resources observed within the Study Area and evaluates the potential for the Study Area to support additional sensitive biological resources. Assessments for the potential occurrence of special status species are based upon known ranges, habitat preferences for the species, species occurrence records from the CNDDB, species occurrence records from other sites in the vicinity of the Study Area, previous reports for the project site, and the results of surveys of the Study Area. The potential for each special status species to occur in the Study Area was evaluated according to the following criteria:

- **No Potential.** Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime), and species would have been identifiable on-site if present (e.g., oak trees). Protocol surveys (if conducted) did not detect species.
- **Low Potential.** Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site. Protocol surveys (if conducted) did not detect species.
- **Moderate Potential**. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- **High Potential.** All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- **Present.** Species is observed on the site or has been recorded (e.g., CNDDB, other reports) on the site recently (within the last five years).

4.1 Special Status Species

Special Status Plant Species

Based on the database and literature review, 39 special status plant species have been recorded within the vicinity (i.e., nine quadrangle radius) of the Study Area (Appendix D). Of these, 16 have a low potential to occur within the Study Area based upon the presence of suitable coastal scrub (California sagebrush scrub, scale broom scrub) habitat within the southern portion of the Study Area. The species that can be reasonably anticipated to occur were determined based on the published ranges of the species, and the type, extent, and condition of habitat available at the Study Area.

Mesa horkelia (*Horkelia cuneata* var. *puberula*), fragrant pitcher sage (*Lepechinia fragrans*), white rabbit-tobacco (*Pseudognaphalium leucocephalum*), and Greata's aster (*Symphyotrichum greatae*) are perennial species that would be readily identifiable during the field reconnaissance survey and were not observed. Furthermore, the field reconnaissance survey was conducted within the

blooming period for the annual plants Robinson's pepper grass (*Lepidium virginicum* var*. robinsonii*) and chaparral ragwort (*Senecio aphanactis*), and neither of these species were observed during the field reconnaissance survey. As a result, these species are determined to have low potential to occur.

Suitable coastal scrub habitat exists in the southern portion of the Study Area for Catalina mariposa lily (*Calochortus catalinae*), club-haired mariposa lily (*Calochortus clavatus* var. *clavatus*), slender mariposa lily (*Calochortus clavatus* var. *gracilis*), late-flowered mariposa lily (*Calochortus fimbriatus*), and Plummer's mariposa lily (*Calochortus plummerae*). However, the area of potentially suitable habitat exists along the south-facing alluvial terrace of the SCR, which has previously been subjected to soil disturbance, likely during the installation of the SCR Trail, roadways, and the outfall structure north of the SCR. These species are perennial bulbiferous herbs that produce leaves and flowers during the spring and summer months following winter precipitation, and their aboveground vegetation senesces during the fall and winter months after reproducing. During the fall and winter months, these plant species survive as underground bulbs beneath the soil surface until the following spring. As such, these plant species are particularly sensitive to soil disturbance that would uproot or dislodge the bulb from the soil profile, and soil disturbance would likely inhibit establishment and survival of these species. Accordingly, these five species are considered to have low potential to occur within the Study Area due to previous soil disturbance.

San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*) and Parry's spineflower (*Chorizanthe parryi* var. *parryi*) prefer coastal scrub on upland mesas with compacted soils, and Palmer's grapplinghook (*Harpagonella palmeri*) prefers coastal scrub with clay soils. Compacted upland mesas or clay soils are not present within the Study Area; therefore, the coastal scrub habitat within the Study Area is only considered marginally suitable, and these species have low potential to occur. Lastly, there are no CNDDB records for Ojai navarretia (*Navarretia ojaiensis*) within five miles of the Study Area, and the only CNDDB record within five miles of the Study Area for slender-horned spineflower (*Dodecahema leptoceras*) is more than 120 years old (CNDDB Occurrence No. 6). As a result, these two species are considered to have low potential to occur.

The remaining 23 special status plant species are not expected to occur in the Study Area based on incompatible habitat conditions (e.g., vegetation assemblage, soils, topography, hydrology, and prior disturbances), or the absence of readily identifiable species (e.g., perennial herbs, shrubs, and/or trees) based upon the field reconnaissance survey results.

Special Status Wildlife Species

Based on the database and literature review, 32 special status wildlife species have been recorded or have the potential to occur within the vicinity (i.e., within a five-mile radius) of the Study Area (Appendix B). Of these, 25 species have potential to occur within the Study Area based upon the presence of suitable habitat and history of occurrence in the vicinity. Six species have a high potential to occur, three species have a moderate potential to occur, and 16 species have a low potential to occur within the Study Area. A list of special status wildlife species with potential to occur within the Study Area are provided in Table 1 below.

Table 1 Special Status Wildlife Species with Potential to Occur in the Study Area

Species	Low Potential	Moderate Potential	High Potential	Present
California red-legged frog (*Rana draytonii*): FT, SSC	X			
Arroyo toad (*Anaxyrus californicus*); FE, SSC		X		
Western pond turtle (*Emys marmorata*); SSC			X	
Western spadefoot (*Spea hammondii*); SSC	X			
California legless lizard (*Anniella* spp.); SSC			X	
California glossy snake (*Arizona elegans occidentalis*); SSC	X			
Coastal whiptail (*Aspidoscelis tigris stejnegeri*); SSC			X	
Coast horned lizard (*Phrynosoma blainvillii*); SSC			X	
Cooper's hawk (*Accipiter cooperii*); WL			X	
Grasshopper sparrow (*Ammodramus savannarum*); SSC	X			
Bell's sage sparrow (*Artemisiospiza belli belli*); WL	X			
Burrowing owl (*Athene cunicularia*); SSC	X			
Swainson's hawk (*Buteo swainsoni*); ST	X			
White-tailed kite (*Elanus leucurus*); FP	X			
California horned lark (*Eremophila alpestris actia*); WL	X			
Loggerhead shrike (*Lanius ludovicianus*); SSC		X		
Coastal California gnatcatcher (*Polioptila californica californica*); FT, SSC	X			
Least Bell's vireo (*Vireo bellii pusillus*); FE, SE			X	
Pallid bat (*Antrozous pallidus*); SSC	X			
Spotted bat (*Euderma maculatum*); SSC	X			
Western mastiff bat (*Eumops perotis californicus*); SSC	X			
Southwestern willow flycatcher (*Empidonax traillii extimus*); FE, SE	X			
San Diego black-tailed jackrabbit (*Lepus californicus bennettii*); SSC		X		
California condor (*Gymnogyps californianus*); FE, SE, FP	X			
American badger (*Taxidea taxus*); SSC	X			

FE = Federally Endangered; FT = Federally Threatened; SE = State Endangered; SCE = State Candidate Endangered; ST = State Threatened; SV = State Vulnerable; FP= State Fully Protected; SSC = CDFW Species of Special Concern ; WL= Watch List

A detailed description of each species with moderate or high potential to occur is provided below. Species with a low potential to occur are omitted from further discussion because there are limited habitat components meeting the species requirements and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality, the species was not observed during field surveys, and therefore the species is not likely to be found on the site.

The remaining seven special status wildlife species that have been recorded or have the potential to occur within the vicinity (i.e., within a five-mile radius) of the Study Area are not expected to occur because the Study Area does not support their required habitat components and/or is not within the known range of the species.

Arroyo Toad

Arroyo toad (*Anaxyrus californicus*) is a federally endangered species and CDFW Species of Special Concern (SSC) endemic to California and northern Baja California. This species ranges mostly west of the desert in coastal areas from the upper Salinas River system in Monterey County to northwestern coastal Baja California. Arroyo toad occurs in washes, arroyos, sandy riverbanks, and riparian areas with willows, sycamores (*Platanus* spp.), oaks (*Quercus* spp.), and cottonwoods (*Populus* spp.). Arroyo toads require exposed sandy streambanks with stable terraces for burrowing with scattered vegetation for shelter as well as areas of quiet water or pools free of predatory fishes with sandy or gravel bottoms without silt for breeding (Zeiner 1988).

One occurrence of arroyo toad has been documented within five miles of the Study Area and is located in the SCR channel approximately two miles downstream (west) of the Study Area (CDFW 2022a). The Study Area contains coastal scrub and riparian habitat with sandy banks along the northern bank of the SCR suitable for the species, which is generally associated with the Fremont cottonwood forest and woodland and scale broom scrub vegetation communities. Therefore, this species has a moderate potential to occur within the Study Area.

California Legless Lizard

California legless lizard (*Anniella* spp.) is an SSC found in the Coast Ranges from Contra Costa County to the Mexican border. California legless lizard occurs in a variety of habitats including sparsely vegetated areas of coastal dunes, valley-foothill grasslands, chaparral, and coastal scrub that contain sandy or loose organic soils with leaf litter and moist soils for burrowing. Areas disturbed by agriculture or other human uses are typically not suitable habitat for the species (Zeiner 1988).

Numerous occurrences of the species have been documented within five miles of the Study Area, the closest being approximately 0.4 mile to the south (CDFW 2022a). The Study Area contains coastal scrub habitat with loose loamy and sandy soils suitable for the species, which is generally associated with the Fremont cottonwood forest and woodland, scale broom scrub, and California sagebrush scrub vegetation communities. Additionally, the SCR channel in the southern portion of the Study Area provides moist soils required by the species; therefore, this species has a high potential to occur within the Study Area.

Coastal Whiptail

Coastal whiptail (*Aspidoscelis tigris stejnegeri*) is an SSC that is found in deserts and semi-arid areas with sparse vegetation within Ventura, Los Angeles, Riverside and San Diego counties. The species is commonly found in a variety of habitats including valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, mixed conifer, pine-juniper, chamise-redshank chaparral, mixed chaparral, desert scrub, desert wash, alkali scrub, and annual grasslands (Zeiner 1988).

Several occurrences have been documented within five miles of the Study Area, the closest being approximately two miles southeast of the Study Area (CDFW 2022a). California sagebrush scrub, scale broom scrub, and Fremont cottonwood forest and woodland in the southern portion of the Study Area provide potentially suitable for this species; therefore, coastal whiptail has a high potential to occur.

Western Pond Turtle

Western pond turtle (*Emys marmorata*) is an SSC that occurs in ponds, marshes, rivers, streams and irrigation ditches that typically support aquatic vegetation. It is an aquatic turtle that requires

downed logs, rocks, mats of vegetation, or exposed sandy banks for basking. Western pond turtles lay their eggs in nests that are dug along the banks of streams or other uplands in sandy, friable soils. Those that reside in creeks are also known to over-winter in upland habitats or during the dry season when waterways are dry. Upland movements can be quite extensive, and individuals have been recorded nesting or overwintering hundreds of meters from aquatic habitats. The typical nesting season is usually from April through August; however, variation exists depending upon geographic location.

Three occurrences of western pond turtle are documented within five miles of the Study Area, the closest being approximately three miles west of the Study Area within the SCR channel (CDFW 2022a). The SCR active channel to the south of the Study Area maintains an intermittent flow regime and therefore provides suitable aquatic habitat during the winter months. The northern bank of the SCR in the southern portion of the Study Area contains suitable open sandy, friable soils for basking and egg laying. Suitable habitat for western pond turtle is generally associated with the Fremont cottonwood forest and woodland vegetation community in the southern portion of the Study Area, where the active channel of the SCR is located. Therefore, the western pond turtle has a high potential to occur within the Study Area.

While Bridgeport Lake contains a perennial water source, the lake does not provide downed logs, mats of vegetation, or sandy banks required by western pond turtle. Additionally, Bridgeport Lake is concrete-lined and contains rip-rap along the banks, preventing the establishment of vegetation and reducing the potential for aquatic invertebrate life to occur. Therefore, this area does not provide suitable habitat for western pond turtle.

Coast Horned Lizard

Coast horned lizard (*Phrynosoma blainvillii*) is an SSC that can be found in grasslands, coniferous forests, woodlands, and chaparral habitats containing open areas and patches of loose soil. There are numerous records of the species within the regional vicinity of the Study Area, the closest being within the SCR channel approximately 0.5 mile downstream (west) of the Study Area (CDFW 2022a). The southern portion of the Study Area contains suitable open areas for sunning, shrubs for cover, and loose soil for burial within the California sagebrush scrub, scale broom scrub, and Fremont cottonwood forest and woodland vegetation communities. Therefore, coast horned lizard has a high potential to occur within the Study Area.

Cooper's Hawk

Cooper's hawk (*Accipiter cooperii*) is a CDFW Watch List (WL) species that inhabits mature forests, open woodlands, forest edges, and riparian areas. Cooper's hawk typically nests in coniferous, deciduous, mixed hardwood forests, and riparian tree groves that contain tall trees with openings or edge habitat nearby for hunting.

One occurrence of this species is documented within five miles of the Study Area, approximately 0.2 mile south of the Study Area within the SCR channel. No nests or individuals were observed within the Study Area during the field reconnaissance survey. However, the Study Area provides suitable scrub habitat for hunting and riparian tree habitat for nesting. Therefore, Cooper's hawk has a high potential to occur within the Study Area.

Loggerhead Shrike

Loggerhead shrike (*Lanius ludovicianus*) is an SSC that inhabits broken woodlands, savannah, pinyon-juniper, Joshua tree and riparian woodlands, desert oases, scrub, and washes. This species prefers open country for hunting with perches for scanning and fairly dense shrubs and brush for nesting. This species may occupy treeless habitat if fences or wires provide hunting perches.

There are two recent occurrences of this species in the regional vicinity of the Study Area, which are located approximately 4.0 miles northwest and 4.8 miles north (CDFW 2022a). In addition, the Study Area contains suitable scrub habitat within the scale broom scrub and California sagebrush scrub vegetation communities. Therefore, loggerhead shrike has a moderate potential to occur within the Study Area.

Least Bell's Vireo

Least Bell's vireo (*Vireo bellii pusillus*; LBVI) is typically found in structurally diverse woodlands located in riparian areas. Habitat requirements critical to the continued existence of this species include dense cover within six feet of the ground for nesting and a dense, stratified canopy for foraging. Ideal habitat consists of a well-developed overstory with a dense shrub understory, often characterized as an early successional stage. Typical breeding habitat consists of an understory of dense riparian sub-shrub or shrub thickets with a mature riparian overstory. While willow-dominated habitat is often used by LBVI for nesting, plant species composition does not appear to be as important as the structure of the habitat (Griffith and Griffith 2000).

This species is not documented within five miles of the Study Area (CDFW 2022a), and the Study Area is not located within USFWS-designated critical habitat for the species (USFWS 2022b). The closest USFWS-designated critical habitat for LBVI is located approximately 2.2 miles west of the Study Area within the SCR riparian corridor. However, eBird documents multiple occurrences of LBVI within five miles of the Study Area, the closest being approximately 0.1 mile west of the Study Area on June 8, 2017 (eBird 2022). Therefore, LBVI has a high potential to occur within the Fremont cottonwood forest and woodland vegetation community within the Study Area.

San Diego Black-Tailed Jackrabbit

San Diego black tailed jackrabbit (*Lepus californicus bennettii*) is an SSC that inhabits a wide range of habitats including desert shrublands, sagebrush, chaparral, oak woodland with an herb mosaic component. This species occurs from coastal southern California to Baja California. The species requires a mix of grasses, forbs, and shrubs for foraging and prefers predominantly open areas without dense understory (Howard 1995).

The closest documented occurrence of this species was recorded in 2005 approximately five miles north of the Study Area (CDFW 2022a). In addition, portions of the Study Area contain suitable open shrub habitats and friable soils for burrow excavations. Therefore, this species has a moderate potential to occur within the scale broom scrub and California sagebrush scrub vegetation communities within the Study Area.

Other Protected Species

The Study Area contains suitable habitat to support regulated nesting birds and raptors protected under CFGC Sections 3503, 3503.5, and 3513, and the MBTA (16 United States Code Sections 703 to 712). Potential nesting habitat for birds and raptors was observed throughout the Study Area, with the most suitable locations being mature Fremont cottonwood and arroyo willow trees, California

sagebrush scrub, and scale broom scrub in the southern portion of the Study Area. No inactive or potentially active nests were observed within the Study Area during the field reconnaissance survey.

4.2 Sensitive Plant Communities and Critical Habitats

Sensitive Natural Communities

The CDFW *California Sensitive Natural Communities List* identifies sensitive natural communities throughout California, based in part on global and state rarity ranks (CDFW 2022b). Natural communities having a rank of 1 to 3 are generally considered sensitive, though some communities with other ranks may also be considered sensitive. CDFW-designated sensitive vegetation communities found within the Study Area include Fremont cottonwood forest and woodland (ranked G4S3) and scale broom scrub (ranked G3S3; CDFW 2022b). These communities are located in the riparian corridor of the SCR in the southern portion of the Study Area but not within the project footprint (Figure 5a and Figure 5b).

Designated Critical Habitat

No USFWS-designated critical habitat occurs within the Study Area. The nearest designated critical habitat is for southwestern willow flycatcher, LBVI, and arroyo toad and is located approximately 2.2 miles west of the Study Area within the SCR riparian corridor (USFWS 2022b). No other USFWS-designated critical habitat exists within five miles of the Study Area.

4.3 Jurisdictional Waters and Wetlands

The results of the research and field visit determined the SCR streambed is potentially subject to United States Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and CDFW jurisdictions. Bridgeport Lake is also potentially subject to RWQCB and CDFW jurisdictions (Table 2). A map illustrating potentially jurisdictional aquatic resources within the Study Area is presented in Figure 6a and Figure 6b. All jurisdictional features identified within the Study Area are located outside the project footprint. A description of each jurisdictional feature occurring within the Study Area is provided below. Site photographs are provided in Appendix B.

Table 2 Summary of Jurisdictional Areas within the Study Area

	USACE	RWQCB	CDFW
Jurisdictional Area	Waters of the U.S. (acres [linear feet])	Waters of the State (acres [linear feet])	Jurisdictional Streambed (acres [linear feet])
Santa Clara River	0.05 (199.2)	0.05 (199.2)	1.4 (1,818)
Bridgeport Lake	0	0.09 (196.8)	0.09 (196.8)
Total	0.05 (199.2)	0.14 (396.0)	1.49 (2,014.9)

USACE = United States Army Corps of Engineers; RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife

Figure 6a Jurisdictional Resources – Eastern Extent

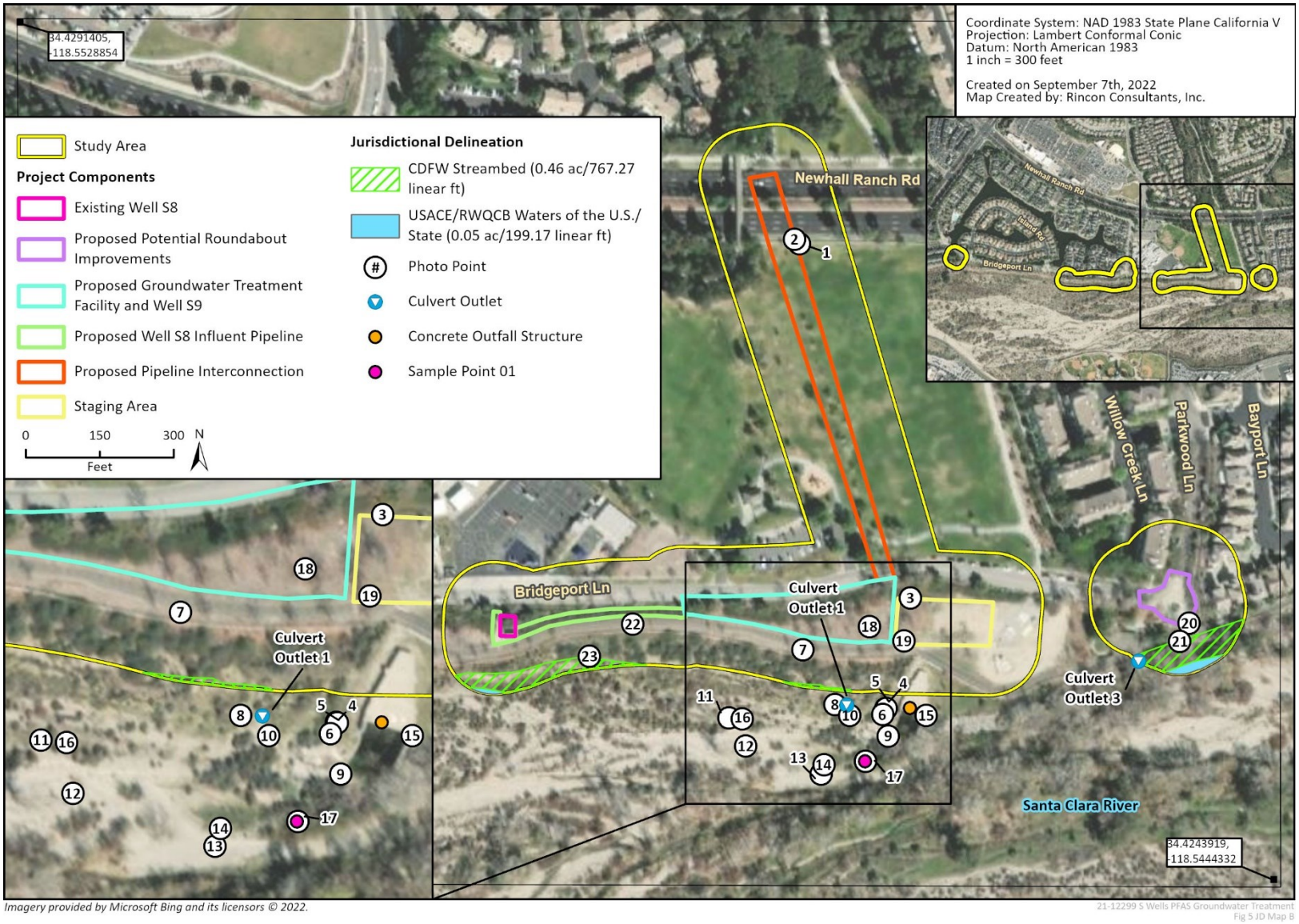

Figure 6b Jurisdictional Resources – Western Extent

Santa Clara River

The SCR flows from east to west in the southern portion of the Study Area (Figure 6a and Figure 6b). The SCR is an intermittent system; the riverbed surface is dry for most of the year, except during and following storm events. The riverbed is wide and characterized by a braided active channel in the central portion of the riverbed, historical secondary channels along the northern and southern ends of the channel, and an active channel along the north-central portion of the riverbed just outside and to the south of the Study Area. Flowing water was present within the active channel to the south of the Study Area at the time of the field surveys (Appendix B, Photograph 13).

The top of bank of the SCR is approximately 1,035 feet wide. The OHWM of the SCR is approximately 100 to 110 feet wide and five to six feet deep and is defined by a change in sediment, a change in vegetation composition, a clearly defined bed and bank, and a break in the associated bank slope. Due to the intermittent flow regime of the Santa Clara River, surface water observed during the field survey, and direct connectivity to a TNW (Pacific Ocean), this feature is determined to be a Relatively Permanent Water (RPW) that flows at least seasonally (i.e., three months out of the year). Sampling Point (SP) 01 was taken within the OHWM of the SCR approximately 20 feet south of the Study Area (Figure 6a). Indicators of hydrophytic vegetation and wetland hydrology were observed, but hydric soils were not observed (Appendix E). Therefore, it was determined that a wetland was not present at SP01.

Four culvert outlets (Culvert Outlets 1 through 4) and one existing outfall structure are present within the northern bank of the SCR (Appendix B, Photographs 9, 10, 29, 30, and 31). Culvert Outlet 2 is the only feature located within the Study Area (Figure 6a). Culvert Outlet 2 is a six-foot diameter concrete culvert outlet that conveys runoff from sheet flow and anthropogenic sources (e.g., residential development) from uplands to the north of the Study Area into the SCR. An identifiable OHWM was observed to the south of Culvert Outlet 2, and was defined by a change in vegetation cover, a change in average sediment texture, and a clearly defined break in bank slope. Water from Culvert Outlet 2 flows for approximately 800 feet before joining with the active channel of the Santa Clara River.

Based on the field surveys, the SCR is potentially subject to USACE, RWQCB, and CDFW jurisdiction. The SCR constitutes waters subject the jurisdiction of USACE per Section 404 of the CWA and was delineated to the width of the OHWM of the SCR and waters flowing from Culvert Outlet 2. The SCR also constitutes a CDFW streambed under the jurisdiction of the CDFW per Section 1600 et seq. of the CFGC. The limits of CDFW jurisdiction extend to the top of bank or outer edge of riparian vegetation associated with the river, whichever is greater. The SCR also constitutes waters subject to the jurisdiction of the Los Angeles RWQCB per Section 401 of the CWA. The limits of RWQCB jurisdiction were determined to be coterminous with USACE jurisdiction.

Bridgeport Lake

Bridgeport Lake is an artificial lake that was excavated in uplands for the Bridgeport at Valencia housing development. Bridgeport Lake is located in the northwestern portion of the Study Area to the north of existing Well S6 (Figure 6a and Figure 6b). Bridgeport Lake is an isolated water feature lined with concrete rip rap and ornamental landscaping (Appendix B, Photograph 28). Bridgeport Lake contains an identifiable bed and banks but does not contain a hydrologic connection to the Santa Clara River or the Pacific Ocean because it is an isolated water feature.

Based upon the field surveys, Bridgeport Lake is potentially subject to RWQCB and CDFW jurisdiction. Bridgeport Lake constitutes waters of the State subject the jurisdiction of the Los

Angeles RWQCB per the Porter-Cologne Water Quality Control Act. The limits of RWQCB jurisdiction were delineated to the extent of open water associated with the lake. Bridgeport Lake is also a lake subject to the jurisdiction of the CDFW per Section 1600 et seq. of the CFGC. The limits of CDFW jurisdiction extend to the top of bank of the feature because no lacustrine vegetation was present.

4.4 Wildlife Movement

Wildlife movement corridors, or habitat linkages, are generally defined as connections between habitat patches that allow for physical and genetic exchange between otherwise isolated animal populations. Such linkages may serve a local purpose, such as providing a linkage between foraging and denning areas, or they may be regional in nature. Some habitat linkages may serve as migration corridors, wherein animals periodically move away from an area and then subsequently return. Others may be important as dispersal corridors for young animals. A group of habitat linkages in an area can form a wildlife corridor network.

The habitats in the link do not necessarily need to be the same as the habitats that are being linked. Rather, the link merely needs to contain sufficient cover and forage to allow temporary inhabitation. Typically, habitat linkages are contiguous strips of natural areas, although dense plantings of landscape vegetation can be used by certain disturbance-tolerant species. Depending upon the species using a corridor, specific physical resources (e.g., rock outcroppings, vernal pools, or oak trees) may need to be located in the habitat link at certain intervals to allow slower-moving species to traverse the link. For highly mobile or aerial species, habitat linkages may be discontinuous patches of suitable resources spaced sufficiently close together to permit travel along a route in a short period of time.

No Essential Connectivity Areas are located within the Study Area (CDFW 2022a). The nearest Essential Connectivity Area is approximately four miles northeast of the Study Area (CDFW 2022a). The SCR channel in the southern portion of the Study Area provides a source of water during the winter months and contains vegetative cover for migrating wildlife. Therefore, the SCR channel likely acts as a significant east-west movement corridor for large animals such as mule deer and coyote. Additionally, smaller, more mobile species (e.g., birds) may use the SCR channel to connect habitats to the north and south of the Study Area.

4.5 Resources Protected By Local Policies and Ordinances

City of Santa Clarita General Plan

Natural resources within city limits are regulated according to the City's General Plan, which includes policies regarding conservation of biological resources and ecosystems as well as protection of sensitive habitat (including wildlife corridors) and endangered species. The following objectives and policies related to biological resources are relevant for the proposed project based on its location and/or proposed activities (City of Santa Clarita 2011):

Objective CO 3.1: In review of development plans and projects, encourage conservation of existing natural areas and restoration of damaged natural vegetation to provide for habitat and biodiversity.

- *Policy CO 3.1.1*: On the Land Use Map and through the development review process, concentrate development into previously developed or urban areas to promote infill development and prevent sprawl and habitat loss, to the extent feasible.
- *Policy CO 3.1.2*: Avoid designating or approving new development that will adversely impact wetlands, floodplains, threatened or endangered species and habitat, and water bodies supporting fish or recreational uses, and establish an adequate buffer area as deemed appropriate through site specific review.
- *Policy CO 3.1.3*: On previously undeveloped sites ("greenfields"), identify biological resources and incorporate habitat preservation measures into the site plan, where appropriate. (This policy will generally not apply to urban infill sites, except as otherwise determined by the reviewing agency).
- *Policy CO 3.1.4*: For new development on sites with degraded habitat, include habitat restoration measures as part of the project development plan, where appropriate.
- *Policy CO 3.1.5*: Promote the use of site-appropriate native or adapted plant materials and prohibit use of invasive or noxious plant species in landscape designs.
- *Policy CO 3.1.6*: On development sites, preserve and enhance natural site elements including existing water bodies, soil conditions, ecosystems, trees, vegetation and habitat, to the extent feasible.
- *Policy CO 3.1.7*: Limit the use of turf-grass on development sites and promote the use of native or adapted plantings to promote biodiversity and natural habitat.
- *Policy CO 3.1.8*: On development sites, require tree planting to provide habitat and shade to reduce the heat island effect caused by pavement and buildings.
- *Policy CO 3.1.9*: During construction, ensure preservation of habitat and trees designated to be protected through use of fencing and other means as appropriate, so as to prevent damage by grading, soil compaction, pollution, erosion or other adverse construction impacts.
- *Policy CO 3.1.10*: To the extent feasible, encourage the use of open space to promote biodiversity.
- *Policy CO 3.1.11*: Promote use of pervious materials or porous concrete on sidewalks to allow for planted area infiltration, allow oxygen to reach tree roots (preventing sidewalk lift-up from roots seeking oxygen), and mitigate tree-sidewalk conflicts, in order to maintain a healthy mature urban forest.

Objective CO 3.2: Identify and protect areas which have exceptional biological resource value due to a specific type of vegetation, habitat, ecosystem, or location.

- *Policy CO 3.2.3*: Ensure protection of any endangered or threatened species or habitat, in conformance with state and federal laws.

Objective CO 3.3: Protect significant wildlife corridors from encroachment by development that would hinder or obstruct wildlife movement.

Objective CO 3.5: Maintain, enhance, and manage the urban forest throughout developed portions of the Santa Clarita Valley to provide habitat, reduce energy consumption, and create a more livable environment.

- *Policy CO 3.5.1*: Continue to plant and maintain trees on public lands and within the public right-of-way to provide shade and walkable streets, incorporating measures to ensure that roots have access to oxygen at tree maturity, such as use of porous concrete.
- *Policy CO 3.5.2*: Where appropriate, promote planting of trees that are native or climactically appropriate to the surrounding environment, emphasizing oaks, sycamores, maple, walnut, and other native species in order to enhance habitat, and discouraging the use of introduced species such as eucalyptus, pepper trees, and palms except as ornamental landscape features.

Objective CO 3.6: Minimize impacts of human activity and the built environment on natural plant and wildlife communities.

- *Policy CO 3.6.1*: Minimize light trespass, sky-glow, glare, and other adverse impacts on the nocturnal ecosystem by limiting exterior lighting to the level needed for safety and comfort; reduce unnecessary lighting for landscaping and architectural purposes and encourage reduction of lighting levels during nonbusiness nighttime hours.
- *Policy CO 3.6.2*: Reduce impervious surfaces and provide more natural vegetation to enhance microclimates and provide habitat.

North Valencia Specific Plan

The project site is within the planning area of the City's North Valencia Specific Plan. However, according to Government Code Section 53091, building and zoning ordinances of a county or city shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water. As such, the project would not be subject to the North Valencia Specific Plan, which establishes additional zoning regulations for the project area.

City of Santa Clarita Oak Tree Preservation Ordinance

According to Government Code Section 53091, building and zoning ordinances of a county or city shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water. As such, the project would not be subject to the City's building and zoning ordinances (Santa Clarita Municipal Code Titles 17 and 18), which include the City of Santa Clarita Oak Tree Preservation Ordinance. Nevertheless, SCV Water would voluntarily comply with the City's oak tree preservation ordinance during implementation of the proposed project; therefore, it is included in this discussion.

The City of Santa Clarita Oak Tree Preservation Ordinance (Santa Clarita Municipal Code Section 17.51.040) protects and preserves oak trees in the city and provides regulatory measures to accomplish this purpose. This policy applies to the removal, pruning, cutting, and/or encroachment into the protected zone of oak trees. The following definitions are provided in the ordinance:

- "Oak tree" means any oak tree of the genus *Quercus*, including, but not limited to, valley oak (*Quercus lobata*), California live oak, canyon oak (*Quercus chrysolepis*), interior live oak (*Quercus wislizenii*), and scrub oak (*Quercus dumosa*), regardless of size.
- "Heritage oak tree" means any oak tree measuring 108 inches or more in circumference or, in the case of a multiple trunk oak tree, two or more trunks measuring 72 inches each or greater in circumference, measured 4.5 feet above the natural grade surrounding each tree. In addition, the Commission and/or Council may classify any oak tree, regardless of size, as a heritage tree if

it is determined by a majority vote thereof that such tree has exceptional historic, aesthetic, and/or environmental qualities of major significance or prominence to the community.

- "Oak tree protected zone" means a specifically defined area totally encompassing an oak tree which work activities are strictly controlled. Using the dripline as a point of reference, the protected zone shall commence at a point five feet outside of the dripline and extend inward to the trunk of the tree. In no case shall the protected zone be less than 15 feet from the trunk of an oak tree.

An Oak Tree Permit is required to cut, prune, remove, relocate, endanger, damage, or encroach into the protected zone of any oak tree on any public or private property within the city. Oak trees that do not exceed six inches in circumference when measured at a point 4.5 feet above the tree's natural grade are exempt from the Oak Tree Permit requirements.

An inventory and evaluation of all trees within the vicinity of the project, including oak trees, was conducted on September 28, 2020, by Arbor Essence (Arbor Essence 2020; Appendix F). This study concluded there is one non-heritage coast live oak tree within the Study Area.

City of Santa Clarita Parkway Trees Ordinance

Native trees are protected under the City's Parkway Trees Ordinance (Santa Clarita Municipal Code Section 13.76). Pursuant to this ordinance, a tree permit must be obtained prior to damaging or removing any public trees within parkways or public areas.

Four native western sycamore trees and numerous non-native trees (e.g., Peruvian pepper, evergreen pear, London plane) protected by the City's Parkway Tree Ordinance are located within and adjacent to Bridgeport Park in the Study Area.

Significant Ecological Areas

The City's General Plan and Municipal Code (Santa Clarita Municipal Code Section 17.38.080) includes treatment of the Significant Ecological Areas (SEAs) Overlay Zone as among the habitat types within the city. SEAs are defined as "ecologically important land and water systems that are valuable as plant or animal communities, often important to the preservation of threatened and endangered species, and conversation of biological diversity in the County" (City of Santa Clarita 2011). Santa Clarita Municipal Code Section 17.38.080 requires a conformance review for development within the SEA Overlay Zone. The SCR river corridor is identified as a SEA, specifically the "Santa Clara River" SEA, which extends throughout the river channel. The northern portion of this SEA overlaps the southern portion of the Study Area, but does not overlap the project footprint. However, as mentioned previously, the project would not be subject to the City's building and zoning ordinances (Santa Clarita Municipal Code Titles 17 and 18) pursuant Government Code Section 53091, which include Santa Clarita Municipal Code Section 17.38.080. Therefore, SCV Water would not be required to comply with its requirements.

4.6 Habitat Conservation Plans

The Study Area is not covered by any Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan area.

5 Impact Analysis and Mitigation Measures

5.1 Special Status Species

The proposed project would have a significant effect on biological resources if it would:

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 CDFW or USFWS.

Special Status Plant Species

As discussed in Section 4.1, *Special Status Species*, the CNDDB and CNPS query results include 39 special status plant species within a nine-quadrangle search of the parcel. Of these, 16 special status plant species have a low potential to occur in the coastal scrub (California sagebrush scrub and scale broom scrub) habitat within the southern portion of the Study Area, located outside the limits of the project footprint. The remaining 23 species are not expected to occur within the Study Area based on the lack of suitable habitat and the non-detection of special status plant species during field reconnaissance surveys.

Implementation of the project would result in impacts to the developed, disturbed, or ornamental land cover types that do not provide suitable habitat for special status plant species. Therefore, no impacts to special status plant species would occur, and no mitigation is recommended.

Special Status Wildlife Species

Suitable habitat for California legless lizard, coastal whiptail, coast horned lizard, and San Diego black-tailed jackrabbit species only occurs within the bed and banks of the SCR, as well as the coastal scrub vegetation (i.e., California sagebrush scrub, scale broom scrub) beyond the top of bank of the SCR. These areas are outside the project footprint and would not be directly affected. Therefore, direct impacts to California legless lizard, coastal whiptail, coast horned lizard, and San Diego black-tailed jackrabbit would not occur. However, if individuals are present during construction, potential indirect impacts could result from noise, vibrations, and dust, which could cause individuals to flush out of cover and become exposed to predators or vehicle strikes. Therefore, implementation of Measure BIO-1 is recommended to ensure all construction personnel are trained in identifying special status wildlife species, and Measure BIO-2 is recommended to ensure adherence to general Best Management Practices (BMPs), such as avoiding excavation within the SCR channel. Therefore, with implementation of Measures BIO-1 and BIO-2, potential indirect impacts to special status wildlife species would be reduced to a less-than-significant level.

Direct impacts to aquatic and semi-aquatic species, including arroyo toad and western pond turtle, would not occur because ground disturbance would not occur within the riparian corridor of the SCR and instead would be confined to the developed, ornamental, and disturbed land cover types to the north of the SCR that do not provide suitable habitat for these species. However, potentially significant indirect impacts to special status wildlife species may occur as a result of groundwater extraction via the existing Wells S6, S7, and S8 and the new Well S9. The Fremont cottonwood forest and woodland vegetation community located near the project site is identified as a potential GDE that provides suitable habitat for special status aquatic and semi-aquatic species (SCV GSA 2022).

Although SCV Water would not increase basin-wide groundwater extraction, reactivated operation of existing Wells S6, S7, and S8 in conjunction with operation of the new Well S9 could deplete local groundwater levels beyond the minimum thresholds for depletion of interconnected surface waters established in the Santa Clara River Valley East Groundwater Subbasin GSP and could thus impact the Fremont cottonwood forest and woodland vegetation community. As a result, implementation of Measure BIO-3 is recommended to ensure sustainable pumping of groundwater from Wells S6, S7, S8, and S9 such that potential indirect impacts to the potential GDE and associated special status wildlife species would be avoided.

The coastal scrub and Fremont cottonwood forest and woodland vegetation communities within the Study Area provide suitable habitat for special status avian species, including LBVI. No direct impacts to the species would occur because suitable nesting and foraging habitat would not be directly impacted by the project. However, if LBVI is present within the vicinity of the project during construction, the proposed project has the potential to impact the species indirectly because construction noise, dust, and other human disturbances may cause a nest to fail. Additionally, depleted local groundwater levels could negatively impact suitable habitat for LBVI within the Fremont cottonwood forest and woodland vegetation community should this habitat be a GDE. Therefore, implementation of Measures BIO-3 and BIO-4 are recommended to avoid potential indirect effects to LBVI.

The project site contains habitat with the potential to support special status birds, including resident and migrant passerine species and raptors protected under the CFGC and the MBTA. Although no nests were observed during the field reconnaissance surveys, bird nesting habitat is present in the trees and shrubs occurring in and adjacent to the project site, and raptors could nest within the taller trees in the area. Therefore, the project could result in direct or indirect impacts to nesting birds. Direct impacts may include mortality from vehicle or equipment strikes as foraging birds move through the project site and physical impacts to active nests within the project site. Indirect impacts could result from noise, vibrations, and dust from construction activities throughout the project site. Noise, vibrations, and dust can cause birds to flush out of cover and become exposed to predators or vehicle strikes. Adults may not return to nests, predators may feed on eggs or chicks in unprotected nests, or vibrations could cause eggs to fall out of nests. Noise, dust, and vibrations may also cause avian species to leave regular foraging areas that are within and adjacent to the project site. If construction activities occur during the nesting season (generally February 1 to August 31), noise, vibrations, and dust can also cause nest failures. Implementation of Measure BIO-5 is recommended to avoid potential direct and indirect effects to nesting birds.

Recommended Avoidance, Minimization, and Mitigation Measures

Implementation of Measures BIO-1 through BIO-5 would reduce impacts to special status species to less-than-significant levels.

BIO-1 WORKER ENVIRONMENTAL AWARENESS PROGRAM

Prior to initiation of all construction activities (including staging and mobilization), all personnel associated with project construction shall attend a Worker Environmental Awareness Program (WEAP) training, conducted by a qualified biologist, to assist workers in recognizing special status biological resources with the potential to occur within the project site. This training shall include information about all special-status species determined to be present or to have a moderate or high potential to occur on site. The training shall also address protected nesting birds and sensitive habitats.

The specifics of this program shall include identification of special status species and habitats, a description of the regulatory status and general ecological characteristics of special status resources, and a review of the limits of construction and measures required to avoid and minimize impacts to biological resources within the project site. A fact sheet conveying this information shall also be prepared for distribution to all contractors, their employees, and other personnel involved with construction of the project. All employees shall sign a form provided by the trainer documenting they attended the WEAP and understand the information presented. The crew foreman shall be responsible for ensuring crew members adhere to the guidelines and restrictions designed to avoid impacts to special status species. If new construction personnel are added to the project, the crew foreman shall ensure the new personnel receive the WEAP training before starting work.

BIO-2 General Best Management Practices

Construction personnel shall adhere to the following general BMP requirements:

- No project construction, activities, and equipment staging shall occur within bed and banks of the Santa Clara River. Any work, including operation of loaders, dozers, drilling rigs, cranes, and vehicles shall not occur on the south side of the existing fencing associated with the Santa Clara River Trail to reduce impacts to special status wildlife species that may occur within the riparian habitat. The contractor shall advise all workers of the intent of the protection measures prior to the start of project construction and activities. No vegetation shall be removed from the channel, bed, or banks of the Santa Clara River.
- Project-related vehicles shall observe a five-mile-per-hour speed limit within the unpaved limits of construction.
- All open trenches shall be fenced and sloped to prevent entrapment of wildlife species.
- Excavated material from trenching along the Santa Clara River Trail shall be side cast away from the Santa Clara River to prevent sediment deposition within the river.
- All hollow posts and pipes shall be capped, and metal fence stakes shall be plugged with bolts or other plugging materials to prevent wildlife entrapment and mortality.
- All food-related trash items such as wrappers, cans, bottles, and food scraps generated during project construction shall be disposed of in closed containers only and removed daily from the project site.
- All night-time lighting shall be shielded and downcast to avoid potential impacts to wildlife migration.
- No deliberate feeding of wildlife shall be allowed.
- No pets shall be allowed on the project site.
- No firearms shall be allowed on the project site.
- If vehicle or equipment maintenance is necessary, it shall be performed in the designated staging areas.
- During construction, heavy equipment shall be operated in accordance with standard BMPs. All equipment used on-site shall be properly maintained to avoid leaks of oil, fuel, or residues. The contractor shall prevent oil, petroleum products, or any other pollutants from contaminating the soil or entering a watercourse (dry or otherwise). When vehicles or equipment are stationary, mats or drip pans shall be placed below vehicles to contain fluid leaks. Provisions shall be in place to remediate any accidental spills.

- Materials shall be stored on impervious surfaces or plastic ground covers to prevent any spills or leakage and shall be at least 50 feet from drainage features.
- Construction materials and spoils shall be protected from stormwater runoff using temporary perimeter sediment barriers such as berms, silt fences, fiber rolls, covers, sand/gravel bags, and straw bale barriers, as appropriate.
- While encounters with special status species are not likely or anticipated, any worker who inadvertently injures or kills a special status species or finds one dead, injured, or entrapped shall immediately report the incident to the construction foreman or biological monitor. The construction foreman or biological monitor shall immediately notify SCV Water. SCV Water shall follow up with written notification to USFWS and/or CDFW within five working days of the incident. All observations of special status species shall be recorded on CNDDB field sheets and sent to CDFW by SCV Water or a qualified biological monitor.
- Before starting or moving construction vehicles, especially after a few days of non-operation, operators shall inspect under all vehicles to avoid impacts to any wildlife that may have sought refuge under equipment. All large building materials and pieces with crevices where wildlife can potentially hide shall be inspected before moving. If wildlife is detected, a qualified biologist shall move wildlife out of harm's way or temporarily stop activities until the animal leaves the area.

BIO-3 GROUNDWATER PUMPING REGIME MANAGEMENT

SCV Water shall establish a groundwater pumping regime for Wells S6, S7, S8, and S9 in accordance with the sustainable management criteria for depletion of interconnected surface waters outlined in the most recently adopted iteration of the Santa Clara River Valley East Groundwater Subbasin GSP. SCV Water shall monitor groundwater levels at this location by utilizing the monitoring well previously installed within the potential GDE area that may be affected by the proposed project (currently identified as GDE-A in the GSP). Should the trigger level outlined in the GSP for the GDE areas near the project site (currently identified as "Santa Clara River Below Mouth of Bouquet Canyon" in the GSP) be exceeded at the monitoring location, SCV Water shall implement an evaluation program that includes reviewing whether the low water levels and water level trends are caused by groundwater extraction at Wells S6, S7, S8, and/or S9 and whether the undesirable results to GDEs outlined in the GSP arising from groundwater extraction are anticipated to occur.[2] If significant and unreasonable effects are anticipated from groundwater extraction, SCV Water shall implement the necessary management actions in a timely manner to resolve the exceedance of the trigger level for the GDE area. Management actions may include but are not limited to shifting pumping to another location, reducing or halting pumping at Wells S6, S7, S8, and/or S9, and/or increasing the quantity of imported water.

BIO-4 LEAST BELL'S VIREO PRE-CONSTRUCTION SURVEYS

Prior to initiation of project construction and activities within or adjacent to suitable nesting habitat during least Bell's vireo breeding season (March 15 through September 15), a qualified biologist with experience surveying for least Bell's vireo shall conduct at least three focused surveys following

[2] Trigger levels are established in the GSP for impacts related to the depletion of interconnected surface waters to "recognize potential undesirable results in time to address them" and are "intended to be protective of GDEs if the depth to groundwater falls below historical levels." Trigger levels are more protective than the "minimum thresholds" outlined in the GSP for depletion of interconnected surface waters and therefore provide a conservative level at which SCV Water shall identify and mitigate potential impacts to GDEs before they occur.

USFWS-established protocols to determine whether breeding least Bell's vireos are present. Focused surveys shall be completed within the project site and a 500-foot buffer. If least Bell's vireo is present, the biologist shall determine its breeding territory, and no construction shall take place within 500 feet of the breeding territory from March 15 through September 15.

BIO-5 PROTECTION OF NESTING BIRDS

Project-related activities shall occur outside of the bird breeding season (generally February 1 to August 31) to the extent practicable. If construction must occur within the bird breeding season, then no more than three days prior to initiation of ground-disturbing activities (including, but not limited to vegetation removal, site preparation, grading, excavation, and trenching) within the project site, a nesting bird pre-construction survey shall be conducted by a qualified biologist within the disturbance footprint plus a 100-foot buffer (300-foot for raptors), where feasible. If the proposed project is phased or construction activities stop for more than one week, a subsequent pre-construction nesting bird survey shall be required within three days prior to each phase of construction.

Pre-construction nesting bird surveys shall be conducted during the time of day when birds are active and shall factor in sufficient time to perform this survey adequately and completely. A report of the nesting bird survey results, if applicable, shall be submitted to SCV Water for review and approval.

If no nesting birds are observed during pre-construction surveys, no further actions are necessary. If nests are found, an appropriate avoidance buffer ranging in size from 25 to 50 feet for passerines, and up to 300 feet for raptors depending upon the species and the proposed work activity, shall be determined and demarcated by a qualified biologist with bright orange construction fencing or other suitable material. Active nests shall be monitored at a minimum of once per week until it has been determined the young have fledged the nest. No ground disturbance or vegetation removal shall occur within this buffer until the qualified biologist confirms breeding/nesting has ended, and all the young have fledged.

5.2 Sensitive Plant Communities

The proposed project would have a significant effect on biological resources if it would:

b) Have a substantial adverse impact on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS.

Two sensitive plant communities (Fremont cottonwood forest and woodland and scale broom scrub) occur in the southern portion of the Study Area within the floodplain of the SCR. No direct impacts to these plant communities would occur as a result of the project because they are not located within the project footprint. The project would only result in impacts to the developed, disturbed, or ornamental land cover types, as summarized in Table 3.

Table 3 Project Land Cover Impacts

Land Cover	Sensitive Natural Community	Acreage within Study Area	Acreage of Project Impacts
Developed	No	7.19	0.86
Disturbed	No	0.86	0.33
Ornamental	No	9.67	1.68
Total		**17.72**	**2.87**

The project has the potential to indirectly impact sensitive plant communities as a result of groundwater extraction via the existing Wells S6, S7, and S8 and the new Well S9. The Fremont cottonwood forest and woodland vegetation community located near the project site is identified as a potential GDE (SCV GSA 2022). Although SCV Water would not increase basin-wide groundwater extraction, reactivated operation of existing Wells S6, S7, and S8 in conjunction with operation of the new Well S9 could deplete local groundwater levels beyond the minimum thresholds for depletion of interconnected surface waters established in the Santa Clara River Valley East Groundwater Subbasin GSP and could thus impact sensitive plant communities occurring within the southern portion of the Study Area if they are dependent upon groundwater. Therefore, implementation of Measure BIO-3 is recommended to reduce this potential indirect impact to sensitive plant communities to a less-than-significant level.

5.3 Jurisdictional Waters and Wetlands

The proposed project would have a significant effect on biological resources if it would:

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.

No direct impacts would occur to jurisdictional waters and wetlands within the Study Area because none are present within the project footprint. If project construction occurs during the rainy season, jurisdictional waters and wetlands may be indirectly impacted after a rain event should stormwater runoff result in effects such as increased turbidity, altered pH, and/or decreased dissolved oxygen levels. Therefore, implementation of the stormwater control BMPs (e.g., berms, silt fences, fiber rolls) described in Measure BIO-2 is recommended to reduce potential indirect impacts to jurisdictional waters and wetlands during construction to a less-than-significant level.

During operation, the project has the potential to indirectly impact the hydrology of the SCR as a result of groundwater extraction via the existing Wells S6, S7, and S8 and the new Well S9. Although SCV Water would not increase basin-wide groundwater extraction, reactivated operation of existing Wells S6, S7, and S8 in conjunction with operation of the new Well S9 has the potential to deplete local groundwater levels beyond the minimum thresholds for depletion of interconnected surface waters established in the Santa Clara River Valley East Groundwater Subbasin GSP and could thus impact the hydrology of the SCR. As a result, implementation of Measure BIO-3 is recommended to reduce this potential indirect impact to hydrology of the SCR to a less-than-significant level.

5.4 Wildlife Movement

The proposed project would have a significant effect on biological resources if it would:

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

The SCR channel in the southern portion of the Study Area may provide movement pathways for mobile species such as mule deer and coyote. No direct impacts to the SCR would occur as part of the proposed project, and pipeline improvements conducted parallel to the SCR would not interfere with wildlife movement because the construction work areas would be fenced, the pipelines would be constructed in segments with any exposed trenches covered with plate when construction activities are not occurring, and the pipelines would exist below the soil surface following completion of the project. Therefore, direct impacts to wildlife movement would not occur as a result of the project.

Potential indirect impacts to wildlife movement could occur through lighting of the project site during construction, which could deter wildlife migration at night. As such, implementation of Measure BIO-2, including the provision for all lighting to be shielded and downcast, is recommended to reduce indirect impacts to wildlife movement to a less-than-significant level.

5.5 Local Policies and Ordinances

The proposed project would have a significant effect on biological resources if it would:

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

City of Santa Clarita General Plan, North Valencia Specific Plan, Oak Tree Preservation Ordinance, and Parkway Tree Ordinance

The City's General Plan contains objectives and policies for biological resources that are relevant to the proposed project given its location and/or proposed activities. As identified above, these objectives and policies focus on conservation of existing natural areas; restoration of damaged natural vegetation; protection of wetlands, oak trees and other indigenous woodlands and endangered or threatened species and habitat; and protection of biological resources in SEAs and significant wildlife corridors. In compliance with the objectives and policies outlined above, the project would not impact any SEA (the SCR) or wildlife movement corridors. The SCR is identified as an SEA within the Study Area; however, no impacts to the SEA would occur as part of the project. Additionally, as described in Section 5.4, *Wildlife Movement*, the project would not significantly interfere with wildlife movement within Bridgeport Park.

According to Government Code Section 53091, building and zoning ordinances of a county or city shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water. As such, the project would not be subject to the North Valencia Specific Plan, which establishes additional zoning regulations for the project area, or the City's building and zoning ordinances (Santa Clarita Municipal Code Titles 17 and 18), which include the City of Santa Clarita Oak Tree Preservation Ordinance. Nevertheless, SCV Water would voluntarily

comply with the City's oak tree preservation ordinance during implementation of the proposed project; therefore, it is conservatively included in this analysis.

One coast live oak tree protected by the City's Oak Tree Preservation Ordinance, and nine trees (four western sycamore trees and five London plane trees) protected by the Parkway Trees Ordinance are anticipated to be removed as part of the project. SCV Water would voluntarily obtain an Oak Tree Removal permit from the City for removal of the coast live oak tree and would obtain a Parkway Tree Permit from the City for removal of the western sycamore and London plane trees. Therefore, with regulatory compliance, no impacts related to local policies and ordinances protecting biological resources would occur.

5.6 Habitat Conservation Plans

The proposed project would have a significant effect on biological resources if it would:

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

The Study Area is not located within any Habitat Conservation Plans, Natural Community Conservation Plans, or other approved local, regional, or state habitat conservation plan area. Therefore, no impact would occur, and no mitigation measures are recommended.

6 Limitations, Assumptions, and Use Reliance

This Biological Resources Assessment has been performed in accordance with professionally accepted biological investigation practices conducted at this time and in this geographic area. The biological investigation is limited by the scope of work performed. Reconnaissance biological surveys for certain taxa may have been conducted as part of this assessment but were not performed during a particular blooming period, nesting period, or particular portion of the season when positive identification would be expected if present, and therefore, cannot be considered definitive. The biological surveys are limited also by the environmental conditions present at the time of the surveys. In addition, general biological (or protocol) surveys do not guarantee the organisms are not present and will not be discovered in the future within the site. In particular, mobile wildlife species could occupy the site on a transient basis or re-establish populations in the future. Our field studies were based on current industry practices, which change over time and may not be applicable in the future. No other guarantees or warranties, expressed or implied, are provided. The findings and opinions conveyed in this report are based on findings derived from site reconnaissance, jurisdictional areas, review of CNDDB RareFind5, and specified historical and literature sources. Standard data sources relied upon during the completion of this report, such as the CNDDB, may vary with regard to accuracy and completeness. In particular, the CNDDB is compiled from research and observations reported to CDFW that may or may not have been the result of comprehensive or site-specific field surveys. Although Rincon believes the data sources are reasonably reliable, Rincon cannot and does not guarantee the authenticity or reliability of the data sources it has used. Additionally, pursuant to our contract, the data sources reviewed included only those that are practically reviewable without the need for extraordinary research and analysis.

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Appendix A

Regulatory Setting

Regulatory Setting

The following is a brief summary of the regulatory context under which biological resources are managed at the federal, state, and local levels. A number of federal and state statutes provide a regulatory structure that guides the protection of biological resources. Agencies with the responsibility for protection of biological resources within the project site include:

- U.S. Army Corps of Engineers (wetlands and other waters of the United States);
- U.S. Fish and Wildlife Service (federally listed species and migratory birds);
- National Marine Fisheries Service (marine animals and anadromous fishes);
- Los Angeles Regional Water Quality Control Board (waters of the State);
- California Department Fish and Wildlife (riparian areas, streambeds, and lakes; state-listed species; nesting birds, marine resources); and
- City of Santa Clarita

United States Army Corps of Engineers

The United States Army Corps of Engineers (USACE) is responsible for administering several federal programs related to ensuring the quality and navigability of the nation's waters.

Clean Water Act Section 404

Congress enacted the Clean Water Act (CWA) "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Section 404 of the CWA authorizes the Secretary of the Army, acting through USACE, to issue permits regulating the discharge of dredged or fill materials into the "navigable waters at specified disposal sites."

Section 502 of the CWA further defines "navigable waters" as "waters of the United States, including the territorial seas." "Waters of the United States" are broadly defined at 33 Code of Federal Regulations (CFR) Part 328.3 to include navigable waters, perennial and intermittent streams, lakes, rivers, ponds, as well as wetlands, marshes, and wet meadows. In recent years, the USACE and U.S. Environmental Protection Agency (USEPA) have undertaken several efforts to modernize their regulations defining "waters of the United States" (e.g., the 2015 Clean Water Rule and 2020 Navigable Waters Protection Rule), but these efforts have been frustrated by legal challenges that have invalidated the updated regulations. Thus, the agencies' longstanding definition of "waters of the United States," which dates from 1986, remains in effect albeit with supplemental guidance interpreting applicable court decisions as described below.

Waters of the U.S.

In summary, USACE and USEPA regulations define "waters of the United States" as follows:

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

3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
    i. Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
    ii. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
    iii. Which are used or could be used for industrial purpose by industries in interstate commerce;
4. All impoundments of waters otherwise defined as waters of the United States;
5. Tributaries of waters identified items #1 through #4 above;
6. The territorial sea;
7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in items # through #6 above.

Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with the USEPA.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA are not waters of the United States.

The lateral limits of USACE jurisdiction in non-tidal waters is defined by the "ordinary high-water mark" (OHWM) unless adjacent wetlands are present. The OHWM is a line on the shore or edge of a channel established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed upon the bank, shelving, changes in the character of soil, destruction of vegetation, or the presence of debris (33 CFR 328.3[e]). As such, waters are recognized in the field by the presence of a defined watercourse with appropriate physical and topographic features. If wetlands occur within, or adjacent to, waters of the United States, the lateral limits of USACE jurisdiction extend beyond the OHWM to the outer edge of the wetlands (33 CFR 328.4 (c)). The upstream limit of jurisdiction in the absence of adjacent wetlands is the point beyond which the OHWM is no longer perceptible (33 CFR 328.4; see also 51 Federal Register 41217).

Wetlands

The USACE defines wetlands as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328.3). The USACE’s delineation procedures identify wetlands in the field based on indicators of three wetland parameters: hydrophytic vegetation, hydric soils, and wetland hydrology. The following is a discussion of each of these parameters.

Hydrophytic Vegetation

Hydrophytic vegetation dominates areas where frequency and duration of inundation or soil saturation exert a controlling influence on the plant species present. Plant species are assigned

wetland indicator status according to the probability of their occurrence in wetlands. More than fifty percent of the dominant plant species must have a wetland indicator status to meet the hydrophytic vegetation criterion. The USACE published the National Wetland Plant List (USACE 2020), which separates vascular plants into the following four basic categories based on plant species frequency of occurrence in wetlands:

- **Obligate Wetland (OBL).** Almost always occur in wetlands
- **Facultative Wetland (FACW).** Usually occur in wetlands, but occasionally found in non-wetlands
- **Facultative (FAC).** Occur in wetlands or non-wetlands
- **Facultative Upland (FACU).** Usually occur in non-wetlands, but may occur in wetlands
- **Obligate Upland (UPL).** Almost never occur in wetlands

The USACE considers OBL, FACW and FAC species to be indicators of wetlands. An area is considered to have hydrophytic vegetation when greater than 50 percent of the dominant species in each vegetative stratum (tree, shrub, and herb) fall within these categories. Any species not appearing on the USACE list is assumed to be an upland species, almost never occurring in wetlands. In addition, an area needs to contain at least 5 percent vegetative cover to be considered as a vegetated wetland.

Hydric Soils

Hydric soils are saturated or inundated for a sufficient duration during the growing season to develop anaerobic or reducing conditions that favor the growth and regeneration of hydrophytic vegetation. Field indicators of wetland soils include observations of ponding, inundation, saturation, dark (low chroma) soil colors, bright mottles (concentrations of oxidized minerals such as iron), 3leiing (indicates reducing conditions by a blue-grey color), or accumulation of organic material. Additional supporting information includes documentation of soil as hydric or reference to wet conditions in the local soils survey, both of which must be verified in the field.

Wetland Hydrology

Wetland hydrology is inundation or soil saturation with a frequency and duration long enough to cause the development of hydric soils and plant communities dominated by hydrophytic vegetation. If direct observation of wetland hydrology is not possible (as in seasonal wetlands), or records of wetland hydrology are not available (such as stream gauges), assessment of wetland hydrology is frequently supported by field indicators, such as water marks, drift lines, sediment deposits, or drainage patterns in wetlands.

Applicable Case Law and Agency Guidance

The USACE's regulations defining "waters of the United States" have been subject to legal interpretation, and two influential Supreme Court decisions have narrowed the definition to exclude certain classes of waters that bear an insufficient connection to navigable waters. In *Solid Waste Agency of Northern Cook County v. Army Corps of Engineers* (2001), the United States Supreme Court stated that the USACE's CWA jurisdiction does not extend to ponds that "are not adjacent to open water." In reaching its decision, the Court concluded that the "Migratory Bird Rule," which served as the basis for the USACE's asserted jurisdiction, was not supported by the CWA. The Migratory Bird Rule extended CWA jurisdiction to intrastate waters "which are or would be used as habitat by birds protected by Migratory Bird Treaties or which are or would be used as habitat by

other migratory birds which cross state lines…" The Court was concerned that application of the Migratory Bird Rule resulted in "reading the term 'navigable waters' out of the statute." Highlighting the language of the CWA to determine the statute's jurisdictional reach, the Court stated, "the term 'navigable' has at least the import of showing us what Congress had in mind as its authority for enacting the CWA: its traditional jurisdiction over waters that were or had been navigable in fact or which could reasonably be so made." This decision stands for the proposition that non-navigable isolated, intrastate waters are not waters of the United States and thus are not jurisdictional under the CWA.

In 2006, the United States Supreme Court decided *Rapanos v. United States* and *Carabell v. United States* (collectively "Rapanos"), which were consolidated cases determining the extent of CWA jurisdiction over waters that carry only an infrequent surface flow. The court issued no majority opinion in Rapanos. Instead, the justices authored five separate opinions including the "plurality" opinion, authored by Justice Scalia (joined by three other justices), and a concurring opinion by Justice Kennedy. To guide implementation of the decision, the USACE and USEPA issued a joint guidance memorandum ("Rapanos Guidance Memorandum") in 2008 stating that "regulatory jurisdiction under the CWA exists over a water body if either the plurality's or Justice Kennedy's standard is satisfied."

According to the plurality opinion in Rapanos, "the waters of the United States include only relatively permanent, standing or flowing bodies of water" and do not include "ordinarily dry channels through which water occasionally or intermittently flows." In addition, while all wetlands that meet the USACE definition are considered adjacent wetlands, only those adjacent wetlands that have a continuous surface connection because they directly abut the tributary (e.g., they are not separated by uplands, a berm, dike, or similar feature) are considered jurisdictional under the plurality standard.

Under Justice Kennedy's opinion, "the USACE's jurisdiction over wetlands depends upon the existence of a significant nexus between the wetlands in question and navigable waters in the traditional sense. Wetlands possess the requisite nexus, and thus come within the statutory phrase 'navigable waters,' if the wetlands, either alone or in combination with similarly situated lands in the region, significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as 'navigable.' When, in contrast, wetlands' effects on water quality are speculative or insubstantial, they fall outside the zone fairly encompassed by the statutory term 'navigable waters.'" Justice Kennedy identified "pollutant trapping, flood control, and runoff storage" as some of the critical functions wetlands can perform relative to other waters. He concluded that, given wetlands' ecological role, "mere adjacency" to a non-navigable tributary was insufficient to establish CWA jurisdiction, and that "a more specific inquiry, based on the significant nexus standard, is therefore necessary."

Interpreting these decisions, and according to the Rapanos Guidance Memorandum, the USACE and USEPA will assert jurisdiction over the following waters:

- Traditional navigable waters;
- Wetlands adjacent to traditional navigable waters;
- Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months); and,
- Wetlands that directly abut such tributaries.

The USACE and USEPA will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a traditional navigable water:

- Non-navigable tributaries that are not relatively permanent;
- Wetlands adjacent to non-navigable tributaries that are not relatively permanent; and,
- Wetlands adjacent to but that do not directly abut a relatively permanent non-navigable tributary.

Where a significant nexus analysis is required, the USACE and USEPA will apply the significant nexus standard as follows:

- A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of downstream traditional navigable waters; and,
- Significant nexus includes consideration of hydrologic and ecologic factors.

The USACE and USEPA generally will not assert jurisdiction over the following features:

- Swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow); and,
- Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water.

Rivers and Harbors Act Section 10

Section 10 of the Rivers and Harbors Act of 1899 requires authorization from the USACE for the construction of any structure in or over any navigable water of the United States. Structures or work outside the limits defined for navigable waters of the United States require a Section 10 permit if the structure or work affects the course, location, or condition of the water body. The law applies to any dredging or disposal of dredged materials, excavation, filling, re-channelization, or any other modification of a navigable water of the United States, and applies to all structures and work. It further includes, without limitation, any wharf, dolphin, weir, boom breakwater, jetty, groin, bank protection (e.g., riprap, revetment, bulkhead), mooring structures such as pilings, aerial or subaqueous power transmission lines, intake or outfall pipes, permanently moored floating vessel, tunnel, artificial canal, boat ramp, aids to navigation, and any other permanent, or semi-permanent obstacle or obstruction. It is important to note that Section 10 applies only to navigable waters and thus does not apply to work in non-navigable wetlands or tributaries. In some cases, Section 10 authorization is issued by the USACE concurrently with CWA Section 404 authorization, such as when certain Nationwide Permits are used.

Regional Water Quality Control Board

The State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCBs) have jurisdiction over “waters of the State,” which are defined as any surface water or groundwater, including saline waters, within the boundaries of the state (California Water Code Section 13050[e]). These agencies also have responsibilities for administering portions of the CWA.

Clean Water Act Section 401

Section 401 of the CWA requires an applicant requesting a federal license or permit for an activity that may result in any discharge into navigable waters (such as a Section 404 Permit) to provide state certification that the proposed activity will not violate state and federal water quality standards. In California, CWA Section 401 Water Quality Certification (Section 401 Certification) is issued by the RWQCBs and by the SWRCB for multi-region projects. The process begins when an applicant submits an application to the RWQCB and informs the USACE (or the applicable agency from which a license or permit was requested) that an application has been submitted. The USACE will then determine a "reasonable period of time" for the RWQCB to act on the application; this is typically 60 days for routine projects and longer for complex projects but may not exceed one year. When the period has elapsed, if the RWQCB has not either issued or denied the application for Section 401 Certification, the USACE may determine that Certification has been waived and issue the requested permit. If a Section 401 Certification is issued it may include binding conditions, imposed either through the Certification itself or through the requested federal license or permit.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) is the principal law governing water quality regulation in California. It establishes a comprehensive program to protect water quality and the beneficial uses of water. The Porter-Cologne Act applies to surface waters, wetlands, and groundwater and to both point and nonpoint sources of pollution. Pursuant to the Porter-Cologne Act (California Water Code section 13000 et seq.), the policy of the State is as follows:

- The quality of all the waters of the State shall be protected
- All activities and factors affecting the quality of water shall be regulated to attain the highest water quality within reason
- The State must be prepared to exercise its full power and jurisdiction to protect the quality of water in the State from degradation

The Porter-Cologne Act established nine RWQCBs (based on watershed boundaries) and the SWRCB, which are charged with implementing its provisions and which have primary responsibility for protecting water quality in California. The SWRCB provides program guidance and oversight, allocates funds, and reviews RWQCB decisions. In addition, the SWRCB allocates rights to the use of surface water. The RWQCBs have primary responsibility for individual permitting, inspection, and enforcement actions within each of nine hydrologic regions. The SWRCB and RWQCBs have numerous nonpoint source related responsibilities, including monitoring and assessment, planning, financial assistance, and management.

Section 13260 of the Porter-Cologne Act requires any person discharging or proposing to discharge waste that could affect the quality of waters of the State to file a Report of Waste Discharge with the appropriate RWQCB. The RWQCB may then authorize the discharge, subject to conditions, by issuing Waste Discharge Requirements (WDRs). While this requirement was historically applied primarily to outfalls and similar point source discharges, the SWRCB's *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*, effective May 2020, make it clear the agency will apply the Porter-Cologne Act's requirements to discharges of dredge and fill material as well. The *Procedures* state they are to be used in issuing CWA Section 401 Certifications and WDRs and largely mirror the existing review requirements for CWA Section 404 Permits and Section 401 Certifications, incorporating most elements of the USEPA's *Section*

404(b)(1) Guidelines. Following issuance of the *Procedures*, the SWRCB produced a consolidated application form for dredge/fill discharges that can be used to obtain a CWA Section 401 Water Quality Certification, WDRs, or both.

Non-Wetland Waters of the State

The SWRCB and RWQCBs have not currently established regulations for field determinations of waters of the State except for wetlands. In many cases, the RWQCBs interpret the limits of waters of the State to be bounded by the OHWM unless isolated conditions or ephemeral waters are present. However, in the absence of statewide guidance, each RWQCB may interpret jurisdictional boundaries within their region, and the SWRCB has encouraged applicants to confirm jurisdictional limits with their RWQCB before submitting applications. As determined by the RWQCB, waters of the State may include riparian areas or other locations outside the OHWM, leading to a larger jurisdictional area over a given water body compared to the USACE.

Wetland Waters of the State

Procedures for defining wetland waters of the State pursuant to the SWRCB's *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* went into effect May 28, 2020. The SWRCB defines an area as wetland if, under normal circumstances:

(i) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both;

(ii) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and

(iii) the area's vegetation is dominated by hydrophytes or the area lacks vegetation.

The SWRCB's *Implementation Guidance for the Wetland Definition and Procedures for Discharges of Dredge and Fill Material to Waters of the State* (2020) states waters of the U.S. and waters of the State should be delineated using the standard USACE delineation procedures, taking into consideration that the methods shall be modified only to allow for the fact that a lack of vegetation does not preclude an area from meeting the definition of a wetland.

United States Fish and Wildlife Service

The United States Fish and Wildlife Service (USFWS) implements several laws protecting the Nation's fish and wildlife resources, including the Endangered Species Act (FESA; 16 United States Code [USC] Sections 153 et seq.), the Migratory Bird Treaty Act (MBTA; 16 USC Sections 703 through 711), and the Bald and Golden Eagle Protection Act (16 USC Section 668).

Endangered Species Act

The USFWS and National Marine Fisheries Service (NMFS) share responsibility for implementing the FESA. Generally, the USFWS implements the FESA for terrestrial and freshwater species, while the NMFS implements the FESA for marine and anadromous species. Projects that would result in "take" of any threatened or endangered animal species, or a threatened or endangered plant species if occurring on federal land, are required to obtain permits from the USFWS or NMFS through either Section 7 (interagency consultation with a federal nexus) or Section 10 (Habitat Conservation Plan) of the FESA, depending on the involvement by the federal government in funding, authorizing, or

carrying out the project. The permitting process is used to determine if a project would jeopardize the continued existence of a listed species and what measures would be required to avoid jeopardizing the species. "Take" under federal definition means to harass, harm (which includes habitat modification), pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Proposed or candidate species do not have the full protection of the FESA; however, the USFWS and NMFS advise project applicants that they could be elevated to listed status at any time.

Migratory Bird Treaty Act

The MBTA of 1918 implements four international conservation treaties the U.S. entered into with Canada in 1916, Mexico in 1936, Japan in 1972, and Russia in 1976. It is intended to ensure the sustainability of populations of all protected migratory bird species. The law has been amended with the signing of each treaty, as well as when any of the treaties were amended, such as with Mexico in 1976 and Canada in 1995. The MBTA prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the USFWS.

The list of migratory bird species protected by the law, in regulations at 50 CFR Part 10.13, is primarily based on bird families and species included in the four international treaties. A migratory bird species is included on the list if it meets one or more of the following criteria:

1. It occurs in the United States or U.S. territories as the result of natural biological or ecological processes and is currently, or was previously listed as, a species or part of a family protected by one of the four international treaties or their amendments.
2. Revised taxonomy results in it being newly split from a species that was previously on the list, and the new species occurs in the United States or U.S. territories as the result of natural biological or ecological processes.
3. New evidence exists for its natural occurrence in the United States or U.S. territories resulting from natural distributional changes and the species occurs in a protected family.

In 2004, the Migratory Bird Treaty Reform Act limited the scope of the MBTA by stating the MBTA applies only to migratory bird species that are native to the United States or U.S. territories and that a native migratory bird species is one that is present as a result of natural biological or ecological processes. The Migratory Bird Treaty Reform Acrequires the USFWS to publish a list of all nonnative, human-introduced bird species to which the MBTA does not apply, and an updated list was published in 2020. The 2020 update identifies species belonging to biological families referred to in treaties the MBTA implements but are not protected because their presence in the United States or U.S. territories is solely the result of intentional or unintentional human-assisted introductions.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act prohibits anyone, without a permit issued by the USFWS, from "taking" bald or golden eagles, including their parts (including feathers), nests, or eggs. The Act provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle … [or any golden eagle], alive or dead, or any part, nest, or egg thereof." The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb."

"Disturb" means "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its

productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."

In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death or nest abandonment.

California Department of Fish and Wildlife

The California Department of Fish and Wildlife (CDFW) derives its authority from the California Fish and Game Code and administers several state laws protecting fish and wildlife resources and the habitats upon which they depend.

California Endangered Species Act

The California Endangered Species Act (CESA) (California Fish and Game Code Section 2050 et. seq.) prohibits take of state listed threatened or endangered. Take under CESA is defined as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill" (California Fish and Game Code Section 86). This definition does not prohibit indirect harm by way of habitat modification, except where such harm is the proximate cause of death of a listed species. Where incidental take would occur during construction or other lawful activities, CESA allows the CDFW to issue an Incidental Take Permit upon finding, among other requirements, that impacts to the species have been minimized and fully mitigated. Unlike the federal ESA, CESA's protections extend to candidate species during the period (typically one year) while the California Fish and Game Commission decides whether the species warrants CESA listing.

Native Plant Protection Act

The CDFW also has authority to administer the Native Plant Protection Act (NPPA) (California Fish and Game Code Section 1900 et seq.). The NPPA requires the CDFW to establish criteria for determining if a species, subspecies, or variety of native plant is endangered or rare and prohibits the take of listed plant species. Effective in 2015, CDFW promulgated regulations (14 California Code of Regulations Section 786.9) under the authority of the NPPA, establishing that the CESA's permitting procedures would be applied to plants listed under the NPPA's "Rare." With this change, there is little practical difference for the regulated public between plants listed under CESA and those listed under the NPPA.

Fully Protected Species Laws

The CDFW enforces Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code, which prohibit take of species designated as Fully Protected. The CDFW is not allowed to issue an Incidental Take Permit for Fully Protected species; therefore, impacts to these species must be avoided. The exception is a situation in which a Natural Community Conservation Plan (NCCP) is in place that authorizes take of the Fully Protected species.

Avian Protection Laws

California Fish and Game Code Sections 3503, 3503.5, and 3513 describe unlawful take, possession, or destruction of native birds, nests, and eggs. Section 3503.5 protects all birds-of-prey and their eggs and nests against take, possession, or destruction of nests or eggs. Section 3513 makes it a state-level offense to take any bird in violation of the federal Migratory Bird Treaty Act.

Protection of Lakes and Streambeds

California Fish and Game Code Section 1602 states it is unlawful for any person to "substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake" without first notifying CDFW of that activity. Thereafter, if CDFW determines and informs the entity that the activity will not substantially adversely affect any existing fish or wildlife resources, the entity may commence the activity. If, however, CDFW determines that the activity may substantially adversely affect an existing fish or wildlife resource, the entity may be required to obtain from CDFW a Lake/Streambed Alteration Agreement (LSAA), which will include reasonable measures necessary to protect the affected resource(s), before the entity may conduct the activity described in the notification. Upon receiving a complete Notification of Lake/Streambed Alteration, CDFW has 60 days to present the entity with a Draft LSAA. Upon review of the Draft LSAA by the applicant, any problematic terms are negotiated with CDFW and a final LSAA is executed.

The CDFW has not defined the term "stream" for the purposes of implementing its regulatory program under Section 1602, and the agency has not promulgated regulations directing how jurisdictional streambeds may be identified, or how their limits should be delineated. However, four relevant sources of information offer insight as to the appropriate limits of CDFW jurisdiction as discussed below.

- **The plain language of Section 1602 of CFGC** establishes the following general concepts:
  - References "river," "stream," and "lake"
  - References "natural flow"
  - References "bed," "bank," and "channel"
- **Applicable court decisions**, in particular *Rutherford v. State of California* (188 Cal App. 3d 1276 (1987), which interpreted Section 1602's use of "stream" to be as defined in common law. The Court indicated that a "stream" is commonly understood to:
  - Have a source and a terminus
  - Have banks and a channel
  - Convey flow at least periodically, but need not flow continuously and may at times appear outwardly dry
  - Represent the depression between the banks worn by the regular and usual flow of the water
  - Include the area between the opposing banks measured from the foot of the banks from the top of the water at its ordinary stage, including intervening sand bars
  - Include the land that is covered by the water in its ordinary low stage
  - Include lands below the OHWM

- **CDFW regulations** defining "stream" for other purposes, including sport fishing (14 California Code of Regulations Section 1.72) and streambed alterations associated with cannabis production (14 California Code of Regulations Section 722[c][21]), which indicate that a stream:
  - Flows at least periodically or intermittently
  - Flows through a bed or channel having banks
  - Supports fish or aquatic life
  - Can be dry for a period of time
  - Includes watercourses where surface or subsurface flow supports or has supported riparian vegetation
- **Guidance documents**, *including A Field Guide to Lake and Streambed Alteration Agreements* (CDFW 1994) and *Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plants* (Brady and Vyverberg 2013), which suggest the following:
  - A stream may flow perennially or episodically
  - A stream is defined by the course in which water currently flows, or has flowed during the historic hydrologic course regime (approximately the last 200 years)
  - Width of a stream course can reasonably be identified by physical or biological indicators
  - A stream may have one or more channels (single thread vs. compound form)
  - Features such as braided channels, low-flow channels, active channels, banks associated with secondary channels, floodplains, islands, and stream-associated vegetation, are interconnected parts of the watercourse
  - Canals, aqueducts, irrigation ditches, and other means of water conveyance can be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife
  - Biologic components of a stream may include aquatic and riparian vegetation, all aquatic animals including fish, amphibians, reptiles, invertebrates, and terrestrial species which derive benefits from the stream system
  - The lateral extent of a stream can be measured in different ways depending on the particular situation and the type of fish or wildlife resource at risk

The tenets listed above, among others, are applied to establish the boundaries of streambeds in various environments. The importance of each factor may be weighted based on site-specific considerations and the applicability of the indicators to the streambed at hand.

Local Jurisdiction

City of Santa Clarita General Plan

Natural resources within the City of Santa Clarita's (City) limits are regulated according to the City's General Plan (City of Santa Clarita 2011), which includes policies regarding conservation of biological resources and ecosystems as well as protection of sensitive habitat (including wildlife corridors) and endangered species. The City's General Plan includes policies relating to oak trees, protected areas, and Significant Ecological Areas, among others.

Santa Clarita Municipal Code

Natural resources within the City are also regulated by the City's Municipal Code. In particular, the City of Santa Clarita Oak Tree Preservation Ordinance (Santa Clarita Municipal Code Section 17.51.040) protects and preserves oak trees in the City; the City's Parkway Trees Ordinance (Santa Clarita Municipal Code Section 13.76) protects native trees in the City and Santa Clarita Municipal Code Section 17.38.080 protects SEAs within the City.

Appendix B

Site Photographs

Photograph 1. Photo Point 1. View of Bridgeport Park in the northern portion of the Study Area, facing south (February 23, 2022).

Photograph 2. Photo Point 2. View of Newhall Ranch Road and ornamental vegetation in the northern portion of the Study Area, facing north (February 23, 2022).

Photograph 3. Photo Point 3. View of the central portion of the Study Area near the proposed groundwater treatment and disinfection facility, with ornamental vegetation in the foreground and the Santa Clara River Trail and outfall structure in the background, facing southeast (February 23, 2022).

Photograph 4. Photo Point 4. View of the Study Area to the south of the proposed groundwater treatment and disinfection facility, with California sagebrush scrub on the right (north, and the SCR channel on the left (south), facing west (February 23, 2022).

Photograph 5. Photo Point 5. View of the Santa Clara River to the south and outside of the Study Area, with big sagebrush scrub in the foreground and Fremont cottonwood forest and woodland in the background, facing southwest (February 23, 2022).

Photograph 6. Photo Point 6. View of the existing concrete outfall structure to the southeast of the Study Area, facing southeast (February 23, 2022).

Photograph 7. Photo Point 7. View of the ornamental vegetation dominated by bank catclaw in the southern portion of the Study Area, facing southwest (February 23, 2022).

Photograph 8. Photo Point 8. View of big sagebrush scrub to the south of the Study Area, facing southeast. Note Fremont cottonwood forest and woodland in the background (February 23, 2022).

Photograph 9. Photo Point 9. View of the existing concrete outfall structure to the southeast and outside of the Study Area, facing northeast (February 23, 2022).

Photograph 10. Photo Point 10. View of Culvert Outlet 1 in the southern portion of the Study Area, facing northwest. Note concrete rip rap to the south (below) the outlet (February 23, 2022).

Photograph 11. Photo Point 11. View of the California sagebrush scrub vegetation community to the south and outside of the Study Area, facing east (February 23, 2022).

Photograph 12. Photo Point 12. View of the riverwash land cover type along the Santa Clara River approximately 50 feet southwest of the Study Area. Note offroad vehicle tracks in the center of the photograph (February 23, 2022).

Photograph 13. Photo Point 13. View of the active channel of the Santa Clara River to the south and outside of the Study Area, facing southeast (February 23, 2022).

Photograph 14. Photo Point 14. View of riparian vegetation associated with the Santa Clara River Fremont cottonwood forest and woodland to the south and outside of the Study Area, facing southeast (February 23, 2022).

Photograph 15. Photo Point 15. View of Fremont cottonwood forest and woodland associated with the Santa Clara River to the south of the existing outfall structure, facing southwest (February 23, 2022).

Photograph 16. Photo Point 16. View of coastal scrub habitat within the Santa Clara River floodplain south of the Study Area, facing northwest (February 23, 2022).

Photograph 17. Photo Point 17. View of Sampling Point 01 approximately 20 feet south of the Study Area, facing southeast (February 23, 2022).

Photograph 18. Photo Point 18. View of western sycamore, London plane, and coast live oak trees proposed for removal in the central portion of the Study Area, facing west (August 30, 2022).

Photograph 19. Photo Point 19. View of the disturbed land cover type and the staging area in the central portion of the Study Area, facing northeast (August 30, 2022).

Photograph 20. Photo Point 20. View of the proposed roundabout improvement area in the eastern portion of the Study Area (Bridgeport Lane/Parkwood Lane), facing northwest (August 30, 2022).

Photograph 21. Photo Point 21. View of the Santa Clara River Trail (center) and Fremont cottonwood forest and woodland (left) to the south of proposed roundabout improvements in the eastern portion of the Study Area (Bridgeport Lane/Parkwood Lane), facing west (August 30, 2022).

Photograph 22. Photo Point 22. View of the proposed pipeline improvements along the Santa Clara River Trail, facing west. Note the existing Well S8 facility in the background (August 30, 2022).

Photograph 23. Photo Point 23. View of the Santa Clara River Trail (center) and Fremont cottonwood forest and woodland (left) to the south of proposed roundabout improvements in the eastern portion of the Study Area (Bridgeport Lane/Parkwood Lane), facing west (August 30, 2022).

Photograph 24. Photo Point 24. View of the proposed pipeline improvements along the Santa Clara River Trail, facing west. Note the existing Well S8 facility in the background (August 30, 2022).

Photograph 25. Photo Point 25. View of the existing Well S7 (left) and ornamental vegetation (right) along the Santa Clara River Trail (center) in the western portion of the Study Area, facing east (August 30, 2022).

Photograph 26. Photo Point 26. View of the proposed roundabout improvements area in the central portion of the Study Area (Bridgeport Lane/Bayside Lane), facing east (August 30, 2022).

Photograph 27. Photo Point 27. View of the existing Well S6 where minor piping improvements are proposed within the ornamental land cover type to the north of the well, facing east (August 30, 2022).

Photograph 28. View of Bridgeport Lake within the Bridgeport at Valencia housing development in the northwestern portion of the Study Area, facing northwest (August 30, 2022).

Photograph 29. View of Culvert Outlet 2 in the southern portion of the Study Area, facing northeast (August 30, 2022).

Photograph 30. View of Culvert Outlet 3 along the southern border of the Study Area, facing north (August 30, 2022).

Photograph 31. View of Culvert Outlet 4 along the southwestern border of the Study Area, facing northwest (August 30, 2022).

Appendix C

Floral and Faunal Compendium

Plant Species Observed Within the Study Area on February 23 and August 30, 2022

Scientific Name	Common Name	Native/Introduced/ Invasive Introduced[1]	Wetland Indicator Status[2]	Life Form (Tree/Shrub/ Herbaceous)	California Sagebrush Scrub	Developed	Disturbed	Fremont Cottonwood Forest and Woodland	Ornamental	Scale Broom Scrub
Acacia redolens	bank catclaw	Introduced	UPL	Shrub					X	
Acmispon glaber	deerweed	Native	UPL	Shrub	X					
Ambrosia psilostachya	western ragweed	Native	FACU	Herbaceous						
Amsinckia spp.	fiddleneck	Native	UPL	Herbaceous						
Anemopsis californica	yerba mansa	Native	OBL	Herbaceous						
Artemisia californica	California sagebrush	Native	UPL	Shrub	X					
Artemisia tridentata	big sagebrush	Native	UPL	Shrub	X					X
Arundo donax	giant reed	Invasive Introduced	FACW	Herbaceous				X		
Baccharis salicifolia	mule fat	Native	FACW	Shrub				X		X
Brassica nigra	black mustard	Invasive Introduced	UPL	Herbaceous	X		X		X	
Bromus diandrus	ripgut brome	Invasive Introduced	UPL	Herbaceous	X					
Bromus madritensis ssp. *rubens*	red brome	Invasive Introduced	UPL	Herbaceous			X			
Camissoniopsis micrantha	Spencer primrose	Native	UPL	Herbaceous						
Carduus pycnocephalus	Italian thistle	Invasive Introduced	UPL	Herbaceous	X		X	X	X	
Centaurea solstitialis	yellow star thistle	Invasive Introduced	UPL	Herbaceous	X					
Corethrogyne filaginifolia	common sandaster	Native	UPL	Herbaceous						
Crassula connata	pigmy weed	Native	FAC	Herbaceous	X					
Cryptantha circumscissa	cushion cryptantha	Native	UPL	Herbaceous						
Cryptantha spp.	cryptantha	Native	UPL	Herbaceous			X			
Cynodon dactlyon	Bermuda grass	Invasive Introduced	FACU	Herbaceous					X	
Datura wrightii	jimsonweed	Native	UPL	Herbaceous			X			
Eriastrum densifolium	giant eriastrum	Native	UPL	Herbaceous						
Eriogonum fasciculatum	California buckwheat	Native	UPL	Shrub	X					X
Erodium cicutarium	redstem filaree	Invasive Introduced	UPL	Herbaceous			X		X	
Eucalyptus melanoxylon	black morrell	Introduced	UPL	Tree					X	
Fraxinus oxycarpa 'Raywood'	Raywood ash	Introduced	UPL	Tree					X	
Fraxinus uhdei	shamel ash	Introduced	UPL	Tree					X	
Hesperoyucca whipplei	chaparral yucca	Native	UPL	Herbaceous	X					
Heterotheca grandiflora	telegraph weed	Native	UPL	Herbaceous			X			
Hirschfeldia incana	summer mustard	Invasive Introduced	UPL	Herbaceous	X		X	X	X	
Lepidospartum squamatum	California broomsage	Native	FACU	Shrub	X			X		X
Malacothrix saxatilis	cliff aster	Native	UPL	Herbaceous			X		X	
Malva parviflora	cheeseweed	Native	UPL	Herbaceous					X	
Marah macrocarpa	chilicothe	Native	UPL	Herbaceous						
Marrubium vulgare	white horehound	Invasive Introduced	FACU	Herbaceous	X				X	
Melilotus indicus	yellow sweetclover	Introduced	FACU	Herbaceous					X	
N/A	turf grasses	Introduced	UPL	Herbaceous					X	
Nicotiana glauca	tree tobacco	Invasive Introduced	FAC	Tree				X		

Scientific Name	Common Name	Native/Introduced/ Invasive Introduced[1]	Wetland Indicator Status[2]	Life Form (Tree/Shrub/ Herbaceous)	California Sagebrush Scrub	Developed	Disturbed	Fremont Cottonwood Forest and Woodland	Ornamental	Scale Broom Scrub
Oenothera elata	tall evening primrose	Native	FACW	Herbaceous				X		
Opuntia littoralis	coast prickly pear	Native	UPL	Shrub						
Pectocarya penicillata	winged comb seed	Native	UPL	Herbaceous						
Pinus ponderosa	Ponderosa pine	Native	FACU	Tree		X			X	
Plantago lanceolata	narrowleaf plantain	Invasive Introduced	FAC	Herbaceous					X	
Platanus acerifolia	London plane	Introduced	UPL	Tree					X	
Platanus racemosa	western sycamore	Native	FAC	Tree					X	
Polygonum aviculare	prostrate knotweed	Introduced	FAC	Herbaceous					X	
Populus fremontii	Fremont cottonwood	Native	FACW	Tree				X		
Prunus cerasifera 'Atropurpurea'	purple plum	Introduced	UPL	Tree					X	
Pyrus kawakamii	evergreen pear	Introduced	UPL	Tree					X	
Quercus agrifolia	coast live oak	Native	UPL	Tree					X	
Rhapiolepis indica	Indian hawthorn	Introduced	UPL	Shrub		X			X	
Rhus integrifolia	lemonade berry	Native	UPL	Shrub						
Ricinus communis	castor bean	Introduced	FACU	Shrub				X		
Rumex crispus	curly dock	Invasive Introduced	FAC	Herbaceous				X		
Rosmarinus officinalis	rosemary	Introduced	UPL	Shrub		X			X	
Salix laevigata	red willow	Native	FACW	Tree				X		
Salix lasiolepis	arroyo willow	Native	FACW	Shrub/Tree				X		
Salsola tragus	Russian thistle	Invasive Introduced	UPL	Herbaceous			X		X	
Salvia apiana	white sage	Native	UPL	Shrub	X					
Schinus molle	Peruvian pepper	Invasive Introduced	FACU	Tree	X				X	
Schismus spp.	schismus	Introduced	UPL	Herbaceous	X				X	
Sisymbrium irio	London rocket	Invasive Introduced	UPL	Herbaceous					X	
Sonchus oleraceus	common sow thistle	Invasive Introduced	UPL	Herbaceous					X	
Stipa pulchra	purple needlegrass	Native	UPL	Herbaceous						
Tamarix ramosissima	tamarisk	Invasive Introduced	UPL	Shrub/Tree	X			X		
Taraxicum officinale	common dandelion	Introduced	UPL	Herbaceous					X	
Tulbaghia violacea	society garlic	Introduced	UPL	Herbaceous					X	
Tribulus terrestris	puncture vine	Invasive Introduced	UPL	Herbaceous						
Torilis arvensis	field hedge parsley	Invasive Introduced	UPL	Herbaceous				X		
Typha spp.	cattail	Native	OBL	Herbaceous						
Washingtonia robusta	Mexican fan palm	Invasive Introduced	FACW	Tree				X		
Urtica urens	dwarf nettle	Introduced	UPL	Herbaceous			X			

[1] California Invasive Plant Council (Cal-IPC) 2022

[2] OBL = obligate; FACW = facultative wetland; FAC = facultative; FACU = facultative upland; UPL = upland

Animal Species Observed Within the Study Area on February 23 and August 30, 2022

Scientific Name	Common Name	Status	Native or Introduced
Birds[1]			
Aphelocoma californica	California scrub jay	–	Native
Ardea alba	great egret	–	Native
Calypte anna	Anna's hummingbird	–	Native
Corvus brachyrhynchos	American crow	–	Native
Corvus corax	common raven	–	Native
Zenaida macroura	mourning dove	–	Native
Mammals			
Canus latrans	coyote	–	Native
Canus lupis familiaris	domesticated dog	–	Non-native
Felis catus	domesticated cat	–	Non-native
Reptiles[2]			
Sceloporus occidentalis	western fence lizard	–	Native
Amphibians[2]			
Pseudacris regilla	pacific tree frog	–	Native

[1] Rodewald 2015

[2] California Herps 2022

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Appendix D

Special Status Species Evaluation Tables

Special Status Species in the Regional Vicinity of the Project Site

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Plants and Lichens				
Arenaria paludicola marsh sandwort	FE/SCE G1/S1 1B.1	Perennial stoloniferous herb. Marshes and swamps. Openings, sandy. Elevations: 10-560ft. (3-170m.) Blooms May-Aug.	No Potential	No suitable marsh or swamp habitat within the Study Area, and the Study Area is outside the known elevation range for this species. No CNDDB records exist within five miles of the Study Area.
Berberis nevinii Nevin's barberry	FE/SCE G1/S1 1B.1	Perennial evergreen shrub. Chaparral, cismontane woodland, coastal scrub, riparian scrub. Gravelly (sometimes), sandy (sometimes). Elevations: 230-2705ft. (70-825m.) Blooms (Feb)Mar-Jun.	No Potential	Suitable coastal scrub habitat is present within the Study Area. However, this species is a conspicuous perennial evergreen shrub that would have been identifiable during the field survey and was not observed.
Calochortus catalinae Catalina mariposa lily	None/None G3G4/S3S4 4.2	Perennial bulbiferous herb. Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland. In heavy soils, open slopes, openings in brush. Elevations: 50-2295ft. (15-700m.) Blooms (Feb)Mar-Jun.	Low Potential	Suitable coastal scrub habitat is present within the Study Area along the alluvial terrace of the northern bank of the Santa Clara River. However, this area has previously been subjected to soil disturbance during the installation of the bike path, roadways, and outfall structure north of the Santa Clara River, and this species is extremely sensitive to soil disturbance. No CNDDB records exist within five miles of the Study Area.
Calochortus clavatus var. *avius* Pleasant Valley mariposa-lily	None/None G4T2/S2 1B.2	Perennial bulbiferous herb. Lower montane coniferous forest. Josephine silt loam and volcanically derived soil; often in rocky areas. Elevations: 1000-5905ft. (305-1800m.) Blooms May-Jul.	No Potential	No suitable habitat is present within the Study Area. No CNDDB records exist within five miles of the Study Area.
Calochortus clavatus var. *clavatus* club-haired mariposa lily	None/None G4T3/S3 4.3	Perennial bulbiferous herb. Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland. Clay, Rocky, serpentinite (usually). Elevations: 100-4265ft. (30-1300m.) Blooms (Mar)May-Jun.	Low Potential	Suitable coastal scrub habitat is present within the Study Area along the alluvial terrace of the northern bank of the Santa Clara River. However, this area has previously been subjected to soil disturbance during the installation of the bike path, roadways, and outfall structure north of the Santa Clara River, and this species is extremely sensitive to soil disturbance. No CNDDB records exist within five miles of the Study Area.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Calochortus clavatus var. *gracilis* slender mariposa-lily	None/None G4T2T3/S2S3 1B.2	Perennial bulbiferous herb. Chaparral, coastal scrub, valley and foothill grassland. Shaded foothill canyons; often on grassy slopes within other habitat. Elevations: 1050-3280ft. (320-1000m.) Blooms Mar-Jun(Nov).	Low Potential	Suitable coastal scrub habitat is present within the Study Area along the alluvial terrace of the northern bank of the Santa Clara River. However, this area has previously been subjected to soil disturbance during the installation of the bike path, roadways, and outfall structure north of the Santa Clara River, and this species is extremely sensitive to soil disturbance.
Calochortus fimbriatus late-flowered mariposa-lily	None/None G3/S3 1B.3	Perennial bulbiferous herb. Chaparral, cismontane woodland, riparian woodland. Serpentinite (sometimes). Elevations: 900-6250ft. (275-1905m.) Blooms Jun-Aug.	Low Potential	Suitable coastal scrub habitat is present within the Study Area along the alluvial terrace of the northern bank of the Santa Clara River. However, this area has previously been subjected to soil disturbance during the installation of the bike path, roadways, and outfall structure north of the Santa Clara River, and this species is extremely sensitive to soil disturbance.
Calochortus palmeri var. *palmeri* Palmer's mariposa-lily	None/None G3T2/S2 1B.2	Perennial bulbiferous herb. Chaparral, lower montane coniferous forest, meadows and seeps. Mesic. Elevations: 2330-7840ft. (710-2390m.) Blooms Apr-Jul.	No Potential	No suitable habitat is present within the Study Area, and the Study Area is outside the known elevation range for this species.
Calochortus plummerae Plummer's mariposa-lily	None/None G4/S4 4.2	Perennial bulbiferous herb. Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, valley and foothill grassland. Granitic, rocky. Elevations: 330-5580ft. (100-1700m.) Blooms May-Jul.	Low Potential	Suitable coastal scrub habitat is present within the Study Area along the alluvial terrace of the northern bank of the Santa Clara River. However, this area has previously been subjected to soil disturbance during the installation of the bike path, roadways, and outfall structure north of the Santa Clara River, and this species is extremely sensitive to soil disturbance.
Calystegia peirsonii Peirson's morning-glory	None/None G4/S4 4.2	Perennial rhizomatous herb. Chaparral, chenopod scrub, cismontane woodland, coastal scrub, lower montane coniferous forest, valley and foothill grassland. Often in disturbed areas or along roadsides or in grassy, open areas. Elevations: 100-4920ft. (30-1500m.) Blooms Apr-Jun.	No Potential	Suitable coastal scrub habitat is present within the Study Area. However, this species is a conspicuous perennial herb that would have been identifiable to genus during the field survey, and no unconfirmed species in the *Calystegia* genus were observed during the field survey.
Cercocarpus betuloides var. *blancheae* island mountain-mahogany	None/None G5T4/S4 4.3	Perennial evergreen shrub. Chaparral, closed-cone coniferous forest. Elevations: 100-1970ft. (30-600m.) Blooms Feb-May.	No Potential	Suitable habitat is present within the Study Area. However, this species is a conspicuous perennial evergreen shrub that would have been identifiable during the field survey and was not observed.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Chorizanthe parryi var. *fernandina* San Fernando Valley spineflower	None/SCE G2T1/S1 1B.1	Annual herb. Coastal scrub, valley and foothill grassland. Sandy soils. Elevations: 490-4005ft. (150-1220m.) Blooms Apr-Jul.	Low Potential	Marginally suitable coastal scrub habitat present within the Study Area. However, this species prefers upland mesas with compacted soils, which are not present within the Study Area.
Chorizanthe parryi var. *parryi* Parry's spineflower	None/None G3T2/S2 1B.1	Annual herb. Chaparral, cismontane woodland, coastal scrub, valley and foothill grassland. Openings, Rocky (sometimes), sandy (sometimes). Elevations: 900-4005ft. (275-1220m.) Blooms Apr-Jun.	Low Potential	Marginally suitable coastal scrub habitat present within the Study Area. However, this species prefers upland mesas with compacted soils, which are not present within the Study Area.
Deinandra minthornii Santa Susana tarplant	None/Santa Clara River G2/S2 1B.2	Perennial deciduous shrub. Chaparral, coastal scrub. On sandstone outcrops and crevices, in shrubland. Elevations: 920-2495ft. (280-760m.) Blooms Jul-Nov.	No Potential	Suitable coastal scrub habitat is present within the Study Area. However, this species is a conspicuous perennial shrub that would have been identifiable during the field survey and was not observed. No CNDDB records exist within five miles of the Study Area.
Deinandra paniculata paniculate tarplant	None/None G4/S4 4.2	Annual herb. Coastal scrub, valley and foothill grassland, vernal pools. Usually in vernally mesic sites. Sometimes in vernal pools or on mima mounds near them. Elevations: 80-3085ft. (25-940m.) Blooms (Mar)Apr-Nov.	No Potential	Coastal scrub habitat is present within the Study Area, but no vernally mesic depressional areas are present within the Study Area. No CNDDB records exist within five miles of the Study Area.
Dodecahema leptoceras slender-horned spineflower	FE/SCE G1/S1 1B.1	Annual herb. Chaparral, cismontane woodland, coastal scrub. Flood deposited terraces and washes; associates include Encelia, Dalea, Lepidospartum, etc. Sandy soils. Elevations: 655-2495ft. (200-760m.) Blooms Apr-Jun.	Low Potential	Suitable coastal scrub habitat present within the Study Area. However, only one historic CNDDB record (1893) exists within five miles of the Study Area, and no individuals were found during surveys conducted at the CNDDB record location in 2003.
Dudleya densiflora San Gabriel Mountains dudleya	None/None G2/S2 1B.1	Perennial herb. Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland. In crevices and on decomposed granite on cliffs and canyon walls. Elevations: 800-2000ft. (244-610m.) Blooms Mar-Jul.	No Potential	No suitable crevices and decomposed granite of cliffs and canyon walls are present within the Study Area. No CNDDB records exist within five miles of the Study Area.
Nasturtium gambelii Gambel's water cress	FE/SCE G1/S1 1B.1	Perennial rhizomatous herb. Marshes and swamps. Freshwater and brackish marshes at the margins of lakes and along streams, in or just above the water level. Elevations: 15-1085ft. (5-330m.) Blooms Apr-Oct.	No Potential	No suitable freshwater marshes or swamps are present within the Study Area. No CNDDB records exist within five miles of the Study Area.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Navarretia fossalis spreading navarretia	FT/None G2/S2 1B.1	Annual herb. Chenopod scrub, marshes and swamps, playas, vernal pools. San Diego hardpan and San Diego claypan vernal pools; in swales and vernal pools, often surrounded by other habitat types. Elevations: 100-2150ft. (30-655m.) Blooms Apr-Jun.	No Potential	No suitable marshes, swamps, playas, or vernal pools are present within the Study Area. No CNDDB records exist within five miles of the Study Area.
Harpagonella palmeri Palmer's grapplinghook	None/None G4/S3 4.2	Annual herb. Chaparral, coastal scrub, valley and foothill grassland. Clay soils; open grassy areas within shrubland. Elevations: 65-3135ft. (20-955m.) Blooms Mar-May.	Low Potential	Coastal scrub habitat is present within the Study Area. However, no suitable clay soils are present. No CNDDB records exist within five miles of the Study Area, and this species was not observed during the field survey.
Helianthus inexpectatus Newhall sunflower	None/None G1/S1 1B.1	Perennial rhizomatous herb. Marshes and swamps, riparian woodland. Freshwater marshes and seeps. Elevations: 1000-1000ft. (305-305m.) Blooms Aug-Oct.	No Potential	Suitable riparian woodland habitat present within the Study Area. However, this species is a conspicuous perennial herb that would have been identifiable to genus during the field survey, and no unconfirmed species in the *Helianthus* genus were observed during the field survey.
Hordeum intercedens vernal barley	None/None G3G4/S3S4 3.2	Annual herb. Coastal dunes, coastal scrub, valley and foothill grassland, vernal pools. Vernal pools, dry, saline streambeds, alkaline flats. Elevations: 15-3280ft. (5-1000m.) Blooms Mar-Jun.	No Potential	No vernal pools, dry, saline streambeds, or alkaline flats are present within the Study Area. No CNDDB records exist within five miles of the Study Area.
Horkelia cuneata var. *puberula* mesa horkelia	None/None G4T1/S1 1B.1	Perennial herb. Chaparral, cismontane woodland, coastal scrub. Sandy or gravelly sites. Elevations: 230-2660ft. (70-810m.) Blooms Feb-Jul(Sep).	Low Potential	Marginally suitable coastal scrub habitat is present within the Study Area. However, no CNDDB records exist within five miles of the Study Area, and the species was not observed during the field survey, which was conducted within the blooming period.
Juglans californica Southern California black walnut	None/None G4/S4 4.2	Perennial deciduous tree. Chaparral, cismontane woodland, coastal scrub, riparian woodland. Slopes, canyons, alluvial habitats. Elevations: 165-2955ft. (50-900m.) Blooms Mar-Aug.	No Potential	Suitable coastal scrub habitat is present within the Study Area. However, this species is a conspicuous tree species that would have been identifiable during the field survey, and was not observed.
Juncus acutus ssp. *leopoldii* southwestern spiny rush	None/None G5T5/S4 4.2	Perennial rhizomatous herb. Coastal dunes, marshes and swamps, meadows and seeps. Moist saline places. Elevations: 10-2955ft. (3-900m.) Blooms (Mar)May-Jun.	No Potential	No suitable coastal dunes, marshes, swamps, meadows, or seeps are present within the Study Area. No CNDDB records exist within five miles of the Study Area.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Lepechinia fragrans fragrant pitcher sage	None/None G3/S3 4.2	Perennial shrub. Chaparral. Elevations: 65-4300ft. (20-1310m.) Blooms Mar-Oct.	Low Potential	Suitable habitat is present within the Study Area. However, this species is a conspicuous shrub that would have been identifiable during the field survey and was not observed.
Lepechinia rossii Ross' pitcher sage	None/None G1/S1 1B.2	Perennial shrub. Chaparral. Soil derived from fine-grained, reddish sedimentary rock. Elevations: 1000-2590ft. (305-790m.) Blooms May-Sep.	No Potential	Suitable habitat is present within the Study Area. However, this species is a conspicuous shrub that would have been identifiable during the field survey and was not observed.
Lepidium virginicum var. *robinsonii* Robinson's pepper-grass	None/None G5T3/S3 4.3	Annual herb. Chaparral, coastal scrub. Dry soils, shrubland. Elevations: 5-2905ft. (1-885m.) Blooms Jan-Jul.	Low Potential	Suitable coastal scrub habitat is present within the Study Area. However, this species was not observed during the field survey, which was conducted within the blooming period for this species. Additionally, no CNDDB records for this species exist within five miles of the Study Area.
Lilium humboldtii ssp. *ocellatum* ocellated Humboldt lily	None/None G4T4?/S4? 4.2	Perennial bulbiferous herb. Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland. Yellow-pine forest or openings, oak canyons. Elevations: 100-5905ft. (30-1800m.) Blooms Mar-Jul(Aug).	No Potential	No yellow pine forest or oak canyon habitats are present within the Study Area. No CNDDB records exist within five miles of the Study Area.
Lupinus paynei Payne's bush lupine	None/None G1Q/S1 1B.1	Perennial shrub. Coastal scrub, riparian scrub, valley and foothill grassland. Sandy. Elevations: 720-1380ft. (220-420m.) Blooms Mar-Apr(May-Jul).	No Potential	Suitable habitat is present within the Study Area. However, this species is a conspicuous shrub that would have been identifiable during the field survey and was not observed.
Malacothamnus davidsonii Davidson's bush-mallow	None/None G2/S2 1B.2	Perennial deciduous shrub. Chaparral, cismontane woodland, coastal scrub, riparian woodland. Sandy washes. Elevations: 605-3740ft. (185-1140m.) Blooms Jun-Jan.	No Potential	Suitable habitat is present within the Study Area. However, this species is a conspicuous shrub that would have been identifiable during the field survey and was not observed.
Navarretia fossalis spreading navarretia	FT/None G2/S2 1B.1	Annual herb. Chenopod scrub, marshes and swamps, playas, vernal pools. San Diego hardpan and San Diego claypan vernal pools; in swales and vernal pools, often surrounded by other habitat types. Elevations: 100-2150ft. (30-655m.) Blooms Apr-Jun.	No Potential	No marshes, swamps, playas, or vernal pools are present within the Study Area. No CNDDB records exist within five miles of the Study Area.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Navarretia ojaiensis Ojai navarretia	None/None G2/S2 1B.1	Annual herb. Chaparral, coastal scrub, valley and foothill grassland. Openings in shrublands or grasslands. Elevations: 900-2035ft. (275-620m.) Blooms May-Jul.	Low Potential	Suitable coastal scrub habitat is present within the Study Area. However, no CNDDB records exist within five miles of the Study Area.
Navarretia setiloba Piute Mountains navarretia	None/None G2/S2 1B.1	Annual herb. Cismontane woodland, pinyon and juniper woodland, valley and foothill grassland. Red clay soils or on gravelly loam. Elevations: 935-6890ft. (285-2100m.) Blooms Apr-Jul.	No Potential	No cismontane woodland, pinyon and juniper woodland, or valley and foothill grassland is present within the Study Area. No CNDDB records exist within five miles of the Study Area.
Opuntia basilaris var. *brachyclada* short-joint beavertail	None/None G5T3/S3 1B.2	Perennial stem. Chaparral, Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland. Sandy soil or coarse, granitic loam. Elevations: 1395-5905ft. (425-1800m.) Blooms Apr-Jun(Aug).	No Potential	Suitable habitat present within the Study Area. However, this species is a conspicuous perennial plant that would have been identifiable during the field survey and was not observed. Additionally, the Study Area is outside the known elevation range for this species.
Orcuttia californica California Orcutt grass	FE/SCE G1/S1 1B.1	Annual herb. Vernal pools. Elevations: 50-2165ft. (15-660m.) Blooms Apr-Aug.	No Potential	No vernal pools are present within the Study Area.
Pseudognaphalium leucocephalum white rabbit-tobacco	None/None G4/S2 2B.2	Perennial herb. Chaparral, cismontane woodland, coastal scrub, riparian woodland. Sandy, gravelly sites. Elevations: 0-6890ft. (0-2100m.) Blooms (Jul)Aug-Nov(Dec).	Low Potential	Suitable coastal scrub habitat is present within the Study Area. Two CNDDB records exist for this species within five miles of the Study Area. However, this perennial species was not detected during the field survey.
Senecio aphanactis chaparral ragwort	None/None G3/S2 2B.2	Annual herb. Chaparral, cismontane woodland, coastal scrub. Drying alkaline flats. Elevations: 50-2625ft. (15-800m.) Blooms Jan-Apr(May).	Low Potential	Suitable coastal scrub habitat is present within the Study Area. One historic CNDDB record (1901) exists for this species within five miles of the Study Area. However, this perennial species was not detected during the field survey, which occurred within the blooming period for this species.
Symphyotrichum greatae Greata's aster	None/None G2/S2 1B.3	Perennial rhizomatous herb. Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, riparian woodland. Mesic canyons. Elevations: 985-6595ft. (300-2010m.) Blooms Jun-Oct.	Low Potential	Marginally suitable habitat is present within the Study Area. However, this perennial species was not detected during the field survey.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Animals				
Invertebrates				
Branchinecta lynchi vernal pool fairy shrimp	FT/None G3/S3	Endemic to the grasslands of the Central Valley, Central Coast mountains, and South Coast mountains, in astatic rain-filled pools. Inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	No Potential	No suitable vernal pool habitat is present within the Study Area.
Danaus plexippus pop. 1 monarch - California overwintering population	FC/None G4T2T3/S2S3	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby.	No Potential	No suitable eucalyptus groves are present within the Study Area.
Euphydryas editha quino quino checkerspot butterfly	FE/None G5T1T2/S1S2	Sunny openings within chaparral and coastal sage shrublands in parts of Riverside and San Diego counties. Hills and mesas near the coast. Need high densities of food plants *Plantago erecta*, *P. insularis*, and *Orthocarpus purpurescens*.	No Potential	The Study Area is outside the known range of the species, and suitable food plants are absent from the Study Area.
Streptocephalus woottoni Riverside fairy shrimp	FE/None G1G2/S1S2	Endemic to Western Riverside, Orange, and San Diego counties in areas of tectonic swales/earth slump basins in grassland and coastal sage scrub. Inhabit seasonally astatic pools filled by winter/spring rains. Hatch in warm water later in the season.	No Potential	No suitable vernal pool habitat is present within the Study Area.
Fish				
Catostomus santaanae Santa Ana sucker	FT/None G1/S1	Endemic to Los Angeles Basin south coastal streams. Habitat generalists, but prefer sand-rubble-boulder bottoms, cool, clear water, and algae.	No Potential	Suitable aquatic habitat is present within the active channel of the Santa Clara River, which is located outside of the Study Area.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Gasterosteus aculeatus williamsoni unarmored threespine stickleback	FE/SE G5T1/S1 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.	No Potential	Suitable aquatic habitat is present within the active channel of the Santa Clara River, which is located outside of the Study Area.
Gila orcuttii arroyo chub	None/None G2/S2 SSC	Native to streams from Malibu Creek to San Luis Rey River basin. Introduced into streams in Santa Clara, Ventura, Santa Ynez, Mojave and San Diego river basins. Slow water stream sections with mud or sand bottoms. Feeds heavily on aquatic vegetation and associated invertebrates.	No Potential	Suitable aquatic habitat is present within the active channel of the Santa Clara River, which is located outside of the Study Area.
Amphibians				
Anaxyrus californicus arroyo toad	FE/None G2G3/S2S3 SSC	Semi-arid regions near washes or intermittent streams, including valley-foothill and desert riparian, desert wash, etc. Rivers with sandy banks, willows, cottonwoods, and sycamores; loose, gravelly areas of streams in drier parts of range.	Moderate Potential	Suitable intermittent stream habitat with arroyo willow, mule fat, Fremont cottonwood, and sandy banks is present in the southeastern portion of the Study Area. However, only one CNDDB occurrence for this species exists within five miles of the Study Area and is located approximately two miles downstream.
Rana draytonii California red-legged frog	FT/None G2G3/S2S3 SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11 to 20 weeks of permanent water for larval development. Must have access to estivation habitat.	Low Potential	Marginally suitable relatively permanent sources of fresh water are present in the southern portion of the Study Area and are associated with the Santa Clara River. However, primary constituent elements for California red-legged frog, such as deep-water pools for breeding and emergent riparian vegetation, are absent from the Study Area. The active river channel of the Santa Clara River to the south of the Study Area is narrow, shallow, and does not support emergent riparian vegetation. No CNDDB records exist within five miles of the Study Area.
Spea hammondii western spadefoot	None/None G2G3/S3 SSC	Occurs primarily in grassland habitats but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	Low Potential	No grassland or vernal pool habitat exists within the Study Area. Multiple CNDDB records exist within five miles of the Study Area, the closest of which is approximately 0.75 mile upstream.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Reptiles				
Anniella spp. California legless lizard	None/None G3G4/S3S4 SSC	Contra Costa County south to San Diego, within a variety of open habitats. This element represents California records of *Anniella* not yet assigned to new species within the *Anniella pulchra* complex. Variety of habitats; generally in moist, loose soil. They prefer soils with a high moisture content.	High Potential	Suitable open habitat including California sagebrush scrub and scale broom scrub are present within the Study Area as well as loose, moist soil adjacent to the active channel of the Santa Clara River. There are multiple CNDDB occurrences of this species within five miles of the Study Area, the closest being 0.43 mile south.
Arizona elegans occidentalis California glossy snake	None/None G5T2/S2 SSC	Patchily distributed from the eastern portion of San Francisco Bay, southern San Joaquin Valley, and the Coast, Transverse, and Peninsular ranges, south to Baja California. Generalist reported from a range of scrub and grassland habitats, often with loose or sandy soils.	Low Potential	Suitable open habitat, including California sagebrush scrub and scale broom scrub, are present within the Study Area. However, all three CNDDB occurrences within five miles of the Study Area are more than 60 years old.
Aspidoscelis tigris stejnegeri coastal whiptail	None/None G5T5/S3 SSC	Found in deserts and semi-arid areas with sparse vegetation and open areas. Also found in woodland and riparian areas. Ground may be firm soil, sandy, or rocky.	High Potential	Suitable open habitat with sandy soils including the scale broom scrub and California sagebrush scrub vegetation communities are present within the Study Area. There are multiple CNDDB occurrences of this species within five miles of the Study Area, the closest being two miles southeast.
Emys marmorata western pond turtle	None/None G3G4/S3 SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	High Potential	Suitable aquatic habitat is present along the Santa Clara River to the south of the Study Area, and suitable sandy banks for basking are present in the southern portion of the Study Area. The closest CNDDB occurrence of this species is approximately three miles downstream of the Study Area.
Phrynosoma blainvillii coast horned lizard	None/None G3G4/S3S4 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.	High Potential	Suitable open habitat, including California sagebrush scrub and scale broom scrub, are present within the Study Area, as well as loose soil for burial adjacent to the active channel of the Santa Clara River. There are multiple CNDDB occurrences of this species within five miles of the Study Area, the closest being 0.5 mile downstream within the Santa Clara River floodplain.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Birds				
Accipiter cooperii Cooper's hawk	None/None G5/S4 WL	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river floodplains; also, live oaks.	High Potential	Suitable woodland habitat for nesting and foraging present within the Study Area. One CNDDB nesting occurrence from 2005 exists within five miles of the Study Area and is located approximately 0.15 mile south. However, no nests or individuals were observed within the Study Area during the field survey, which was conducted reasonably within the nesting season.
Ammodramus savannarum grasshopper sparrow	None/None G5/S3 SSC	Dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes. Favors native grasslands with a mix of grasses, forbs and scattered shrubs. Loosely colonial when nesting.	Low Potential	No grassland habitat is present within the Study Area. One CNDDB occurrence exists within five miles of the Study Area and is located approximately 4.8 miles northwest.
Artemisiospiza belli belli Bell's sage sparrow	None/None G5T2T3/S3 WL	Nests in chaparral dominated by fairly dense stands of chamise. Found in coastal sage scrub in south of range. Nest located on the ground beneath a shrub or in a shrub 6 to 18 inches above ground. Territories about 50 yds apart.	Low Potential	No chaparral dominated by chamise occurs within the Study Area. Two CNDDB occurrences exist within five miles of the Study Area, the closest being four miles northwest.
Athene cunicularia burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Low Potential	Suitable open habitat is present in the southern portion of the Study Area adjacent to the Santa Clara River. However, no ground squirrels were observed within the Study Area during the field survey, and few mammal burrows were observed. None of the mammal burrows observed exhibited sign of burrowing owl (i.e., whitewash, pellets, feathers).
Buteo swainsoni Swainson's hawk	None/ST G5/S3	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	Low Potential	Suitable nesting habitat exists within the riparian corridor of the Santa Clara River. However, the Study Area does not provide ideal foraging habitat, and rodent activity (i.e., mammal burrows) was low. Additionally, only one CNDDB occurrence exists within five miles of the Study Area and is more than 100 years old.
Elanus leucurus white-tailed kite	None/None G5/S3S4 FP	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Low Potential	Suitable grassland, meadows, or marshes for foraging habitat are absent from the Study Area, and no nests were observed during the field survey.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Empidonax traillii extimus southwestern willow flycatcher	FE/SE G5T2/S1	Riparian woodlands in Southern California.	Low Potential	The southeastern boundary of the Study Area features moderately suitable riparian habitat for nesting and foraging for this species. However, there are no CNDDB occurrences within ten miles of the Study Area, and the Study Area is not located within United States Fish and Wildlife Service-designated critical habitat for the species. The closest United States Fish and Wildlife Service-designated critical habitat is more than two miles downstream (west) of the Study Area.
Eremophila alpestris actia California horned lark	None/None G5T4Q/S4 WL	Coastal regions, chiefly from Sonoma County to San Diego County. Also main part of San Joaquin Valley and east to foothills. Short-grass prairie, "bald" hills, mountain meadows, open coastal plains, fallow grain fields, alkali flats.	Low Potential	No suitable habitat exists within the Study Area. One CNDDB occurrence exists within five miles of the Study Area and is located approximately four miles northwest.
Gymnogyps californianus California condor	FE/SE G1/S1 FP	Require vast expanses of open savannah, grasslands, and foothill chaparral in mountain ranges of moderate altitude. Deep canyons containing clefts in the rocky walls provide nesting sites. Forages up to 100 miles from roost/nest.	Low Potential	Suitable foraging habitat is present within the Study Area. However, nesting habitat is absent from the Study Area, and there are no CNDDB occurrences within five miles of the Study Area.
Lanius ludovicianus loggerhead shrike	None/None G4/S4 SSC	Broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub and washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	Moderate Potential	Suitable scrub and riparian woodland habitat for nesting is present within the Study Area, but preferred open habitat for foraging is limited due to development within and adjacent to the Study Area. Two CNDDB occurrences exist within five miles of the Study Area, the closest being four miles northwest.
Polioptila californica californica coastal California gnatcatcher	FT/None G4G5T3Q/S2 SSC	Obligate, permanent resident of coastal sage scrub below 2500 ft in Southern California. Low, coastal sage scrub in arid washes, on mesas and slopes. Not all areas classified as coastal sage scrub are occupied.	Low Potential	Marginally suitable coastal sage scrub habitat exists in the southern portion of the Study Area. The coastal sage scrub habitat within the Study Area includes sparsely scattered shrubs and is fragmented by development surrounding the Study Area. The closest CNDDB occurrence is approximately 2.75 miles southeast of the Study Area.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Vireo bellii pusillus least Bell's vireo	FE/SE G5T2/S2	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 ft. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, Baccharis, mesquite.	High Potential	The southeastern boundary of the Study Area features moderately suitable riparian habitat for nesting and foraging for this species, and eBird documents multiple occurrences of this species within five miles of the Study Area (eBird 2022). However, there are no CNDDB occurrences within five miles of the Study Area, and the Study Area is not located within United States Fish and Wildlife Service-designated critical habitat for the species. The closest United States Fish and Wildlife Service-designated critical habitat is more than two miles downstream (west) of the Study Area.
Mammals				
Antrozous pallidus pallid bat	None/None G4/S3 SSC	Found in a variety of habitats including deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts in crevices of rock outcrops, caves, mine tunnels, buildings, bridges, and hollows of live and dead trees, which must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Low Potential	Some suitable nesting habitat is present within the existing outfall structure in the southeastern portion of the Study Area. However, the Study Area is located within and adjacent to development with frequent disturbances. One CNDDB occurrence exists approximately five miles northeast of the Study Area; however, it is more than 80 years old.
Euderma maculatum spotted bat	None/None G4/S3 SSC	Occupies a wide variety of habitats from arid deserts and grasslands through mixed conifer forests. Typically forages in open terrain; over water and along washes. Feeds almost entirely on moths. Roosts in rock crevices in cliffs or caves. Occasionally roosts in buildings.	Low Potential	Suitable aquatic habitat is present within the Santa Clara River to the south of the Study Area, and low-quality roosting habitat is present within the existing outfall structure. However, preferred rock crevices or caves are absent from the Study Area, and the only CNDDB occurrence within five miles of the Study Area is more than 100 years old.
Eumops perotis californicus western mastiff bat	None/None G4G5T4/S3S4 SSC	Occurs in open, semi-arid to arid habitats, including coniferous and deciduous woodlands, coastal scrub, grasslands, and chaparral. Roosts in crevices in cliff faces and caves, and buildings. Roosts typically occur high above ground.	Low Potential	Some suitable nesting habitat is present within the existing outfall structure in the southeastern portion of the Study Area. However, the Study Area is located within and adjacent to development with frequent disturbances. One CNDDB occurrence exists approximately five miles south of the Study Area; however, it is more than 60 years old.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur in Project Area	Habitat Suitability/ Observations
Lepus californicus bennettii San Diego black-tailed jackrabbit	None/None G5T3T4/S3S4 SSC	Occurs in Los Angeles, San Bernardino, Riverside, and San Diego counties of Southern California. Typically found in open shrub habitats. Will also occur in woodland habitats with open understory adjacent to shrublands.	Moderate Potential	Suitable habitat exists within the California sagebrush scrub and scale broom scrub in the southern portion of the Study Area. However, there is only one CNDDB occurrence within five miles of the Study Area, and it is located approximately five miles north of the Study Area.
Taxidea taxus American badger	None/None G5/S3 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.	Low Potential	Moderately suitable open scrub habitat is present within the California sagebrush scrub and scale broom scrub. However, this habitat has been fragmented by development to the north and south of the Santa Clara River. Additionally, burrowing rodent activity was low within the Study Area, and no diagnostic sign of the species was observed within the burrows present (i.e., claw marks at burrow entrances).

Regional Vicinity refers to within a five-mile search radius of site.

Status (Federal/State)

FE = Federal Endangered
FT = Federal Threatened
FPE = Federal Proposed Endangered
FPT = Federal Proposed Threatened
FD = Federal Delisted
FC = Federal Candidate
SE = State Endangered
ST = State Threatened
SCE = State Candidate Endangered
SCT = State Candidate Threatened
SR = State Rare
SD = State Delisted
SSC = CDFW Species of Special Concern
FP = CDFW Fully Protected
WL = CDFW Watch List

California Rare Plant Rank (California Native Plant Society)

1A = Presumed extirpated in California, and rare or extinct elsewhere
1B = Rare, Threatened, or Endangered in California and elsewhere
2A = Presumed extirpated in California, but common elsewhere
2B= Rare, Threatened, or Endangered in California, but more common elsewhere
3 = Need more information (Review List)
4 = Limited Distribution (Watch List)

California Rare Plant Rank Threat Code Extension

.1 = Seriously endangered in California (>80% of occurrences threatened/high degree and immediacy of threat)
.2 = Moderately threatened in California (20 to 80% of occurrences threatened/moderate degree and immediacy of threat)
.3 = Not very endangered in California (<20% of occurrences threatened/low degree and immediacy of threat)

Additional notations may be provided as follows

T – Intraspecific Taxon (subspecies, varieties, and other designations below the level of species)
Q – Questionable taxonomy that may reduce conservation priority
? – Inexact numeric rank

Other Statuses

G1 or S1 Critically Imperiled Globally or Subnationally (state)
G2 or S2 Imperiled Globally or Subnationally (state)
G3 or S3 Vulnerable to extirpation or extinction Globally or Subnationally (state)
G4/5 or S4/5 Apparently secure, common and abundant
GH or SH Possibly Extirpated – missing; known from only historical occurrences but still some hope of rediscovery

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Appendix E

Ordinary High Water Mark and Wetland Determination Data Forms

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: South Wells PFAS Groundwater Treatment Facility and Pocket Park
Project Number: 21-12299
Stream: Santa Clara River
Investigator(s): Robin Murray, Kyle Gern

Date: 2/23/2022 **Time:** 1245
Town: Santa Clarita **State:** California
Photo begin file#: **Photo end file#:**

Y ■ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ■ Is the site significantly disturbed?

Location Details:
South of Bridgeport Park in Santa Clarita

Projection: Mercator **Datum:** NAD83
Coordinates: 34.425052°N, -118.547197°W

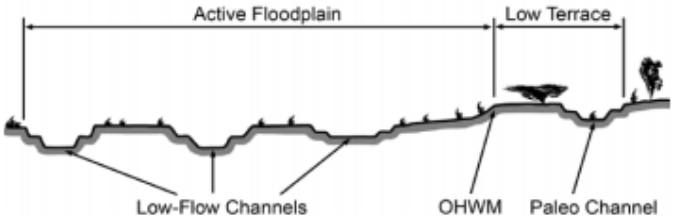
Potential anthropogenic influences on the channel system:
Vehicle use is present within the channel of the Santa Clara River. An artificial stormwater outlet is present in the eastern portion of the Study Area, and consists of a concrete structure and concrete rip rap.

Brief site description:
The Study Area is situated adjacent to and within the Ordinary High Water Mark (OHWM) of the Santa Clara River on the northern bank of the river. Vegetation/land covers associated with the Santa Clara River include fremont cottonwood forest and woodland, riverwash, big sagebrush, California sagebrush scrub, disturbed, developed, and bank catclaw (Acacia redolens).

Checklist of resources (if available):

- ■ Aerial photography
  Dates:
- ■ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ☐ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ■ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

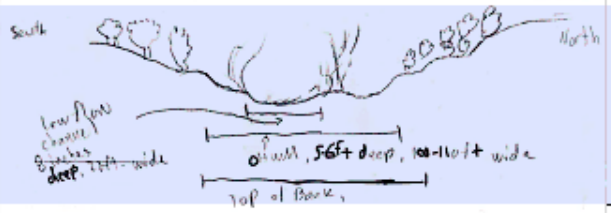


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ☐ Digitized on computer
   - ■ GPS
   - ☐ Other:

Project ID: 21-12299 **Cross section ID:** OH-1 **Date:** 2/23/2022 **Time:** 1245

Cross section drawing:



OHWM

GPS point: 34.425043°N, -118.547203°W

Indicators:

- ☒ Change in average sediment texture
- ☒ Change in vegetation species
- ☒ Change in vegetation cover
- ☒ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Sediment within the OHWM consists of finely-grained sand, and sediment above the OHWM is more coarsely-grained. Vegetation within the OHWM consists of riparian species such as mulefat (Baccharis salificolia), and fremont cottonwood (Populus fremontii), and vegetation above the OHWM consists of shrubs such as big sagebrush (Artemisia tridentata) and California sagebrush (Artemisia californica). Vegetation coverage is lower within the OHWM due to scour from water flows, and is higher outside the OHWM. A break in bank slope is evident upon transitioning from within the OHWM to outside the OHWM.

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: 34.424929°N, -118.547191°W

Characteristics of the floodplain unit:

Average sediment texture: gravel

Total veg cover: 56 % Tree: 50 % Shrub: 5 % Herb: 1 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☒ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☒ Ripples
- ☒ Drift and/or debris
- ☒ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☒ Other: flowing water
- ☐ Other: _____
- ☐ Other: _____

Comments:

Water was observed flowing within the low-flow channel at the time of the survey. Drift and debris deposits (e.g., plant leaves and stems) are present within the low-flow channel, as well as water ripples, the presence of a bed and bank, and bench formation.

Project ID: 21-12299 **Cross section ID:** OH-1 **Date:** 2/23/2021 **Time:** 1245

Floodplain unit: ☐ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: 34.425176°N, -118.547226°W

Characteristics of the floodplain unit:

Average sediment texture: coarse sand

Total veg cover: 35 % Tree: 5 % Shrub: 25 % Herb: 5 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☒ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☒ Drift and/or debris
- ☒ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

The majority of the plant species observed within the active floodplain are shrubs, and include big sagebrush, California sagebrush, and California broomsage (Lepidospartum squamatum). Drift deposits are present within the active floodplain and include plant leaves and stems. An evident bed and bank are present, as well as the formation of benches along the bank.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: South Wells PFAS Groundwater Treatment Facility and Pocket Park | City/County: Santa Clarita/LA County | Sampling Date: 2/23/2022
Applicant/Owner: Santa Clarita Valley Water Agency | State: CA | Sampling Point: SP01
Investigator(s): Robin Murray, Kyle Gern | Section, Township, Range: S15, T04N, R16W
Landform (hillslope, terrace, etc.): Floodplain | Local relief (concave, convex, none): Concave | Slope (%): 1
Subregion (LRR): C - Mediterranean | Lat: 34.425052 | Long: -118.547197 | Datum: NAD83
Soil Map Unit Name: Riverwash | NWI classification: RS4BA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐ Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ☐
Are Vegetation ☐ Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ✔
Hydric Soil Present?	Yes ☐	No ✔	
Wetland Hydrology Present?	Yes ✔	No ☐	

Remarks:
Sample Point 01 (SP01) is located approximately 30 feet north of the low-flow channel of the Santa Clara River within the Ordinary High Water Mark (OHWM). SP01 is located in a depressional area surrounded by mulefat (Baccharis salicifolia).

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft. x 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft. x 15 ft.)			
1. Baccharis salicifolia	65	Y	FACW
2. Salix lasiolepis	2	N	FACW
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5 ft. x 5 ft.)			
1. Torilis arvensis	1	N	UPL
2. Bromus diandrus	1	N	UPL
3.			
4.			
5.			
6.			
7.			
8.			
	2	= Total Cover	
Woody Vine Stratum (Plot size: 15 ft x 15 ft)			
1. None			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 98 | % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
✔ Dominance Test is >50%
☐ Prevalence Index is ≤3.0[1]
☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No ☐

Remarks:
SP01 is located in an area densely covered with mulefat. Mulefat is the sole dominant species, totaling 65 percent coverage in the shrub/sapling layer. Herbaceous plant species are present at low cover (less than 5 percent).

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SOIL

Sampling Point: SP01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/2	100					LS	No ribbon formation
12-24	10YR 5/2	100					S	No ribbon formation

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) **(LRR C)**
- ☐ 1 cm Muck (A9) **(LRR D)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soil Present? Yes ☐ No ☑

Remarks:

Soils within SP01 are moist starting at four inches below the soil surface. No soil saturation is present. The first soil layer (zero to 12 inches) consists of finely-grained sand, and the second soil layer (12 to 24 inches) consists of gravelly sand. Some roots observed within SP01. No indicators of problematic sandy soils are present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☑ Drift Deposits (B3) **(Riverine)**
- ☑ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches):

Water Table Present? Yes ☐ No ☑ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches):

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Drift deposits are present surrounding SP01 and include leaves and stems. Drainage patterns are also present and are indicated by bent plant stems that are pointed in the direction of water flow (west), indicating that during high-flow events water flows within SP01 in the westerly direction. The Santa Clara River flows from east to west in the southern portion of the study area where SP01 is located.

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Appendix F

Arbor Essence Tree Report

Arbor Essence

November 6, 2020

Rick Viergutz
Principal Water Resources Planner
Santa Clarita Valley Water Agency
26501 Summit Circle,
Santa Clarita, CA 91350

Regarding: Bridgeport Park, Tree Report
Santa Clarita, CA

Dear Mr. Viergutz,

At your request I visited the above referenced site September 28, 2020. I was asked to perform and inventory and evaluation of all trees within the vicinity of proposed development and prepare a Tree Report.

My inspection was visual only and performed from ground level. I did not employ and extensive or invasive diagnostics for this trees study. Trunk diameters are measured at 54 inches above soil grade, height is visually estimated. Trees are rated using the condition rating system provided by the city of Santa Clarita. The trees included in this study are identified by number, where a tag is typically attached to the north side of the trunk (#231-273). Tree location, and location of protective fencing are indicated on site plans. Appraised tree values are based on calculations using the "Trunk Formula" and or "Replacement Cost" method from the 9th edition of "Guide for Plant Appraisal".

Summary

A total of (43) trees are included as part of this report. There is only 1 coast live oak (*Quercus agrifolia*) in the vicinity of proposed development, and several other non-protected species located throughout the park.

Proposed development includes construction and installation of new water tanks and related water treatment equipment on the south side of Bridgeport lane near the bike path, and a waterline running through the park from Newhall Ranch Rd. to Bridgeport Lane.

A total of (10) trees are proposed for removal due to proposed development and construction.

Observations

The property is a large public city park. Trees on the south side of Bridgeport Lane consist of 1 coast live oak and 9 Platanus species, the trees are in stable condition however some of the Platanus are infested with shot hole borer. Many of the trees in the park between Bridgeport Lane and Newhall Ranch Rd. are in good condition, however some are in very poor condition with poor structure and or trunk damage.

Tree Evaluations

Please refer to spreadsheets for specific tree information, specs, condition rating and relative comments. An appraisal value has been calculated for all trees; individual appraisal work sheets are provided for each tree.

Proposed Construction and Potential Tree Impacts

Proposed development includes construction and installation of new water tanks and related water treatment equipment on the south side of Bridgeport lane near the bike path, and a waterline running through the park from Newhall Ranch Rd. to Bridgeport Lane.

A total of (10) trees are proposed for removal, and include 1 coast live oak (*Quercus agrifolia*), 5 London plane (Platanus acerifolia) and 4 western sycamore (*Platanus racemosa*) all located along the bike path. All trees in the park area north of Bridgeport Lane can reasonably be preserved in place with minimal impacts.

Conclusion/Justification statement

Proposed development is required in order to accommodate city water treatment demands.

Tree Condition Rating System

A – Outstanding: A healthy, sound and vigorous tree characteristic of its species and reasonably free of any visible signs of stress, structural problems, disease or pest infestation

B – Above average: A healthy, sound and vigorous tree with minor signs of stress, disease and or pest infestation

C – Average: Although healthy in overall appearance there exists an abnormal amount of stress, pest infestation or visual signs of minor structural problems.

D – Below Average/Poor: This tree is characterized by exhibiting a great degree of stress, pests or diseases, and appears to be in a rapid state of decline. The degree of decline can vary greatly and may include dieback or advanced stages of pests or diseases. There may also be visual signs of structural problems such as cavities, decay or damaged roots

F – Dead: This tree exhibits no sign of life whatsoever

Actions and mitigation measures

- Install protective fencing as illustrated on site plan and maintained through project completion
- No changes in soil grade shall be made within the tree protection zone other than in the approved work area
- No heavy equipment shall be moved within the protected zone of any tree
- Construction debris shall not be stored or disposed of within the protected zone of any tree.
- Any required pruning of trees shall be supervised and performed to meet ISA and ANSI 300 pruning standards

- No landscaping or irrigation shall be installed within the protected zone of any oak tree, or closer than 15 feet to the trunk
- Planting of mitigation trees shall be done in compliance with city mandate
- Landscaping near oaks shall be limited to drought tolerant or native plants only. No irrigation shall be installed closer than 15 feet to an oak tree and shall not wet trunks. No turf shall be planted within the dripline of any oak

It should be noted that the study of trees is not an exact science and arboriculture does not detect or predict with any certainty. The arborist therefore is not responsible for tree defects or soil conditions that cannot be identified by a prudent and reasonable inspection.

If you have any questions or require other services please contact me at the number listed below.

Respectfully,
Arbor Essence

Kerry Norman
ASCA, Registered Consulting Arborist #471
ISA Board-Certified Master Arborist #WE-3643B
ISA Tree Risk Assessor Qualification, exp. 2020

Enclosed
Oak tree report
Spreadsheets
Tree appraisal works sheets
Site plan/tree map
Tree photos

Date: Oct. 3, 2019
Job name: ROBB Property
23755 Newhall Ave.
Santa Clarita, CA

Arbor Essence Tree Survey

Tree #	Description	Diam.	Ht	Canopy	Condition	Comments/Impact	Appraisal value
231	Coast live oak (*Quercus agrifolia*)	12"	25'	20'	90%	Proposed for removal	$9,000
232	London plane (*Platanus acerifolia*)	8"	35'	16'	75%	Proposed for removal. Shot hole borer	$4,170
233	London plane	10"	30'	16'	65%	Proposed for removal. Sressed, shot hole borer	$5,100
234	London plane	7"	30'	15'	75%	Proposed for removal, stressed	$3,500
235	Western sycamore (Platanus reacemosa)	12"	35'	20'	75%	Proposed for removal. Sressed, shot hole borer	$7,800
236	London plane	7"	25'	15'	70%	Proposed for removal. Stressed, dieback	$3,270
237	Western sycamore	11"	45'	20'	75%	Proposed for removal. Stressed, shot hole borer	$6,800
238	London plane	12"	45'	30'	80%	Proposed for removal. Shot hole borer	$8,300
239	Western sycamore	6"	25'	12'	75%	Proposed for removal, stressed	$2,930
240	Western sycamore	13"	40'	30'	90%	Proposed for removal. Shot hole borer	$10,600
241	CA pepper (*Schinus molle*)	27"	40'	40'	90%	Preserve in place	$34,100
242	Raywood ash (*Fraxinus v.* Raywood)	12"	35'	18'	90%	Preserve in place	$5,200
243	London plane	8"	35'	18'	80%	Preserve in place	$4,470

Date: Oct. 3, 2019
Job name: ROBB Property
23755 Newhall Ave.
Santa Clarita, CA

Arbor Essence Tree Survey

Tree #	Description	Diam.	Ht	Canopy	Condition	Comments/Impact	Appraisal value
244	London plane	7"	30'	20'	90%	Preserve in place	$4,210
245	London plane	10"	30'	20'	90%	Preserve in place. Shot hole borer	$7,000
246	Evergreen pear (*Pyrus kawakamii*)	9"	30'	30'	75%	Preserve in place	$3,880
247	Raywood ash	10"	25'	20'	90%	Preserve in place	$3,540
248	CA pepper	16"	30'	30'	90%	Preserve in place	$12,000
249	Evergreen pear	12"	25'	30'	75%	Preserve in place	$6,100
250	Evergreen pear	8"	20'	30'	65%	Preserve in place	$2,820
251	Evergreen pear	6"	18'	15'	65%	Preserve in place	$1,980
252	Evergreen pear	7"	20'	20'	75%	Preserve in place	$2,730
253	Evergreen pear	8"	30'	30'	75%	Preserve in place	$3,260
254	Purple plum (*Prunus c.* Atropurpurea)	7"	18'	15'	75%	Preserve in place	$2,990
255	Purple plum	7"	15'	10'	75%	Preserve in place	$2,990
256	Evergreen pear	6"	20'	15'	75%	Preserve in place	$2,280
257	Evergreen pear	5"	15'	8'	75%	Preserve in place	$2,090

Date: Oct. 3, 2019
Job name: ROBB Property
23755 Newhall Ave.
Santa Clarita, CA

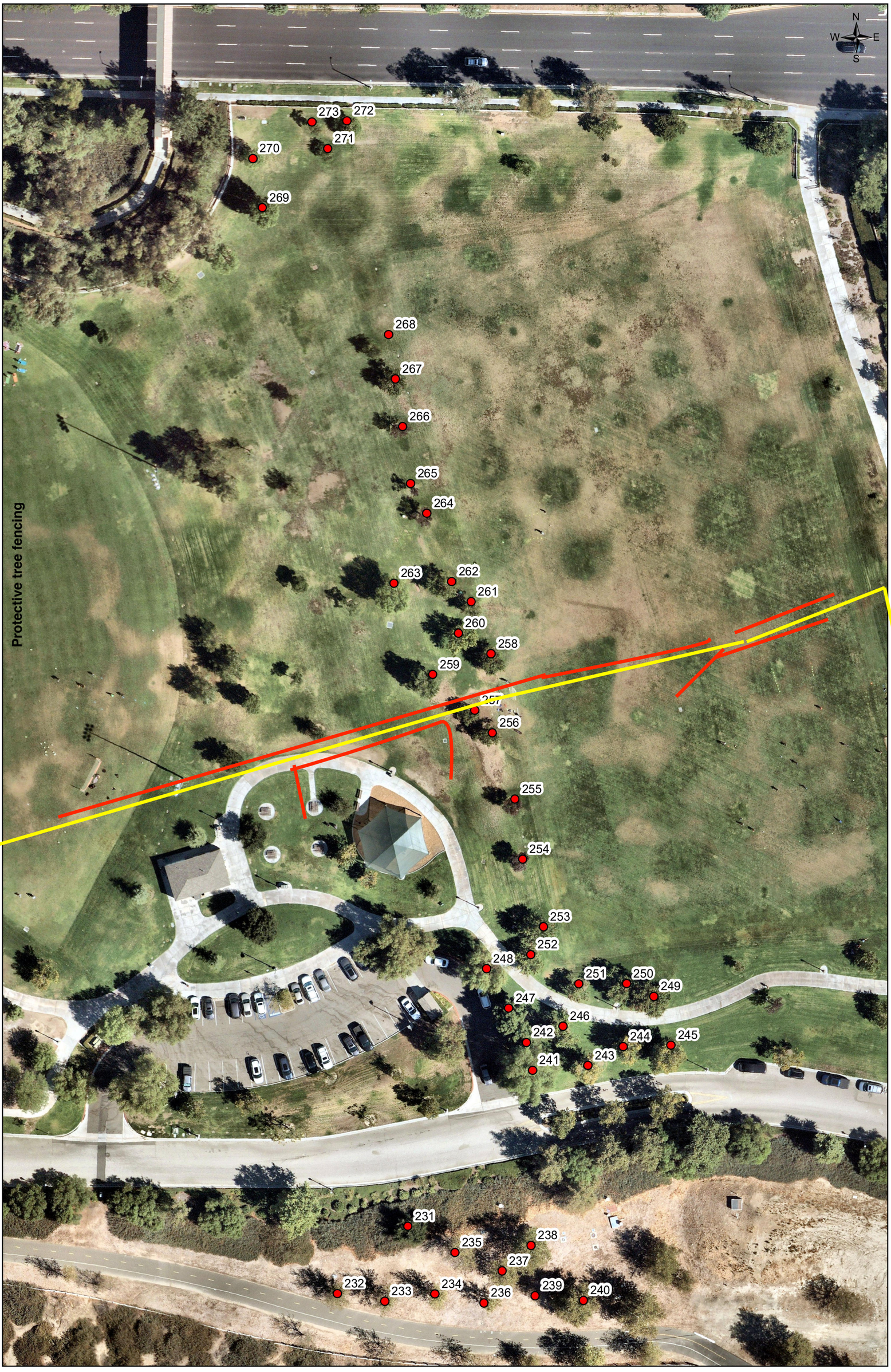
Arbor Essence Tree Survey

Tree #	Description	Diam.	Ht	Canopy	Condition	Comments/Impact	Appraisal value
258	Evergreen pear	7"	18'	20'	70%	Preserve in place	$2,540
259	Raywood ash	10"	30'	18'	80%	Preserve in place	$3,520
260	Evergreen pear	8"	25'	18'	75%	Preserve in place	$3,260
261	Evergreen pear	5"	15'	12'	60%	Preserve in place	$1,670
262	Evergreen pear	7"	25'	18'	75%	Preserve in place	$2,730
263	Shamel ash (*Fraxinus uhdei*)	10"	30'	20'	80%	Preserve in place	$3,470
264	Purple plum	6"	15'	10'	50%	Preserve in place. Major trunkdamage	$1,700
265	Purple plum	4"	12'	8'	40%	Preserve in place. Major trunk damage	$420
266	Purple plum	6"	15'	12'	70%	Preserve in place	$2,380
267	Evergreen pear	6"	15'	20'	80%	Preserve in place	$2,710
268	Evergreen pear	4"	15'	10'	75%	Preserve in place	$780
269	Shamel ash	9"	40'	18'	90%	Preserve in place	$3,330
270	Shamel ash	6"	20'	14'	90%	Preserve in place	$1,960
271	Evergreen pear	4"	12'	10'	70%	Preserve in place	$730

Date: Oct. 3, 2019
Job name: ROBB Property
23755 Newhall Ave.
Santa Clarita, CA

Arbor Essence
Tree Survey

Tree #	Description	Diam.	Ht	Canopy	Condition	Comments/Impact	Appraisal value
272	Evergreen pear	5"	18'	12'	70%	Preserve in place	$1,950
273	Evergreen pear	4"	12'	7'	60%	Preserve in place	$630



Plot Date: 10/16/2020

Document Path: Z:_Northstar\CURRENT PROJECTS\Arbor Essence - SCVWA\SCVWA Project.mxd

TurnPoint Geomatics

SCVWA Tree Project

Bridgeport Park
Santa Clarita
September 28, 2020

Coast live oak #231

London plane #232

Bridgeport Park
Santa Clarita
September 28, 2020

London plane #234

Type to enter textOndon plane #234

Bridgeport Park
Santa Clarita
September 28, 2020

CA sycamore #235

London plane #237

Bridgeport Park
Santa Clarita
September 28, 2020

London plane #238

CA sycamore #239

Bridgeport Park
Santa Clarita
September 28, 2020

CA sycamore #239

CA sycamore #240

CA pepper #241

Bridgeport Park
Santa Clarita
September 28, 2020

Raywood ash #242

London plane #243

Bridgeport Park
Santa Clarita
September 28, 2020

London plane #244

London plane #245

Bridgeport Park
Santa Clarita
September 28, 2020

Evergreen pear #246

Raywood ash #247

Bridgeport Park
Santa Clarita
September 28, 2020

CA pepper #248

Eergreen pear #249

Bridgeport Park
Santa Clarita
September 28, 2020

Evergreen pear #250

Evergreen pear #251

Bridgeport Park
Santa Clarita
September 28, 2020

Evergreen pear #252

Evergreen pear #253

Bridgeport Park
Santa Clarita
September 28, 2020

Purple leaf plum #254

Purple leaf plum #255

Bridgeport Park
Santa Clarita
September 28, 2020

Evergreen pear #256

Evergreen pear #257

Bridgeport Park
Santa Clarita
September 28, 2020

Evergreen pear #258

Raywood ash #259

Bridgeport Park
Santa Clarita
September 28, 2020

Evergreen pear #260

Evergreen pear #261

Bridgeport Park
Santa Clarita
September 28, 2020

Evergreen pear #262

Shamel ash #263

Bridgeport Park
Santa Clarita
September 28, 2020

Purple leaf plum #264

Purple leaf plum #265

Bridgeport Park
Santa Clarita
September 28, 2020

Purple leaf plum #266

Evergreen pear #267

Bridgeport Park
Santa Clarita
September 28, 2020

Evergreen pear #268

Shamel ash #269

Bridgeport Park
Santa Clarita
September 28, 2020

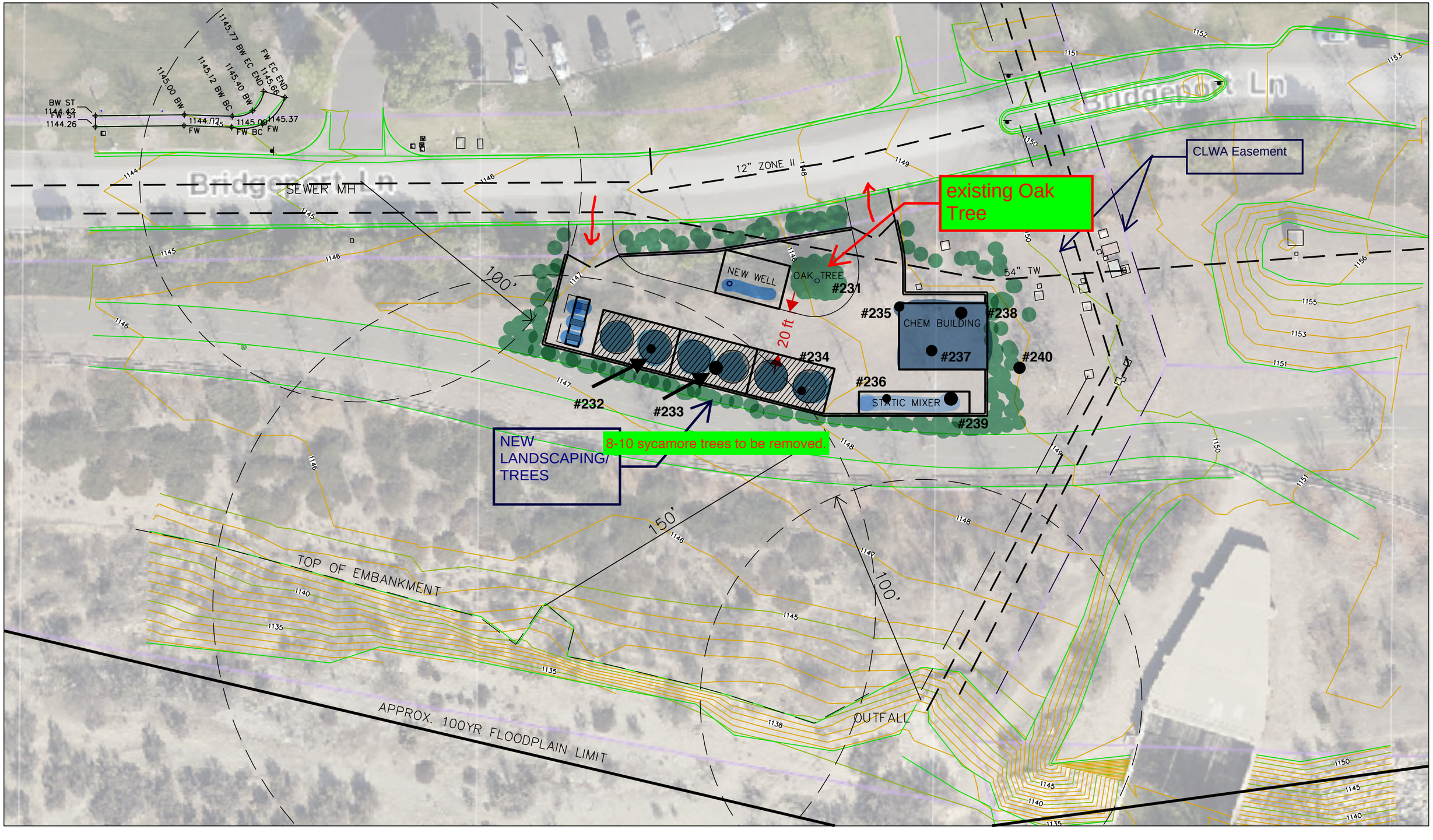
Shamel ask #270

Evergreen pear #271

Bridgeport Park
Santa Clarita
September 28, 2020

Evergreen pear #272

Evergreen pear #273


existing Oak Tree
CLWA Easement
NEW WELL
OAK TREE
#231
#232
#233
#234
#235
#236
#237
#238
#239
#240
CHEM BUILDING
STATIC MIXER
20 ft
8-10 sycamore trees to be removed.
NEW LANDSCAPING/ TREES
SEWER MH
12" ZONE II
54" TW
100'
150'
TOP OF EMBANKMENT
APPROX. 100YR FLOODPLAIN LIMIT
OUTFALL
Bridgeport Ln
BW ST 1144.42
FW ST 1144.26
1145.77 BW EC END
1145.66 FW EC END
1145.00 BW
1145.12 BW BC
1145.40 BW
1144.72 FW
1145.06 FW BC
1145.37 FW

Trunk Formula Method Worksheet

Case #231 Property Bridgeport Park Date 10-16-20

Appraiser Kelly Norman

Field Observations

1. **Species** Quercus agrifolia
2. **Condition** 90 %
3. **Trunk Circumference** _____ in./cm **Diameter** 12 in./cm
4. **Location** % = [**Site** 90 % + **Contribution** 80 % + **Placement** 80 %] ÷ 3 = 83 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 90 %
6. **Replacement Tree Size** (diameter) 5.5 in./cm
   (Trunk Area) 23.75 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400.
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400.
9. **Installed Tree Cost** (#7 + #8) $ 4800.
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) _____ × 0.08
    or d^2 (#3) _____ × 0.785
    = 113 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) =
    TA_A or ATA_A 113 in^2/cm^2 (#11) – TA_R 23.75 in^2/cm^2 (#6) = 89.25 in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 89.25 in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800. = $ 13,903.5
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 13,904. × **Species** rating (#5) 90 % × **Condition** (#2) 90 % × **Location** (#4) 83 % = $ 9,009.
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 9,000.

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Trunk Formula Method Worksheet

TREE
Case # 232 Property BRIDGEPORT PARK Date 10-16-20

Appraiser KERRY NORMAN

Field Observations

1. **Species** PLATANUS ACERIFOLIA
2. **Condition** 75 %
3. **Trunk Circumference** _____ in./cm **Diameter** 8 in./cm
4. **Location** % = [**Site** 90 % + **Contribution** 80 % + **Placement** 80 %] ÷ 3 = 83 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 90 %
6. **Replacement Tree Size** (diameter) 5.5 in./cm
   (Trunk Area) 23.75 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400
9. **Installed Tree Cost** (#7 + #8) $ 4800
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) _____ × 0.08
    or d^2 (#3) _____ × 0.785
    = 50 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) =
    TA_A or ATA_A 50 in^2/cm^2 (#11) – TA_R 23.75 in^2/cm^2 (#6) = 26.25 in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 26.25 in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800. = $ 7,451.
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 7,451 × **Species** rating (#5) 90 % × **Condition** (#2) 75 % × **Location** (#4) 83 % = $ 4,174.
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 4,170.

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Trunk Formula Method Worksheet

TREE Case # 233 Property Bridgeport Pl. Date 10-16-20

Appraiser Keary Norman

Field Observations

1. **Species** Platanus acerifolia
2. **Condition** 65 %
3. **Trunk Circumference** ____ in./cm **Diameter** 10 in./cm
4. **Location** % = [**Site** 90 % + **Contribution** 80 % + **Placement** 80 %] ÷ 3 = 83 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 90 %
6. **Replacement Tree Size** (diameter) 5.5 in./cm
   (Trunk Area) 23.75 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400
9. **Installed Tree Cost** (#7 + #8) $ 4800
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) ____ × 0.08
    or d^2 (#3) ____ × 0.785
    = 79 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) = 55.25
    TA_A or ATA_A 79 in^2/cm^2 (#11) – TA_R 23.75 in^2/cm^2 (#6) = ____ in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 55.25 in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800. = $ 10,435.
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 10,435 × **Species** rating (#5) 90 % × **Condition** (#2) 65 % × **Location** (#4) 83 % = $ 5,000.
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 5,100.

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Trunk Formula Method Worksheet

Tree Case # 234 Property Bridgeport Pk. Date 10-16-20

Appraiser K. N.

Field Observations

1. **Species** Platanus Acerifolia
2. **Condition** 75 %
3. **Trunk Circumference** _____ in./cm **Diameter** 7" in./cm
4. **Location** % = [**Site** 90 % + **Contribution** 80 % + **Placement** 80 %] ÷ 3 = 83 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 90 %
6. **Replacement Tree Size** (diameter) 5.5 in./cm
   (Trunk Area) 23.75 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400
9. **Installed Tree Cost** (#7 + #8) $ 4800
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) _____ × 0.08
    or d^2 (#3) _____ × 0.785
    = 38 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) =
    TA_A or ATA_A 38 in^2/cm^2 (#11) – TA_R 23.75 in^2/cm^2 (#6) = 14.25 in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 14.25 in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800 = $ 6,253.
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 6,253. × **Species** rating (#5) 90 % × **Condition** (#2) 75 % × **Location** (#4) 83 % = $ 3,503.
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 3,500.

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Trunk Formula Method Worksheet

TREE

~~Case~~ # 235 Property BRIDGEPORT PK. Date 10-16-20

Appraiser KD

Field Observations

1. **Species** PLATANUS RACEMOSA
2. **Condition** 75 %
3. **Trunk Circumference** _____ in./cm **Diameter** 12 in./cm
4. **Location** % = [**Site** 95 % + **Contribution** 90 % + **Placement** 80 %] ÷ 3 = 83 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 90 %
6. **Replacement Tree Size** (diameter) 5.5 in./cm
   (Trunk Area) 23.75 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400.
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400
9. **Installed Tree Cost** (#7 + #8) $ 4800
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) _____ × 0.08
    or d^2 (#3) _____ × 0.785
    = 113 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) =
    TA_A or ATA_A 113 in^2/cm^2 (#11) – TA_R 23.75 in^2/cm^2 (#6) = 89.25 in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 89.25 in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800. = $ 13,904
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 13,904 × **Species** rating (#5) 95 % × **Condition** (#2) 75 % × **Location** (#4) 83 % = $ 7,790.
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 7,800.

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Trunk Formula Method Worksheet

~~Case~~ TREE # 234 Property BRIDGEPOINT PL. Date 10-16-20

Appraiser KW

Field Observations

1. **Species** PLATANUS ACERIFOLIA
2. **Condition** 70 %
3. **Trunk Circumference** _____ in./cm **Diameter** 7 in./cm
4. **Location** % = [**Site** 90 % + **Contribution** 80 % + **Placement** 80 %] ÷ 3 = 83 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 90 %
6. **Replacement Tree Size** (diameter) 5.5 in./cm
   (Trunk Area) 23.75 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400
9. **Installed Tree Cost** (#7 + #8) $ 4800
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) _____ × 0.08
    or d^2 (#3) _____ × 0.785
    = 38 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) = TA_A or ATA_A 38 in^2/cm^2 (#11) – TA_R 23.75 in^2/cm^2 (#6) = 14.25 in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 14.25 in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800 = $ 6,254
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 6,254 × **Species** rating (#5) 90 % × **Condition** (#2) 70 % × **Location** (#4) 83 % = $ 3,270.
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 3,270.

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Trunk Formula Method Worksheet

TREE
~~Case~~ # 237 Property BRIDGEPOINT PLC. Date 10-16-20

Appraiser EM

Field Observations

1. **Species** PLATANUS RACEMOSA
2. **Condition** 75 %
3. **Trunk Circumference** ____ in./cm **Diameter** 11 in./cm
4. **Location** % = [**Site** 50 % + **Contribution** 80 % + **Placement** 80 %] ÷ 3 = 83 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 90 %
6. **Replacement Tree Size** (diameter) 5.5 in./cm
   (Trunk Area) 23.75 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400
9. **Installed Tree Cost** (#7 + #8) $ 4800
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) ____ × 0.08
    or d^2 (#3) ____ × 0.785
    = 95 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) =
    TA_A or ATA_A 95 in^2/cm^2 (#11) – TA_R 23.75 in^2/cm^2 (#6) = 71.25 in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 71.25 in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800 = $ 12,068
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 12,068 × **Species** rating (#5) 90 % × **Condition** (#2) 75 % × **Location** (#4) 83 % = $ 6,761.
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 6,800.

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Trunk Formula Method Worksheet

Tree
Case # 238 Property BRIDGEPOINT PL. Date 10-16-20

Appraiser LH

Field Observations

1. **Species** PLATANUS ACERIFOLIA
2. **Condition** 80 %
3. **Trunk Circumference** _____ in./cm **Diameter** 12 in./cm
4. **Location** % = [**Site** ___% + **Contribution** ___% + **Placement** ___%] ÷ 3 = ___%

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 90 %
6. **Replacement Tree Size** (diameter) 5.5 in./cm
   (Trunk Area) 23.75 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400
9. **Installed Tree Cost** (#7 + #8) $ 4800
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) _____ × 0.08
    or d^2 (#3) _____ × 0.785
    = 113 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) = 89.25
    TA_A or ATA_A 113 in^2/cm^2 (#11) – TA_R 23.75 in^2/cm^2 (#6) = ____ in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 89.25 in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800. = $ 13,904.
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 13,904. × **Species** rating (#5) 90 % × **Condition** (#2) 80 % × **Location** (#4) 63 % = $ 8,309
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 8,300.

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Trunk Formula Method Worksheet

~~Case~~ Tree # 239 Property Bridgeport Pk Date 10-16-20

Appraiser KN

Field Observations

1. **Species** Platanus Racemosa
2. **Condition** 75 %
3. **Trunk Circumference** _____ in./cm **Diameter** 6 in./cm
4. **Location** % = [**Site** 90 % + **Contribution** 80 % + **Placement** 80 %] ÷ 3 = 83 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 90 %
6. **Replacement Tree Size** (diameter) 5.5 in./cm
   (Trunk Area) 23.75 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400
9. **Installed Tree Cost** (#7 + #8) $ 4800
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) _____ × 0.08
    or d^2 (#3) _____ × 0.785
    = 28 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) = 4.25
    TA_A or ATA_A 28 in^2/cm^2 (#11) – TA_R 23.75 in^2/cm^2 (#6) = _____ in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 4.25 in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800. = $ 5,233.5
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 5,233.5 × **Species** rating (#5) 90 % × **Condition** (#2) 75 % × **Location** (#4) 83 % = $ 2932.
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 2,930.

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Trunk Formula Method Worksheet

TREE Case # 240 Property BRIDGEPORT PK Date 10-16-20

Appraiser KN

Field Observations

1. **Species** PLATANUS RACEMOSA
2. **Condition** 90 %
3. **Trunk Circumference** ____ in./cm **Diameter** 13 in./cm
4. **Location** % = [**Site** 90 % + **Contribution** 80 % + **Placement** 80 %] ÷ 3 = 83 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 90 %
6. **Replacement Tree Size** (diameter) 5.5 in./cm
   (Trunk Area) 23.75 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400
9. **Installed Tree Cost** (#7 + #8) $ 4800
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) ____ × 0.08
    or d^2 (#3) ____ × 0.785
    = 133 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) = 109.25
    TA_A or ATA_A 133 in^2/cm^2 (#11) – TA_R 23.75 in^2/cm^2 (#6) = ____ in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 109.25 in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800. = $ 15,834
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 15,834. × **Species** rating (#5) 90 % × **Condition** (#2) 90 % × **Location** (#4) 83 % = $ 10,645.
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 10,600.

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Trunk Formula Method Worksheet

~~Case~~ # 241 Property BRIDGEPORT PK. Date 10-16-20

Appraiser KN

Field Observations

1. **Species** SCARLET MAPLE
2. **Condition** 90 %
3. **Trunk Circumference** _____ in./cm **Diameter** 27 in./cm
4. **Location** % = [**Site** 90 % + **Contribution** 90 % + **Placement** 90 %] ÷ 3 = 90 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 70 %
6. **Replacement Tree Size** (diameter) 5.5 in./cm
   (Trunk Area) 23.75 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400
9. **Installed Tree Cost** (#7 + #8) $ 4800
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) _____ × 0.08
    or d^2 (#3) _____ × 0.785
    = 572 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) = 548.25
    TA_A or ATA_A 572 in^2/cm^2 (#11) – TA_R 23.75 in^2/cm^2 (#6) = _____ in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 548. in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800 = $ 60,148.
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 60,148 × **Species** rating (#5) 90 % × **Condition** (#2) 90 % × **Location** (#4) 90 % = $ 34,104.
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 34,100.

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Trunk Formula Method Worksheet

TREE
~~Case~~ # 242 Property Briarcliff Pk. Date 10-16-20

Appraiser KN

Field Observations

1. **Species** Fraxinus V. Raywood
2. **Condition** 90 %
3. **Trunk Circumference** _____ in./cm **Diameter** 12 in./cm
4. **Location** % = [**Site** 90 % + **Contribution** 90 % + **Placement** 90 %] ÷ 3 = 90 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 50 %
6. **Replacement Tree Size** (diameter) 6.5 in./cm
   (Trunk Area) 33.17 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2100
9. **Installed Tree Cost** (#7 + #8) $ 4500
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) _____ × 0.08
    or d^2 (#3) _____ × 0.785
    = 113 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) = 79.83
    TA_A or ATA_A 113 in^2/cm^2 (#11) – TA_R 33.17 in^2/cm^2 (#6) = _____ in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 79.83 in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800 = $ 12,943. ✓
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 12,943. ✓ × **Species** rating (#5) 50 % × **Condition** (#2) 90 % × **Location** (#4) 90 % = $ 5,242. ✓
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 5,200. ✓

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Trunk Formula Method Worksheet

~~Case~~ Tree # 243 Property Bridgepoint Pk. Date 10-16-20

Appraiser KW

Field Observations

1. **Species** Platanus Acerifolia
2. **Condition** 80 %
3. **Trunk Circumference** _____ in./cm **Diameter** 8" in./cm
4. **Location** % = [**Site** 90 % + **Contribution** 80 % + **Placement** 80 %] ÷ 3 = 83 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 90 %
6. **Replacement Tree Size** (diameter) 5.5 in./cm
   (Trunk Area) 23.75 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400
9. **Installed Tree Cost** (#7 + #8) $ 4800
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) _____ × 0.08
    or d^2 (#3) _____ × 0.785
    = 50 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) = 26.25
    TA_A or ATA_A 50 in^2/cm^2 (#11) – TA_R 23.75 in^2/cm^2 (#6) = _____ in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 26.25 in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800. = $ 7,477.
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 7,477. × **Species** rating (#5) 90 % × **Condition** (#2) 80 % × **Location** (#4) 83 % = $ 4,468
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 4,470.

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Trunk Formula Method Worksheet

TREE
~~Case~~ #244 Property BRIDGEPORT PK. Date 10-16-20

Appraiser KN

Field Observations

1. **Species** PLATANUS ACERIFOLIA
2. **Condition** 90 %
3. **Trunk Circumference** _____ in./cm **Diameter** 7 in./cm
4. **Location** % = [**Site** 90 % + **Contribution** 80 % + **Placement** 80 %] ÷ 3 = 83 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 90 %
6. **Replacement Tree Size** (diameter) 5.5 in./cm
   (Trunk Area) 23.75 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400
9. **Installed Tree Cost** (#7 + #8) $ 4800
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) _____ × 0.08
    or d^2 (#3) _____ × 0.785
    = 38 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) = TA_A or ATA_A 38 in^2/cm^2 (#11) – TA_R 23.75 in^2/cm^2 (#6) = 14.25 in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 14.25 in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800 = $ 6,254. ✓
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 6,254. ✓ × **Species** rating (#5) 90 % × **Condition** (#2) 90 % × **Location** (#4) 83 % = $ 4,205. ✓
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 4,210. ✓

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Trunk Formula Method Worksheet

TREE ~~Case~~ # 245 Property BRIDGEPORT PK. Date 10-16-20

Appraiser KN

Field Observations

1. **Species** PLATANUS RACEMOSA
2. **Condition** 90 %
3. **Trunk Circumference** _____ in./cm **Diameter** 10 in./cm
4. **Location** % = [**Site** 90 % + **Contribution** 80 % + **Placement** 80 %] ÷ 3 = 83 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 90 %
6. **Replacement Tree Size** (diameter) 5.5 in./cm
   (Trunk Area) 23.75 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400
9. **Installed Tree Cost** (#7 + #8) $ 4800
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) _____ × 0.08
    or d^2 (#3) _____ × 0.785
    = 79 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) = 55.25
    TA_A or ATA_A 79 in^2/cm^2 (#11) – TA_R 23.75 in^2/cm^2 (#6) = _____ in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 55.25 in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800. = $ 10,436.
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 10,436 × **Species** rating (#5) 90 % × **Condition** (#2) 90 % × **Location** (#4) 83 % = $ 7,016.
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 7,000.

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Trunk Formula Method Worksheet

TREE
~~Case~~ # 246 Property BRIDGEPORT PK. Date 10-16-20

Appraiser KN

Field Observations

1. **Species** PYRUS KAWAKAMII
2. **Condition** 75 %
3. **Trunk Circumference** _____ in./cm **Diameter** 9 in./cm
4. **Location** % = [**Site** 90 % + **Contribution** 90 % + **Placement** 80 %] ÷ 3 = 83 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 70 %
6. **Replacement Tree Size** (diameter) 5.5 in./cm
   (Trunk Area) 23.75 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400
9. **Installed Tree Cost** (#7 + #8) $ 4800
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) _____ × 0.08
    or d^2 (#3) _____ × 0.785
    = 64 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) = TA_A or ATA_A 64 in^2/cm^2 (#11) – TA_R 23.75 in^2/cm^2 (#6) = 40.25 in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 40.25 in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800 = $ 8,906
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 8,906 × **Species** rating (#5) 70 % × **Condition** (#2) 75 % × **Location** (#4) 83 % = $ 3,880.
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 3,880.

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Trunk Formula Method Worksheet

TREE
~~Case~~ # 247 Property BRIDGEPORT PK. Date 10-16-20

Appraiser KJ

Field Observations

1. **Species** RIVERINE V. TULIPWOOD
2. **Condition** 90 %
3. **Trunk Circumference** _____ in./cm **Diameter** 10 in./cm
4. **Location** % = [**Site** 90 % + **Contribution** 80 % + **Placement** 80 %] ÷ 3 = 83 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 50 %
6. **Replacement Tree Size** (diameter) 6.5 in./cm
   (Trunk Area) 33.17 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400
9. **Installed Tree Cost** (#7 + #8) $ 4800
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) _____ × 0.08
    or d^2 (#3) _____ × 0.785
    = 79 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) = 45.83
    TA_A or ATA_A 79 in^2/cm^2 (#11) – TA_R 33.17 in^2/cm^2 (#6) = _____ in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 45.83 in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800. = $ 9,475.
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 9,475. × **Species** rating (#5) 50 % × **Condition** (#2) 90 % × **Location** (#4) 83 % = $ 3,539.
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 3,540.

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Trunk Formula Method Worksheet

TREE
~~Case~~ # 248 Property Bridgeport Pic. Date 10-16-20

Appraiser FN

Field Observations

1. **Species** Schinus molle
2. **Condition** 90 %
3. **Trunk Circumference** _____ in./cm **Diameter** 16 in./cm
4. **Location** % = [**Site** 80 % + **Contribution** 80 % + **Placement** 80 %] ÷ 3 = 83 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 70 %
6. **Replacement Tree Size** (diameter) 5.5 in./cm
   (Trunk Area) 23.75 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400
9. **Installed Tree Cost** (#7 + #8) $ 4800
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) _____ × 0.08
    or d^2 (#3) _____ × 0.785
    = 201 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) = TA_A or ATA_A 201 in^2/cm^2 (#11) – TA_R 23.75 in^2/cm^2 (#6) = 177.25 in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 177.25 in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800. = $ 22,886.
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 22,886. × **Species** rating (#5) 70 % × **Condition** (#2) 90 % × **Location** (#4) 83 % = $ 11,964.
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 12,000.

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Trunk Formula Method Worksheet

TREES

Case # 249 Property Bridgeport Pk Date 10-16-20

Appraiser EN

Field Observations

1. **Species** Pyrus Kawakamii
2. **Condition** 75 %
3. **Trunk Circumference** _____ in./cm **Diameter** 12 in./cm
4. **Location** % = [**Site** 90 % + **Contribution** 80 % + **Placement** 80 %] ÷ 3 = 83 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 70 %
6. **Replacement Tree Size** (diameter) 5.5 in./cm
   (Trunk Area) 23.75 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400
9. **Installed Tree Cost** (#7 + #8) $ 4800
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) _____ × 0.08
    or d^2 (#3) _____ × 0.785
    = 113 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) =
    TA_A or ATA_A 113 in^2/cm^2 (#11) – TA_R 23.75 in^2/cm^2 (#6) = 89.25 in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 89.25 in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800 = $ ~~13,903~~ 13,903.00
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 13,903 × **Species** rating (#5) 70 % × **Condition** (#2) 75 % × **Location** (#4) 83 % = $ 6,058.00
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ ~~6,065~~ 6,100.00

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Trunk Formula Method Worksheet

Tree Case # 250 Property Bridgeport Pk. Date 10-16-20

Appraiser KN

Field Observations

1. **Species** Pyrus kawakamii
2. **Condition** 65 %
3. **Trunk Circumference** _____ in./cm **Diameter** 8 in./cm
4. **Location** % = [**Site** 90 % + **Contribution** 80 % + **Placement** 80 %] ÷ 3 = 83 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 70 %
6. **Replacement Tree Size** (diameter) 5.5 in./cm
   (Trunk Area) 23.75 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2100
9. **Installed Tree Cost** (#7 + #8) $ 4500
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) _____ × 0.08
    or d^2 (#3) _____ × 0.785
    = 50 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) = 26.25
    TA_A or ATA_A 50 in^2/cm^2 (#11) – TA_R 23.75 in^2/cm^2 (#6) = _____ in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 26.25 in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800. = $ 7,478 —
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 7,478. × **Species** rating (#5) 70 % × **Condition** (#2) 65 % × **Location** (#4) 83 % = $ 2,824.
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 2,820.

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Trunk Formula Method Worksheet

TREE
Case # #251 Property BRIDGEPOINT PK. Date 10-16-20
Appraiser KN

Field Observations

1. **Species** Pyrus kawakamii
2. **Condition** 65 %
3. **Trunk Circumference** ____ in./cm **Diameter** 6 in./cm
4. **Location** % = [**Site** 95 % + **Contribution** 90 % + **Placement** 90 %] ÷ 3 = 83 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 70 %
6. **Replacement Tree Size** (diameter) 5.5 in./cm
   (Trunk Area) 23.75 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400
9. **Installed Tree Cost** (#7 + #8) $ 4800
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) ____ × 0.08
    or d^2 (#3) ____ × 0.785
    = 28 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) = 4.25
    TA_A or ATA_A 28 in^2/cm^2 (#11) – TA_R 23.75 in^2/cm^2 (#6) = ____ in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 4.25 in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800. = $ 5,234.
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 5,234 × **Species** rating (#5) 70 % × **Condition** (#2) 65 % × **Location** (#4) 83 % = $ 1,977.
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 1,980.

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Trunk Formula Method Worksheet

TREE Case # 252 Property BRIDGEPOINT PL. Date 10-16-20

Appraiser KN

Field Observations

1. **Species** Pyrus Kawakamii
2. **Condition** 75 %
3. **Trunk Circumference** _____ in./cm **Diameter** 7 in./cm
4. **Location** % = [**Site** 90 % + **Contribution** 80 % + **Placement** 80 %] ÷ 3 = 83 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 70 %
6. **Replacement Tree Size** (diameter) 5.5 in./cm
   (Trunk Area) 23.75 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400
9. **Installed Tree Cost** (#7 + #8) $ 4800.
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) _____ × 0.08
    or d^2 (#3) _____ × 0.785
    = 38 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) = 14.25
    TA_A or ATA_A 38 in^2/cm^2 (#11) – TA_R 23.75 in^2/cm^2 (#6) = _____ in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 14.25 in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800 = $ 6,254.
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 6,254.00 × **Species** rating (#5) 70 % × **Condition** (#2) 75 % × **Location** (#4) 83 % = $ 2,725.
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 2,730.

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Trunk Formula Method Worksheet

TREE Case # 253 Property BRIDGEPOINT PL. Date 10-16-20

Appraiser KN

Field Observations

1. **Species** PYRUS KAWAKAMII
2. **Condition** 75 %
3. **Trunk Circumference** _____ in./cm **Diameter** 8 in./cm
4. **Location** % = [**Site** 90 % + **Contribution** 80 % + **Placement** 80 %] ÷ 3 = 83 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 70 %
6. **Replacement Tree Size** (diameter) 5.5 in./cm
   (Trunk Area) 23.75 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400
9. **Installed Tree Cost** (#7 + #8) $ 4800
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) _____ × 0.08
    or d^2 (#3) _____ × 0.785
    = 50 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) = 26.25
    TA_A or ATA_A 50 in^2/cm^2 (#11) – TA_R 23.75 in^2/cm^2 (#6) = _____ in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 26.25 in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800 = $ 7,478.
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 7,478. × **Species** rating (#5) 70 % × **Condition** (#2) 75 % × **Location** (#4) 83 % = $ 3,259.
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 3,260.

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Trunk Formula Method Worksheet

TREE Case # 254 Property BRIDGEPORT PL. Date 10-16-20

Appraiser KN

Field Observations

1. **Species** PRUNUS C. ATROPURPUREA
2. **Condition** 75 %
3. **Trunk Circumference** _____ in./cm **Diameter** 7 in./cm
4. **Location** % = [**Site** 90 % + **Contribution** 80 % + **Placement** 80 %] ÷ 3 = 83 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 70 %
6. **Replacement Tree Size** (diameter) 4.75 in./cm
   (Trunk Area) ~~4.75~~ 17.71 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400
9. **Installed Tree Cost** (#7 + #8) $ 4800
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) _____ × 0.08
    or d^2 (#3) _____ × 0.785
    = 38 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) =
    TA_A or ATA_A 38 in^2/cm^2 (#11) – TA_R 17.71 in^2/cm^2 (#6) = 20.29 in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 20.29 in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800 = $6,870.
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 6,870. × **Species** rating (#5) 70 % × **Condition** (#2) 75 % × **Location** (#4) 83 % = $ 2,994.
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 2,990.

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Trunk Formula Method Worksheet

TREE Case # 255 Property BRIDGEPOINT PL. Date 10-16-20

Appraiser KN

Field Observations

1. **Species** PRUNUS C. ATROPURPUREA
2. **Condition** 75 %
3. **Trunk Circumference** _____ in./cm **Diameter** 7 in./cm
4. **Location** % = [**Site** 90 % + **Contribution** 80 % + **Placement** 80 %] ÷ 3 = 83 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 70 %
6. **Replacement Tree Size** (diameter) 4.75 in./cm
   (Trunk Area) 17.71 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400
9. **Installed Tree Cost** (#7 + #8) $ 4800
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) _____ × 0.08
    or d^2 (#3) _____ × 0.785
    = 38 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) =
    TA_A or ATA_A 38 in^2/cm^2 (#11) – TA_R 17.71 in^2/cm^2 (#6) = 20.29 in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 20.29 in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800 = $ 6,870.00
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 6870.00 × **Species** rating (#5) 70 % × **Condition** (#2) 75 % × **Location** (#4) 83 % = $ 2,994
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 2,990.00

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Trunk Formula Method Worksheet

TREE
~~Case~~ # #256 Property BRIDGEPOINT PL. Date 10-16-20
Appraiser KN

Field Observations

1. **Species** PYRUS KAWAKAMII
2. **Condition** ~~75~~ 75 %
3. **Trunk Circumference** _____ in./cm **Diameter** 6 in./cm
4. **Location** % = [**Site** 90 % + **Contribution** 80 % + **Placement** 80 %] ÷ 3 = 83 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 70 %
6. **Replacement Tree Size** (diameter) 5.5 in./cm
   (Trunk Area) 23.75 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400
9. **Installed Tree Cost** (#7 + #8) $ 4800
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) _____ × 0.08
    or d^2 (#3) _____ × 0.785
    = 28 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) =
    TA_A or ATA_A 28 in^2/cm^2 (#11) – TA_R 23.75 in^2/cm^2 (#6) = 4.25 in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 4.25 in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800. = $ 5,229.
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 5,229. × **Species** rating (#5) 70 % × **Condition** (#2) ~~75~~ 75 % × **Location** (#4) 83 % = $ 3,279.
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 2,280.

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Replacement Cost Method Worksheet

Appraised Value =

[Installed Plant Cost × Species % × Condition % × Location %] + Removal and Cleanup Cost (if needed)

Installed Plant Cost = Replacement Plant Cost + Installation Cost

Tree ~~Case~~ # 257 Property Brookpoint Pk. Date 11-6-20

Appraiser KN

Field Observations

1. **Species** Pyrus kawakamii
2. **Condition** 75 %
3. **Trunk Circumference** ____ in./cm and/or **Diameter** 5 in./cm or **Shrub** or **Vine Size** (height/spread/volume) ____
4. **Location** % = [**Site** 90 % + **Contribution** 80 % + **Placement** 80 %] ÷ 3 = 83 %
5. **Removal and Cleanup Costs** for appraised plant or plant that will be replaced = $ —

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

6. **Species** rating 70 %
7. **Replacement Plant Size** (diameter) 5.5 in./cm
8. **Replacement Plant Cost** = $ 2400. ✓
9. **Installation Cost** = $ 2400. ✓
10. Other Regional Information ____

Calculations by Appraiser Using Field and/or Regional Information

11. **Installed Plant Cost** = **Plant Cost** (#8) $ 2400 + **Installation Cost** (#9) $ 2400 = $ 4800. ✓
12. **Adjusted Installed Plant Cost** = **Installed Plant Cost** (#11) $ 4800 × **Species** rating (#6) 70 % × **Condition** (#2) 75 % × **Location** (#4) 83 % = $ 2,091
13. Add **Removal and Cleanup Costs** (#5) (if appraised plant is replaced). $ ____ = $ —
14. The **Appraised Value** is either #12 or #13. = $ 2091. ✓
15. If the **Appraised Value** (#14) is $5,000 or more, round it to the nearest $100; if it is less, round to nearest $10.
16. **Appraised Value** (#14) = $ 2090. ✓

*A median cost is the most appropriate cost to use because there are an equal number of costs greater than and less than the median. Equally important, plants and installation are available at those specific costs.

Trunk Formula Method Worksheet

TREE
~~Case~~ # 258 Property BRIDGEPOINT PL. Date 10-16-20

Appraiser KN

Field Observations

1. **Species** Pyrus kawakamii
2. **Condition** 70 %
3. **Trunk Circumference** _____ in./cm **Diameter** 7" in./cm
4. **Location** % = [**Site** 90 % + **Contribution** 80 % + **Placement** 80 %] ÷ 3 = 83 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 70 %
6. **Replacement Tree Size** (diameter) 5.5 in./cm
   (Trunk Area) 23.75 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400
9. **Installed Tree Cost** (#7 + #8) $ 4800. ✓
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) _____ × 0.08
    or d^2 (#3) _____ × 0.785
    = 38 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) =
    TA_A or ATA_A 38 in^2/cm^2 (#11) – TA_R 23.75 in^2/cm^2 (#6) = 14.25 in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 14.25 in^2/cm^2 × **Unit Tree Cost** (#10) $ per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800 = $ 6239. ✓
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 6239. ✓ × **Species** rating (#5) 70 % × **Condition** (#2) 70 % × **Location** (#4) 83 % = $ 2537. ✓
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 2546. ✓

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Trunk Formula Method Worksheet

TREE
~~Case~~ # 259 Property BRIDGEPORT PL. Date 10-16-20

Appraiser KN

Field Observations

1. **Species** FRAXINUS V. RAYWOOD
2. **Condition** 90 %
3. **Trunk Circumference** _____ in./cm **Diameter** 10 in./cm
4. **Location** % = [**Site** 90 % + **Contribution** 40 % + **Placement** 40 %] ÷ 3 = 83 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 50 %
6. **Replacement Tree Size** (diameter) 6.5 in./cm
   (Trunk Area) ~~23.75~~ in²/cm² TA_R 33.17
7. **Replacement Tree Cost** $ 240
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 240
9. **Installed Tree Cost** (#7 + #8) $ 480
10. **Unit Tree Cost** $ 101 per in²/cm²
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) _____ × 0.08
    or d^2 (#3) _____ × 0.785
    = 79 in²/cm²
12. **Appraised Tree Trunk Increase** (TA_{INCR}) =
    TA_A or ATA_A 79 in²/cm² (#11) – TA_R 33.7 in²/cm² (#6) = 45.83 in²/cm²
13. **Basic Tree Cost** = TA_{INCR} (#12) 45.83 in²/cm² × **Unit Tree Cost** (#10) $ 101 per in²/cm² + **Installed Tree Cost** (#9) $ 4800 = $ 9,429. ~
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 9,429. ~ × **Species** rating (#5) 50 % × **Condition** (#2) 90 % × **Location** (#4) 83 % = $ 3,522
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 3,520. ~

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Trunk Formula Method Worksheet

TREE
~~Case~~ # 260 Property BRIDGEPOINT PL. Date 10-16-20
Appraiser KN

Field Observations

1. **Species** Pyrus kawakamii
2. **Condition** 75 %
3. **Trunk Circumference** _____ in./cm **Diameter** 8 in./cm
4. **Location** % = [**Site** 90 % + **Contribution** 80 % + **Placement** 80 %] ÷ 3 = 83 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 70 %
6. **Replacement Tree Size** (diameter) 5.5 in./cm
   (Trunk Area) 23.75 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400
9. **Installed Tree Cost** (#7 + #8) $ 4800
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) _____ × 0.08
    or d^2 (#3) _____ × 0.785
    = 50 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) = 26.25
    TA_A or ATA_A 50 in^2/cm^2 (#11) – TA_R 23.75 in^2/cm^2 (#6) = _____ in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 26.25 in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800. = $ 7,478. ✓
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 7,478 × **Species** rating (#5) 70 % × **Condition** (#2) 75 % × **Location** (#4) 83 % = $ 3759. ✓
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 3,760. ✓

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Replacement Cost Method Worksheet

Appraised Value =

[Installed Plant Cost × Species % × Condition % × Location %] + Removal and Cleanup Cost (if needed)

Installed Plant Cost = Replacement Plant Cost + Installation Cost

TREE
~~Case~~ # 241 Property BRIDGEPORT PK. Date 11-6-20

Appraiser EN

Field Observations

1. **Species** PYRUS KAWAKAMII
2. **Condition** 60 %
3. **Trunk Circumference** ____ in./cm and/or **Diameter** 5 in./cm or **Shrub** or **Vine Size** (height/spread/volume) ____
4. **Location** % = [**Site** 90 % + **Contribution** 90 % + **Placement** 80 %] ÷ 3 = 83 %
5. **Removal and Cleanup Costs** for appraised plant or plant that will be replaced = $ —

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

6. **Species** rating 70 %
7. **Replacement Plant Size** (diameter) 5.5 in./cm
8. **Replacement Plant Cost** = $ 2400
9. **Installation Cost** = $ 2400
10. Other Regional Information ____

Calculations by Appraiser Using Field and/or Regional Information

11. **Installed Plant Cost** = **Plant Cost** (#8) $ 2400 + **Installation Cost** (#9) $ 2400 = $ 4800
12. **Adjusted Installed Plant Cost** = **Installed Plant Cost** (#11) $ 4800 × **Species** rating (#6) 70 % × **Condition** (#2) 60 % × **Location** (#4) 83 % = $ 1673. ✓
13. Add **Removal and Cleanup Costs** (#5) (if appraised plant is replaced). $ ____ = $ —
14. The **Appraised Value** is either #12 or #13. = $ 1673. ✓
15. If the **Appraised Value** (#14) is $5,000 or more, round it to the nearest $100; if it is less, round to nearest $10.
16. **Appraised Value** (#14) = $ 1,670. ✓

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*A median cost is the most appropriate cost to use because there are an equal number of costs greater than and less than the median. Equally important, plants and installation are available at those specific costs.

Trunk Formula Method Worksheet

TREE
~~Case~~ # 262 Property BRIDGEPOINT PL. Date 10-16-20

Appraiser KN

Field Observations

1. **Species** Pyrus kawakamii
2. **Condition** 75 %
3. **Trunk Circumference** _____ in./cm **Diameter** 7" in./cm
4. **Location** % = [**Site** 90 % + **Contribution** 90 % + **Placement** 80 %] ÷ 3 = 83 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 70 %
6. **Replacement Tree Size** (diameter) 5.5 in./cm
   (Trunk Area) 23.75 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400
9. **Installed Tree Cost** (#7 + #8) $ 4800
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) _____ × 0.08
    or d^2 (#3) _____ × 0.785
    = 38 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) = 14.25
    TA_A or ATA_A 38 in^2/cm^2 (#11) – TA_R 23.75 in^2/cm^2 (#6) = _____ in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 14.25 in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800 = $ 6,254.
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 6,254. × **Species** rating (#5) 70 % × **Condition** (#2) 75 % × **Location** (#4) 83 % = $ 2,725.
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 2,730.

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Trunk Formula Method Worksheet

TREE
~~Case~~ # 263 Property BRIDGEPOINT PL. Date 10-16-20
Appraiser KN

Field Observations

1. **Species** FRAXINUS UHDE.
2. **Condition** 80 %
3. **Trunk Circumference** _____ in./cm **Diameter** 10 in./cm
4. **Location** % = [**Site** 90 % + **Contribution** 80 % + **Placement** 80 %] ÷ 3 = 83 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 50 %
6. **Replacement Tree Size** (diameter) 5.5 in./cm
   (Trunk Area) 23.75 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400
9. **Installed Tree Cost** (#7 + #8) $ 4800
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) _____ × 0.08
    or d^2 (#3) _____ × 0.785
    = 79 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) = 55.25
    TA_A or ATA_A ~~55~~ 79 in^2/cm^2 (#11) – TA_R 23.75 in^2/cm^2 (#6) = _____ in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 55.25 in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800 = $ _____
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 10,435. × **Species** rating (#5) 50 % × **Condition** (#2) 80 % × **Location** (#4) 83 % = $ 3,465.
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 3,470.

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Trunk Formula Method Worksheet

TREE
~~Case~~ # 264 Property BRIDGEPOINT PL. Date 10-16-20
Appraiser KN

Field Observations

1. **Species** PRUNUS C. AMPLIFOLIA
2. **Condition** 50 %
3. **Trunk Circumference** ____ in./cm **Diameter** 6 in./cm
4. **Location** % = [**Site** 90 % + **Contribution** 90 % + **Placement** 60 %] ÷ 3 = 83 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 70 %
6. **Replacement Tree Size** (diameter) 4.75 in./cm
   (Trunk Area) 17.71 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400
9. **Installed Tree Cost** (#7 + #8) $ 4800
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) ____ × 0.08
    or d^2 (#3) ____ × 0.785
    = 28 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) = 10.29
    TA_A or ATA_A 28 in^2/cm^2 (#11) – TA_R 17.71 in^2/cm^2 (#6) = ____ in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 10.29 in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800 = $ 5,849
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 5,849. × **Species** rating (#5) 70 % × **Condition** (#2) 50 % × **Location** (#4) 83 % = $ 1699.
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 1,700.

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Replacement Cost Method Worksheet

Appraised Value =

[Installed Plant Cost × Species % × Condition % × Location %] + Removal and Cleanup Cost (if needed)

Installed Plant Cost = Replacement Plant Cost + Installation Cost

TREE ~~Case~~ # 265 Property BRIDGEPORT PK. Date 11-6-20

Appraiser KN

Field Observations

1. **Species** PRUNUS C. ATROPURPUREA
2. **Condition** 40 %
3. **Trunk Circumference** ____ in./cm and/or **Diameter** 4" in./cm or **Shrub** or **Vine Size** (height/spread/volume) ____
4. **Location** % = [**Site** 90 % + **Contribution** 90 % + **Placement** 80 %] ÷ 3 = 83 %
5. **Removal and Cleanup Costs** for appraised plant or plant that will be replaced = $ —

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

6. **Species** rating 70 %
7. **Replacement Plant Size** (diameter) 4 in./cm
8. **Replacement Plant Cost** = $ 900
9. **Installation Cost** = $ 900
10. Other Regional Information ____

Calculations by Appraiser Using Field and/or Regional Information

11. **Installed Plant Cost = Plant Cost** (#8) $ 900 + **Installation Cost** (#9) $ 900 = $ 1800
12. **Adjusted Installed Plant Cost = Installed Plant Cost** (#11) $ 1800 × **Species** rating (#6) 70 % × **Condition** (#2) 40 % × **Location** (#4) 83 % = $ 416.
13. Add **Removal and Cleanup Costs** (#5) (if appraised plant is replaced). $ ____ = $ —
14. The **Appraised Value** is either #12 or #13. = $ 418
15. If the **Appraised Value** (#14) is $5,000 or more, round it to the nearest $100; if it is less, round to nearest $10.
16. **Appraised Value** (#14) = $ 420.

*A median cost is the most appropriate cost to use because there are an equal number of costs greater than and less than the median. Equally important, plants and installation are available at those specific costs.

Trunk Formula Method Worksheet

TREE
~~Case~~ # 266 Property BRIDGEPOINT PL. Date 10-16-20
Appraiser KN

Field Observations

1. **Species** PRUNUS C. ATROPURPUREA
2. **Condition** 70 %
3. **Trunk Circumference** ____ in./cm **Diameter** 6 in./cm
4. **Location** % = [**Site** 90 % + **Contribution** 80 % + **Placement** 80 %] ÷ 3 = 83 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 70 %
6. **Replacement Tree Size** (diameter) 4.75 in./cm
   (Trunk Area) 17.71 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400
9. **Installed Tree Cost** (#7 + #8) $ 4800
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) ____ × 0.08
    or d^2 (#3) ____ × 0.785
    = 28 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) = 10.29
    TA_A or ATA_A 28 in^2/cm^2 (#11) – TA_R 17.71 in^2/cm^2 (#6) = ____ in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 10.29 in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 480. = $ 5,839.
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 5,839. × **Species** rating (#5) 70 % × **Condition** (#2) 70 % × **Location** (#4) 83 % = $ 2,375.
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 2,380.

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Trunk Formula Method Worksheet

TREE
Case # 267 Property BRIDGEPOINT PL. Date 10-16-20
Appraiser KN

Field Observations

1. **Species** PRUNUS C. ATROPURPUREA
2. **Condition** 80 %
3. **Trunk Circumference** ____ in./cm **Diameter** 6 in./cm
4. **Location** % = [**Site** 90 % + **Contribution** 80 % + **Placement** 80 %] ÷ 3 = 83 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 70 %
6. **Replacement Tree Size** (diameter) ~~6~~ 4.75 in./cm
   (Trunk Area) 17.71 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400
9. **Installed Tree Cost** (#7 + #8) $ 4800
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) ____ × 0.08
    or d^2 (#3) ____ × 0.785
    = 28 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) =
    TA_A or ATA_A 28 in^2/cm^2 (#11) – TA_R 17.71 in^2/cm^2 (#6) = 10.29 in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 10.29 in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800 = $ 5839. ✓
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 5839. ✓ × **Species** rating (#5) 70 % × **Condition** (#2) 80 % × **Location** (#4) 83 % = $ 2,713. ✓
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 2,710. ✓

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Replacement Cost Method Worksheet

Appraised Value =

[Installed Plant Cost × Species % × Condition % × Location %] + Removal and Cleanup Cost (if needed)

Installed Plant Cost = Replacement Plant Cost + Installation Cost

TREE Case # 268 Property BRIDGEPORT PL Date 11-6-20

Appraiser (E)

Field Observations

1. **Species** Pyrus Kawakamii
2. **Condition** 75 %
3. **Trunk Circumference** ____ in./cm and/or **Diameter** 4" in./cm or **Shrub** or **Vine Size** (height/spread/volume) ____
4. **Location** % = [**Site** 90% + **Contribution** 80% + **Placement** 80%] ÷ 3 = 83%
5. **Removal and Cleanup Costs** for appraised plant or plant that will be replaced = $ —

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

6. **Species** rating 70 %
7. **Replacement Plant Size** (diameter) 4 in./cm
8. **Replacement Plant Cost** = $ 900
9. **Installation Cost** = $ 900
10. Other Regional Information ____

Calculations by Appraiser Using Field and/or Regional Information

11. **Installed Plant Cost = Plant Cost** (#8) $ 900 + **Installation Cost** (#9) $ 900 = $ 1800.
12. **Adjusted Installed Plant Cost = Installed Plant Cost** (#11) $ 1800 × **Species** rating (#6) 70 % × **Condition** (#2) 75 % × **Location** (#4) 83 % = $ 784.
13. Add **Removal and Cleanup Costs** (#5) (if appraised plant is replaced). $ ____ = $ —
14. The **Appraised Value** is either #12 or #13. = $ 784.
15. If the **Appraised Value** (#14) is $5,000 or more, round it to the nearest $100; if it is less, round to nearest $10.
16. **Appraised Value** (#14) = $ 780.

*A median cost is the most appropriate cost to use because there are an equal number of costs greater than and less than the median. Equally important, plants and installation are available at those specific costs.

Trunk Formula Method Worksheet

Case # 269 Property BRIDGEPORT PK. Date 11-4-20

Appraiser KD

Field Observations

1. **Species** FRAXINUS UHDEI
2. **Condition** 90 %
3. **Trunk Circumference** _____ in./cm **Diameter** 9" in./cm
4. **Location** % = [**Site** 90 % + **Contribution** 90 % + **Placement** 80 %] ÷ 3 = 83 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 50 %
6. **Replacement Tree Size** (diameter) 5.5 in./cm
   (Trunk Area) 23.75 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400
9. **Installed Tree Cost** (#7 + #8) $ 4800
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) _____ × 0.08
    or d^2 (#3) _____ × 0.785
    = 64 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) = 40.25
    TA_A or ATA_A 64 in^2/cm^2 (#11) – TA_R 23.75 in^2/cm^2 (#6) = _____ in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 40.25 in^2/cm^2 × **Unit Tree Cost** (#10) $ 101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800 = $ 8,906
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 8,906 × **Species** rating (#5) 50 % × **Condition** (#2) 90 % × **Location** (#4) 83 % = $ 3,326.-
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 3,330.-

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Trunk Formula Method Worksheet

TREE
~~Case~~ # 270 Property BRIDGEPOINT PT. Date 11-16-20

Appraiser KN

Field Observations

1. **Species** FRAXINUS SPP.
2. **Condition** 90 %
3. **Trunk Circumference** ____ in./cm **Diameter** 6" in./cm
4. **Location** % = [**Site** 96 % + **Contribution** 80 % + **Placement** 80 %] ÷ 3 = 85 %

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

5. **Species** rating 50 %
6. **Replacement Tree Size** (diameter) 5.5 in./cm
   (Trunk Area) 23.75 in^2/cm^2 TA_R
7. **Replacement Tree Cost** $ 2400
   (see Regional Information to use **Cost** selected)
8. **Installation Cost** $ 2400
9. **Installed Tree Cost** (#7 + #8) $ 4800
10. **Unit Tree Cost** $ 101 per in^2/cm^2
    (see Regional Information to use **Cost** selected)

Calculations by Appraiser using Field and Regional Information

11. **Appraised Trunk Area:**
    (TA_A or ATA_A; use Tables 4.4–4.7)
    or c^2 (#3) ____ × 0.08
    or d^2 (#3) ____ × 0.785
    = 28 in^2/cm^2
12. **Appraised Tree Trunk Increase** (TA_{INCR}) = 4.25
    TA_A or ATA_A 28 in^2/cm^2 (#11) – TA_R 23.75 in^2/cm^2 (#6) = ____ in^2/cm^2
13. **Basic Tree Cost** = TA_{INCR} (#12) 4.25 in^2/cm^2 × **Unit Tree Cost** (#10) $101 per in^2/cm^2 + **Installed Tree Cost** (#9) $ 4800 = $ 5,234.
14. **Appraised Value** = **Basic Tree Cost** (#13) $ 5,234 × **Species** rating (#5) 50 % × **Condition** (#2) 90 % × **Location** (#4) 83 % = $ 1,955.
15. If the **Appraised Value** is $5,000 or more, round it to the nearest $100; if it is less, round to the nearest $10.
16. **Appraised Value** = (#14) $ 1,960.

Items 5 through 10 are determined by the Regional Plant Appraisal Committee. The **Wholesale Replacement Tree Cost**, the **Retail Replacement Tree Cost**, or the **Installed Tree Cost** (#9) divided by the **Replacement Tree Size** (#6) can be used for the **Unit Tree Cost** (#10), or it can be set by the Regional Plant Appraisal Committee.

Replacement Cost Method Worksheet

Appraised Value =

[Installed Plant Cost × Species % × Condition % × Location %] + Removal and Cleanup Cost (if needed)

Installed Plant Cost = Replacement Plant Cost + Installation Cost

TREE Case # 271 Property BROADMOOR PK Date 11-6-20

Appraiser KN

Field Observations

1. **Species** Pyrus kawakamii
2. **Condition** 70 %
3. **Trunk Circumference** ____ in./cm and/or **Diameter** 4 in./cm or **Shrub** or **Vine Size** (height/spread/volume) ____
4. **Location** % = [**Site** 90 % + **Contribution** 80 % + **Placement** 80 %] ÷ 3 = 83 %
5. **Removal and Cleanup Costs** for appraised plant or plant that will be replaced = $ —

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

6. **Species** rating 70 %
7. **Replacement Plant Size** (diameter) 4 in./cm
8. **Replacement Plant Cost** = $ 900
9. **Installation Cost** = $ 900
10. Other Regional Information ____

Calculations by Appraiser Using Field and/or Regional Information

11. **Installed Plant Cost** = **Plant Cost** (#8) $ 900 + **Installation Cost** (#9) $ 900 = $ 1800
12. **Adjusted Installed Plant Cost** = **Installed Plant Cost** (#11) $ 1800 × **Species** rating (#6) 70 % × **Condition** (#2) 70 % × **Location** (#4) 83 % = $ 732.—
13. Add **Removal and Cleanup Costs** (#5) (if appraised plant is replaced). $ ____ = $ —
14. The **Appraised Value** is either #12 or #13. = $ 732.—
15. If the **Appraised Value** (#14) is $5,000 or more, round it to the nearest $100; if it is less, round to nearest $10.
16. **Appraised Value** (#14) = $ 730.—

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*A median cost is the most appropriate cost to use because there are an equal number of costs greater than and less than the median. Equally important, plants and installation are available at those specific costs.

Replacement Cost Method Worksheet

Appraised Value =

[Installed Plant Cost × Species % × Condition % × Location %] + Removal and Cleanup Cost (if needed)

Installed Plant Cost = Replacement Plant Cost + Installation Cost

TREE ~~Case~~ # 272 Property BRIDGEPORT PK. Date 11-6-20

Appraiser KD

Field Observations

1. **Species** PYRUS KAWAKAMII
2. **Condition** 70 %
3. **Trunk Circumference** ____ in./cm and/or **Diameter** 5 in./cm or **Shrub** or **Vine Size** (height/spread/volume) ____
4. **Location** % = [**Site** 90 % + **Contribution** 80 % + **Placement** 80 %] ÷ 3 = 83 %
5. **Removal and Cleanup Costs** for appraised plant or plant that will be replaced = $ —

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

6. **Species** rating 70 %
7. **Replacement Plant Size** (diameter) 5.5 in./cm
8. **Replacement Plant Cost** = $ 2400
9. **Installation Cost** = $ 2400
10. Other Regional Information ____

Calculations by Appraiser Using Field and/or Regional Information

11. **Installed Plant Cost** = **Plant Cost** (#8) $ 2400 + **Installation Cost** (#9) $ 2400 = $ 4800
12. **Adjusted Installed Plant Cost** = **Installed Plant Cost** (#11) $ 4800 × **Species** rating (#6) 70 % × **Condition** (#2) 70 % × **Location** (#4) 83 % = $ 1952.
13. Add **Removal and Cleanup Costs** (#5) (if appraised plant is replaced). $ ____ = $ —
14. The **Appraised Value** is either #12 or #13. = $ 1952.
15. If the **Appraised Value** (#14) is $5,000 or more, round it to the nearest $100; if it is less, round to nearest $10.
16. **Appraised Value** (#14) = $ 1,950.

---

*A median cost is the most appropriate cost to use because there are an equal number of costs greater than and less than the median. Equally important, plants and installation are available at those specific costs.

Replacement Cost Method Worksheet

Appraised Value =

[Installed Plant Cost × Species % × Condition % × Location %] + Removal and Cleanup Cost (if needed)

Installed Plant Cost = Replacement Plant Cost + Installation Cost

~~Tree~~ Case # 273 Property BRIDLEPATH PK Date 11-6-20

Appraiser KN

Field Observations

1. **Species** Pyrus kawakamii
2. **Condition** 60 %
3. **Trunk Circumference** ____ in./cm and/or **Diameter** 4 in./cm or **Shrub** or **Vine Size** (height/spread/volume) ____
4. **Location** % = [**Site** 90% + **Contribution** 80% + **Placement** 80%] ÷ 3 = 83%
5. **Removal and Cleanup Costs** for appraised plant or plant that will be replaced = $ —

Regional Plant Appraisal Committee and/or Appraiser-Developed or -Modified Information

6. **Species** rating 70 %
7. **Replacement Plant Size** (diameter) 4 in./cm
8. **Replacement Plant Cost** = $ 900
9. **Installation Cost** = $ 900
10. Other Regional Information ____

Calculations by Appraiser Using Field and/or Regional Information

11. **Installed Plant Cost = Plant Cost** (#8) $ 900 + **Installation Cost** (#9) $ 900 = $ 1800
12. **Adjusted Installed Plant Cost = Installed Plant Cost** (#11) $ 1800 × **Species** rating (#6) 70 % × **Condition** (#2) 60 % × **Location** (#4) 83 % = $ 627.—
13. Add **Removal and Cleanup Costs** (#5) (if appraised plant is replaced). $ ____ = $ —
14. The **Appraised Value** is either #12 or #13. = $ 627.—
15. If the **Appraised Value** (#14) is $5,000 or more, round it to the nearest $100; if it is less, round to nearest $10.
16. **Appraised Value** (#14) = $ 630.—

*A median cost is the most appropriate cost to use because there are an equal number of costs greater than and less than the median. Equally important, plants and installation are available at those specific costs.

Appendix C

Cultural Resources Assessment (CONFIDENTIAL)

** This document contains sensitive and confidential information concerning archaeological sites. Archaeological site locations are exempt from the California Public Records Act, as specified in Government Code 6254.10 and from the Freedom of Information Act (Exemption 3) under the legal authority of both the National Historic Preservation Act (PL 102-574, Section 304[a]) and the Archaeological Resources Protection Act (PL 96-95, Section 9[a]).*

Appendix D

Energy Calculations

S Wells PFAS Groundwater Treatment and Disinfection Facility Project

Last Updated: September 8, 2022

Compression-Ignition Engine Brake-Specific Fuel Consumption (BSFC) Factors **[1]**:

HP: 0 to 100	0.0588	HP: Greater than 100	0.0529

Values above are expressed in gallons per horsepower-hour/BSFC.

CONSTRUCTION EQUIPMENT

Construction Equipment	#	Hours per Day	Horsepower	Load Factor	Construction Phase	Fuel Used (gallons)
Bore/Drill Rigs	1	8	221	0.5	Site Preparation	2,056
Excavators	1	8	158	0.38	Site Preparation	1,117
Rubber Tired Dozers	1	8	247	0.4	Site Preparation	1,838
Tractors/Loaders/Backhoes	2	7	97	0.37	Site Preparation	1,299
Excavators	1	8	158	0.38	Grading	508
Plate Compactors	1	8	8	0.43	Grading	32
Rubber Tired Dozers	1	8	247	0.4	Grading	836
Tractors/Loaders/Backhoes	2	7	97	0.37	Grading	591
Bore/Drill Rigs	1	8	221	0.5	Equipment Installation	10,280
Cement and Mortar Mixers	2	8	9	0.56	Equipment Installation	1,043
Cranes	1	8	231	0.29	Equipment Installation	6,232
Forklifts	1	7	89	0.2	Equipment Installation	1,611
Skid Steer Loaders	1	8	65	0.37	Equipment Installation	2,487
Tractors/Loaders/Backhoes	1	6	97	0.37	Equipment Installation	2,784
Bore/Drill Rigs	1	24	221	0.5	Well Drilling	30,840
Generator Sets	1	24	84	0.74	Well Drilling	19,287
Cement and Mortar Mixers	1	8	9	0.56	Paving	47
Forklifts	1	8	89	0.2	Paving	167
Tractors/Loaders/Backhoes	1	8	97	0.37	Paving	337
Forklifts	1	8	89	0.2	Site Restoration	368
Skid Steer Loaders	1	8	65	0.37	Site Restoration	497
Tractors/Loaders/Backhoes	1	7	97	0.37	Site Restoration	650
					Total Fuel Used	**84,908**
						(Gallons)

Construction Phase	Days of Operation
Site Preparation	44
Grading	20
Equipment Installation	220
Well Drilling	43
Paving	20
Site Restoration	44
Total Days	391

WORKER TRIPS

Constuction Phase	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
Site Preparation	24.1	20	14.7	536.76
Grading	24.1	20	14.7	243.98
Equipment Installation	24.1	40	14.7	5367.63
Well Drilling	24.1	20	14.7	524.56
Paving	24.1	20	14.7	243.98
Site Restoration	24.1	20	14.7	536.76
			Fuel	**7,453.69**

HAULING AND VENDOR TRIPS

Trip Class	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
HAULING TRIPS				
Site Preparation	7.5	0	20.0	0.00
Grading	7.5	1300	6.8	1178.67
Equipment Installation	7.5	0	20.0	0.00
Well Drilling	7.5	0	20.0	0.00
Paving	7.5	0	20.0	0.00
Site Restoration	7.5	0	20.0	0.00
			Fuel	**1,178.67**
VENDOR TRIPS				
Site Preparation	7.5	0	6.9	0.00
Grading	7.5	0	6.9	0.00
Equipment Installation	7.5	21	6.9	4250.40
Well Drilling	7.5	21	6.9	830.76
Paving	7.5	0	6.9	0.00
Site Restoration	7.5	0	3.9	0.00
			Fuel	**5,081.16**

Total Gasoline Consumption (gallons)	**7,454**
Total Diesel Consumption (gallons)	**91,168**

Sources:

[1] United States Environmental Protection Agency. 2021. *Exhaust and Crankcase Emission Factors for Nonroad Compression-Ignition Engines in MOVES3.0.2* . September. Available at: https://www.epa.gov/system/files/documents/2021-08/420r21021.pdf.

[2] United States Department of Transportation, Bureau of Transportation Statistics. 2021. *National Transportation Statistics* . Available at: https://www.bts.gov/topics/national-transportation-statistics.

S Wells PFAS Groundwater Treatment and Disinfection Facility Project

Last Updated: September 8, 2022

Populate one of the following tables (Leave the other blank):

Annual VMT		OR	Daily Vehicle Trips	
Annual VMT:	12,792		Daily Vehicle Trips:	
			Average Trip Distance:	

Fleet Class	Fleet Mix
Light Duty Auto (LDA)	0.000000
Light Duty Truck 1 (LDT1)	0.000000
Light Duty Truck 2 (LDT2)	0.964333
Medium Duty Vehicle (MDV)	0.000000
Light Heavy Duty 1 (LHD1)	0.000000
Light Heavy Duty 2 (LHD2)	0.000000
Medium Heavy Duty (MHD)	0.031704
Heavy Heavy Duty (HHD)	0.003963
Other Bus (OBUS)	0.000000
Urban Bus (UBUS)	0.000000
Motorcycle (MCY)	0.000000
School Bus (SBUS)	0.000000
Motorhome (MH)	0.000000

Fuel Economy (MPG) [1]	
Passenger Vehicles	24.4
Light-Med Duty Trucks	17.9
Heavy Trucks/Other	7.5
Motorcycles	44

Fleet Mix

Vehicle Type	Percent	Fuel Type	Annual VMT: VMT	Vehicle Trips: VMT	Fuel Consumption (Gallons)
Passenger Vehicles	*0.00%*	*Gasoline*	0	0.00	0.00
Light-Medium Duty Trucks	*96.43%*	*Gasoline*	12336	0.00	689.15
Heavy Trucks/Other	*3.57%*	*Diesel*	456	0.00	60.83
Motorcycle	*0.00%*	*Gasoline*	0	0.00	0.00

Total Gasoline Consumption (gallons)	**689.15**
Total Diesel Consumption (gallons)	**60.83**

Sources:

[1] United States Department of Transportation, Bureau of Transportation Statistics. 2019. National Transportation Statistics 2019. Available at: https://www.bts.gov/topics/national-transportation-statistics.

Appendix E

Noise and Vibration Modeling

Noise Measurement 1

Data Logger 2		
Duration (seconds)		3
Weighting	A	
Response	SLOW	
Range	40-100	
L05		64.7
L10		60.5
L50		51.6
L90		46
L95		44.5
Lmax		76
Time	2/23/2022	8:28
SEL		88.2
Leq		**58.5**

No.s	Date Time	Time	dB	Sound Energy
1	2/23/2022 8:25	8:25 AM	54.6	865209.4509
2	2/23/2022 8:25	8:25 AM	66.1	12221408.33
3	2/23/2022 8:25	8:25 AM	57.5	1687023.976
4	2/23/2022 8:25	8:25 AM	59	2382984.704
5	2/23/2022 8:25	8:25 AM	66.5	13400507.76
6	2/23/2022 8:25	8:25 AM	57.5	1687023.976
7	2/23/2022 8:25	8:25 AM	51.2	395477.0216
8	2/23/2022 8:25	8:25 AM	52.9	584953.3799
9	2/23/2022 8:25	8:25 AM	49.5	267375.2814
10	2/23/2022 8:25	8:25 AM	50.2	314138.5644
11	2/23/2022 8:25	8:25 AM	49.6	273603.2518
12	2/23/2022 8:25	8:25 AM	49.4	261289.077
13	2/23/2022 8:25	8:25 AM	49.8	286497.7758
14	2/23/2022 8:25	8:25 AM	49.9	293171.1663
15	2/23/2022 8:25	8:25 AM	49.9	293171.1663
16	2/23/2022 8:25	8:25 AM	49.3	255341.4115
17	2/23/2022 8:25	8:25 AM	49.9	293171.1663
18	2/23/2022 8:26	8:26 AM	49.6	273603.2518
19	2/23/2022 8:26	8:26 AM	48.1	193696.2687
20	2/23/2022 8:26	8:26 AM	46.8	143589.0277
21	2/23/2022 8:26	8:26 AM	45.8	114056.8189
22	2/23/2022 8:26	8:26 AM	45.2	99339.33644
23	2/23/2022 8:26	8:26 AM	45.2	99339.33644
24	2/23/2022 8:26	8:26 AM	44.1	77111.87348
25	2/23/2022 8:26	8:26 AM	44.7	88536.2768
26	2/23/2022 8:26	8:26 AM	43.5	67161.63416
27	2/23/2022 8:26	8:26 AM	43.4	65632.84872
28	2/23/2022 8:26	8:26 AM	43	59857.86945

29	2/23/2022 8:26	8:26 AM	43	59857.86945
30	2/23/2022 8:26	8:26 AM	43.4	65632.84872
31	2/23/2022 8:26	8:26 AM	43.4	65632.84872
32	2/23/2022 8:26	8:26 AM	43.8	71964.98757
33	2/23/2022 8:26	8:26 AM	44.4	82626.8611
34	2/23/2022 8:26	8:26 AM	44.8	90598.55161
35	2/23/2022 8:26	8:26 AM	45.9	116713.5435
36	2/23/2022 8:26	8:26 AM	47.1	153858.4152
37	2/23/2022 8:26	8:26 AM	61.1	3864748.655
38	2/23/2022 8:27	8:27 AM	66.6	13712645.69
39	2/23/2022 8:27	8:27 AM	62.1	4865430.292
40	2/23/2022 8:27	8:27 AM	70.2	31413856.44
41	2/23/2022 8:27	8:27 AM	60.4	3289434.588
42	2/23/2022 8:27	8:27 AM	52.2	497876.0722
43	2/23/2022 8:27	8:27 AM	49.2	249529.1313
44	2/23/2022 8:27	8:27 AM	48.5	212383.7353
45	2/23/2022 8:27	8:27 AM	46.6	137126.4569
46	2/23/2022 8:27	8:27 AM	48.7	222393.0724
47	2/23/2022 8:27	8:27 AM	48	189287.2033
48	2/23/2022 8:27	8:27 AM	46.5	134005.0776
49	2/23/2022 8:27	8:27 AM	46.5	134005.0776
50	2/23/2022 8:27	8:27 AM	47.4	164862.2622
51	2/23/2022 8:27	8:27 AM	47.2	157442.2381
52	2/23/2022 8:27	8:27 AM	47.3	161109.5389
53	2/23/2022 8:27	8:27 AM	47.5	168702.3976
54	2/23/2022 8:27	8:27 AM	47.5	168702.3976
55	2/23/2022 8:27	8:27 AM	47.4	164862.2622
56	2/23/2022 8:27	8:27 AM	48.2	198208.0344
57	2/23/2022 8:27	8:27 AM	48.7	222393.0724
58	2/23/2022 8:28	8:28 AM	49.5	267375.2814
59	2/23/2022 8:28	8:28 AM	49.1	243849.1548
60	2/23/2022 8:28	8:28 AM	48.8	227573.2725
61	2/23/2022 8:28	8:28 AM	48.4	207549.2913
62	2/23/2022 8:28	8:28 AM	48.4	207549.2913
63	2/23/2022 8:28	8:28 AM	48.1	193696.2687
64	2/23/2022 8:28	8:28 AM	47.1	153858.4152
65	2/23/2022 8:28	8:28 AM	45.8	114056.8189
66	2/23/2022 8:28	8:28 AM	44.5	84551.48794
67	2/23/2022 8:28	8:28 AM	44.5	84551.48794
68	2/23/2022 8:28	8:28 AM	45.2	99339.33644
69	2/23/2022 8:28	8:28 AM	46.1	122214.0833
70	2/23/2022 8:28	8:28 AM	56.1	1222140.833
71	2/23/2022 8:28	8:28 AM	71.2	39547702.16
72	2/23/2022 8:28	8:28 AM	71.8	45406837.45
73	2/23/2022 8:28	8:28 AM	63.2	6267888.393
74	2/23/2022 8:28	8:28 AM	58.7	2223930.724
75	2/23/2022 8:28	8:28 AM	56	1194321.512

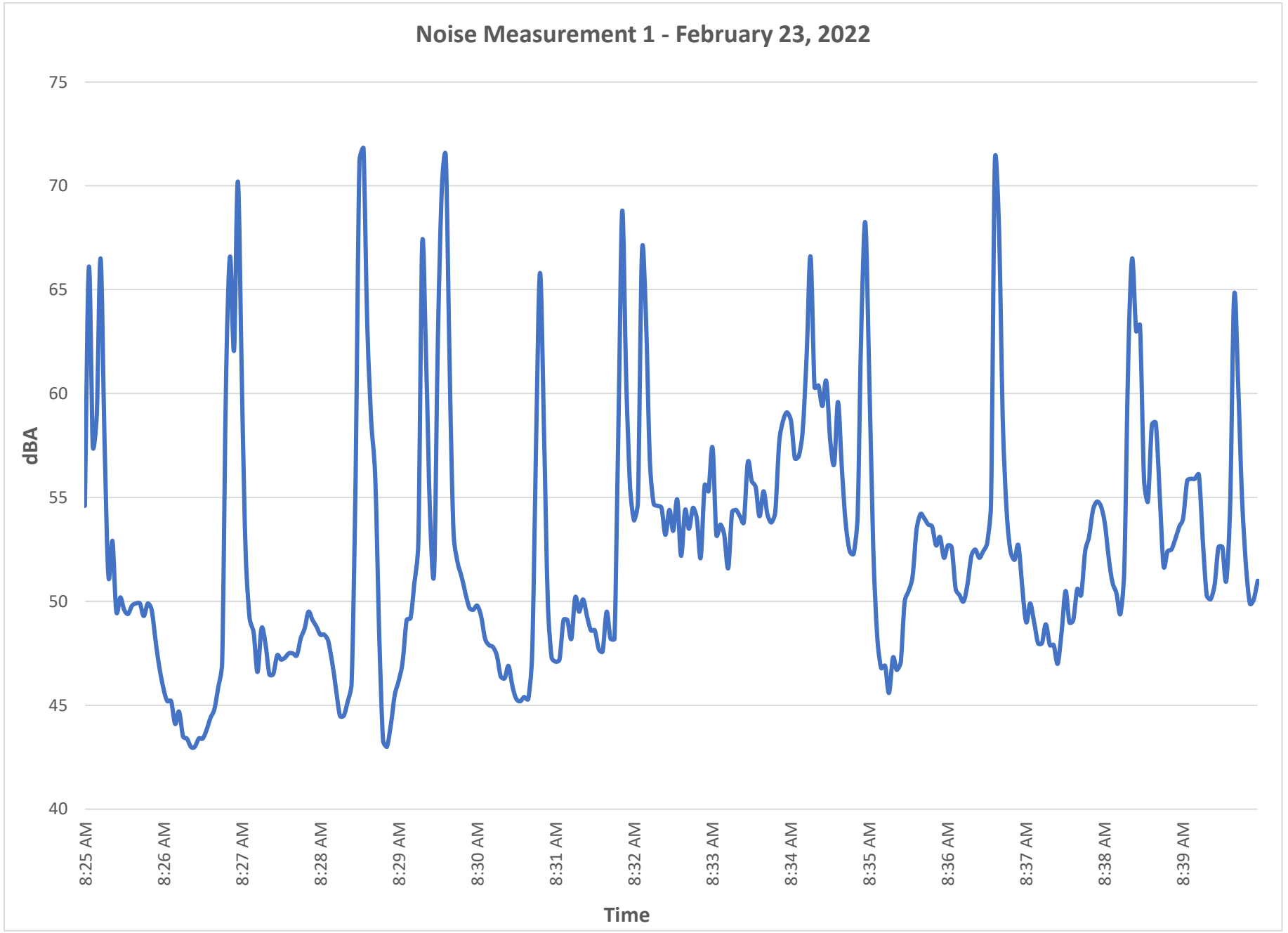
76	2/23/2022 8:28	8:28 AM	48.7	222393.0724
77	2/23/2022 8:28	8:28 AM	43.3	64138.86269
78	2/23/2022 8:29	8:29 AM	43	59857.86945
79	2/23/2022 8:29	8:29 AM	44.1	77111.87348
80	2/23/2022 8:29	8:29 AM	45.5	106444.0168
81	2/23/2022 8:29	8:29 AM	46.2	125060.815
82	2/23/2022 8:29	8:29 AM	47.1	153858.4152
83	2/23/2022 8:29	8:29 AM	49.1	243849.1548
84	2/23/2022 8:29	8:29 AM	49.2	249529.1313
85	2/23/2022 8:29	8:29 AM	50.9	369080.6312
86	2/23/2022 8:29	8:29 AM	52.9	584953.3799
87	2/23/2022 8:29	8:29 AM	67.2	15744223.81
88	2/23/2022 8:29	8:29 AM	61.4	4141152.794
89	2/23/2022 8:29	8:29 AM	54.2	789080.3976
90	2/23/2022 8:29	8:29 AM	51.4	414115.2794
91	2/23/2022 8:29	8:29 AM	62.7	5586261.41
92	2/23/2022 8:29	8:29 AM	70	30000000
93	2/23/2022 8:29	8:29 AM	71.4	41411527.94
94	2/23/2022 8:29	8:29 AM	60.9	3690806.312
95	2/23/2022 8:29	8:29 AM	53.2	626788.8393
96	2/23/2022 8:29	8:29 AM	51.9	464644.9857
97	2/23/2022 8:29	8:29 AM	51.2	395477.0216
98	2/23/2022 8:30	8:30 AM	50.4	328943.4588
99	2/23/2022 8:30	8:30 AM	49.7	279976.2902
100	2/23/2022 8:30	8:30 AM	49.6	273603.2518
101	2/23/2022 8:30	8:30 AM	49.8	286497.7758
102	2/23/2022 8:30	8:30 AM	49.3	255341.4115
103	2/23/2022 8:30	8:30 AM	48.2	198208.0344
104	2/23/2022 8:30	8:30 AM	47.9	184978.5006
105	2/23/2022 8:30	8:30 AM	47.8	180767.8758
106	2/23/2022 8:30	8:30 AM	47.4	164862.2622
107	2/23/2022 8:30	8:30 AM	46.4	130954.7497
108	2/23/2022 8:30	8:30 AM	46.3	127973.8556
109	2/23/2022 8:30	8:30 AM	46.9	146933.6458
110	2/23/2022 8:30	8:30 AM	45.9	116713.5435
111	2/23/2022 8:30	8:30 AM	45.3	101653.2468
112	2/23/2022 8:30	8:30 AM	45.2	99339.33644
113	2/23/2022 8:30	8:30 AM	45.4	104021.0551
114	2/23/2022 8:30	8:30 AM	45.3	101653.2468
115	2/23/2022 8:30	8:30 AM	47.4	164862.2622
116	2/23/2022 8:30	8:30 AM	57.2	1574422.381
117	2/23/2022 8:30	8:30 AM	65.8	11405681.89
118	2/23/2022 8:31	8:31 AM	58.7	2223930.724
119	2/23/2022 8:31	8:31 AM	50	300000
120	2/23/2022 8:31	8:31 AM	47.3	161109.5389
121	2/23/2022 8:31	8:31 AM	47.1	153858.4152
122	2/23/2022 8:31	8:31 AM	47.2	157442.2381

123	2/23/2022 8:31	8:31 AM	49.1	243849.1548
124	2/23/2022 8:31	8:31 AM	49.1	243849.1548
125	2/23/2022 8:31	8:31 AM	48.2	198208.0344
126	2/23/2022 8:31	8:31 AM	50.2	314138.5644
127	2/23/2022 8:31	8:31 AM	49.5	267375.2814
128	2/23/2022 8:31	8:31 AM	50.1	306987.8977
129	2/23/2022 8:31	8:31 AM	49.3	255341.4115
130	2/23/2022 8:31	8:31 AM	48.6	217330.788
131	2/23/2022 8:31	8:31 AM	48.6	217330.788
132	2/23/2022 8:31	8:31 AM	47.7	176653.0966
133	2/23/2022 8:31	8:31 AM	47.6	172631.9812
134	2/23/2022 8:31	8:31 AM	49.5	267375.2814
135	2/23/2022 8:31	8:31 AM	48.2	198208.0344
136	2/23/2022 8:31	8:31 AM	48.2	198208.0344
137	2/23/2022 8:31	8:31 AM	58.3	2028248.926
138	2/23/2022 8:32	8:32 AM	68.8	22757327.25
139	2/23/2022 8:32	8:32 AM	60.6	3444460.864
140	2/23/2022 8:32	8:32 AM	55.5	1064440.168
141	2/23/2022 8:32	8:32 AM	53.9	736412.6747
142	2/23/2022 8:32	8:32 AM	54.8	905985.5161
143	2/23/2022 8:32	8:32 AM	66.8	14358902.77
144	2/23/2022 8:32	8:32 AM	63.9	7364126.747
145	2/23/2022 8:32	8:32 AM	56.8	1435890.277
146	2/23/2022 8:32	8:32 AM	54.7	885362.768
147	2/23/2022 8:32	8:32 AM	54.6	865209.4509
148	2/23/2022 8:32	8:32 AM	54.5	845514.8794
149	2/23/2022 8:32	8:32 AM	53.2	626788.8393
150	2/23/2022 8:32	8:32 AM	54.4	826268.611
151	2/23/2022 8:32	8:32 AM	53.4	656328.4872
152	2/23/2022 8:32	8:32 AM	54.9	927088.6298
153	2/23/2022 8:32	8:32 AM	52.2	497876.0722
154	2/23/2022 8:32	8:32 AM	54.4	826268.611
155	2/23/2022 8:32	8:32 AM	53.5	671616.3416
156	2/23/2022 8:32	8:32 AM	54.5	845514.8794
157	2/23/2022 8:32	8:32 AM	54	753565.9295
158	2/23/2022 8:33	8:33 AM	52.1	486543.0292
159	2/23/2022 8:33	8:33 AM	55.6	1089234.164
160	2/23/2022 8:33	8:33 AM	55.3	1016532.468
161	2/23/2022 8:33	8:33 AM	57.4	1648622.622
162	2/23/2022 8:33	8:33 AM	53.2	626788.8393
163	2/23/2022 8:33	8:33 AM	53.7	703268.6446
164	2/23/2022 8:33	8:33 AM	53.2	626788.8393
165	2/23/2022 8:33	8:33 AM	51.6	433631.9312
166	2/23/2022 8:33	8:33 AM	54.3	807460.4412
167	2/23/2022 8:33	8:33 AM	54.4	826268.611
168	2/23/2022 8:33	8:33 AM	54.1	771118.7348
169	2/23/2022 8:33	8:33 AM	53.8	719649.8757

170	2/23/2022 8:33	8:33 AM	56.7	1403205.424
171	2/23/2022 8:33	8:33 AM	55.8	1140568.189
172	2/23/2022 8:33	8:33 AM	55.5	1064440.168
173	2/23/2022 8:33	8:33 AM	54.1	771118.7348
174	2/23/2022 8:33	8:33 AM	55.3	1016532.468
175	2/23/2022 8:33	8:33 AM	54.2	789080.3976
176	2/23/2022 8:33	8:33 AM	53.8	719649.8757
177	2/23/2022 8:33	8:33 AM	54.3	807460.4412
178	2/23/2022 8:34	8:34 AM	57.7	1766530.966
179	2/23/2022 8:34	8:34 AM	58.7	2223930.724
180	2/23/2022 8:34	8:34 AM	59.1	2438491.548
181	2/23/2022 8:34	8:34 AM	58.7	2223930.724
182	2/23/2022 8:34	8:34 AM	56.9	1469336.458
183	2/23/2022 8:34	8:34 AM	57	1503561.701
184	2/23/2022 8:34	8:34 AM	58.2	1982080.344
185	2/23/2022 8:34	8:34 AM	61.9	4646449.857
186	2/23/2022 8:34	8:34 AM	66.6	13712645.69
187	2/23/2022 8:34	8:34 AM	60.3	3214557.916
188	2/23/2022 8:34	8:34 AM	60.4	3289434.588
189	2/23/2022 8:34	8:34 AM	59.4	2612890.77
190	2/23/2022 8:34	8:34 AM	60.6	3444460.864
191	2/23/2022 8:34	8:34 AM	57.8	1807678.758
192	2/23/2022 8:34	8:34 AM	56.6	1371264.569
193	2/23/2022 8:34	8:34 AM	59.6	2736032.518
194	2/23/2022 8:34	8:34 AM	56.3	1279738.556
195	2/23/2022 8:34	8:34 AM	53.7	703268.6446
196	2/23/2022 8:34	8:34 AM	52.4	521340.2486
197	2/23/2022 8:34	8:34 AM	52.3	509473.0957
198	2/23/2022 8:35	8:35 AM	54.2	789080.3976
199	2/23/2022 8:35	8:35 AM	63.6	6872602.958
200	2/23/2022 8:35	8:35 AM	68.2	19820803.44
201	2/23/2022 8:35	8:35 AM	60.5	3366055.363
202	2/23/2022 8:35	8:35 AM	52.6	545910.2576
203	2/23/2022 8:35	8:35 AM	48.3	202824.8926
204	2/23/2022 8:35	8:35 AM	46.8	143589.0277
205	2/23/2022 8:35	8:35 AM	46.9	146933.6458
206	2/23/2022 8:35	8:35 AM	45.6	108923.4164
207	2/23/2022 8:35	8:35 AM	47.3	161109.5389
208	2/23/2022 8:35	8:35 AM	46.7	140320.5424
209	2/23/2022 8:35	8:35 AM	47.1	153858.4152
210	2/23/2022 8:35	8:35 AM	50	300000
211	2/23/2022 8:35	8:35 AM	50.5	336605.5363
212	2/23/2022 8:35	8:35 AM	51.2	395477.0216
213	2/23/2022 8:35	8:35 AM	53.4	656328.4872
214	2/23/2022 8:35	8:35 AM	54.2	789080.3976
215	2/23/2022 8:35	8:35 AM	54	753565.9295
216	2/23/2022 8:35	8:35 AM	53.7	703268.6446

217	2/23/2022 8:35	8:35 AM	53.6	687260.2958
218	2/23/2022 8:36	8:36 AM	52.7	558626.141
219	2/23/2022 8:36	8:36 AM	53.1	612521.3834
220	2/23/2022 8:36	8:36 AM	52.1	486543.0292
221	2/23/2022 8:36	8:36 AM	52.7	558626.141
222	2/23/2022 8:36	8:36 AM	52.6	545910.2576
223	2/23/2022 8:36	8:36 AM	50.6	344446.0864
224	2/23/2022 8:36	8:36 AM	50.3	321455.7916
225	2/23/2022 8:36	8:36 AM	50	300000
226	2/23/2022 8:36	8:36 AM	50.8	360679.3304
227	2/23/2022 8:36	8:36 AM	52.2	497876.0722
228	2/23/2022 8:36	8:36 AM	52.5	533483.823
229	2/23/2022 8:36	8:36 AM	52.1	486543.0292
230	2/23/2022 8:36	8:36 AM	52.4	521340.2486
231	2/23/2022 8:36	8:36 AM	52.8	571638.2154
232	2/23/2022 8:36	8:36 AM	54.7	885362.768
233	2/23/2022 8:36	8:36 AM	71.1	38647486.55
234	2/23/2022 8:36	8:36 AM	68.2	19820803.44
235	2/23/2022 8:36	8:36 AM	58.9	2328741.35
236	2/23/2022 8:36	8:36 AM	54.3	807460.4412
237	2/23/2022 8:36	8:36 AM	52.4	521340.2486
238	2/23/2022 8:37	8:37 AM	52	475467.9577
239	2/23/2022 8:37	8:37 AM	52.7	558626.141
240	2/23/2022 8:37	8:37 AM	50.6	344446.0864
241	2/23/2022 8:37	8:37 AM	49	238298.4704
242	2/23/2022 8:37	8:37 AM	49.9	293171.1663
243	2/23/2022 8:37	8:37 AM	49	238298.4704
244	2/23/2022 8:37	8:37 AM	48	189287.2033
245	2/23/2022 8:37	8:37 AM	48	189287.2033
246	2/23/2022 8:37	8:37 AM	48.9	232874.135
247	2/23/2022 8:37	8:37 AM	47.9	184978.5006
248	2/23/2022 8:37	8:37 AM	47.9	184978.5006
249	2/23/2022 8:37	8:37 AM	47	150356.1701
250	2/23/2022 8:37	8:37 AM	48.5	212383.7353
251	2/23/2022 8:37	8:37 AM	50.5	336605.5363
252	2/23/2022 8:37	8:37 AM	49	238298.4704
253	2/23/2022 8:37	8:37 AM	49.1	243849.1548
254	2/23/2022 8:37	8:37 AM	50.6	344446.0864
255	2/23/2022 8:37	8:37 AM	50.3	321455.7916
256	2/23/2022 8:37	8:37 AM	52.4	521340.2486
257	2/23/2022 8:37	8:37 AM	53.1	612521.3834
258	2/23/2022 8:38	8:38 AM	54.4	826268.611
259	2/23/2022 8:38	8:38 AM	54.8	905985.5161
260	2/23/2022 8:38	8:38 AM	54.6	865209.4509
261	2/23/2022 8:38	8:38 AM	53.8	719649.8757
262	2/23/2022 8:38	8:38 AM	52.1	486543.0292
263	2/23/2022 8:38	8:38 AM	50.9	369080.6312

264	2/23/2022 8:38	8:38 AM	50.4	328943.4588
265	2/23/2022 8:38	8:38 AM	49.4	261289.077
266	2/23/2022 8:38	8:38 AM	51.5	423761.2634
267	2/23/2022 8:38	8:38 AM	61.7	4437325.165
268	2/23/2022 8:38	8:38 AM	66.5	13400507.76
269	2/23/2022 8:38	8:38 AM	63	5985786.945
270	2/23/2022 8:38	8:38 AM	63.3	6413886.269
271	2/23/2022 8:38	8:38 AM	55.9	1167135.435
272	2/23/2022 8:38	8:38 AM	54.8	905985.5161
273	2/23/2022 8:38	8:38 AM	58.5	2123837.353
274	2/23/2022 8:38	8:38 AM	58.6	2173307.88
275	2/23/2022 8:38	8:38 AM	55.3	1016532.468
276	2/23/2022 8:38	8:38 AM	51.7	443732.5165
277	2/23/2022 8:38	8:38 AM	52.4	521340.2486
278	2/23/2022 8:39	8:39 AM	52.5	533483.823
279	2/23/2022 8:39	8:39 AM	53	598578.6945
280	2/23/2022 8:39	8:39 AM	53.6	687260.2958
281	2/23/2022 8:39	8:39 AM	54	753565.9295
282	2/23/2022 8:39	8:39 AM	55.8	1140568.189
283	2/23/2022 8:39	8:39 AM	55.9	1167135.435
284	2/23/2022 8:39	8:39 AM	55.9	1167135.435
285	2/23/2022 8:39	8:39 AM	56.1	1222140.833
286	2/23/2022 8:39	8:39 AM	53	598578.6945
287	2/23/2022 8:39	8:39 AM	50.3	321455.7916
288	2/23/2022 8:39	8:39 AM	50.1	306987.8977
289	2/23/2022 8:39	8:39 AM	50.8	360679.3304
290	2/23/2022 8:39	8:39 AM	52.6	545910.2576
291	2/23/2022 8:39	8:39 AM	52.6	545910.2576
292	2/23/2022 8:39	8:39 AM	51	377677.6235
293	2/23/2022 8:39	8:39 AM	54.9	927088.6298
294	2/23/2022 8:39	8:39 AM	64.7	8853627.68
295	2/23/2022 8:39	8:39 AM	60.7	3524692.665
296	2/23/2022 8:39	8:39 AM	55	948683.2981
297	2/23/2022 8:39	8:39 AM	51.8	454068.3745
298	2/23/2022 8:40	8:40 AM	49.9	293171.1663
299	2/23/2022 8:40	8:40 AM	50.1	306987.8977
300	2/23/2022 8:40	8:40 AM	51	377677.6235


Noise Measurement 1 - February 23, 2022
75
70
65
60
55
50
45
40
dBA
8:25 AM
8:26 AM
8:27 AM
8:28 AM
8:29 AM
8:30 AM
8:31 AM
8:32 AM
8:33 AM
8:34 AM
8:35 AM
8:36 AM
8:37 AM
8:38 AM
8:39 AM
Time

Noise Measurement 2

Data Logger 2		
Duration (seconds)		3
Weighting	A	
Response	SLOW	
Range	40-100	
L05		62.5
L10		58.7
L50		54.7
L90		50.9
L95		49.7
Lmax		71.9
Time	2/23/2022	9:17
SEL		87.4
Leq		**58.0**

No.s	Date Time	Time	dB	Sound Energy
1	2/23/2022 9:15	9:15 AM	52.6	545910.2576
2	2/23/2022 9:15	9:15 AM	53.8	719649.8757
3	2/23/2022 9:15	9:15 AM	54.9	927088.6298
4	2/23/2022 9:15	9:15 AM	54	753565.9295
5	2/23/2022 9:15	9:15 AM	53.5	671616.3416
6	2/23/2022 9:15	9:15 AM	54.7	885362.768
7	2/23/2022 9:15	9:15 AM	52.6	545910.2576
8	2/23/2022 9:15	9:15 AM	51.3	404688.8648
9	2/23/2022 9:15	9:15 AM	50.5	336605.5363
10	2/23/2022 9:15	9:15 AM	48.3	202824.8926
11	2/23/2022 9:15	9:15 AM	51	377677.6235
12	2/23/2022 9:15	9:15 AM	53.2	626788.8393
13	2/23/2022 9:15	9:15 AM	52.6	545910.2576
14	2/23/2022 9:15	9:15 AM	50.5	336605.5363
15	2/23/2022 9:16	9:16 AM	49.8	286497.7758
16	2/23/2022 9:16	9:16 AM	50.8	360679.3304
17	2/23/2022 9:16	9:16 AM	50.7	352469.2665
18	2/23/2022 9:16	9:16 AM	51.6	433631.9312
19	2/23/2022 9:16	9:16 AM	56.5	1340050.776
20	2/23/2022 9:16	9:16 AM	59.9	2931711.663
21	2/23/2022 9:16	9:16 AM	70.1	30698789.77
22	2/23/2022 9:16	9:16 AM	61.6	4336319.312
23	2/23/2022 9:16	9:16 AM	53.4	656328.4872
24	2/23/2022 9:16	9:16 AM	51.7	443732.5165
25	2/23/2022 9:16	9:16 AM	51.9	464644.9857
26	2/23/2022 9:16	9:16 AM	51.5	423761.2634
27	2/23/2022 9:16	9:16 AM	53	598578.6945
28	2/23/2022 9:16	9:16 AM	54.2	789080.3976

29	2/23/2022 9:16	9:16 AM	51.5	423761.2634
30	2/23/2022 9:16	9:16 AM	54.5	845514.8794
31	2/23/2022 9:16	9:16 AM	53.5	671616.3416
32	2/23/2022 9:16	9:16 AM	53.1	612521.3834
33	2/23/2022 9:16	9:16 AM	51.8	454068.3745
34	2/23/2022 9:16	9:16 AM	52.2	497876.0722
35	2/23/2022 9:17	9:17 AM	52.7	558626.141
36	2/23/2022 9:17	9:17 AM	52.9	584953.3799
37	2/23/2022 9:17	9:17 AM	53.3	641388.6269
38	2/23/2022 9:17	9:17 AM	53.4	656328.4872
39	2/23/2022 9:17	9:17 AM	60.5	3366055.363
40	2/23/2022 9:17	9:17 AM	71.6	43363193.12
41	2/23/2022 9:17	9:17 AM	64.7	8853627.68
42	2/23/2022 9:17	9:17 AM	57.3	1611095.389
43	2/23/2022 9:17	9:17 AM	57.5	1687023.976
44	2/23/2022 9:17	9:17 AM	55	948683.2981
45	2/23/2022 9:17	9:17 AM	56.8	1435890.277
46	2/23/2022 9:17	9:17 AM	54.4	826268.611
47	2/23/2022 9:17	9:17 AM	54.3	807460.4412
48	2/23/2022 9:17	9:17 AM	53.8	719649.8757
49	2/23/2022 9:17	9:17 AM	53	598578.6945
50	2/23/2022 9:17	9:17 AM	53.9	736412.6747
51	2/23/2022 9:17	9:17 AM	53.4	656328.4872
52	2/23/2022 9:17	9:17 AM	53.4	656328.4872
53	2/23/2022 9:17	9:17 AM	51.9	464644.9857
54	2/23/2022 9:17	9:17 AM	53.9	736412.6747
55	2/23/2022 9:18	9:18 AM	51.1	386474.8655
56	2/23/2022 9:18	9:18 AM	48.8	227573.2725
57	2/23/2022 9:18	9:18 AM	51.1	386474.8655
58	2/23/2022 9:18	9:18 AM	49.7	279976.2902
59	2/23/2022 9:18	9:18 AM	50.1	306987.8977
60	2/23/2022 9:18	9:18 AM	48.9	232874.135
61	2/23/2022 9:18	9:18 AM	49.3	255341.4115
62	2/23/2022 9:18	9:18 AM	50.4	328943.4588
63	2/23/2022 9:18	9:18 AM	49.3	255341.4115
64	2/23/2022 9:18	9:18 AM	49.3	255341.4115
65	2/23/2022 9:18	9:18 AM	50	300000
66	2/23/2022 9:18	9:18 AM	51.1	386474.8655
67	2/23/2022 9:18	9:18 AM	51.7	443732.5165
68	2/23/2022 9:18	9:18 AM	52.6	545910.2576
69	2/23/2022 9:18	9:18 AM	52.2	497876.0722
70	2/23/2022 9:18	9:18 AM	53.5	671616.3416
71	2/23/2022 9:18	9:18 AM	53.2	626788.8393
72	2/23/2022 9:18	9:18 AM	54.4	826268.611
73	2/23/2022 9:18	9:18 AM	54.7	885362.768
74	2/23/2022 9:18	9:18 AM	55.9	1167135.435
75	2/23/2022 9:19	9:19 AM	54.8	905985.5161

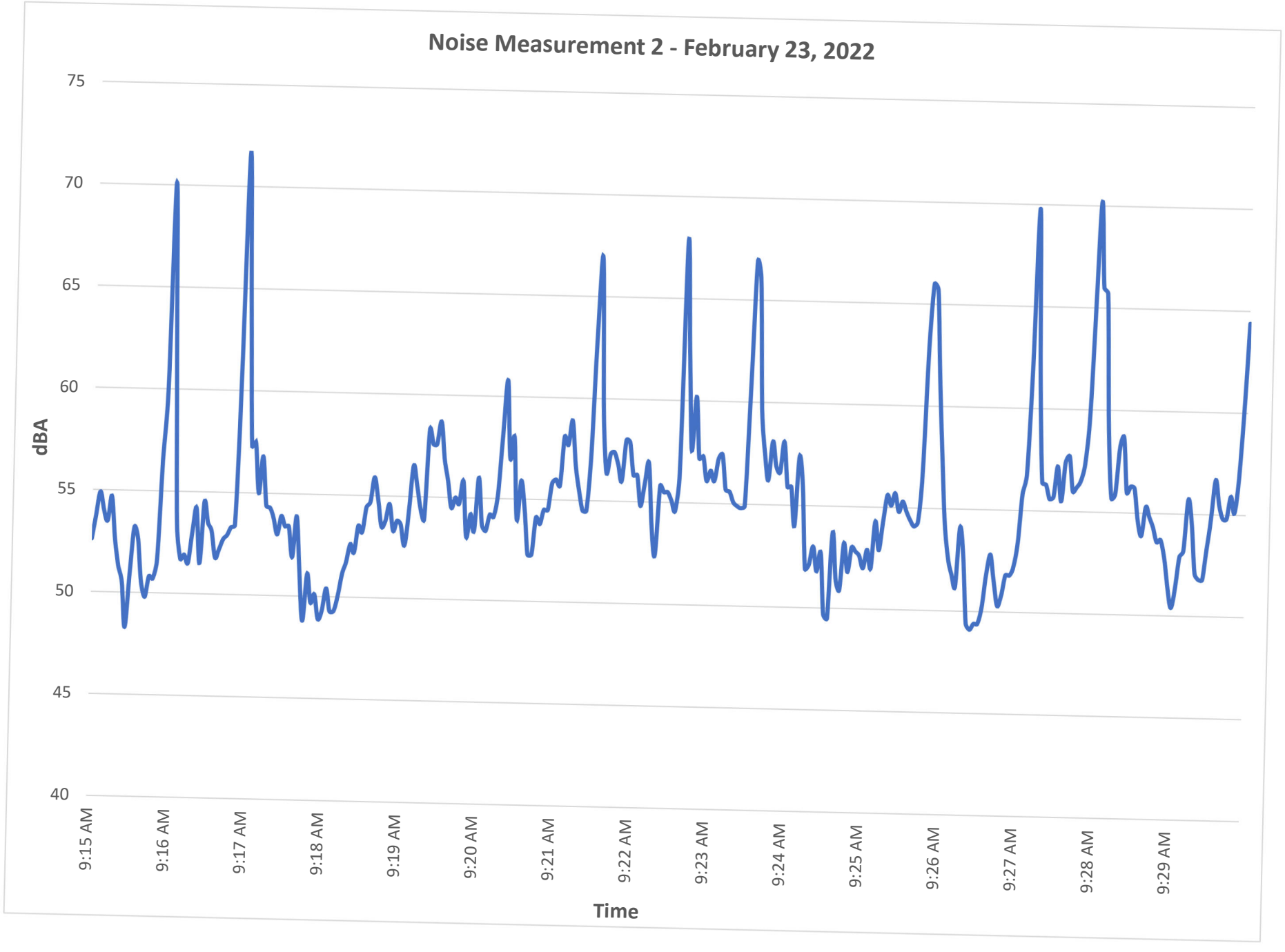
76	2/23/2022 9:19	9:19 AM	53.5	671616.3416
77	2/23/2022 9:19	9:19 AM	53.8	719649.8757
78	2/23/2022 9:19	9:19 AM	54.6	865209.4509
79	2/23/2022 9:19	9:19 AM	53.3	641388.6269
80	2/23/2022 9:19	9:19 AM	53.8	719649.8757
81	2/23/2022 9:19	9:19 AM	53.6	687260.2958
82	2/23/2022 9:19	9:19 AM	52.6	545910.2576
83	2/23/2022 9:19	9:19 AM	54.2	789080.3976
84	2/23/2022 9:19	9:19 AM	56.5	1340050.776
85	2/23/2022 9:19	9:19 AM	55.6	1089234.164
86	2/23/2022 9:19	9:19 AM	54.4	826268.611
87	2/23/2022 9:19	9:19 AM	53.9	736412.6747
88	2/23/2022 9:19	9:19 AM	58.3	2028248.926
89	2/23/2022 9:19	9:19 AM	57.6	1726319.812
90	2/23/2022 9:19	9:19 AM	57.6	1726319.812
91	2/23/2022 9:19	9:19 AM	58.7	2223930.724
92	2/23/2022 9:19	9:19 AM	56.9	1469336.458
93	2/23/2022 9:19	9:19 AM	55.8	1140568.189
94	2/23/2022 9:19	9:19 AM	54.5	845514.8794
95	2/23/2022 9:20	9:20 AM	55	948683.2981
96	2/23/2022 9:20	9:20 AM	54.7	885362.768
97	2/23/2022 9:20	9:20 AM	55.8	1140568.189
98	2/23/2022 9:20	9:20 AM	53.1	612521.3834
99	2/23/2022 9:20	9:20 AM	54.2	789080.3976
100	2/23/2022 9:20	9:20 AM	53.4	656328.4872
101	2/23/2022 9:20	9:20 AM	56	1194321.512
102	2/23/2022 9:20	9:20 AM	53.7	703268.6446
103	2/23/2022 9:20	9:20 AM	53.4	656328.4872
104	2/23/2022 9:20	9:20 AM	54.2	789080.3976
105	2/23/2022 9:20	9:20 AM	54.1	771118.7348
106	2/23/2022 9:20	9:20 AM	55.2	993393.3644
107	2/23/2022 9:20	9:20 AM	58	1892872.033
108	2/23/2022 9:20	9:20 AM	60.8	3606793.304
109	2/23/2022 9:20	9:20 AM	57	1503561.701
110	2/23/2022 9:20	9:20 AM	58	1892872.033
111	2/23/2022 9:20	9:20 AM	54	753565.9295
112	2/23/2022 9:20	9:20 AM	55.9	1167135.435
113	2/23/2022 9:20	9:20 AM	54.5	845514.8794
114	2/23/2022 9:20	9:20 AM	52.3	509473.0957
115	2/23/2022 9:21	9:21 AM	52.3	509473.0957
116	2/23/2022 9:21	9:21 AM	54.1	771118.7348
117	2/23/2022 9:21	9:21 AM	53.8	719649.8757
118	2/23/2022 9:21	9:21 AM	54.5	845514.8794
119	2/23/2022 9:21	9:21 AM	54.5	845514.8794
120	2/23/2022 9:21	9:21 AM	55.8	1140568.189
121	2/23/2022 9:21	9:21 AM	56	1194321.512
122	2/23/2022 9:21	9:21 AM	55.7	1114605.687

123	2/23/2022 9:21	9:21 AM	58.1	1936962.687
124	2/23/2022 9:21	9:21 AM	57.7	1766530.966
125	2/23/2022 9:21	9:21 AM	58.9	2328741.35
126	2/23/2022 9:21	9:21 AM	56.7	1403205.424
127	2/23/2022 9:21	9:21 AM	55.5	1064440.168
128	2/23/2022 9:21	9:21 AM	54.5	845514.8794
129	2/23/2022 9:21	9:21 AM	54.5	845514.8794
130	2/23/2022 9:21	9:21 AM	57.4	1648622.622
131	2/23/2022 9:21	9:21 AM	63.2	6267888.393
132	2/23/2022 9:21	9:21 AM	66.9	14693364.58
133	2/23/2022 9:21	9:21 AM	59.2	2495291.313
134	2/23/2022 9:21	9:21 AM	56.4	1309547.497
135	2/23/2022 9:22	9:22 AM	57.3	1611095.389
136	2/23/2022 9:22	9:22 AM	57.4	1648622.622
137	2/23/2022 9:22	9:22 AM	56.8	1435890.277
138	2/23/2022 9:22	9:22 AM	56	1194321.512
139	2/23/2022 9:22	9:22 AM	58	1892872.033
140	2/23/2022 9:22	9:22 AM	57.9	1849785.006
141	2/23/2022 9:22	9:22 AM	56.3	1279738.556
142	2/23/2022 9:22	9:22 AM	56.3	1279738.556
143	2/23/2022 9:22	9:22 AM	54.8	905985.5161
144	2/23/2022 9:22	9:22 AM	55.9	1167135.435
145	2/23/2022 9:22	9:22 AM	56.9	1469336.458
146	2/23/2022 9:22	9:22 AM	53.8	719649.8757
147	2/23/2022 9:22	9:22 AM	52.4	521340.2486
148	2/23/2022 9:22	9:22 AM	55.8	1140568.189
149	2/23/2022 9:22	9:22 AM	55.5	1064440.168
150	2/23/2022 9:22	9:22 AM	55.5	1064440.168
151	2/23/2022 9:22	9:22 AM	55.1	970780.9708
152	2/23/2022 9:22	9:22 AM	54.6	865209.4509
153	2/23/2022 9:22	9:22 AM	56.4	1309547.497
154	2/23/2022 9:22	9:22 AM	67.8	18076787.58
155	2/23/2022 9:23	9:23 AM	62.3	5094730.957
156	2/23/2022 9:23	9:23 AM	57.6	1726319.812
157	2/23/2022 9:23	9:23 AM	60.2	3141385.644
158	2/23/2022 9:23	9:23 AM	57.2	1574422.381
159	2/23/2022 9:23	9:23 AM	57.3	1611095.389
160	2/23/2022 9:23	9:23 AM	56.1	1222140.833
161	2/23/2022 9:23	9:23 AM	56.6	1371264.569
162	2/23/2022 9:23	9:23 AM	56.1	1222140.833
163	2/23/2022 9:23	9:23 AM	57.2	1574422.381
164	2/23/2022 9:23	9:23 AM	57.4	1648622.622
165	2/23/2022 9:23	9:23 AM	55.7	1114605.687
166	2/23/2022 9:23	9:23 AM	55.6	1089234.164
167	2/23/2022 9:23	9:23 AM	55.1	970780.9708
168	2/23/2022 9:23	9:23 AM	54.9	927088.6298
169	2/23/2022 9:23	9:23 AM	54.8	905985.5161

170	2/23/2022 9:23	9:23 AM	54.9	927088.6298
171	2/23/2022 9:23	9:23 AM	60.4	3289434.588
172	2/23/2022 9:23	9:23 AM	66.9	14693364.58
173	2/23/2022 9:23	9:23 AM	66.1	12221408.33
174	2/23/2022 9:23	9:23 AM	59.7	2799762.902
175	2/23/2022 9:24	9:24 AM	57.5	1687023.976
176	2/23/2022 9:24	9:24 AM	56.2	1250608.15
177	2/23/2022 9:24	9:24 AM	58.1	1936962.687
178	2/23/2022 9:24	9:24 AM	56.9	1469336.458
179	2/23/2022 9:24	9:24 AM	56.6	1371264.569
180	2/23/2022 9:24	9:24 AM	58.1	1936962.687
181	2/23/2022 9:24	9:24 AM	55.9	1167135.435
182	2/23/2022 9:24	9:24 AM	55.9	1167135.435
183	2/23/2022 9:24	9:24 AM	54	753565.9295
184	2/23/2022 9:24	9:24 AM	57.4	1648622.622
185	2/23/2022 9:24	9:24 AM	56	1194321.512
186	2/23/2022 9:24	9:24 AM	51.9	464644.9857
187	2/23/2022 9:24	9:24 AM	52.1	486543.0292
188	2/23/2022 9:24	9:24 AM	53	598578.6945
189	2/23/2022 9:24	9:24 AM	51.8	454068.3745
190	2/23/2022 9:24	9:24 AM	52.7	558626.141
191	2/23/2022 9:24	9:24 AM	49.7	279976.2902
192	2/23/2022 9:24	9:24 AM	49.5	267375.2814
193	2/23/2022 9:24	9:24 AM	53.7	703268.6446
194	2/23/2022 9:24	9:24 AM	51.4	414115.2794
195	2/23/2022 9:25	9:25 AM	50.9	369080.6312
196	2/23/2022 9:25	9:25 AM	53.2	626788.8393
197	2/23/2022 9:25	9:25 AM	51.8	454068.3745
198	2/23/2022 9:25	9:25 AM	53	598578.6945
199	2/23/2022 9:25	9:25 AM	52.8	571638.2154
200	2/23/2022 9:25	9:25 AM	52.6	545910.2576
201	2/23/2022 9:25	9:25 AM	52	475467.9577
202	2/23/2022 9:25	9:25 AM	52.9	584953.3799
203	2/23/2022 9:25	9:25 AM	52	475467.9577
204	2/23/2022 9:25	9:25 AM	54.3	807460.4412
205	2/23/2022 9:25	9:25 AM	52.9	584953.3799
206	2/23/2022 9:25	9:25 AM	54.3	807460.4412
207	2/23/2022 9:25	9:25 AM	55.6	1089234.164
208	2/23/2022 9:25	9:25 AM	55.1	970780.9708
209	2/23/2022 9:25	9:25 AM	55.7	1114605.687
210	2/23/2022 9:25	9:25 AM	54.8	905985.5161
211	2/23/2022 9:25	9:25 AM	55.3	1016532.468
212	2/23/2022 9:25	9:25 AM	54.8	905985.5161
213	2/23/2022 9:25	9:25 AM	54.4	826268.611
214	2/23/2022 9:25	9:25 AM	54.1	771118.7348
215	2/23/2022 9:26	9:26 AM	54.3	807460.4412
216	2/23/2022 9:26	9:26 AM	56.7	1403205.424

217	2/23/2022 9:26	9:26 AM	63	5985786.945
218	2/23/2022 9:26	9:26 AM	66	11943215.12
219	2/23/2022 9:26	9:26 AM	65.7	11146056.87
220	2/23/2022 9:26	9:26 AM	61.3	4046888.648
221	2/23/2022 9:26	9:26 AM	57.5	1687023.976
222	2/23/2022 9:26	9:26 AM	54.3	807460.4412
223	2/23/2022 9:26	9:26 AM	52.6	545910.2576
224	2/23/2022 9:26	9:26 AM	51.8	454068.3745
225	2/23/2022 9:26	9:26 AM	51.2	395477.0216
226	2/23/2022 9:26	9:26 AM	54.1	771118.7348
227	2/23/2022 9:26	9:26 AM	52.7	558626.141
228	2/23/2022 9:26	9:26 AM	49.4	261289.077
229	2/23/2022 9:26	9:26 AM	49.1	243849.1548
230	2/23/2022 9:26	9:26 AM	49.4	261289.077
231	2/23/2022 9:26	9:26 AM	49.4	261289.077
232	2/23/2022 9:26	9:26 AM	50.2	314138.5644
233	2/23/2022 9:26	9:26 AM	51.8	454068.3745
234	2/23/2022 9:26	9:26 AM	52.8	571638.2154
235	2/23/2022 9:27	9:27 AM	51.5	423761.2634
236	2/23/2022 9:27	9:27 AM	50.3	321455.7916
237	2/23/2022 9:27	9:27 AM	50.8	360679.3304
238	2/23/2022 9:27	9:27 AM	51.8	454068.3745
239	2/23/2022 9:27	9:27 AM	51.8	454068.3745
240	2/23/2022 9:27	9:27 AM	52.2	497876.0722
241	2/23/2022 9:27	9:27 AM	53.4	656328.4872
242	2/23/2022 9:27	9:27 AM	55.8	1140568.189
243	2/23/2022 9:27	9:27 AM	56.8	1435890.277
244	2/23/2022 9:27	9:27 AM	61.9	4646449.857
245	2/23/2022 9:27	9:27 AM	69.8	28649777.58
246	2/23/2022 9:27	9:27 AM	61.5	4237612.634
247	2/23/2022 9:27	9:27 AM	56.4	1309547.497
248	2/23/2022 9:27	9:27 AM	56.3	1279738.556
249	2/23/2022 9:27	9:27 AM	55.6	1089234.164
250	2/23/2022 9:27	9:27 AM	55.7	1114605.687
251	2/23/2022 9:27	9:27 AM	57.2	1574422.381
252	2/23/2022 9:27	9:27 AM	55.5	1064440.168
253	2/23/2022 9:27	9:27 AM	57.4	1648622.622
254	2/23/2022 9:27	9:27 AM	57.7	1766530.966
255	2/23/2022 9:28	9:28 AM	56	1194321.512
256	2/23/2022 9:28	9:28 AM	56.2	1250608.15
257	2/23/2022 9:28	9:28 AM	56.5	1340050.776
258	2/23/2022 9:28	9:28 AM	57.3	1611095.389
259	2/23/2022 9:28	9:28 AM	59.4	2612890.77
260	2/23/2022 9:28	9:28 AM	64.7	8853627.68
261	2/23/2022 9:28	9:28 AM	70.2	31413856.44
262	2/23/2022 9:28	9:28 AM	66	11943215.12
263	2/23/2022 9:28	9:28 AM	65.7	11146056.87

264	2/23/2022 9:28	9:28 AM	59.1	2438491.548
265	2/23/2022 9:28	9:28 AM	55.7	1114605.687
266	2/23/2022 9:28	9:28 AM	55.9	1167135.435
267	2/23/2022 9:28	9:28 AM	58.2	1982080.344
268	2/23/2022 9:28	9:28 AM	58.7	2223930.724
269	2/23/2022 9:28	9:28 AM	56	1194321.512
270	2/23/2022 9:28	9:28 AM	56.3	1279738.556
271	2/23/2022 9:28	9:28 AM	56.2	1250608.15
272	2/23/2022 9:28	9:28 AM	54.6	865209.4509
273	2/23/2022 9:28	9:28 AM	53.9	736412.6747
274	2/23/2022 9:28	9:28 AM	55.3	1016532.468
275	2/23/2022 9:29	9:29 AM	54.8	905985.5161
276	2/23/2022 9:29	9:29 AM	54.3	807460.4412
277	2/23/2022 9:29	9:29 AM	53.6	687260.2958
278	2/23/2022 9:29	9:29 AM	53.7	703268.6446
279	2/23/2022 9:29	9:29 AM	52.9	584953.3799
280	2/23/2022 9:29	9:29 AM	51.5	423761.2634
281	2/23/2022 9:29	9:29 AM	50.4	328943.4588
282	2/23/2022 9:29	9:29 AM	51.3	404688.8648
283	2/23/2022 9:29	9:29 AM	52.9	584953.3799
284	2/23/2022 9:29	9:29 AM	53.2	626788.8393
285	2/23/2022 9:29	9:29 AM	55.7	1114605.687
286	2/23/2022 9:29	9:29 AM	54.6	865209.4509
287	2/23/2022 9:29	9:29 AM	52.1	486543.0292
288	2/23/2022 9:29	9:29 AM	51.8	454068.3745
289	2/23/2022 9:29	9:29 AM	51.8	454068.3745
290	2/23/2022 9:29	9:29 AM	53.3	641388.6269
291	2/23/2022 9:29	9:29 AM	54.8	905985.5161
292	2/23/2022 9:29	9:29 AM	56.7	1403205.424
293	2/23/2022 9:29	9:29 AM	55.5	1064440.168
294	2/23/2022 9:29	9:29 AM	54.8	905985.5161
295	2/23/2022 9:30	9:30 AM	54.8	905985.5161
296	2/23/2022 9:30	9:30 AM	55.9	1167135.435
297	2/23/2022 9:30	9:30 AM	55.1	970780.9708
298	2/23/2022 9:30	9:30 AM	56.8	1435890.277
299	2/23/2022 9:30	9:30 AM	60	3000000
300	2/23/2022 9:30	9:30 AM	64.4	8262686.11


Noise Measurement 2 - February 23, 2022
75
70
65
60
55
50
45
40
dBA
9:15 AM
9:16 AM
9:17 AM
9:18 AM
9:19 AM
9:20 AM
9:21 AM
9:22 AM
9:23 AM
9:24 AM
9:25 AM
9:26 AM
9:27 AM
9:28 AM
9:29 AM
Time

Noise Measurement 3

Data Logger 2		
Duration (seconds)		3
Weighting	A	
Response	SLOW	
Range	40-100	
L05		59
L10		57.6
L50		54.9
L90		52.3
L95		51.4
Lmax		65.4
Time	2/23/2022	9:42
SEL		85.2
Leq		**55.8**

No.s	Date Time	Time	dB	Sound Energy
1	2/23/2022 9:38	9:38 AM	55.9	1167135.435
2	2/23/2022 9:39	9:39 AM	55.2	993393.3644
3	2/23/2022 9:39	9:39 AM	55.5	1064440.168
4	2/23/2022 9:39	9:39 AM	54.5	845514.8794
5	2/23/2022 9:39	9:39 AM	55.4	1040210.551
6	2/23/2022 9:39	9:39 AM	55.1	970780.9708
7	2/23/2022 9:39	9:39 AM	55.7	1114605.687
8	2/23/2022 9:39	9:39 AM	55.6	1089234.164
9	2/23/2022 9:39	9:39 AM	59	2382984.704
10	2/23/2022 9:39	9:39 AM	59	2382984.704
11	2/23/2022 9:39	9:39 AM	57.1	1538584.152
12	2/23/2022 9:39	9:39 AM	54.2	789080.3976
13	2/23/2022 9:39	9:39 AM	53.1	612521.3834
14	2/23/2022 9:39	9:39 AM	53.1	612521.3834
15	2/23/2022 9:39	9:39 AM	56	1194321.512
16	2/23/2022 9:39	9:39 AM	54	753565.9295
17	2/23/2022 9:39	9:39 AM	53.1	612521.3834
18	2/23/2022 9:39	9:39 AM	52.7	558626.141
19	2/23/2022 9:39	9:39 AM	52.8	571638.2154
20	2/23/2022 9:39	9:39 AM	50.6	344446.0864
21	2/23/2022 9:39	9:39 AM	50.5	336605.5363
22	2/23/2022 9:40	9:40 AM	49.4	261289.077
23	2/23/2022 9:40	9:40 AM	49.1	243849.1548
24	2/23/2022 9:40	9:40 AM	51.1	386474.8655
25	2/23/2022 9:40	9:40 AM	53.1	612521.3834
26	2/23/2022 9:40	9:40 AM	55.7	1114605.687
27	2/23/2022 9:40	9:40 AM	59.2	2495291.313
28	2/23/2022 9:40	9:40 AM	53.6	687260.2958

29	2/23/2022 9:40	9:40 AM	51.9	464644.9857
30	2/23/2022 9:40	9:40 AM	51	377677.6235
31	2/23/2022 9:40	9:40 AM	52.3	509473.0957
32	2/23/2022 9:40	9:40 AM	54.2	789080.3976
33	2/23/2022 9:40	9:40 AM	54.6	865209.4509
34	2/23/2022 9:40	9:40 AM	55.5	1064440.168
35	2/23/2022 9:40	9:40 AM	56.3	1279738.556
36	2/23/2022 9:40	9:40 AM	57.1	1538584.152
37	2/23/2022 9:40	9:40 AM	59.6	2736032.518
38	2/23/2022 9:40	9:40 AM	56.1	1222140.833
39	2/23/2022 9:40	9:40 AM	55.1	970780.9708
40	2/23/2022 9:40	9:40 AM	55.9	1167135.435
41	2/23/2022 9:40	9:40 AM	56.6	1371264.569
42	2/23/2022 9:41	9:41 AM	56.2	1250608.15
43	2/23/2022 9:41	9:41 AM	55.1	970780.9708
44	2/23/2022 9:41	9:41 AM	56.6	1371264.569
45	2/23/2022 9:41	9:41 AM	56	1194321.512
46	2/23/2022 9:41	9:41 AM	55.6	1089234.164
47	2/23/2022 9:41	9:41 AM	55.8	1140568.189
48	2/23/2022 9:41	9:41 AM	56.7	1403205.424
49	2/23/2022 9:41	9:41 AM	59.2	2495291.313
50	2/23/2022 9:41	9:41 AM	57.4	1648622.622
51	2/23/2022 9:41	9:41 AM	54.5	845514.8794
52	2/23/2022 9:41	9:41 AM	54.6	865209.4509
53	2/23/2022 9:41	9:41 AM	54.8	905985.5161
54	2/23/2022 9:41	9:41 AM	53.9	736412.6747
55	2/23/2022 9:41	9:41 AM	53.7	703268.6446
56	2/23/2022 9:41	9:41 AM	55	948683.2981
57	2/23/2022 9:41	9:41 AM	56.4	1309547.497
58	2/23/2022 9:41	9:41 AM	57.2	1574422.381
59	2/23/2022 9:41	9:41 AM	57.7	1766530.966
60	2/23/2022 9:41	9:41 AM	59.1	2438491.548
61	2/23/2022 9:41	9:41 AM	58.9	2328741.35
62	2/23/2022 9:42	9:42 AM	56.2	1250608.15
63	2/23/2022 9:42	9:42 AM	55.6	1089234.164
64	2/23/2022 9:42	9:42 AM	56.2	1250608.15
65	2/23/2022 9:42	9:42 AM	56.2	1250608.15
66	2/23/2022 9:42	9:42 AM	58.5	2123837.353
67	2/23/2022 9:42	9:42 AM	61.3	4046888.648
68	2/23/2022 9:42	9:42 AM	59.1	2438491.548
69	2/23/2022 9:42	9:42 AM	56.8	1435890.277
70	2/23/2022 9:42	9:42 AM	61.1	3864748.655
71	2/23/2022 9:42	9:42 AM	61.8	4540683.745
72	2/23/2022 9:42	9:42 AM	63.4	6563284.872
73	2/23/2022 9:42	9:42 AM	62.1	4865430.292
74	2/23/2022 9:42	9:42 AM	62.3	5094730.957
75	2/23/2022 9:42	9:42 AM	56.5	1340050.776

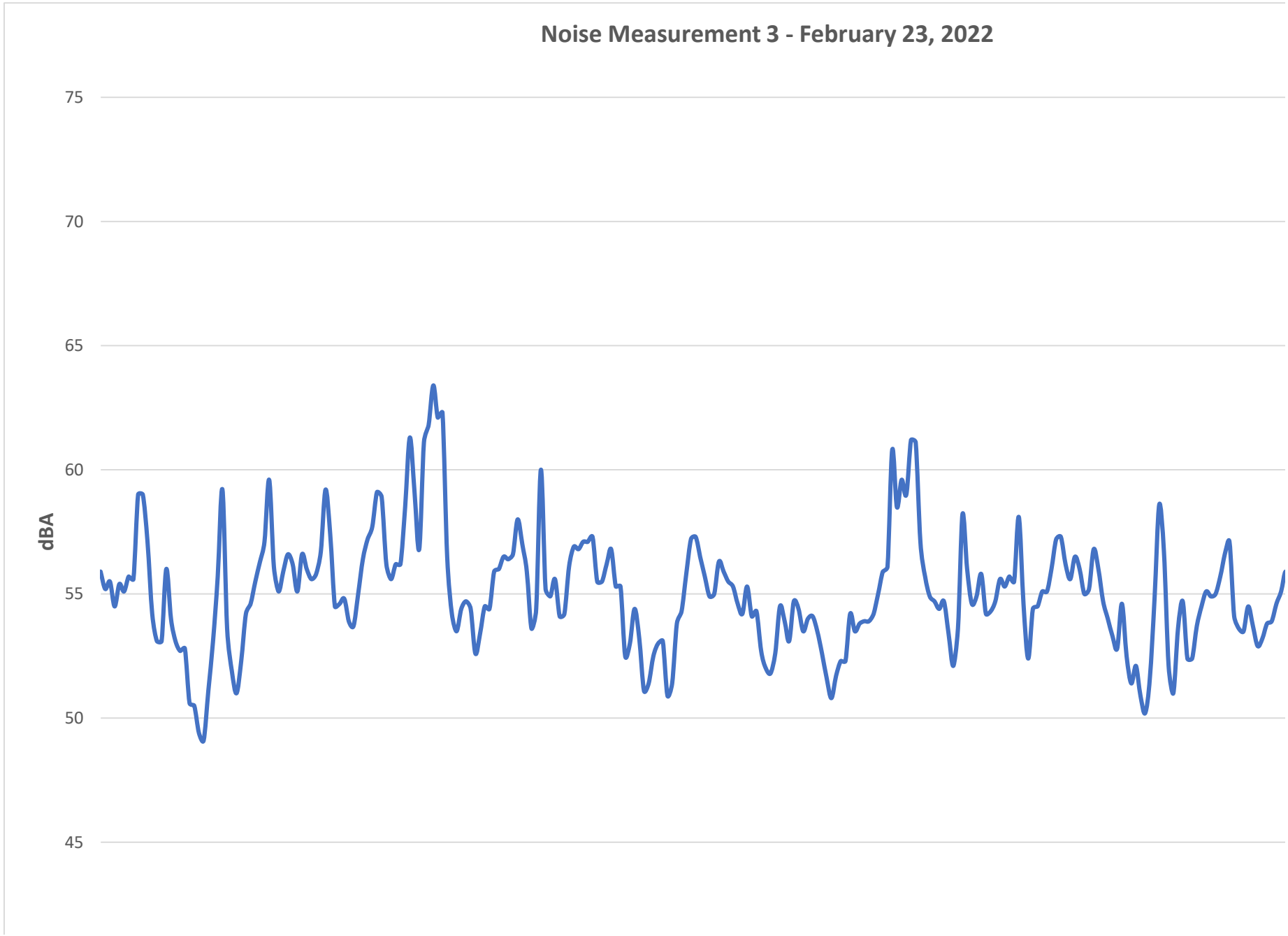
76	2/23/2022 9:42	9:42 AM	54.2	789080.3976
77	2/23/2022 9:42	9:42 AM	53.5	671616.3416
78	2/23/2022 9:42	9:42 AM	54.4	826268.611
79	2/23/2022 9:42	9:42 AM	54.7	885362.768
80	2/23/2022 9:42	9:42 AM	54.4	826268.611
81	2/23/2022 9:42	9:42 AM	52.6	545910.2576
82	2/23/2022 9:43	9:43 AM	53.4	656328.4872
83	2/23/2022 9:43	9:43 AM	54.5	845514.8794
84	2/23/2022 9:43	9:43 AM	54.4	826268.611
85	2/23/2022 9:43	9:43 AM	55.9	1167135.435
86	2/23/2022 9:43	9:43 AM	56	1194321.512
87	2/23/2022 9:43	9:43 AM	56.5	1340050.776
88	2/23/2022 9:43	9:43 AM	56.4	1309547.497
89	2/23/2022 9:43	9:43 AM	56.6	1371264.569
90	2/23/2022 9:43	9:43 AM	58	1892872.033
91	2/23/2022 9:43	9:43 AM	57	1503561.701
92	2/23/2022 9:43	9:43 AM	55.9	1167135.435
93	2/23/2022 9:43	9:43 AM	53.6	687260.2958
94	2/23/2022 9:43	9:43 AM	54.4	826268.611
95	2/23/2022 9:43	9:43 AM	60	3000000
96	2/23/2022 9:43	9:43 AM	55.2	993393.3644
97	2/23/2022 9:43	9:43 AM	54.9	927088.6298
98	2/23/2022 9:43	9:43 AM	55.6	1089234.164
99	2/23/2022 9:43	9:43 AM	54.1	771118.7348
100	2/23/2022 9:43	9:43 AM	54.2	789080.3976
101	2/23/2022 9:43	9:43 AM	56.1	1222140.833
102	2/23/2022 9:44	9:44 AM	56.9	1469336.458
103	2/23/2022 9:44	9:44 AM	56.8	1435890.277
104	2/23/2022 9:44	9:44 AM	57.1	1538584.152
105	2/23/2022 9:44	9:44 AM	57.1	1538584.152
106	2/23/2022 9:44	9:44 AM	57.3	1611095.389
107	2/23/2022 9:44	9:44 AM	55.5	1064440.168
108	2/23/2022 9:44	9:44 AM	55.5	1064440.168
109	2/23/2022 9:44	9:44 AM	56.2	1250608.15
110	2/23/2022 9:44	9:44 AM	56.8	1435890.277
111	2/23/2022 9:44	9:44 AM	55.3	1016532.468
112	2/23/2022 9:44	9:44 AM	55.3	1016532.468
113	2/23/2022 9:44	9:44 AM	52.5	533483.823
114	2/23/2022 9:44	9:44 AM	53	598578.6945
115	2/23/2022 9:44	9:44 AM	54.4	826268.611
116	2/23/2022 9:44	9:44 AM	53.2	626788.8393
117	2/23/2022 9:44	9:44 AM	51.1	386474.8655
118	2/23/2022 9:44	9:44 AM	51.4	414115.2794
119	2/23/2022 9:44	9:44 AM	52.5	533483.823
120	2/23/2022 9:44	9:44 AM	53	598578.6945
121	2/23/2022 9:44	9:44 AM	53.1	612521.3834
122	2/23/2022 9:45	9:45 AM	50.9	369080.6312

123	2/23/2022 9:45	9:45 AM	51.4	414115.2794
124	2/23/2022 9:45	9:45 AM	53.8	719649.8757
125	2/23/2022 9:45	9:45 AM	54.3	807460.4412
126	2/23/2022 9:45	9:45 AM	55.8	1140568.189
127	2/23/2022 9:45	9:45 AM	57.2	1574422.381
128	2/23/2022 9:45	9:45 AM	57.3	1611095.389
129	2/23/2022 9:45	9:45 AM	56.5	1340050.776
130	2/23/2022 9:45	9:45 AM	55.7	1114605.687
131	2/23/2022 9:45	9:45 AM	54.9	927088.6298
132	2/23/2022 9:45	9:45 AM	55	948683.2981
133	2/23/2022 9:45	9:45 AM	56.3	1279738.556
134	2/23/2022 9:45	9:45 AM	55.9	1167135.435
135	2/23/2022 9:45	9:45 AM	55.5	1064440.168
136	2/23/2022 9:45	9:45 AM	55.3	1016532.468
137	2/23/2022 9:45	9:45 AM	54.6	865209.4509
138	2/23/2022 9:45	9:45 AM	54.2	789080.3976
139	2/23/2022 9:45	9:45 AM	55.3	1016532.468
140	2/23/2022 9:45	9:45 AM	54.1	771118.7348
141	2/23/2022 9:45	9:45 AM	54.3	807460.4412
142	2/23/2022 9:46	9:46 AM	52.7	558626.141
143	2/23/2022 9:46	9:46 AM	52	475467.9577
144	2/23/2022 9:46	9:46 AM	51.8	454068.3745
145	2/23/2022 9:46	9:46 AM	52.6	545910.2576
146	2/23/2022 9:46	9:46 AM	54.5	845514.8794
147	2/23/2022 9:46	9:46 AM	53.9	736412.6747
148	2/23/2022 9:46	9:46 AM	53.1	612521.3834
149	2/23/2022 9:46	9:46 AM	54.7	885362.768
150	2/23/2022 9:46	9:46 AM	54.4	826268.611
151	2/23/2022 9:46	9:46 AM	53.5	671616.3416
152	2/23/2022 9:46	9:46 AM	54	753565.9295
153	2/23/2022 9:46	9:46 AM	54.1	771118.7348
154	2/23/2022 9:46	9:46 AM	53.5	671616.3416
155	2/23/2022 9:46	9:46 AM	52.6	545910.2576
156	2/23/2022 9:46	9:46 AM	51.6	433631.9312
157	2/23/2022 9:46	9:46 AM	50.8	360679.3304
158	2/23/2022 9:46	9:46 AM	51.7	443732.5165
159	2/23/2022 9:46	9:46 AM	52.3	509473.0957
160	2/23/2022 9:46	9:46 AM	52.3	509473.0957
161	2/23/2022 9:46	9:46 AM	54.2	789080.3976
162	2/23/2022 9:47	9:47 AM	53.5	671616.3416
163	2/23/2022 9:47	9:47 AM	53.8	719649.8757
164	2/23/2022 9:47	9:47 AM	53.9	736412.6747
165	2/23/2022 9:47	9:47 AM	53.9	736412.6747
166	2/23/2022 9:47	9:47 AM	54.2	789080.3976
167	2/23/2022 9:47	9:47 AM	55	948683.2981
168	2/23/2022 9:47	9:47 AM	55.9	1167135.435
169	2/23/2022 9:47	9:47 AM	56.1	1222140.833

170	2/23/2022 9:47	9:47 AM	60.8	3606793.304
171	2/23/2022 9:47	9:47 AM	58.5	2123837.353
172	2/23/2022 9:47	9:47 AM	59.6	2736032.518
173	2/23/2022 9:47	9:47 AM	59	2382984.704
174	2/23/2022 9:47	9:47 AM	61.2	3954770.216
175	2/23/2022 9:47	9:47 AM	61.1	3864748.655
176	2/23/2022 9:47	9:47 AM	57.1	1538584.152
177	2/23/2022 9:47	9:47 AM	55.7	1114605.687
178	2/23/2022 9:47	9:47 AM	54.9	927088.6298
179	2/23/2022 9:47	9:47 AM	54.7	885362.768
180	2/23/2022 9:47	9:47 AM	54.4	826268.611
181	2/23/2022 9:47	9:47 AM	54.7	885362.768
182	2/23/2022 9:48	9:48 AM	53.4	656328.4872
183	2/23/2022 9:48	9:48 AM	52.1	486543.0292
184	2/23/2022 9:48	9:48 AM	53.6	687260.2958
185	2/23/2022 9:48	9:48 AM	58.2	1982080.344
186	2/23/2022 9:48	9:48 AM	56	1194321.512
187	2/23/2022 9:48	9:48 AM	54.6	865209.4509
188	2/23/2022 9:48	9:48 AM	54.9	927088.6298
189	2/23/2022 9:48	9:48 AM	55.8	1140568.189
190	2/23/2022 9:48	9:48 AM	54.2	789080.3976
191	2/23/2022 9:48	9:48 AM	54.3	807460.4412
192	2/23/2022 9:48	9:48 AM	54.7	885362.768
193	2/23/2022 9:48	9:48 AM	55.6	1089234.164
194	2/23/2022 9:48	9:48 AM	55.3	1016532.468
195	2/23/2022 9:48	9:48 AM	55.7	1114605.687
196	2/23/2022 9:48	9:48 AM	55.5	1064440.168
197	2/23/2022 9:48	9:48 AM	58.1	1936962.687
198	2/23/2022 9:48	9:48 AM	54.6	865209.4509
199	2/23/2022 9:48	9:48 AM	52.4	521340.2486
200	2/23/2022 9:48	9:48 AM	54.4	826268.611
201	2/23/2022 9:48	9:48 AM	54.5	845514.8794
202	2/23/2022 9:49	9:49 AM	55.1	970780.9708
203	2/23/2022 9:49	9:49 AM	55.1	970780.9708
204	2/23/2022 9:49	9:49 AM	56	1194321.512
205	2/23/2022 9:49	9:49 AM	57.2	1574422.381
206	2/23/2022 9:49	9:49 AM	57.3	1611095.389
207	2/23/2022 9:49	9:49 AM	56.2	1250608.15
208	2/23/2022 9:49	9:49 AM	55.6	1089234.164
209	2/23/2022 9:49	9:49 AM	56.5	1340050.776
210	2/23/2022 9:49	9:49 AM	56	1194321.512
211	2/23/2022 9:49	9:49 AM	55	948683.2981
212	2/23/2022 9:49	9:49 AM	55.2	993393.3644
213	2/23/2022 9:49	9:49 AM	56.8	1435890.277
214	2/23/2022 9:49	9:49 AM	56	1194321.512
215	2/23/2022 9:49	9:49 AM	54.7	885362.768
216	2/23/2022 9:49	9:49 AM	54	753565.9295

217	2/23/2022 9:49	9:49 AM	53.3	641388.6269
218	2/23/2022 9:49	9:49 AM	52.8	571638.2154
219	2/23/2022 9:49	9:49 AM	54.6	865209.4509
220	2/23/2022 9:49	9:49 AM	52.5	533483.823
221	2/23/2022 9:49	9:49 AM	51.4	414115.2794
222	2/23/2022 9:50	9:50 AM	52.1	486543.0292
223	2/23/2022 9:50	9:50 AM	50.9	369080.6312
224	2/23/2022 9:50	9:50 AM	50.2	314138.5644
225	2/23/2022 9:50	9:50 AM	51.6	433631.9312
226	2/23/2022 9:50	9:50 AM	54.8	905985.5161
227	2/23/2022 9:50	9:50 AM	58.6	2173307.88
228	2/23/2022 9:50	9:50 AM	56.7	1403205.424
229	2/23/2022 9:50	9:50 AM	52.1	486543.0292
230	2/23/2022 9:50	9:50 AM	51	377677.6235
231	2/23/2022 9:50	9:50 AM	53.6	687260.2958
232	2/23/2022 9:50	9:50 AM	54.7	885362.768
233	2/23/2022 9:50	9:50 AM	52.4	521340.2486
234	2/23/2022 9:50	9:50 AM	52.4	521340.2486
235	2/23/2022 9:50	9:50 AM	53.7	703268.6446
236	2/23/2022 9:50	9:50 AM	54.5	845514.8794
237	2/23/2022 9:50	9:50 AM	55.1	970780.9708
238	2/23/2022 9:50	9:50 AM	54.9	927088.6298
239	2/23/2022 9:50	9:50 AM	55	948683.2981
240	2/23/2022 9:50	9:50 AM	55.7	1114605.687
241	2/23/2022 9:50	9:50 AM	56.6	1371264.569
242	2/23/2022 9:51	9:51 AM	57.1	1538584.152
243	2/23/2022 9:51	9:51 AM	54.1	771118.7348
244	2/23/2022 9:51	9:51 AM	53.6	687260.2958
245	2/23/2022 9:51	9:51 AM	53.5	671616.3416
246	2/23/2022 9:51	9:51 AM	54.5	845514.8794
247	2/23/2022 9:51	9:51 AM	53.7	703268.6446
248	2/23/2022 9:51	9:51 AM	52.9	584953.3799
249	2/23/2022 9:51	9:51 AM	53.2	626788.8393
250	2/23/2022 9:51	9:51 AM	53.8	719649.8757
251	2/23/2022 9:51	9:51 AM	53.9	736412.6747
252	2/23/2022 9:51	9:51 AM	54.6	865209.4509
253	2/23/2022 9:51	9:51 AM	55.1	970780.9708
254	2/23/2022 9:51	9:51 AM	55.9	1167135.435
255	2/23/2022 9:51	9:51 AM	54.9	927088.6298
256	2/23/2022 9:51	9:51 AM	54.6	865209.4509
257	2/23/2022 9:51	9:51 AM	55.1	970780.9708
258	2/23/2022 9:51	9:51 AM	54.8	905985.5161
259	2/23/2022 9:51	9:51 AM	55.1	970780.9708
260	2/23/2022 9:51	9:51 AM	54.7	885362.768
261	2/23/2022 9:51	9:51 AM	54.7	885362.768
262	2/23/2022 9:52	9:52 AM	54.2	789080.3976
263	2/23/2022 9:52	9:52 AM	54.7	885362.768

264	2/23/2022 9:52	9:52 AM	54.3	807460.4412
265	2/23/2022 9:52	9:52 AM	54.3	807460.4412
266	2/23/2022 9:52	9:52 AM	53.6	687260.2958
267	2/23/2022 9:52	9:52 AM	54.3	807460.4412
268	2/23/2022 9:52	9:52 AM	55.4	1040210.551
269	2/23/2022 9:52	9:52 AM	55.7	1114605.687
270	2/23/2022 9:52	9:52 AM	54.8	905985.5161
271	2/23/2022 9:52	9:52 AM	53.3	641388.6269
272	2/23/2022 9:52	9:52 AM	54.4	826268.611
273	2/23/2022 9:52	9:52 AM	56.7	1403205.424
274	2/23/2022 9:52	9:52 AM	55.5	1064440.168
275	2/23/2022 9:52	9:52 AM	59.9	2931711.663
276	2/23/2022 9:52	9:52 AM	55.8	1140568.189
277	2/23/2022 9:52	9:52 AM	55.2	993393.3644
278	2/23/2022 9:52	9:52 AM	55.3	1016532.468
279	2/23/2022 9:52	9:52 AM	56.4	1309547.497
280	2/23/2022 9:52	9:52 AM	56.6	1371264.569
281	2/23/2022 9:52	9:52 AM	57.3	1611095.389
282	2/23/2022 9:53	9:53 AM	57.2	1574422.381
283	2/23/2022 9:53	9:53 AM	56.8	1435890.277
284	2/23/2022 9:53	9:53 AM	55.9	1167135.435
285	2/23/2022 9:53	9:53 AM	56.2	1250608.15
286	2/23/2022 9:53	9:53 AM	55.3	1016532.468
287	2/23/2022 9:53	9:53 AM	55.3	1016532.468
288	2/23/2022 9:53	9:53 AM	53.5	671616.3416
289	2/23/2022 9:53	9:53 AM	51.9	464644.9857
290	2/23/2022 9:53	9:53 AM	52.5	533483.823
291	2/23/2022 9:53	9:53 AM	52.3	509473.0957
292	2/23/2022 9:53	9:53 AM	53.6	687260.2958
293	2/23/2022 9:53	9:53 AM	61.6	4336319.312
294	2/23/2022 9:53	9:53 AM	56.4	1309547.497
295	2/23/2022 9:53	9:53 AM	58.7	2223930.724
296	2/23/2022 9:53	9:53 AM	55.8	1140568.189
297	2/23/2022 9:53	9:53 AM	54.8	905985.5161
298	2/23/2022 9:53	9:53 AM	56.5	1340050.776
299	2/23/2022 9:53	9:53 AM	58.8	2275732.725
300	2/23/2022 9:53	9:53 AM	57	1503561.701


Noise Measurement 3 - February 23, 2022
75
70
65
60
55
50
45
dBA

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 09/02/2022
Case Description: S Wells Treatment Project - Equipment Install

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residence - S6 Well	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	100.0	0.0
Crane	No	16		80.6	100.0	0.0
Generator	No	50		80.6	100.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Backhoe	71.5	67.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	74.5	66.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	74.6	71.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	74.6	73.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #2 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Residence - S7 Well	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	110.0	0.0
Crane	No	16		80.6	110.0	0.0
Generator	No	50		80.6	110.0	0.0

Results

Noise Limit Exceedance (dBA)

Noise Limits (dBA)

Calculated (dBA)									
Day			Evening			Night			
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax
Backhoe	70.7	66.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	73.7	65.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	73.8	70.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	73.8	73.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #3 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
School - S8 Well and Pipe	Residential	65.0	45.0	45.0

Equipment

Impact	Usage	Spec Lmax	Actual Lmax	Receptor Distance	Estimated Shielding

Description	Device	(%)	(dBA)	(dBA)	(feet)	(dBA)
Backhoe	No	40		77.6	110.0	0.0
Crane	No	16		80.6	110.0	0.0
Generator	No	50		80.6	110.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

	Calculated (dBA)		Day		Evening			
Night	Day		Evening		Night			
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Backhoe	70.7	66.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	73.7	65.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	73.8	70.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	73.8	73.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #4 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residences - S7 Pipe	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	155.0	0.0
Crane	No	16		80.6	155.0	0.0
Generator	No	50		80.6	155.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Backhoe	67.7	63.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	70.7	62.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	70.8	67.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	70.8	70.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 09/02/2022
Case Description: S Wells Treatment Project - Grading

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residence - Interconnection Pipe	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	230.0	0.0
Compactor (ground)	No	20		83.2	230.0	0.0
Dozer	No	40		81.7	230.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Backhoe	64.3	60.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compactor (ground)	70.0	63.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	68.4	64.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	70.0	67.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**** Receptor #2 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
School - Treatment Facility	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	435.0	0.0
Compactor (ground)	No	20		83.2	435.0	0.0
Dozer	No	40		81.7	435.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Backhoe	58.8	54.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compactor (ground)	64.4	57.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	62.9	58.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	64.4	62.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 09/02/2022
Case Description: S Wells Treatment Project - Well Drilling

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
School - Daytime	Residential	65.0	45.0	45.0

Description	Impact Device	Usage (%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Auger Drill Rig	No	20		84.4	165.0	0.0
Generator	No	50		80.6	165.0	0.0
Crane	No	16		80.6	165.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Auger Drill Rig	74.0	67.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	70.3	67.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	70.2	62.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	74.0	70.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 09/02/2022
Case Description: S Wells Treatment Project - Well Drilling

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residence - Nighttime	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Auger Drill Rig	No	20		84.4	360.0	0.0
Generator	No	50		80.6	360.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Auger Drill Rig	67.2	60.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	63.5	60.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	67.2	63.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Barrier Performance Module

This module provides to the user a measure on the barrier's effectiveness on noise reduction. A list of the input/output variables and their definitions, as well as illustrations of different scenarios are provided.

Calculator

View Day/Night Noise Level Calculator (/programs/environmental-review/dnl-calculator/)

View Descriptions of the Input/Output variables.

Note: Tool tips, containing field specific information, have been added in this tool and may be accessed by hovering over the Input and Output variables with the mouse.

WARNING: If there is direct line-of-sight between the Source and the Observer, the module will report erroneous attenuation. "Direct line-of-sight" means if the 5' tall Observer can see the noise Source (cars, trucks, trains, etc.) over the Barrier (wall, hill/excavation, building, etc.), the current version of Barrier Performance Module will not accurately calculate the attenuation provided. In this instance, there is unlikely to be any appreciable attenuation.

Note: Barrier height must block the line of sight

Input Data

H	15	**R^1**	10
S	10	**D^1**	360
O	5	**α**	180

Calculate Output

Output Data

h	5	**R**	10
D	360	**FS**	8.6801

Reduction From Barrier (dB):

-8.6801

Refresh

Note: If you have separate Road and Rail DNL values, please enter the values below to calculate the new combined Road/Rail DNL :

Road DNL:

Rail DNL:

Calculate

Combined Road/Rail DNL with Barrier Reduction:

Input/Output Variables

Input Variables

The following variables and definitions from the barrier being assessed are the input required for the web-based barrier performance module:

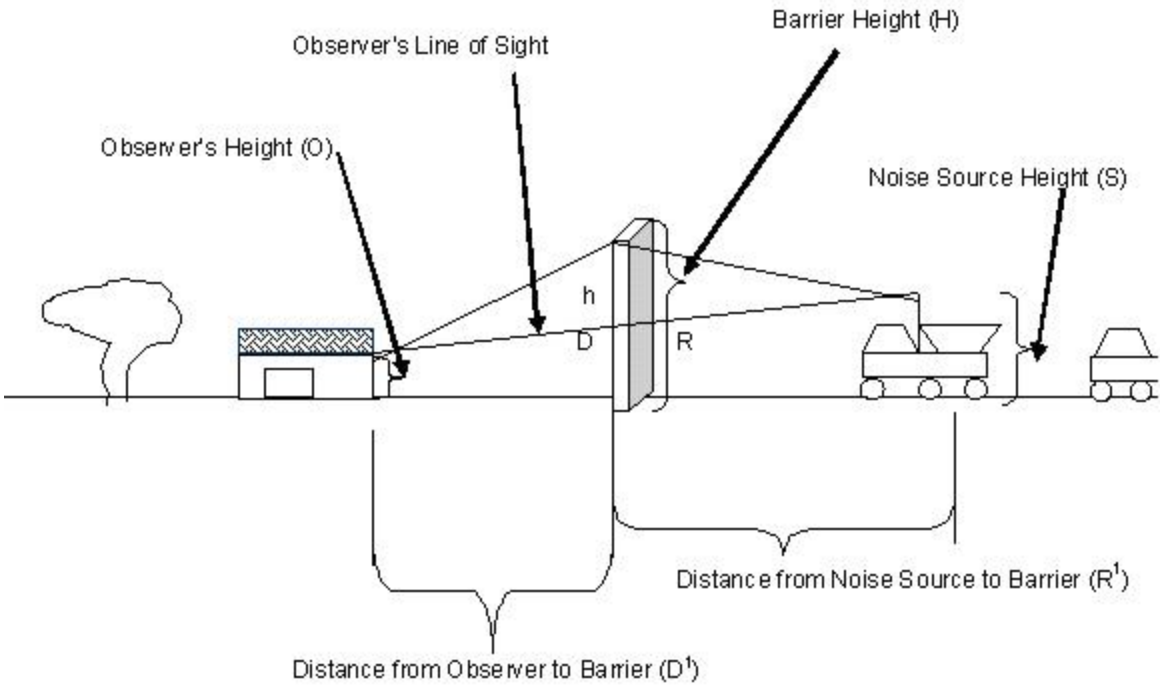
- H = Barrier Height
- S = Noise Source Height
- O = Observer Height (known as the receiver)
- R^1 = Distance from Noise Source to Barrier
- D^1 = Distance from the Observer to the Barrier
- α = Line of sight angle between the Observer and the Noise Source, subtended by the barrier at observer's location

Output Variables

Definitions of the output variables from the mitigation module of the Day/Night Noise Level Assessment Tools as part of the Assessment Tools for Environmental Compliance:

- h = The shortest distance from the barrier top to the line of sight from the Noise source to the Observer.
- R = Slant distance along the line of sight from the Barrier to the Noise Source
- D = Slant distance along the line of sight from the Barrier to the Observer

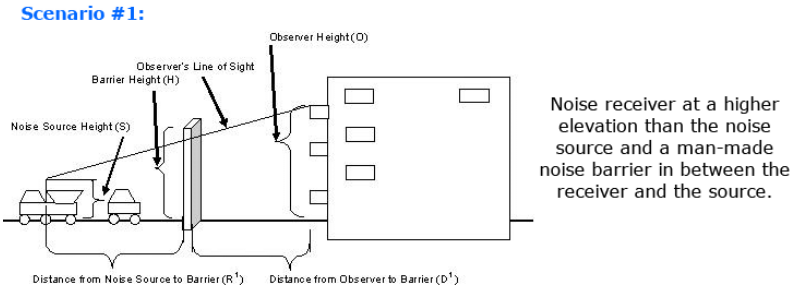
The “actual barrier performance for barriers of finite length” is noted on the worksheets(in the Guidebook) as **FS**.



Barrier Implementation Scenarios

Locate the cursor on the following thumbnails to enlarge the respective scenario as implementation examples of the barrier performance module.

Scenario #1:

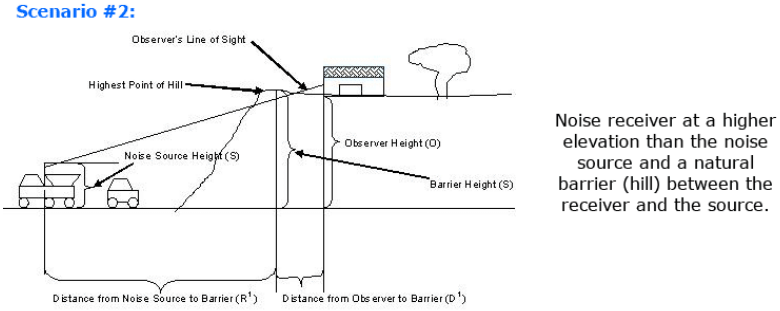


Noise receiver at a higher elevation than the noise source and a man-made noise barrier in between the receiver and the source.

(https://www.hudexchange.info/resources/documents/Barrier-Performance-Module-Barrier-Implementation-Scenario-1.gif)

view larger version of image (/resource/3841/barrier-performance-module-bpm-barrier-implementation-scenarios/)

Scenario #2:



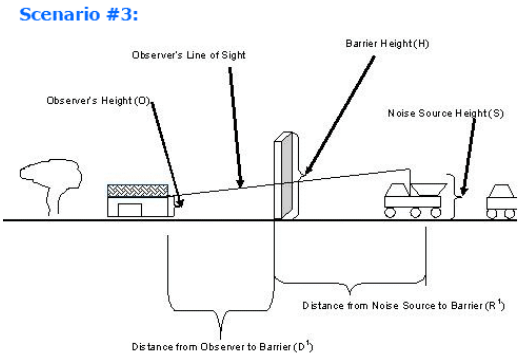
Noise receiver at a higher elevation than the noise source and a natural barrier (hill) between the receiver and the source.

(https://www.hudexchange.info/resources/documents/Barrier-

Performance-Module-Barrier-Implementation-Scenario-2.gif)

view larger version of image (/resource/3841/barrier-performance-module-bpm-barrier-implementation-scenarios/)

Scenario #3:



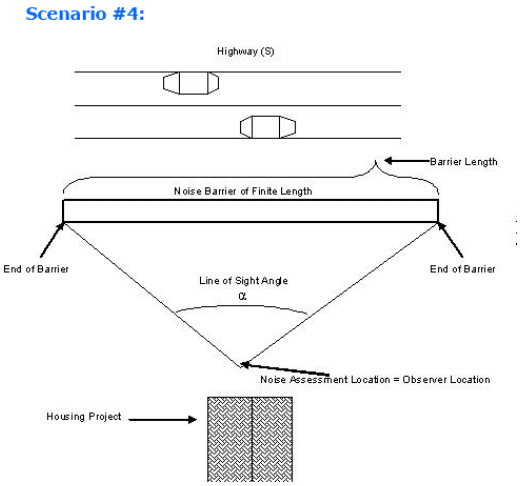
Noise receiver at almost the same elevation of the noise source and a man-made noise barrier between the receiver and the source.

Noise receiver at almost the same elevation of the noise source and a man-made noise barrier between the receiver and the source.

(https://www.hudexchange.info/resources/documents/Barrier-Performance-Module-Barrier-Implementation-Scenario-3.gif)

view larger version of image (/resource/3841/barrier-performance-module-bpm-barrier-implementation-scenarios/)

Scenario #4:



A noise barrier of finite length between a noise source and a receiver. This top view illustrates the angle a, subtended by the barrier at the observer's location.

A noise barrier of finite length between a noise source and a receiver. This top view illustrates the angle α, subtended by the barrier at the observer's location.

(https://www.hudexchange.info/resources/documents/Barrier-Performance-Module-Barrier-Implementation-Scenario-4.gif)

view larger version of image (/resource/3841/barrier-performance-module-bpm-barrier-implementation-scenarios/)

Contents

Groundborne Noise and Vibration Modeling

Notes
The reference distance is measured from the nearest anticipated point of construction equipment to the nearest structure.

	Reference Level Inputs			
Equipment	**PPV_{ref} (in/sec)**	**Lv_{ref} (VdB)**	**RMS_{ref} (in/sec)**	**Reference Distance**
Large bulldozer	0.089	87	0.022	25
Caisson drilling	0.089	87	0.022	25
Loaded trucks	0.076	83	0.014	25

	Vibration Level at Receiver		
Equipment	**Distance (feet)**	**PPV_x (in/sec)**	**RMS_x (in/sec)**
Large bulldozer	25	0.0890	0.022
Caisson drilling	365	0.0047	0.001
Loaded trucks	35	0.0525	0.010

Source
California Department of Transportation (Caltrans). 2020. Transportation and Construction Vibration Guidance Manual (CT-HWANP-RT-20-365.01.01). April. https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tcvgm-apr2020-a11y.pdf. Last Updated: 10/19/2020