

## Attachment 3

County of Santa Cruz

Riparian Exception Permit and Conditioned Biotic Approval

With

Biological Resources Assessment



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# County of Santa Cruz

## PLANNING DEPARTMENT

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Kathleen Molloy, Planning director

### Staff Report

### Riparian Exception Permit and Conditioned Biotic Approval Level 3 – Administrative Review

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<b>Project Name:</b>	Arana Sewer Trunk Line Replacement Project
<b>APN/Site Address:</b>	Existing or new County easements over: 009-291-44, 025-051-15, 025-051-16, 025-051-17, 025-051-18, 025-054-01, 025-054-06, 025-121-02, 025-131-11, 025-141-01; 025-141-14
<b>DPW Project #</b>	P53892
<b>Project Location:</b>	The project alignment generally extends from Brookwood Drive (north of Highway 1) to La Fonda Avenue (south of Highway 1). A portion of the alignment is adjacent to Arana Gulch and a portion passes under Arana Creek.
<b>Applicant/Owner:</b>	Santa Cruz County Sanitation District (SCCSD) Attn: Ashleigh Trujillo
<b>Attachments:</b>	<b>Attachment A.</b> Biological Resources Assessment <b>Attachment B.</b> Wetland Delineation Report

The Planning Department received and reviewed a Biological Resources Assessment (BRA), dated September 2020, and an Aquatic Resources Delineation Report, dated December 2020, prepared by Dudek for the Arana Sewer Trunk Line Replacement Project. Copies of the reports are included as Attachments A and B. The Biotic Report Review was required because of the potential for sensitive habitats and protected species in the disturbance area for this project where grading and trenching for replacement of existing sewer pipe is proposed. In addition, portions of the proposed project are located within the riparian corridor of Arana Gulch and authorization of a Riparian Exception by the Planning Department is required.

#### Project Description

The proposed project involves replacement of an approximately 2,400-linear foot segment of an existing 10-inch aging and deteriorating asbestos cement gravity sanitary sewer trunk line. The project proposes to replace in-place or install new pipe in a new alignment with elimination of some existing manholes. The Project will also include replacement of approximately 325 linear feet of an existing 6-inch sewer line that collects and transmits flows from Salisbury Drive to the Arana sewer trunk line, as well as, replacement of approximately 225 linear feet of an existing 6-inch sewer line in Eleanor Way.

The deteriorated condition of the existing pipe at times results in sewage seeping out and ground water seeping in. During the rainy season, storm water can enter the system, which can overwhelm the system and cause overflows. This excess water is costly to pump and treat. In addition, the manholes in the lower areas become submerged and maintenance crews have trouble accessing them even in the dry season. The project would remove some of these inaccessible manholes and improve access to others.

The project consists of 13 sewer line segments, which occur in between existing manholes. Figure 2 of the BRA illustrates the location of the sewer line segments proposed for replacement. The replacement pipeline would be installed using trenchless methods (pipe-bursting) where possible and conventional (open cut) trenching methods with excavators and loaders where trenchless methods cannot be used. For conventional trenching, the pipeline construction trench would be approximately five feet wide and between 11 and 18 feet deep, and construction activities are expected to occur within an approximate 10 to 15-foot-wide construction corridor. Once installed, the trench would be backfilled and the disturbance area revegetated.

## *Arana Sewer Trunk Line Replacement Project*

Pipe bursting is a method of pipe replacement where a specialized head (expander head or bursting head) is attached to the front of a new pipe, which is then pulled through the existing pipe. The bursting head breaks the existing pipe apart and pushes the pipe fragments outward into the surrounding soil while the new pipe is pulled through to replace it. This method of pipe installation is common where surface disturbance from open trenching should be avoided because it does not require excavation of an open trench along the entire length of the pipe as in conventional pipe-laying.

The only surface soil disturbance required for pipe-bursting is for excavation of launching and receiving pits at either end of the operation. Each pit is approximately 10-20 feet deep (depending on pipe depth) and approximately 200 square feet in area. A machine is placed in the receiving pit to pull the bursting head and new pipe into and through the existing line. The launching and receiving pits require shoring and may need to be dewatered if groundwater is encountered. Dewatering is not necessary for the installation of the pipe itself.

A pipe bursting operation does not require bentonite slurry typically used for Horizontal Direction Drilling (HDD) or microtunnelling operations. This is because the existing pipe and adjacent soils are displaced by the bursting head to accommodate the new pipe being pulled in. As a result there are no down hole bore pressures or pressurized slurry required to hold a bore hole open and there is no risk of an inadvertent return event (aka frac-out) for a typical pipe bursting operation.

The project alignment parallels Arana Gulch for much of its length, and portions of the pipeline replacement will occur within the riparian corridor. Segments 8A and 12 of the existing sewer line both cross beneath Arana Gulch Creek. These segments will be replaced using pipe-bursting methods so proposed construction activities would not require encroachment below the ordinary high water mark (OHWM) of the perennial creek.

### **Baseline Conditions**

The BRA analyzes biotic resources within an approximately 19.70-acre biological study area (BSA) which included the alignment of the entire 2,900-linear feet of proposed Sewer Line replacement and a 100-foot buffer around the proposed project impact area. The BRA identifies the following vegetation communities and land cover types in the BSA: eucalyptus semi-natural woodland stands, coast live oak alliance, arroyo willow alliance, parks and ornamental plantings, and urban/developed. Figure 2 of the attached BRA illustrates the distribution and extent of vegetation communities and land covers within the BSA.

Arana Gulch is a perennial waterway that drains into Monterey Bay at the Santa Cruz Harbor approximately 1.5 miles downstream of the project site. The portion of Arana Gulch that occurs within the BSA is characterized primarily by an incised box-shaped, earthen streambed with segments that are completely concrete-lined where the creek intersects major road crossings (Brookwood Drive, Highway 1, and Soquel Avenue).

Arana Gulch Creek supports a mature riparian corridor with several types of riparian woodland that occur along the banks of the Creek and in the adjacent floodplain. In most of the BSA, the riparian woodland is dominated by arroyo willow thickets with some areas differentiated as *disturbed arroyo willow thickets* in the BRA for their high coverage of non-native species. This community is dominated by a canopy of arroyo willow and a mixture of native and non-native understory vegetation. Within the BSA north of Highway 1 adjacent to the residential areas, the riparian corridor consists of coast live oak alliance and supports an overstory of coast live oak, box elder, and arroyo willow.

There is a seasonal wetland located immediately adjacent to the eastern bank of the Creek south of Highway 1. This area appears to function as a streambed terrace that receives periodic seasonal high flows from Arana Gulch Creek, as well as stormwater runoff from Highway 1. This wetland is located outside of Arana Gulch Creek's OHWM, but within the riparian canopy of the Arana Gulch system. In addition, the Wetland Delineation identifies four small earthen tributaries within the BSA that capture stormwater runoff from immediately adjacent urban areas and drain into Arana Creek.

## Analysis

The project was evaluated by Environmental Planning staff. This evaluation involved review of existing resource information including a query of the California Natural Diversity Data Base (CNDDDB), recent and historic photographs and aerial imagery of the project site, review of the attached reports as well as a 2002 Fish Passage Report completed by the County of Santa Cruz, and the Arana Gulch Habitat Management Plan. The Arana Gulch Habitat Management Plan was prepared for the City of Santa Cruz for a property downstream of the project site, and includes information about the habitat, drainage features, and overall characteristics of the watershed.

The Oak Woodlands, Arroyo Willow Riparian, Wetlands, and perennial drainages within the BSA are considered sensitive under Santa Cruz County's Sensitive Habitat Protection and Riparian Corridor and Wetlands Protection ordinances (Chapters 16.30 and 16.32). Riparian Corridors, as defined by Santa Cruz County Code (SCCC) Section 16.30.030 are granted special protections. Lands extending 100 feet (measured horizontally) from the high-water mark of a lake, wetland, estuary, lagoon or natural body of standing water, lands extending 30 feet (measured horizontally) out from each side of an intermittent stream, lands extending 50 feet (measured horizontally) out from each side of a perennial stream, and lands containing a riparian woodland are considered Riparian Corridors. Development activities are prohibited within Riparian Corridors unless Riparian Exception Findings (SCCC 16.30.060) are met and a Riparian Exception is authorized.

Wetlands and perennial waterways may be regulated under the Clean Water Act Section 404 by the U.S. Army Corps of Engineers (USACE), and Section 401 by the Regional Water Quality Control Board (RWQCB). These features and associated banks of the drainages may be subject to regulation under the Porter-Cologne Water Quality Act as "Waters of the State", and under California Fish and Game Code Section 1602. Biological Resources including special-status species and their habitats, riparian habitats, federally protected wetlands, migration corridors for wildlife, and other sensitive natural communities as identified by local policies, CDFW, or USFWS are also protected under the California Environmental Quality Act (CEQA).

Sensitive plant species are not expected to occur in the project Impact Area, and no impacts to sensitive plant species are anticipated to result from the proposed Project.

The project site and surrounding areas provide habitat for a variety of terrestrial and aquatic wildlife species including special-status species protected under Federal, State, and Local regulations.

The BRA identifies two special-status wildlife species with a moderate potential to occur in the BSA during project construction: California Species of Special Concern San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), and Federal-threatened Central California Coast (CCC) steelhead (*Oncorhynchus mykiss*). Several occupied woodrat nests were observed in the BSA during field surveys. Central California Coast steelhead are known to occur in Arana Gulch Creek and this stream has been identified as Critical Habitat for this species by the National Marine Fisheries Service (NOAA Fisheries).

In addition, Arana Gulch and its riparian corridor provide potential foraging habitat and protective cover for a variety of other wildlife including marginal habitat for California Species of Special Concern Santa Cruz black salamander (*Aneides flavipunctatus niger*) and California giant salamander (*Dicamptodon ensatus*).

The project site also contains potential habitat for nesting birds and roosting bats. Birds of prey and migratory birds are protected under the California Fish and Game Code, and the Federal Migratory Bird Treaty Act (MBTA). Under the MBTA, it is "unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill" a migratory bird unless and except as permitted by regulations. Many local bat species are considered Species of Special Concern by the State of California, and habitat for roosting bats is protected under CFGC Section 4150.

A focused California red-legged frog habitat assessment was conducted following the USFWS Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog (USFWS 2005) to determine if this species has potential to occur in the BSA. The assessment concluded that due to existing

development, lack of suitable aquatic habitat for breeding, and the limited number of California red-legged frog (CRLF) records from the region, CRLF is likely absent from the BSA, and may be absent from Arana Gulch, in general. Additionally, it is unlikely that the biological study area provides dispersal habitat for juveniles or non-breeding habitat for adults due to the absence of off-channel ponds and wetlands, as well as no potential source populations within the 1-mile radius of the study area. In addition, the BRA concluded that tidewater goby is not expected to occur in Arana Gulch Creek within the BSA due to unsuitable habitat conditions.

### **Impacts**

Project implementation will require work within the riparian corridor of Arana Gulch Creek. The project would temporarily impact approximately 0.76 acre of riparian woodland during construction, including 0.56-acre acres within the County defined riparian corridor.

The project would temporarily impact approximately 0.21 acre of seasonal wetland located on the eastern bank of the Creek.

Temporary impacts will result from clearing vegetation for access to the construction sites and open cut trenching to install the proposed new pipeline. Approximately 54 trees will be removed from the riparian woodland. All temporarily disturbed areas of the riparian corridor and seasonal wetland will be restored to pre-project contours and re-vegetated with native species to match the surrounding conditions. No permanent impacts to the riparian corridor or seasonal wetlands will result from project implementation.

Segments 8A and 12 cross under Arana Gulch Creek approximately 7 feet or more below the surface. These segments will be installed using trenchless (pipe bursting) construction method. Impacts below the OHWM, of the Creek are not expected to occur.

The impacts listed above to sensitive habitats also have the potential to result in direct and/or indirect impacts to special-status species that occur within those habitats. Project construction activities including grubbing and vegetation removal, removal of mature trees, grading, and equipment and vehicle access could result in direct injury or mortality to special-status species such as nesting birds, roosting bats, special-status amphibians, woodrats, and steelhead; and could cause harassment and nest abandonment through increased noise levels, vibrational, and visual disturbances, and barriers to movement and dispersal.

### **Conclusion**

The impact area for the proposed project is located largely within existing developed areas. The portion of the pipeline that traverses Arana Gulch will be constructed using trenchless methods as much as possible. Where impacts to the riparian corridor are unavoidable, these impacts have been minimized as much as possible. The completed project is not expected to create any permanent impacts to the riparian corridor, seasonal wetlands, or impediments to dispersal of any wildlife species.

All temporarily impacted areas must be restored to pre-project contours and conditions, or better where possible, upon project completion. Conditions for habitat restoration have been included below. Habitat restoration activities associated with the project will result in improved quality of wetland and riparian habitat.

Construction related activities could result in indirect impacts, and direct injury or mortality, to special-status species. Conditions have been included below to avoid and minimize impacts during construction to the maximum extent possible. Best Management Practices (BMPs) have been included in the project design to avoid and minimize potential impacts to sensitive biological resources. Detailed descriptions of proposed construction activities and methods of avoidance and minimization are included in the attached documents.

There are sensitive habitat constraints on the project site associated with wetlands, riparian habitat, special-status species, and habitat for nesting birds that must be considered prior to and during project implementation. Conditions have been included below to ensure that impacts to special-status species, their habitats, and other sensitive habitats will be *less than significant*.

The Conditions of Approval below shall be incorporated into all phases of development for this project as applicable. The Operational Conditions must be included in the CEQA document as mitigation prior to public circulation.

### Staff Recommendation

The Planning Department has taken administrative action on your application as follows:

<input type="checkbox"/>	Approved without conditions (if not appealed).
<input checked="" type="checkbox"/>	Approved with conditions (if not appealed).
<input type="checkbox"/>	Denied (based on the attached findings).

NOTE: This decision is final unless appealed in accordance with Section 18.10.300 et seq of the Santa Cruz County Code.



Report Prepared By:

Juliette Robinson, Resource Planner IV  
Santa Cruz County Planning Department  
701 Ocean Street, 4th Floor  
Santa Cruz CA 95060

### Riparian Exception Findings

**1. That there are special circumstances or conditions affecting the property.**

*Continued deterioration of the sewer pipes may result in breaches to the system that would put the surrounding residential areas and sensitive habitats at risk. Replacement of the pipes is necessary to prevent failure of the sewer system.*

**2. That the exception is necessary for the proper design and function of some permitted or existing activity on the property.**

*The proposed project is designed to arrest the continued deterioration of existing sewage infrastructure. This project is necessary to ensure continued function of the existing sewer system.*

**3. That the granting of the exception will not be detrimental to the public welfare or injurious to other property downstream or in the area in which the project is located.**

*The exception will benefit the local community by improving sewer infrastructure. The bed and banks of Arana Gulch will be restored to pre-project topography to ensure no negative impacts based upon altered hydrological dynamics. The proposed project is designed to repair and arrest the continued deterioration of existing infrastructure and will be beneficial to downstream water quality.*

**4. That the granting of the exception, in the Coastal Zone, will not reduce or adversely impact the riparian corridor, and there is no feasible less environmentally damaging alternative.**

*The project area is not located within the Coastal Zone.*

**5. That the granting of the exception is in accordance with the purpose of this chapter, and with the objectives of the General Plan and elements thereof, and the Local Coastal Program Land Use Plan.**

*The granting of the exception is in accordance with the purpose of the Riparian Corridor and Wetlands Protection Ordinance, and with the objectives of the General Plan. The project has been designed to minimize impacts to the riparian corridor and sensitive habitat as defined in the Santa Cruz County Code Sections 16.30 and 16.32 to the maximum practicable extent. Disturbed riparian areas shall be restored by re-vegetating with native vegetation.*



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Kathleen Molloy, Planning director

***Arana Sewer Trunk Line Replacement Project***  
**Conditioned Riparian Exception and Biotic Approval**

Your Riparian Exception has been administratively approved by the Planning Department. The Conditions of Approval included below are the terms under which your project can proceed.

Please carefully review the below conditions. *In order to validate this approval, you must sign the permit, affirming that you have reviewed the permit and agree to the conditions imposed by it.* Until this occurs, the permit is not active. By signing this permit below, the owner(s) agree(s) to accept the terms and conditions of this permit and to accept responsibility for payment of the cost for inspection and all other action related to noncompliance with the permit conditions. This permit is null and void in the absence of the required signature(s) below.

**Application Approved By:**

**1/28/2021**

Juliette Robinson, Resource Planner IV  
Santa Cruz County Planning Department  
701 Ocean Street, 4th Floor  
Santa Cruz CA 95060

Date

**Signature of Owner/Agent:**

Santa Cruz County Department of Public Works  
Attn: Matt Machado, District Engineer  
701 Ocean St., Room 410  
Santa Cruz, CA 95060

Date

Please contact Juliette Robinson at (831) 454-3156 or [Juliette.Robinson@santacruzcounty.us](mailto:Juliette.Robinson@santacruzcounty.us) should you have questions about this report.

In accordance with Chapter 18.10 of the County Code, minor variations to this permit which do not affect the overall concept, intensity, or density may be approved by the Planning Director at the request of the applicant or staff.

**Please note: This permit expires three years from the effective date listed below unless the conditions of approval are complied with and the project commences before the expiration date.**

<b>Approval Date: 1/28/2021</b>	<b>Effective Date: 1/28/2021</b>	<b>Expiration date: 1/28/2024</b>
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## Conditions of Approval

- I. This permit authorizes the Santa Cruz County Sanitation District to exercise a Minor Riparian Exception for work associated with the *Arana Sewer Trunk Line Replacement Project*.
- II. Prior to exercising any rights granted by the permit including, without limitation, any occupancy, construction, or site disturbance, the applicant/owner shall:
  - A. Sign, date, and return to the Planning Department one copy of this approval to indicate acceptance and agreement with the conditions thereof.
  - B. Obtain all necessary approvals and/or permits from the appropriate regulatory agencies such as the United States Army Corps of Engineers (USACE), the Regional Water Quality Control Board (RWQCB), National Marine Fisheries Service (NMFS), California Department of Fish and Wildlife (CDFW), and the United States Fish and Wildlife Service (USFWS). The Santa Cruz County Sanitation District is responsible for complying with all measures and conditions included in approvals and permits obtained from these agencies.
  - C. Conduct a pre-construction meeting prior to any site disturbance.
    - a. The meeting shall be intended to ensure that the conditions set forth in the proposed project description and permit requirements are communicated to the various parties responsible for constructing the project.
    - b. The meeting shall include the project contractor supervisor, the Resident Engineer, Santa Cruz County Sanitation District project manager, and the project biologist.
- III. Operational Conditions
  - A. To minimize impacts to sensitive habitats and special-status species the following conditions shall be adhered to:
    1. Every individual working on the Project must attend biological awareness training prior to working on the job site. The training shall be delivered by a qualified biologist and shall include at minimum information regarding the following:
      - a. Location and identification of sensitive habitats and all special-status species with potential to occur in the project area including information specific to identifying special-status amphibians, San Francisco dusky-footed woodrat, protected fish, the habitat for these species, and the project specific measures being implemented to protect these species.
      - b. The importance of avoiding impacts to special-status species and their habitat, and the steps necessary if any special-status species is encountered at any time.
      - c. Identification of the limits of work, and project-specific avoidance measures, protective measures, and permit conditions that must be followed.
    2. Disturbance of riparian vegetation and removal of native trees within the riparian corridor shall be avoided to the maximum extent possible.
    3. Native vegetation that cannot be avoided shall be cut at ground level rather than removed by the roots when possible.
    4. Prior to commencement of construction, high visibility fencing and/or flagging shall be installed, with the assistance of a qualified biologist, to indicate the limits of work and the boundaries of sensitive habitat areas to be avoided.
      - a. The limits of work shall be designated to avoid impacts to the surrounding riparian corridor, and other sensitive habitats to the maximum extent possible and maximize native tree and shrub retention.
      - b. Native trees intended for retention shall be protected at or outside the dripline.

- c. No work-related activity including equipment staging, vehicular access, grading and/or vegetation removal shall be allowed outside the designated limits of work.
- 5. Erosion and sediment control measures must be in place, and best management practices adhered to, during construction. All disturbed soils shall be stabilized to prevent siltation and reduce sediment and chemical-laden runoff into any drainages or water courses within the project vicinity.
- 6. All refueling, maintenance, and staging of equipment and vehicles shall occur at least 60 feet from aquatic or riparian habitat and not in a location from where a spill would drain directly toward aquatic habitat. A spill response plan shall be in place for such event.
- 7. If any special-status species is identified in the project impact area at any time prior to or during construction, work shall cease immediately in the vicinity of the individual. The animal shall either be allowed to move out of harm's way on its own or a qualified biologist shall move the animal out of harm's way to a safe relocation site pursuant to all species-specific restrictions and regulations.
- 8. During initial clearing, grubbing, and grading within the riparian corridor, a qualified biologist shall be present to conduct daily monitoring activities as outlined below and to ensure that all of the appropriate conditions herein are being adhered to.
- 9. After initial clearing, grubbing and grading has been completed, an alternate construction monitor may be trained and designated for execution of daily monitoring activities.
- 10. Daily monitoring by the project biologist or agency-approved construction monitor shall occur for the duration of project construction within the Riparian Corridor of Arana Gulch and all other areas identified as "sensitive habitat" in the study area. Daily monitoring activities shall include the following at minimum:
  - a. Monitoring the work area for the presence of special-status species and ensuring that individuals are properly relocated out of harm's way as needed.
  - b. Monitoring the ESA fences and exclusionary fences at the project site to ensure good working condition and prevent wildlife entrapment.
  - c. Checking under all equipment for wildlife before use.
  - d. Ensuring that at the end of each workday, all excavations are secured with a cover, or a ramp installed to prevent wildlife entrapment.
  - e. All trenches, pipes, culverts or similar structures shall be inspected for animals prior to burying, capping, moving, or filling.
- 11. During project activities, all trash that may attract predators shall be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris shall be removed from work areas.
- 12. To protect San Francisco dusky-footed woodrat, a qualified biologist shall implement the following protection measures:
  - a. Within two weeks prior to commencement of development activities (including clearing and grubbing) a qualified biologist shall survey the project disturbance area to identify any woodrat nest locations that may be affected by the proposed development. All woodrat nests within the construction impact area, and a 25-foot buffer around the construction impact area, shall be clearly flagged.
  - b. If no woodrat nests are found during the survey, no further avoidance and minimization measures for this species are necessary.



- c. If woodrat nests are found, the construction contractor shall avoid the nests by installing a 25-foot buffer with protective fencing or other material that shall prohibit encroachment. A reduction in the size of this buffer, or encroachment into this buffer, may be allowed if the biologist determines that microhabitat conditions such as shade, cover and adjacent food sources can be retained.
- d. If avoidance of woodrat nests is not possible, a qualified biologist shall develop and implement a Woodrat Relocation Plan to be implemented prior to the commencement of construction. The plan shall be developed in consultation with CDFW and shall include the following:
  - i. Trapping and relocation activities shall be conducted during the months of August – September when the species is active and young are able to disperse on their own. Trapping efforts shall not take place during low night temperatures (below 40 degrees Fahrenheit), inclement or extreme weather conditions.
  - ii. If no San Francisco ducky-footed woodrats are captured at a given nest, it shall be dismantled by hand to ground level, and the woody debris spread to reduce rebuilding.
  - iii. For occupied nests, the existing woodrat nest shall be dismantled and the woody debris, including cached food and nesting material, carried to the nearest suitable relocation site outside the Project footprint and used to build an artificial shelter.
  - iv. Sites for artificial shelters shall be located as near as possible to the original nest location and no closer than 20 feet from existing woodrat nests and other artificial shelters. Choose the best available microhabitat, ideally in a location with sun and shade and if possible under the same species of tree or shrub as was present at the original nest location. Relocation sites shall contain biologically-suitable habitat features (e.g. stands of poison oak, coast live oaks, and dense native brush).
  - v. When releasing woodrats, the occupied live-trap shall be placed against the entrance to the artificial shelter, opened, and the woodrat allowed to enter, ideally on its own accord. After the individual enters, the entrance shall be loosely but completely plugged with dirt and leaf duff to encourage it to stay, at least for the short-term.
  - vi. If occupied nests were relocated, monitoring shall be conducted for 30 days after relocation is completed. Monitoring shall include infrared and motion activated cameras, or another method of monitoring approved by CDFW, and an occupancy assessment. A report on San Francisco dusky-footed woodrat nest monitoring shall be provided to CDFW and County Environmental Planning within 30 days following the end of the monitoring period and shall include the methods and results of trapping and relocation, occupancy determinations, monitoring results, and discussion of any remedies that may be needed.

13. To avoid/minimize impacts to nesting birds the following measures shall be adhered:

- a. If removal of vegetation, grading activity, or other use of heavy equipment begins outside of the February 1 to August 31 breeding season, there will be no need to conduct a preconstruction survey for active nests.

- b. Trees intended for removal shall be removed during the period of September 1st through January 31st, in order to avoid the nesting season.
  - c. If removal of vegetation, grading activity, or other use of heavy equipment is to commence between February 1st and August 31st, a survey for active bird nests shall be conducted by a qualified biologist within two weeks prior to the start of such activity. The survey area shall include the project area, and a survey radius around the project area of 50 feet for MBTA birds and 250 feet for birds of prey.
  - d. If no active nest of a bird of prey or MBTA bird is found, then no further avoidance and minimization measures are necessary.
  - e. If active nest(s) of MBTA birds or birds of prey are found in the survey area, the following avoidance buffers shall be adhered to unless otherwise advised by CDFW or USFWS: Avoidance buffer of 50 feet for MBTA birds and 250 feet for birds of prey shall be established around the active nest(s). The biologist shall monitor the nest and advise the applicant when all young have fledged the nest. Removal of vegetation, grading activity, or other use of heavy equipment may begin after fledging is complete.
  - f. If the biologist determines that a smaller avoidance buffer will provide adequate protection for nesting birds, a proposal for alternative avoidance/protective measures, potentially including a smaller avoidance buffer and construction monitoring, may be submitted to USFWS and CDFW for review and approval prior to removal of vegetation, grading activity, or other use of heavy equipment.
  - g. If removal of vegetation, grading activity, or other use of heavy equipment stops for more than two weeks during the nesting season (February 1st - August 31st) a new survey shall be conducted prior to re-commencement of construction.
14. To avoid/minimize impacts to special-status bats the following measures shall be adhered to:
- a. Conduct limbing/tree removal operations between September 15 and November 1 to avoid bat maternity roosts and winter hibernacula.
  - b. Prior to commencement of construction related activities including tree trimming and removal, a qualified biologist shall conduct a pre-construction survey for bats as follows:
    - i. The biologist shall determine if bats are utilizing the site for roosting. For any trees/snags/buildings that could provide roosting space for cavity or foliage-roosting bats, potential bat roost features shall be thoroughly evaluated to determine if bats are present. Visual inspection and/or acoustic surveys shall be utilized as initial techniques.
    - ii. If roosting bats are found, the biologist shall develop and implement acceptable passive exclusion methods in coordination with or based on CDFW recommendations. If feasible, exclusion shall take place during the appropriate windows (September 15 and November 1) to avoid harming bat maternity roosts and/or winter hibernacula. (Authorization from CDFW is required to evict winter hibernacula for bats).
    - iii. If established maternity colonies are found, in coordination with CDFW, a buffer shall be established around the colony to protect pre-volant young from construction disturbances until the young can fly; or implement other measures acceptable to CDFW.

iv. If a tree is determined not to be an active roost site for roosting bats, it may be immediately limbed or removed as follows:

- If foliage roosting bats are determined to be present, limbs shall be lowered, inspected for bats by a bat biologist, and chipped immediately or moved to a dump site.
- Alternately, limbs may be lowered and left on the ground until the following day, when they can be chipped or moved to a dump site. No logs or tree sections shall be dropped on downed limbs or limb piles that have not been in place since the previous day.

B. To compensate for disturbance of sensitive habitats, and to comply with the Santa Cruz County General Plan Policy 5.1.12, the area of temporarily disturbed sensitive habitat shall be replaced in-kind at a minimum restoration to impact ratio of 1:1. A site-specific Habitat Restoration Plan shall be developed by a qualified biologist or restoration professional, and shall include the following minimum elements:

1. Identification of areas on site where temporary disturbance and re-establishment of native habitat shall occur. All areas temporarily disturbed as a result of the project shall be restored to pre-project contours to the maximum extent possible and re-vegetated with native plant species appropriate to the habitat disturbed.
2. A tree inventory assessment including the species, size, and locations of all trees intended for removal.
3. All native trees removed shall be replaced in-kind at a minimum 1:1 ratio. Non-native trees removed shall be replaced at a minimum 1:1 ratio by native tree species appropriate to the surrounding habitat.
4. A site-specific planting plan intended to inform the re-vegetation efforts. Local plant stock shall be used whenever possible. The plant pallet should include native species common to the surrounding native habitats that are being restored.
  - a. Species, size, and locations of all restoration plantings (including replacement trees) shall be included in the planting plan.
  - b. Plantings of native shrubs and herbaceous vegetation shall occur at sizes and ratios determined by the restoration specialist to adequately restore native habitat while maximizing plant health and survivability of individual trees and shrubs.
  - c. In areas designated for emergent wetland or seasonal wetland restoration, wetland plantings of native hydrophytic plant species and native erosion seed mix specific to wetlands shall be installed.
5. The enhancement objectives, type, and amount of revegetation to be implemented, and the specific methods to be employed for revegetation.
6. Information regarding the methods of irrigation for restoration plantings.
7. Plan for removal of non-native species and a management strategy to control re-establishment of invasive non-native species within the project impact area. This plan should include identification of areas adjacent to the project impact area where rehabilitation activities such as invasive plant removal may occur to reduce long-term recolonization of restored areas by invasive species.

8. A 5-year management plan for maintenance and monitoring of restored areas to maintain 100% survival of installed container stock in year 1, 90% survival in years 2-3, and at least 80% survival in years 4-5.
  - a. The management plan should include success criteria and monitoring requirements to ensure restoration success, including remedial measures to be implemented in the event that performance standards are not achieved.
  - b. Replacement plants shall be installed as needed during the monitoring period to meet survival rates.
  - c. Annual habitat monitoring reports shall be submitted to the County Planning Department by December 31 of each monitoring year.
9. The project proponent shall be responsible for execution of the 5-year management plan for maintenance and monitoring of restored areas. If responsibility is transferred legally to another entity, County Environmental Planning Staff shall be informed of any such transfer of responsibility.
10. Establishment and planting of all restoration and mitigation area(s) as outlined in the final approved Restoration Planting Plan shall be inspected and approved by Environmental Planning staff prior to final project approval.

# BIOLOGICAL RESOURCES ASSESSMENT for the ARANA SEWER TRUNK LINE REPLACEMENT PROJECT

**Address:** None

**Assessor's Parcel Numbers:** 009-291-44, 025-051-15,  
025-051-16, 025-051-17, 025-051-18, 025-054-01, 025-054-06,  
025-121-02, 025-131-11, and 025-141-01, 025-141-14

**Owner:** Santa Cruz County Sanitation District

**Permit/Application Type:** County

**County Application Number:** Unknown

*Prepared for:*

**Murraysmith**

3400 Douglas Boulevard, Suite 190

Roseville, California 95661

*Contact: Linda Scroggs*

*Prepared by:*

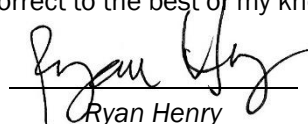
**DUDEK**

725 Front Street, Suite 400

Santa Cruz, California 95060

*Contact: Ryan Henry*

"I hereby certify that this Biological Resources Assessment was prepared according to the Guidelines established by the County of Santa Cruz Planning Department and that the statements furnished in the report and associated maps are true and correct to the best of my knowledge and belief."



Ryan Henry  
Senior Biologist

SEPTEMBER 2020



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# Acronyms and Abbreviations

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Acronym/Abbreviation	Definition
BMP	best management practice
BSA	biological study area
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFGC	California Fish and Game Code
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
County	County of Santa Cruz
CRPR	California Rare Plant Rank
ESA	Endangered Species Act
IPaC	Inventory for Planning and Conservation
LCP	Local Coastal Program
MBTA	Migratory Bird Treaty Act
MM	Mitigation Measure
project	Arana Sewer Trunk Line Replacement Project
RWQCB	Regional Water Quality Control Board
USACE	United States Army Corps of Engineers
USC	United States Code
USFWS	United States Fish and Wildlife Service

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# 1 Introduction

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This report describes the results of a comprehensive biological resources assessment conducted for the proposed Arana Sewer Trunk Line Replacement Project (project) located within the City of Santa Cruz and unincorporated portions of Santa Cruz County that parallel Arana Gulch Creek (project site) (Figure 1, Project Location). The Santa Cruz County Sanitation District (SCCSD) completed construction of the Arana Sewer Trunk Line in March 1959. Since its construction, it has served as one of several facilities serving the central portion of the County. Replacement of the Arana Sewer Trunk Line is currently identified as one of several critical capital improvement projects planned for the 2020-2021 fiscal year. Replacement of the sewer trunk line located just north and south of Highway 1 is considered necessary to allow for the continued safe and reliable operation of this facility. The proposed replacement would generally overlap or parallel the existing line and occur within the existing easement (the proposed project).

The purpose of this report is to (1) describe the conditions of biological resources within the project site in terms of vegetation communities, plants, wildlife, wildlife habitats, and wetlands; (2) quantify potential direct and indirect impacts to biological resources that would result from the proposed project; (3) discuss those impacts in terms of biological significance in view of federal, state, and local laws and County of Santa Cruz (County) policies; and (4) specify measures to avoid, minimize, and/or mitigate any adverse impacts that would occur to biological resources as a result of project implementation. This assessment is intended to support the project's Initial Study and Mitigated Negative Declaration, which are currently being prepared as part of the environmental review pursuant to the California Environmental Quality Act (CEQA). This biological resources assessment was conducted in compliance with CEQA sections 15064 and 15605, and followed policies described in the Santa Cruz County General Plan and Local Coastal Program (County of Santa Cruz 1994), and Santa Cruz County Code Chapters 16.30 (Riparian Corridor and Wetlands Protection) and 16.32 (Sensitive Habitat Protection).

## 1.1 Project Location

The proposed project is primarily located in an unincorporated area of Santa Cruz County, except for the southern portion that is located within the City of Santa Cruz. The project alignment generally extends from Brookwood Drive (north of Highway 1) to La Fonda Avenue (south of Highway 1), a portion of which is within a heavily vegetated riparian area adjacent to Arana Gulch Creek (also referred locally as Arana Gulch or Arana Gulch Creek; Figure 1). The existing and proposed alignment passes under a short segment of Arana Gulch Creek. Most of the alignment is within the 100-year floodplain of Arana Gulch Creek as designated by the Federal Emergency Management Agency. Elevations range from approximately 620 to 650 feet above mean sea level. The project site is located in Section 8 of Township 11 South, Range 1 West of the Soquel California 7.5-minute United States Geological Survey quadrangle map.

For the purposes of this analysis, a 100-foot buffer was established along an approximately 2,400-linear foot segment of the Arana Sewer Trunk Line to describe biological resources within the immediate vicinity of the project site. This buffer area encompasses a total of 19.70 acres and is considered the biological study area (BSA) evaluated for this Biological Resources Assessment.

## 1.2 Project Description

The project consists of replacement of an approximately 2,400-linear foot segment of an existing 10-inch asbestos cement gravity sanitary sewer trunk line. The purpose is to replace the existing aging, deteriorated line, and manholes. The current plan is to remove the existing line and replace it with a new pipeline with replacement, potential re-alignment, and/or elimination of some existing manholes. The Project will also include replacement of approximately 325 linear feet of an existing 6-inch sewer line that collects and transmits flows from Salisbury Drive to the Arana Sewer Trunk Line, as well as, replacement of approximately 225 linear feet of an existing 6-inch sewer line in Eleanor Way.

Construction access would be from existing developed areas. South of Highway 1, access would be provided via Soquel Avenue and La Fonda Avenue and from an existing parking lot at Harbor High School that would also be expected to be used as a construction staging area. It is anticipated that temporary access for construction equipment would be created through the existing riparian area for the installation of the new pipeline. North of Highway 1, access would be provided from Brookwood Drive with use of an undeveloped, flat area next to the road as a construction staging area. It is expected that the pipeline would be installed over an approximate 4 to 6-month period.

The project consists of 13 sewer line segments, which occur in between existing manholes. Figure 2, Biological Resources, illustrates the location of the proposed sewer line segments. The replacement pipeline would be installed using trenchless and conventional (open cut) trenching methods with excavators and loaders. For conventional trenching, which is planned for four segments (1, 2B, 3, 5, 7 8B<sup>1</sup> and 9), the pipeline construction trench would be approximately five feet wide and between 11 and 18 feet deep, and construction activities are expected to occur within an approximate 10-foot-wide to 15-foot-wide construction corridor. Once installed, the trench would be backfilled and revegetated.

Trenchless construction methods are planned be used for all other pipeline segments. The current plan is to extend the sewer line under Highway 1 on the east and under Soquel Avenue on the west via a bore-and-jack construction method. The sewer line also will cross a short segment of Arana Gulch Creek near Highway 1. The creek bed is estimated to be approximately 10 feet wide in this location.

During construction activities temporary erosion control measures, such as sandbagged silt fences, will be installed. Soil exposure will be minimized through use of temporary construction best management practices (BMPs), groundcover, and stabilization measures. Exposed dust-producing surfaces will be sprinkled daily, if necessary, until wet; this measure will be controlled to avoid producing runoff. Paved streets will be swept daily following construction activities.

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<sup>1</sup> Segment 8 is divided in two parts: 8A, which will be installed via a trenchless method and 8B, which will be installed via open trench construction.

## 2 Regulatory Setting

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### 2.1 Federal

#### 2.1.1 Clean Water Act

The Federal Water Pollution Control Act of 1972 (Clean Water Act) (33 United States Code [USC] 1251 et seq.), as amended by the Water Quality Act of 1987 (PL 100-4), is the major federal legislation governing water quality. The purpose of the Clean Water Act is to “restore and maintain the chemical, physical, and biological integrity of the nation’s waters.” Discharges into waters of the United States are regulated under Section 404. Waters of the United States include (1) all navigable waters (including all waters subject to the ebb and flow of tides); (2) all interstate waters and wetlands; (3) all other waters, such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, and natural ponds; (4) all impoundments of waters mentioned above; (5) all tributaries to waters mentioned above; (6) the territorial seas; and (7) all wetlands adjacent to waters mentioned above. In California, the State Water Resources Control Board and the nine Regional Water Quality Control Boards (RWQCBs) are responsible for implementing the Clean Water Act. Important applicable sections of the Clean Water Act are as follows:

- Section 401 requires an applicant for any federal permit for an activity that may result in a discharge to waters of the United States to obtain certification from the state that the discharge will comply with other provisions of the Clean Water Act. Certification is provided by the respective RWQCB.
- Section 402 establishes the National Pollutant Discharge Elimination System, a permitting system for the discharge of any pollutant (except for dredge or fill material) into waters of the United States. The National Pollutant Discharge Elimination System program is administered by the RWQCB. Conformance with Section 402 is typically addressed in conjunction with water quality certification under Section 401.
- Section 404 provides for issuance of dredge/fill permits by the United States Army Corps of Engineers (USACE). Permits typically include conditions to minimize impacts on water quality and required compensation for loss of waters of the United States.

#### 2.1.2 Federal Endangered Species Act

The federal Endangered Species Act (ESA) of 1973 (16 USC 1531 et seq.), as amended, is administered by the U.S. Fish and Wildlife Service (USFWS) for most plant and animal species, and by the National Oceanic and Atmospheric Administration National Marine Fisheries Service for certain marine species. This legislation is intended to provide a means to conserve the ecosystems upon which endangered and threatened species depend, and to provide programs for the conservation of those species, thus preventing the extinction of plants and wildlife. The federal ESA defines an endangered species as “any species that is in danger of extinction throughout all or a significant portion of its range.” A threatened species is defined as “any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.” Under the federal ESA, it is unlawful to take any listed species; “take” is defined as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” The federal ESA provides for designation of critical habitat, defined in federal ESA Section 3(5)(A) as specific areas within the geographical range occupied by a species where physical or biological features “essential to the conservation of the species” are found and that “may require special

management considerations or protection.” Critical habitat may also include areas outside the current geographical area occupied by the species that are nonetheless “essential for the conservation of the species.” Critical habitat designations identify, with the best available knowledge, those biological and physical features (primary constituent elements) that provide for the life history processes essential to the conservation of the species.

The federal ESA allows for the issuance of incidental take permits for listed species under Section 7, which is generally available for projects that also require other federal agency permits or other approvals, and under Section 10, which provides for the approval of habitat conservation plans on private property without any other federal agency involvement.

### 2.1.3 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) was originally passed in 1918 as four bilateral treaties, or conventions, for the protection of a shared migratory bird resource. The primary motivation for the international negotiations was to stop the “indiscriminate slaughter” of migratory birds by market hunters and others. The MBTA protects over 800 species of birds (including their parts, eggs, and nests) from killing, hunting, pursuing, capturing, selling, and shipping unless expressly authorized or permitted.

## 2.2 State

### 2.2.1 California Environmental Quality Act

CEQA requires identification of a project’s potentially significant impacts on biological resources and ways that such impacts can be avoided, minimized, or mitigated. The act also provides guidelines and thresholds for use by lead agencies for evaluating the significance of proposed impacts.

CEQA Guidelines Section 15380(b)(1) defines endangered animals or plants as species or subspecies whose “survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors” (14 CCR 15380(b)(1). A rare animal or plant is defined in Section 15380(b)(2) as a species that, although not presently threatened with extinction, exists “in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or ... [t]he species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered ‘threatened’ as that term is used in the federal Endangered Species Act.” Additionally, an animal or plant may be presumed to be endangered, rare, or threatened if it meets the criteria for listing, as defined further in CEQA Guidelines Section 15380(c).

The California Department of Fish and Wildlife (CDFW) has developed a list of “Special Species” as “a general term that refers to all of the taxa the California Natural Diversity Database (CNDDB) is interested in tracking, regardless of their legal or protection status.” This is a broader list than those species that are protected under the federal ESA, the California ESA, and other CFGC provisions, and includes lists developed by other organizations, for example, the Audubon Watch List Species. Guidance documents prepared by other agencies, including the Bureau of Land Management Sensitive Species and USFWS Birds of Special Concern, are also included on this CDFW Special Species list. Additionally, CDFW has concluded that plant species included on the California Native Plant Society’s (CNPS) California Rare Plant Rank (CRPR) List 1 and 2, and potentially some List 3 plants, are covered by CEQA Guidelines Section 15380.



Section IV, Appendix G (Environmental Checklist Form), of the CEQA Guidelines requires an evaluation of impacts to “any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service” (14 CCR 15000 et seq.).

## 2.2.2 California Endangered Species Act

The California ESA (CFGF Section 2050 et seq.) provides protection for and prohibits the take of plant, fish, and wildlife species listed by the State of California. Unlike the federal ESA, state-listed plants have the same degree of protection as wildlife, but insects and other invertebrates may not be listed. “Take” is defined similarly to the federal ESA and is prohibited for both listed and candidate species. Take authorization may be obtained by the project applicant from the CDFW under California ESA Section 2081, which allows take of a listed species for educational, scientific, or management purposes. In this case, private developers consult with the CDFW to develop a set of measures and standards for managing the listed species, including full mitigation for impacts, funding of implementation, and monitoring of mitigation measures.

## 2.2.3 California Fish and Game Code

### ***Fully Protected Species***

The classification of “fully protected” was the state’s initial effort in the 1960s to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, mammals, amphibians and reptiles, birds, and mammals. Fully protected species may not be taken or possessed at any time, and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock. “Take” is defined as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.”

### ***Lake and Streambed Alteration***

Under CFGF Section 1602, CDFW has authority to regulate work that will 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. CDFW also has authority to regulate work that will deposit or dispose of debris, water, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. This regulation takes the form of a requirement for a Lake or Streambed Alteration Agreement and is applicable to any person, state, or local governmental agency or public utility (CFGF Section 1601). CDFW jurisdiction includes ephemeral, intermittent, and perennial watercourses (including dry washes) and lakes characterized by the presence of a definable bed and banks and existing fish or wildlife resources. In practice, CDFW marks its jurisdictional limit at the top of the stream or lake bank or the outer edge of the riparian vegetation, where present, and sometimes extends its jurisdiction to the edge of the 100-year floodplain. Because riparian habitats do not always support wetland hydrology or hydric soils, wetland boundaries, as defined by Clean Water Act Section 404, sometimes include only portions of the riparian habitat adjacent to a river, stream, or lake. Therefore, jurisdictional boundaries under CFGF Section 1602 may encompass a greater area than those regulated under Clean Water Act Section 404; CDFW does not have jurisdiction over ocean or shoreline resources.

***California Fish and Game Code Sections 3503, 3511, 3513, 4150***

CFGF Section 3503 states that it is unlawful to take, possess, or needlessly destroy the nests or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. CFGF Section 3503.5 protects all birds-of-prey (raptors) and their eggs and nests. CFGF Section 3511 states that fully protected birds or parts thereof may not be taken or possessed at any time. CFGF Section 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the MBTA. All nongame mammals, including bats, are protected by CFGF Section 4150.

## 2.2.4 Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act established the State Water Resources Control Board and RWQCBs as the principal state agencies responsible for the protection of water quality in California. The Central Coast RWQCB has regulatory authority over the project site. The Porter-Cologne Water Quality Control Act provides that “All discharges of waste into the waters of the state are privileges, not rights.” Waters of the State are defined in Section 13050(e) of the Porter-Cologne Water Quality Control Act as “any surface water or groundwater, including saline waters, within the boundaries of the state.” All dischargers are subject to regulation under the Porter-Cologne Water Quality Control Act, including both point- and nonpoint-source dischargers. The Central Coast RWQCB has the authority to implement water quality protection standards through the issuance of permits for discharges to waters at locations within its jurisdiction. As noted above, the Central Coast RWQCB is the appointed authority for Section 401 compliance on the project site.

## 2.2.5 California Native Plant Protection Act

The Native Plant Protection Act of 1977 directed the CDFW to carry out the Legislature’s intent to “preserve, protect, and enhance rare and endangered plants in this State.” The Native Plant Protection Act gave the California Fish and Game Commission the power to designate native plants as “endangered” or “rare,” and to protect endangered and rare plants from take. The California ESA expanded on the original Native Plant Protection Act and enhanced legal protection for plants, but the Native Plant Protection Act remains part of the CFGF. To align with federal regulations, the California ESA created the categories of “threatened” and “endangered” species. It converted all “rare” animals as threatened species but did not do so for rare plants. Thus, there are three listing categories for plants in California: rare, threatened, and endangered. Because rare plants are not included in the California ESA, appropriate compensatory mitigation measures for significant impacts to rare plants are typically negotiated between the CDFW and the project proponent.

## 2.3 Local

### 2.3.1 County of Santa Cruz General Plan and Local Coastal Program

The Santa Cruz County General Plan and Local Coastal Program (LCP) is a comprehensive, long-term planning document for the unincorporated areas of the County, and includes the County’s LCP, which was certified by the California Coastal Commission in 1994 (County of Santa Cruz 1994). The County General Plan and LCP provides policies and programs to establish guidelines for future growth and all types of physical developments.

The County's General Plan, Chapter 5, Conservation and Open Space, Objective 5.2, Riparian Corridors and Wetlands, establishes definitions for riparian corridors and wetlands to ensure their protection. Policies 5.2.1 through 5.2.5 identify and define riparian corridors and wetlands, determine the uses that are allowed in and adjacent to these habitats, and specify required buffer setbacks and performance standards for land in and adjacent to these areas. Riparian corridors are defined as 50 feet from the top of a distinct channel or physical evidence of high water mark of perennial stream; 30 feet from the top of a distinct channel or physical evidence of high water mark of an intermittent stream as designated on the General Plan maps and through field inspection of undesignated intermittent and ephemeral streams; 100 feet of the high water mark of a lake, wetland, estuary, lagoon, or natural body of standing water; the landward limit of a riparian woodland plant community; and wooded arroyos within urban areas (County of Santa Cruz 1994). The County definitions are consistent with those used for CEQA purposes.

The County certified LCP is administered by the County Planning Department, pursuant to the California Coastal Act, and includes specific plans and ordinances for activities within the Coastal Zone. The LCP implementing ordinances in the County Code that are particularly relevant in the evaluation of biological resources of the proposed project include the following:

- Grading Ordinance (Chapter 16.20)
- Erosion Control Ordinance (Chapter 16.22)
- Riparian Corridor and Wetlands Protection (Chapter 16.30)
- Sensitive Habitat Protection (Chapter 16.32)
- Significant Trees Protection (Chapter 16.34)

Because the proposed project does not occur within the Coastal Zone and is exempt from the LCP, it would not require compliance with the LCP, or the standards contained in the above LCP implementing ordinances. The proposed project would not require a Coastal Development Permit. However, some of the other ordinances require separate approvals or permits (e.g., Riparian Exception) and would be required for the proposed project. The relevant implementing ordinances are described below.

### 2.3.1.1 Grading and Erosion Control Ordinances

Santa Cruz County Code Chapter 16.20, Grading Regulations, sets forth rules and regulations to control all grading, including excavations, earthwork, road construction, dredging, diking, fills, and embankments. Santa Cruz County Code Chapter 16.22 requires control of all existing and potential conditions of accelerated (human-induced) erosion, and sets forth required provisions for project planning, preparation of erosion control plans, runoff control, land clearing, and winter operations.

### 2.3.1.2 Riparian Corridor Protection Ordinance

Santa Cruz County Code Chapter 16.30, Riparian Corridor and Wetlands Protection, includes regulations to limit development activities in riparian corridors. The regulations provide that "no project shall undergo developmental activities in riparian corridors or areas with urban or rural service lines which are within a buffer zone as measured from the top of the arroyo." Buffer areas are specified in the regulations and are determined from characteristics found in the riparian area, including average slope within 30 feet of water's edge, vegetation, and stream characteristics. The buffer always extends 50 feet from the edge of riparian woodland and 20 feet beyond the edge of other woody vegetation, as determined by the dripline. After the buffer is determined, a 10-foot setback from the

edge of the buffer is required for all structures, which allows construction equipment and use of a yard area. Exceptions and conditioned exceptions to the provisions of this code may be authorized. Findings meeting the following criteria define the circumstances necessary in granting an exception to the above requirements:

1. That there are special circumstances or conditions affecting the property.
2. That the exception is necessary for the proper design and function of some permitted or existing activity on the property.
3. That the granting of the exception will not be detrimental to the public welfare or injurious to other property downstream or in the area in which the project is located.
4. That the granting of the exception, in the Coastal Zone, will not reduce or adversely impact the riparian corridor, and there is no feasible less environmentally damaging alternative.
5. That the granting of the exception is in accordance with the purpose of this chapter, and with the objectives of the General Plan and elements thereof, and the Local Coastal Program Land Use Plan.

### 2.3.1.3 Sensitive Habitats Protection Ordinance

Santa Cruz County Code Chapter 16.32 regulates development in or adjacent to specified environmentally sensitive habitat areas. An area defined as “sensitive habitat” under this ordinance includes various criteria, and includes all lakes, wetlands, estuaries, lagoons, streams, rivers, and riparian corridors. No development activity may occur within an area of biotic concern unless approval is issued or unless the activity is reviewed concurrently with the review of an associated development or land division application. All development within environmentally sensitive habitat must be mitigated or restored. The following findings are necessary in granting an exception to the provisions and requirements of this ordinance:

1. that adequate measures will be taken to ensure consistency with the purpose of this chapter to minimize the disturbance of sensitive habitats; and
2. one of the following situations exists:
  - a. the exception is necessary for restoration of a sensitive habitat; or
  - b. it can be demonstrated by biotic assessment, biotic report, or other technical information that the exception is necessary to protect public health, safety, or welfare.

Any development activity that has received a riparian exception according to the provisions of Santa Cruz County Code Chapter 16.30 would not be subject to this chapter. Given that a riparian exception is expected to apply to the proposed project, the Significant Habitats Protection Ordinance is not further discussed in this report.

### 2.3.2 City of Santa Cruz City-wide Creeks and Wetlands Management Plan

Activities within and adjacent to the riparian area along Arana Gulch Creek are regulated by the *City-wide Creeks and Wetlands Management Plan* (Creeks Plan; City of Santa Cruz 2008). The Creeks Plan was adopted by the City Council to provide a comprehensive approach to managing all creeks and wetlands within the City. The Plan recommends specific setback requirements based on biological, hydrological, and land use characteristics for various watercourse types within the City. The recommended setbacks within a designated management area include a riparian corridor setback and a development setback area; an additional area extends from the outward

edge of the development area to the outer edge of the management area. The Management Plan outlines a process for permitting development adjacent to watercourses. Projects that require a Watercourse Development Permit would be subject to the provisions in Chapter 24.08, Part 21 of the City's Municipal Code (Zoning Regulations) that pertain to issuance of these permits. The Plan and zoning regulations include specified development standards and management guidelines.

On the project site, Arana Gulch Creek within City limits is identified as mostly Reach 1B at the western end of the pipe alignment near La Fonda Avenue and is partially underground in this location. The Creeks Plan identifies the following setbacks for Reach 1B: riparian corridor of 20 feet, development setback of 25 feet, and management area of 50 feet (measured from the creek centerline). A short segment of the creek east of the northeastern corner of Harbor High is identified as Reach 1A with a required riparian setback of 100 feet with a 130-foot development setback within a 155-foot management area (all measured from the creek centerline). Development within these areas require approval of a Watercourse Permit from the City. However, repair, maintenance or minor alteration of existing public utilities or projects that are reviewed and approved under another authorizing permitting agency (USACE, RWQCB, and/or CDFW) are exempt from City permit requirements.

### 2.3.3 City of Santa Cruz Heritage Tree Ordinance

Chapter 9.56 of the City Municipal Code defines heritage trees, establishes permit requirements for the removal of a heritage tree, and sets forth mitigation requirements as adopted by resolution by the City Council. Resolution NS-23, 710 adopted by the City Council in April 1998 establishes the criteria for permitting removal of a heritage tree and indicates that one or more of the following findings must be made by the Director of Parks and Recreation:

1. The heritage tree or heritage shrub has, or is likely to have, an adverse effect upon the structural integrity of a building, utility, or public or private right of way;
2. The physical condition or health of the tree or shrub, such as disease or infestation, warrants alteration or removal; or
3. A construction project design cannot be altered to accommodate existing heritage trees or heritage shrubs.

Resolution NS-21, 436 sets forth the tree replacement/mitigation requirements for approved removal of a heritage tree to include replanting three 15-gallon or one 24-inch size specimen or the current retail value which shall be determined by the Director of Parks and Recreation. Removal would be permitted if found in accordance with the above criteria and requirements. Approval of a tree removal permit automatically requires replacement trees as set forth above. Removal of heritage trees consistent with City regulations and requirements is not considered a significant impact.

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## 3 Methods

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Data regarding biological resources present within the 19.70-acre BSA were obtained through a review of pertinent literature, field reconnaissance, and focused surveys, which are described in detail below. For purposes of this report, special-status resources are defined as follows:

- Special-status plant species include (1) species designated as either rare, threatened, or endangered by the CDFW or USFWS and are protected under either the California ESA (CFGF Section 2050 et seq.) or the federal ESA (16 USC 1531 et seq.); (2) species that are candidate species being considered or proposed for listing under the federal or California ESA; (3) species that are included on the CDFW Special Vascular Plants, Bryophytes, and Lichens List (CDFW 2020a), or species with a CRPR of 1 or 2 in the CNPS Inventory of Rare and Endangered Plants of California (CNPS Inventory) (CNPS 2020); (4) species given protection under the City of Santa Cruz General Plan and Municipal Code.
- Special-status wildlife species include (1) species designated as either rare, threatened, or endangered by the CDFW or USFWS and are protected under either the California ESA (CFGF Section 2050 et seq.) or the federal ESA (16 USC 1531 et seq.); (2) species that are candidate species being considered or proposed for listing under the federal or California ESA; (3) species that are included on the CDFW Special Animals List (CDFW 2019a).
- Special-status vegetation communities are those designated as sensitive by the CDFW or those that provide habitat for special-status species.

### 3.1 Literature Review

Prior to field surveys, special-status biological resources present or potentially present within the BSA were identified through queries of the City of Santa Cruz Online GIS database (City of Santa Cruz 2020), CNDDB (CDFW 2019c), U.S. Fish and Wildlife Service (USFWS) Inventory for Planning and Conservation (IPaC) database (USFWS 2019), California Native Plant Society's (CNPS) Inventory of Rare and Endangered Plants data (CNPS Inventory) (CNPS 2019), and United States Department of Agriculture Web Soil Survey (USDA 2020a). The CNPS Inventory and CNDDB were queried based on the U.S. Geological Survey 7.5-minute quadrangle on which the study area is located (Soquel) and the six surrounding quadrangles (Santa Cruz, Felton, Laurel, Loma Prieta, Watsonville West, and Moss Landing). The remaining databases were queried using GIS software based on a 10-mile buffer around the BSA.

General information regarding wildlife species distribution in the region and potential presence within the BSA was primarily obtained from Cornell Lab of Ornithology (2016) for birds, Hall (1981) for mammals, and Stebbins (2003) for reptiles and amphibians.

### 3.2 Field Surveys

Dudek biologist Ryan Henry conducted a biological resources constraints evaluation on June 26, 2019. The evaluation included a brief site visit with County staff of the approximate replacement locations to assess current conditions. During the site visit, Dudek evaluated the site's potential to support sensitive natural communities and special-status plant and wildlife species, as well as potentially jurisdictional aquatic resources.

On November 18, 2019, Dudek biologists Ryan Henry and Emily Scricca conducted detailed vegetation mapping and habitat assessments for special-status species to refine the conclusions from the biological resources constraints evaluation. This survey was conducted within the entire BSA (the project site, plus a 100-foot buffer). Additionally, a focused habitat assessment was performed for the California red-legged frog (*Rana draytonii*). This focused assessment included an evaluation of all aquatic and upland habitats adjacent to the proposed sewer trunk line replacement within a 1-mile buffer. Table 1 lists the dates, focus, conditions, and personnel for each survey.

**Table 1. Summary of Surveys**

Date	Type of Survey	Survey Conditions (Time, Temperature, Cloud Cover, and Wind)	Biologists
06/26/2019	Biological resources constraints evaluation; preliminary jurisdictional delineation	1100-1300; 65–70 °F, 0-10% cc, 0-5 mph wind	RH
11/18/2019	Vegetation mapping, general habitat assessments, and focused CRLF habitat assessment	0914-1345; 66–80 °F, 0-20% cc, 0-5 mph wind	RH, ES

**Type of Survey:** CRLF = California red-legged frog

**Survey Conditions:** cc = cloud cover; mph = miles per hour

**Biologists:** ES = Emily Scricca; RH = Ryan Henry

### 3.2.1 Vegetation Communities and Land Covers

Dudek used CDFW’s Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFW 2018) and the California Natural Communities List (CDFW 2019b) to map the entire BSA. Vegetation communities and land covers were delineated to the vegetation alliance level, and where appropriate, the association level.

Vegetation communities and land uses within the BSA were mapped in the field directly onto a 1:2,400-scale (1 inch = 200 feet), aerial-photograph-based field map. A Dudek GIS analyst processed the vegetation boundaries as delineated by the field biologists and created a GIS coverage for vegetation communities using ArcGIS software. Once major linework and community designations were completed, a geodatabase was created to help ensure the data was topologically correct and met final quality assurance/quality control procedures.

### 3.2.2 Plants

All plant species encountered during the field surveys were identified and recorded. Species that could not be identified immediately were brought into the laboratory for further investigation. Latin and common names for plant species with a CRPR (formerly “CNPS List”) follow the CNPS Inventory (CNPS 2019). For plant species without a CRPR, Latin names follow the Index to California Plant Names (Jepson Flora Project 2019), and common names follow the U.S. Department of Agriculture Natural Resources Conservation Service PLANTS Database (USDA 2019).

### 3.2.3 Wildlife

Wildlife species detected during field surveys by sight, calls, tracks, scat, or other signs were recorded. Binoculars (10 × 42 power) were used to aid in the identification of observed wildlife throughout the study area. In addition to



species detected, expected wildlife use of the study area was determined by known habitat preferences of local species and knowledge of their relative distributions in the area.

Sources for common and scientific names used for wildlife include Crother (2012) for reptiles and amphibians, American Ornithologists' Union (AOU 2012) for birds, Wilson and Reeder (2005) for mammals, North American Butterfly Association (NABA 2001) for butterflies, and Moyle (2002) for fish.

### 3.2.3.1 California Red-Legged Frog Habitat Assessment

A focused California red-legged frog habitat assessment was conducted following the USFWS' Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog (USFWS 2005). The assessment included an evaluation of general upland and aquatic resources along and adjacent to the proposed sewer trunk line replacement locations. Initially, the CNDDDB and IPaC databases were reviewed to document relevant observations of CRLF within a 1-mile buffer of the proposed project. A pedestrian survey was conducted simultaneously with the general biological reconnaissance site visit on November 18, 2019, but expanded to include the 1-mile buffer in order to evaluate the surrounding landscape and document relevant species observations. A review of Google Earth imagery was performed to document existing conditions of the area surrounding the project alignment that were inaccessible during the pedestrian survey.

### 3.2.4 Potential Jurisdictional Wetlands and Waters

The field survey also served to identify potential jurisdictional aquatic resources that occur on and within the vicinity of the project site. Jurisdictional aquatic resources include wetlands, streams, and creeks, among other aquatic features, that are subject to regulation under the federal Clean Water Act (CWA), California Porter-Cologne Water Quality Act (Porter-Cologne), California Fish and Game Code (CFGF), and/or California Coastal Act (CCA). Although a formal aquatic resources jurisdictional delineation following commonly accepted procedures and guidance from the USACE was not conducted, aquatic resources that would be regulated under CWA, Porter-Cologne, CFGF, and CCA were identified.

Prior to visiting the site, potential and historic drainages and aquatic features were investigated based on a review of the following: United States Geological Survey topographic maps (1:24,000 scale), aerial photographs, the National Wetland Inventory database (USFWS 2019), and the Natural Resource Conservation Service Web Soil Survey (USDA and NRCS 2018). Following the initial data collection, Dudek biologists conducted the preliminary assessment concurrently with the vegetation mapping, general habitat assessments, and focused CRLF habitat assessment on November 18, 2019. All areas that were identified as being potentially subject to the jurisdiction of the USACE, RWQCB, and/or CDFW were field verified and mapped.

### 3.2.5 Survey Limitations

The surveys were conducted during the summer and fall seasons, which resulted in detection and identification of most species that may occur in the BSA. The reconnaissance-level surveys were conducted during a seasonal window when some annual species and cryptic perennials may not have been detectable. The surveys were conducted during the daytime to maximize the detection of most wildlife, but did not include trapping for small mammals, reptiles, and amphibians.

Additionally, access was not available for all parcels within the 100-foot and 1-mile buffers due to private properties that surrounded the project site. Therefore, vegetation mapping, habitat assessments, and focused surveys were conducted from the existing easements and publicly-accessible roads and rights-of-way. Therefore, aerial imagery signatures were used for vegetation communities and habitat suitability adjacent to the proposed project alignment.

# 4 Results

## 4.1 Vegetation Communities and Land Covers

The BSA supports the following vegetation communities and land covers: eucalyptus semi-natural woodland stands, coast live oak alliance, arroyo willow alliance, parks and ornamental plantings, and urban/developed. Figure 2 illustrates the distribution, and Table 2 summarizes the extent of vegetation communities and land covers within the BSA. Descriptions of these vegetation communities and land covers are summarized below.

**Table 2. Vegetation Communities and Land Covers within the Biological Study Area**

Vegetation Community or Land Cover	Map Code	Area (acres)
<b>Forest and Woodland Alliances and Stands</b>		
Coast live oak alliance	Queagr	1.24
<i>Subtotal Forest and Woodland Alliances and Stands</i>		<i>1.24</i>
<b>Shrubland Alliances and Stands</b>		
Arroyo willow thickets alliance	Sallas	4.77
Disturbed arroyo willow thickets	dSallas	3.48
<i>Subtotal Shrubland Alliances and Stands</i>		<i>8.25</i>
<b>Non-Natural Land Covers/Unvegetated Communities</b>		
Eucalyptus groves semi-natural stands	EG(SNS)	0.47
Parks and ornamental plantings	ORN	0.57
Urban/Developed	DEV	9.17
<i>Subtotal Non-Natural Land Covers/Unvegetated Communities</i>		<i>10.21</i>
<b>Total</b>		<b>19.70</b>

### 4.1.1 Forest and Woodland Alliances and Stands

#### 4.1.1.1 Coast Live Oak Alliance

The coast live oak alliance (*Quercus agrifolia* woodland alliance) includes coast live oak (*Quercus agrifolia*) as the dominant or co-dominant tree in the canopy. The alliance has a continuous to open canopy less than 100 feet in height with a sparse to intermittent shrub canopy and sparse or grassy ground layer (Sawyer et al. 2009). Species associated with the alliance include bigleaf maple (*Acer macrophyllum*), blue oak (*Quercus douglasii*), box elder (*Acer negundo*), California bay (*Umbellularia californica*), Engelmann oak (*Quercus engelmannii*), California sycamore (*Platanus racemosa*), California walnut (*Juglans californica*), valley oak (*Quercus lobata*), arroyo willow (*Salix lasiolepis*), California black oak (*Quercus kelloggii*), and Pacific madrone (*Arbutus menziesii*) (Sawyer et al. 2009). Within the BSA, the coast live oak alliance occurs north of Highway 1 adjacent to the residential areas, and supports an overstory of coast live oak, box elder, and arroyo willow. The understory contained dense leaf litter and sparse coverage of Himalayan blackberry (*Rubus armeniacus*), perennial rye grass (*Festuca perennis*), and wild oat (*Avena fatua*). Coast live oak alliance is not listed as a sensitive vegetation community under the California Natural Community List (CDFW 2019).

## 4.1.2 Shrubland Alliances and Stands

### 4.1.2.1 Arroyo Willow Thickets Alliance

The arroyo willow thickets alliance (*Salix lasiolepis* thickets alliance) includes arroyo willow as the dominant or co-dominant tree in the canopy. The alliance has an open to continuous tree canopy less than 65 feet in height with an open to intermittent shrub canopy and a variable ground layer (Sawyer et al. 2009). Species associated with the alliance include white alder, coyote brush, mulefat, California sycamore, Fremont cottonwood, blue elderberry, and other willows (Sawyer et al. 2009). Within the BSA, the arroyo willow alliance occurs north of Highway 1 and is associated with Arana Gulch Creek. It supports a dominant overstory of arroyo willow with box elder, California bay, and coast live oak. The understory was comprised of species such as cocklebur (*Xanthium strumarium*), pennyroyal (*Mentha pulegium*), poison oak (*Toxicodendron diversilobum*), smartweed (*Persicaria lapathifolia*), stinging nettle (*Urtica dioica*), watercress (*Nasturtium officinale*), and western bracken fern (*Pteridium aquilinum*).

Arroyo willow alliance is listed as a sensitive vegetation community under the California Natural Community List (CDFW 2019).

### 4.1.2.2 Disturbed Arroyo Willow Thickets

The disturbed arroyo willow thickets is not recognized by the Natural Communities List (CDFG 2010). This mapping unit was used to differentiate areas dominated by arroyo willow, but characterized by areas of disturbance and higher cover of non-native species such as acacia (*Acacia longifolia*), bull thistle (*Cirsium vulgare*), creeping bentgrass (*Agrostis stolonifera*), English ivy (*Hedera helix*), French broom (*Genista monspessulana*), Himalayan blackberry, poison hemlock (*Conium maculatum*), pampas grasses (*Cortaderia jubata* and *C. selloana*), periwinkle (*Vinca major*), shortpod mustard (*Hirschfeldia incana*), and silver wattle (*Acacia dealbata*). This vegetation community is not listed as a sensitive vegetation community under the California Natural Community List (CDFW 2019).

## 4.1.3 Non-Natural Land Covers

### 4.1.3.1 Eucalyptus Groves Semi-Natural Stands

The eucalyptus groves semi-natural stands (*Eucalyptus [globulus, camaldulensis]* semi-natural stands) typically includes one or more eucalyptus species that dominate the tree canopy. The tree layer forms an open to intermittent canopy at 30 to 50 feet in height with an understory that usually has a variety of herbaceous species at moderate to high cover. Tree and shrub species that may intermix at low to moderate cover include coast live oak, date palm (*Phoenix dactylifera*), pepper tree species (*Schinus* ssp.), and salt-cedar species (*Tamarix* ssp.). Within the BSA, eucalyptus groves include landscape, ornamental plantings associated with the residential area just south of the Harbor High campus and a retention basin. The vegetation community was dominated by Tasmanian blue gum (*Eucalyptus globulus*) with a dense understory of leaf litter. Eucalyptus groves is not a listed vegetation community under the California Natural Community List (CDFW 2019), but it has been used in this report because it best describes what was observed in the field. As such, this community is not globally or state ranked, and is not considered a sensitive natural community.

#### 4.1.3.2 Parks and Ornamental Plantings

Parks and ornamental plantings refer to areas where non-native ornamental species and landscaping schemes have been installed and maintained, usually as part of commercial or residential property/park. This habitat type typically supports a myriad ornamental species, including, but not limited to, Bermudagrass, hottentot fig (*Carpobrotus edulis*), Peruvian peppertree, Brazilian peppertree (*Schinus terebinthifolius*), and red apple iceplant (*Aptenia cordifolia*). Within the BSA, parks and ornamental plantings occur within the Harbor High campus and associated with the baseball field. The parks and ornamental plantings mapping unit is not a listed vegetation community under the California Natural Community List (CDFW 2019), but it has been used in this report because it best describes what was observed in the field. As such, this community is not globally or state ranked, and is not considered a sensitive natural community.

#### 4.1.3.3 Urban/Developed

The urban/developed mapping unit refers to areas that support commercial, industrial, and/or institutional structures or land covers. Typically, these areas are paved with impermeable surfaces that cannot support vegetation or habitat for species; however, non-native ornamental landscaping may occur within the mapping unit. This mapping unit also includes areas that lack vegetation such as paved roads or unimproved areas that still retain a pervious surface. The latter areas may be dominated by a sparse cover of non-native forb species commonly associated with the annual grassland. Within the BSA, the urban/developed land cover is associated with the Harbor High tennis courts, parking areas, track, and football field. This mapping unit also includes portions of La Fonda Avenue, Soquel Avenue, and Highway 1.

### 4.2 Plants and Wildlife Observed

#### 4.2.1 Plants

A total of 49 vascular plant species, consisting of 23 native species (47%) and 26 non-native species (53%), were recorded within the study area during surveys. A full list of plant species observed is provided in Appendix A, Plant Compendium.

#### 4.2.2 Wildlife

A total of 22 wildlife species, consisting of 20 native species (90%) and 2 non-native species (10%), were recorded within the study area during surveys. A full list of wildlife species by taxonomic group observed within the BSA is provided here, as well as in Appendix B, Wildlife Compendium.

##### 4.2.2.1 Birds

The avian species observed during the surveys are very common in the habitats in the study area. The most common species observed included American crow (*Corvus brachyrhynchos*), black phoebe (*Sayornis nigricans*), dark-eyed junco (*Junco hyemalis*), Anna's hummingbird (*Calypte anna*), California towhee (*Melospiza crissalis*), house finch (*Haemorrhous mexicanus*), and California scrub jay (*Aphelocoma californica*).

#### 4.2.2.2 Reptiles and Amphibians

Common reptiles that are likely to inhabit the BSA include California red-sided gartersnake (*Thamnophis sirtalis infernalis*) and western fence lizard (*Sceloporus occidentalis*). Pacific tree-frogs (*Pseudacris regilla*) likely inhabit various sections of Arana Gulch Creek. No amphibians or reptiles were detected during the survey.

#### 4.2.2.3 Insects

One species of butterfly was detected during the survey: red admiral (*Vanessa atalanta*).

#### 4.2.2.4 Mammals

Three mammal species were detected within the BSA during the survey: western gray squirrel (*Sciurus griseus*), fox squirrel (*Sciurus niger*), and domestic cat (*Felis catus*).

### 4.3 Special-Status Biological Resources

Appendix C, Special-Status Plant Species Potential to Occur Table, and Appendix D, Special-Status Wildlife Species Potential to Occur Table, provide tables of special-status species whose geographic ranges fall within the general BSA vicinity. Special-status species potential to occur within the BSA were evaluated based on known species distribution, species-specific habitat preferences, and Dudek biologists' knowledge of regional biological resources. Species potentially occurring within the BSA are identified as having moderate or high potential to occur based on habitat conditions on site, and species for which there is little or no suitable habitat are identified as not expected to occur or having low potential to occur.

#### 4.3.1 Special-Status Plants

No special-status plant species were identified within the BSA during the reconnaissance surveys conducted in June and November 2019.

Dudek performed an extensive desktop review of literature, existing documentation, and GIS data to evaluate the potential for special-status plant species to occur within the BSA. Each special-status plant species was assigned a rating of "not expected," "low," "moderate," or "high" potential to occur based on relative location to known occurrences, vegetation community, soil, and elevation. Based on the results of the literature review and database searches, 50 special-status plant species were initially identified as potentially occurring within the region of the BSA. Of these species, all are either not expected to occur or have low potential to occur within the BSA based on the soils, vegetation communities (habitat) present, elevation range, and previous known locations based on the CNDDDB, IPaC, and CNPS Inventory. None of the 50 special-status plant species were determined to have a moderate or high potential to occur.

Additionally, there is no USFWS-designated critical habitat for federally-listed plant species within the BSA (USFWS 2019). The nearest USFWS-designated critical habitat for a federally-listed plant species (Santa Cruz tarplant [*Holocarpha macradenia*]) occurs approximately 0.48 miles southwest of the BSA.

### 4.3.2 Special-Status Wildlife

No special-status wildlife species were identified within the BSA during the reconnaissance surveys conducted in June and November 2019.

Similar to special-status plants, Dudek performed an extensive desktop review of literature, existing documentation, and GIS data to evaluate the potential for special-status wildlife species to occur within the BSA. Each special-status wildlife species was assigned a rating of “not expected,” “low,” “moderate,” or “high” potential to occur based on relative location to known occurrences and vegetation community/habitat association. Based on the results of the literature review and database searches, 36 special-status wildlife species were reported in the CNDDDB and USFWS databases as occurring in the vicinity of the BSA. Of these species, two wildlife species have at least a moderate potential to occur within the BSA based on vegetation communities (habitat) present and previous known locations based on the CNDDDB and IPaC records (Table 3). Two other special-status wildlife species were initially investigated due to historic records and/or mapped habitat within the vicinity of the BSA, but determined to have a low potential to occur: California red-legged frog and tidewater goby (*Eucyclogobius newberryi*). These species are discussed further below. The remaining special-status species were evaluated and determined to have little to no potential to occur within the BSA. Table 3 includes the special-status plant species with a moderate to high potential to occur rating. Appendix D lists the 36 special-status wildlife species identified as occurring within the BSA and their potential to occur rating.

**Table 3. Special-Status Wildlife with at least a Moderate Potential to Occur within the Biological Study Area**

Scientific Name	Common Name	Federal/State	Status within Biological Study Area
<b>Fish</b>			
<i>Oncorhynchus mykiss irideus</i>	Steelhead – Central California Coast Distinct Population Segment	FT/None	Moderate
<b>Mammals</b>			
<i>Neotoma fuscipes annectens</i>	San Francisco dusky-footed woodrat	None/SSC	High

**Federal Status**

FT: Federally listed as threatened

**State Status**

SSC: California special concern species

#### 4.3.2.1 San Francisco Dusky-Footed Woodrat

The San Francisco dusky-footed woodrat is a subspecies of the more widely distributed dusky-footed woodrat, and the subspecies is considered a Species of Special Concern by CDFW. The San Francisco dusky-footed woodrat is a small-sized rodent that builds nests made of sticks, typically at the base of trees and shrubs, but sometimes in the low to mid-level canopy of a tree. This species prefers forested habitat with a moderate canopy and dense undergrowth, particularly on the upper banks of riparian forests or within poison oak-dominated shrublands. The dusky-footed woodrat feeds on a variety of woody plants, fungi, flowers, and seeds. Research has indicated that a single nest may be used by many generations over the period of several years or more (Murray and Barnes 1969). The BSA is located within oak woodland and riparian habitats with a dense understory dominated by poison oak and other shrub vegetation, which are the preferred habitat for this species.

During the November 2019 site visit, three woodrat nests were observed adjacent to Arana Gulch Creek (Figure 2). The nests that were inspected contained scat at the entrances, which indicates some degree of occupation by woodrats and could be active or were active at one time. Because the San Francisco dusky-footed woodrat cannot be distinguished phenotypically from the more widely distributed dusky-footed woodrat and the BSA is within the range of the San Francisco dusky-footed woodrat, it is anticipated that these nests could be used by San Francisco dusky-footed woodrats. Therefore, there is a high potential for this species to occur within the BSA.

#### 4.3.2.2 Steelhead

The federally threatened Central California Coast Distinct Population Segment of steelhead (*Oncorhynchus mykiss irideus* pop. 8) also occurs in streams along the coast of Santa Cruz County. This anadromous species generally spends one to three years in freshwater, and one or two years in the ocean before returning to spawn. Steelhead can return to the ocean after spawning and spawn multiple times. Steelhead migrate up coastal and inland streams from November through early May to spawn in freshwater streams, with the majority returning from January to March or April. Spawning habitat includes the tail-end of pools or runs where suitable gravel-cobble substrate can be used to for redds, a nest made of gravel where female salmonids deposit their eggs (Shapovalov and Taft 1954). Upon emergence from the gravel (incubation times vary depending on temperature), fry (juvenile steelhead) the stream margins and into pools, pocket water, etc. as they grow and begin foraging. Juvenile steelhead can spend from one to three years in freshwater before smolting. Juvenile steelhead begin the process of smoltification, at a size of around six to eight inches, and typically migrate downstream to the ocean in the spring from March through May.

Arana Gulch Creek has historically supported steelhead passage and this species has been documented as occurring approximately 1.2 miles upstream (north) of the BSA and within Santa Cruz Harbor waters (1966-1984; CDFW 2019). Additionally, the County recently completed an emergency project at Capitola Road, located approximately 600 feet south of the BSA, and found several *Oncorhynchus mykiss* (most likely a mix of steelhead and resident trout) in a big pool downstream of the road crossing (Kittleson 2020). The portion of Arana Gulch Creek within the BSA supports a narrow, earthen, and eroded streambed that supports perennial flow. While the upper reaches of Arana Gulch Creek may have supported a small steelhead population, the habitat is considered poor and substandard compared to the San Lorenzo River and other coastal streams in the region (Becker and Reining 2008; Kittleson 2020). This reach of Arana Gulch Creek lacks runs, riffle pools, and spawning habitat. Additionally, the constrained passage under Highway 1 may present a barrier to upstream and downstream migration. Even during high rainfall years, this reach of Arana Gulch Creek most likely does not provide a seasonal freshwater migration corridor for steelhead and other native fish species. Regardless, there is a moderate potential for this species to occur within the BSA.

The portion of Arana Gulch Creek that occurs within the BSA is designated as critical habitat for steelhead trout. Specifically, the USFWS designated this reach as the Central California Coast Unit, Pop 8 (Arana Gulch) Evolutionary Significant Unit (USFWS 2019). Critical habitat is defined as a specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat may include an area that is not currently occupied by the species but will be needed for its recovery. Essential features, also known as Primary Constituent Elements, are habitat components that are essential for the lifecycle needs of steelhead. The USFWS and National Marine Fisheries Service (NMFS) have defined the Primary Constituent Elements for steelhead as follows (USFWS n.d.):

- Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation and larval development.
- Freshwater rearing sites with:



- Water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility.
- Water quality and forage supporting juvenile development; and
- Natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.
- Freshwater migration corridors free of obstruction and excessive predation with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival.
- Estuarine areas free of obstruction and excessive predation with:
  - Water quality, water quantity, and salinity conditions supporting juvenile and adult physiological transitions between fresh- and saltwater.
  - Natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels; and
  - Juvenile and adult forage, including aquatic invertebrates and fishes, supporting growth and maturation.

The portion of Arana Gulch Creek within the BSA is characterized primarily by an incised box-shaped, earthen streambed with segments that are completely concrete-lined where the creek intersects major road crossings (Brookwood Drive, Highway 1, and Soquel Avenue). Although Arana Gulch Creek is designated as critical habitat, it does not appear to support steelhead Primary Constituent Elements.

#### 4.3.2.3 Other Species Considered

##### California Red-legged Frog

The California red-legged frog is a federally threatened species and a state Species of Special Concern. It generally inhabits lowland streams, wetlands, riparian woodland, and livestock ponds. They require dense, shrubby, or emergent vegetation associated with deep, still, or slow-moving water.

The entire stretch of Arana Gulch Creek that was investigated in this assessment is characterized as a perennial drainage, with many sections of the drainage being channelized, trapezoidal and concrete-lined. The banks are generally steep, sometimes vertical, with limited basking habitat, and the overall canopy cover is approximately 80%. The drainage bed is composed of silt and sand, with woody debris in a few locations. Emergent vegetation is minimal, with a species limited to smartweed, tall flatsedge, and watercress. No pools or depressions were observed in any sections of Arana Gulch Creek. Additionally, no aquatic invertebrates or fishes were observed.

Other features investigated within the 1-mile study area, included an ephemeral tributary and retention basin. The ephemeral tributary to Arana Gulch Creek was located north of Highway 1 adjacent to Brookwood Drive near its intersection with Prospect Heights. The earthen tributary appears to support seasonal flows into Arana Gulch Creek, but did not contain pools or depressions. The tributary was dry at the time of the site visits. Additionally, a retention basin associated with the adjacent residential area and located west of the intersection of La Fonda Avenue and Soquel Avenue was investigated. This flood control feature was dominated by Tasmanian blue gum and a dense understory of leaf litter. The basin was dry during the November site visit and did not contain evidence of prolonged ponding. An elevated culvert connects the basin with the concrete-lined portion of Arana Gulch Creek near the intersection.

The upland landscape surrounding the proposed alignment areas is dominated by urban developments, including industrial/commercial, high density residential, schools and infrastructure (e.g., major roads and highways). Open space (Arana Gulch Open Space Park) consisting of annual grassland is present at the southern perimeter of the 1-

mile radius. However, urbanization functions to isolate Arana Gulch Creek from this open space area, except through Arana Gulch Creek.

Upland refugia immediately surrounding the proposed alignment area is limited due to the domination of urbanization. A few small mammal burrows were observed adjacent to the segment of Arana Gulch Creek at the intersection of Soquel Avenue and La Fonda Avenue, but none noted at other sections.

Based on review of the CNDDDB and IPaC, no CRLF records are known within the protocol recommended one-mile search radius. The nearest CRLF records are located approximately 3.6 miles west of the project site within Upper Moore Creek of the UCSC Campus Natural Reserve. The study area is not mapped as USFWS-designated Critical Habitat for the species within Santa Cruz County.

As a result, the proposed project alignment areas and surrounding habitat conditions (i.e., largely industrial/commercial and high density residential), the lack of suitable aquatic habitat for breeding, and the limited number of CRLF records from the region, suggest that CRLF is likely absent from the BSA, and may be absent from Arana Gulch Creek, in general. Additionally, it is unlikely that the BSA provides dispersal habitat for juveniles or non-breeding habitat for adults due to the absence of off-channel ponds and wetlands, as well as no potential source populations within the 1-mile radius of the study area. Therefore, no focused, USFWS-protocol level surveys were conducted or recommended for this reach of Arana Gulch Creek.

### Tidewater Goby

Tidewater goby is a federal and state endangered fish that inhabits brackish water in lagoons, estuaries, and salt marshes. Although tidewater goby's current range includes much of California, and it has a historic range from Del Norte County to San Diego County, many historically occupied locations have been extirpated as a result of drought, increased predation, and drainage and water quality changes. Tidewater goby can move into slack freshwater habitats upstream from lagoons, but all life stages are typically found in brackish water lagoons and coastal wetland habitats. Tidewater goby had been historically observed in Woods Lagoon, which is now the Santa Cruz Harbor located approximately 0.54 miles south of the BSA. The species was last observed in 1984, but sampling in 1992 and 1995 and 2000 found no evidence of tidewater gobies in the lower Arana Gulch Creek (City of Santa Cruz 2008).

Tidewater goby is not expected to occur in Arana Gulch Creek within the BSA due to unsuitable habitat conditions. The BSA has high levels of human disturbance that likely decrease water quality and potential for sensitive fish species to occupy that portion of Arana Gulch Creek. Local surface water diversions are a known threat to the species, and natural barriers to fish movement occur within Arana Gulch Creek.

## 4.3.3 Jurisdictional Wetlands and Non-wetland Waters

One natural drainage (Arana Gulch Creek) was investigated as a potential jurisdictional aquatic resource within the BSA. This drainage occurs throughout the center of the BSA and was investigated due to its' topographic setting, riparian geomorphology, and presence of hydrology. This natural perennial drainage is characterized by an arroyo willow woodland vegetation community and supports a clearly defined ordinary high water mark, as well as connectivity to downstream receiving waters (Pacific Ocean). In addition to the creek mainstem, a floodprone area along the eastern bank, just south of Highway 1, most likely supports adjacent wetlands that would be considered jurisdictional "waters of the United States". This freshwater wetland area is considered to have originated as a borrow pit for material used during the construction of Highway 1 (Balance Hydrologics, Inc. 2002). The entire lateral

extent of the willow-dominated riparian canopy within the gulch appear to meet the criteria to be considered jurisdictional “waters of the state” due to its physical, hydrological, and biological characteristics. As a result, the mainstem, adjacent floodprone area, and riparian canopy of Arana Gulch Creek would be considered a jurisdictional aquatic resource regulated under the CWA, Porter-Cologne, and CFGC.

The BSA is not within the coastal zone as defined by the CCA.

#### 4.3.4 Wildlife Corridors/Habitat Linkages

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for the migration of animals. Wildlife corridors contribute to population viability by assuring continual exchange of genes between populations, providing access to adjacent habitat areas for foraging and mating, and providing routes for recolonization of habitat after local extirpation or ecological catastrophes (e.g., fires).

Habitat linkages are small patches that join larger blocks of habitat and help reduce the adverse effects of habitat fragmentation. Habitat linkages provide a potential route for gene flow and long-term dispersal of plants and animals and may also serve as primary habitat for smaller animals, such as reptiles and amphibians. Habitat linkages may be continuous habitat or discrete habitat islands that function as steppingstones for dispersal.

Arana Gulch Creek, between its’ headwaters and Santa Cruz Harbor, may serve as a local movement corridor that marginally connects habitat for certain amphibians, reptiles and localized fish species, but is significantly constrained by Highway 1, which bisects the creek at Soquel Drive. Because the proposed alignment areas are already located within a fragmented habitat within a suburban setting, Arana Gulch Creek is not likely to function as a significant wildlife corridor or habitat linkage. Therefore, the proposed project is not expected to substantially impede local or seasonal movement of wildlife through the surrounding habitat.

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# 5 Project Impacts

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This section addresses direct, indirect, and cumulative impacts to biological resources that would result from implementation of the proposed project. The significance determinations for proposed or potential impacts are described in Section 6.

- **Direct impacts** refer to complete loss of a biological resource. For purposes of this report, it refers to the area where vegetation clearing, grubbing, or grading replaces biological resources. Direct impacts were quantified by overlaying the proposed impact limits on the biological resources map of the BSA.
- **Indirect impacts** are reasonably foreseeable effects caused by project implementation on remaining or adjacent biological resources outside the direct disturbance zone. Indirect impacts may affect areas outside the disturbance zone, including open space and areas within the BSA. Indirect impacts may be short-term and construction-related, or long-term in nature and associated with development in proximity to biological resources.
- **Cumulative impacts** refer to the combined environmental effects of the proposed project and other relevant projects.

The evaluation of proposed impacts using the thresholds of significance presented above is organized by the resource potentially affected: special-status species, sensitive vegetation communities, jurisdictional wetlands and non-wetland waters, and wildlife corridors and migratory routes.

The analysis presented below focuses on construction-related impacts associated with the proposed footprint necessary to install the new sewer pipeline. The existing sewer pipeline and manhole structures would be left in place. The entire project disturbance area will be graded for equipment access, which includes staging areas. The operational requirements of the proposed project will be similar to existing uses on the site and will result in negligible impacts to biological resources that would be present after construction is completed. Therefore, only construction-related impacts are analyzed in this section.

Additionally, this report assumes that all areas within the project site boundary will be temporarily impacted by project activities. A 100% design was not provided for this analysis; therefore, the impact discussions below assume a worst-case scenario for project-related impacts. Figures 3A, 3B, and 3C, Project Impacts, shows the general location of direct impact areas that would occur to biological resources within the footprint of the project construction site.

## 5.1 Impacts to Special-Status Species

### 5.1.1 Special-Status Plants

Special-status plant species have little to no potential to occur in the BSA based on the absence of suitable habitat. Furthermore, no special-status plant species were observed within the BSA during the biological reconnaissance surveys.

### 5.1.1.1 Direct Impacts

Due to the lack of suitable habitat within the BSA for potentially occurring special-status species, construction of the proposed project is not anticipated to result in direct impacts to special-status plants. Additionally, the proposed project would not occur within designated critical habitat for federally-listed plant species, and therefore, there would be no direct impacts to critical habitat.

### 5.1.1.2 Indirect Impacts

No special-status plant species are expected to occur within the project disturbance footprint. As a result, no significant indirect, short-term, or long-term impacts to special-status plant species would occur.

## 5.1.2 Special-Status Wildlife

Two special-status wildlife species have at least a moderate potential to occur in the BSA: San Francisco dusky-footed woodrat and steelhead. The San Francisco dusky-footed woodrat has a high potential to occur within the arroyo willow thickets alliance north of Highway 1. Three woodrat middens that could potentially support this species were observed within the BSA during site surveys. These nests occur outside but within proximity to work areas. Steelhead have a moderate potential to occur in the BSA based on historic observations of the species within Arana Gulch Creek north of the BSA and more recent observations south of the BSA, but poor quality of habitat within the BSA. Other special-status species, including the California red-legged frog and tidewater goby, have a low potential to occur due to the lack of suitable habitat, and lack of historic and recent detections within the BSA.

Additionally, the native trees and shrubs within the BSA provide suitable nesting habitat for bird species protected under the MBTA and CFGC Section 3500 and roosting bats protected under CFGC Section 4150.

### 5.1.2.1 Direct Impacts

Removal of vegetation to replace the Arana Sewer Trunk Line could potentially result in temporary direct impacts to San Francisco dusky-footed woodrats and their habitat. Impacts would occur during vegetation removal or trimming during equipment ingress/egress and construction of the new sewer pipeline. However, the three woodrat dens identified during the biological surveys would be avoided. Additionally, most of the riparian habitat associated with Arana Gulch Creek is proposed to remain intact. Potential impacts to woodrat habitat would be limited to the arroyo willow thickets alliance along Arana Gulch Creek between Highway 1 and Brookwood Drive and total approximately 0.74 acres. Construction activities would not require encroachment into Arana Gulch Creek for installation of Segment 8A, resulting in less than 0.01 acres of direct impacts to potential steelhead habitat. Additional construction-related temporary impacts would occur immediately adjacent and within the streambed and banks of Arana Gulch Creek during dewatering and diversion activities. Potential impacts to other special-status wildlife species are not anticipated due to lack of suitable habitat within the project footprint.

Trimming, pruning, and/or removal of trees and native shrubs may occur because of construction of the project. Therefore, there may be a potential for direct or indirect impacts to nesting birds and bats, particularly during the general nesting season of February 1 through August 31 or near a bat maternity roost.

### 5.1.2.2 Indirect Impacts

Short-term indirect impacts to special-status wildlife species that could occur during construction include an increase in human activity and construction noise in the immediate vicinity of potentially occupied areas. Operation of construction equipment during vegetation removal could temporarily interrupt the feeding and breeding cycles of San Francisco dusky-footed woodrat, if present. Additionally, noise generated by construction activities that are conducted during the avian breeding season (February 1 through August 31), could result in indirect impacts to nesting birds and roosting bats, if present. Specifically, indirect impacts to nesting birds and roosting bats from short-term construction-related noise could result in decreased reproductive success, disrupted feeding, or abandonment of an area as nesting or roosting habitat if conducted during the nesting season (i.e., February through August) or near a bat maternity roost.

Indirect impacts associated with decreased water quality during construction downstream of the work areas are not expected with implementation of standard construction best management practices, including minimization measures to control dust, erosion, and runoff (e.g., straw bales and silt fencing).

## 5.2 Impacts to Sensitive Vegetation Communities

The BSA characterized by natural and non-natural land covers that occur near Arana Gulch Creek. One natural vegetation community, the arroyo willow thickets alliance, is considered a sensitive vegetation community on the California Natural Community List (CDFW 2019a). Additionally, the coast live oak alliance associated with Arana Gulch Creek is considered a sensitive vegetation community due to its riparian nature, limited distribution, and potential to support special-status wildlife species.

### 5.2.1 Direct Impacts

The proposed project would result in the temporary removal of vegetation to replace the Arana Sewer Trunk Line. Portions of the vegetation communities within the BSA may be directly impacted through habitat modification and/or trimming during equipment ingress/egress and construction of the new sewer pipeline. However, most of the riparian habitat associated with Arana Gulch Creek would remain intact.

Table 4 summarizes the direct, temporary impacts to sensitive vegetation communities (arroyo willow thicket alliance and coast live oak alliance) anticipated because of project implementation. Figure 3, Project Impacts, shows the general location of direct impact areas that will occur to vegetation communities and land covers located within the BSA.

**Table 4. Impacts to Sensitive Vegetation Communities within the Biological Study Area**

Vegetation Community or Land Cover	Permanent Impacts (acres)	Temporary Impacts (acres)
<b><i>Forest and Woodland Alliances and Stands</i></b>		
Coast live oak alliance	—	0.02
<i>Subtotal Forest and Woodland Alliances and Stands</i>	—	0.02
<b><i>Shrubland Alliances and Stands</i></b>		
Arroyo willow thickets alliance *	—	0.74

**Table 4. Impacts to Sensitive Vegetation Communities within the Biological Study Area**

<b>Vegetation Community or Land Cover</b>	<b>Permanent Impacts (acres)</b>	<b>Temporary Impacts (acres)</b>
<i>Subtotal Shrubland Alliances and Stands</i>	—	0.74
<b>Total</b>	—	<b>0.76</b>

**Note:**

\* California Department of Fish and Wildlife sensitive vegetation community

## 5.2.2 Indirect Impacts

During construction activities, indirect impacts to sensitive vegetation communities (arroyo willow alliance and coast live oak alliance) resulting from edge effects may include dust, which could disrupt plant vitality in the short term, or construction-related soil erosion and water runoff.

## 5.3 Impacts to Jurisdictional Wetlands and Non-wetland Waters

The BSA supports the riparian canopy of one intermittent drainage (Arana Gulch Creek), which includes adjacent wetland areas. The BSA supports potentially jurisdictional wetlands and non-wetland waters of the United States, and CDFW and RWQCB jurisdictional streambed and associated riparian habitat, all of which would be considered waters of the State.

### 5.3.1 Direct Impacts

The construction footprint will encroach into the potential jurisdictional limits of Arana Gulch Creek for installation of Segment 7 of the replacement pipeline. Additionally, the trenchless installation of the sewer trunk line is planned for Segment 8B, which would avoid direct impacts to jurisdictional areas. It is also assumed that these activities would result in temporary impacts from clearing and grading of work and staging areas for the pipeline installation, which would be backfilled. A total of approximately 1.01 acres of arroyo willow thickets alliance, disturbed arroyo willow thickets, and coast live oak alliance, which are assumed to be potentially jurisdictional wetlands, would be temporarily impacted. Figure 3, Project Impacts, depicts the general location of direct impact areas within the BSA.

### 5.3.2 Indirect Impacts

Indirect impacts to jurisdictional aquatic resources could result primarily from adverse indirect edge effects. During construction activities, edge effects may include construction-related soil erosion and water runoff.

## 5.4 Impacts to Wildlife Corridors and Migratory Routes

### 5.4.1 Direct Impacts

As currently designed, the project is not proposing to permanently alter the vegetation communities or physical setting of Arana Gulch Creek. Following the temporary disturbance, the biological functions and values of Arana Gulch Creek



will remain the same as those that exist pre-project. No significant direct permanent impacts would occur to wildlife movement or use of native wildlife nursery sites associated with the proposed project. It is assumed that existing wildlife corridor functions within Arana Gulch Creek are already limited by surrounding land uses and wildlife movement would largely remain intact during and post construction. Project-related construction activities would not result in direct impacts to wildlife movement because no new structures that would impede wildlife movement within the creek are proposed.

#### 5.4.2 Indirect Impacts

There would be no long-term indirect impacts to wildlife movement because of the proposed project. Some short-term indirect impacts to localized wildlife movement could occur due to construction-related noise. However, these impacts would be temporary and would not be expected to significantly disrupt wildlife movement due to the short-term duration of the project, assumed limited construction activities within the creek, ambient noise conditions, and the ability for wildlife to continue to move through the creek and upland portions of the BSA during and post construction. Additionally, due to the current existing uses on the site and level of human presence, the conditions and uses surrounding Arana Gulch Creek post-construction would not be significantly different from existing uses, which reduces the potential for any minimal long-term indirect impacts.

### 5.5 Cumulative Impacts

Cumulative biological impacts due to the proposed project, in combination with other past, current, and future development projects, could adversely impact biological resources in the region. However, the proposed project would not involve any direct permanent impacts and incorporation of standard avoidance, minimization, and mitigation measures on a project-by-project basis would reduce cumulative biological impacts to less than significant. Other past, current, and foreseeable future projects would have to mitigate for impacts to sensitive biological resources and comply with the same regulatory requirements. Therefore, the project would not contribute to long-term cumulative impacts to biological resources. However, there are no other known cumulative projects in the vicinity of the proposed project to which the project would contribute to cumulative impacts.

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# 6 Significant Impacts and Mitigation

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## 6.1 Explanation of Findings of Significance

Impacts to special-status vegetation communities, plant and wildlife species, and jurisdictional waters, including wetlands, must be quantified, and analyzed to determine whether such impacts are significant under CEQA. CEQA Guidelines Section 15064(b) states that an ironclad definition of “significant” effect is not possible, because the significance of an activity may vary with the setting. Appendix G of the CEQA Guidelines, however, does provide “examples of consequences which may be deemed to be a significant effect on the environment” (14 CCR 15064(e)). These effects include substantial effects on rare or endangered species of animal or plant or the habitat of the species. CEQA Guidelines Section 15065(a)(1) is also helpful in defining whether a project may have a significant effect on the environment. Under that section, a proposed project may have a significant effect on the environment if the project has the potential to (1) substantially degrade the quality of the environment, (2) substantially reduce the habitat of a fish or wildlife species, (3) cause a fish or wildlife population to drop below self-sustaining levels, (4) threaten to eliminate a plant or animal community, (5) reduce the number or restrict the range of a rare or endangered plant or animal, or (6) eliminate important examples of a major period of California history or prehistory.

The following are the significance thresholds for biological resources provided in the CEQA Guidelines Appendix G Environmental Checklist, which states that a project would potentially have a significant effect if it:

- Impact BIO-1. Has a substantial adverse effect, either directly or through habitat modifications, on any species identified as being a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.
- Impact BIO-2. Has a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by CDFW or USFWS.
- Impact BIO-3. Has 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.
- Impact BIO-4. Interferes substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impedes the use of native wildlife nursery sites.
- Impact BIO-5. Conflicts with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Impact BIO-6. Conflicts with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

The evaluation of whether an impact to a particular biological resource is significant must consider both the resource itself and the role of that resource in a regional context. Substantial impacts are those that contribute to, or result in, permanent loss of an important resource, such as a population of a rare plant or wildlife species. Impacts may be important locally, because they result in an adverse alteration of existing site conditions, but considered not significant because they do not substantially contribute to the permanent loss of that resource regionally. The severity of an impact is the primary determinant of whether that impact can be mitigated to a less than significant level.

The following significance determinations were made based on the impacts of the proposed project as presented and discussed in Section 5.

## 6.2 Impact BIO-1: Special-Status Species

### 6.2.1 Special-Status Plants

The proposed construction activities would be limited to a small footprint within an existing utility right-of-way. There are no special-status plant species within the proposed work areas and there would be no indirect impacts to off-site special-status plants; therefore, there would be no significant impacts to special-status plant species.

### 6.2.2 Special-Status Wildlife

Potential direct temporary impacts resulting from vegetation removal to replace the existing sewer trunk line could result in significant impacts to special-status wildlife. Short-term, indirect impacts to special-status wildlife resulting from increased human presence and noise generated during construction activities could also result in significant impacts to special-status wildlife species.

San Francisco dusky-footed woodrat. This species has a high potential to occur within the proposed work areas. Construction-related activities could have a substantial adverse effect on this species, if present. Additionally, a total of 0.74 acres of temporary impacts to potential habitat for this species would occur during construction-related ground disturbance. Although loss of individuals or the habitat of this species would not threaten their regional populations as a result of the proposed project, the impact would be potentially significant.

Steelhead. The Project could result in indirect impacts to potential habitat for the federally-listed steelhead. Segment 8A of the existing sewer line will be replaced via a trenchless method, which will cross under an approximate 10-foot wide segment of Arana Gulch Creek.. Indirect impacts resulting from construction activities could also result in potential adverse water quality effects downstream (e.g., elevated turbidity levels, discharges of fine sediments, etc.) to steelhead, if present. However, indirect impacts associated with decreased water quality downstream of the work areas are not expected with implementation of standard construction erosion control best management practices.

Nesting Birds and Roosting Bats. Potential direct temporary impacts resulting from vegetation removal could occur to nesting birds (protected under the MBTA and CFGC) and roosts of special-status bats. The BSA contains suitable nesting habitat for ground and tree-nesting bird species and roosting bats, particularly within the riparian areas associated with Arana Gulch Creek and the vegetation surrounding the project site. Construction-related activities that occur within the general nesting season (February through August) has potential to result in direct and indirect take of an active nest. Construction activities that could result in direct impacts to nesting birds and roosting bats include vegetation and tree removal during grading activities. Indirect impacts could result from an increase in human activity and/or construction noise and dust in the immediate vicinity of an active nest that could result in harassment and nest abandonment.

Implementation of Mitigation Measures (MM) BIO-1, MM-BIO-2, MM-BIO-3, MM-BIO-4, MM-BIO-5, and MM-BIO-6 would reduce potentially significant direct and indirect impacts to special-status wildlife species, if present, to a less than significant level.

**MM-BIO-1 Conduct Worker Environmental Awareness Training.** A qualified biologist shall conduct an education program for all persons employed on the project prior to performing work activities. The presentation given by the qualified biologist will include a discussion of the biology and general behavior of any special-status species that may be in the area, how they may be encountered within the work area, and procedures to follow when they are encountered. The status of special-status and fully protected species including legal protection, penalties for violations, and project-specific protective management measures shall be discussed. The qualified biologist shall prepare and distribute handouts containing all this information for workers to carry on-site.

**MM-BIO-2 Conduct Pre-construction Survey and Biological Monitoring.** A qualified biologist shall conduct a preconstruction survey and monitor ground-disturbing activities within areas of suitable habitat for San Francisco dusky-footed woodrat, as well as other special-status species. The qualified biologist shall search for special-status species that may be located within or immediately adjacent to work areas. If special-status species are found, the biological monitor shall identify their location(s) for avoidance. If avoidance is not possible, the measures below shall be implemented to avoid direct impacts to such resources.

**MM-BIO-3 Conduct San Francisco Dusky-Footed Woodrat Survey and Relocation.** For the protection of potential San Francisco dusky-footed woodrat nests within the proposed work areas, complete avoidance of potential nests is recommended. No more than thirty (30) days prior to project implementation, a qualified biologist shall conduct a preconstruction survey to locate existing woodrat nests. Any woodrat nests identified shall be mapped and a 10-foot radius avoidance buffer established around each nest shall be flagged with high visibility flagging tape for avoidance.

If complete avoidance of identified nests is not feasible, the following relocation measures are recommended prior to the commencement of ground disturbing activities to avoid and reduce impacts on San Francisco dusky-footed woodrats:

- After obtaining approval from CDFW, a qualified biologist shall dismantle the nest by hand to allow for adult woodrat individuals potentially present to escape. This work shall be conducted outside of the breeding season for this species which is April through June.
- If young are observed during the dismantling process, the qualified biologist shall stop work for a minimum of 24 hours to allow the adult woodrats to relocate their young.
- Once the nest is determined to be vacant, the dismantling process shall be completed, and the nest materials shall be collected and moved to another suitable location nearby and outside of the construction footprint to allow for nest reconstruction.
- Where feasible, piles of cut vegetation and slash generated by project clearing and grubbing activities shall be left outside of, but near the work area, to provide refuge for woodrats that may become displaced by project activities.

**MM-BIO-4 Avoid Steelhead Migration Period.** All in-stream construction activities shall be limited to the low-flow period between June 15 through November 1, except by extension approved by CDFW and NOAA Fisheries, although none are currently planned.

**MM-BIO-5 Implement Best Management Practices within Arana Gulch Creek.** Isolate the work area in the Arana Gulch Creek channel and bypass flowing water around work site by use of a bypass pipe or open channel. Cofferdams shall be installed both upstream and downstream of the work areas at locations determined suitable based on site specific conditions, including proximity to the construction zone and type of construction activities being conducted. The work area will remain isolated from flowing water until any necessary erosion protection is in place. All water shall be discharged in a non-erosive manner (e.g. gravel or vegetated bars, on hay bales, on plastic, on concrete, or in storm drains when equipped with filtering devices, etc.). If a bypass will be of open channel design, the berm confining the channel may be constructed of material from the channel. Diversions shall maintain ambient flows below the diversion. To the extent possible, the Arana Gulch Creek stream bed design shall be returned to as close to pre-project condition as possible. All imported materials placed in the channel to dewater the channel shall be removed when the work is completed. Dirt, dust, or other potential discharge material in the work area will be contained and prevented from entering the flowing channel. Normal flows shall be restored to the affected stream as soon as is feasible and safe after completion of work at that location.

**MM-BIO-6 Conduct Preconstruction Nesting Bird and Roosting Bat Survey.** Construction and tree removal activities should avoid the migratory bird nesting season (typically February 1 through August 31), to reduce any potential significant impact to birds that may be nesting in the vicinity. If construction activities must occur during the migratory bird nesting season, an avian nesting survey of the project site and contiguous habitat within 300 feet of all impact areas must be conducted for protected migratory birds and active nests. The avian nesting survey shall be performed by a qualified wildlife biologist within 7 days prior to the start of ground or vegetation disturbance. Once construction has started, if there are breaks in ground or vegetation disturbance that exceed 14 days, then another avian nesting survey shall be conducted. If an active bird nest is found, the nest shall be flagged and mapped on the construction plans along with an appropriate no disturbance buffer, which will be determined by the biologist based on the species' sensitivity to disturbance (typically 250 feet for passerines and 500 feet for raptors and special-status species). The nest area shall be avoided until the nest is vacated and the juveniles have fledged. The nest area shall be demarcated in the field with flagging and stakes or construction fencing.

To the extent practicable, tree removal should occur outside peak bat activity timeframes when young or overwintering bats may be present, which generally occurs from March through April and August through October, to ensure protection of potentially occurring bats and their roosts on the project site. Additionally, daily restrictions on the timing of any construction activities should be limited to daylight hours to reduce disturbance to roosting (and foraging) bat species. If construction activities must occur during peak bat activity timeframes, a visual bat survey shall be conducted within 30 days of the removal of any trees. The survey should include a determination on whether active bat roosts are present on or within 50 feet of the project site. If a non-breeding and non-wintering bat colony is found, the individuals shall be evicted under the direction of a qualified biologist to ensure their protection and avoid unnecessary harm. If a maternity colony or overwintering colony is found in the control building or trees on the project site, then the qualified biologist shall establish a suitable construction-free buffer around the location. The construction-

free buffer shall remain in place until the qualified biologist determines that the nursery is no longer active.

## 6.3 Impact BIO-2: Sensitive Vegetation Communities

The arroyo willow thickets alliance and coast live oak alliance associated with Arana Gulch Creek are considered sensitive vegetation communities, and project-related impact would be considered potentially significant. Direct temporary impacts would result from grading activities to establish temporary access and construction work areas. A total of 0.76 acres of temporary impacts to these natural vegetation communities could result from project implementation. Potentially significant direct impacts to sensitive vegetation communities would be mitigated to less than significant through implementation of MM BIO-5.

Potential indirect impacts would be limited to short-term construction-related impacts due to erosion, runoff, and dust. Implementation of standard construction BMPs as part of the project would result in less than significant indirect impacts.

**MM-BIO-7      Compensate for Impacts to Sensitive Vegetation Communities.** Direct impacts to 0.76 acres of arroyo willow thickets alliance and coast live oak alliance vegetation communities shall be mitigated via on-site measures. On-site measures shall include rehabilitation of areas temporarily impacted at a 1:1 mitigation ratio. Areas temporarily impacted shall be returned to conditions similar to those that existed prior to grading and/or ground-disturbing activities. It is anticipated that a one-time restoration effort at the completion of the project followed by monitoring and invasive weed removal for a minimum of 3 years would adequately compensate for the direct temporary impacts to these vegetation communities. A conceptual Riparian Habitat Revegetation Mitigation and Monitoring Plan shall be prepared and implemented that includes revegetation of all disturbed areas with riparian vegetation. The plan shall detail the habitat restoration activities and shall specify the criteria and standards by which the revegetation and restoration actions will compensate for impacts of the proposed project on riparian habitats and shall at a minimum include discussion of the following:

- The enhancement objectives and type and amount of revegetation to be implemented (in-kind at a minimum restoration to impact ratio of 1:1) taking into account enhanced areas where non-native invasive vegetation is removed and replanting specifications that take into natural regeneration of native riparian willow species.
- The specific methods to be employed for revegetation.
- Success criteria and monitoring requirements to ensure vegetation community restoration success.
- Remedial measures to be implemented if performance standards are not achieved.

## 6.4 Impact BIO-3: Jurisdictional Wetlands

Implementation of the proposed project could have potentially significant direct, temporary impacts on approximately 1.01 acres of wetlands and non-wetland waters under the jurisdiction of the USACE, RWQCB, and CDFW. All activities would occur within the existing utility right-of-way and would be temporary. Short-term and long-

term indirect impacts to jurisdictional wetlands and non-wetland waters relating to construction activities (edge effects) and trash/pollution would not likely result in significant impacts, with implementation of standard construction BMPs that would be implemented during project construction. Therefore, the indirect impact of the project on jurisdictional wetland and non-wetland waters would be less than significant.

Potentially significant impacts to jurisdictional wetlands and non-wetland waters would be mitigated to a less than significant level through implementation of MM-BIO-8. Compensatory mitigation for impacts to jurisdictional wetlands and non-wetland waters shall overlap with measures taken to address impacts to sensitive vegetation communities (as identified above in MM-BIO-7).

**MM-BIO-8      Compensate for Impacts to Jurisdictional Wetlands and Non-Wetland Waters.** Direct temporary impacts to jurisdictional wetlands/waters shall be mitigated via on-site measures. On-site measures shall include rehabilitation of areas temporarily impacted within jurisdictional limits (approximately 1.01 acres) at a 1:1 mitigation ratio. Areas temporarily impacted shall be returned to conditions similar to those that existed prior to grading and/or ground-disturbing activities. Direct temporary impacts to jurisdictional wetlands/waters shall also be addressed through requirements imposed on the project via regulatory authorizations issued pursuant to Sections 401 and 404 of the Clean Water Act, the Porter-Cologne Water Quality Act, and Section 1602 of the California Fish and Game Code.

## 6.5      Impact BIO-4: Wildlife Corridors and Migratory Routes

No significant direct permanent impacts would occur on wildlife movement or use of native wildlife nursery sites associated with project activities. Existing habitat linkages and wildlife corridor functions would remain intact while construction activities are conducted and following completion. Construction activities would not result in impacts to wildlife movement because no new structures that would impede wildlife movement are proposed. Additionally, there would be no permanent indirect impacts to wildlife movement as a result of project activities. Therefore, impacts on wildlife movement would be temporary as the project would not significantly disrupt wildlife movement due to the small project footprint and the ability for wildlife to avoid the project construction areas.

## 6.6      Impact BIO-5: Local Policies or Ordinances

The BSA contains several mature trees that may be protected by the County and/or City of Santa Cruz's riparian, creek management and/or heritage tree regulations. It is assumed that any protected trees proposed for removal or trimming during construction would be conducted (and replaced) in accordance with applicable regulations. Therefore, there would be no significant impacts to or conflicts with local policies or ordinances.

## 6.7      Impact BIO-6: Habitat Conservation Plans

The proposed project is not located within any habitat conservation plans, natural community conservation plans, or other approved local, regional, or state habitat conservation plan; therefore, the proposed project would not be in conflict with any such plans and there will be no significant impacts as a result of the project. No impact would occur.



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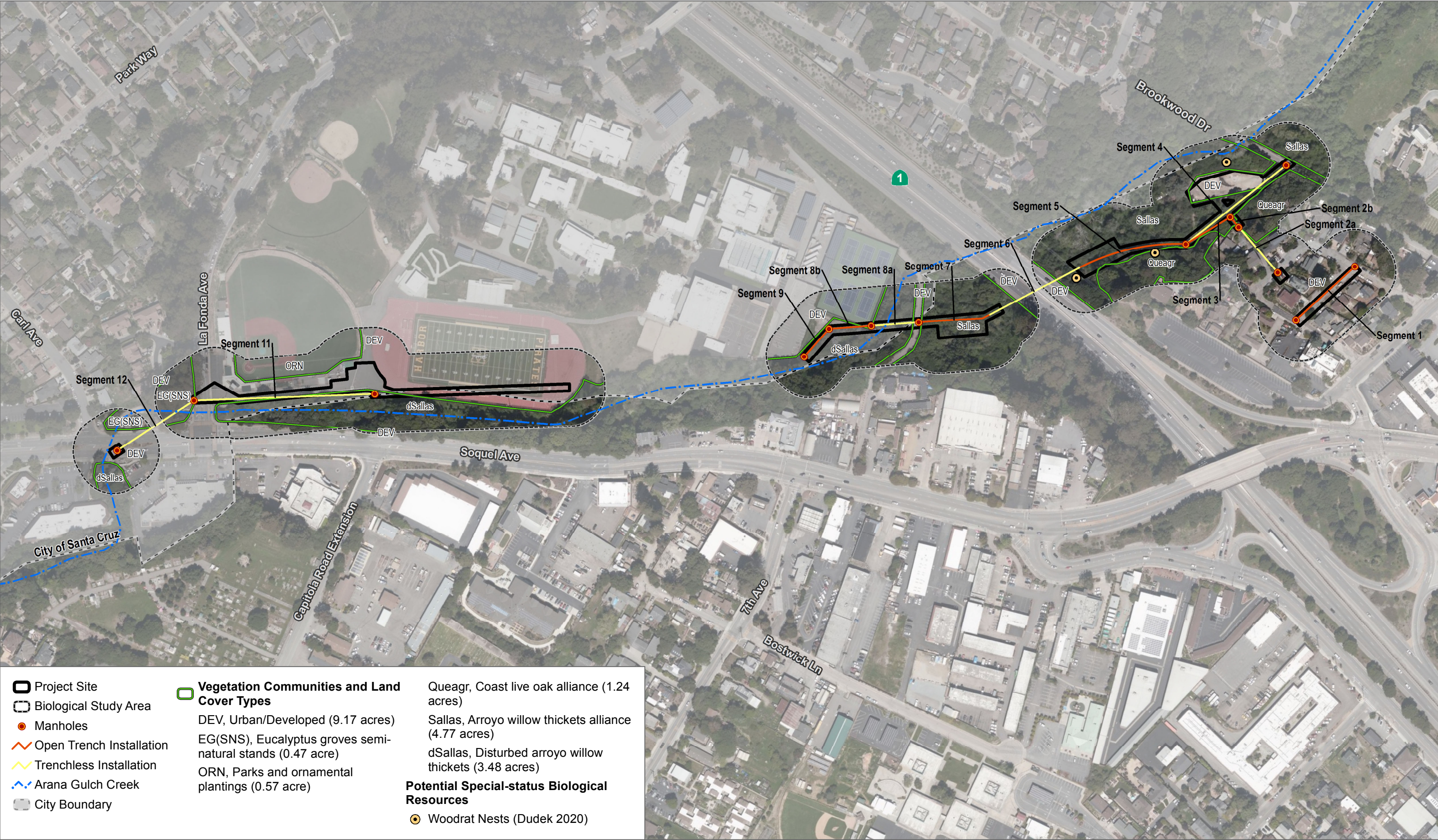
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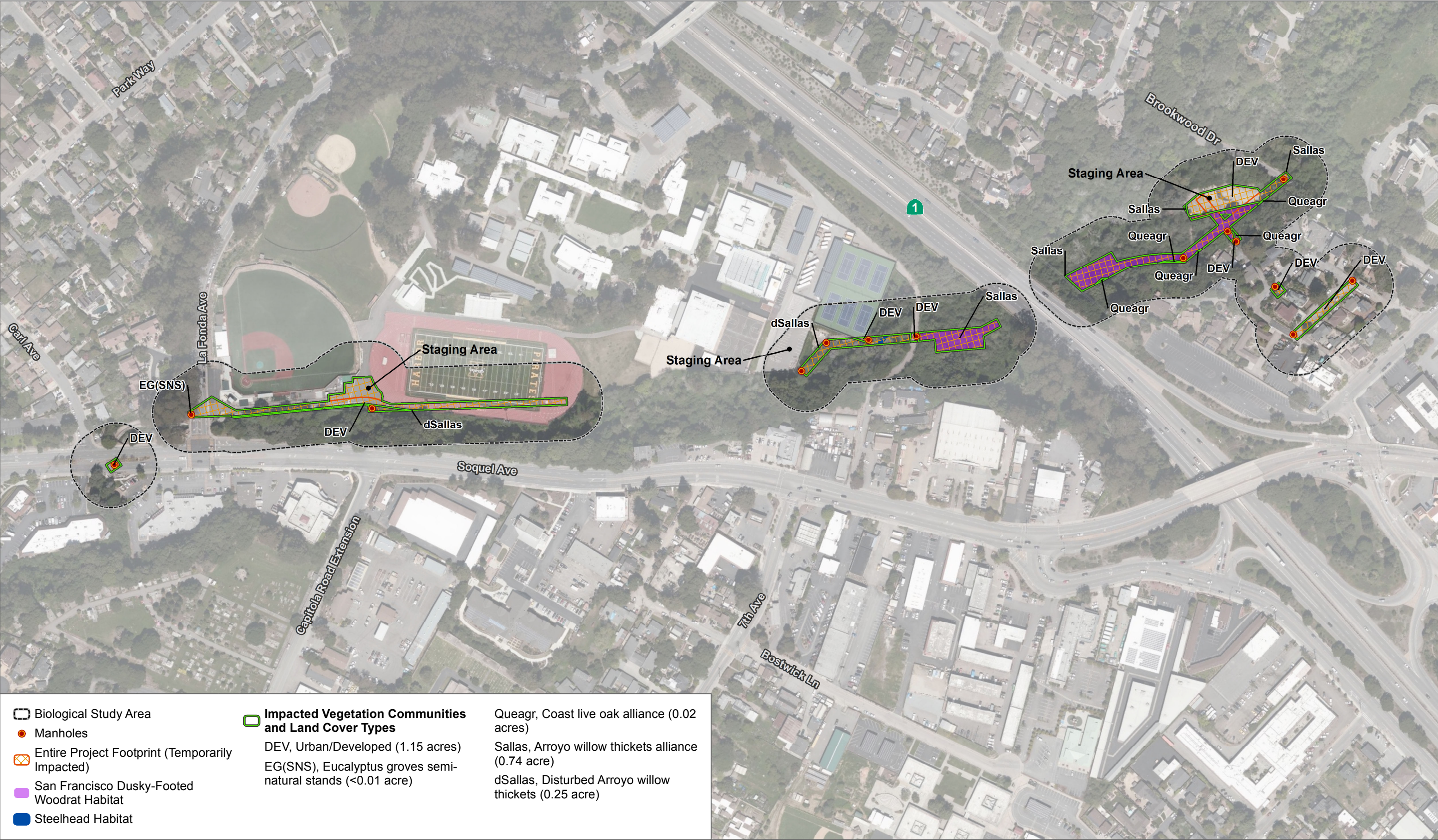
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**FIGURE 2**  
**Biological Resources**  
Arana Sewer Trunk Line Replacement Project



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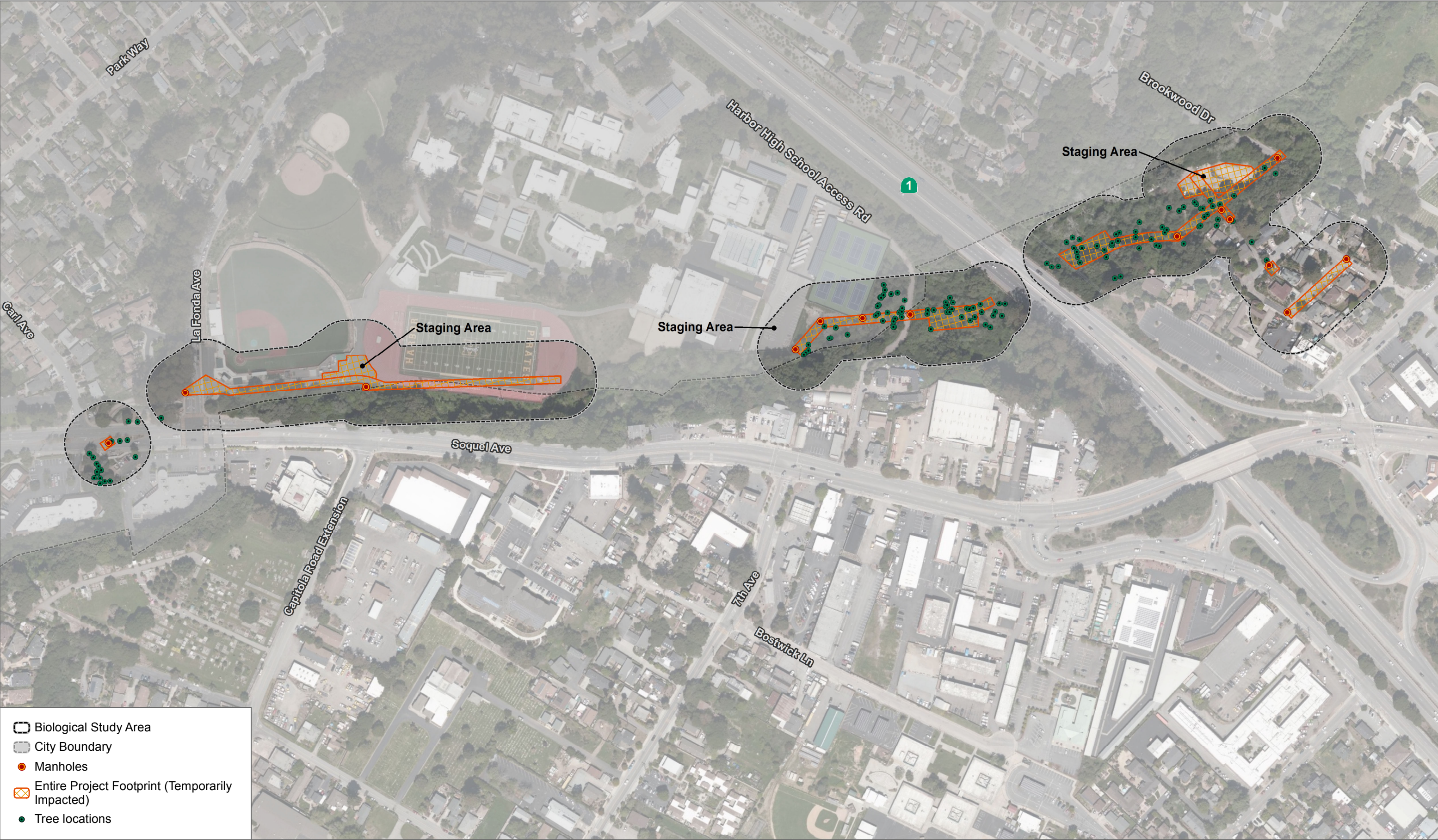
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**FIGURE 3A**  
 Project Impacts - Special-Status Species Habitat  
 Arana Sewer Trunk Line Replacement Project



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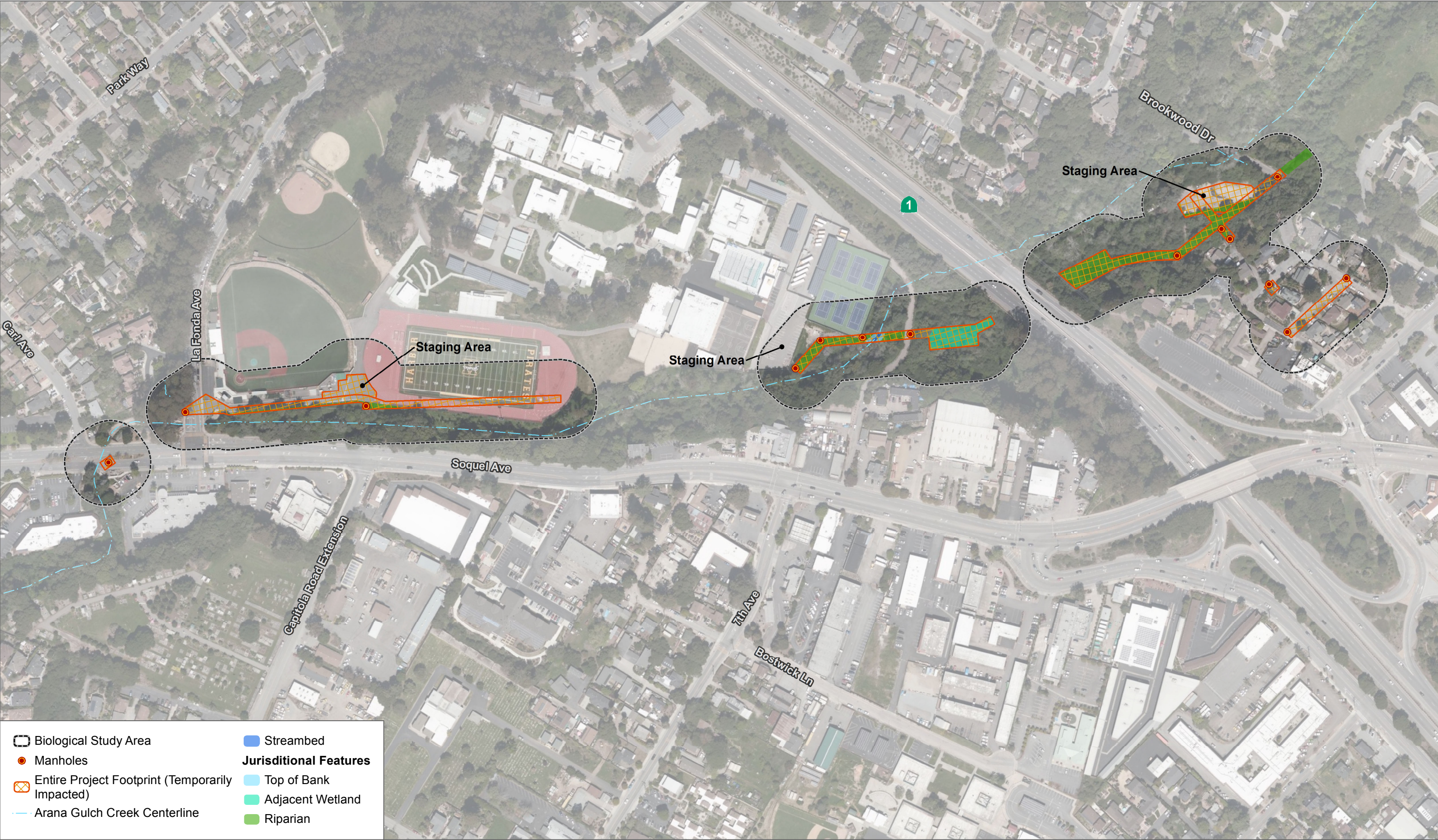
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**FIGURE 3B**  
Project Impacts - Tree Removal  
Arana Sewer Trunk Line Replacement Project



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SOURCE: Bing 2020

**FIGURE 3C**  
Project Impacts - Jurisdictional Aquatic Resources  
Arana Sewer Trunk Line Replacement Project



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# Appendix A

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## Plant Compendium



EUDICOTS  
VASCULAR SPECIES

**ANACARDIACEAE—SUMAC OR CASHEW FAMILY**

*Toxicodendron diversilobum*—poison oak

**APIACEAE—CARROT FAMILY**

- \* *Conium maculatum*—poison hemlock
- \* *Foeniculum vulgare*—fennel

**APOCYNACEAE—DOGBANE FAMILY**

- \* *Vinca major*—bigleaf periwinkle

**ARALIACEAE—GINSENG FAMILY**

- \* *Hedera helix*—English ivy

**ASTERACEAE—SUNFLOWER FAMILY**

- \* *Cirsium vulgare*—bull thistle
- \* *Lactuca serriola*—prickly lettuce
- Xanthium strumarium*—cocklebur

**BRASSICACEAE—MUSTARD FAMILY**

- \* *Hirschfeldia incana*—shortpod mustard
- Nasturtium officinale*—watercress
- \* *Raphanus sativus*—cultivated radish

**CAPRIFOLIACEAE—HONEYSUCKLE FAMILY**

- \* *Lonicera japonica*—Japanese honeysuckle

**CONVOLVULACEAE—MORNING-GLORY FAMILY**

- \* *Convolvulus arvensis*—field bindweed

**CORNACEAE—DOGWOOD FAMILY**

*Cornus sericea*—red osier

**FABACEAE—LEGUME FAMILY**

- \* *Acacia dealbata*—silver wattle
- \* *Acacia longifolia*—Sydney golden wattle
- \* *Genista monspessulana*—French broom
- \* *Lotus corniculatus*—bird's-foot trefoil

**FAGACEAE—OAK FAMILY**

*Quercus agrifolia*—coast live oak

**LAMIACEAE—MINT FAMILY**

\* *Mentha pulegium*—pennyroyal

**LAURACEAE—LAUREL FAMILY**

*Umbellularia californica*—California bay

**MYRTACEAE—MYRTLE FAMILY**

\* *Eucalyptus globulus*—Tasmanian bluegum

**ONAGRACEAE—EVENING PRIMROSE FAMILY**

*Epilobium canum*—hummingbird trumpet

**PLANTAGINACEAE—PLANTAIN FAMILY**

*Plantago elongata*—prairie plantain

**PLATANACEAE—PLANE TREE, SYCAMORE FAMILY**

*Platanus racemosa*—California sycamore

**POLYGONACEAE—BUCKWHEAT FAMILY**

*Persicaria lapathifolia*—smartweed

\* *Rumex crispus*—curly dock

**ROSACEAE—ROSE FAMILY**

\* *Rubus armeniacus*—Himalayan blackberry

*Rubus ursinus*—California blackberry

**SALICACEAE—WILLOW FAMILY**

*Salix laevigata*—red willow

*Salix lasiolepis*—arroyo willow

**SAPINDACEAE—SOAPBERRY FAMILY**

*Acer macrophyllum*—bigleaf maple

*Acer negundo*—box-elder

**URTICACEAE—NETTLE FAMILY**

*Urtica dioica*—stinging nettle



## FERNS AND FERN ALLIES

### VASCULAR SPECIES

#### DENNSTAEDTIACEAE—BRACKEN FAMILY

*Pteridium aquilinum*—western brackenfern

#### EQUISETACEAE—HORSETAIL FAMILY

*Equisetum hyemale*—scouringrush horsetail

## GYMNOSPERMS AND GNETOPHYTES

### VASCULAR SPECIES

#### CUPRESSACEAE—CYPRESS FAMILY

*Sequoia sempervirens*—redwood

## MONOCOTS

### VASCULAR SPECIES

#### CYPERACEAE—SEDGE FAMILY

- \* *Carex pendula*—hanging sedge
- Cyperus eragrostis*—tall flatsedge

#### JUNCACEAE—RUSH FAMILY

*Juncus effusus*—soft rush  
*Juncus patens*—western rush

#### POACEAE—GRASS FAMILY

- \* *Agrostis stolonifera*—creeping bentgrass
- \* *Avena fatua*—wild oat
- \* *Cortaderia jubata*—purple pampas grass
- \* *Cortaderia selloana*—Uruguayan pampas grass
- \* *Festuca perennis*—perennial rye grass
- \* *Hordeum murinum*—mouse barley
- \* *Phalaris aquatica*—Harding grass

#### TYPHACEAE—CATTAIL FAMILY

*Typha angustifolia*—narrowleaf cattail

\* Signifies introduced (non-native) species

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# Appendix B

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## Wildlife Compendium



BIRD

*FINCHES*

**FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES**

*Haemorhous mexicanus*—house finch

*FLYCATCHERS*

**TYRANNIDAE—TYRANT FLYCATCHERS**

*Sayornis nigricans*—black phoebe

*HUMMINGBIRDS*

**TROCHILIDAE—HUMMINGBIRDS**

*Calypte anna*—Anna's hummingbird

*JAYS, MAGPIES AND CROWS*

**CORVIDAE—CROWS AND JAYS**

*Aphelocoma californica*—California scrub-jay

*Corvus brachyrhynchos*—American crow

*TERNS AND GULLS*

**LARIDAE—GULLS, TERNS, AND SKIMMERS**

*Larus californicus*—California gull

*THRUSHES*

**TURDIDAE—THRUSHES**

*Turdus migratorius*—American robin

*TITMICE*

**PARIDAE—CHICKADEES AND TITMICE**

*Poecile rufescens*—chestnut-backed chickadee

*WOOD WARBLERS AND ALLIES*

**PARULIDAE—WOOD-WARBLERS**

*Setophaga coronata*—yellow-rumped warbler

## WOODPECKERS

### PICIDAE—WOODPECKERS AND ALLIES

*Colaptes auratus*—northern flicker

*Dryobates nuttallii*—Nuttall's woodpecker

## WRENS

### TROGLODYTIDAE—WRENS

*Thryomanes bewickii*—Bewick's wren

## NEW WORLD SPARROWS

### PASSERELLIDAE—NEW WORLD SPARROWS

*Junco hyemalis*—dark-eyed junco

*Melospiza melodia*—song sparrow

*Melospiza crissalis*—California towhee

*Passerella iliaca*—fox sparrow

*Pipilo maculatus*—spotted towhee

*Zonotrichia atricapilla*—golden-crowned sparrow

## INVERTEBRATE

### BUTTERFLIES

### NYMPHALIDAE—BRUSH-FOOTED BUTTERFLIES

*Vanessa atalanta*—red admiral

## MAMMAL

### DOMESTIC

### FELIDAE—CATS

\* *Felis catus*—domestic cat

## SQUIRRELS

### SCIURIDAE—SQUIRRELS

*Sciurus griseus*—western gray squirrel

\* *Sciurus niger*—eastern fox squirrel

\* Signifies introduced (non-native) species

## Appendix C

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### Special-Status Plant Species Potential to Occur Table





Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
Blasdale's bent grass	None/None/1B.2	Coastal bluff scrub, Coastal dunes, Coastal prairie/perennial rhizomatous herb/May–July/0–490	<b>Not expected to occur.</b> No suitable coastal scrub, dune or prairie habitat present within the BSA.
bent-flowered fiddleneck	None/None/1B.2	Coastal bluff scrub, Cismontane woodland, Valley and foothill grassland/annual herb/Mar–June/5–1640	<b>Not expected to occur.</b> No suitable coastal scrub, woodland, or grassland habitat present within the BSA.
Anderson's manzanita	None/None/1B.2	Broadleafed upland forest, Chaparral, North Coast coniferous forest; openings, edges/perennial evergreen shrub/Nov–May/195–2495	<b>Not expected to occur.</b> No suitable upland forest or chaparral habitat present within the BSA.
Hooker's manzanita	None/None/1B.2	Closed-cone coniferous forest, Chaparral, Cismontane woodland, Coastal scrub; sandy/perennial evergreen shrub/Jan–June/195–1760	<b>Not expected to occur.</b> No suitable coniferous forest, cismontane woodland, or chaparral habitat present within the BSA.
Pajaro manzanita	None/None/1B.1	Chaparral (sandy)/perennial evergreen shrub/Dec–Mar/95–2495	<b>Not expected to occur.</b> No chaparral habitat present within the BSA.
Bonny Doon manzanita	None/None/1B.2	Closed-cone coniferous forest, Chaparral, Lower montane coniferous forest; inland marine sands/perennial evergreen shrub/Jan–Mar/390–1970	<b>Not expected to occur.</b> The BSA is outside of the species' known elevation range.
marsh sandwort	FE/SE/1B.1	Marshes and swamps (freshwateror brackish); sandy, openings/perennial stoloniferous herb/May–Aug/5–560	<b>Low potential to occur.</b> Limited suitable freshwater marsh habit occurs within the riparian woodland between Highway 1 and Harbor High School. No known occurrences within 5 miles of BSA. Known occurrences limited to San Luis Obispo County and reintroduction sites in Santa Cruz, Nipomo, and Los Osos.
Santa Cruz Mountains pussypaws	None/None/1B.1	Chaparral, Cismontane woodland; sandy or gravelly, openings/annual herb/May–Aug/1000–5020	<b>Not expected to occur.</b> The BSA is outside of the species' known elevation range.
swamp harebell	None/None/1B.2	Bogs and fens, Closed-cone coniferous forest, Coastal prairie, Meadows and seeps, Marshes and swamps (freshwater), North Coast coniferous forest; mesic/perennial rhizomatous herb/June–Oct/0–1330	<b>Low potential to occur.</b> Limited suitable freshwater marsh habit occurs within the riparian woodland between Highway 1 and Harbor High School. No known occurrences within 5 miles of BSA. Known historic occurrence near Camp Evers, Scotts Valley.
bristly sedge	None/None/2B.1	Coastal prairie, Marshes and swamps (lake margins), Valley and foothill grassland/perennial rhizomatous herb/May–Sep/0–2050	<b>Low potential to occur.</b> Limited suitable freshwater marsh habit occurs within the riparian woodland between Highway 1 and Harbor High School. No known occurrences within 5 miles of BSA.
deceiving sedge	None/None/1B.2	Coastal prairie, Coastal scrub, Meadows and seeps, Marshes and swamps (coastal salt); mesic/perennial rhizomatous herb/June(July)/5–755	<b>Low potential to occur.</b> Limited suitable freshwater marsh habit occurs within the riparian woodland between Highway 1 and Harbor High School. No known occurrences within 5 miles of BSA.
coyote ceanothus	FE/None/1B.1	Chaparral, Coastal scrub, Valley and foothill grassland; serpentinite/perennial evergreen shrub/Jan–May/390–1510	<b>Not expected to occur.</b> The BSA is outside of the species' known elevation range.
Congdon's tarplant	None/None/1B.1	Valley and foothill grassland (alkaline)/annual herb/May–Oct(Nov)/0–755	<b>Not expected to occur.</b> No suitable grassland habitat present within the BSA.
Ben Lomond spineflower	FE/None/1B.1	Lower montane coniferous forest (maritime ponderosa pine sandhills)/annual herb/Apr–July/295–2000	<b>Not expected to occur.</b> No suitable coniferous forest or other habitat present within the BSA.
Monterey spineflower	FT/None/1B.2	Chaparral (maritime), Cismontane woodland, Coastal dunes, Coastal scrub, Valley and foothill grassland; sandy/annual herb/Apr–June(July–Aug)/5–1475	<b>Not expected to occur.</b> No suitable coastal scrub, woodland, or grassland habitat present within the BSA.
Scotts Valley spineflower	FE/None/1B.1	Meadows and seeps (sandy), Valley and foothill grassland (mudstone and Purisima outcrops)/annual herb/Apr–July/750–805	<b>Not expected to occur.</b> The site is outside of the species' known elevation range.
robust spineflower	FE/None/1B.1	Chaparral (maritime), Cismontane woodland (openings), Coastal dunes, Coastal scrub; sandy or gravelly/annual herb/Apr–Sep/5–985	<b>Not expected to occur.</b> Known occurrences from Pogonip within upland grassland habitat. However, no suitable coastal scrub, woodland, or grassland habitat present within the BSA.
San Francisco collinsia	None/None/1B.2	Closed-cone coniferous forest, Coastal scrub; sometimes serpentinite/annual herb/(Feb)Mar–May/95–820	<b>Not expected to occur.</b> No suitable coniferous forest or coastal scrub habitat present within the BSA.
seaside bird's-beak	None/SE/1B.1	Closed-cone coniferous forest, Chaparral (maritime), Cismontane woodland, Coastal dunes, Coastal scrub; sandy, often disturbed sites/annual herb (hemiparasitic)/Apr–Oct/0–1690	<b>Not expected to occur.</b> No suitable coniferous forest, chaparral, cismontane woodland, coastal dunes, or coastal scrub habitat present within the BSA.
tear drop moss	None/None/1B.3	North Coast coniferous forest; carbonate/moss/N.A./160–900	<b>Not expected to occur.</b> No suitable coniferous forest habitat present within the BSA.

Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
Ben Lomond buckwheat	None/None/1B.1	Chaparral, Cismontane woodland, Lower montane coniferous forest (maritime ponderosa pine sandhills); sandy/perennial herb/June–Oct/160–2625	<b>Not expected to occur.</b> No suitable chaparral, cismontane woodland, or coniferous forest habitat present within the BSA.
sand-loving wallflower	None/None/1B.2	Chaparral (maritime), Coastal dunes, Coastal scrub; sandy, openings/perennial herb/Feb–June/0–195	<b>Not expected to occur.</b> No suitable chaparral, coastal dunes, or coastal scrub habitat present within the BSA.
Santa Cruz wallflower	FE/SE/1B.1	Chaparral, Lower montane coniferous forest; inland marine sands/perennial herb/Mar–July/390–2000	<b>Not expected to occur.</b> The BSA is outside of the species’ known elevation range.
minute pocket moss	None/None/1B.2	North Coast coniferous forest (damp coastal soil)/moss/N.A./30–3360	<b>Not expected to occur.</b> No suitable coniferous forest habitat present within the BSA.
Monterey gilia	FE/ST/1B.2	Chaparral (maritime), Cismontane woodland, Coastal dunes, Coastal scrub; sandy, openings/annual herb/Apr–June/0–150	<b>Not expected to occur.</b> No suitable chaparral, cismontane woodland, coastal dune, or coastal scrub habitat present within the BSA.
Santa Cruz cypress	FT/SE/1B.2	Closed-cone coniferous forest, Chaparral, Lower montane coniferous forest; sandstone or granitic/perennial evergreen tree/N.A./915–2625	<b>Not expected to occur.</b> The site is outside of the species’ known elevation range.
Loma Prieta hoita	None/None/1B.1	Chaparral, Cismontane woodland, Riparian woodland; usually serpentinite, mesic/perennial herb/May–July(Aug–Oct)/95–2820	<b>Not expected to occur.</b> Suitable riparian woodland habitat, but no serpentine soils present within BSA. No known occurrences within 5 miles of BSA.
Santa Cruz tarplant	FT/SE/1B.1	Coastal prairie, Coastal scrub, Valley and foothill grassland; often clay, sandy/annual herb/June–Oct/30–720	<b>Not expected to occur.</b> Species is known from Arana Gulch greenbelt, Schwan Lagoon area, and Soquel. However, there is no suitable upland grassland within the BSA.
Kellogg’s horkelia	None/None/1B.1	Closed-cone coniferous forest, Chaparral (maritime), Coastal dunes, Coastal scrub; sandy or gravelly, openings/perennial herb/Apr–Sep/30–655	<b>Not expected to occur.</b> No suitable coastal scrub or pine forests present within the BSA.
Point Reyes horkelia	None/None/1B.2	Coastal dunes, Coastal prairie, Coastal scrub; sandy/perennial herb/May–Sep/15–2475	<b>Not expected to occur.</b> No suitable coastal dune, prairie, or scrub habitat present within the BSA.
perennial goldfields	None/None/1B.2	Coastal bluff scrub, Coastal dunes, Coastal scrub/perennial herb/Jan–Nov/15–1705	<b>Not expected to occur.</b> No suitable coastal bluff scrub, coastal dunes, or coastal scrub habitat present within the BSA.
smooth lessingia	None/None/1B.2	Chaparral, Cismontane woodland, Valley and foothill grassland; serpentinite, often roadsides/annual herb/(Apr–June)July–Nov/390–1380	<b>Not expected to occur.</b> The BSA is outside of the species’ known elevation range.
arcuate bush-mallow	None/None/1B.2	Chaparral, Cismontane woodland/perennial evergreen shrub/Apr–Sep/45–1165	<b>Not expected to occur.</b> No suitable chaparral or cismontane woodland habitat present within the BSA.
marsh microseris	None/None/1B.2	Closed-cone coniferous forest, Cismontane woodland, Coastal scrub, Valley and foothill grassland/perennial herb/Apr–June(July)/15–1165	<b>Not expected to occur.</b> No suitable coniferous forest, cismontane woodland, coastal scrub, or grassland habitat present within the BSA.
northern curly-leaved monardella	None/None/1B.2	Chaparral (SCR Co.), Coastal dunes, Coastal scrub, Lower montane coniferous forest (SCR Co., ponderosa pine sandhills); Sandy./annual herb/(Apr)May–July(Aug–Sep)/0–985	<b>Not expected to occur.</b> No suitable chaparral, coastal dunes, coastal scrub, or coniferous forest habitat present within the BSA.
woodland woollythreads	None/None/1B.2	Broadleafed upland forest (openings), Chaparral (openings), Cismontane woodland, North Coast coniferous forest (openings), Valley and foothill grassland; Serpentine/annual herb/(Feb)Mar–July/325–3935	<b>Not expected to occur.</b> The BSA is outside of the species’ known elevation range.
Dudley’s lousewort	None/SR/1B.2	Chaparral (maritime), Cismontane woodland, North Coast coniferous forest, Valley and foothill grassland/perennial herb/Apr–June/195–2955	<b>Not expected to occur.</b> No suitable chaparral, cismontane forest, coniferous forest, or grassland habitat present within the BSA.
Santa Cruz Mountains beardtongue	None/None/1B.2	Chaparral, Lower montane coniferous forest, North Coast coniferous forest/perennial herb/May–June/1310–3610	<b>Not expected to occur.</b> The BSA is outside of the species’ known elevation range.
white-rayed pentachaeta	FE/SE/1B.1	Cismontane woodland, Valley and foothill grassland (often serpentinite)/annual herb/Mar–May/110–2035	<b>Not expected to occur.</b> No suitable cismontane forest or grassland habitat present within the BSA.
white-flowered rein orchid	None/None/1B.2	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest; sometimes serpentinite/perennial herb/(Mar)May–Sep/95–4300	<b>Not expected to occur.</b> No suitable broadleaf upland or coniferous forest habitat present within the BSA.
Yadon’s rein orchid	FE/None/1B.1	Coastal bluff scrub, Closed-cone coniferous forest, Chaparral (maritime); sandy/perennial herb/(Feb)May–Aug/30–2475	<b>Not expected to occur.</b> No suitable coastal bluff scrub, coniferous forest, or chaparral habitat present within the BSA.

Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/Life Form/Blooming Period/Elevation Range (feet)	Potential to Occur
Choris' popcornflower	None/None/1B.2	Chaparral, Coastal prairie, Coastal scrub; mesic/annual herb/Mar–June/5–525	<b>Not expected to occur.</b> No suitable chaparral, coastal prairie, or coastal scrub habitat present within the BSA.
San Francisco popcornflower	None/SE/1B.1	Coastal prairie, Valley and foothill grassland/annual herb/Mar–June/195–1180	<b>Not expected to occur.</b> The BSA is outside of the species’ known elevation range and there is no suitable coastal prairie or grassland habitat present.
Scotts Valley polygonum	FE/SE/1B.1	Valley and foothill grassland (mudstone and sandstone)/annual herb/May–Aug/685–820	<b>Not expected to occur.</b> The site is outside of the species’ known elevation range.
chaparral ragwort	None/None/2B.2	Chaparral, Cismontane woodland, Coastal scrub; sometimes alkaline/annual herb/Jan–Apr(May)/45–2625	<b>Not expected to occur.</b> No suitable chaparral, cismontane woodland, or coastal scrub habitat present within the BSA.
San Francisco campion	None/None/1B.2	Coastal bluff scrub, Chaparral, Coastal prairie, Coastal scrub, Valley and foothill grassland; sandy/perennial herb/(Feb)Mar–June(Aug)/95–2115	<b>Not expected to occur.</b> Known occurrences from the Swanton area. However, there is no coastal scrub and grasslands within the BSA.
Santa Cruz microseris	None/None/1B.2	Broadleafed upland forest, Closed-cone coniferous forest, Chaparral, Coastal prairie, Coastal scrub, Valley and foothill grassland; open areas, sometimes serpentinite/annual herb/Apr–May/30–1640	<b>Not expected to occur.</b> No suitable upland forest, coastal prairie, or grassland habitat present within the BSA.
Santa Cruz clover	None/None/1B.1	Broadleafed upland forest, Cismontane woodland, Coastal prairie; gravelly, margins/annual herb/Apr–Oct/340–2000	<b>Not expected to occur.</b> Known occurrences from Swanton area and Soquel (margins of upland forest and grasslands). However, the BSA is outside of the species’ known elevation range.
saline clover	None/None/1B.2	Marshes and swamps, Valley and foothill grassland (mesic, alkaline), Vernal pools/annual herb/Apr–June/0–985	<b>Low potential to occur.</b> Limited suitable freshwater marsh habit occurs within the riparian woodland between Highway 1 and Harbor High School. No known occurrences within 5 miles of BSA. Known occurrences limited to San Luis Obispo County and reintroduction sites in Santa Cruz, Nipomo, and Los Osos.
Pacific Grove clover	None/SR/1B.1	Closed-cone coniferous forest, Coastal prairie, Meadows and seeps, Valley and foothill grassland; mesic, sometimes granitic/annual herb/Apr–June(July)/15–1395	<b>Not expected to occur.</b> No suitable coniferous forest, coastal prairie, or grassland habitat present within the BSA.

**Notes:** BSA = Biological Study Area; CNDDDB = California Natural Diversity Database.

**Status Legend**

**Federal**

- FE: Federally listed as endangered
- FT: Federally listed as threatened
- FC: Federal candidate for listing as threatened or endangered

**State**

- SE: State listed as endangered
- ST: State listed as threatened
- SR: State listed as rare

**CRPR (California Rare Plant Rank)**

- CRPR 1A: Plants presumed extinct in California and either rare or extinct elsewhere
- CRPR List 1B: Plants rare, threatened, or endangered in California and elsewhere
- CRPR List 2A: Plants rare, threatened, or endangered in California but common elsewhere
- CRPR List 2B: Plants rare, threatened, or endangered in California but more common elsewhere

***Threat Rank***

- .1 Seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)
- .2 Fairly endangered in California (20% to 80% of occurrences threatened/moderate degree and immediacy of threat)
- .3 Not very endangered in California (less than 20% of occurrences threatened/low degree and immediacy of threat or no current threats known).

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## Appendix D

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### Special-Status Wildlife Species Potential to Occur Table



Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
<b>Amphibians</b>				
<i>Ambystoma californiense</i>	California tiger salamander	FT/ST, WL	Annual grassland, valley–foothill hardwood, and valley–foothill riparian habitats; vernal pools, other ephemeral pools, and (uncommonly) along stream courses and man-made pools if predatory fishes are absent	<b>Not expected to occur.</b> No suitable breeding pools with adjacent upland scrub and woodland habitat for this species is present within the BSA.
<i>Ambystoma macrodactylum croceum</i>	Santa Cruz long-toed salamander	FE/FP, SE	Dense riparian vegetation, thick coastal scrub, and oak woodland	<b>Not expected to occur.</b> No suitable breeding pools for this species occur within the BSA. Suitable riparian vegetation and oak woodland occurs, but is surrounded by development. There are no CNDDDB observations of this species within 5 miles of the proposed work areas (CDFW 2019).
<i>Aneides flavipunctatus niger</i>	Santa Cruz black salamander	None/SSC	Restricted to mesic forests in the fog belt of the outer Coast Range of San Mateo, Santa Cruz, and Santa Clara counties. Mixed deciduous and coniferous woodlands and coastal grasslands. Occurs in moist streamside microhabitats and is found under rocks, talus, and damp woody debris.	<b>Not expected to occur.</b> The BSA lacks mesic forests to support these species and also lacks suitable microhabitats. The nearest CNDDDB observation is approximately 2.1 miles southwest of the proposed work areas (CDFW 2019).
<i>Dicamptodon ensatus</i>	California giant salamander	None/SSC	Known from wet coastal forests and chaparral near streams and seeps from Mendocino Co. south to Monterey Co. and east to Napa Co. Aquatic larvae found in cold, clear streams, occasionally in lakes and ponds. Adults known from wet forests under rocks and logs near streams and lakes.	<b>Low potential to occur.</b> The BSA lacks suitable wet coastal forests and is surrounded by development. The nearest CNDDDB observation is approximately 0.9 miles north of the proposed work areas (CDFW 2019).
<i>Rana boylei</i>	foothill yellow-legged frog	None/SE, PST	Rocky streams and rivers with open banks in forest, chaparral, and woodland	<b>Not expected to occur.</b> The BSA lacks suitable streams and rivers to support this species. The nearest CNDDDB occurrence is approximately 2 miles northeast of the proposed work areas (CDFW 2019).
<i>Rana draytonii</i>	California red-legged frog	FT/SSC	Lowland streams, wetlands, riparian woodlands, livestock ponds; dense, shrubby or emergent vegetation associated with deep, still or slow-moving water; uses adjacent uplands	<b>Low potential to occur.</b> The BSA lacks suitable streams and emergent habitat to support this species. The nearest CNDDDB occurrence is approximately 3.6 miles west of the proposed work areas (CDFW 2019).
<b>Reptiles</b>				
<i>Actinemys marmorata</i>	northwestern pond turtle	None/SSC	Slow-moving permanent or intermittent streams, ponds, small lakes, and reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter	<b>Not expected to occur.</b> The BSA lacks suitable aquatic habitat and adjacent uplands to support this species.
<i>Anniella pulchra</i>	northern California legless lizard	None/SSC	Coastal dunes, stabilized dunes, beaches, dry washes, valley–foothill, chaparral, and scrubs; pine, oak, and riparian woodlands; associated with sparse vegetation and sandy or loose, loamy soils	<b>Not expected to occur.</b> The BSA lacks the sandy or loose, loamy soils to support this species. Additionally, the vegetation onsite was thick and overgrown.
<b>Birds</b>				
<i>Agelaius tricolor</i> (nesting colony)	tricolored blackbird	BCC/SSC, ST	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberry; forages in grasslands, woodland, and agriculture	<b>Not expected to occur.</b> Although there is marginal nesting substrate present, no foraging habitat is present within the vicinity of the BSA. Additionally, the BSA is surrounded by residential and commercial development.
<i>Aquila chrysaetos</i> (nesting and wintering)	golden eagle	BCC/FP, WL	Nests and winters in hilly, open/semi-open areas, including shrublands, grasslands, pastures, riparian areas, mountainous canyon land, open desert rimrock terrain; nests in large trees and on cliffs in open areas and forages in open habitats	<b>Not expected to occur.</b> The BSA lacks suitable nesting habitat for this species. There are no CNDDDB observations of this species within 5 miles of the proposed work areas (CDFW 2019).
<i>Asio flammeus</i> (nesting)	short-eared owl	None/SSC	Grassland, prairies, dunes, meadows, irrigated lands, and saline and freshwater emergent wetlands	<b>Not expected to occur.</b> The BSA lacks suitable nesting habitat for this species. There are no CNDDDB observations of this species within 5 miles of the proposed work areas (CDFW 2019).
<i>Athene cunicularia</i> (burrow sites and some wintering sites)	burrowing owl	BCC/SSC	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows	<b>Not expected to occur.</b> The BSA lacks the open habitat suitable for burrows or foraging for this species. No suitable burrows were observed. The BSA is surrounded by residential and commercial development.

Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
<i>Brachyramphus marmoratus</i> (nesting)	marbled murrelet	FT/SE	Nests in old-growth coastal forests, forages in subtidal and pelagic habitats	<b>Not expected to occur.</b> The BSA lacks suitable old-growth coastal forest nesting habitat for this species. Additionally, no foraging habitat is available for this species. The BSA is surrounded by residential and commerical development.
<i>Charadrius alexandrinus nivosus</i> (nesting)	western snowy plover	FT, BCC/SSC	On coasts nests on sandy marine and estuarine shores; in the interior nests on sandy, barren or sparsely vegetated flats near saline or alkaline lakes, reservoirs, and ponds	<b>Not expected to occur.</b> The BSA lacks suitable barren flats near saline/alkaline lake, reservoirs, or ponds for this species.
<i>Coturnicops noveboracensis</i>	yellow rail	BCC/SSC	Nesting requires wet marsh/sedge meadows or coastal marshes with wet soil and shallow, standing water	<b>Not expected to occur.</b> The BSA lacks suitable meadows or marshes to support this species. Additionally, although Arana Gulch channel contains standing water, the banks are steep and concrete-lined in several locations.
<i>Cypseloides niger</i> (nesting)	black swift	BCC/SSC	Nests in moist crevices, caves, and cliffs behind or adjacent to waterfalls in deep canyons; forages over a wide range of habitats	<b>Not expected to occur.</b> The BSA does not support suitable nesting habitat for this species.
<i>Elanus leucurus</i> (nesting)	white-tailed kite	None/FP	Nests in woodland, riparian, and individual trees near open lands; forages opportunistically in grassland, meadows, scrubs, agriculture, emergent wetland, savanna, and disturbed lands	<b>Low potential to occur.</b> Although the BSA contains suitable riparian/woodland nesting habitat for this species, it is surrounded by residential and commercial development and foraging habitat is limited. The nearest CNDDDB occurrence is approximately 3.9 miles northwest of the proposed work areas (CDFW 2019).
<i>Falco peregrinus anatum</i> (nesting)	American peregrine falcon	FDL, BCC/FP, SDL	Nests on cliffs, buildings, and bridges; forages in wetlands, riparian, meadows, croplands, especially where waterfowl are present	<b>Not expected to occur.</b> The BSA lacks suitable cliffs, buildings, or bridges for this species to nest. Additionally, this species is not expected to forage within the BSA due to lack of suitable habitat.
<i>Laterallus jamaicensis coturniculus</i>	California black rail	BCC/FP, ST	Tidal marshes, shallow freshwater margins, wet meadows, and flooded grassy vegetation; suitable habitats are often supplied by canal leakage in Sierra Nevada foothill populations	<b>Not expected to occur.</b> The BSA lacks suitable wetland or marsh habitat for this species to nest. Additionally, the BSA is surrounded by residential and commercial development.
<i>Rallus obsoletus obsoletus</i>	Ridgway's rail	FE/SE, FP	Coastal salt or brackish marshes	<b>Not expected to occur.</b> The BSA lacks suitable coastal or brackish marshes for this species to nest. There are no CNDDDB observations of this species within 5 miles of the proposed work areas (CDFW 2019).
<i>Riparia riparia</i> (nesting)	bank swallow	None/ST	Nests in riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with sandy soils; open country and water during migration	<b>Not expected to occur.</b> The BSA lacks suitable vertical bank, bluff, or cliff habitat for this species to nest. Portions of Arana Gulch are vertical, but concrete-lined and surrounded by residential and commercial development.
<b>Fishes</b>				
<i>Eucyclogobius newberryi</i>	tidewater goby	FE/SSC	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County, to the mouth of the Smith River	<b>Low potential to occur.</b> The BSA does not support suitable brackish water habitats for this species. This species has been presumed to occur with Arana Gulch, south of the BSA, from the Santa Cruz Harbor mouth to approximately 1 mile upstream (CNDDDB 2019).
<i>Oncorhynchus kisutch</i> pop. 4	coho salmon - central California coast ESU	FE/SE	Streams and small freshwater tributaries during first half of life cycle and estuarine and marine waters of the Pacific Ocean during the second half of life cycle. Spawns in small streams with stable gravel substrates.	<b>Not expected to occur.</b> The BSA lacks suitable spawning habitat to support this species.
<i>Oncorhynchus mykiss irideus</i> pop. 8	steelhead - central California coast DPS	FT/None	Coastal basins from Redwood Creek south to the Gualala River, inclusive; does not include summer-run steelhead	<b>Moderate potential to occur.</b> The BSA supports marginally suitable spawning habitat to support this species. Arana Gulch supports extremely poor spawning habitat and generally limited rearing habitat largely due to sedimentation (DFG 2001). However, low densities of steelhead have been documented within this reach of Arana Gulch in 1999 (Balance Hydrologics 2002).



Scientific Name	Common Name	Status (Federal/State)	Habitat	Potential to Occur
<i>Oncorhynchus mykiss irideus</i> pop. 9	steelhead - south-central California coast DPS	FT/None	Coastal basins from Redwood Creek south to the Gualala River, inclusive; does not include summer-run steelhead	<b>Not expected to occur.</b> The BSA is outside the species' known geographic range.
<i>Spirinchus thaleichthys</i>	longfin smelt	FC/ST	Aquatic, estuary	<b>Not expected to occur.</b> The BSA lacks suitable estuarine habitat to support this species.
<i>Thaleichthys pacificus</i>	eulachon	FT/None	Found in Klamath River, Mad River, and Redwood Creek and in small numbers in Smith River and Humboldt Bay tributaries	<b>Not expected to occur.</b> The BSA lacks suitable habitat to support this species and is outside the species' known geographic range.
<b>Mammals</b>				
<i>Antrozous pallidus</i>	pallid bat	None/SSC	Grasslands, shrublands, woodlands, forests; most common in open, dry habitats with rocky outcrops for roosting, but also roosts in man-made structures and trees	<b>Not expected to occur.</b> The BSA lacks suitable outcrops/structures for this species to roost, but may support potential foraging opportunities. The nearest CNDDDB occurrence is approximately 1.3 miles east of the proposed work areas (CDFW 2019).
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	None/SSC	Mesic habitats characterized by coniferous and deciduous forests and riparian habitat, but also xeric areas; roosts in limestone caves and lava tubes, man-made structures, and tunnels	<b>Not expected to occur. The BSA lacks</b> suitable caves, tubes, structures and tunnels for this species to roost, but may support potential foraging opportunities. The nearest CNDDDB occurrence is approximately 1.3 miles east of the proposed work areas (CDFW 2019).
<i>Neotoma fuscipes annectens</i>	San Francisco dusky-footed woodrat	None/SSC	Forest habitats with a moderate canopy and moderate to dense understory	<b>High potential to occur.</b> The BSA supports suitable forested habitat to support this species. Numerous stick structures were observed during the site survey and the BSA is within the geographic range of this subspecies. The nearest documented CNDDDB occurrence is approximately 5 miles northeast of the proposed work areas (CDFW 2019).
<i>Sorex ornatus salarius</i>	Monterey shrew	None/SSC	Saltmarsh, riparian, wetlands, uplands of Salinas River Delta	<b>Not expected to occur.</b> The BSA lacks suitable habitat for this species and is surrounded by residential and commercial development.
<i>Taxidea taxus</i>	American badger	None/SSC	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils	<b>Not expected to occur.</b> The BSA lacks suitable grasslands and coastal scrub to support this species. Additionally, the BSA is surrounded by residential and commercial development.
<b>Invertebrates</b>				
<i>Cicindela ohlone</i>	Ohlone tiger beetle	FE/None	Remnant native grasslands with California oatgrass ( <i>Danthonia californica</i> ) and purple needlegrass ( <i>Stipa pulchra</i> ) in Santa Cruz County	<b>Not expected to occur.</b> The project site lacks suitable grassland habitat to support this species.
<i>Euphilotes enoptes smithi</i>	Smith's blue butterfly	FE/None	Sand dunes, scrub, chaparral, grassland, and their ecotones	<b>Not expected to occur.</b> The project site lacks suitable habitat to support this species.
<i>Polyphylla barbata</i>	Mount Hermon (=barbate) June beetle	FE/None	Known only from sand hills in vicinity of Mount Hermon, Santa Cruz County	<b>Not expected to occur.</b> The project site lacks suitable habitat to support this species.
<i>Trimerotropis infantilis</i>	Zayante band-winged grasshopper	FE/None	Isolated sandstone deposits in the Santa Cruz Mountains (the Zayante Sand Hills ecosystem)	<b>Not expected to occur.</b> The project site lacks suitable habitat to support this species.

**Notes:** BSA = Biological Study Area; CNDDDB = California Natural Diversity Database; USGS = U.S. Geological Survey; ESU = Evolutionarily Significant Unit, DPS = Distinct Population Segment.

**Status Legend**

**Federal**

BCC: Bird of Conservation Concern  
FC: Candidate for federal listing as threatened or endangered  
FDL: Federally delisted; monitored for 5 years  
FE: Federally listed endangered  
FT: Federally listed as threatened

**State**

PSE: Proposed state listing as endangered

SDL: State delisted  
SSC: Species of Special Concern  
FP: California Department of Fish and Wildlife Protected and Fully Protected Species  
SE: State listed as endangered  
ST: State listed as threatened

**References Cited:**

CDFW (California Department of Fish and Wildlife). 2019. RareFind 5, Version 5.1.1. California Natural Diversity Database. Sacramento, California: CDFW, Biogeographic Data Branch. Accessed June 2019. <https://map.dfg.ca.gov/rarefind/view/RareFind.aspx>

December 14, 2020

11724.01

Linda Scroggs  
Murraysmith  
3400 Douglas Boulevard, Suite 190  
Roseville, California 95661

**Subject:** *Aquatic Resources Jurisdictional Delineation for the Arana Sewer Trunk Line Replacement Project, Santa Cruz County, California*

Dear Linda,

This technical report presents the findings of a jurisdictional delineation of aquatic resources conducted by Dudek along a portion of Arana Creek that parallels the Arana Sewer Trunk Line located just north and south of Highway 1 within the City of Santa Cruz and unincorporated portions of Santa Cruz County. The purpose of this investigation was to evaluate the presence and extent of aquatic resources that may be subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and/or the California Department of Fish and Wildlife (CDFW). The investigation included an analysis of Arana Creek where replacement of the existing sewer trunk line would occur (the project site), plus a 100-foot buffer on either side of the alignment's centerline (the study area).

This report is intended to satisfy formal documentation according to the delineation guidelines and protocols stipulated by the USACE under Section 404 of the federal Clean Water Act (CWA), and the CDFW under Section 1600-1607 of the California Fish and Game Code (CFGF).

## 1 Study Area Location and Description

The study area is located in an unincorporated area of Santa Cruz County, except for the southern portion that is located within the City of Santa Cruz, California. The project alignment generally extends from Brookwood Drive (north of Highway 1) to La Fonda Avenue (south of Highway 1), a portion of which is within a heavily vegetated riparian area adjacent to Arana Creek (also referred locally as Arana Gulch or Arana Gulch Creek; Figure 1). The existing and proposed alignment passes under a short segment of Arana Creek. Most of the alignment is within the 100-year floodplain of Arana Creek as designated by the Federal Emergency Management Agency. The southern extent of the study area is positioned approximately 1.5 miles upstream of the Pacific Ocean. The study area is located on publicly- and privately-owned land (Assessor Parcel Numbers 009-291-44, 009-391-52, 025-051-15, 025-051-16, 025-051-17, 025-051-18, 025-054-01, 025-054-06, 025-121-02, 025-131-11, and 025-141-01) and surrounded predominantly by developed land covers associated with commercial, residential, and industrial development. Elevations range from approximately 620 to 650 feet above mean sea level. The study area is located in Section 8 of Township 11 South, Range 1 West of the Soquel California 7.5-minute United States Geological Survey quadrangle map (USGS 2018).

The project consists of replacement of an approximately 2,900-linear feet an existing 10-inch asbestos cement gravity sanitary sewer trunk line. The purpose is to replace the existing aging, deteriorated line and manholes. The current plan is to remove the existing line and replace it with a new pipeline with replacement, potential relocation, and/or elimination of some existing manholes. The Project will also include replacement of approximately 325 linear feet of an existing 6-inch sewer line that collects and transmits flows from Salisbury Drive to the Arana sewer trunk line, as well as, replacement of approximately 225 linear feet of an existing 6-inch sewer line in Eleanor Way.

Construction access would be from existing developed areas. South of Highway 1, access would be provided from Soquel Avenue, La Fonda Avenue, access roads at Harbor High. Existing parking lots at the adjacent Harbor High School would also be expected to be used as a construction staging area. It is anticipated that temporary access for construction equipment would be created through the existing riparian area for the installation of the new pipeline. North of Highway 1, access would be provided from Brookwood Drive with use of an undeveloped, flat area next to the road as a construction staging area. It is expected that the pipeline would be installed over an approximate 4 to 6-month period.

The project consists of 11 sewer line segments, which occur in between existing manholes. The replacement pipeline would be installed using trenchless and conventional (open cut) trenching methods with excavators and loaders. For conventional trenching, which is planned for seven segments (1, 2B, 3, 5, 7 8B<sup>1</sup>, and 9), the pipeline construction trench would be approximately five feet wide and between 11 and 18 feet deep, and construction activities are expected to occur within an approximate 10-foot-wide to 15-foot-wide construction corridor. Once installed, the trench would be backfilled and revegetated. Trenchless construction methods are planned be used for all other pipeline segments. The current plan is to extend the sewer line under Highway 1 on the east and under Soquel Avenue on the west via a bore-and-jack construction method. The sewer line also will cross a short segment of Arana Creek between Harbor High School and Highway 1.

For the purposes of this analysis, a 100-foot buffer was established along an approximately 2,400-linear foot segment of the Arana Sewer Trunk Line to describe aquatic resources within the immediate vicinity of the project site (the study area). The study area encompasses a total of 19.70 acres and was evaluated for this aquatic resources jurisdictional delineation.

To access the central portion of the project site from Highway 1, exit south on Soquel Drive and travel approximately 0.55 miles, turn right onto La Fonda Avenue and travel approximately 0.37 miles to an entrance to Harbor High School on the right-hand side of the road. The project site is located at the terminus of the approximately 0.26 mile along a service/maintenance road off La Fonda Avenue.

## 2 Summary of Regulations

There are three key agencies that regulate activities within inland streams, wetlands, and riparian areas in California. The USACE's Regulatory Program regulates activities pursuant to Section 404 of the CWA; the CDFW

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<sup>1</sup> Segment 8 is divided in two parts: 8A, which will be installed via a trenchless method and 8B, which will be installed via open trench construction.

regulates activities under the CFGC Sections 1600–1616; and the RWQCB regulates activities under Section 401 of the CWA and the Porter–Cologne Water Quality Control Act (Porter–Cologne Act).

The USACE regulates “discharge of dredged or fill material” into “waters of the United States,” which includes tidal waters, interstate waters, and all other waters that are part of a tributary system to interstate waters or to navigable “waters of the United States,” the use, degradation, or destruction of which could affect interstate or foreign commerce or which are tributaries to waters subject to the ebb and flow of the tide (33 CFR, Part 328.3(a)), pursuant to provisions of Section 404 of the CWA. The USACE generally takes jurisdiction within rivers and streams to the “ordinary high water mark” (OHWM) determined by erosion, the deposition of vegetation or debris, and changes in vegetation. On January 23, 2020, the EPA and USACE published a final rule (33 CFR, Part 328) defining the scope of waters protected under the CWA in an effort to undo the broad interpretation of federal jurisdiction established in the 2015 “Clean Water Rule” (80 Federal Regulation 37053). The new rule, referred to as the “Navigable Waters Protection Rule,” issued new regulations to redefine the types of waterbodies covered by the federal CWA, which dramatically narrowed the scope of the federal administration’s regulatory authority compared to previous CWA regulations. As a result of the final rule, EPA and USACE define “waters of the United States” to include the following four categories: (1) the territorial seas and traditional navigable waters; (2) tributaries of such waters; (3) certain lakes, ponds, and impoundments of jurisdictional waters; and (4) wetlands adjacent to other jurisdictional waters (other than waters that are themselves wetlands). The USACE defines jurisdictional wetlands as areas that contain hydrophytic vegetation, hydric soils, and wetland hydrology, in accordance with the procedures established in the Corps Wetland Delineation Manual (USACE 1987) and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (USACE 2010).

In accordance with Section 1602 of the CFGC (Lake and Streambed Alteration), the CDFW regulates activities that “will substantially divert, obstruct, or substantially change the natural flow or bed, channel or bank, of any river, stream, or lake designated by the Department in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit.” The CDFW takes jurisdiction to the top of bank of the stream, or the limit of the adjacent riparian vegetation, referred to in this report as “streambed and associated riparian habitats.” Lake and Streambed Alteration Agreement applications to the CDFW must include a draft California Environmental Quality Act (CEQA) document for the application to be deemed complete by CDFW. A complete certified or adopted CEQA document must be received before the CDFW can issue a Lake and Streambed Alteration Agreement.

The RWQCB regulates “discharging waste, or proposing to discharge waste, within any region that could affect the waters of the State” (Water Code Section 13260 (a)), pursuant to provisions of the Porter–Cologne Act. “Waters of the State” are defined as “any surface water or groundwater, including saline waters, within the boundaries of the state” (Water Code Section 13050 (e)). Before the USACE will issue a CWA Section 404 permit, applicants must receive a CWA Section 401 Water Quality Certification from the RWQCB. If a CWA Section 404 permit is not required for the project, the RWQCB may still require a permit (i.e., Waste Discharge Requirement) under the Porter–Cologne Act. Applications to the RWQCB must also include a complete certified or adopted CEQA document to be deemed complete by RWQCB.

### 3 Methods

Data regarding aquatic resources present within the study area were obtained through a review of pertinent literature and field assessment; both are described in detail below.

## 3.1 Literature Review

Prior to visiting the study area, potential and/or historic drainages and aquatic features were investigated based on a review of the following: USGS topographic maps (1:24,000 scale), aerial imagery, the National Wetland Inventory (NWI) database (USFWS 2020), and the Natural Resource Conservation Service (NRCS) Web Soil Survey (2020). In addition, hydrologic information from gauge stations within the vicinity of the study area was obtained.

## 3.2 Jurisdictional Delineation – Field Assessment

Following the initial data collection, Dudek scientists Elizabeth Geisler and Sheldon Leiker performed a formal (routine) wetlands delineation within the study area on October 14, 2020. All areas that were identified as being potentially subject to the jurisdiction of the USACE, RWQCB, and CDFW were field verified and mapped.

The USACE wetlands delineation was performed in accordance with the Corps Wetlands Delineation Manual (USACE 1987), Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (USACE 2010), A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States (Mersel and Lichvar 2014), and guidance provided by the USACE and EPA on the geographic extent of federal jurisdiction (Navigable Waters Protection Rule; 33 CFR, Part 328). Non-wetland waters of the United States were delineated based on the limits of an OHWM. During the jurisdictional delineation, drainage features were examined for evidence of an OHWM, saturation, presence of surface water, wetland vegetation, and nexus to a traditional navigable water of the United States. If any of these criteria were met, transects were run to determine the extent of each regulatory agency's jurisdiction.

Transects were taken approximately every 100 feet or greater if streambed conditions were unchanged. In dynamic reaches, transects were taken more frequently to capture channel morphology. Data on transect widths, dominant vegetation present within the drainage and in the adjacent uplands, and channel morphology were recorded on field forms. In areas where USACE jurisdictional wetlands were suspected, data on vegetation, hydrology, and soils were collected along transects.

Areas regulated by the RWQCB are generally coincident with the USACE but include features isolated from navigable waters of the United States that have evidence of surface water inundation. The CDFW jurisdiction was defined to the bank of the stream/channels also known as the top of bank or to the limit of the adjacent riparian vegetation.

Drainage features were mapped during the field observation to obtain characteristic parameters and detailed descriptions using standard measurement tools. The location of transects, upstream and downstream extents of each feature, and sample points were collected in the field using a 1: 2,400 scale (1 inch = 200 feet) aerial photograph and topographic map, and a Trimble Global Positioning System (GPS) unit. Dudek geographic information system (GIS) technician Tyler Friesen digitized the jurisdictional extents based on the transect measurements and GPS data into a project-specific GIS using ArcGIS software.

## 4 Results

Dudek used the methods described above to determine the presence or absence of USACE, RWQCB, and CDFW jurisdiction within the study area. One main drainage, Arana Creek, was investigated within the study area as a

potential jurisdictional resource. The determination of aquatic resource jurisdiction within the study area was supported by information obtained from the USGS topographic map, Web Soil Survey, USFWS NWI map, and field assessment. Information obtained from each source is described below.

## 4.1 USGS Topographic and Watershed Map Review

The USGS 7.5-minute Soquel, California topographic map (USGS 2018) was utilized to identify natural and man-made features occurring within the vicinity of the study area. Information obtained from the map included contour lines, streets, streams, railroad lines, and vegetation. The Soquel topographic map was based on National Agriculture Imagery Program imagery from 2016 and National Elevation Dataset contours from 1999. The study area was generally mapped as undeveloped land with the exception of several major and arterial roads including Highway 1, Soquel Avenue, La Fonda Avenue, and Brookwood Drive. Arana Creek is mapped as a “blue-line” drainage that occurs within the center of the study area. Harbor High School, which has been operational since 1967, occurs immediately adjacent to the west of the study area. No other aquatic features or significant structural features are identified on the map within the study area’s boundaries.

The study area occurs within the San Lorenzo Subarea (304.12) of the Santa Cruz Hydrologic Area (304.10), which occurs within the larger Big Basin Hydrologic Unit (CCRWQCB 2019). According to the USGS, the study area occurs in the San Lorenzo – Soquel watershed (HUC8: 18060001; USGS 2020). Sources of hydrology in the study area include runoff and in-stream flows from adjacent mountain slopes within the headwaters, local precipitation, and runoff from the adjacent impervious surfaces such as roadways and parking lots. The hydrology of the study area has been influenced by anthropogenic sources including adjacent development and water diversions, specifically from the installation of road crossing culverts at Brookwood Drive, Highway 1, a paved maintenance/access road, and Soquel Avenue. Additionally, the lower 1,000 linear feet of streambed has been realigned and characterized by a trapezoidal-shaped channel with concrete-lined slopes. Just downstream of the study area (past Capitola Road), Arana Creek empties into the Arana Gulch Marsh and then Santa Cruz Harbor.

## 4.2 Soil Survey Review

The U.S. Department of Agriculture, Natural Resources Conservation Service’s Web Soil Survey for Santa Cruz County, California (USDA 2020) was consulted and identified four soil associations as occurring throughout the study area: the Elkhorn sandy loam, 15 to 30 percent slopes; Pinto loam, 2 to 9 percent slopes; Soquel loam, 2 to 9 percent slopes; and Watsonville loam, 2 to 15 percent slopes. Each of these soil types is described in further detail, below. A map of the soils within the study area can be found in Figure 2 of this report.

**Elkhorn sandy loam, 15 to 30 percent slopes:** The soils of the Elkhorn series occur on alluvial fans and terraces of foothill slopes and derived from marine deposits. This soil is deep with a restrictive bedrock layer greater than 80 inches. Elkhorn soils are well drained and have slow infiltration and water transmission rate (hydrologic soil group C). Elkhorn soil is not listed as hydric (USDA 2020).

**Pinto loam, 2 to 9 percent slopes:** The soils of the Pinto series occur on alluvial fans and terraces of foothill slopes and derived from alluvial material. This soil is deep with a restrictive bedrock layer greater than 80 inches. Pinto soils are moderately well drained and have slow infiltration and water transmission rate (hydrologic soil group C). Pinto soil is not listed as hydric (USDA 2020).



**Soquel loam, 2 to 9 percent slopes:** The soils of the Soquel series occur on plains of foothill slopes and derived from alluvial material. This soil is deep with a restrictive bedrock layer greater than 80 inches. Soquel soils are moderately well drained and have slow infiltration and water transmission rate (hydrologic soil group C). Soquel soil is not listed as hydric (USDA 2020).

**Watsonville loam, 2 to 15 percent slopes:** Watsonville loam soils occur primarily on marine terraces. The soil is relatively shallow and reaches a restrictive layer of an abrupt textural change about 18 inches below ground surface. Watsonville loam soils are somewhat poorly drained with an alluvium parent material. Watsonville loam soils are listed as hydric (USDA 2020).

One of the four soil units identified within the study area, primarily along the eastern bank of Arana Creek, is listed as a hydric soil: Watsonville loam, 2 to 15 percent slopes. Hydric soils are defined by the National Technical Committee for Hydric Soils as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation. Soils encountered during the field visit were loams and silty clay and generally matched the USDA soil mapping series.

### 4.3 National Wetlands Inventory Review

The National Wetlands Inventory (NWI) identifies two riverine feature within the study area and associated with Arana Creek: a palustrine system that is forested and temporarily flooded (PFOA), and a perennial riverine system with an unconsolidated bottom that is semi-permanently flooded (R5UBF) (Figure 2). The NWI classifies palustrine systems as encompassing all nontidal wetlands dominated by trees, shrubs, persistent emergent, and wetlands that occur in tidal areas where salinity is below 0.5 parts per thousand. The palustrine system includes wetlands traditionally referred to as marshes, swamps, bogs, fens, and prairies. However, the NWI's mapping of Arana Creek within the study area as a palustrine system seems inaccurate given the riparian setting and function of the drainage. The NWI classifies riverine systems as encompassing all wetlands and deepwater habitats contained within a channel aside from wetlands dominated by vegetation and habitats that interact with the ocean. Specifically, this system is classified as an upper reach stream with at least 25% cover of substrates smaller than stones and less than 30% vegetative cover (USFWS 2020).

### 4.4 Field Assessment

Arana Creek, four unnamed tributaries, and an adjacent wetland that occur within the study area were investigated during this assessment. Arana Creek is a natural, perennial drainage that originates in the Santa Cruz Mountains and drains into the Santa Cruz Harbor and Pacific Ocean. From its headwaters, the drainage continues for approximately 4.56 miles in a southerly direction before it empties into the Santa Cruz Harbor. The active channel of Arana Creek (including the OHWM) generally parallels the study area.

Figures 3 and 4 illustrate the location and extent of federal and state jurisdiction, respectively, within the study area. Table 1 summarizes the amount of jurisdiction calculated within the study area.



**Table 1 – Summary of Jurisdictional Features**

Feature	Width (feet)		Length (feet)	Area (acres)		Nature
	USACE	RWQCB/ CDFW	USACE/RWQCB/ CDFW	USACE	RWQCB/ CDFW	
Non-Wetland Waters						
Arana Creek	4-20	12-260	2,056	0.48	7.06	Perennial
Drainage 1	2	4	58	<0.01	<0.01	Ephemeral Tributary
Drainage 2	2	5	14	<0.01	<0.01	Ephemeral Tributary
Drainage 3	1	3	38	<0.01	<0.01	Ephemeral Tributary
Drainage 4	1	3	52	<0.01	<0.01	Ephemeral Tributary
Wetland Waters						
Adjacent Wetland	–	–	–	0.82	0.82*	Forested Wetland
Total			2,218	1.30	7.07	–

\* Adjacent wetland is located within the Arana Creek system riparian canopy, so the acreage is included in the 7.06 acres of RWQCB/CDFW Waters.

The following descriptions are detailed accounts of the potentially jurisdictional features investigated within the study area. For potential wetland areas, the wetland indicator status was assigned to each species using the National Wetland Plant List (California) (Lichvar et al. 2016), as shown in Table 2.

**Table 2 – Summary of Wetland Indicator Status**

Category	Probability
Obligate Wetland (OBL)	Almost always occur in wetlands (estimated probability of >99%)
Facultative Wetland (FACW)	Usually occur in wetlands (estimated probability of 67% to 99%)
Facultative (FAC)	Equally likely to occur in wetlands/non-wetlands (estimated probability of 34% to 66%)
Facultative Upland (FACU)	Usually occur in non-wetlands (estimated probability 67% to 99%)
Obligate Upland (UPL)	Almost always occur in non-wetlands (estimated probability >99%)
No Indicator (NI)	—

## Arana Creek

The reach of Arana Creek within the study area contains earthen and concrete sections bisected by roads and stream banks bordered by development. A majority of the drainage has been re-aligned and channelized, with the lower reach characterized by concrete-lined slopes. The banks are generally steep, sometimes vertical, with an earthen streambed composed of silt and sand, and woody debris in a few locations.

The riparian canopy of Arana Creek within the study area is characterized by an arroyo willow woodland vegetation community. Dominant species that characterized the overstory included coast live oak (*Quercus agrifolia*), arroyo willow (*Salix lasiolepis*), silver wattle (*Acacia dealbata*), white alder (*Alnus rhombifolia*), and black cottonwood (*Populus trichocarpa*). The shrub layer is dominated by willow saplings, poison oak (*Toxicodendron diversilobum*), Himalayan blackberry (*Rubus armeniacus*), and California blackberry (*Rubus ursinus*); and the herbaceous layer includes water-parsley (*Oenanthe sarmentosa*), English ivy (*Hedera helix*), curly dock (*Rumex crispus*), smartweed, tall flat sedge, night shade (*solanum americanum*), and stinging nettle (*Urtica dioica*). The majority of the adjacent upland areas are developed; however, where vegetation communities are present, species include perennial rye grass (*Festuca perennis*), wild oat (*Avena fatua*), coast live oak, Tasmanian bluegum (*Eucalyptus globulus*), and English ivy. Emergent vegetation is present in some locations and included smartweed (*Persicaria lapathifolia*), tall flatsedge (*Cyperus eragrostis*), and watercress (*Nasturtium officinale*). Duckweed (*Lemna minor*) was also present on the water surface in some locations. Representative photographs of the drainage are provided in Attachment A.

The USACE jurisdictional width encompasses the lateral extent of Arana Creek's OHWM within the survey area and ranges from 4 to 20 feet. A total of 0.48 acre of USACE jurisdictional non-wetland waters of the United States occur within Arana Creek (Figure 3). Attachment B contains the OHWM delineation datasheets completed during the assessment. Attachment C contains a summary of the USACE jurisdictional areas within the survey area.

The CDFW and RWQCB jurisdictional width encompasses the lateral extent of Arana Creek's top of bank and associated riparian vegetation, whichever extends the farthest, and ranges from 12 to 260 feet within the survey area. A total of 7.06 acres of CDFW and RWQCB jurisdictional streambed and associated riparian habitats, all of which would be considered vegetated waters of the State, occur within the survey area (Figure 4).

## Adjacent Wetland

One area located immediately adjacent to the eastern bank of Arana Creek and south of Highway 1 was investigated as an adjacent wetland. This area appears to function as a streambed terrace that receives periodic seasonal high flows from Arana Creek, as well as stormwater runoff from Highway 1. The adjacent wetland is located outside of Arana Creek's OHWM, but within the riparian canopy of the Arana Creek system. Saturated soils were observed within this local depressional area during the site visit. Plants that dominated the area included several hydrophytic species such as red and arroyo willow (FACW), smartweed (FACW), tall flatsedge (FACW), and water-parsley (OBL), with Himalayan blackberry (FAC), California blackberry (FAC), and English Ivy (FACU) at the perimeter. Representative photographs of the adjacent wetland are provided in Attachment A.

Due to the dominance of hydrophytic vegetation and saturated soil within the large depressional area, three data stations were established to determine the extent of federal jurisdictional wetlands (Attachment B; Data Sheets #1-3). Soil pits were excavated at these locations to determine the presence of hydric soils. The first data station (DS-1) was located near the eastern edge of an area dominated by hydrophytic vegetation where the soil was somewhat

saturated, the second data station (DS-2) was located upslope of DS-1 in an area with dry soil and dominated by upland vegetation, and the third data station (DS-3) was located near the western edge of the depressional area. Soils at DS-1 consisted of an organic layer near the surface and silty clay from 3-12 inches below ground surface with a color of 10YR 4/2 in the Munsell (2009) Soil Charts and redox concentrations from 3-6 inches with a color of 10 YR 5/6. This soil had a depleted matrix and meets the definition of hydric soils and therefore met the USACE definition of a jurisdictional wetland. Soils at DS-2 consisted of loam from 0-12 inches below ground surface (refusal at roots and hard packed soil) with a color 10YR 4/2 on the Munsell (2009) Soil Charts. This soil does not meet the definition of hydric soils signifying the end of the wetland at the edge of the hydrophytic vegetation. Soils at DS-3 consisted of a sandy and organic layer near the surface and silty loam from 2-12 inches below ground surface with a color of 10YR 5/2 in the Munsell (2009) Soil Charts and redox concentrations from 2-12 inches with a color of 10 YR 5/8. This soil had a depleted matrix and meets the definition of hydric soils and therefore met the USACE definition of a jurisdictional wetland. Attachment B contains the wetland determination data forms completed during the assessment.

Federal jurisdictional wetlands were determined present whenever there was a dominance of hydrophytic vegetation, presence of hydric soils, and indicators of wetland hydrology. As a result, the adjacent wetland was determined to meet the USACE three-parameter test for classification as a wetland and totaled approximately 0.82 acre.

### Earthen Tributaries

There are four small earthen tributaries within the study area that drain into Arana Creek. All of the tributaries are small and capture runoff from immediately adjacent urban areas (roads and graded slopes).

Drainage 1 is located in the downstream portion of the study area near La Fonda Avenue. Drainage 1 consists of a small, channelized feature that empties into a concrete segment of Arana Creek. It originates at a culvert outlet that drains residential streets upstream. The drainage is channelized at the culvert outlet and continues into another culvert approximately 60 feet downstream that drains into Arana Creek. Drainage 1 occurs within an ornamental vegetation community dominated by Tasmanian bluegum. The shrub layer is dominated by Himalayan blackberry and California blackberry; however, no herbaceous layer is present beneath the Tasmanian bluegum canopy. The USACE jurisdictional width (OHWM) within the study area is 2 feet. Less than 0.01 acre of USACE jurisdictional non-wetland waters of the United States occur within Drainage 1 (Figure 3). The CDFW and RWQCB jurisdictional width, which encompasses the lateral extent of top of bank, is 4 feet. Less than 0.01 acre of CDFW and RWQCB jurisdictional streambed occur within the study area (Figure 4).

Drainage 2 is located in the central portion of the survey area just south the Harbor High School tennis courts. The drainage consists of a small earthen channel located at the outlet of a 3-foot diameter culvert that transports stormwater runoff into Arana Creek. Drainage 2 is situated within the arroyo willow woodland vegetation community associated with Arana Creek. Dominant species that characterized the overstory included coast live oak, arroyo willow, and white alder. The shrub layer is dominated by poison oak, Himalayan blackberry, and California blackberry; and the herbaceous layer includes English ivy, smartweed, tall flat sedge, night shade, and stinging nettle. The USACE jurisdictional width (OHWM) within the survey area is 2 feet. Less than 0.01 acre of USACE jurisdictional non-wetland waters of the United States occur within Drainage 2 (Figure 3). The CDFW and RWQCB jurisdictional width, which encompasses the lateral extent of the top of bank, is 5 feet. Less than 0.01 acre of CDFW and RWQCB jurisdictional streambed occur within the study area (Figure 4).

Drainages 3 and 4 are located in the upstream reach of the survey area at the intersection with Brookwood Drive. These drainages are channelized roadside ditches that capture street runoff and drain into Arana Creek. Drainages 3 and 4 occur within the arroyo willow woodland vegetation community associated with Arana Creek. The USACE jurisdictional width (OHWM) for each feature is 1 foot. Both drainages have less than 0.01 acre of USACE jurisdictional non-wetland waters of the United States (Figure 3). The CDFW and RWQCB jurisdictional width, which encompasses the lateral extent of the top of bank, for each drainage is 3 feet. Both drainages have less than 0.01 acre of CDFW and RWQCB jurisdictional streambed within the study area (Figure 4).

## 5 Conclusion

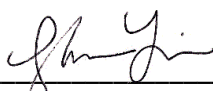
The purpose of this report is to identify and delineate all jurisdictional wetland and non-wetland waters of the United States, and jurisdictional streambeds as regulated by the USACE, RWQCB, and CDFW within the study area. This report represents existing conditions only and does not address any activities proposed within the study area. Information contained within this report will be utilized to determine the location and extent of potential impacts to jurisdictional wetlands/waters associated with future construction or maintenance activities within the study area.

The study area supports the potentially jurisdictional streambed and associated riparian habitat of one perennial drainage (Arana Creek) four tributaries, and an adjacent wetland. In total, the study area contains 0.48 acres of potentially USACE jurisdictional non-wetland waters of the United States, 7.07 acres of potentially CDFW and RWQCB jurisdictional non-wetland waters of the State that encompass the adjacent wetland, and 0.82 acre of potentially USACE jurisdictional wetland. The USACE jurisdiction overlaps and is a subset of the CDFW and RWQCB acreage. However, final determinations of jurisdictional extents cannot be made until the resource agencies have verified the findings of this investigation.

Any proposal that involves impacting jurisdictional drainages within the study area through filling, stockpiling, conversion to a storm drain, channelization, bank stabilization, road or utility line crossings, maintenance, or any other modification would require permits from the USACE, the RWQCB, and the CDFW before any earth-moving activities could commence. Both permanent and temporary impacts are regulated and would trigger the need for these permits. Processing of the USACE's CWA Section 404 permit, the RWQCB's CWA Section 401 permit, and the CDFW's CFGC Section 1602 permit can occur concurrently, and can utilize the same information and analysis. The USACE will not issue its authorization until the RWQCB completes the CWA Section 401 permit.

If you have any questions regarding the contents of this report, please call us at 831.600.1413.

Sincerely,



Sheldon Leiker  
Watershed Scientist



Elizabeth Geisler  
Watershed Scientist

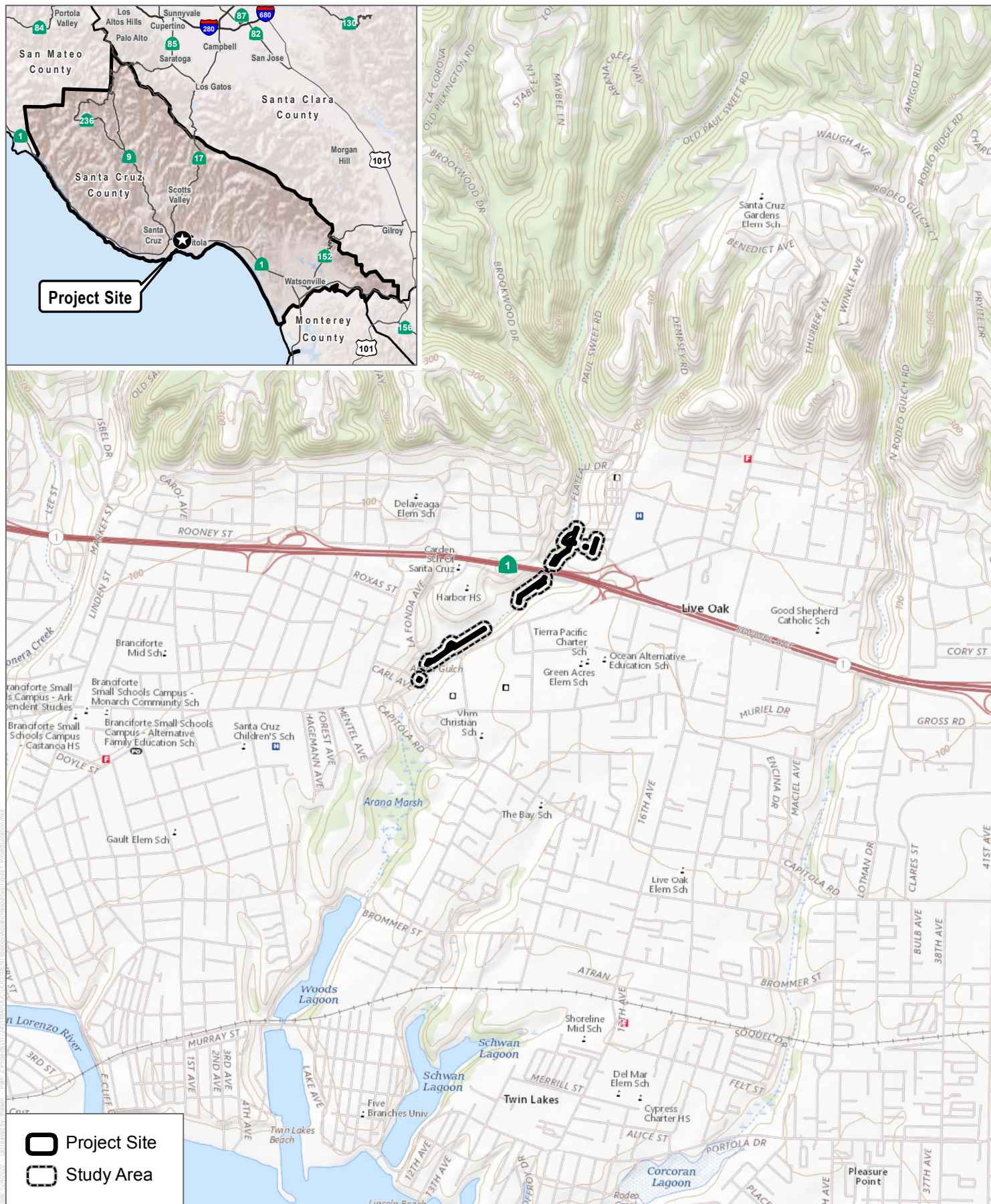
Att.: Figures 1 – 4  
A – Representative Site Photographs  
B – OHWM and Wetland Data Forms  
C – Aquatic Resources Spreadsheet

cc: Ryan Henry, Dudek  
Stephanie Strelow, Dudek

## 6 References Cited

- Mersel, M.K. and Lichvar R.W. 2014. A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States. ERDC/CRREL TR-14-13. August.
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SOURCE: USGS 7.5-Minute Series Soquel Quadrangle  
Township 11S / Range 1W / Section 8

**DUDEK**



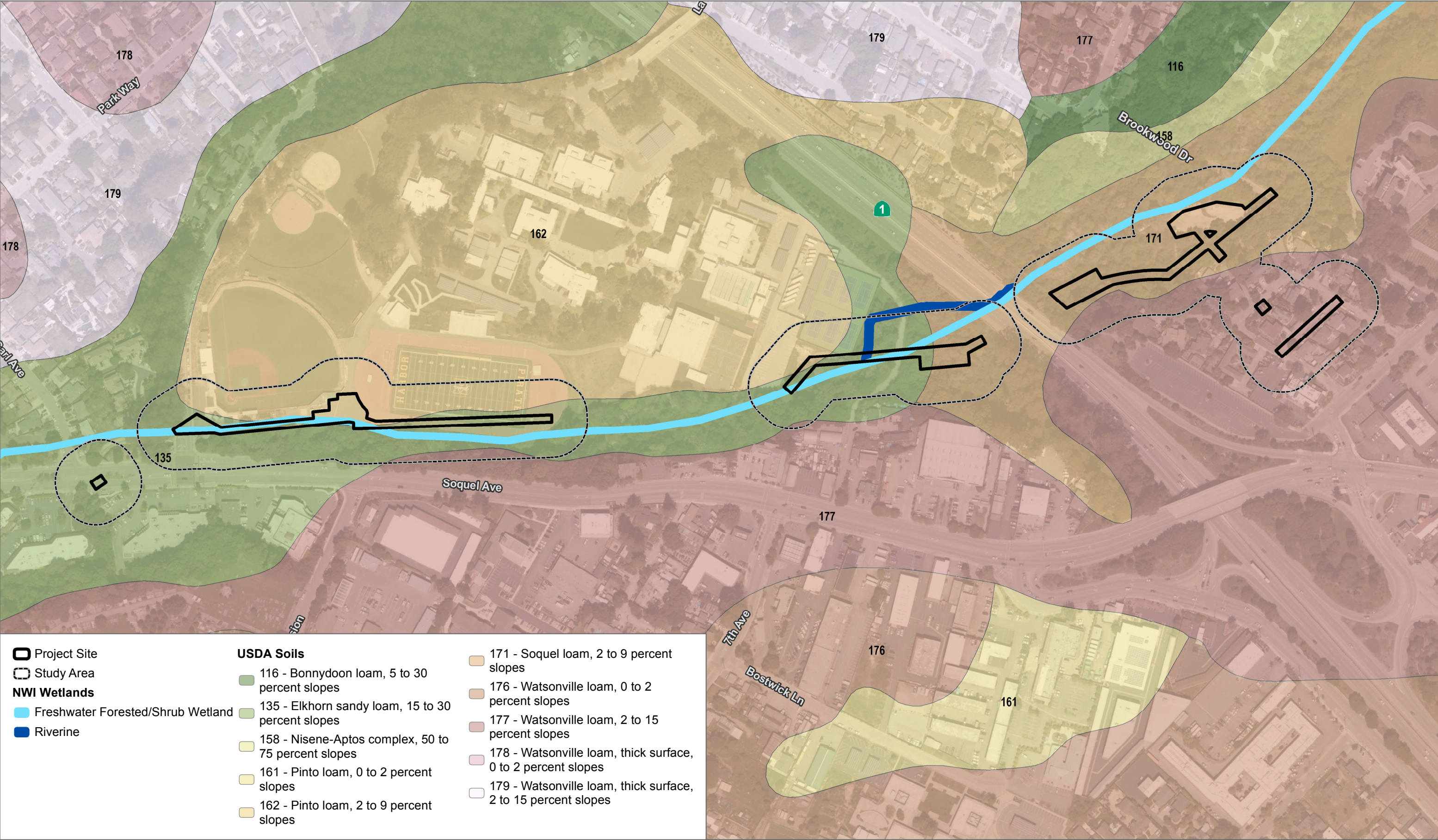
0 1,000 2,000 Feet

Aquatic Resources Jurisdictional Delineation for the Arana Gulch Sewer Line Project, Santa Cruz County, California

**FIGURE 1**

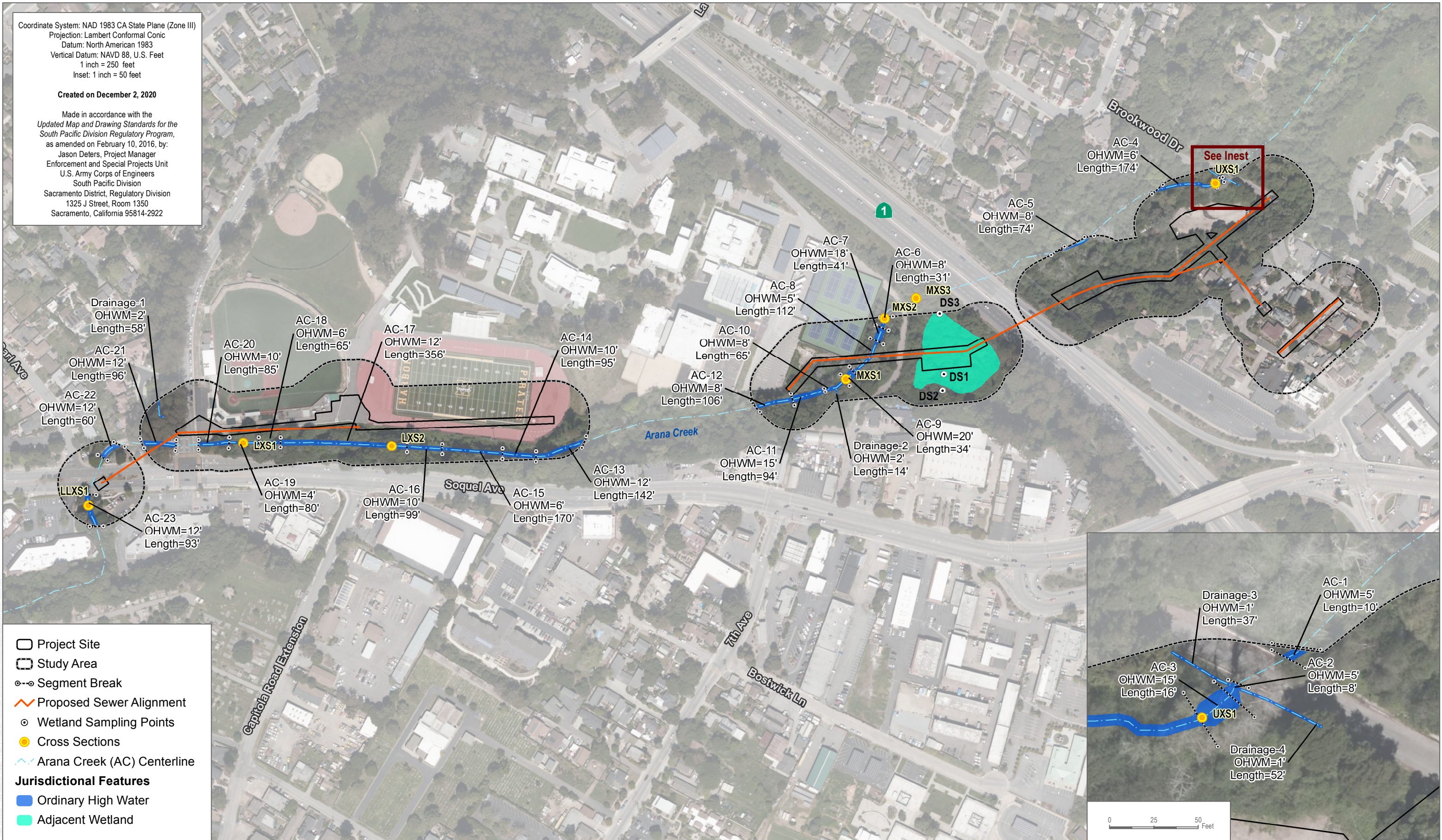
**Project Location**





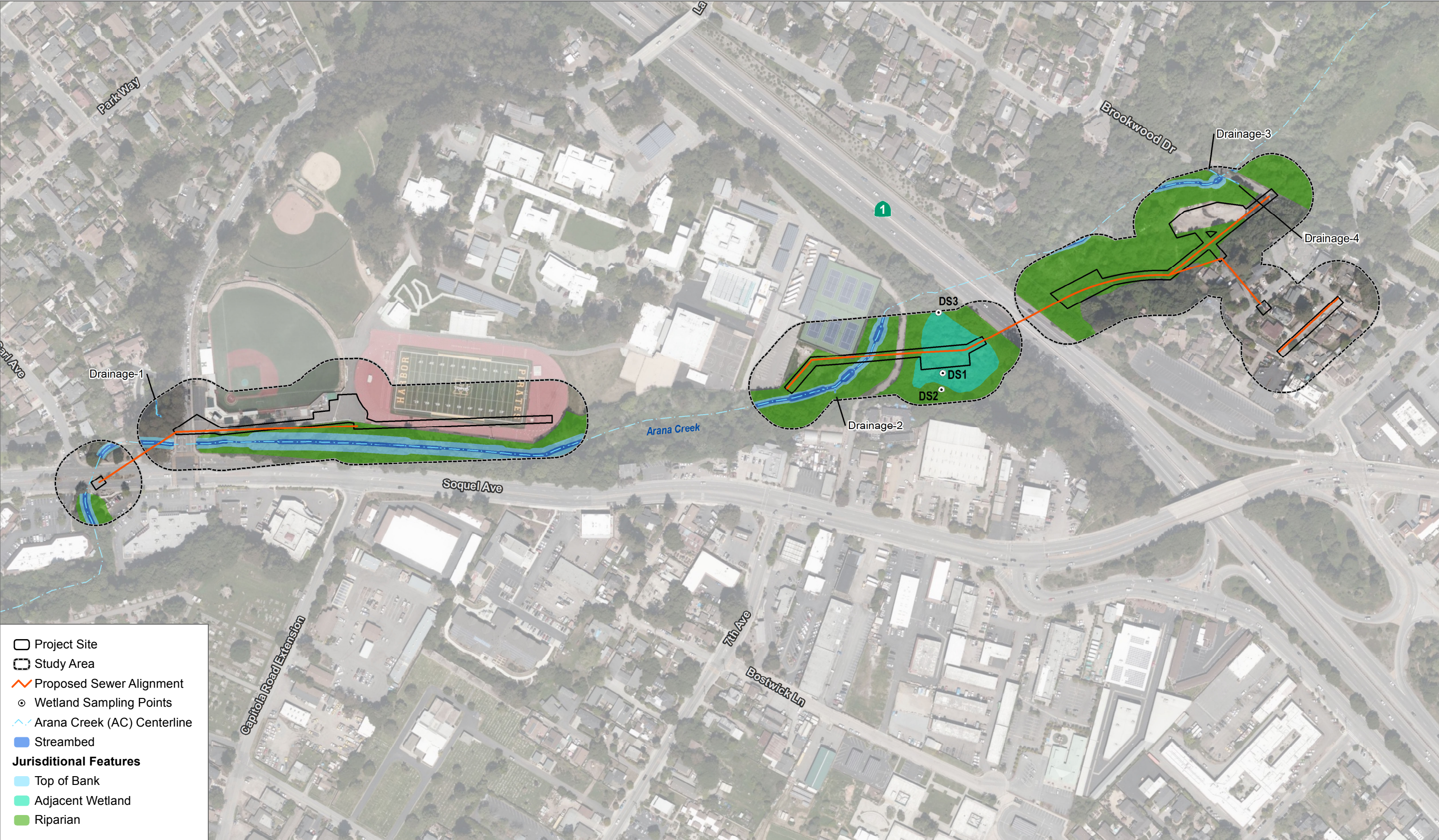
SOURCE: Bing 2020, USDA NRCS 2010, USFWS NWI 2019





SOURCE: Bing 2020





SOURCE: Bing 2020

**FIGURE 4**  
Potentially Jurisdictional Aquatic Resources - CDFW/RWQCB  
Aquatic Resources Jurisdictional Delineation for the Arana Gulch Sewer Line Project, Santa Cruz County, California





# Attachment A

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Representative Site Photographs

ATTACHMENT A  
REPRESENTATIVE SITE PHOTOGRAPHS

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Photograph 1: Arana Creek. Segment 21 between La Fonda Avenue and Soquel Avenue. View looking downstream toward the west.



Photograph 2: Arana Creek. Segment 20 just east of La Fonda Avenue. View looking downstream toward the west.



Photograph 3: Arana Creek. Segment 18 just south of the Harbor High School baseball field. View looking downstream toward the west.



Photograph 4: Arana Creek. Segment 16 just south of the Harbor High School football field. View looking upstream toward the east.





Photograph 5: Arana Creek. Segment 8 near Harbor High School tennis courts. View looking upstream toward the north. This section of creek has one concrete bank and one earthen bank.



Photograph 6: Woody debris and litter in Arana Creek.



Photograph 7: Arana Creek. Segment 7 near Harbor High School tennis courts. View looking upstream toward the north.



ATTACHMENT A  
REPRESENTATIVE SITE PHOTOGRAPHS



Photograph 8: Arana Creek. Segment 5 near Highway 1. View looking upstream toward the northeast.



Photograph 9: Arana Creek. Segment 4 near Brookwood Drive. View looking downstream toward the southwest.



Photograph 10: Adjacent Wetland. Segment 6 near Highway 1. View looking west.



Photograph 11: Adjacent Wetland. Segment 6 at DS-1. Redox features in soil sample.



# Attachment B

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## OHWL and Wetland Data Forms

Project: Arana Sewer Line Date: 10/14/20  
Location: LL x S1 Investigator(s): SL + EG

**Project Description:**

Sewer line replacement

**Describe the river or stream's condition (disturbances, in-stream structures, etc.):**

concrete right bank  
culvert + road upstream

**Off-site Information**

Remotely sensed image(s) acquired? ☒ Yes ☐ No [If yes, attach image(s) to datasheet(s) and indicate approx. locations of transects, OHWM, and any other features of interest on the image(s); describe below] Description:

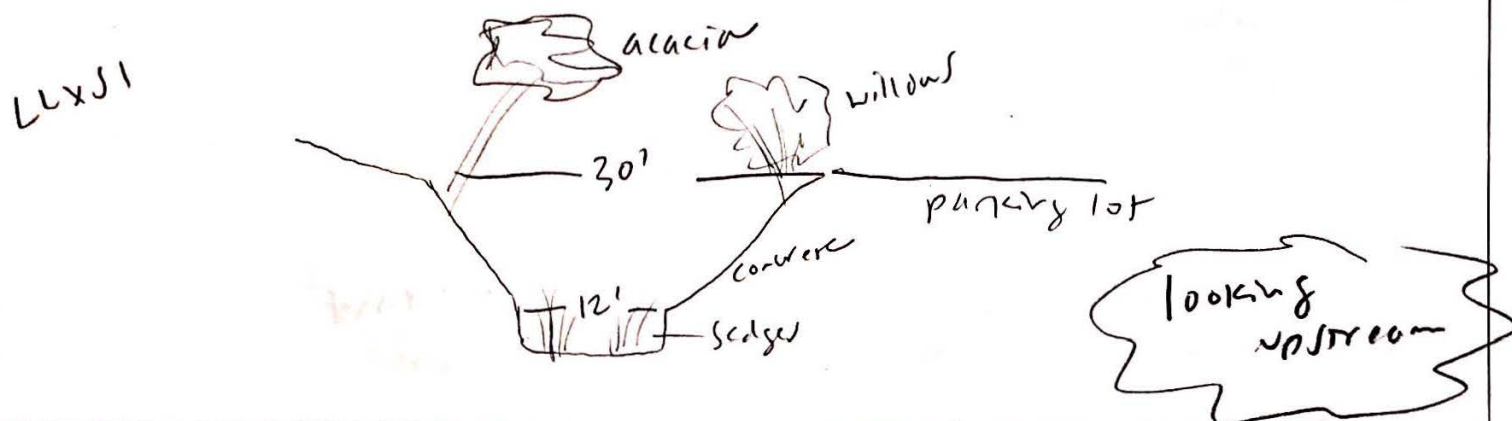
Hydrologic/hydraulic information acquired? ☐ Yes ☒ No [If yes, attach information to datasheet(s) and describe below.] Description:

List and describe any other supporting information received/acquired:

Instructions: Complete one cover sheet and one or more datasheets for each project site. Each datasheet should capture the dominant characteristics of the OHWM along some length of a given stream. Complete enough datasheets to adequately document up- and/or downstream variability in OHWM indicators, stream conditions, etc. Transect locations can be marked on a recent aerial image or their GPS coordinates noted on the datasheet.



**Transect (cross-section) drawing:** (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)



**Break in Slope at OHWM:** ☐ Sharp ( $> 60^\circ$ ) | ☐ Moderate ( $30-60^\circ$ ) | ☒ Gentle ( $< 30^\circ$ ) | ☐ None

Notes/Description:

**Sediment Texture:** Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm	Sand 0.05 - 2mm	Gravel 2mm - 1cm	Cobbles 1 - 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM						Y + concrete
Below OHWM	70	30				

Notes/Description:

**Vegetation:** Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	50	10	10	80
Below OHWM	50		90	

Notes/Description:

**Other Evidence:** List/describe any additional field evidence and/or lines of reasoning used to support your delineation



Project: Arana Sewer LineDate: 10/14/20Location: LXS1Investigator(s): SL+EG**Project Description:**Sewer line replacement**Describe the river or stream's condition (disturbances, in-stream structures, etc.):**concrete channel bounded by roads  
+ culverts**Off-site Information**

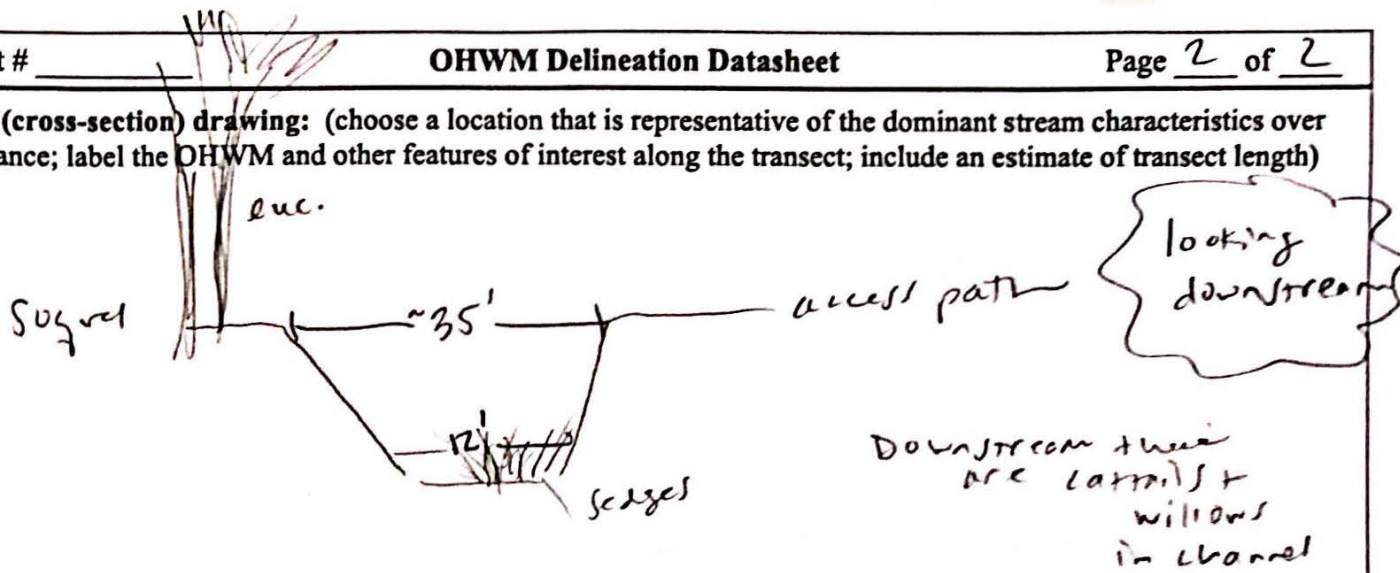
Remotely sensed image(s) acquired? ☒ Yes ☐ No [If yes, attach image(s) to datasheet(s) and indicate approx. locations of transects, OHWM, and any other features of interest on the image(s); describe below] Description:

Hydrologic/hydraulic information acquired? ☐ Yes ☒ No [If yes, attach information to datasheet(s) and describe below.] Description:

**List and describe any other supporting information received/acquired:**

Instructions: Complete one cover sheet and one or more datasheets for each project site. Each datasheet should capture the dominant characteristics of the OHWM along some length of a given stream. Complete enough datasheets to adequately document up- and/or downstream variability in OHWM indicators, stream conditions, etc. Transect locations can be marked on a recent aerial image or their GPS coordinates noted on the datasheet.

**Transect (cross-section) drawing:** (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)



**Break in Slope at OHWM:** ☐ Sharp ( $> 60^\circ$ ) | ☐ Moderate ( $30-60^\circ$ ) | ☐ Gentle ( $< 30^\circ$ ) | ☒ None

Notes/Description:

**Sediment Texture:** Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	Concrete					
Below OHWM	70	30				

Notes/Description:

**Vegetation:** Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	15			
Below OHWM	15		40	

Notes/Description:

Sedges  
algae  
duckweed

**Other Evidence:** List/describe any additional field evidence and/or lines of reasoning used to support your delineation

Project: Arana Sewer Line Date: 10/14/20  
Location: Lower XS-2 (LXS2) Investigator(s): SLTEG

**Project Description:**

*Sewer line replacement*

**Describe the river or stream's condition (disturbances, in-stream structures, etc.):**

*Sageel Ave runs parallel  
litter + large garbage pieces*

**Off-site Information**

Remotely sensed image(s) acquired? ☒ Yes ☐ No [If yes, attach image(s) to datasheet(s) and indicate approx. locations of transects, OHWM, and any other features of interest on the image(s); describe below] Description:

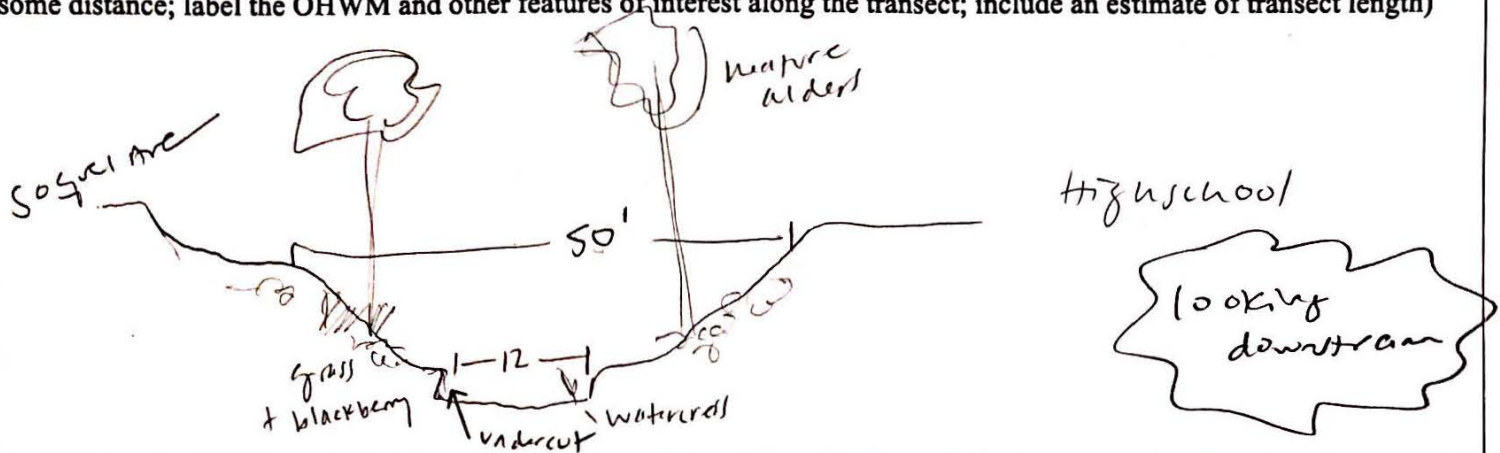
Hydrologic/hydraulic information acquired? ☐ Yes ☒ No [If yes, attach information to datasheet(s) and describe below.] Description:

List and describe any other supporting information received/acquired:

Instructions: Complete one cover sheet and one or more datasheets for each project site. Each datasheet should capture the dominant characteristics of the OHWM along some length of a given stream. Complete enough datasheets to adequately document up- and/or downstream variability in OHWM indicators, stream conditions, etc. Transect locations can be marked on a recent aerial image or their GPS coordinates noted on the datasheet.



**Transect (cross-section) drawing:** (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)



**Break in Slope at OHWM:** ☒ Sharp ( $> 60^\circ$ ) | ☒ Moderate ( $30-60^\circ$ ) | ☐ Gentle ( $< 30^\circ$ ) | ☐ None

Notes/Description:

**Sediment Texture:** Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	50	40	10	10		Y
Below OHWM	40	40	20			

Notes/Description:

**Vegetation:** Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	90	40	30	30
Below OHWM			5	95

Notes/Description:

**Other Evidence:** List/describe any additional field evidence and/or lines of reasoning used to support your delineation

Project: Arana Sewerline Date: 10/14/20  
Location: Middle XS1 (MXS1) Investigator(s): SL+AG

**Project Description:**

Sewer line replacement

**Describe the river or stream's condition (disturbances, in-stream structures, etc.):**

Culverts up + downstream, roads, partial concrete channel, litter + woody debris.

**Off-site Information**

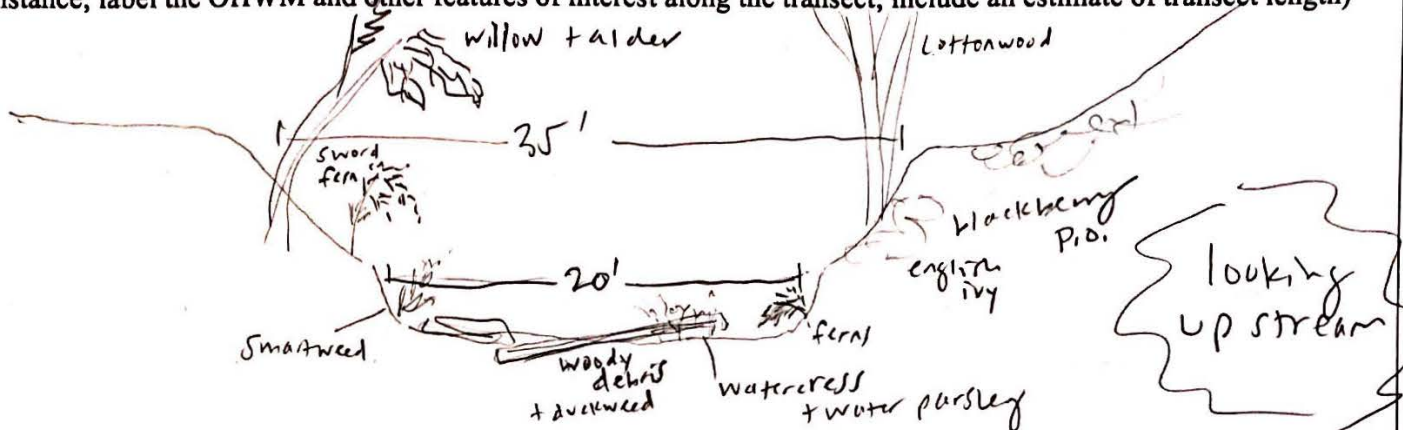
Remotely sensed image(s) acquired? ☒ Yes ☐ No [If yes, attach image(s) to datasheet(s) and indicate approx. locations of transects, OHWM, and any other features of interest on the image(s); describe below] Description:

Hydrologic/hydraulic information acquired? ☐ Yes ☒ No [If yes, attach information to datasheet(s) and describe below.] Description:

List and describe any other supporting information received/acquired:

Instructions: Complete one cover sheet and one or more datasheets for each project site. Each datasheet should capture the dominant characteristics of the OHWM along some length of a given stream. Complete enough datasheets to adequately document up- and/or downstream variability in OHWM indicators, stream conditions, etc. Transect locations can be marked on a recent aerial image or their GPS coordinates noted on the datasheet.

**Transect (cross-section) drawing:** (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)



**Break in Slope at OHWM:** ☐ Sharp ( $> 60^\circ$ ) | ☒ Moderate ( $30-60^\circ$ ) | ☐ Gentle ( $< 30^\circ$ ) | ☐ None

Notes/Description:

**Sediment Texture:** Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	50	40		10		Y
Below OHWM	50	40	5	5		

Notes/Description:

**Vegetation:** Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	70	50	40	10
Below OHWM			40	

Notes/Description:

**Other Evidence:** List/describe any additional field evidence and/or lines of reasoning used to support your delineation



Project: Arana Sewer line Date: 10/14/20  
Location: Mxs 2 Investigator(s): EG+SL

**Project Description:**

Sewer line replacement

**Describe the river or stream's condition (disturbances, in-stream structures, etc.):**

right bank is concrete  
culvert + access road upstream  
woody debris  
litter

**Off-site Information**

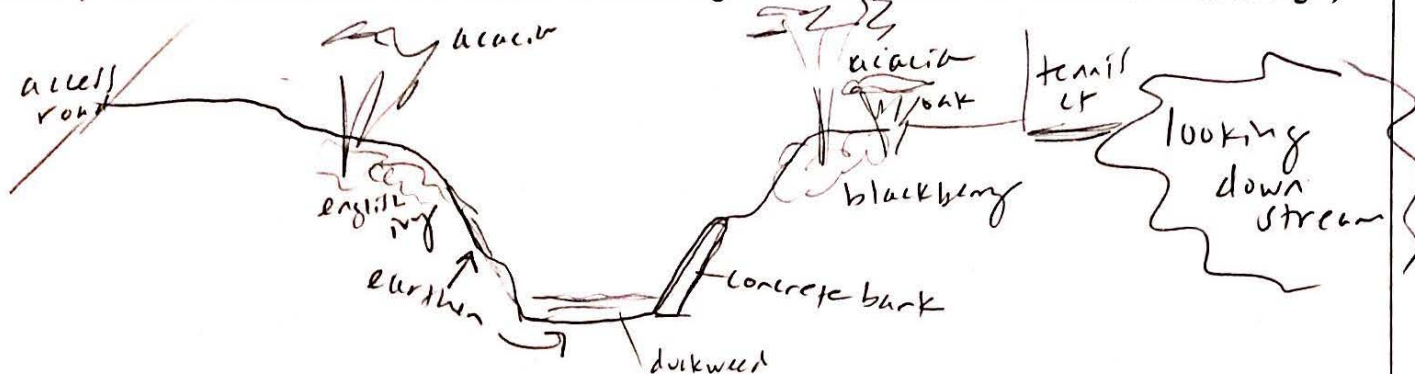
Remotely sensed image(s) acquired? ☒ Yes ☐ No [If yes, attach image(s) to datasheet(s) and indicate approx. locations of transects, OHWM, and any other features of interest on the image(s); describe below] Description:

Hydrologic/hydraulic information acquired? ☐ Yes ☒ No [If yes, attach information to datasheet(s) and describe below.] Description:

List and describe any other supporting information received/acquired:

Instructions: Complete one cover sheet and one or more datasheets for each project site. Each datasheet should capture the dominant characteristics of the OHWM along some length of a given stream. Complete enough datasheets to adequately document up- and/or downstream variability in OHWM indicators, stream conditions, etc. Transect locations can be marked on a recent aerial image or their GPS coordinates noted on the datasheet.

**Transect (cross-section) drawing:** (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)



**Break in Slope at OHWM:** ☐ Sharp ( $> 60^\circ$ ) | ☒ Moderate ( $30-60^\circ$ ) | ☐ Gentle ( $< 30^\circ$ ) | ☐ None  
 Notes/Description:

**Sediment Texture:** Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	60	30	10			Y
Below OHWM	60	30	10			Y

Notes/Description:

**Vegetation:** Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	70	40	20	40
Below OHWM	70	20	30	50

Notes/Description:

**Other Evidence:** List/describe any additional field evidence and/or lines of reasoning used to support your delineation



Project: Arana Sewer Line Date: 10/14/20  
Location: Mxs 3 Investigator(s): EG + SL

**Project Description:**

Sewer line replacement

**Describe the river or stream's condition (disturbances, in-stream structures, etc.):**

Culvert under Hwy 1 upstream  
Culvert under access rd downstream  
Small trib enters on left bank just upstream

**Off-site Information**

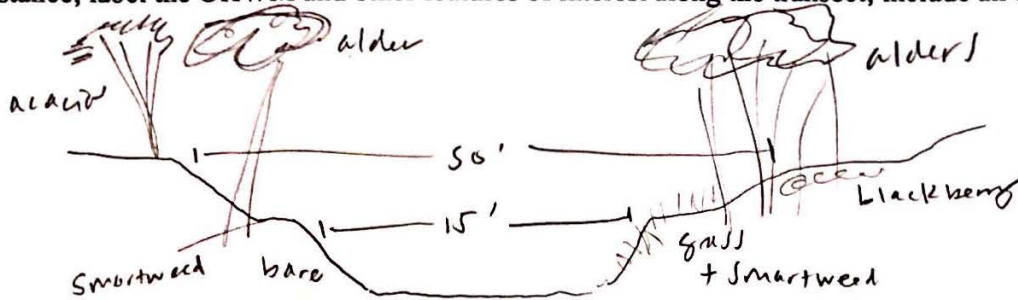
Remotely sensed image(s) acquired? ☒ Yes ☐ No [If yes, attach image(s) to datasheet(s) and indicate approx. locations of transects, OHWM, and any other features of interest on the image(s); describe below] Description:

Hydrologic/hydraulic information acquired? ☐ Yes ☒ No [If yes, attach information to datasheet(s) and describe below.] Description:

List and describe any other supporting information received/acquired:

Instructions: Complete one cover sheet and one or more datasheets for each project site. Each datasheet should capture the dominant characteristics of the OHWM along some length of a given stream. Complete enough datasheets to adequately document up- and/or downstream variability in OHWM indicators, stream conditions, etc. Transect locations can be marked on a recent aerial image or their GPS coordinates noted on the datasheet.

**Transect (cross-section) drawing:** (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)



**Break in Slope at OHWM:** ☒ Sharp ( $> 60^\circ$ ) | ☒ Moderate ( $30-60^\circ$ ) | ☐ Gentle ( $< 30^\circ$ ) | ☐ None  
 Notes/Description:

**Sediment Texture:** Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	60	35	5			Y
Below OHWM	60	35	5			Y

Notes/Description:

**Vegetation:** Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	95	25	45	30
Below OHWM	95	0	50	50

Notes/Description:

**Other Evidence:** List/describe any additional field evidence and/or lines of reasoning used to support your delineation

Project: Arana Sewer Line Date: 10/14/20  
Location: Upper XS-1 (UXSI) Investigator(s): SL + EG

**Project Description:**

Sewer line replacement

**Describe the river or stream's condition (disturbances, in-stream structures, etc.):**

Road + culvert bisects creek

**Off-site Information**

Remotely sensed image(s) acquired? ☒ Yes ☐ No [If yes, attach image(s) to datasheet(s) and indicate approx. locations of transects, OHWM, and any other features of interest on the image(s); describe below] Description:

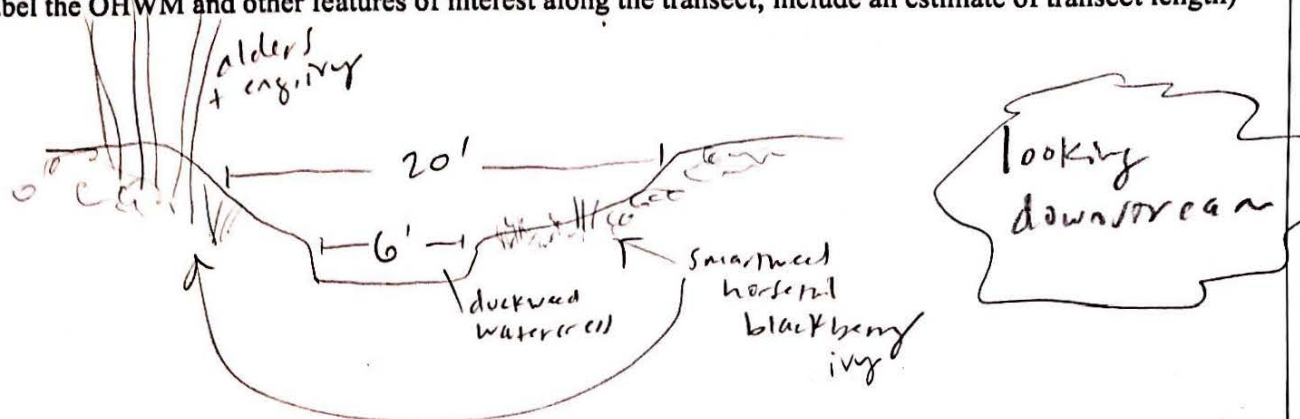
Hydrologic/hydraulic information acquired? ☐ Yes ☒ No [If yes, attach information to datasheet(s) and describe below.] Description:

List and describe any other supporting information received/acquired:

Instructions: Complete one cover sheet and one or more datasheets for each project site. Each datasheet should capture the dominant characteristics of the OHWM along some length of a given stream. Complete enough datasheets to adequately document up- and/or downstream variability in OHWM indicators, stream conditions, etc. Transect locations can be marked on a recent aerial image or their GPS coordinates noted on the datasheet.



**Transect (cross-section) drawing:** (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)



**Break in Slope at OHWM:** ☐ Sharp ( $> 60^\circ$ ) | ☒ Moderate ( $30-60^\circ$ ) | ☐ Gentle ( $< 30^\circ$ ) | ☐ None

Notes/Description:

**Sediment Texture:** Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt $< 0.05\text{mm}$	Sand $0.05 - 2\text{mm}$	Gravel $2\text{mm} - 1\text{cm}$	Cobbles $1 - 10\text{cm}$	Boulders $> 10\text{cm}$	Developed Soil Horizons (Y/N)
Above OHWM	50	40	10			Y
Below OHWM	50	40	10			

Notes/Description:

**Vegetation:** Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	50	50	50	
Below OHWM	50	30	70	

Notes/Description:

**Other Evidence:** List/describe any additional field evidence and/or lines of reasoning used to support your delineation

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Arana City/County: Santa Cruz Sampling Date: 10/14/20  
 Applicant/Owner: Santa Cruz County Sanitation District State: CA Sampling Point: DS-1  
 Investigator(s): SL + EG Section, Township, Range: S8 T11S R1W  
 Landform (hillslope, terrace, etc.): floodplain terrace Local relief (concave, convex, none): Concave Slope (%): 3%  
 Subregion (LRR): LRRA Lat: 36.986886 Long: -121.989163 Datum: NAD83  
 Soil Map Unit Name: Soquel loam, 2 to 9 percent slopes NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No      (If no, explain in Remarks.)  
 Are Vegetation X, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No <u>    </u>	Is the Sampled Area within a Wetland?	Yes <u>X</u> No <u>    </u>
Hydric Soil Present?	Yes <u>X</u> No <u>    </u>		
Wetland Hydrology Present?	Yes <u>X</u> No <u>    </u>		
Remarks:			

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>3x3</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. <u>Bay Umbellularia californica</u>	<u>90%</u>	<u>yes</u>	<u>FAC</u>	
2. <u>Willow Salix lasiolepis</u>	<u>5%</u>	<u>    </u>	<u>FACW</u>	
3. <u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	
4. <u>    </u> <u>95</u> = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: <u>    </u> Multiply by: OBL species <u>    </u> x 1 = <u>    </u> FACW species <u>35</u> x 2 = <u>70</u> FAC species <u>95</u> x 3 = <u>285</u> FACU species <u>    </u> x 4 = <u>    </u> UPL species <u>    </u> x 5 = <u>    </u> Column Totals: <u>130</u> (A) <u>355</u> (B) Prevalence Index = B/A = <u>2.73</u>
<b>Sapling/Shrub Stratum (Plot size: <u>3x3</u>)</b> 1. <u>    </u> 2. <u>    </u> 3. <u>    </u> 4. <u>    </u> 5. <u>    </u>				
<b>Herb Stratum (Plot size: <u>3x3</u>)</b> 1. <u>Smartweed Persicaria lapathifolia</u> <u>30%</u> <u>yes</u> <u>FACW</u> 2. <u>    </u> <u>70%</u> 3. <u>    </u> 4. <u>    </u> 5. <u>    </u> 6. <u>    </u> 7. <u>    </u> 8. <u>    </u> 9. <u>    </u> 10. <u>    </u> 11. <u>    </u>				
<b>Woody Vine Stratum (Plot size: <u>3x3</u>)</b> 1. <u>    </u> 2. <u>    </u> 3. <u>    </u> 4. <u>    </u> 5. <u>    </u> 6. <u>    </u> 7. <u>    </u> 8. <u>    </u> 9. <u>    </u> 10. <u>    </u> 11. <u>    </u>				
<b>% Bare Ground in Herb Stratum</b> <u>70</u>				<b>Hydrophytic Vegetation Indicators:</b> <u>X</u> 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u>X</u> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <u>    </u> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>    </u> 5 - Wetland Non-Vascular Plants <sup>1</sup> <u>    </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No <u>    </u>				
Remarks:				



## SOIL

Sampling Point: DS-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	10YR 4/2	100	—	0			Silty clay	
2-3	10YR 4/2	100	—	0			"	organics
3-6	10YR 4/2	75%	10YR 5/6	25	D	man	"	
6-12	10YR 3/2	100	—	0			"	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- ☐ Histosol (A1)  
☐ Histic Epipedon (A2)  
☐ Black Histic (A3)  
☐ Hydrogen Sulfide (A4)  
☐ 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) (except MLRA 1)  
☐ Loamy Gleyed Matrix (F2)  
☒ Depleted Matrix (F3)  
☐ Redox Dark Surface (F6)  
☐ Depleted Dark Surface (F7)  
☐ Redox Depressions (F8)

- ☐ 2 cm Muck (A10)  
☐ Red Parent Material (TF2)  
☐ Very Shallow Dark Surface (TF12)  
☐ Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes ☒ No \_\_\_\_\_

Remarks:

## 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)  
☐ Sediment Deposits (B2)  
☐ Drift Deposits (B3)  
☒ Algal Mat or Crust (B4)  
☒ Iron Deposits (B5)  
☒ Surface Soil Cracks (B6)  
☒ Inundation Visible on Aerial Imagery (B7)  
☒ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)  
☐ Salt Crust (B11)  
☐ 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)  
☐ Stunted or Stressed Plants (D1) (LRR A)  
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  
☐ Drainage Patterns (B10)  
☐ Dry-Season Water Table (C2)  
☐ Saturation Visible on Aerial Imagery (C9)  
☐ Geomorphic Position (D2)  
☐ Shallow Aquitard (D3)  
☐ FAC-Neutral Test (D5)  
☐ Raised Ant Mounds (D6) (LRR A)  
☐ Frost-Heave Hummocks (D7)

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:



# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Arana City/County: Santa Cruz Sampling Date: 10/14/20  
 Applicant/Owner: Santa Cruz County Sanitation District State: CA Sampling Point: DJ-2  
 Investigator(s): SL & EG Section, Township, Range: S8 T11S R1W  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): slope Slope (%): 45  
 Subregion (LRR): LRRA Lat: 36.986770 Long: -121.989104 Datum: NAD83  
 Soil Map Unit Name: Soquel loam, 2 to 9 percent slopes NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No      (If no, explain in Remarks.)  
 Are Vegetation     , Soil     , or Hydrology      significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>    </u> No <u>X</u>	Is the Sampled Area within a Wetland?	Yes <u>    </u> No <u>X</u>
Hydric Soil Present?	Yes <u>    </u> No <u>X</u>		
Wetland Hydrology Present?	Yes <u>    </u> No <u>X</u>		
Remarks:			

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>3x3</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B) <b>Prevalence Index worksheet:</b> Total % Cover of: <u>    </u> Multiply by: OBL species <u>    </u> x 1 = <u>    </u> FACW species <u>    </u> x 2 = <u>    </u> FAC species <u>90</u> x 3 = <u>270</u> FACU species <u>25</u> x 4 = <u>100</u> UPL species <u>    </u> x 5 = <u>    </u> Column Totals: <u>115</u> (A) <u>370</u> (B) Prevalence Index = B/A = <u>3.22</u> <b>Hydrophytic Vegetation Indicators:</b> <u>    </u> 1 - Rapid Test for Hydrophytic Vegetation <u>    </u> 2 - Dominance Test is >50% <u>    </u> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <u>    </u> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>    </u> 5 - Wetland Non-Vascular Plants <sup>1</sup> <u>    </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>bay Umbellularia californica</u>	<u>95%</u>		<u>FAC</u>	
2. <u>    </u>	<u>    </u>		<u>    </u>	
3. <u>    </u>	<u>    </u>		<u>    </u>	
4. <u>    </u>	<u>    </u>		<u>    </u>	
<u>    </u> = Total Cover				
<b>Sapling/Shrub Stratum (Plot size: <u>3x3</u>)</b>				
1. <u>    </u>	<u>    </u>		<u>    </u>	
2. <u>    </u>	<u>    </u>		<u>    </u>	
3. <u>    </u>	<u>    </u>		<u>    </u>	
4. <u>    </u>	<u>    </u>		<u>    </u>	
5. <u>    </u>	<u>    </u>		<u>    </u>	
<u>    </u> = Total Cover				
<b>Herb Stratum (Plot size: <u>3x3</u>)</b>				
1. <u>english ivy Hedera helix</u>	<u>25%</u>		<u>FACU</u>	
2. <u>bare</u>	<u>75%</u>		<u>    </u>	
3. <u>    </u>	<u>    </u>		<u>    </u>	
4. <u>    </u>	<u>    </u>		<u>    </u>	
5. <u>    </u>	<u>    </u>		<u>    </u>	
6. <u>    </u>	<u>    </u>		<u>    </u>	
7. <u>    </u>	<u>    </u>		<u>    </u>	
8. <u>    </u>	<u>    </u>		<u>    </u>	
9. <u>    </u>	<u>    </u>		<u>    </u>	
10. <u>    </u>	<u>    </u>		<u>    </u>	
11. <u>    </u>	<u>    </u>		<u>    </u>	
<u>    </u> = Total Cover				
<b>Woody Vine Stratum (Plot size: <u>    </u>)</b>				
1. <u>    </u>	<u>    </u>		<u>    </u>	
2. <u>    </u>	<u>    </u>		<u>    </u>	
<u>    </u> = Total Cover				
% Bare Ground in Herb Stratum <u>    </u>				
Remarks:				



Sampling Point: DS-2

## HYDROLOGY

**US Army Corps of Engineers**



# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Arana City/County: Santa Cruz Sampling Date: 10/14/20  
 Applicant/Owner: Santa Cruz County Sanitation District State: CA Sampling Point: DS-3  
 Investigator(s): EG/SL Section, Township, Range: S8 T11S R1W  
 Landform (hillslope, terrace, etc.): floodplain terrace Local relief (concave, convex, none): concave Slope (%): 3%  
 Subregion (LRR): LRRA Lat: 36.987274 Long: -121.989501 Datum: NAD83  
 Soil Map Unit Name: Soquel loam, 2 to 9 percent slopes NWI classification: NA

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 <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks:		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>3x3</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B) <b>Prevalence Index worksheet:</b> Total % Cover of: <u>160</u> Multiply by: OBL species <u>160</u> x 1 = <u>320</u> FACW species <u>160</u> x 2 = <u>320</u> FAC species <u>160</u> x 3 = <u>320</u> FACU species <u>160</u> x 4 = <u>320</u> UPL species <u>160</u> x 5 = <u>320</u> Column Totals: <u>160</u> (A) <u>320</u> (B) Prevalence Index = B/A = <u>2</u> <b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Willow Salix lasiolepis</u>	<u>75%</u>		<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
<b>Sapling/Shrub Stratum (Plot size: _____)</b> 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				
<b>Herb Stratum (Plot size: <u>3x3</u>)</b> 1. <u>Sedge Cyperus eragrostis</u> <u>60</u> <u>FACW</u> 2. <u>Smartweed Persicaria</u> <u>25</u> <u>FACW</u> 3. <u>bare</u> <u>lapathifolia</u> <u>5</u> 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____ _____ = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b> 1. _____ 2. _____ _____ = Total Cover				
<b>% Bare Ground in Herb Stratum</b> _____ = Total Cover				
Remarks:				

Sampling Point: DS-3

## HYDROLOGY

**Primary Indicators (minimum of one required; check all that apply)**

- Secondary Indicators (2 or more required)**

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Surface Water Present? Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (inches): \_\_\_\_\_  
 Saturation Present? Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:





# Attachment C

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## Aquatic Resources Spreadsheet



Waters_Name	State	Cowardin_Code	HGM_Code	Meas_Type	Amount	Units	Waters_Type	Latitude	Longitude
Arana Creek	CALIFORNIA	R2UB	RIVERINE	Linear	2056	FOOT	A2O	36.98684500	-121.98989400
Drainage 1	CALIFORNIA	R6	RIVERINE	Linear	58	FOOT	A6BOHWM	36.98354600	-121.99549800
Drainage 2	CALIFORNIA	R6	RIVERINE	Linear	14	FOOT	A6BOHWM	36.98635700	-121.98997700
Drainage 3	CALIFORNIA	R6	RIVERINE	Linear	38	FOOT	A6BOHWM	36.98929400	-121.98791300
Drainage 4	CALIFORNIA	R6	RIVERINE	Linear	52	FOOT	A6BOHWM	36.98930800	-121.98772700
Adjacent Wetland	CALIFORNIA	PFO	DEPRESS	Area	0.82	ACRE	A6BWB	36.98706300	-121.98890000