LIVE OAK ASSOCIATES, INC.

an Ecological Consulting Firm

BIOTIC EVALUATION
SARGENT RANCH QUARRY

SANTA CLARA COUNTY, CALIFORNIA

By:

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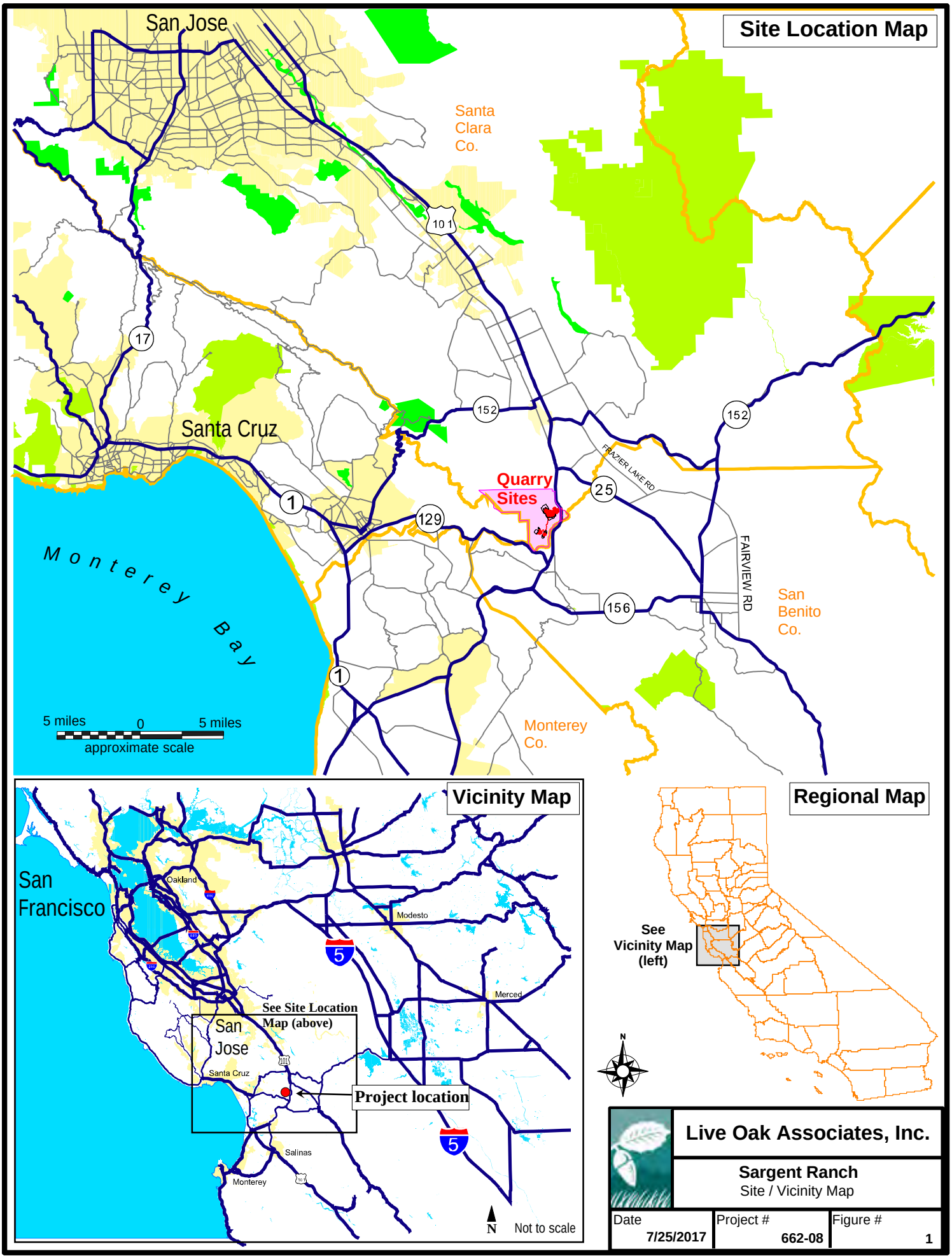
1.0 INTRODUCTION

Live Oak Associates, Inc. (LOA) has prepared the following report that describes the biological resources of an approximately 317-acre Sargent Ranch Quarry project site located on the greater Sargent Ranch property, south of the City of Gilroy, in Santa Clara County, California (Figure 1); and discusses potential impacts (based on significance criteria established in CEQA) to these resources resulting from the proposed quarry operation. Although the ranch itself encompasses over 6,400 acres, the focus of this effort was on the approximately 300 acres comprising the quarry project. The proposed quarry site is comprised of the processing plant, overburden stockpiles, and the four mining phase areas. The predominant habitat occurring within the footprints of the proposed quarry areas, hereafter referred to collectively as the "project site" or "study area", is California annual grassland; however coast live oak woodlands, several ephemeral drainages, and dry-farmed hay fields also occur within the proposed quarry footprints. Sargent Ranch occurs adjacent to and west of Highway 101 approximately one mile south of the Highway 101 and Highway 25 interchange. The ranch is bound to the east by Highway 101; to the south by the Pajaro River; and to the west and north by privately-owned rangeland. The main quarry site is located centrally near the ranch's eastern boundary and the other two smaller quarry sites are located in the southern portion of the ranch on either side of Sargent Creek. The ranch can be found on the Chittenden USGS 7.5 minute topographic quadrangle, at the intersection of Townships 11 and 12 South, and Ranges 3 and 4 East (Figure 2) on gently to steeply rolling foothills on the east side and at the southernmost extreme of the Santa Cruz Range. Elevations of the site range from a low of approximately 200 feet NGVD (National Geodetic Vertical Datum) in the northern portion of the main quarry site, to a high of approximately 500 feet NGVD in the southwestern portion of the main site. Elevations of the two smaller quarry areas range from about 200 feet to about 600 feet NGVD. The project site is currently used primarily for cattle grazing although dry-farmed oat hay fields occur on the eastern portion of the main quarry site.


Site Location Map
San Jose
Santa Clara Co.
101
17
Santa Cruz
152
152
Quarry Sites
25
FRAZIER LAKE RD
1
129
FAIRVIEW RD
156
San Benito Co.
Monterey Bay
1
Monterey Co.
5 miles
0
5 miles
approximate scale
Vicinity Map
San Francisco
Oakland
Modesto
5
Merced
See Site Location Map (above)
San Jose
Santa Cruz
Project location
5
Salinas
Monterey
N
Not to scale
Regional Map
See Vicinity Map (left)
N
Live Oak Associates, Inc.
Sargent Ranch
Site / Vicinity Map
Date
7/25/2017
Project #
662-08
Figure #
1

Stockpile

Phase 4

Plant

Phase 3

Phase 1

Phase 2

Highway 101

Sources:
U.S.G.S. Chittenden 7-1/2' Quadrangle

Project Boundary

Geotechnical Setback Boundary

1/2 mile 0 1/2 mile

Approximate Scale

E-8

Live Oak Associates, Inc.		
Sargent Ranch U.S.G.S. Quadrangle		
Date 7/25/2017	Project # 662-08	Figure # 2

This report analyzes potential impacts of future site development by the proposed Sargent Ranch Quarry mining operations on sensitive biotic resources, significant biotic habitats, regional fish and wildlife movement corridors, and existing local, state, and federal natural resource protection laws regulating land use. Provisions of the California Environmental Quality Act (CEQA), the federal Clean Water Act (CWA), the state and federal endangered species acts (CESA and FESA, respectively), California Fish and Wildlife Code, and California Water Code could greatly affect project costs, depending on the natural resources present on the site. The primary objectives of this report are as follows:

- Summarize all site-specific information related to existing biological resources;
- Make reasonable inferences about the biological resources that could occur on the site based on habitat suitability and the proximity of the site to a species' known range;
- Summarize all state and federal natural resource protection laws that may be relevant to possible future site development;
- Identify and discuss biological resource issues specific to the site that could constrain future development; and
- Identify potential avoidance, minimization and mitigation options that could significantly reduce the magnitude of any likely impacts to biological resources associated with future site development.

Natural resource issues related to these state and federal laws have been identified in past planning studies conducted in the general project area, and it is reasonable to presume that such issues could be relevant to the subject parcels examined in this report. A number of state and federally listed animals, as well as other special status animal species (i.e., candidate species for listing and California species of special concern), have been documented within 20 miles of the project site. These species include state and/or federally listed species such as the California red-legged frog and California tiger salamander as well as California species of special concern including the burrowing owl. This report evaluates the site's suitability for these and other species.

CEQA is also concerned with project impact on riparian habitat, wildlife movement corridors, fish and wildlife habitat, and jurisdictional wetlands, as well as project compliance with special ordinances and state laws protecting regionally sensitive biotic resources, and approved habitat conservation plans. Therefore, this report addresses the relevance of each of these issues to eventual site development.

Jurisdictional wetlands cannot be graded or filled without a Clean Water Act permit issued by the USACE. Furthermore, many seasonal wetlands occurring in the area support plant and animal species that have been listed as threatened or endangered by the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW). Such habitats supporting populations of federally listed animal species cannot be filled without a "take" permit issued by the USFWS.

CEQA is also concerned with a project's impacts on riparian habitat, wildlife movement corridors, fish and wildlife habitat, and jurisdictional wetlands, as well as project compliance with special ordinances and state laws protecting regionally sensitive biotic resources, and approved habitat conservation plans. Therefore, this report addresses the relevance of each of these issues to eventual site development.

The impact analysis discussed in Section 3.0 of this report, is based on the known and potential biotic resources of the study area as discussed in Section 2.0 of this report. The evaluation of resources of the site is largely based on survey work conducted on the site by Pacific North Western Biological (PNWB) during the period from June 2000 to May 2001 (PNWB 2001) and by LOA during the period from July 2004 through June 2014. However, other important sources of information used in the preparation of this analysis included: (1) the *California Natural Diversity Data Base* (CDFW 2016); (2) the *Online Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2016); (3) current listings from Special Plants and Animals (CDFW 2016); (4) numerous planning documents and biological studies for projects in the area, some of which have been prepared by LOA; and (5) manuals and references related to plants and animals of the region.

A number of state and federally listed species, as well as other special status species (i.e., candidate species for listing and California Species of Special Concern) have been documented in the vicinity of the project site; and some of these species are known to occur on Sargent Ranch itself, based on surveys completed by PNWB and LOA. These include animals such as the steelhead (*Oncorhynchus mykiss*), California tiger salamander (*Ambystoma californiense*), California red-legged frog (*Rana draytonii*), western pond turtle (*Actinemys marmorata*), bald eagle (*Haliaeetus leucocephalus*), white-tailed kite (*Elanus leucurus*), prairie falcon (*Falco*

mexicanus), long-eared owl (*Asio otus*), burrowing owl (*Athene cunicularia*), least Bell's vireo (*Vireo bellii pursillus*), and American badger (*Taxidea taxus*); and plants such as saline clover (*Trifolium hydrophilum*), pink creamsacs (*Castilleja rubicundula* ssp. *rubicundula*), and Hoover's button-celery (*Eryngium aristulatum* var. *hooveri*). This report evaluates the quarry project site's suitability as habitat for these and other species; impacts that may occur to these resources as a result of the project; and, where potentially significant impacts are identified, includes mitigations to lessen such impacts on these resources to a less-than-significant level where possible.

1.1 Project Description

The following project description is based on a project description provided by Verne Freeman (Freeman Associates 2016).

The proposed project, Sargent Quarry, is a pit mining operation that would occur on approximately 317 acres of the existing Sargent Ranch. The operation would occur on portions of Assessor's Parcel Numbers 810-38-014, -017 and -018. It is estimated that this site contains approximately 40 million tons of sand and gravel aggregate and that the operation could have a lifespan of 50 years or more based on consumption rates. However, the operator is requesting a 30-year term on the Conditional Use Permit.

The primary market for products produced from the mine (sand and gravel, which can be used for concrete and asphalt production, and rock) will be contractors and public agencies in the Santa Clara, San Benito and Monterey County areas.

Of the Project site's 317 acres, approximately 238 acres comprise the area of proposed mining. An additional 120 acres comprise the geotechnical setback areas. These areas are not proposed for mining but may be used if slopes need to be laid back at a more gradual angle to achieve stability. The proposed processing plant site is located near Highway 101 and is roughly 14 acres in size. Reclamation activities would be conducted on mining phases that are completed. The remaining portions of the site would not be utilized for mining, processing, or reclamation activities and would be maintained in their current conditions. The following sections describe

the mining plan, the processing plant facilities and proposed operations, and the proposed reclamation activities associated with the Project.

1.1.1 Mining Plan

Sand and gravel would be extracted from within the 238-acre mining area in four phases. Mining will be done in an open pit fashion with 2:1 side slopes with 10-foot benches every 30 vertical feet. Finished slopes will then be backfilled to 3:1 and revegetated. No underground mining will be necessary for this project. Mining is proposed to occur year-round. The total volume of material to be mined annually would be determined by the market demand. However, in the absence of other limitations, a maximum of 1,000,000 cubic yards of material would be mined in any single year.

The targeted materials to be mined are alluvial deposits of sand and gravel. Mined materials would be hauled to the proposed on-site aggregate processing plant for screening and limited crushing. The material would then be sold for a variety of construction-related uses. Waste materials (e.g., silts and clays) not suitable for construction or concrete uses would make up approximately 25 percent of the mined materials by volume. These materials would be separated and stockpiled in the two berms shown on Figures 10 thru 15 depending on the phase of mining.

1.1.2 Phase 1 and 2 Mining

Phases 1 and 2 are located in hills on both the east and west side of Sargent Creek. A conveyor belt will be used for transporting the aggregate and will be constructed along the west side of the Sargent Valley. A small access road will be constructed along the side of the conveyor belt for maintenance purposes. This alignment will run along the east side of the Sargent Valley and will stay above the valley floor and the creek and pond areas. Based on initial sales estimates, Phase 1 and 2 mining will last for approximately 10 to 15 years after operational start up. Material would be mined from the designated pit areas. The 1.6 mile long conveyor belt will be used to transport the material to the processing plant site. Phases 1 and 2 should be almost entirely hidden from view, shielded by a prominent ridgeline running along the east side of the Sargent Valley, and blocking views from Highway 101 and the rest of South County.

A berm will be constructed to serve as a visual shield to hide the processing area from drivers on Highway 101. The berm will be constructed with overburden from the Phase 1 area. Any topsoil will be stockpiled in a one separate location. Overburden or unsuitable materials from Phase 1 would be used to build the berm located to the east of the property boundary closest to Highway 101. At its highest point the berm will be 50 feet high and will serve to shield the processing plant site and operations from view from Highway 101. The berm will be designed to be natural in appearance and blend in with the native landforms. Once the front berm is built, a back berm will be constructed with any additional overburden. During the period of Phase 1 and 2 mining (10-15 years), trees and other viewshed-blocking vegetation will have time to grow and mature in time for the later phases of mining that have more visual impacts.

Topsoil will be kept separately and stockpiled. The Phase 1 pit will be constructed with side slopes of 2/1 with 10-foot benches every 40 vertical feet, resulting in an overall angle of 2.3/1 for the temporary slope.

Roughly 8,600,000 cubic yards will be excavated during Phase 1 and 2. The highest elevation of mining in the Phase 1 mining area is 360 feet above mean sea level (AMSL). The bottom of the lowest pit elevation will be 245 feet AMSL resulting in a maximum excavation depth of 125 feet.

Overburden from the Phase 1 and Phase 2 excavations will be hauled to the plant site area and used to build the visual screening berm along Highway 101 and the balance deposited in the western stockpile area. The topsoil stockpile from Phase 1 and Phase 2 will be stockpiled separately. Complete reclamation of the Phase 1 mining and Phase 2 areas will occur after their excavations are completed. Some of the overburden from Phase 1 and Phase 2 will be used to reconstruct the excavated slopes to a 3:1 permanent slope. Once completed, Phase 1 and Phase 2 areas will be reclaimed completely.

1.1.3 Phase 3 Mining

Portions of Phase 3 mining may be visible from Highway 101. Phase 3 mining will begin approximately in the period from year 14 through year 16. By that time the landscaping on the

front berm will have had time to grow in and will form a more effective shield from the view of drivers on the highway. Hills will be mined from west to east creating a disappearing hillside effect to further minimize visual impacts.

1.1.4 Phase 4 Mining

Material will be mined in a similar manner as Phase 1, from the west side of the hills to the east. Overburden and topsoil from Phase 2 will be used to reclaim portions of Phase 3. The westerly portion of Phase 4 will be excavated first starting at the highest elevation of 600 feet (AMSL to a minimum pit level of 200 feet AMSL). Once this upper slope has been excavated, revegetation will be initiated to minimize the time that visible slopes do not blend in with the natural ones. Phase 4 will produce approximately 20 million cubic yards (36 million tons) from this portion of the mining site.

Overburden from Phase 4 mining will be placed in the Phase 3 pit and will also be used to reconstruct the Phase 3 slopes to 3:1.

Mining operations would occur year-round. Mining and processing plant operations would typically occur from 7:00 a.m. to 4:30 p.m., Monday through Saturday. Extended processing plant operational hours would also be permitted to allow mining operations to operate at night, providing the mine operator the flexibility to respond to market conditions, nighttime public works projects, and emergency or special circumstances. Maintenance of mobile equipment and deliveries (e.g., fuels) would occur during normal operating hours.

The number of employees at the Project site would fluctuate based on extraction rates and processing plant production rates. Up to 15 full-time employees would be needed for mining and operations at the project site.

1.1.5 Mining and Processing Methods

Sand and gravel would be mined using conventional equipment, including excavators and scrapers. Excavated material would be hauled by truck, scraper, or overland conveyor to the processing plant site. There the material would be sized, washed, and sorted into stockpiles. Some materials may also be crushed and sorted into stockpile via radial stacker and conveyers.

Materials would be kept wet to minimize dust emissions. Sprinklers and water trucks would be used to control dust at multiple locations at the processing plant and on stockpiles.

1.1.6 Access and On-Site Circulation

Access to the site would be from Old Monterey road through the gated entrance. Access roads may be paved and would be maintained for Project operations. Trucks leaving the site traveling southbound would continue back along Old Monterey Road and then onto southbound Highway 101 via the stacking lane already in place. Trucks traveling northbound would travel under the Sargent undercrossing and onto northbound Highway 101 via a new acceleration lane installed by the quarry operator.

1.1.7 Vehicle Trips

The Project would generate vehicle trips associated with workers, materials transport and supplies that would be delivered to the site. Maximum daily one-way trips during a peak production day would be 910, while average daily one-way trips during a peak production day would be 341.

1.1.8 Drainage

During mining, runoff from quarry work areas would drain by sheet flow into drainage swales along the perimeter of the work area. Storm drainage from the site would be conveyed to settling ponds. Stormwater in the settling pond would ultimately percolate on-site or be reused for plant operations. Swales will buffer the overburden stockpiles and the plant area from Tar Creek to the west, and contain stormwater from the Project site from entering the creek.

1.1.9 Water Supply and Use

The daily and annual water consumption rates during a peak production year would be 86,300 and 17,260,000 gallons, respectively.

Aggregate processing would require water throughput of approximately 800 gallons per minute (384,000 gallons per day); however, 80 percent of the water would be recycled. Thus, 76,800 gallons would be pumped from the ground each day the plant is operating (up to approximately

200 days per year). A process water pond would be constructed within the processing plant site and would be used to retain water for reuse in aggregate processing.

The new onsite well will provide water for operations and dust control. A water truck would be used as needed to control dust on access roads and processing areas within the site. Approximately 86,300 gallons of water per day, or 17,260,000 gallons per year, would be used to control dust.

1.1.10 Utilities and Lighting

Existing electric power and telephone lines would be used for power needs for the Project or new service may be brought in to the site. Water will be obtained from a new on-site well, for both plant operations and drinking water for employees. A new private septic system will provide sanitary sewer facilities for the Project site. The septic system will be designed for a daily wastewater generation of 400 gallons per day. This is based on the Uniform Plumbing Code estimated wastewater generation of 25 gallons per day per employee.

Most mining will occur during the day and no lighting will be installed in the pit areas. Lights will be installed at the plant site, per MSHA regulations. Lighting may be on in the early morning and later evening hours during the winter months if production is required. Lighting will be contained to the plant site and will not create glare onto neighboring properties or Highway 101.

1.1.11 Equipment

Mining equipment includes scrapers, excavators, dozers, loaders, and dump haul trucks. Scrapers would be used to remove the surface material. Scrapers will collect material into their hoppers by lowering their blades as they traverse the site. When their hoppers are full, the scrapers would transport the material via the designated access routes from the mining area to the processing area located outside of the mining area. Scrapers, or a loader, would be used to place the material onto haul trucks for transport to the processing site.

Most equipment is diesel fueled, however natural gas powered equipment is now becoming available and may be purchased to lower overall greenhouse gas emissions and odors from the Project.

1.1.12 Noise

Sources of noise from the Project will be primarily the washing and screening plant and the construction equipment used for mining. There will be no blasting required for the mining and very little crushing done at the processing plant. The plant's main function is to separate the material by size using screens and to wash the material of its silts and clays. Rubber screens are used to minimize noise from the sizing operation and, in general, washing creates little noise. Noise from the back up horns and engines of the mining equipment does create noise that can carry. However, the nearest receptor for noise from the Project is a RV park more than a mile to the south and on the other side of a large hillside. Noise impacts will be studied as part of the project EIR.

1.1.13 Visual Impacts from the Project

Portions of the Project will be visible from both southbound and northbound Highway 101 at Sargent overcrossing. The visual impact to drivers can be seen for a few seconds while looking to the west from Highway 101. In order to minimize these impacts, two berms will be constructed to shield both the processing plant and the mining areas. The front berm will be built at the start of operations. This berm will be 50 feet high and serve to block both the views as well as dust and stormwater runoff from the Highway 101, Tar Creek undercrossing. The rear berm will serve to block the views into the mining area from Highway 101. Both these berms will serve as overburden stockpile areas and will be seeded to blend in with the surround natural landscape.

1.1.14 Dust Control

Water will be the primary means of dust control at the quarry. Two water trucks will be used to keep both exposed areas of mining and the plant areas wet to contain dust. Sprinklers will be used at the plant site to contain dust from stockpiles and processing equipment. The prevailing wind is from the west to the east, so the buffer hills between the mining areas and the eastern edge of the Sargent Ranch boundary may be impacted on windy days. Measures to control dust in addition to the use of water include keeping the mining areas limited to only the working area and using early revegetation to cover up previously mined areas. Use of dust palliatives may also be considered on haul roads and unpaved plant areas.

1.1.15 Conformance with the Santa Clara County HCP

To the greatest extent possible, the Project has been designed to conform to the standards outlined in the Santa Clara County Habitat Conservation Plan. Aside from the bridge and conveyor belt crossings, respectively, minimum 150-foot buffers have been maintained between the Project boundaries and the edges of Tar and Sargent Creeks. Unavoidable biological impacts are proposed to be mitigated by the dedication of a conservation easement area on the west side of the Sargent Valley. The Sargent Quarry project is not expected to be provided Take coverage from the HCP however, and will seek individual permits from the resource agencies for Take authority for the project impacts as may be required.

1.1.16 Slope Stability

Sierra Geotechnical Services performed a slope stability analysis that included recommendations for interim slopes of 2:1 with 10-foot benches every 30 vertical feet and 3:1 finished slopes upon reclamation of each mining phase. Recommendations have been included with the mine design.

In addition to the mining phases and other mining infrastructure discussed above, there may be a future need for additional areas adjacent to the mining phases that will serve as geotechnical setback areas. The future need for such additional areas cannot currently be determined, but may be required to engineer slopes to ensure stability.

1.1.17 Mining and Reclamation Plan

Reclamation of surface mines is required by SMARA (Surface Mining Area Recovery Act). SMARA requires mines to be reclaimed to a usable condition that is readily adaptable to a productive alternative land use and that creates no danger to public health or safety. Reclamation must be conducted consistent with the SMARA Article 9 Reclamation Standards (Title 14 California Code of Regulations [CCR] § 3700 et seq.) that contain specific performance requirements for various end uses (e.g., habitat, Prime Farmlands) and methods such as backfilling, revegetation, drainage, stream protection, topsoil salvage and tailing management. The Applicant prepared and will submit a proposed Reclamation Plan to the County.

Phase 1 and 2 Mining and Reclamation. An aggregate processing plant will be set up as well as an office, scale and maintenance buildings and an unpaved equipment parking area. A sediment

basin will be constructed to receive all surface water from the areas disturbed by mining via drainage ditches and swales. The first phase of mining work typically starts with stripping away surface vegetation and removing the topsoil and overburden in separate layers and stockpiling them separately. Phases 1 and 2 are approximately 1.5 miles from the processing plant so an overland conveyor will be constructed to transport material from these areas to the plant. Overburden will be used to construct the berm near the property boundary with Highway 101. The conveyor belt will be elevated on footings, approximately 4 to 5 feet off the ground. As sand and gravel are excavated from Phase 1 and 2 slopes, it will be placed into the conveyor for transport to the plant. Temporary slopes and benches will be constructed as part of mining; the final slope configuration will be constructed during reclamation that will occur when mining operations are completed. Revegetation Test Plots will be set up at the beginning of Phase 1 and will be located in areas that will not be disturbed by mining activities.

Phase 3 Mining and Reclamation. Total excavation amounts in Phase 3 will be 13, 200,000 cubic yards Phase 3 mining will begin by stripping away surface vegetation and removing topsoil and overburden in separate layers and stockpiling them separately. Overburden from the Phase 3 mining area will be stockpiled for later use in the rear berm area. As sand and gravel are excavated from Phase 3 area, it will be placed into a truck or onto a shorter conveyor run. Temporary slopes and benches will be constructed as part of mining; the final slope configuration will be constructed during final reclamation at the end of Phase 3.

Phase 4 Mining and Reclamation. Phase 4 will be the largest phase of the project with a total excavation of 16,300,000 cubic yards. Some of the overburden from Phase 4 will be used to construct the final slopes of Phase 3. The remainder of the Phase 4 overburden will be stockpiled and will be used to construct the final 3:1 slopes on both Phase 3 and the final reclamation of Phase 4.

Final Reclamation. When mining is completed in all Phases, then final reclamation of the quarry and plant site will commence. The stockpiled overburden and topsoil will be used to complete all final slopes for all phases and to refill the quarry floors. The remaining topsoil materials will be used to cap the quarry pits and to provide better soil for revegetation. Final elevations of the quarry pits will depend on the amount of fill material that is available. Benches no longer

needed for protection of quarry workers will be removed and the slopes restored to a 3:1 overall slope. Contour grading will be used on quarried slopes to conform to the natural appearance of the surrounding landscape. A few benches will be retained in the areas for oak tree planting to provide stability for the trees to grow. The width of these remaining benches may be reduced to provide a more natural looking reclaimed area. The plant site will be reclaimed by removing all equipment then re-grading the site and spreading the landscape berm out over the disturbed plant site area.

The final drainage ditches on the benches will be installed as these reclaimed slopes and benches are completed. Final reclamation work may include installation of an irrigation system to water the Oak tree seedlings. However, irrigation will only be installed if the Test Plot planting program determines that supplemental water improves the survival rate of the Oak Trees. All areas disturbed by mining will be revegetated after final reclamation grading which will include, hydroseeding the slopes with a gradient of 3:1 or more; drill or imprint seeding flatter slopes and benches, and planting oak tree masses in designated locations. The sediment basin will also be filled with the remaining soil material. The private driveway and internal access road will remain to provide access to the site. Other unnecessary haul roads and the quarry floor will be disked, graded to have positive drainage, resoiled and seeded.

Revegetation Performance Criteria. Revegetation performance would be measured in terms of percent cover and diversity. Planting, maintenance, and monitoring work would be directed toward achieving the following minimum success criteria by the end of the first 5 years:

For oak woodland/sage scrub plantings, at least 60 percent cover would exist, with at least four native species thriving. Invasive plant species would not be allowed to exceed 5 percent cover. Although minimum performance standards have been established only for the year 5 at each planting site, corrective action would be taken whenever the existing trend appears unlikely to produce the 5-year minimum criteria. Corrective action would take the form of replacing plants, installing additional biotechnical erosion control, and/or reseeding. If plant establishment is poor because of substandard planting techniques, inferior planting stock, or drought, the same species would be replaced. If a species does poorly in spite of favorable stock, technique, or weather conditions, plantings would be replaced by a more successful species within its plant association.

Financial Assurance. SMARA requires surface mining operators to obtain lead agency–approved financial assurances for the reclamation of mined lands. In the event of a default by the mine operator, financial assurance funds would be used by the County or the California Department of Conservation to reclaim the mine site. As a component of the Project, the Applicant would be required to provide the financial assurance necessary to reclaim disturbed surfaces within the Project site should operations end early.

Reclamation of the Project would be covered by financial assurances in accordance with the requirements of SMARA. The financial assurance cost estimate and the proposed financial assurance mechanism must be submitted to the County no later than 60 days before project activities begin.

1.1.18 Environmental Protection Measures

The Applicant proposes to implement the measures discussed below as components of the Project.

Dust Control. To control dust associated with earthmoving activities, the following activities would be undertaken by the Operator:

- Active construction areas and access routes would be watered at least twice daily. Frequency would be based on the type of operation, soil, and wind exposure.
- Grading activities would be restricted during periods of high wind (over 25 miles per hour) as directed by the Monterey Bay Air Pollution Control District.
- Haul trucks would maintain at least 2 feet of freeboard.
- Inactive storage piles would be covered.
- Wheel washers would be installed at the entrance to the site.
- Access roads, parking areas and staging areas would be swept daily with water sweepers.
- A publicly visible sign would be posted specifying the telephone number and person to contact regarding dust complaints. This person would respond to complaints and take corrective action within 48 hours. The phone number of the Monterey Bay Unified Air Pollution Control District will be posted on the sign.

Stockpile Erosion Management. The stockpiled material would be located in the processing area, or in locations shown as overburden stockpile locations. Stockpiles would be managed to minimize water and wind erosion.

Erosion Control Measures. Each season, before the winter rains, erosion control measures would be implemented to minimize erosion and vegetation loss during the winter rains. Inactive mining slopes, not yet in their final reclaimed grade, would be stabilized with erosion control seeding, as described above in the Reclamation Plan.

2.0 EXISTING CONDITIONS

The approximately 447-acre Sargent Ranch Quarry study area, inclusive of geotechnical setback areas, is located on the greater, approximately 6400-acre Sargent Ranch property, south of the City of Gilroy in Santa Clara County, California within foothills on the east side of the Santa Cruz Mountains. The proposed quarry site is comprised of quarry plant facilities, Phase 1 through Phase 4 mining areas, associated access roads, and a conveyer belt alignment that will move excavated materials from Phases 1 and 2 to the quarry plant site as described previously in the project description. Open rangeland borders the proposed project areas.

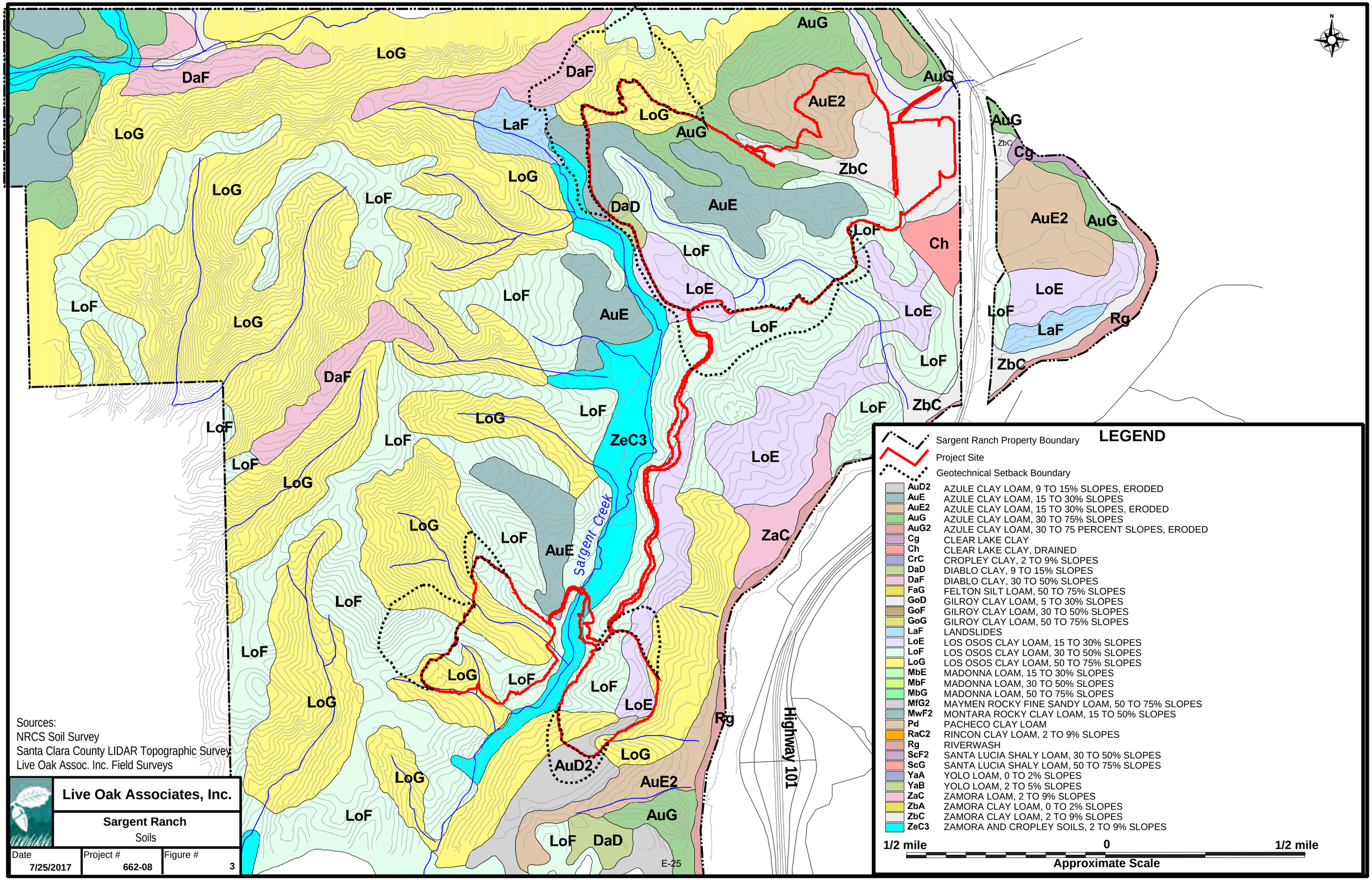
Elevations of the project site range from a high of approximately 600 feet National Geodetic Vertical Datum (NGVD) to a low of approximately 200 feet NGVD (Figure 2). Habitats of the project site are comprised primarily of California annual grassland; however, coast live oak woodland and dry-farmed hay fields also occur on the site. The primary use of the habitats of the quarry project site is cattle grazing. The habitats of the site are described in detail in Section 2.1 of this report.

Nine soil-mapping units have been identified on the site and these soils are described in greater detail in Table 1 and depicted in Figure 3. None of the soils of the site are considered hydric soils, i.e. soils that under appropriate hydrological conditions may support wetlands, however, hydric inclusions may occur. All of the soil types of the quarry site are considered well-drained. None of the soils of the site is a serpentine or alkaline soil, therefore, they would not be expected to support special status plant species that are endemic to serpentine or alkaline soils.

Table 1. Descriptions of soil mapping units of the study area (USDA NRCS Web Soil Survey).

Soil Series/Soil	Map Unit Symbol	Parent Material	Drainage Class	% Hydric Composition
ZAMORA SERIES Zamora clay loam, 2-9% slopes	ZbC	Alluvium	Well-drained	0
AZULE SERIES Azule clay loam, 15-30% slopes, eroded	AuE2	Alluvium	Well-drained	0
Azule clay loam, 15-30% slopes	AuE	Alluvium	Well-drained	0
Azule clay loam, 9-15% slopes, eroded	AuD2	Alluvium	Well-drained	0
Azule clay loam, 30-75% slopes	AuG	Alluvium	Well-drained	0
LOS OSOS SERIES Los Osos clay loam, 15-30% slopes	LoE	Residuum weathered from sandstone and shale	Well-drained	0
Los Osos clay loam, 30-50% slopes	LoF	Residuum weathered from sandstone and shale	Well-drained	0
Los Osos clay loam, 50-75% slopes	LoG	Residuum weathered from sandstone and shale	Well-drained	0
DIABLO SERIES Diablo clay, 9-15% slopes	DaD	Residuum weathered from sandstone	Well-drained	0
Diablo clay, 30-50% slopes	DaF	Residuum weathered from sandstone	Well-drained	0

http://soils.usda.gov/technical/classification/osd/index.html and
USDA Soil Conservation Service Soil Survey – Santa Clara County California



Sources:
NRCS Soil Survey
Santa Clara County LIDAR Topographic Survey
Live Oak Assoc. Inc. Field Surveys

Live Oak Associates, Inc.

Sargent Ranch
Soils

Date	Project #	Figure #
7/25/2017	662-08	3

LEGEND

- Sargent Ranch Property Boundary
- Project Site
- Geotechnical Setback Boundary

AuD2	AZULE CLAY LOAM, 9 TO 15% SLOPES, ERODED
AuE	AZULE CLAY LOAM, 15 TO 30% SLOPES
AuE2	AZULE CLAY LOAM, 15 TO 30% SLOPES, ERODED
AuG	AZULE CLAY LOAM, 30 TO 75% SLOPES
AuG2	AZULE CLAY LOAM, 30 TO 75 PERCENT SLOPES, ERODED
Cg	CLEAR LAKE CLAY
Ch	CLEAR LAKE CLAY, DRAINED
CrC	CROPLEY CLAY, 2 TO 9% SLOPES
DaD	DIABLO CLAY, 9 TO 15% SLOPES
DaF	DIABLO CLAY, 30 TO 50% SLOPES
FaG	FELTON SILT LOAM, 50 TO 75% SLOPES
GoD	GILROY CLAY LOAM, 5 TO 30% SLOPES
GoF	GILROY CLAY LOAM, 30 TO 50% SLOPES
GoG	GILROY CLAY LOAM, 50 TO 75% SLOPES
LaF	LANDSLIDES
LoE	LOS OSOS CLAY LOAM, 15 TO 30% SLOPES
LoF	LOS OSOS CLAY LOAM, 30 TO 50% SLOPES
LoG	LOS OSOS CLAY LOAM, 50 TO 75% SLOPES
MbE	MADONNA LOAM, 15 TO 30% SLOPES
MbF	MADONNA LOAM, 30 TO 50% SLOPES
MbG	MADONNA LOAM, 50 TO 75% SLOPES
MfG2	MAYMEN ROCKY FINE SANDY LOAM, 50 TO 75% SLOPES
MwF2	MONTARA ROCKY CLAY LOAM, 15 TO 50% SLOPES
Pd	PACHECO CLAY LOAM
RaC2	RINCON CLAY LOAM, 2 TO 9% SLOPES
Rg	RIVERWASH
ScF2	SANTA LUCIA SHALY LOAM, 30 TO 50% SLOPES
ScG	SANTA LUCIA SHALY LOAM, 50 TO 75% SLOPES
YaA	YOLO LOAM, 0 TO 2% SLOPES
YaB	YOLO LOAM, 2 TO 5% SLOPES
ZaC	ZAMORA LOAM, 2 TO 9% SLOPES
ZbA	ZAMORA CLAY LOAM, 0 TO 2% SLOPES
ZbC	ZAMORA CLAY LOAM, 2 TO 9% SLOPES
ZeC3	ZAMORA AND CROPLEY SOILS, 2 TO 9% SLOPES

1/2 mile 0 1/2 mile
Approximate Scale

Annual precipitation in the general vicinity of the study area is 13-18 inches, most of which falls between the months of October and April. Virtually all precipitation falls in the form of rain. Storm water runoff readily infiltrates the soils of the site, but when field capacity has been reached, gravitational water drains into ephemeral drainages on the site and is eventually carried into the Pajaro River, which drains to Monterey Bay to the west of the site.

2.1 BIOTIC HABITATS/LAND USES

Four biotic habitats and two land uses, i.e. hay field and developed roads, have been identified on the project site (Table 2a, Figure 3) and six biotic habitats have been identified within areas that may be required as geotechnical setback areas (Table 2b, Figure 3). These habitats and land uses have been named pursuant to land cover types defined in the Santa Clara Valley Habitat Conservation Plan (HCP) (ICF Int. 2012). More detailed habitat descriptions are provided below. For the purposes of this report, the natural terrestrial communities are identified as California annual grassland; coast live oak forest and woodland; mixed riparian woodland and forest; pond; wetland seep; and seasonal wetland; and the two land uses are identified as grain, row crop, hay and pasture; and developed (paved and dirt roads). Two drainages with a defined bed and bank occur within the project site footprint within Phases 3 and 4 (Intermittent Channels 3 and 4), and additionally, the access roads and conveyor belt will require crossings of Tar and Sargent Creeks, respectively in the northern and southern portions of the site, although the majority of the conveyor belt feature will occur along the east side of Sargent Creek well outside of the riparian corridor. Lists of vascular plants observed on the greater 6400-acre Sargent Ranch property during LOA's 2004 through 2017 surveys is provided in Appendix A; and a list of terrestrial vertebrates observed on the greater ranch property and/or potentially present on the study area, based on both PNWB and LOA surveys, has been provided in Appendix B.

Table 2a: Habitats and Land Uses of the Project Site by Project Phase including Roads, Stockpile Areas, and Plant Site.

Habitats/Land Uses	Plant Site, Stockpiles, Access Roads, and Conveyor Belt	Phase 1 Acreages	Phase 2 Acreages	Phase 3 Acreages	Phase 4 Acreages	Total
California Annual Grassland	44.8	41.33	28.59	50.40	75.82	241.11
Coast Live Oak Forest and Woodland	7.13	0.00	0.00	11.37	14.75	33.24
Mixed Riparian Woodland and Forest	0.07	0.51	0.22	0.00	0.00	0.73
Grain, Row Crop, Hay and Pasture	22.80	0.00	0.0	0.00	0.00	22.65
Developed (existing dirt and paved roads)	0.23	0.00	0.00	0.00	0.00	0.23
Total	75.03	41.84	28.81	61.77	90.57	298.02
Creeks, Streams and Drainages	**Linear Feet of Channel**		**Linear Feet of Channel**	**Linear Feet of Channel**	**Linear Feet of Channel**	**Total**
Seasonal Drainages with Defined Bed and Bank (primarily HCP Category 2 streams)	1,922	899	0	2,010	1,739	6,570

Table 2b: Additional Habitats Occurring Within Geotechnical Setbacks of the Study Area by Project Phase.

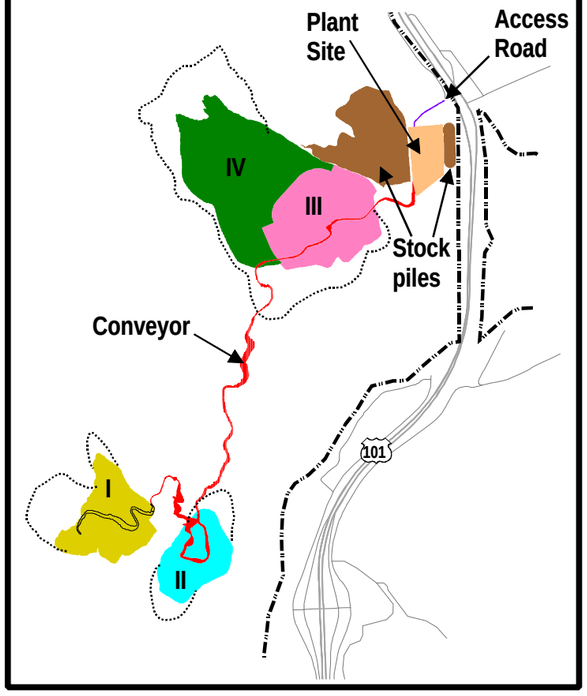
Habitats/Land Uses	Phase 1 Setback Acreages	Phase 2 Setback Acreages	Phase 3 and Phase 4 Setback Acreages	Total
California Annual Grassland	24.84	13.84	75.23	113.91
Coast Live Oak Forest and Woodland	0.00	0.00	5.99	5.99
Mixed Oak Woodland and Forest	0.15	0.00	0.00	0.15
Pond	0.00	0.00	0.34	0.34
Seasonal Wetland	0.00	0.00	0.05	0.05
Wetland Seep	0.00	0.00	0.03	0.03
Total	24.99	13.84	81.64	120.47
Creeks, Streams and Drainages	**Linear Feet of Channel**	**Linear Feet of Channel**	**Linear Feet of Channel**	**Total**
Seasonal Drainages with Defined Bed and Bank (primarily HCP Category 2 streams)	0.00	.00	115	115

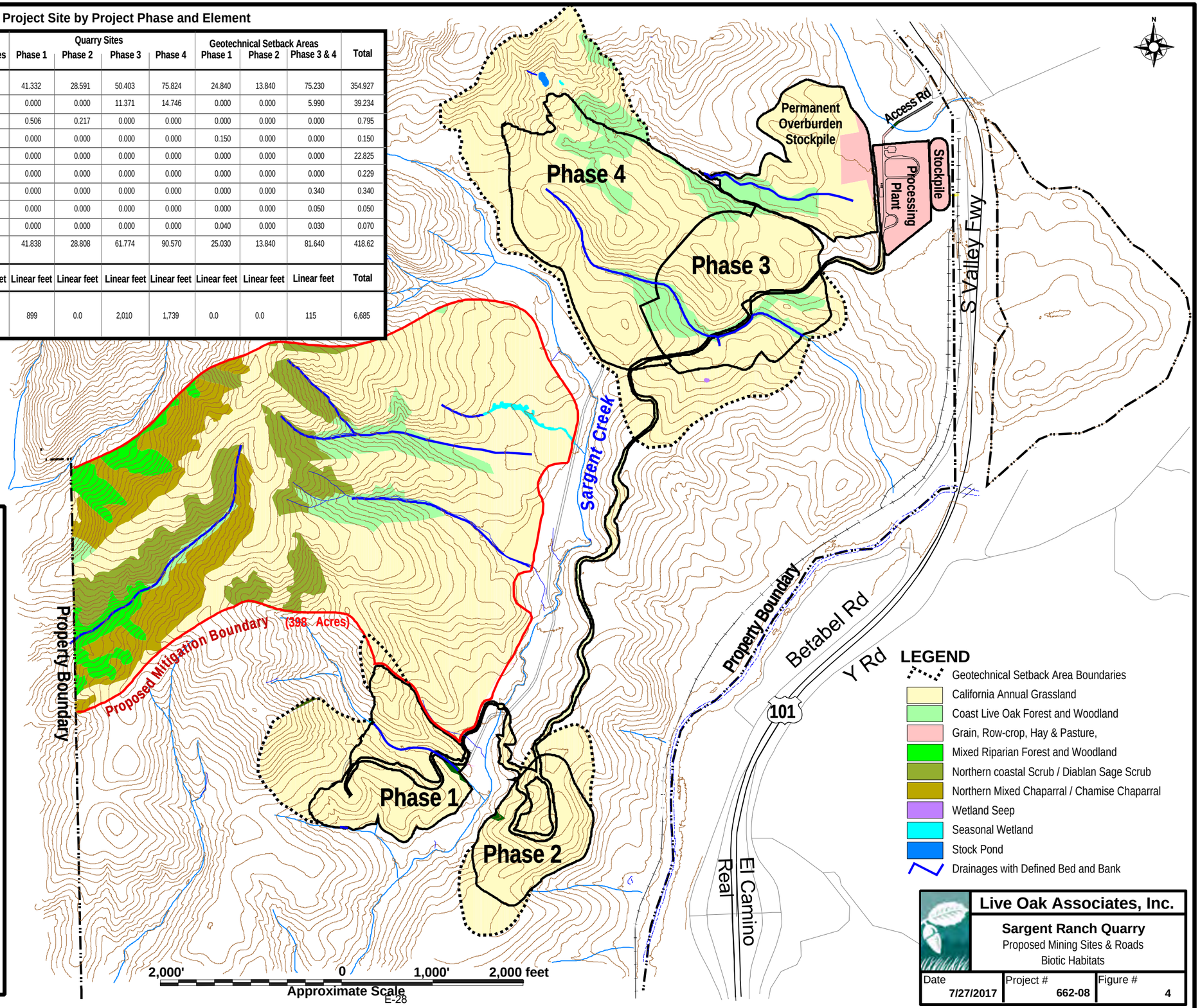
Table 2: Habitats and Land Uses of the Project Site by Project Phase and Element

Habitats / Land Uses	Plant Site	Access Road	Conveyor	Stockpiles	Quarry Sites				Geotechnical Setback Areas			Total
					Phase 1	Phase 2	Phase 3	Phase 4	Phase 1	Phase 2	Phase 3 & 4	
California Annual Grassland	0.044	0.000	13.691	31.132	41.332	28.591	50.403	75.824	24.840	13.840	75.230	354.927
Coast Live Oak Forest and Woodland	0.000	0.000	0.582	6.545	0.000	0.000	11.371	14.746	0.000	0.000	5.990	39.234
Mixed Riparian Woodland and Forest	0.000	0.072	0.000	0.000	0.506	0.217	0.000	0.000	0.000	0.000	0.000	0.795
Mixed Oak Woodland & Forest	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.150	0.000	0.000	0.150
Grain, Row Crop, Hay & Pasture	14.242	0.117	0.013	8.453	0.000	0.000	0.000	0.000	0.000	0.000	0.000	22.825
Developed (Existing Dirt Road)	0.000	0.229	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.229
Stock Pond	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.340	0.340
Seasonal Wetland	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.050
Wetland Seep	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.040	0.000	0.030	0.070
Total	14.286	0.418	14.286	46.130	41.838	28.808	61.774	90.570	25.030	13.840	81.640	418.62
Creeks, Streams, and Drainages	**Linear feet**	**Linear feet**	**Linear feet**	**Linear feet**	**Linear feet**	**Linear feet**	**Linear feet**	**Linear feet**	**Linear feet**	**Linear feet**	**Linear feet**	**Total**
Seasonal Drainages with Defined Bed & Bank (primarily HCP Category 2 Streams)	0.0	25	66	1,831	899	0.0	2,010	1,739	0.0	0.0	115	6,685

Sources:
Triad Holmes Assoc.
Santa Clara County HCP Land Cover
Santa Clara County LIDAR Topographic Survey
Pacific North Western Biological Resources Consultants, Inc. 2001.
Biological Resources Assessment for the Proposed Sargent Ranch Conservation Bank Agreement

Areas Grouped in Table Above





Live Oak Associates, Inc.
Sargent Ranch Quarry
Proposed Mining Sites & Roads
Biotic Habitats

Date	Project #	Figure #
7/27/2017	662-08	4

2.1.1 California Annual Grassland

California annual grassland habitat is the most prevalent habitat on the project site. Grasslands on the site are dominated by non-native grass species such as wild oats *(Avena barbata and A. fatua),* ripgut (*Bromus diandrus*), soft chess *(Bromus hordeaceous),* foxtail barley *(Hordeum murinum* ssp. *leporinum),* and Italian rye grass *(Festuca perennis);* and weedy non-native forb species such as filarees (*Erodium spp*.), black mustard *(Brassica nigra),* Italian thistle *(Carduus pycnocephalus),* yellow star thistle *(Centaurea solstitialis),* summer mustard *(Hirschfeldia incana)* and milk thistle (*Silybum marianum*). Native forb species encountered within grasslands of the site included California poppy (*Eschscholzia californica*), common pepperweed (*Lepidium nitidum*), common fiddleneck (*Amsinckia intermedia*), Ithuriel's spear (*Triteleia laxa*), yarrow *(Achillea millifolium),* clarkia (*Clarkia sp.),* rattlesnake weed *(Daucus pusillus),* Pacific rye grass *(Elymus glaucus ssp. virescens),* lupines *(Lupinus spp.),* California melic *(Melica californica),* purple needle-grass *(Nassella pulchra)* and gray mules ears (*Wyethia helenioides).*

The grassland is expected to support a host of common grassland animal species. . Reptilian species observed or expected to occur onsite include western fence lizard (*Sceloporus occidentalis*), California alligator lizard (*Gerrhonotus multicarinatus*), western rattlesnake (*Crotalis viridis*), gopher snake (*Pituophis melanoleucus*), common king snake (*Lampropeltis getula*) and common garter snake (*Thamnophis sirtalis*).

This habitat provides foraging habitat for a number of birds. Bird species observed in the grassland areas and flying over the site include great blue heron (*Ardea herodias*), turkey vulture (*Cathartes aura*), red-shouldered hawk (*Buteo lineatus*), red-tailed hawk (*Buteo jamaicensis*), golden eagle (*Aquila chrysaetos*), American kestrel (*Falco sparverius*), wild turkey (*Meleagris gallopavo*), California quail (*Callipepla californica*), mourning dove (*Zenaida macroura*), great horned owl *(Bubo virginianus*), burrowing owl (*Athene cunicularia*) (observed by PNWB and the resident rancher), Anna's hummingbird (*Calypte anna*), red-breasted sapsucker (*Sphyrapicus ruber*), black phoebe (*Sayornis nigricans*), ash-throated flycatcher (*Myiarchus tuberculifer*), western kingbird (*Tyrannus verticalis*), violet-green swallow (*Tachycineta thalassina*), cliff swallow (*Petrochelidon pyrrhonota*), scrub jay (*Aphelocoma coerulescens*), yellow-billed magpie (*Pica nuttalli*), common raven (*Corvus corax*), wrentit (*Chamaea fasciata*), plain

titmouse (*Parus inornatus*), chestnut-backed chickadee (*Parus rufescens*), bushtit (*Psaltriparus minimus*), Bewick's wren (*Thryomanes bewickii*), western bluebird (*Sialia mexicana*), California thrasher (*Toxostoma redivivum*), phainopepla (*Phainopepla nitens*), spotted towhee (*Pipilo erythrophthalmus*), dark-eyed junco (*Junco hyemalis*), western meadowlark (*Sturnella neglecta*), Brewer's blackbird (*Euphagus cyanocephalus*), Bullock's oriole (*Icterus galbula*), and house finch (*Carpodacus mexicanus*). Other resident and migratory avian species expected to occur in this habitat include common poorwill (*Phalaenoptilus nuttallii*), loggerhead shrike (*Lanius ludovicianus*), American crow (*Corvus brachyrhynchos*), Say's phoebe (*Sayornis saya*), American robin (*Turdus migratorius*), savannah sparrow (*Passerculus sandwichensis*), song sparrow (*Melospiza melodia*), red-winged black bird (*Agelaius phoeniceus*), brown-headed cowbird (*Molothrus ater*), purple finch (*Carpodacus purpureus*), lesser goldfinch (*Carduelis psaltria*), American goldfinch (*Carduelis tristis*), and house sparrow (*Passer domesticus*).

Small mammalian species that are known to occur, or would be expected to occur, in the grassland habitat include the California ground squirrel (*Spermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), deer mouse (*Peromyscus maniculatus*), house mouse (*Mus musculus*), pocket mouse (*Chaetodipus californicus*), western harvest mouse (*Reighrodontomys megalotis*), California vole (*Microtus californicus*), and the ornate shrew (*Sorex ornatus*).

Medium-sized and larger mammals that have been observed on the site include cottontail (*Sylvilagus audubonii*), black-tailed hare (*Lepus californicus*), coyote (*Canis latrans*), native gray fox (*Urocyon cinereoargenteus*), American badger (observed by PNWB and the resident rancher), striped skunk (*Mephitis mephitis*), cougar (*Puma concolor*) (a large cougar was observed by LOA biologists in 2004), bobcat (*Felis rufus*), wild pig (*Sus scrofa*), and black-tailed deer (*Odocoileus hemionus columbianas*). Other medium-sized and larger mammals that might also be expected to occur on the site but that have not been directly observed include the Virginia opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), and introduced red fox (*Vulpes vulpes*).

2.1.2 Coast Live Oak Forest and Woodland

Oak woodlands dominated by coast live oak (*Quercus agrifolia*) occur within the site's Phase 3 and Phase 4 areas, as well as within the permanent overburden stockpile area in the northern

portion of the site. This habitat type is primarily associated with Intermittent Drainage Channels 3 and 4 in . Coast live oak woodlands of the site generally have a relatively closed canopy and an understory that is either barren or covered by dense leaf litter, with very little herbaceous vegetation present.

Oak woodlands provide extremely important foraging, denning, nesting, cover, and roosting habitat for a variety of wildlife species. Root systems and woody debris contributes to the structural complexity of the woodland floor and provide foraging areas for small mammals, as well as microclimates suitable for a variety of amphibians and reptiles. Acorns are a valuable food source for many animal species, including the acorn woodpecker *(Melanerpes formicivorus),* California quail, wild turkey, western gray squirrel (*Sciurus griseus*), and black-tailed deer. Representative animal species of oak-dominated forests include arboreal salamander *(Aneides lugubris),* southern alligator lizard, common kingsnake, ringneck snake *(Diadophis punctatus),* western screech owl *(Otus kennicottii),* scrub jay, acorn woodpecker, western bluebird, opossum, and a variety of bat species including long-legged myotis (*Myotis volans*), hoary bat (*Lasiurus cinereus*), pallid bat (*Antrozous pallidus*), and western mastiff bat (*Eumops perotis*).

2.1.3 Grain, Row-crop, Hay & Pasture, Disked/Short-term Fallowed

Dry-farmed oat hay fields occur in the footprint of the proposed plant area in the eastern portion of the main quarry site near Highway 101. Vegetation similar to that occurring in annual grasslands as described above was observed to grow along the disturbed edges of the fields. Wildlife using adjacent habitats would be expected to also use this habitat for foraging and movement activities.

2.1.4 Mixed Riparian Woodland and Forest, Intermittent Drainages, Sargent Creek and Tar Creek, Stock Pond, Wetland and Seep

Unnamed intermittent drainages that may be considered HCP Category 2 streams occur on Phases 1, 3 and 4 of the site, as well as on the Phase 3 and Phase 4 geotechnical setback areas. The on-site drainages were identified by LOA during a formal delineation effort that was conducted on the project site in fall 2016 and a verification site visit was conducted with USACE

in April 2017. Drainages and other hydrologic features included in Figure 4 are representative of what the USACE claimed as jurisdictional during the April verification site visit. The USACE did not claim several ephemeral and erosional features that were present on Phase 1 and Phase 3 as these features lacked an OHW mark on opposing banks. An additional formal delineation was conducted in June 2017 on areas that potentially may be required as geotechnical setback areas (Figure 4). These latter areas have not yet been verified by USACE. The intermittent channels exhibited a defined bed and bank and evidence of an Ordinary High Water mark on opposing banks, and, as such, would likely be considered jurisdictional by USACE, RWQCB and CDFW. Vegetation within the intermittent drainages of the site was observed to be generally similar to that habitat found in the surrounding upland California annual grassland habitats and species utilizing these features would be similar to those using grasslands of the site. These unnamed intermittent features would only have water present during and immediately after rainstorm events and therefore would not be a significant source of seasonal water for native plants and wildlife. These features would not likely provide habitat values in excess of those provided by surrounding upland habitats.

The alignment of the access road and conveyer belt that will be constructed for Phase 1, as currently planned, will be constructed on the east side of Sargent Creek, and will traverse the creek by way of a culvert crossing in one location in the southern portion of the site. Sargent Creek is an intermittent creek and the reach of the creek present within the conveyor belt alignment would likely be considered a Category 2 stream under the HCP. Sargent Creek does not support significant stands of woody riparian vegetation except at the very lowest reaches near the southern boundary of the greater Sargent Ranch property; however, discrete stands of red and arroyo willows (*Salix laevigata* and *S. lasiolepis*, respectively) and mulefat (*Baccharis salicifolia*) do occur at various locations along the middle and upper reaches of the creek, including at points where ephemeral drainages tie into Sargent Creek near Phase 1 where a small amount of this habitat will be impacted by the project. While significant woody riparian vegetation is absent from most of the Sargent Creek corridor, the creek channel was observed to support herbaceous wetland vegetation throughout most of its reach on the Sargent Ranch property, including but not limited to, Mediterranean barley (*Hordeum marinum* ssp.

gussoneanum), slough sedge (*Carex obnupta*), spike rush (*Eleocharis macrostachya*), and tall flat sedge (*Cyperus eragrostis*).

The main access road to the quarry will traverse Tar Creek in the northeastern portion of the project site in the location of an existing at-grade creek crossing. The crossing will consist of a free span bridge with footings placed outside of the wetted channel of the creek (pers. comm. Verne Freeman). Tar Creek flows all year long during years of average to above average rainfall and would be considered a Category 1 stream under the HCP. Although woody riparian vegetation is absent from the at-grade crossing itself, willow riparian habitat occurs immediately adjacent to the at-grade crossing both upstream and downstream and the access road crossing, once plans are finalized, may impact a small amount of this mixed riparian woodland habitat, estimated at less than 0.01 acre.

Steelhead (*Oncorhynchus mykiss*) have been observed to migrate up and spawn in Tar Creek in years with adequate rainfall. Although the reach of the creek within the footprint of the proposed main access road crossing does not provide spawning habitat for this species, this species likely migrates through this reach during wet years.

Amphibian species observed within Sargent Creek and Tar Creek during LOA surveys included Pacific tree frogs (*Hylla regilla*), California red-legged frogs (*Rana draytonii*) and western toads (*Anaxyrus boreas*). California red-legged frogs are known to breed in stock ponds within the creek's watershed on the greater Sargent Ranch property and were found to be abundant within ponds of the ranch in the vicinity of the project site during surveys conducted in May 2017. Although western pond turtles have never been documented in Tar Creek or Sargent Creek or in nearby stock ponds, potentially western pond turtles may occur in these creeks during the wet season, including areas that may be impacted by the conveyor belt crossing and proposed main access road crossing.

Avian species observed in Sargent Creek during LOA surveys foraging for amphibian and invertebrate prey during the wet season include great blue herons (*Ardea herodias*), great egrets (*Ardea alba*), and snowy egrets (*Egretta thula*).

Both Sargent and Tar Creek likely function as important movement corridors for several mammal species that have been observed within its vicinity during LOA surveys, including but not limited to, striped skunks, gray fox, bobcat, cougar, wild pig and black-tailed deer. Sargent and Tar Creek also likely provide an important seasonal and year-round, respectively, supply of water for local wildlife.

Although never observed on the ranch previously, stick nests of the San Francisco dusky-footed woodrat, a state species of concern, were observed to be present within riparian woodlands of Tar Creek in the immediate vicinity of the proposed main access road crossing during the 2016 wetland delineation.

In addition to the above hydrologic features, a stock pond, seasonal wetland, and seep spring occur on areas that potentially may be needed as geotechnical setback areas for Phases 3 and 4. The stock pond occurs northwest of Phase 4. This is a relatively large and deep pond (0.3 acres) which supports herbaceous wetland vegetation at its fringes and arroyo willows (*Salix lasiolepis*) at the upper end where seasonal flows enter the pond via a short reach of intermittent channel. During a delineation survey in June 2017, juvenile CRLF were observed at the edges of the pond and juvenile California newts were observed within the pond. The pond likely provides a near year round source of water for wildlife using surrounding habitats as well as breeding habitat for the aforementioned amphibians.

A small (0.05 acre) seasonal wetland occurs immediately east of the stock pond. It appears this feature was created as a result of overflow from the stock pond. This feature was completely dry during the June 2017 delineation survey but was observed to support herbaceous wetland vegetation and met the USACE criteria for jurisdictional wetlands.

Lastly, a small (0.03) seep spring occurs on the hillside south of Phase 3. This feature supports wetland vegetation including some cattails (Typha sp.) and other herbaceous wetland species. During the June delineation survey, it only supported a few inches of water, but it appears to be a perennial or semi-perennial seep.

2.2 MOVEMENT CORRIDORS

Ecologists and conservation biologists have expended a great deal of energy since the early 1980's advocating the protection and restoration of landscape linkages among suitable habitat patches. Movement corridors or landscape linkages are usually linear habitats that connect two or more habitat patches (Harris and Gallager 1989), providing assumed benefits to the species by reducing inbreeding depression, and increasing the potential for recolonization of habitat patches. Some researchers have even demonstrated that poor quality corridors can still provide some benefit to the species that use them (Beier 1996).

Beier and Noss (1998) evaluated the claims of the efficacy of wildlife corridors of 32 scientific papers. In general, these authors believed that the utility of corridors was demonstrated in fewer than half of the reviewed papers, and they believed that study design played a role in whether or not given corridors were successful. Examples of well-designed studies supported the value of corridors. They believed, however, that connectivity questions make sense only in terms "of a particular focal species and landscape." For example, volant (flying) species are less affected by barriers than small, slow moving species such as frogs or snakes (Beier and Noss 1998). In addition, large mammals such as carnivores that can move long distances in a single night (e.g., cougars) are more capable of making use of poor quality or inhospitable terrain than species that move more slowly and can easily fall prey to various predators or that are less able to avoid traffic or other anthropogenic effects (Beier 1996). Therefore, it is reasonable to conclude that landscape linkages, even poor ones, can be useful, especially for terrestrial species.

Therefore, while the importance of landscape linkages is well demonstrated in the scientific literature, the cautionary note of Beier and Noss (1998) that consideration of context and ecological scale are also of critical importance in evaluating linkages.

Habitat corridors are vital to terrestrial animals for connectivity between core habitat areas (i.e., larger intact habitat areas where species make their living). Connections between two or more core habitat areas help ensure that genetic diversity is maintained, thereby diminishing the probability of inbreeding depression and geographic extinctions. This is especially true in fragmented landscapes and the surrounding urbanized areas as found in the rural/urban matrix along the edges of the City of San Jose.

The quality of habitat within the corridors is important: "better" habitat consists of an area with a minimum of human interference (e.g., roads, homes, etc.) and is more desirable to more species than areas with sparse vegetation and high-density roads. Movement corridors in California are typically associated with valleys, rivers and creeks supporting riparian vegetation, and ridgelines. With increasing encroachment of humans on wildlife habitats, it has become important to establish and maintain linkages, or movement corridors, for animals to be able to access locations containing different biotic resources that are essential to maintaining their life cycles.

Healthy riparian areas (supporting structural diversity, i.e., understory species to saplings to mature riparian trees) have a high biological value as they not only support a rich and diverse wildlife community but have also been shown to facilitate regional wildlife movement. Riparian areas can vary from tributaries winding through scrubland to densely vegetated riparian forests.

A riparian zone can be defined as an area that has a source of fresh water (e.g., rill, stream, river), a defined bank, and upland areas consisting of moist soils (e.g., wetter than would be expected simply do to seasonal precipitation). These areas support a characteristic suite of vegetative species, many of which are woody, that are adapted to moister soils. Such vegetation in the project region may include California buckeye (*Aesculus californica*), dogwood (*Cornus* sp.), California hazelnut (*Corylus cornuta* var. *californica*), elderberry (*Sambucus* sp.), Oregon ash (*Fraxinus latifolia*), walnut (*Juglans* sp.), California laurel (*Umbellularia californica*), toyon (*Heteromeles arbutifolia*), oaks (*Quercus* sp.), and willow (*Salix* sp.).

Beier and Loe (1992) noted five functions of corridors (rather than physical traits) that are relevant when conducting an analysis regarding the value of linkages. The following five functions should be used to evaluate the suitability of a given tract of land for use as a habitat corridor:

1.) Wide ranging mammals can migrate and find mates;
2.) Plants can propagate within the corridor and beyond;
3.) Genetic integrity can be maintained;
4.) Animals can use the corridor in response to environmental changes or a catastrophic event;
5.) Individuals can recolonize areas where local extinctions have occurred.

A corridor is "wide enough" when it meets these functions for the suite of animals in the area. It is important to note that landscape linkages are used differently by different species. For instance, medium to large mammals (or some bird species) may traverse a corridor in a matter of minutes or hours, while smaller mammals or other species may take a longer period of time to move through the same corridor (e.g., measured in days, weeks and even years). For example, an individual cougar may traverse the entire length of a long narrow corridor in an hour while travel of smaller species (such as rodent or rabbit species) may best be measured as gene flow within regional populations. These examples demonstrate that landscape linkages are not simply highways that animals use to move back and forth. While linkages may serve this purpose, they also allow for slower or more infrequent movement. Width and length must be considered in evaluating the value of a landscape linkage. A long narrow corridor would most likely only be useful to wide ranging animals such as cougars and coyotes when moving between core habitat areas.

To the extent practicable, conservation of linkages should address the needs of "passage species" (those species who typically use a corridor for the express purpose of moving from one intact area to another) *and* "corridor dwellers" (slow moving species such as plants and some amphibians and reptiles that require days or generations to move through the corridor).

While no detailed study of animal movements has been conducted for the quarry study area, knowledge of the site, its habitats, and the ecology of the species potentially occurring onsite permits sufficient predictions about the types of movements occurring in the region and whether or not proposed development would constitute a significant impact to animal movements.

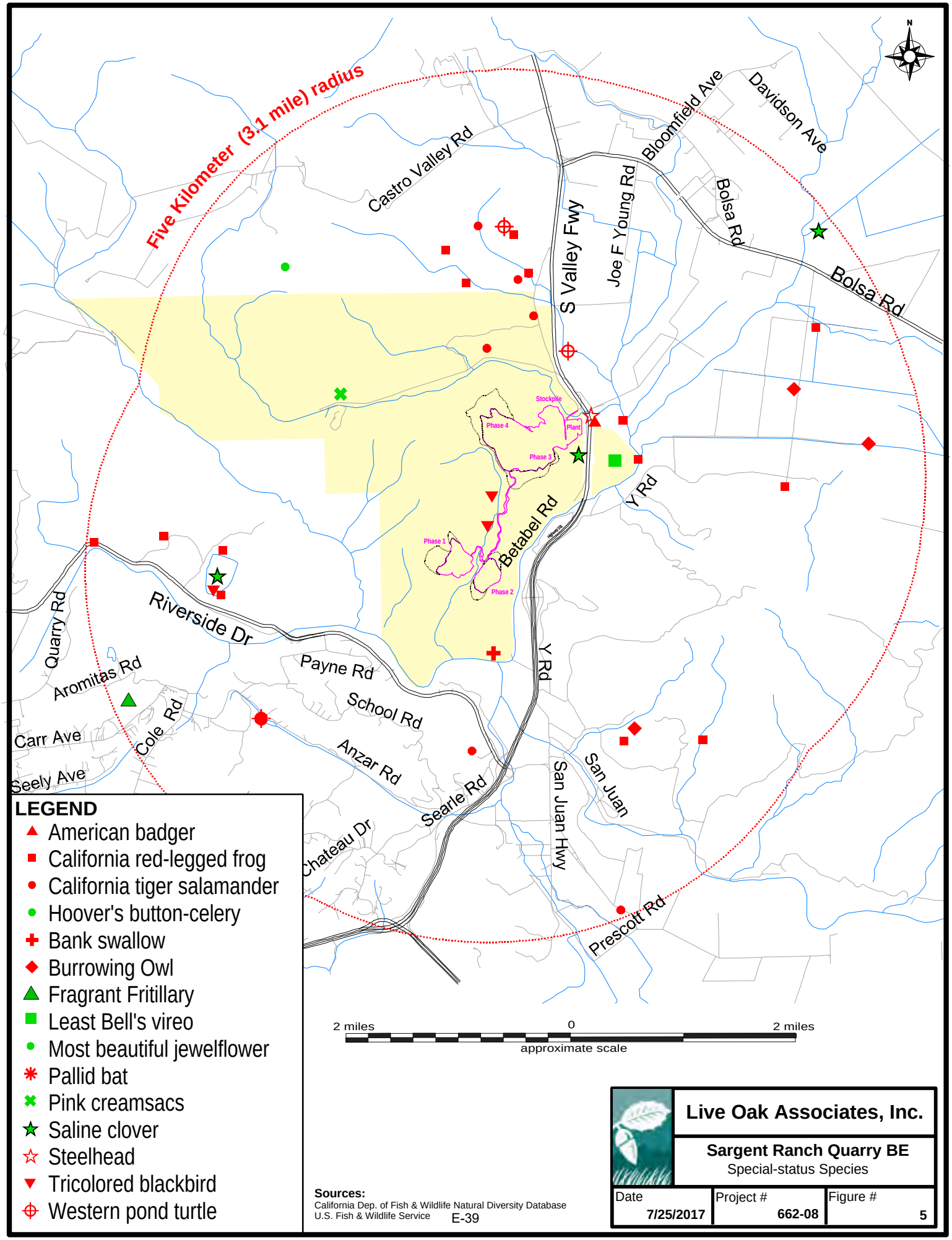
As noted in Section 2.1, a number of reptiles, birds, and mammals may use the project site as part of their home range and dispersal movements. Creeks and drainages are known to facilitate wildlife movement, and the two creek corridors that occur in proximity to portions of the project site, i.e. Sargent Creek and Tar Creek, as well as the riparian habitat associated with Intermittent Channels 3 and 4 on Phase 3 and 4 of the quarry site, likely provide important movement habitat for many native wildlife species travelling north-south and east-west across the study area. Ephemeral erosional features occurring within the footprints of the project, however, generally support vegetation that is undifferentiated from surrounding upland grassland habitats and as

such, these are not likely to function as anything but marginal movement corridors due to lack of significant woody vegetation cover.

2.3 SPECIAL STATUS PLANTS AND ANIMALS

Several species of plants and animals within the state of California have low populations, limited distributions, or both. Such species may be considered "rare" and are vulnerable to extirpation as the state's human population grows and the habitats these species occupy are converted to agricultural and urban uses. As described more fully in Section 3.2, state and federal laws have provided the California Department of Fish and Wildlife (CDFW) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting the diversity of plant and animal species native to the state. A sizable number of native plants and animals have been formally designated as threatened or endangered under state and federal endangered species legislation. Others have been designated as "candidates" for such listing. Still others have been designated as "species of special concern" by the CDFW. The California Native Plant Society (CNPS) has developed its own set of lists of native plants considered rare, threatened, or endangered (CNPS 2016). Collectively, these plants and animals are referred to as "special status species."

A number of special status plants and animals occur in the vicinity of the site (Figure 5). These species and their potential to occur in the study area are listed in Table 2 on the following pages. Sources of information for this table included *California's Wildlife, Volumes I, II, and III* (Zeiner et. al 1988), *California Natural Diversity Data Base* (CDFW 2017), *Endangered and Threatened Wildlife and Plants* (USFWS 2017), *State and Federally Listed Endangered and Threatened Animals of California* (CDFW 2017), and *The California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2017). This information was used to evaluate the potential for special status plant and animal species to occur onsite. Figure 5 depicts the location of special status species found by the California Natural Diversity Data Base (CNDDB) within a three mile radius of the site. It is important to note that the CNDDB is a volunteer database; therefore, it may not contain all known or gray literature records. In addition to those species documented in CNDDB, during a peer review of the Sargent Quarry BE, an additional handful of birds that are considered state species of special concern were identified for



LEGEND

- American badger
- California red-legged frog
- California tiger salamander
- Hoover's button-celery
- Bank swallow
- Burrowing Owl
- Fragrant Fritillary
- Least Bell's vireo
- Most beautiful jewelflower
- Pallid bat
- Pink creamsacs
- Saline clover
- Steelhead
- Tricolored blackbird
- Western pond turtle

Sources:
California Dep. of Fish & Wildlife Natural Diversity Database
U.S. Fish & Wildlife Service

Live Oak Associates, Inc.

Sargent Ranch Quarry BE
Special-status Species

Date	Project #	Figure #
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LEGEND

- Sargent Ranch Property Boundary
- Quarry Project Boundaries
- Geotechnical Setback Boundaries

On-site Species Observations

- CTS California Tiger Salamander
- CRLF California Red-legged Frog
- BF Bullfrog
- ETS Eastern Tiger Salamander
- WPT Western Pond Turtle
- Fish Fish

Habitats

- California Annual Grassland
- Coast Live Oak Forest and Woodland
- Coastal and Valley Freshwater Marsh
- Grain, Row-crop, Hay and Pasture, Disked / Short-term Fallowed
- Mixed Oak Woodland and Forest
- Mixed Riparian Forest and Woodland
- Northern Coastal Scrub / Diablan Sage Scrub
- Northern Mixed Chaparral / Chamise Chaparral
- Pond
- Redwood Forest
- Rural Residential
- Seasonal Wetland
- Serpentine Grassland
- Serpentine Seep
- Urban - Suburban
- Valley Oak Woodland
- Willow Riparian Forest and Scrub

Hydrology

- Drainages with defined bed and bank
- U.S.G.S. Blueline Drainages

Tick Creek
Sycamore Creek
Tar Creek
Sargent Creek
Highway 101
Overburden Stockpile
Processing Plant
Stockpile
Phase I
Phase II
Phase III
Phase IV

5,000' 0 5,000 feet
Approximate Scale

Sources:
Santa Clara County HCP Land Cover
Santa Clara County LIDAR Topographic Survey
Pacific North Western Biological Resources Consultants, Inc. 2001.
Biological Resources Assessment for the Proposed Sargent Ranch Conservation Bank Agreement

Live Oak Associates, Inc.

Sargent Ranch Quarry BE
Pacific North Western Special Status Species Findings from 2000-2001 Surveys

Date	Project #	Figure #
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inclusion in this report, based on the opinion of the peer review biologist. Figure 6 depicts CRLF and CTS occurrences documented by PNWB biologists and LOA biologists that, in most instances, were not reported to CNDDB.

A search of published accounts for all relevant special status plant and animal species was conducted for the Chittenden USGS 7.5" quadrangle in which the quarry project site occurs and for the eight surrounding quadrangles (Gilroy, Gilroy Hot Springs, San Felipe, Hollister, San Juan Bautista, Prunedale, Watsonville East and Mount Madonna) using the California Natural Diversity Data Base (CNDDB) Rarefind 5 (CDFW 2017). All species listed as occurring in these quadrangles on CNPS Lists 1A, 1B, 2, or 4 were also reviewed (Table 3).

Special status species with potential to occur on the project site itself or in the immediate surrounding vicinity are discussed further below.

Table 3: Special status species that could occur in the project vicinity

PLANTS (adapted from CDFW 2017 and CNPS 2017)
Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Monterey Spineflower (*Chorizanthe pungens* var. *pungens*)	FT, CRPR 1B	Habitat: Occurs in sandy soils within chaparral, cismontane woodland, coastal dunes, coastal scrub and valley and foothill grassland. Elevation: 3-450 meters. Blooms: Annual herb; April-June.	**Absent**. Habitat is absent from the site. Species is not known to occur within Santa Clara County.
Robust Spineflower (*Chorizanthe robusta* var. *robusta*)	FE, CRPR 1B	Habitat: Occurs in sandy or gravelly soils within cismontane woodland, coastal dunes, and coastal scrub. Elevation: 3-300 meters. Blooms: Annual herb; April-September.	**Absent**. Habitat is absent from the site.
Seaside Bird's-beak (*Cordylanthus rigidus* ssp. *littoralis*)	CE, CRPR 1B	Habitat: Occurs in often disturbed sandy soils of closed-cone coniferous forests, maritime chaparral, cismontane woodland, coastal dunes, and coastal scrub. Elevation: 0-425 meters. Blooms: Annual herb; April-October.	**Absent**. Habitat is absent from the site.
Santa Clara Valley dudleya (*Dudleya abramsii* ssp. *setchellii*)	FE, CRPR 1B	Habitat: Occurs within cismontane woodland and valley and foothill grasslands on rocky serpentine soils. Elevation: 60-455 meters. Blooms: Perennial herb; April–October.	**Absent**. Serpentine soils required by this species are absent from the study area.
Showy Rancheria clover (*Trifolium ameonum*)	FE, CRPR 1B	Habitat: Occurs in coastal bluff scrub, valley and foothill grassland (sometimes on serpentine). Elevation: 5-415 meters. Blooms: Annual herb; April-June.	**Unlikely.** Marginal habitat for this species occurs within grassland habitats of the study area; however, the only observance in the vicinity of the study area dates back to 1903 and serpentine soils on which it is sometimes found, while present on the 6300-acre ranch property, are absent from the project site.

Table 2: Special status species that could occur in the project vicinity.

PLANTS (adapted from CDFW 2017 and CNPS 2017)
Other special status plants listed by the CDFW and CNPS

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Anderson's manzanita (*Arctostaphylos andersonii*)	CRPR 1B	Habitat: Occurs in openings and at edges of broadleaved upland forest, chaparral, and North Coast coniferous forest. Elevation: 60-730 meters. Blooms: Evergreen shrub; November–May.	**Absent.** Manzanita species are absent from the project site.
Hooker's manzanita (*Arctostaphylos hookeri ssp. hookeri*)	CRPR 1B	Habitat: Occurs in sandy soils, sandy shales or on sandstone outcrops within closed-cone coniferous forest, chaparral, cismontane woodland, and sandy coastal scrub. Elevation: 85-536 meters. Blooms: Evergreen shrub; January–June.	**Absent.** Manzanita species are absent from the project site. Species is only known from Monterey County.
Pajaro manzanita (*Arctostaphylos pajaroensis*)	CRPR 1B	Habitat: Occurs in sandy soils within chaparral. Elevation: 30-760 meters. Blooms: Evergreen shrub; December-March.	**Absent.** Manzanita species are absent from the project site. Species is only known from Monterey County.
Kings Mountain manzanita (*Arctostaphylos regismontana*)	CRPR 1B	Habitat: Occurs on granitic or sandstone outcrops within broadleafed upland forest, chaparral, and north coast coniferous forest. Elevation: 305-730 meters. Blooms: Evergreen shrub; January-April.	**Absent.** Manzanita species are absent from the project site.
Anderson's manzanita (*Arctostaphylos andersonii*)	CRPR 1B	Habitat: Occurs in openings and at edges of broadleaved upland forest, chaparral, and North Coast coniferous forest. Elevation: 60-730 meters. Blooms: Evergreen shrub; November–May.	**Absent.** Manzanita species are absent from the project site.
Alkali milk-vetch (*Astragalus tener* var. *tener*)	CRPR 1B	Habitat: Occurs on alkaline soils within playas, valley and foothill grasslands and in vernal pools Elevation: 1-60 meters Blooms: Annual herb**;** March-June	**Unlikely.** Soils of the site are not particularly alkaline, and vernal pools are absent from the project site.
San Joaquin spearscale (*Atriplex joaquiniana*)	CRPR 1B	Habitat: Occurs in seasonal alkali wetlands or alkali sink scrub within chenopod scrub and grassland habitats. Elevation: 1-835 meters Blooms: Annual herb; April-October	**Absent**. Habitat is absent from the project site.

Table 2: Special status species that could occur in the project vicinity.

PLANTS (adapted from CDFW 2017 and CNPS 2017)
Other special status plants listed by the CDFW and CNPS

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Big-scale balsamroot (*Balsamorhiza macrolepis* var. *macrolepis*)	CRPR 1B	Habitat: Chaparral, cismontane woodlands, and valley and foothill grasslands (sometimes on serpentine) Elevation: 90-1400 meters Blooms: Perennial herb; March-June	**Unlikely.** Grasslands of the site are not serpentine and provide marginal habitat for this species.
Round-leaved filaree (*California macrophylla*)	CRPR 1B	Habitat: Occurs on clay soils within cismontane woodlands and valley and foothill grasslands. Elevation: 15-1200 meters. Blooms: Annual herb; March-May.	**Possible.** Grasslands and woodlands of the site provide potential habitat for this species.
Chaparral harebell (*Campanula exigua*)	CRPR 1B	Habitat: Rocky chaparral, often on serpentine Elevation: 275-1250 meters Blooms: Annual herb; May-June	**Absent**. Habitat is absent from the site.
Pink creamsacs (*Castilleja rubicundula* ssp. *rubicundula*)	CRPR 1B	Habitat: Occurs on serpentine soils within chaparral, cismontane woodland, meadows and seeps, and valley and foothill grasslands. Elevation: 20- 900 meters. Blooms: Annual herb; April–June.	**Unlikely.** This species was documented on Sargent Ranch in 1992 and CNDDB shows the location of the occurrence to the north of Tar Creek within a seep spring in non-serpentine grasslands. As this species is considered serpentine endemic, it appears that the location in CNDDB may have been misrepresented and that possibly the population was further north within serpentine grasslands. Grasslands of the project site are not serpentine and would provide marginal habitat for this species.
Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*)	CRPR 1B	Habitat: Occurs on alkaline soils within valley and foothill grasslands. Elevation: 1-230 meters Blooms: Annual herb; May-November.	**Possible.** Marginal habitat for this species occurs within grasslands of the project site.
Eastwood's goldenbush (*Ericameria fasciculata*)	CRPR 1B	Habitat: Occurs in sandy openings within closed-cone coniferous forest, maritime chaparral, coastal dunes, and coastal scrub. Elevation: 30-275 meters. Blooms: Evergreen shrub; July-October.	**Absent**. Habitat is absent from the project site. Species only known from Monterey County.
Hoover's button-celery (*Eryngium aristulatum* var. *hooveri*)	CRPR 1B	Habitat: Occurs in vernal pools. Elevation: 3-45 meters Blooms: Annual/perennial herb; July	**Absent.** Vernal pools are absent from the project site.

Table 2: Special status species that could occur in the project vicinity.

PLANTS (adapted from CDFW 2017 and CNPS 2017)
Other special status plants listed by the CDFW and CNPS

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Fragrant fritillary (*Fritillaria liliacea*)	CRPR 1B	Habitat: Occurs on clay soils within coastal prairie, and scrub, and valley and foothill grasslands, often on serpentine. Elevation: 3-410 meters Blooms: Bulbiferous; February-April	**Unlikely.** Species usually occurs in serpentine clay soils which are absent from the site; therefore, grasslands of the site would be considered marginal for this species.
Loma Prieta hoita (*Hoita strobilina*)	CRPR 1B	Habitat: Occurs in grassland, chaparral, cismontane woodland, riparian woodland, often on serpentine. Elevation: 30-860 meters. Blooms: May-October.	**Unlikely.** Serpentine soils are absent from the study area and only two occurrences are known from the vicinity, and were last observed in 1918 and 1922. However, coast live oak woodlands and grasslands of the site provide marginal habitat.
Legenere (*Legenere limosa*)	CRPR 1B	Habitat: Occurs in vernal pools. Elevation: 1-880 meters. Blooms: Annual herb; April–June.	**Absent.** Vernal pools are absent from the study area.
Smooth lessingia (*Lessingia micradenia* ssp. *glabrata*)	CRPR 1B	Habitat: Occurs on serpentine soils within grassland and chaparral. Elevation: 120-420 meters. Blooms: Annual herb; July-November.	**Absent.** Serpentine soils required by this species are absent from the study area.
Indian Valley bush mallow (*Malacothamnus aboriginum*)	CRPR 1B	Habitat: Occurs on rocky or granitic soils often in burned areas in chaparral and foothill woodland. Elevation: 150-1700 meters. Blooms: Evergreen shrub; April-October.	**Absent.** Rocky and granitic soils are absent from the study area; and this evergreen shrub would have been identifiable during surveys conducted on the site if it were present.
Arcuate bush mallow (*Malacothamnus arcuatus*)	CRPR 1B	Habitat: Occurs on gravelly soils within chaparral. Elevation: 15-355 meters Blooms: Evergreen shrub; April-September	**Absent.** Habitat for this species is absent from the study area; and this evergreen shrub would have been identifiable during surveys conducted on the site if it were present.
Hall's bush mallow (*Malacothamnus hallii*)	CRPR 1B	Habitat: Occurs within chaparral and coastal scrub Elevation: 10-760 meters Blooms: Evergreen shrub; May-October	**Absent.** Habitat for this species is absent from the study area; and this evergreen shrub would have been identifiable during surveys conducted on the site if it were present.
Woodland woollythreads (*Monolopia gracilens*)	CRPR 1B	Habitat: Occurs on serpentine soils within broadleaved upland forests, chaparral, cismontane woodland, North Coast coniferous forests, and valley and foothill grasslands Elevation: 10-1200 meters Blooms: Annual herb; February-July	**Absent.** Serpentine soils required by this species are absent from the study area.

Table 2: Special status species that could occur in the project vicinity.

PLANTS (adapted from CDFW 2017 and CNPS 2017)
Other special status plants listed by the CDFW and CNPS

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Santa Cruz Mountains beardtongue (*Penstemon rattanii* var. *kleei*)	CRPR 1B	Habitat: Occurs in chaparral, lower montane coniferous forest, and north coast coniferous forest. Elevation: 400-1100 meters. Blooms: Perennial herb; May-June.	**Absent.** Habitat for this species is absent from the study area.
Hairless popcorn-Flower (*Plagiobothrys glaber*)	CNPS 1A	Habitat: Alkaline meadows and seeps and coastal salt marshes and swamps Elevation: 15-180 meters Blooms: Annual herb; March-May	**Absent.** Habitat for this species is absent from the study area.
Pine rose (*Rosa pinetorum*)	CRPR 1B	Habitat: Occurs in closed-cone coniferous forest. Elevation: 2-300 meters. Blooms: Perennial shrub; May-July.	**Absent.** Habitat for this species is absent from the study area.
Most beautiful jewel-flower (*Streptanthus albidus* ssp. *peramoenus*)	CRPR 1B	Habitat: Serpentine chaparral, cismontane woodlands, and valley and foothill grasslands Elevation: 110-1000 meters Blooms: Annual herb; March-October	**Absent.** Serpentine soils required by this species are absent from the study area.
Saline clover (*Trifolium hydrophilum*)	CRPR 1B	Habitat: Marshes and swamps, mesic and alkaline areas of valley and foothill grasslands, and vernal pools. Elevation: 0-300 meters. Blooms: Annual herb; April-June.	**Absent.** This species was documented on the ranch within wetlands to the southeast of the Phase 3 and Phase 4 quarry areas; however, the project site does not provide habitat for this species.

Table 3: Special status species that could occur in the project vicinity.

ANIMALS (adapted from CDFW 2017 and USFWS 2017)
Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Acts

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Steelhead (*Oncorhynchus mykiss*)	FT	Migrate up fresh water rivers or streams in the spring and spend the remainder of the time in the ocean.	**Possible.** Suitable habitat is absent from the quarry site itself; however, steelhead have been observed in Tar Creek in years of moderate to heavy rainfall, and have been observed to migrate through the area where a proposed bridge crossing will be constructed.

Table 3: Special status species that could occur in the project vicinity.

ANIMALS (adapted from CDFW 2017 and USFWS 2017)
Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Acts

Common and scientific names	Status	General habitat description	*Occurrence in the study area
California tiger salamander (*Ambystoma californiense*)	FT, CT	Breeds in vernal pools and stock ponds of central California; adults estivate in grassland habitats adjacent to the breeding sites.	**Unlikely.** Four CTS and CRLF larval surveys have been conducted within potentially suitable breeding habitats in the vicinity of the proposed project site; one by PNWB in 2000-2001 and three by LOA in 2004, 2005 and 2017. These surveys have been consistent in their findings with respect to CRLF and CTS, with CRLF being found to be abundant and breeding in ponds throughout the ranch property, but CTS only ever being detected successfully breeding in two ponds occurring north of Tar Creek, more than 2000 feet north of the quarry site. Findings from the surveys and a discussion of potential to occur on the site is provided in a latter section of this report.
California red-legged frog (*Rana aurora draytonii*)	FT, CSC	Rivers, creeks and stock ponds of the Sierra foothills and Bay Area, preferring pools with overhanging vegetation.	**Present.** As indicated above, this species has been documented at numerous locations within riparian and stock pond habitats in the Sargent Creek and Tar Creeck watersheds in close proximity to the proposed conveyor belt crossing; and have also been documented within the Tar Creek watershed located north of the overburden and plant sites and in the vicinity of the proposed crossing for the main quarry access road. The only breeding habitat within the project area consists of a stock pond occurring within the footprint of areas to the northwest of Phase 4 that may be impacted by geotechnical setbacks. Although the remainder of the project site provides no breeding habitat for this species, potentially this species may use upland habitats of the project site and Sargent and Tar Creek during foraging and migration movements.
Foothill yellow-legged frog (*Rana boylii*)	CT (Candidate)	Occurs in swiftly flowing streams and rivers with rocky substrate with open, sunny banks in forest, chaparral, and woodland habitats, and can sometimes be found in isolated pools.	**Absent.** Suitable habitat is absent from the site and its immediate vicinity, and this species has never been documented on the greater Sargent Ranch property despite numerous herpetological surveys.
Bald eagle (*Haliaeetus luecocephalus*)	SE	Nests and roosts near water bodies with consistent fish supply (eagle's main food source). Builds nests in tall trees or on cliffs.	**Possible.** Nesting habitat is absent from the site; however, this species has been observed roosting on the ranch in the vicinity of Tar Creek and may occur rarely on the project site to forage.

Table 3: Special status species that could occur in the project vicinity.

ANIMALS (adapted from CDFW 2017 and USFWS 2017)
Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Acts

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Bank swallow (*Riparia riparia*)	CT	Colonial nester on vertical cliffs and banks near riparian or coastal habitats. Requires sandy soils to excavate nest holes.	**Possible.** Although there are no occurrences of this species documented in CNDDB in the project vicinity, this species was documented foraging on the ranch by PNWB biologists and potential nesting habitat occurs along Sargent Creek in the vicinity of the project, so this species may forage over the project site.
Least Bell's vireo (*Vireo bellii pusillus*)	FE, CE	Occurs in southern California during the breeding season March, migrates out of the state July through September. Dense brush, mesquite, or cottonwood-willow forests in riparian areas.	**Unlikely.** The last sighting of this species near the site was in 1932 and the site itself lacks potential nesting habitat for this species; although, potential habitat occurs off-site along the upper reaches of Sargent and along Tar Creek near the Phase 4, overburden and plant site areas.
Tricolored blackbird (*Agelaius tricolor*)	CE	Breeds near fresh water in dense emergent vegetation.	**Unlikely.** There are two CNDDB occurrences of this species on Sargent Ranch, nesting in emergent vegetation of stock ponds adjacent to Sargent Creek from 1980 and 1989; however, this species has never been observed on the ranch by either PNWB or LOA during surveys. The only potential breeding habitat consists of a small seep spring within the geotechnical setback area to the south of Phase 3 and emergent vegetation associated with a stock pond within the geotechnical setback area northwest of Phase 4. The remainder of the quarry site provides no breeding habitat for this species, and only very marginal foraging habitat for this species.
San Joaquin kit fox (*Vulpes macrotis mutica*)	FE, CT	Frequents annual grasslands or grassy open stages with scattered shrubby vegetation. Needs loose-textured sandy soils for burrowing and suitable prey base. Utilizes enlarged (4 to 10 inches in diameter) ground squirrel burrows as denning habitat. May forage in adjacent agricultural habitats.	**Unlikely.** Although the project site does support suitable habitat for this species, there have been no reported occurrences of this species in the project region in CNDDB in almost 25 years. The only two documented occurrences ever reported to CNDDB in the project region was one in 1992 and one in 1975. Both of the reported occurrences were more than 10 miles southeast and northeast, respectively.

Table 3: Special status species that could occur in the project vicinity.

ANIMALS (adapted from CDFW 2016 and USFWS 2016)
California Species of Special Concern and Protected Species

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Western spadefoot (*Spea hammondii*)	CSC	Primarily occurs in grasslands, but also occurs in valley and foothill hardwood woodlands. Requires vernal pools or other temporary wetlands for breeding.	**Unlikely.** PNWB biologists tentatively identified this species by vocalization on the greater Sargent Ranch property during 2000-2001 surveys, however, the quarry project site appears to provide no breeding habitat for this species, and they have never been directly observed in the project site vicinity during many surveys for CTS and CRLF.
Western pond turtle (*Emys marmorata*)	CSC	Open slow-moving water of rivers and creeks of central California with rocks and logs for basking.	**Possible.** Potential habitat for this species occurs during the wet season within Sargent Creek in the vicinity of the Phase 1 and 2 and within Tar Creek in the vicinity of the proposed access road crossing, and it may occasionally use upland habitats of the site in proximity to the creek; however, there are no documented occurrences of turtles in the immediate project vicinity.
Coast horned lizard (*Phrynosoma blainvillii*)	CSC	Grasslands, scrublands, oak woodlands, etc. of central California. Common in sandy washes with scattered shrubs.	**Unlikely.** Habitat is marginal on the quarry site for this species as open sandy areas are absent, and this species has never been observed on Sargent Ranch or documented in CNDDB within a three-mile radius.
White-tailed kite (nesting) (*Elanus leucurus*)	CP	Open grasslands and agricultural areas throughout central California.	**Possible.** Suitable breeding habitat exists on the site for this species within oak woodland habitat, and grasslands and agricultural areas on the project site provide suitable foraging habitat.
Peregrine falcon *(Falco peregrinus anatum*)	CP	Requires cliffs for nesting and forages in a variety of habitats.	**Possible.** PNWB observed falcons foraging over Sargent Ranch during 2000 and 2001 surveys and the project site provides potential foraging habitat for this species; however, nesting habitat is absent from the project site.
Golden eagle (nesting & nonbreeding/wintering) (*Aquila chrysaetos*)	CP	Typically frequents rolling foothills, mountain areas, sage-juniper flats and desert.	**Present.** Woodlands on the project site provide only marginal nesting habitat for this species; however, golden eagles have been observed on numerous occasions foraging over the ranch and are presumed to forage on the project site on a regular basis.
Northern harrier (*Circus cyaneus*)	CSC	Frequents meadows, grasslands, open rangelands, freshwater emergent wetlands; uncommon in wooded habitats.	**Present.** This species has been observed foraging over grasslands of the site and potential nesting habitat occurs adjacent to Sargent Creek.

Table 3: Special status species that could occur in the project vicinity.

ANIMALS (adapted from CDFW 2016 and USFWS 2016)
California Species of Special Concern and Protected Species

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Short-eared owl (*Asio flammeus*)	CSC	Occurs in wide open spaces including marshes, open shrublands, grassland, prairie, and agricultural field habitats, and need dense ground cover to conceal nests.	**Possible.** The site supports both suitable breeding and foraging habitat for this species
Long-eared owl (*Asio otus*)	CSC	Found throughout California mainly in open woodlands, and riparian areas with adjacent grasslands for foraging.	**Possible.** The site supports both suitable breeding and foraging habitat for this species.
Burrowing owl (*Athene cunicularia*)	CSC	Found in open, dry grasslands, deserts and ruderal areas. Requires suitable burrows. This species is often associated with California ground squirrels.	**Possible.** Burrowing owls have been observed nesting, foraging and roosting on the greater Sargent Ranch property and the project site itself provides good potential breeding, roosting and foraging habitat for this species.
Yellow-breasted chat (*Icteria virens*)	CSC	Found mainly in dense brush of open canopy riparian corridors or along ponds.	**Unlikely.** Although this species was documented on the greater Sargent Ranch property by PNWB; the project site itself provides only marginal nesting habitat for this species in riparian woodlands near Phase 1 and Phase 2 and near the proposed access bridge over Tar Creek, although it may rarely forage on the site.
Black swift (nesting) (*Cypseloides niger*)	CSC	Nests on cliffs near the ocean or other aquatic habitat. Forages for insects over a variety of habitats.	**Possible.** Nesting habitat is absent on the site, but this species may forage over the site.
Vaux's swift (nesting) (*Chaetura vauxi*)	CSC	Nests in coniferous and deciduous forests and forages for insects over a variety of habitats.	**Possible.** Nesting habitat is absent from the site, but this species may forage over the site.
Olive-sided flycatcher (nesting) (*Contopus cooperi*)	CSC	Frequents coniferous forests, especially with tall standing dead trees. They prefer spruce, fir, balsam, pine, or mixed woodlands near edges and clearings, wooded streams, swamps, bogs, edges of lakes or rivers.	**Unlikely.** Olive-sided flycatchers have been observed on Sargent Ranch during surveys by PNWB and LOA; but breeding and foraging habitat on the project site is marginal for this species.
Grasshopper sparrow (*Ammodramus savannarum*)	CSC	Forages in open grasslands, builds a nest of grasses on the ground.	**Possible.** Although no occurrences of this species are reported in the project vicinity in CNDDB, H.T. Harvey biologists have reported observing this species on the larger ranch property from an adjacent property to the north.

Table 3: Special status species that could occur in the project vicinity.

ANIMALS (adapted from CDFW 2016 and USFWS 2016)
California Species of Special Concern and Protected Species

Common and scientific names	Status	General habitat description	*Occurrence in the study area
Bryant's savannah sparrow (*Passerculus sandwichensis alaudinus*)	CSC	Prefers to forage and breed in coastal salt marshes and in adjacent moist grassland and ruderal habitats within and immediately above the fog belt. May rarely use drier grasslands.	**Unlikely.** This species' preferred breeding habitat is absent from the site, although grasslands of the site provide marginal foraging and breeding habitat for this species.
Yellow warbler (*Setophaga petechial*)	CSC	Forages and nests in riparian woodland habitats.	**Posssible.** Riparian woodlands of the site provide potential foraging and breeding habitat for this species.
Loggerhead shrike (*Lanius ludovicianus*)	CSC	Nests in tall shrubs and dense trees, forages in grasslands, marshes, and ruderal habitats.	**Possible.** The site supports both suitable breeding and foraging habitat for the loggerhead shrike.
Western red bat (*Lasiurus blossevillii*)	CSC	Roosts primarily in trees in a wide variety of habitats; prefers a mosaic of habitats including open areas for foraging.	**Possible.** Trees on the site provide potential roosting habitat and the site provides potential foraging habitat for this species.
Pallid bat (*Antrozous pallidus*)	CSC	Most common on dry, open habitats with rocks for roosting. May also use large hollows of trees in addition to caves for roosting.	**Possible.** The site offers suitable foraging habitat for this species. Roosting habitat may be available in woodlands that support large cavernous hollows.
California mastiff bat (*Eumops perotis californicus*)	CSC	Forages over many habitats, requires tall cliffs or buildings for roosting.	**Possible.** Suitable foraging habitat occurs on the site, but roosting habitat is absent.
Townsend's big-eared bat (*Corynorhinus townsendii*)	CSC	Requires caves, mines, tunnels, buildings, or other human-made structures for roosting. May use separate sites for night, day, hibernation, or maternity roosts. Found in all habitats except sub-alpine and alpine.	**Possible.** Suitable roosting habitat is absent from the project site; however, this species may forage over the site.
San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*)	CSC	Found in hardwood forests, oak riparian and shrub habitats.	**Possible.** During 2017 surveys, woodrat nests were observed within the riparian habitat of Tar Creek near the proposed bridge crossing. Oak woodlands and drainages on the Phase 3 and 4 quarry sites and overburden stockpile areas also provide marginal habitat for this species; however, no woodrat nests have ever been observed in these latter areas by either PNWB or LOA biologists.woodrat
Ringtail (*Bassariscus astutus*)	CP	Occurs mainly in riparian and heavily wooded habitats near water.	**Unlikely.** Although oak and/or riparian woodlands occur on all phases of the project, these woodlands would provide only marginal habitat for this species, although it may occur in riparian habitat of Tar Creek and rarely occur on areas of the site in proximity to Tar Creek.

Table 3: Special status species that could occur in the project vicinity.

ANIMALS (adapted from CDFW 2016 and USFWS 2016)
California Species of Special Concern and Protected Species

Common and scientific names	Status	General habitat description	*Occurrence in the study area
American badger (*Taxidea taxus*)	CSC	Occurs in grasslands, and open areas of scrubland and forests with friable soils that are uncultivated.	**Likely.** Grasslands of the project site provide suitable habitat for this species and it is known to occur on the greater Sargent Ranch property.

Present: Species observed on the sites at time of field surveys or during recent past.
Likely: Species not observed on the site, but it may reasonably be expected to occur there on a regular basis.
Possible: Species not observed on the sites, but it could occur there from time to time.
Unlikely: Species not observed on the sites, and would not be expected to occur there except, perhaps, as a transient.
Absent: Species not observed on the sites, and precluded from occurring there because habitat requirements not met.

STATUS CODES

FE	Federally Endangered	CE	California Endangered
FT	Federally Threatened	CT	California Threatened
FPE	Federally Endangered (Proposed)	CR	California Rare
FC	Federal Candidate	CP	California Protected
		CSC	California Species of Special Concern
CNPS	California Native Plant Society Listing		
1A	Plants Presumed Extinct in California	3	Plants about which we need more information – a review list
1B	Plants Rare, Threatened, or Endangered in California and elsewhere	4	Plants of limited distribution – a watch list
2	Plants Rare, Threatened, or Endangered in California, but more common elsewhere		

Most of the special status plant and animal species listed in Table 3 are either absent or may occur rarely or occasionally on the site and sufficient information exists to evaluate the potential impacts the project may or may not have on them. However, a number of other special status species have been documented on Sargent Ranch in the immediate vicinity of the project site and are assumed present or are considered likely or possibly to occur on the site. A few of these latter species warrant further discussion and include the steelhead trout, California tiger salamander (CTS), California red-legged frog (CRLF), burrowing owl (BUOW), and American badger.

Steelhead (*Oncorhynchus mykiss*; South-Central California Coast DPS). Federal Listing Status: Threatened; State Listing Status: None (Species of Special Concern).

The South-Central California Coast steelhead Distinct Population Segment (SCCCS DPS) is listed as federally threatened by the Federal Endangered Species Act and considered a California Species of Special Concern. The SCCC steelhead was listed as threatened by the National Marine Fisheries Service (NMFS) on 17 October 1997 (National Marine Fisheries Service 1997). The species was listed due to a presumed 85% decline in fish stocks between 1960 and 1997.

These declines are presumed to be associated with negative effects caused by water development projects, predation by introduced fishes and invertebrates, modification of spawning streams by livestock grazing, agricultural activities, urbanization, water pollution, and overfishing (NMFS 1997 and 2016). The project site occurs in an area which is considered a high priority for conservation for the species and Tar Creek is part of critical habitat for this species.

Most habitats where steelhead occur are low elevation streams that lack significant barriers for travel to and from the ocean. Such stream habitats are usually less than 70ºF, with good water quality, and abundant riparian vegetation (Fry 1973). The life history of steelhead is quite variable, but adults typically enter streams from the ocean with the winter rains. They then ascend the stream to a suitable site where they pair up and dig a nest (known as a red) with their tails (Fry 1973). Most redds are dug at the lower end of pools or in riffles where water velocities are 0.66-5.09 feet/second (Moyle 2002). The substrate is largely cobbles, between 0.25-4 inches in diameter (Shapovalov and Taft 1954). Each female lays from 200-12,000 eggs, which the male fertilizes as they are dropped into the redd. The adults cover the nest and may eventually die or return to the ocean if the distance is not too great to overcome. The resulting eggs hatch in about 3-4 weeks, and the resulting fry remain in the redd for a further 2-3 weeks before swimming out into their natal stream (Moyle 2002). They then feed on aquatic insects and other items in the water column and grow rapidly. Juvenile fish remain in stream habitats for 1-4 years (usually 2), before migrating to the lagoon and undergoing a physiological change that allows them to enter the ocean (Shapovalov and Taft 1954). This change is called smoltification and is a very vulnerable part of the life cycle of steelhead. After smoltification, juvenile fish enter the ocean where they spend 1-4 years (usually 2) feeding on the abundant food resources (Shapovalov and Taft 1954). They then return to their natal streams to spawn and repeat the life cycle.

Occurrence on the Site. Steelhead are known to migrate up Tar Creek on the site and the lower and middle reaches of Tar Creek are used by steelhead as spawning and rearing habitat. While steelhead migrate through the reach of Tar Creek where the bridge crossing is proposed, this area and immediately adjacent upstream and downstream reaches do not provide spawning habitat for this species due to a lack of gravelly substrate.

California Tiger Salamander (*Ambystoma californiense*). Federal Listing Status: Threatened; State Listing Status: Threatened.

Life History and Ecology. The California tiger salamander (CTS) is a large terrestrial salamander, with adults attaining a total length of over 8 inches (203 millimeters) [Stebbins 1951]. Dorsally, the background color appears to be jet black, and normally with an overlain pattern of white or yellow spots, or bars (Stebbins 1985; Petranka 1998). Adult California tiger salamanders breed from late November through February, following the onset of winter rains (Storer 1925; Barry and Shaffer 1994). Both males and females travel up to 1 mile (1.6 km) or more during nocturnal breeding migrations from subterranean refuge, or aestivation, sites (i.e., small mammal burrows) to egg deposition sites in long-lasting, rain-filled vernal pools (Twitty 1941; Loredo et al. 1961; Andersen 1968; Austin and Shaffer 1992).

Embryos of California tiger salamanders hatch in approximately 14-28 days after being laid and the resulting gilled, aquatic larvae [0.41-0.43 inches (10.5-11 mm) in length] require a minimum of about 10-12 weeks to complete development through metamorphosis (Storer 1925; Twitty 1941). Following metamorphosis (normally from early May through July), juveniles emigrate en masse at night into small mammal burrows or deep cracks in the soil, which they use as refugia during the hot summer and fall months (Shaffer et al. 1993; Loredo et al. 1996).

Anecdotal evidence indicates that salamanders have a high degree of site fidelity to their breeding ponds and also to the small mammal burrows they use for refugia (Shaffer et al. 1993). Sites used for reproduction are typically natural pools that fill with rainwater and artificial stock ponds; however, salamanders have also been observed to breed in springs, wells, artificial reservoirs, quarry ponds, man-made canals, and rarely, in the slack waters of oxbows in small- to medium-sized streams. Such sites may, or may not contain dense amounts of aquatic and streamside vegetation. The highest numbers of larvae appear to occur in aquatic habitats that are largely devoid of any vegetation and contain very turbid water. Salamanders may also turn up in certain man-made structures (e.g. wet basements, wells, swimming pools, underground pipes, and septic tank drains), sometimes many years after their local breeding site has been destroyed by urbanization (Storer 1925; Pickwell 1947).

Juvenile and adult salamanders typically use the burrows of California ground squirrels and pocket gophers as underground refugia (Storer 1925; Jennings and Hayes 1994; Jennings 1996; Loredo et a1. 1996) but may use a variety of burrows including cracks within the soil that may extend up to 15 feet (4.6 m) deep from the soil surface (Jennings, unpub. data). Juvenile and adult salamanders are especially common in situations where piles of concrete, rock, or other rubble are mixed with dirt and are located near breeding sites (Jennings, unpub. data). Findings from the limited research on the species suggest that 95% of a CTS population estivates within 2,000 feet of a breeding pond and that 99% of the breeding population estivates within 0.7 miles of a breeding pond; however, the USFWS considers suitable habitat within 1.3 miles of a known breeding pool to constitute potential upland habitat for the salamander.

Occurrence on the Site. There have been four CTS and CRLF larval surveys conducted on the greater Sargent Ranch property since 2000. PNWB conducted a larval survey in 2000-2001, and LOA has conducted larval surveys in 2004, 2005 and most recently in spring 2017. Potential breeding habitats for CTS and CRLF occurring on the ranch are identified on Figure 7 and results from the four survey efforts are provided in Table 4 and discussed below. The proposed quarry site itself supports no ponds or other hydrologic features that have the proper hydrologic regime to support successful CTS breeding although several ponds occur in the vicinity of the site and one of the geotechnical setback areas (Phase 3 and 4) supports a wetland seep and a stock pond.

During a CTS and CRLF larval survey conducted in 2000-2001, PNWB confirmed the presence of successful breeding populations of CTS in two locations on the greater Sargent Ranch property (Figure 7). Successful breeding locations included the pond/seasonal wetland complex in the very northeastern corner of the ranch near Tick Creek (identified as #19 on Figure 7), also supported introduced eastern tiger salamanders (*Ambystoma tigrinum*) and hybrids of the two species (confirmed via genetic analysis by UC Davis); and within a pond adjacent to Sycamore Creek, a tributary of Tar Creek (identified as #13 on Figure 7). They also observed CTS larva in a seasonal wetland that occurs upstream of a culvert of Intermittent Channel 3 on Phase 3 of the project site (identified as #17 on Figure 7). However, the latter site was observed by PNWB biologists to have dried up before larva had a chance to metamorphose and move to upland habitats. This same seasonal wetland was observed to be completely dry by LOA during

numerous spring surveys conducted on the site from 2005 through to the present, which included wetland delineation and CTS larval surveys conducted by LOA in spring 2005, LOA rare plant surveys in spring 2007, the April 2017 delineation verification site visit with USACE, and the May 2017 CTS larval surveys. Therefore, this latter feature does not provide suitable hydrology for successful CTS reproduction.

Table 4. Findings from CTS and CRLF Larval Surveys on Sargent Ranch from 2000 through 2017.

Feature No.	FeatureType	PNWB 2000-2001	LOA 2004	LOA 2005	LOA 2017	Comments
1	Stock Pond	Negative	N/S	PTF	CRLF, Newt, PTF	
2	Stock Pond	CRLF	N/S	N/S	Dry	
3	Stock Pond	CRLF	N/S	N/S	CRLF, Newt, PTF (#4)	
4	Instream Pond	CRLF	N/S	N/S	N/S, inundated	Dammed section of Sargent Creek
5	Stock Pond	CRLF	N/S	N/S	CRLF, Newt, PTF	
6	Pond	WPT	N/S	Dry	PTF, Stickleback	
7	Wetland Seep/Cattle Trough	Negative	N/S	Dry	N/S, inundated	
8	Pond	Negative	N/S	Dry	Dry	
9	Stock Pond	CRLF	N/S	CRLF, Newt, PTF, GS	N/S	
10	Stock Pond	Fish	N/S	BF, PTF, Fish	CRLF, Newt, PTF	
11	Stock Pond	CRLF, BF, Fish	CRLF, Newt	CRLF, Newt, CT	CRLF, Newt, PTF, CT	
12	Stock Pond	CRLF, BF, Fish	Newt	Newt, PTF, BF	CRLF, Newt, PTF	
13	Stock Pond	CRLF, CTS[2]	N/S	N/S	CRLF, Newt, PTF	
14	Stock Pond	CRLF, BF	N/S	N/S	N/S	
15	Stock Pond	CRLF	N/S	CRLF, Newt, PTF	N/S, inundated	
16	Stock Pond	CRLF	N/S	N/S	N/S	

Table 4. Findings from CTS and CRLF Larval Surveys on Sargent Ranch from 2000 through 2017.						
Feature No.	FeatureType	PNWB 2000-2001	LOA 2004	LOA 2005	LOA 2017	Comments
17	Seasonal Wetland	CTS[1]	N/S	N/S	Dry	Upstream of culvert crossing in confluence of Intermittent Drainage 3 and two ephemeral drainages on the Phase 3 quarry area.
18	Sargent Creek	CRLF	N/S	N/S	Dry	
19	Vernal Pool, Seasonal Wetland, Stock Pond Complex	CTS, ETS, CTSxETS hybrids	Dry (A)	CTS	CTSxETS ybrids	Also, CNDDB CTS Occurrence #103 from 1992 attributed to this location. Location is in close proximity to known ETS introduction site on adjacent Blue Stone Quarry property.
20	Stock Pond	CRLF	N/S	N/S	N/S	
21	Stock Pond	CRLF	Fish	N/S	N/S	Outside 1.3 mile radius of quarry/mitigation sites. In Santa Cruz County and not shown on map.
22	Upper Tar Creek	CRLF	N/S	N/S	N/S	Outside 1.3 mile radius of quarry/mitigation sites
23	Stock Pond	CRLF, BF	N/S	Negative	N/S	Outside 1.3 mile radius of quarry/mitigation sites
24	Likely same as location #19 as there are no ponds in the	N/a	N/a	N/a	N/a	CNDDB CTS Occurrence #525 (2000) is mapped here, however, from the

Table 4. Findings from CTS and CRLF Larval Surveys on Sargent Ranch from 2000 through 2017.						
Feature No.	FeatureType	PNWB 2000-2001	LOA 2004	LOA 2005	LOA 2017	Comments
	mapped location. See comment.					description, this observance was at location #19 located to the north of where this occurrence is mapped.
25	Sycamore Creek	CRLF	N/S	Dry	N/S	
26	Sargent Creek channel	Adult CRLF observed in the creek	N/a	N/a	Two adult CRLF observed in April 2017	Numerous observances by LOA of adult CRLF in Sargent Creek when wetted.
27	Spring with no pools	N/S	N/S	PTF	N/S	Feature is a rock-lined spring that flows out of the hillside with no associated pools.
28	Tar Seep	N/S	N/S	Negative	N/S	
29	Pond or Seasonal Wetland	N/S	N/S	PTF	N/S	During 2005 survey this was described as a “wet area”.
30	Pond or Seasonal Wetland	N/S	N/S	Negative	N/S	During 2005 survey this was described as a “wet spot”.
31	Wetland	Negative	N/S	CRLF	N/S	Marsh area adjacent to Tar Creek.
32	Pond	N/S	N/S	Dry	N/S	Pond within small drainage south of Pond #1

BF = Bullfrog (*Lithobates catesbieana*)
CRLF = California red-legged frog
CTS = California tiger salamander
CT = California toad (*Anaxyrus boreas halophilus*)
Fish = non-native fish
Newt = California newt (*Taricha torosa*)
PTF = Pacific tree frog
WPT = western pond turtle
GS = garter snake (*Thamnophis sp.*)
ETS = eastern tiger salamander
N/S = not sampled

Notes:

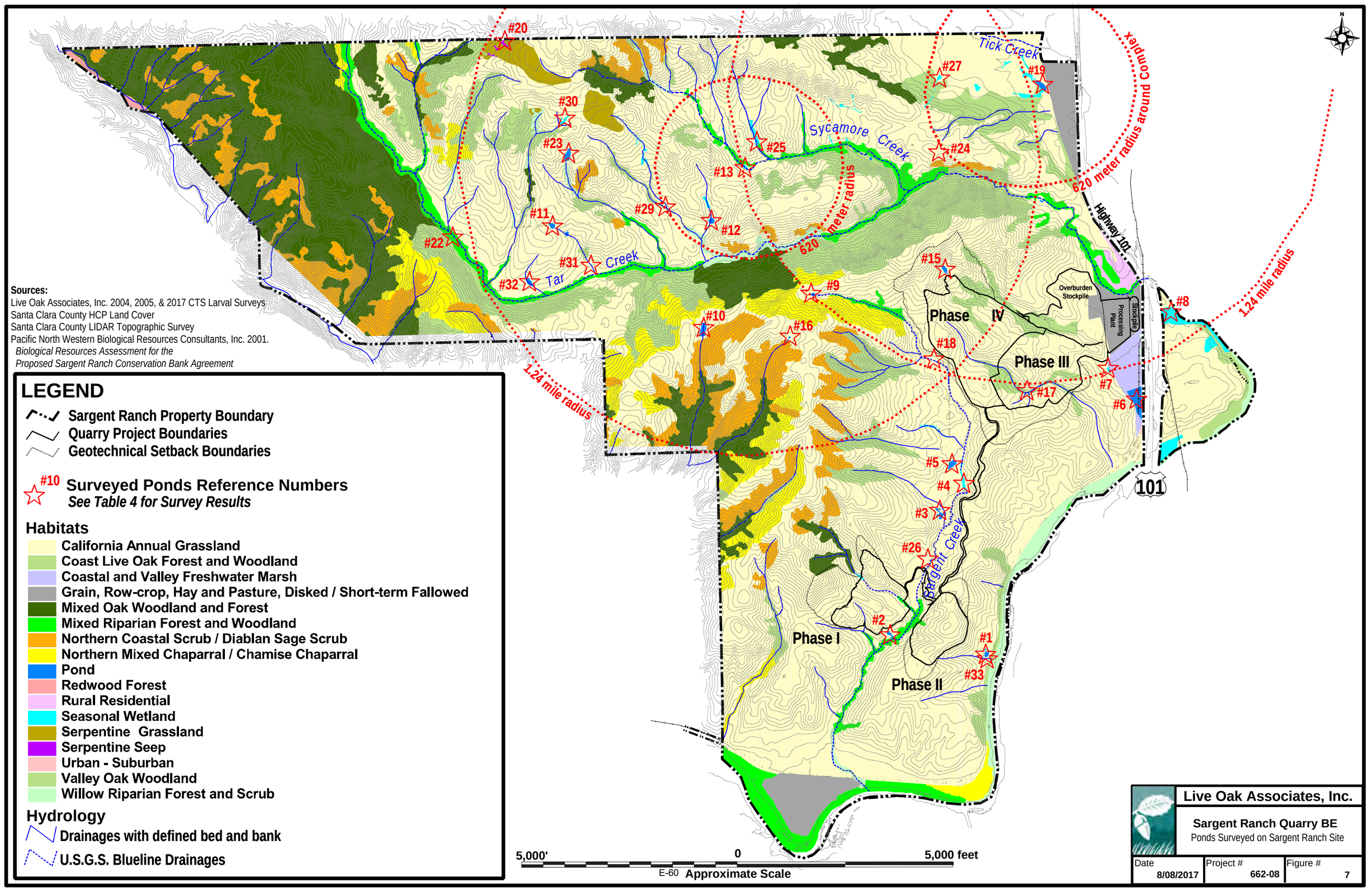
[1] CTS larva were found by PNWB in this seasonal wetland but the feature had dried up before larva were mature enough to move to estivation habitat. This seasonal wetland has been observed to be dry by April in subsequent surveys by LOA. This wetland occurs at the confluence of Intermittent Drainage 3 with two ephemeral channels, upstream of a culvert road crossing. Despite a wet 2016-2017 winter, this feature was observed to be completely dry by early April 2017.

[2] This pond is labelled as Pond #2 in PNWB's 2002 report. U.C. Davis genetic analysis of CTS larva found in this pond by PNWB confirmed this population was a pure CTS population. This pond was not sampled by LOA in 2004 or 2005. During the 2017 survey, no CTS were found present in the pond, although CRLF, PTF and newts were found present.

LOA's 2004 CTS and CRLF larval survey evaluated four ponds on Sargent Ranch, including #11 (CRLF and California newt only), #12 (California newt only), #19 (dry, location where PNWB had found CTS, ETS and hybrids in 2000-2001), and #21 (only non-native fish were detected).

LOA's 2005 CTS and CRLF larval survey evaluated 18 ponds/other features that provided potential CTS and CRLF breeding habitat. CTS were found successfully breeding only in the Pond/Wetland Complex #19, although Pond #13 where PNWB found a breeding population of CTS in 2000-2001 was not sampled.

During 2017 CTS and CRLF larval surveys, LOA evaluated 14 ponds and other features providing potential CTS and CRLF breeding habitat, which included all ponds in the Sargent Creek watershed with the exception of #4 (a very large, deep dammed section of Sargent Creek). Potential breeding habitats evaluated outside of the Sargent Creek watershed of the project site included Pond #13 where PNWB found CTS in 2000-2001 (found by LOA to be completely dry in 2017) and Pond #19, the pond and wetland complex where PNWB found CTS, ETS and hybrids. LOA found only what appeared to be CTSxETS hybrids in the latter feature, although none were collected for genetic testing.



Sources:
Live Oak Associates, Inc. 2004, 2005, & 2017 CTS Larval Surveys
Santa Clara County HCP Land Cover
Santa Clara County LIDAR Topographic Survey
Pacific North Western Biological Resources Consultants, Inc. 2001.
Biological Resources Assessment for the
Proposed Sargent Ranch Conservation Bank Agreement

LEGEND

- Sargent Ranch Property Boundary
- Quarry Project Boundaries
- Geotechnical Setback Boundaries

#10 **Surveyed Ponds Reference Numbers**
See Table 4 for Survey Results

Habitats

- California Annual Grassland
- Coast Live Oak Forest and Woodland
- Coastal and Valley Freshwater Marsh
- Grain, Row-crop, Hay and Pasture, Disked / Short-term Fallowed
- Mixed Oak Woodland and Forest
- Mixed Riparian Forest and Woodland
- Northern Coastal Scrub / Diablan Sage Scrub
- Northern Mixed Chaparral / Chamise Chaparral
- Pond
- Redwood Forest
- Rural Residential
- Seasonal Wetland
- Serpentine Grassland
- Serpentine Seep
- Urban - Suburban
- Valley Oak Woodland
- Willow Riparian Forest and Scrub

Hydrology

- Drainages with defined bed and bank
- U.S.G.S. Blueline Drainages

Live Oak Associates, Inc.

Sargent Ranch Quarry BE
Ponds Surveyed on Sargent Ranch Site

Date	Project #	Figure #
8/08/2017	662-08	7

Although not all potential breeding habitats on the greater Sargent Ranch property were evaluated during all four larval survey efforts, there is a definite pattern that emerges and that is that the only two features ever observed to support successful breeding of CTS on the greater ranch property are #19 and #13, both which occur to the north of the proposed quarry site on the other side of Tar Creek, in the Tick Creek and Tar Creek watersheds, respectively. Although the resource agencies uses a 1.24 mile (approximately 6,500 feet) radius around breeding ponds to delimit the extent of potential CTS estivation habitat, research conducted by Trenham and Shaffer (2005) found that 90% of a CTS population estivates within 490 meters (1,608 feet) of a breeding pond, 95% estivate within 620 meters (2,034 feet) of a breeding pond, and that 99% estivate within 1,126 meters (approximately 3,790 feet). The closest proposed quarry boundary near Phase 4 is 1,370 meters (approximately 4,500 feet) from Pond/Wetland Complex #19 and a similar distance from Pond #13. Although we cannot conclude that CTS are completely absent from the proposed quarry site, based on survey findings and research on CTS estivation patterns, we believe CTS are unlikely to estivate on the quarry project site.

California Red-legged Frog (*Rana draytonii*). Federal Listing Status: Threatened; State Listing Status: Species of Special Concern.

Life History. The California red-legged frog (CRLF) is the largest native frog in California, with adults attaining a length of 3.4-5.4 inches (85-138 mm) snout-to-vent length (SVL) (Jennings and Hayes 1994). On the dorsal surface, the background color varies from brown to gray to reddish-brown, normally with some dark mottling peppered around spots with light-colored centers (Stebbins 1985). The distribution of reddish pigment is highly variable, but is usually restricted to the groin and undersurfaces of the thighs, legs, and feet (Jennings and Hayes 1994). This red coloration is not diagnostic for species identification. Two distinctive, prominent folds of skin ("dorsolateral folds"), run in a complete line from the rear of the eyes to the groin. The groin has a distinctly mottled pattern of black on a light-colored background. Juvenile frogs range from 1.5-3.4 inches (40-84 mm) SVL and have the same coloration as adults except that the dorsolateral folds are normally yellow or orange colored (Stebbins 1985). This coloration is distinct even at a distance. Larval frogs range from 0.6-3.1 inches (14-80 mm).

Adult California red-legged frogs have been observed breeding from late November through early May after the onset of warm rains (Storer 1925, Jennings and Hayes 1994). Male frogs typically attract females by emitting low short calls in small mobile groups of 3-7 individuals (Jennings and Hayes 1994). Females move toward the calling groups and amplex a male. Following amplexus, the females move to chosen oviposition sites where they attach an egg mass of 2,000-6,000 moderate-sized (2.0-2.8 mm diameter) eggs to an emergent vegetation brace such as tule stalks, grasses, or willow roots located just below the water surface (Storer 1925, Livezey and Wright 1947). Once laid, the egg mass will swell with water for about 24 hours, finally reaching the size of a softball. Males usually remain at the breeding sites for several weeks after reproduction before moving to foraging habitats, while females immediately remove to foraging habitats.

California red-legged frog embryos hatch about 6-14 days following fertilization. The resulting larvae (8.8-10.3 mm) require 14-28 weeks to reach metamorphosis, which usually occurs between July and September, although there are scattered observations of overwintering larvae in perennial ponds such as at the arboretum at Golden Gate Park in San Francisco (Jennings, pers. obs). Tadpoles generally metamorphose at 65-85 mm total length (Storer 1925) and the newly

emerged juvenile frogs are generally 25-30 mm SVL. Larvae are thought to graze on algae, but they are rarely observed in the field because they spend most of their time concealed in submergent vegetation, algal mats or detritus (Jennings and Hayes 1994). Post-metamorphic frogs grow rapidly feeding on a wide variety of invertebrates.

Males typically reach sexual maturity at 2 years and females at 3 years; however, frogs of both sexes may reach sexual maturity in a single year if resources are sufficient (Jennings, unpub. data). Conversely, frogs may take 3-4 years to reach maturity during extended periods of drought (Jennings and Hayes 1994). Based on limited field data, California red-legged frogs appear to live up to 10 years in the wild (Jennings, unpub. data). Adult frogs apparently eat a wide variety of animal prey including invertebrates, small fishes, frogs, and small mammals.

California red-legged frogs have been observed in a number of aquatic and terrestrial habitats throughout their historic range. Larvae, juveniles, and adult frogs have been collected from natural lagoons, dune ponds, pools in or next to streams, streams, marshlands, sag ponds, and springs, as well as human-created stock ponds, secondary and tertiary sewage treatment ponds, wells, canals, golf course ponds, irrigation ponds, sand and gravel pits (containing water), and large reservoirs (Jennings 1988). The key to the presence of frogs in these habitats is the presence of perennial (or near perennial) water and the general lack of introduced aquatic predators such as largemouth bass (*Micropterus salmoides*), green sunfish (*Lepomis cyanellus*), and bluegill (*L. macrochirus*), crayfish (*Pacifastacus leniusculus* and *Procambarus clarkii*), and bullfrogs (*Rana catesbeiana*).

The habitats observed to contain the largest densities of red-legged frogs are associated with deep-water pools (27 inches [>0.7 meters] deep) with stands of overhanging willows (*Salix* spp.) and an intermixed fringe of cattails (*Typha* spp.), tule (*Scirpus* spp.), or sedges (*Carex* sp.) (Hayes and Jennings 1988). However, California red-legged frogs have also been observed to inhabit stock ponds, sewage treatment ponds, and artificial (e.g., concrete) pools completely devoid of vegetation (Storer 1925; Jennings, *pers. comm.*). Continued survival of frogs in all aquatic habitats seems to be based on the continued presence of ponds, springs, or pools that are disjunct from perennial streams. Such habitats provide the continued basis for successful reproduction and recruitment year after year into nearby drainages that may lose frog populations

due to stochastic events such as extreme flooding or droughts. Juvenile frogs are often observed sunning themselves during the day in the warm, surface-water layer associated with floating and submerged vegetation (Hayes and Tennant 1986). Adult frogs are largely nocturnal and are known to sit on stream banks or on the low-hanging limbs of willow trees over pools of water where they can detect small mammal prey (Hayes and Tennant 1986; Jennings and Hayes 1994). Adult red-legged frogs will move within the riparian zone from well-vegetated areas to pools of water to hydrate during periods of time when many of the streams are dry except for isolated pools (Rathbun et al. 1993). During wet periods (especially in the winter and early spring months), red-legged frogs can move long distances (e.g., 1 mile) between aquatic habitats, often over areas that are considered to be unsuitable for frogs (e.g., roads, open fields, croplands, etc.). Such activities can result in frogs ending up in isolated aquatic habitats well away from the nearest known frog populations.

Occurrence on the Site. CRLF have been confirmed to be present in ponds and tributaries of the Tick Creek, Tar Creek, Sycamore Creek, Pescadero Creek and Sargent Creek watersheds of the greater Sargent ranch property during surveys, including four larval surveys discussed above, conducted on the site from 2000 through 2017.

During a wetland delineation survey in 2017 on newly identified potential geotechnical setback areas, juvenile CRLF and juvenile California newts, were observed within a pond occurring on the potential geotechnical setback area above Phase 4. The proposed quarry areas themselves provide no potential breeding habitat for this species, however, Tar Creek and Sargent Creek in locations proposed for access road and conveyor belt crossings, respectively, provide foraging and movement habitat for these species and upland habitats of the proposed quarry may also be utilized by this species for foraging and movement habitat.

Western Pond Turtle (*Actinemys marmorata*). Federal Listing Status: None; State Listing Status: Species of Special Concern.

The western pond turtle is the only native aquatic, freshwater turtle in California and normally associates with permanent or nearly permanent aquatic habitats, including streams, lakes, and ponds. Historically, this species occurred in Pacific Coast drainages from Washington to Mexico. This species occurs in aquatic habitats with 1) basking sites such as rocks and logs, 2)

dense stands of submergent or emergent vegetation, 3) abundant aquatic invertebrate resources, 4) suitable nearby nesting sites, and 5) the lack of native and exotic predators (Bury 1972; Jennings and Hayes 1994; Bury and Holland, in press). This species can move along streams up to 3.1 miles (5 kilometers) in a short period of time, and they can tolerate at least 7 days without water (Jennings and Hayes 1994; Bury and Holland, in press).

Occurrence on the Site. The only observance of pond turtles on the greater ranch property was by PNWB biologists in a pond along the eastern boundary of the property near Highway 101, approximately 1,500 feet southeast of the Phase 4 quarry site. This occurrence is not recorded in the CNDDB. There are only three other occurrences recorded in CNDDB within a three-mile radius: one mile north of Sargent Ranch, approximately 0.5 miles southeast of the ranch, and on just the other side of Highway 101 from the northeastern boundary of the ranch. Pond turtles have never been observed on the project site or in the Sargent or Tar Creek watersheds on or adjacent to the project site, although in wet years, these two creeks would appear to provide habitat for the species. However, the vast majority of the project site, outside of the potential Sargent Creek crossing for the Phase 1 and 2 access road, does not support habitat for this species, although turtles may rarely occur in these areas during movements between suitable aquatic habitats.

Burrowing Owl (*Athene cunicularia*). Federal Listing Status: None; State Listing Status: Species of Concern.

The burrowing owl is considered a California species of special concern. This decision was based on the fact that the burrowing owl's population levels were decreasing due to habitat destruction, roadside nesting (vulnerability to human interference) and indirectly as a result of ground squirrel poisoning.

The burrowing owl is a small, long-legged, semi-fossarial bird that averages a height of 9.5 inches, has an average wingspan of 23 inches, and weighs an average of 5.25 ounces. Burrowing owls are unique, as they are the only owl that regularly lives and breeds in underground nests. In California, these birds typically occur in the Central and Imperial Valleys, primarily utilizing ground squirrel burrows (or the burrows of other animals, e.g., badgers, prairie dogs and kangaroo rats) found in grasslands, open shrub lands, deserts, and to a lesser extent, grazing and agricultural lands. Burrowing owls in this region are typically found in lower elevations, and

have strong site fidelity. Pairs have been known to return to the same area year after year, and some pairs are known to utilize the same burrow as the previous year.

Life History. Burrowing owls feed on various small mammals including deer mice, voles, and rats. They also prey on various invertebrates including crickets, beetles, grasshoppers, spiders, centipedes, scorpions and crayfish. Peak hunting periods occur around dusk and dawn.

The breeding season for the burrowing owl runs from February to August, with a peak between April and July. Clutch size varies from six to 12 eggs, with an average of seven to nine eggs. Females generally produce only one clutch per year. The female incubates the eggs for a month, while the male provides her food. The male continues to provide food during the brooding period. The young remain in their burrow for approximately two weeks after hatching, and become fully independent of their parents between eight to ten weeks of age. Burrowing owls are a fairly short-lived species, with an average life expectancy of 4.8 years. The oldest known wild burrowing owl was eight years and eight months old at the time of its death.

Burrowing owls are subject to predation by larger mammals (e.g., feral cats, bobcats, fox and coyotes). They are also susceptible to anthropogenic effects such as collisions with automobiles, and destruction or disruption of their nests, especially during the breeding season. The burrowing owl may also be affected by ground squirrel eradication efforts. Burrowing owl numbers have been in decline over the past 30 to 40 years, in California. The decline in numbers is due mainly to habitat destruction by way of development and agricultural practices.

Occurrence on the Site. A burrowing owl was observed on the site during PNWB surveys immediately to the north of the wetland/pond complex near Tick Creek in the northeastern portion of the greater Sargent Ranch property although the owl was confirmed to be gone from that area by the nesting season. The prior resident rancher also reports seeing burrowing owls during the summer perched on serpentine rock outcrops in the northern portion of the ranch. Since this latter area does not support ground squirrel burrows, it is likely the owls were only foraging, and not roosting or nesting, in this location. However, burrowing owls were observed in 2015 to be nesting in fields on the northern portion of the greater Sargent Ranch property (pers. comm. Verne Freeman), and the grasslands of the project site would appear to provide good potential breeding habitat for this species.

American Badger (*Taxidea taxus)*. Federal Listing Status: None; State Listing Status: Species of Special Concern.

The American badger is considered a California species of special concern. This decision was based on the fact that the badger's population levels were decreasing, mainly as a result of the conversion of open grassland habitats to agriculture and urban uses, trapping for fur, poisoning, and indirect poisoning as a result of consuming poisoned rodents. Rodents are the main food source for the badger.

The American badger measures 520 to 875 mm (20 to 34 inches) from head to tail, with the tail making up only about 1/5 of this length. Badgers weigh between 4 and 12 kg (approximately 9 to 26 pounds). The badger has a flattened body with short, stocky legs, and feet with strong claws that are up to 4-inches long. The fur on the back and flanks of the badger varies from brownish gray to a reddish color, with a buff colored underside. The face of the badger is distinct with several black patches on either side of its long snout. A white dorsal stripe extends back over the head from the nose. In northern populations, the dorsal stripe ends near the shoulders, while in southern populations it continues over the back to the rump. Male badgers are significantly larger than the females (Kurta, 1995; Long, 1999). Badgers are primarily solitary, coming together only for breeding purposes. Badgers are generally found throughout California's arid grasslands and scrublands with friable soils from sea level to 12,000 feet, except in the northern North Coast area (Grinnell et al, 1937). Badgers are primarily nocturnal and are rarely seen during the day.

Life History. The main food source for badgers is ground squirrels and pocket gophers; however, they also are known to feed on a variety of other small- to medium-sized mammals including deer mice, voles, and rats; on plant roots; on reptiles and their eggs; and on birds and their eggs. Badgers are opportunistic foragers and their food sources shift seasonally with availability.

Badgers generally breed in late summer or early fall, experiencing a delayed implantation. Although the badger female is technically pregnant for seven months, actual gestation takes 6 weeks. Most cubs (pups or kits) are born in March or April and litter size ranges from 1 to 5 with an average of 3 (Long 1973). Females can breed as young as 4 to 6 months of age;

however, their first litter usually occurs after one year of age. Males do not usually breed until after their second year. Badger cubs are born blind, furred and helpless (ibid). Their eyes open between 4 and 6 weeks of age, and they are nursed for approximately 2 months. After 2 months of age the mother starts supplementing their diet with solid food, usually small rodents. Most young disperse shortly after weaning, while some remain in their natal area until the next breeding season. They may roam up to 100 km (62 miles) to find their own home range. The average life of badgers in the wild is between 8 and 12 years.

The home range size for badgers varies by sex, season and prey base, with males having larger home ranges than females. One study indicated males had an average home range of 2,100 acres, while one radio collared female had a home range of 1,790 acres in summer, 131 acres in fall, and only 5 acres during the winter (Sargeant and Warner 1972). Another study indicated a home range size between 667 and 1,550 acres for both sexes (Lindzey 1978).

Badgers often hunt for prey by digging into fossorial mammal burrows. Coyotes have been known to follow badgers to take advantage of an easy meal as rodents are flushed from their burrows. Badgers may enlarge hunting burrows for sleeping and protection from weather. During the summer months, they dig new resting burrows nearly every day; these burrows are usually only a few feet deep. Their natal dens are more permanent and may be as much as 30 feet long and 10 feet deep (Banfield 1974).

Badgers are ferocious animals and have few natural predators, though they can be preyed upon by bear (*Ursus americanus*), bobcat, and cougar. As discussed above, the main threat to badgers comes from anthropogenic effects.

Occurrence on the site. Habitat is present on the project site and this species has been observed on the ranch during PNWB surveys and by the prior resident rancher.

2.4 JURISDICTIONAL WATERS

Jurisdictional waters include rivers, creeks, and drainages that have a defined bed and bank and which, at the very least, carry ephemeral flows. Jurisdictional waters also include lakes, ponds, reservoirs, and wetlands. Such waters may be subject to the regulatory authority of the U.S.

Army Corps of Engineers (USACE), the California Department of Fish and Wildlife (CDFW), and the California Regional Water Quality Control Board (RWQCB). See Section 3.2.4 of this report for additional information.

A wetland delineation was conducted on the proposed quarry site in fall 2016 and a verification site visit was conducted with USACE in spring 2017. During the verification site visit, USACE claimed Intermittent Drainage Channels 1 through 4, a small seasonal wetland within Intermittent Drainage 3, and both Sargent and Tar Creeks within the footprint of proposed project crossings as jurisdictional waters of the U.S. Additionally, the USACE disclaimed several ephemeral channels that did not support an OHW mark on opposing banks. Both Figure 4, which depicts habitats of the site, and the Table 3a habitat acreages depict all hydrologic features on the quarry site claimed by USACE during the verification site visit. Potentially necessary geotechnical setbacks have been recently identified for all four mining phases of the project. An additional formal wetland delineation survey was conducted on these areas in summer 2017 but has not yet been verified by USACE. The Phase 3 and 4 setback areas support hydrologic features that may also be considered jurisdictional by the USACE including a wetland seep spring south of Phase 3; and a short reach of intermittent channel, a stock pond and a small seasonal wetland north of Phase 4. Seasonal wetlands, springs and stock ponds occurring within the setback areas would likely be considered jurisdictional by RWQCB; and the intermittent drainages of the site and setback areas may also be considered jurisdictional by CDFW and RWQCB to the top of the bank or the dripline of associated riparian vegetation, whichever is greater.

3.0 IMPACTS AND MITIGATIONS

3.1 SIGNIFICANCE CRITERIA

General plans, area plans, and specific projects are subject to the provisions of the California Environmental Quality Act (CEQA). The purpose of CEQA is to assess the impacts of proposed projects on the environment before they are constructed. For example, site development may require the removal of some or all of its existing vegetation. Animals associated with this vegetation could be destroyed or displaced. Animals adapted to humans, roads, buildings, pets, etc. could potentially replace those species formerly occurring on a site. Plants and animals that are state and/or federally listed as threatened or endangered may be destroyed or displaced. Sensitive habitats such as wetlands and riparian woodlands may be altered or destroyed. These impacts may be considered significant or not. According to *Guide to the California Environmental Quality Act*, "Significant effect on the environment" is interpreted as a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic interest. Specific project impacts to biological resources may be considered "significant" if they will:

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

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

- have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

- interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery site;

- reduce substantially the habitat of a fish or wildlife species, including causing a fish or wildlife population to drop below self-sustaining levels or threaten to eliminate an animal community;

- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;

- conflict with the provisions of an adopted Habitat Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Furthermore, CEQA Guidelines Section 15065 states that a project may trigger the requirement to make a "mandatory findings of significance" if "the project has the potential to subsequently degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range on an endangered, rare or threatened species, or eliminate important examples of the major periods of California history or prehistory."

3.2 RELEVANT GOALS, POLICIES, AND LAWS

3.2.1 Threatened and Endangered Species

State and federal "endangered species" legislation has provided the California Department of Fish and Wildlife (CDFW) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting plant and animal species of limited distribution and/or low or declining populations. Species listed as threatened or endangered under provisions of the state and federal endangered species acts, candidate species for such listing, state species of special concern, and some plants listed as endangered by the California Native Plant Society are collectively referred to as "species of special status." Permits may be required from both the CDFW and USFWS if activities associated with a proposed project will result in the "take" of a

listed species. "Take" is defined by the state of California as "to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill" (California Fish and Wildlife Code, Section 86). "Take" is more broadly defined by the federal Endangered Species Act to include "harm" (16 USC, Section 1532(19), 50 CFR, Section 17.3). Furthermore, the CDFW and the USFWS are responding agencies under the California Environmental Quality Act (CEQA). Both agencies review CEQA documents in order to determine the adequacy of their treatment of endangered species issues and to make project-specific recommendations for their conservation.

3.2.2 Migratory Birds

State and federal laws also protect most birds. The Federal Migratory Bird Treaty Act (16 U.S.C., scc. 703, Supp. I, 1989) prohibits killing, possessing, or trading in migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs.

3.2.3 Birds of Prey

Birds of prey are also protected in California under provisions of the State Fish and Wildlife Code, Section 3503.5, which states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "taking" by the CDFW.

3.2.4 The Bald and Golden Eagle Protection Act

The Bald Eagle Protection Act of 1940 (16 U.S.C. 668, enacted by 54 Stat. 250) protects bald and golden eagles by prohibiting the taking, possession, and commerce of such birds and establishes civil penalties for violation of this Act. Take of bald and golden eagles is defined as follows: "disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or

sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior'' (72 FR 31132; 50 CFR 22.3).

3.2.5 Bats

Section 2000 and 4150 of the California Fish and Wildlife Code states that it unlawful to take or possess a number of species, including bats, without a license or permit as required by Section 3007. Additionally, Title 14 of the California Code of Regulations states it is unlawful to harass, herd, or drive a number of species, including bats. To harass is defined as "an intentional act which disrupts an animal's normal behavior patterns, which includes, but is not limited to, breeding, feeding or sheltering".

3.2.6 Wetlands and Other Jurisdictional Waters

Natural drainage channels and adjacent wetlands may be considered "Waters of the United States" (hereafter referred to as "jurisdictional waters") subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE). The extent of jurisdiction has been defined in the Code of Federal Regulations but has also been subject to interpretation of the federal courts. Jurisdictional waters generally include:

- All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands:
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce;
- All impoundments of waters otherwise defined as waters of the United States under the definition;
- Tributaries of waters identified in paragraphs (a)(1)-(4) (i.e. the bulleted items above).

As recently determined by the United States Supreme Court in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (the SWANCC decision), channels and wetlands isolated from other jurisdictional waters cannot be considered jurisdictional on the basis of their use, hypothetical or observed, by migratory birds. However, the U.S Supreme Court decisions *Rapanos v. United States* and *Carabell v. U.S. Army Corps of Engineers* impose a "significant nexus" test for federal jurisdiction over wetlands. In June 2007, the USACE and Environmental Protection Agency (EPA) established guidelines for applying the significant nexus standard. This standard includes 1) a case-by-case analysis of the flow characteristics and functions of the tributary or wetland to determine if they significantly affect the chemical, physical, and biological integrity of downstream navigable waters and 2) consideration of hydrologic and ecologic factors (EPA and USACE 2007).

The USACE regulates the filling or grading of such waters under the authority of Section 404 of the Clean Water Act. The extent of jurisdiction within drainage channels is defined by “ordinary high water marks” on opposing channel banks. Wetlands are habitats with soils that are intermittently or permanently saturated, or inundated. The resulting anaerobic conditions select for plant species known as hydrophytes that show a high degree of fidelity to such soils. Wetlands are identified by the presence of hydrophytic vegetation, hydric soils (soils saturated intermittently or permanently saturated by water), and wetland hydrology according to methodologies outlined in the 1987 Corps of Engineers Wetlands Delineation Manual (USACE 1987).

All activities that involve the discharge of fill into jurisdictional waters are subject to the permit requirements of the USACE (Wetland Training Institute, Inc. 1991). Such permits are typically issued on the condition that the applicant agrees to provide mitigation that result in no net loss of wetland functions or values. No permit can be issued until the Regional Water Quality Control Board (RWQCB) issues a certification (or waiver of such certification) that the proposed activity will meet state water quality standards. The filling of isolated wetlands, over which the USACE has disclaimed jurisdiction under the SWANCC decision, is regulated by the RWQCB. It is unlawful to fill isolated wetlands without filing a Notice of Intent with the RWQCB. The RWQCB is also responsible for enforcing National Pollution Discharge Elimination System

(NPDES) permits, including the General Construction Activity Storm Water Permit. All projects requiring federal money must also comply with Executive Order 11990 (Protection of Wetlands).

The California Department of Fish and Wildlife (CDFW) has jurisdiction over the bed and bank of natural drainages according to provisions of Section 1601 and 1602 of the California Fish and Game Code (2003). Activities that would disturb these drainages are regulated by the CDFW via a Streambed Alteration Agreement. Such an agreement typically stipulates that certain measures will be implemented which protect the habitat values of the drainage in question.

3.2.7 Santa Clara County Tree Ordinance

Santa Clara County has relevant ordinances in the Municipal Code under Division C16 "Tree Preservation and Removal".

> "it shall be unlawful for any person to remove any protected tree on any private or public property in designated areas of the County without having first obtained an administrative permit [(a) through (e) below] from the County Planning Office or an encroachment permit [(f) below] from the Department of Roads and Airports."

"A protected tree shall consist of any of the following:

> (a) Any tree having a main trunk or stem measuring 37.7 inches or greater in circumference (12 inches or more in diameter) at a height of 4½ feet above ground level, or in the case of multi-trunk trees a total of 75.4 inches in circumference (24 inches or more of the diameter) of all trunks in the following areas of the County:
>
> (1) Parcels zoned "Hillsides" (three acres or less);
>
> (2) Parcels within a "-d" (Design Review) combining zoning district;
>
> (3) Parcels within the Los Gatos Hillside Specific Plan Area.
>
> (b) Any tree within the "-h1" Historic Preservation zoning district for New Almaden having a main trunk or stem measuring six inches or more in diameter (18.8 inches or greater in circumference) at a height of 4.5 feet above ground level, or in the case of multi-trunk trees, a total of 12 inches in diameter (37.7 inches in circumference) of all trunks at 4.5 feet above ground. For parcels having a base zoning district of "HS, Hillside" within the "-h1" combining zoning district, this provision supersedes C16-3(a)(1).

(c) Any heritage tree, as that term is defined in Section C16-2.

(d) Any tree required to be planted as a replacement for an unlawfully removed tree, pursuant to Section C16-17(e) of this division.

(e) Any tree that was required to be planted or retained by the conditions of approval for any use permit, building site approval, grading permit, architectural and site approval (ASA), design review, special permit or subdivision.

(f) On any property owned or leased by the County, any tree which measures over 37.7 inches in circumference (12 inches or more in diameter) measured 4.5 feet above the ground, or which exceeds 20 feet in height.

(g) Any tree, regardless of size, within road rights-of-way and easements of the County, whether within or without the unincorporated territory of the County."

3.2.8 Heritage Trees in Santa Clara County

Under Municipal Code Section C16-12, a Heritage Tree is defined as:

> "Any tree which, because of its history, girth, height, species, or other unique quality, has been recommended by the Historical Heritage Commission (HHC) and found by the Board of Supervisors to have a special significance to the community shall be designated a heritage tree. Such trees shall be listed individually on the heritage resource inventory, adopted by resolution of the Board of Supervisors. Such resolution may be amended as necessary to add or delete trees from the inventory."

A permit is required for the removal of Heritage Trees.

3.2.9 The Santa Clara Valley Habitat Conservation Plan

Six local partners (the County of Santa Clara, Santa Clara Valley Transportation Authority, Santa Clara Valley Water District, and the Cities of San Jose, Gilroy, and Morgan Hill) along with two wildlife agencies, the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service, prepared and adopted the multi-species Santa Clara Valley Habitat Conservation Plan (SCVHP) which primarily covers southern Santa Clara County, as well as the City of San Jose with the exception of the bayland areas. The SCVHP addresses listed species

and species that are likely to become listed during the plan's 50-year permit term. The eighteen covered species include nine plants and nine animals. The animal species covered include, but are not limited to, the California tiger salamander, California red-legged frog, western pond turtle, and western burrowing owl. Most of the nine plant species covered are species that are endemic to serpentine soils. The SCVHP requires that the agencies comment on reportable interim projects and recommend mitigation measures or project alternatives that would help achieve the preliminary conservation objectives and not preclude important conservation planning options or connectivity between areas of high habitat value. Funding sources for the SCVHP include development fees based on land cover types (natural, agricultural or small vacant sites surrounded by urban development). Additional fees are charged based on the occurrence of certain sensitive habitat types such as serpentine grasslands, streams, ponds and wetlands.

It should be noted that only certain development activities are covered by the SCVHP; and covered activities do not include the development of quarries. However, the quarry has been designed to be consistent with SCVHP goals and conditions.

3.2.9.1 SCVHP Development Fees

Chapter 9 of the SCVHP identifies fees that may be required by development projects for their development area (considered the project site plus a 50-foot buffer) based on the Fee Zone(s) within which the development area occurs, along with additional Nitrogen Deposition Fees and specialty fees for sensitive habitats such as wetlands and streams. The current (2017) SCVHP development fee schedule is provided below.

SCVHP 2017 Development Fees	
Fee Zones	**Fees**
Fee Zone A (Ranchlands and Natural Lands)	$20,167 per acre
Fee Zone B (Agricultural and Valley Floor Lands)	$13,982 per acre
Fee Zone C (Small Vacant Sites Under 10 Acres)	$5,108 per acre
Nitrogen Deposition Fees and Specialty Fees	**Fees**
Nitrogen Deposition	$4.70 per new daily vehicle trip

SCVHP 2017 Development Fees	
Fee Zones	**Fees**
Willow Riparian Forest and Mixed Riparian	$155,577 per acre
Central California Sycamore Woodland	$284,168 per acre
Freshwater Marsh	$190,782 per acre
Seasonal Wetland	$417,419 per acre
Pond	$170,736 per acre
Streams	$654 per linear foot
Serpentine	$65,627 per acre
Burrowing Owl	$56,166 per acre

3.2.9.2 Land in Lieu of Fees

The SCVHP provides for the option of protecting conservation lands in lieu of fees. Land in lieu of fees may include lands coordinated with the County Parks, Open Space Authority, or other organization. Wetland fees cannot be waived, however, restoration or creation, management, and monitoring of onsite wetlands, streams, ponds, or riparian for mitigation may replace some or all wetland fees for a site if approved by the Implementing Entity. Land in lieu of fee must be approved by the Implementing Entity for the Santa Clara Valley Habitat Conservation Plan, CDFW and USFWS. If approved, land in lieu of fee will become part of the Reserve System under the SCVHP once success criteria have been met (for restoration projects). Off-site conservation lands in lieu of fee may be acceptable if both the Implementing Entity and the Wildlife Agencies (CDFW and USFWS) approve the proposed conservation lands. It is important to note that land in lieu of fees only off-sets costs related to land fees, and does not include an off-set for management fees. The Implementing Entity has approved a Draft Resolution identifying which fees are offset by 'land in lieu of fee' and which fees cannot be offset by dedication of land. Fees that are offset include land cover, serpentine, burrowing owl, and/or temporary impact fees. Fees that cannot be offset include land management or monitoring, plan preparation, endowment, wetland, nitrogen deposition, and/or "any non-development fee charge including, but not limited to, administrative charges, processing, and evaluation charges, and other charges such as the Participating Special Entity (PSE) charge. The

dollar total of fees that cannot be offset (Land Management or monitoring, Plan Preparation and Endowment) is approximately 35 percent of a site's total land cover fees.

3.2.9.3 Conditions on Covered Activities

The SCVHCP sets forth twenty conditions for covered activities under the SCVHCP.

Potentially applicable conditions for this project can be found in Chapter 6 of the SCVHCP (Appendix D) and are listed below:

- **Condition 1 (page 6-7). Avoid Direct Impacts on Legally Protected Plant and Wildlife Species-** Condition 1 instructs developers to avoid direct impacts on legally protected plant and wildlife species, including federally endangered Contra Costa goldfields and fully protected wildlife species including the golden eagle, bald eagle, American peregrine falcon, southern bald eagle, white-tailed kite, California condor, and ring-tailed cat. Several of these species have either been documented on the Sargent Ranch property and likely to occur on or forage over the project site, or they have not been observed, but the project site provides potential habitat for them (golden eagle, bald eagle, American peregrine falcon, white-tailed kite). Condition 1 also protects bird species and their nests that are protected under the Migratory Bird Treaty Act (MBTA); additionally, golden eagles and bald eagles are protected under the Bald and Golden Eagle Protection Act. Additionally, page 6-94 and Table 6-8 identify required surveys for breeding habitat of select covered wildlife species; of the species noted, the project will likely be required to conduct species-specific surveys for the western burrowing owl.

- **Condition 2 (page 6-9). Incorporate Urban-Reserve System Interface Design Requirements-** Condition 2 provides design requirements for the urban-reserve system interface. Some of the design requirements included in Condition 2 are installing non-permeable fences between urban and reserve areas, fencing public roads that run adjacent to reserve areas, minimizing the length of shared boundaries between urban and reserve areas, outdoor lighting limitations, and landscaping requirements.

- **Condition 3 (page 6-12). Maintain Hydrologic Conditions and Protect Water Quality-** Condition 3 applies to all projects. This condition identifies avoidance and minimization measures, performance standards, and control measures to minimize increases of peak discharge of stormwater and to reduce runoff of pollutants to protect water quality during construction and operation. A complete list of aquatic avoidance and minimization measures can be found in Table 6-2 of the plan.

- **Condition 4 (page 6-14). Avoidance and Minimization for In-Stream Projects-** Condition 4 minimizes impacts on riparian and aquatic habitat through appropriate design requirements and construction practices and provides avoidance and minimization measures for in-stream projects that may impact stream morphology, aquatic and riparian habitat, flow conditions, covered species, natural communities, and wildlife movement.

- **Condition 5 (page 6-18). Avoidance and Minimization Measures for In-Stream Operations and Maintenance-** Condition 5 provides avoidance and minimization measures for in-stream operations and maintenance activities, which includes, but is not limited to trail, bridge, road, and culvert maintenance, bank stabilization, removal of debris, and vegetation management.

  Avoidance and minimization measures for Conditions 3-5 can be located in Table 6-2 of the SCVHP; these measures relate to stormwater runoff, in-stream channel and floodplain impacts, vegetation control and/or maintenance, materials a project should and should not use, landscaping and revegetation, free-span bridges at stream crossings, culverts, trails, levees, erosion control, and construction requirements and timing.

- **Condition 6 (Page 6-21) Design and Construction Requirements for Covered Transportation Projects.** Condition 6 provides requirements for rural development design, construction, and post-construction. Types of projects that Condition 6 includes highway projects, mass transit projects, roadway projects and interchange upgrades, road safety and operational improvements, and dirt road construction.

- **Condition 7 (page 6-28) Rural Development Design and Construction Requirements.** Condition 7 provides requirements for development design and construction of new development outside of the urban service area including requirements relating to site hydrology, vineyards, private rural roads, vegetation management, soils, and lighting.

- **Condition 8 (page 6-35) Implement Avoidance and Minimization Measures for Rural Road Maintenance.** Condition 8 provides requirements for rural roads, road median, and barrier maintenance including requirements regarding riparian setbacks, erosion measures, herbicide and pesticide use, seasonal restrictions, mower cleaning, revegetation, ground-disturbing road maintenance, and flow lines.

- **Condition 9 (page 6-37) Prepare and Implement a Recreation Plan.** Condition 9 requires providing public access to all reserve lands owned by a public entity; each reserve land must provide a recreation plan.

- **Condition 10 (page 6-42) Fuel Buffer.** Condition 10 provides requirements for fuel buffers between 30 and 100 feet of structures. Requirements include measures relating to fuel buffers near structures and on reserve lands; the most notable measure is the requirement for nesting bird surveys prior to any fuel buffer maintenance during the nesting season.

- **Condition 11 (page 6-44) Stream and Riparian Setbacks.** Condition 11 provides requirements for stream and riparian setbacks; as the development area is outside the Urban Service Area, stream setbacks measured from the top of the stream bank should be 35 to 250 feet depending on the category rating of the stream and the slope class. Setbacks for Category 1 streams with 0-30% slopes should be at least 150 feet, and with >30% slopes should be at least 200 feet. Category 2 streams should have a setback of 35 feet.

- **Condition 12 (page 6-56) Wetland and Pond Avoidance and Minimization.** Condition 12 provides measures to protect wetlands and ponds, including planning actions, design, and construction actions. The project would complete a wetland delineation to confirm the distribution and condition of the wetlands onsite.

- **Condition 13 (page 6-58) Serpentine and Associated Covered Species Avoidance and Minimization.** Condition 13 requires surveys for special status plants and the Bay checkerspot butterfly as well as its larval host plant in areas that support serpentine bunchgrass grassland, serpentine rock outcrops, serpentine seeps, and serpentine chaparral. Fees apply for impacts to serpentine habitat.

- **Condition 14 (page 6-60) Valley Oak and Blue Oak Woodland Avoidance and Minimization.** Condition 14 provides requirements for project planning and project construction, including avoidance of large oaks, guidance on irrigation near oak trees, and a buffer around the root protection zone, roads and pathways within 25 feet of the dripline of an oak tree, trenching, and pruning activities.

- **Condition 15 (page 6-62) Western Burrowing Owl.** Condition 15 requires preconstruction surveys for burrowing owls in appropriate habitat prior to construction activities, provides avoidance measures for owls and nests in the breeding season and owls in the non-breeding season, and requirements for construction monitoring.

- **Condition 16 (page 6-68) Least Bell's Vireo.** Condition 16 requires preconstruction surveys in appropriate habitat for the least Bell's vireo prior to construction activities, and provides avoidance and construction monitoring measures.

- **Condition 17 (page 6-69) Tricolored Blackbird.** Condition 17 requires preconstruction surveys in appropriate habitat for the tricolored blackbird prior to construction activities, and provides avoidance and construction monitoring measures.

- **Condition 18 (page 6-71) San Joaquin Kit Fox.** Condition 18 requires preconstruction surveys in appropriate habitat for the San Joaquin kit fox prior to construction activities, and provides avoidance and construction monitoring measures.

- **Condition 19 (page 6-74) Plant Salvage when Impacts are Unavoidable.** Condition 19 provides salvage guidance and requirements for covered plants.

- **Condition 20 (page 6-76) Avoid and Minimize Impacts to Covered Plant Occurrences.** Condition 20 provides requirements for preconstruction surveys for appropriate covered plants (per habitat).

3.2.9.4 SCVHP Biological Goals, Objectives, and Conservation Actions

Tables 5-1a, b, c, and d of the SCVHCP provides information about the biological goals, objectives, and conservation actions of the SCVHCP including landscape level goals (Table 5-

1a), natural community level goals (Table 5-1b), wildlife goals (Table 5-1c), and plant goals (Table 5-1d) (ICF International 2012).

3.3 ENVIRONMENTAL IMPACT/MITIGATION

The quarry project will result in the conversion of approximately 298 acres, including approximately 265 acres of natural habitats, and approximately 6,500 linear feet of mostly intermittent channels, while proposing to preserve in-perpetuity approximately 400 acres of similar natural habitats on-site in a conservation easement, including over 11,000 linear feet of intermittent channels. Should recently identified geotechnical setback areas be required in the future, these setback areas could result in up to the additional conversion of approximately 120 acres of natural habitats, including a wetland seep, a seasonal wetland and a stock pond that provides breeding habitat for CRLF. The project could result in potentially significant impacts to a number of special status species, including, but not limited to, steelhead trout, CRLF, burrowing owls, San Francisco dusky-footed woodrat, and American badger. The project also could result in significant impacts to sensitive habitats including streams, creeks and wetlands that are considered jurisdictional waters of the U.S. and state. These potential impacts to sensitive biological resources resulting from the development of the quarry, and mitigations that would be required to lessen these impacts to a less-than-significant level are discussed further below.

3.3.1 Conflict with an Adopted Habitat Conservation Plan

Potential Impact. The project site is within the area covered by the Santa Clara Valley Habitat Conservation Plan (SCVHP) (ICF 2012) as already discussed above; however, quarry projects are not considered covered activities under the SCVHP, and therefore the project will not be subject to the fees and conditions of the SCVHP directly. Nonetheless, we have used the SCVHP as a framework for our evaluation and mitigation of biological impacts, and have ensured that mitigations are consistent with the goals and objectives of the SCVHP. A more detailed discussion of the SCVHP including all conditions on covered activities is provided in **Section 3.2.9** of this report, above. The SCVHP requires the payment of development fees based on land cover types within the development area for covered activities. For projects occurring outside the SCVHP's Urban Service Area (USA), the development area includes the project footprint plus a

50-foot buffer for permanent impacts. Per the SCVHCP Geobrowser, the approximately 300-acre project site primarily consists of lands considered to be Zone A Lands (Ranchlands and Natural Lands) and the current 2016 fees for Zone A lands are $19,159 per acre. Additionally, the project site supports drainages that would be considered Category 2 streams under the SCVHP; and the access road for Phase 1 will traverse Sargent Creek, which is considered a Category 1 stream; and the plant site and overburden areas occur in proximity to Tar Creek, also considered a Category 1 stream. The SCVHP requires that projects be set-back 35 feet from Category 2 streams and 150 feet from Category 1 streams to avoid stream specialty fees. The 2016 specialty fees for these stream habitats are $638 per linear foot.

In lieu of the payment of some or all development fees, the SCVHP Entity may accept "land in-lieu" in exchange for development fees and specialty fees for impacts to all land cover types with the exception of wetland specialty fees. The decision to accept land-in-lieu is currently negotiated on a case by case basis with the SCVHCP Entity. In addition to the payment of fees or provision of "land in lieu"; the project would be required to comply with SCVHCP conditions that are applicable to the project.

Mitigation. Although the project would not be considered a covered activity under the SCVHP and is not subject to the fees and conditions of the plan, aspects of the project have been designed to be consistent with the goals and objectives of the plan. For instance, the project includes minimum 150 foot and 35-foot setbacks from Tar Creek and Sargent Creek, respectively, with the exception of the road and conveyor belt crossings of the creeks. Additionally, where applicable, the project will incorporate avoidance and minimization measures from the HCP to avoid or lessen impacts on special status species and sensitive aquatic habitats. In situations where the project will result in a significant impact on biological resources, mitigations are provided further on in this section, such as the establishment of a conservation easement and pre-construction surveys that would be consistent with requirements and conditions of the SCVHP.

3.3.2 Potential Impacts to Steelhead

Impact: Construction of the Tar Creek bridge will occur within and in proximity to areas that are used as migration, breeding and rearing habitat for steelhead trout. The bridge is proposed as an

arch culvert that will span the most sensitive aquatic habitat of the creek, with maintenance of a natural creek bottom and with footings placed outside the wetted channel. The bridge, as proposed, will not result in direct loss of habitat for steelhead or impede migration up and down stream. Currently, there is an at-grade crossing at this location, with related erosion and sedimentation due to vehicles travelling through the wetted channel. To a minor extent, the bridge will result in an improved condition to vehicles crossing directly through the creek. However, during construction, potential adverse impacts could occur as a result of grading that leaves soils susceptible to erosion and sedimentation that could affect water quality and result in indirect impacts to native aquatic species. Additionally, should bridge construction require impacts within the wetted channel, should adult or juvenile steelhead be present, construction could result in harm or mortality to individual steelhead trout. These impacts may be considered significant under CEQA.

Mitigation Measure 3.3.2. Although the steelhead is not a species covered under the SCVHCP, the project will incorporate SCVHCP measures contained in both Condition 3 and Condition 4, as applicable to the project. We believe by incorporating these measures, which are designed to protect water quality, sensitive riparian habitats and aquatic species, construction of the Tar Creek bridge will avoid direct and indirect impacts to steelhead. These conditions include:

- **Condition 3 Maintain Hydrologic Conditions and Protect Water Quality.** This condition identifies avoidance and minimization measures, performance standards, and control measures to minimize increases of peak discharge of stormwater and to reduce runoff of pollutants to protect water quality during construction and operation. A complete list of aquatic avoidance and minimization measures can be found in Table 6-2 of the plan.

- **Condition 4 Avoidance and Minimization for In-Stream Projects.** Minimize impacts on riparian and aquatic habitat through appropriate design requirements and construction practices and provides avoidance and minimization measures for in-stream projects that may impact stream morphology, aquatic and riparian habitat, flow conditions, covered species, natural communities, and wildlife movement.

The full list of avoidance and minimization measures from the HCP is provided in Appendix D and includes, but is not limited to, measures related to stormwater runoff, in-stream channel impacts, erosion control, dewatering activities, and construction requirements and timing.

Implementation of HCP Condition 3 and 4 avoidance and minimization measures would reduce potential impacts to steelhead trout to a less-than-significant level.

3.3.3 Potential Impacts to California Tiger Salamander Habitat and Individuals

Potential Impact. As discussed above, there have been four CTS larval surveys conducted on Sargent Ranch between 2000 and 2017. While not all potential breeding habitats for CTS were evaluated in all four surveys, there was a definite pattern in that there have only been two ponds on the ranch where CTS have been found successfully breeding. Both of the latter ponds occur approximately 4,500 feet north from the closest project boundary on the other side of Tar Creek. The only other feature where CTS larva have been found is a small wetland within Intermittent Drainage 3 on proposed Phase 3 but this feature has been confirmed to dry up in even wet years by early spring and therefore, it does not have the proper hydrology to support successful breeding in that the wetland dries before larva can metamorphose and migrate to upland habitats.

As also indicated prior, while the resource agencies use 1.24 miles as the maximum distance that CTS estivate from breeding ponds, research has indicated that the vast majority, i.e. 95%, of CTS, will estivate within 620 meters (or approximately 2,000 feet) from their breeding pond, and that 99% will estivate within approximately 1,126 meters (or approximately 3,790 feet). As the closest project boundary to the two confirmed breeding ponds is approximately 4,500 feet, it appears that the project will have a less than significant impact on individuals or on estivation habitat for this species.

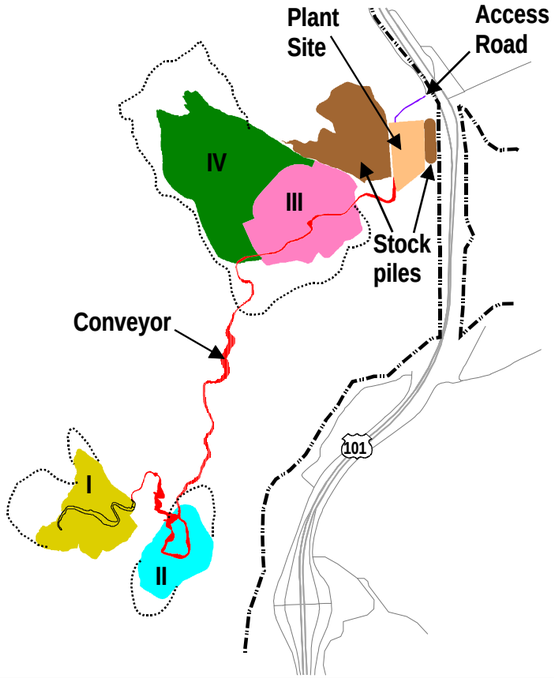
Additionally, the project already includes 392 acres on the Sargent Ranch property for preservation and dedication to the SCVHP Habitat Agency or other public or private land conservation entity to compensate for a loss of habitat for special status species on the project site. These conservation lands provide similar or higher quality habitat values for CRLF and other special status species that may be impacted by the project, including being immediately adjacent to 1.2 acres of ponds and 1.0 acres of seasonal wetlands that provide known breeding habitat for CRLF adjacent to and on the west of Sargent Creek; and a mosaic of other habitats including approximately 250 acres of grasslands, almost 46 acres of coast live oak forest and mixed oak forest, and approximately 90 acres of scrub and chaparral habitats. Additionally, more

than 11,000 linear feet of drainages occur on the conservation lands that would likely be considered Category 2 streams under the HCP. These lands have over one mile of frontage near Sargent Creek, an important north-south corridor for native wildlife, and links open space lands to the west and east, therefore should continue to facilitate movement of wildlife across upland habitats from east to west. Lands that are proposed for preservation are depicted in Figure 8 and habitats present within the proposed conservation easement area, along with acreages, are detailed in Table 5. In addition, the project proponent will define and provide for a financial mechanism such as a non-wasting endowment that funds the management of the preserved lands into perpetuity.

Mitigation Measure 3.3.3. No additional mitigation is required to compensate for a loss of CTS habitat, however, in the unlikely event that salamanders occur in the upland areas of the project during project construction, potentially individual salamanders could be harmed or killed by project activities. Therefore, implementation of the following measures, partially summarized below and described more fully in Appendix C, should be taken during any construction related to the development of the quarry facilities and roads occurring within 100 feet of any riparian or aquatic resource.

- Prior to the start of construction, a qualified biologist will train all construction personnel regarding habitat sensitivity, identification of special status species potentially occurring on the site, and required practices.
- Pre-construction surveys will be conducted to ensure that CTS are absent from the construction area. If CTS are present, they should be relocated by a qualified biologist.
- The construction zone should be cleared, and silt fencing should be erected and maintained around construction zones to prevent CTS from moving into these areas.
- A biological monitor will be present onsite during particular times of construction to ensure no CTS are harmed, injured, or killed during project buildout.
- To minimize harm or mortality to individual CTS during migration movements, a maximum speed limit of 10 mph for vehicle traffic on quarry access roads should be enforced during project operation, and to the extent possible, quarry activities should be confined to daylight hours.

Areas Grouped in Table Above



LEGEND

392 Ac. Mitigation Area Boundary

Sargent Ranch Property Boundary

Geotechnical Setback Boundary

Habitats

252.4 Ac. California Annual Grassland

26.9 Ac. Coast Live Oak Forest and Woodland

19.3 Ac. Mixed Oak Woodland and Forest

46.1 Ac. Northern Coastal Scrub / Diablan Sage Scrub

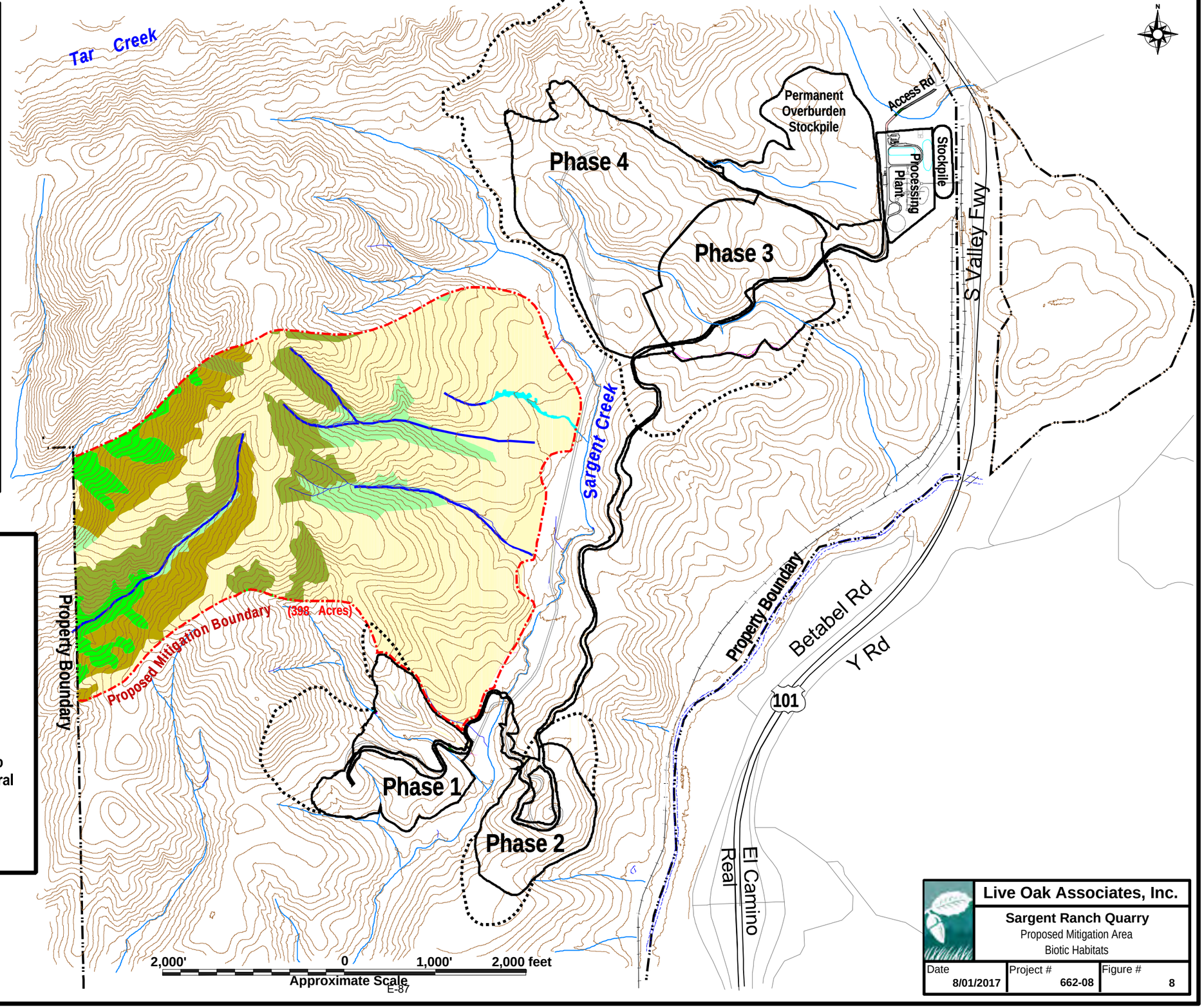
45.8 Ac. Northern Mixed Chaparral / Chamise Chaparral

1.0 Ac. Seasonal Wetland

Hydrology

11,169 L.F. Drainages with defined bed and bank

Sources:
Triad Holmes Assoc.
Santa Clara County HCP Land Cover
Santa Clara County LIDAR Topographic Survey
Pacific North Western Biological Resources Consultants, Inc. 2001.
Biological Resources Assessment for the Proposed Sargent Ranch Conservation Bank Agreement



Live Oak Associates, Inc.

Sargent Ranch Quarry
Proposed Mitigation Area
Biotic Habitats

Date	Project #	Figure #
8/01/2017	662-08	8

Table 5. Habitats of the Conservation Easement Area		
Habitats	**Acreages**	**Value**
California Annual Grassland	252.4	California tiger salamander estivation habitat; potential burrowing owl habitat; American badger habitat; foraging habitat for many special status birds.
Coast Live Oak Forest and Woodland	26.9	Nesting, roosting, and foraging habitat for many common and special-status birds and other animals.
Mixed Oak Woodland and Forest	19.3	Nesting, roosting, and foraging habitat for many common and special-status birds and other animals.
Northern Coastal Scrub/Diablan Sage Scrub	46.1	Nesting, roosting, and foraging habitat for many common and special-status birds and other animals.
Northern Mixed Chaparral/Chamise Chaparral	45.8	Nesting, roosting, and foraging habitat for many common and special-status birds and other animals.
Seasonal Wetland	1.0	Known CRLF breeding habitat; potential CTS breeding habitat. Seasonal source of drinking water for many common and special-status animals. USACE and RWQCB jurisdictional habitat.
Total	392.0	
Creeks, Streams and Drainages	**Linear Feet of Channel**	**Value**
Intermittent Drainages with Defined Bed and Bank (primarily HCP Category 2 streams)	11,169	Potential CDFW, USACE and RWQCB jurisdictional habitat.

Regulatory issues. Although in our opinion impacts to CTS habitat and individuals would be less-than-significant under CEQA, the applicant may need to comply with provisions of the federal and state Endangered Species Acts and may need to seek take authorization from both the USFWS and CDFW for project-related losses as required by law. To obtain a federal take permit, consultation with the U.S. Fish and Wildlife Service would need to be initiated either through a federal nexus (i.e., Section 7 consultation through the USACE) or through the HCP process (i.e., Section 10 consultation).

3.3.4 Potential Impacts to California Red-Legged Frog Habitat and Individuals

Potential Impact. The presence of CRLF has been confirmed throughout the greater Sargent Ranch property in close proximity to the proposed quarry sites. Indirect impacts to these sensitive habitats could include impacts to water quality and disturbance as a result of noise; and could also result in harm or mortality to individual frogs as a result of vehicle traffic. The project would also result in the direct loss of suitable upland habitat for this species in the form of grassland and woodland habitat; and could result in harm or mortality to individual CRLF should they occur in these habitats during project implementation. Additionally, as indicated above,

riparian habitats associated with Sargent and Tar Creeks occur in proximity, i.e. within 200 feet, of project footprints. These riparian habitats likely provide foraging and movement habitat for CRLF.

In addition to potential upland habitat for CRLF, should it be determined in the future that geotechnical setback areas will be required for Phase 3 and 4, potentially this will impact a stock pond that provides breeding habitat for CRLF.

Direct and indirect impacts to CRLF breeding, foraging and movement habitat, as well as harm or mortality to individual CRLF, would be considered a significant impact under CEQA.

The project already includes 392 acres on the Sargent Ranch property for preservation and dedication to the SCVHP Habitat Agency or other public or private land conservation entity to compensate for a loss of upland habitat for special status species on the project site. These conservation lands provide similar or higher quality upland habitat values for CRLF and other special status species that may be impacted by the project, including being immediately adjacent to 1.2 acres of ponds and 1.0 acres of seasonal wetlands that provide known breeding habitat for CRLF adjacent to and on the west of Sargent Creek; and a mosaic of other habitats including approximately 250 acres of grasslands , almost 46 acres of coast live oak forest and mixed oak forest, and approximately 90 acres of scrub and chaparral habitats. Additionally, more than 11,000 linear feet of drainages occur on the conservation lands that would likely be considered Category 2 streams under the HCP. These lands have over one mile of frontage near Sargent Creek, an important north-south corridor for native wildlife, and links open space lands to the west and east, therefore should continue to facilitate movement of wildlife across upland habitats from east to west. Lands that are proposed for preservation are depicted in Figure 8 and habitats present within the proposed conservation easement area, along with acreages, are detailed in Table 5. In addition, the project proponent will define and provide for a financial mechanism such as a non-wasting endowment that funds the management of the preserved lands into perpetuity.

Mitigation Measure 3.3.4. Implementation of the following mitigation measures would reduce impacts to CRLF to a less-than-significant level.

The primary approach to mitigate impacts to CRLF would be based upon 1) avoidance of riparian and aquatic resources of the site to the maximum extent possible, 2) implementation of minimization measures, 3) compensation for impacts to suitable upland and aquatic habitats via the preservation of open space lands that contain higher quality suitable upland and aquatic habitats.

Avoidance. Avoidance of a sensitive resource is usually considered the preferred mitigation for any project. Therefore, from a standpoint of avoiding impacts to CRLF, the project should be designed in ways that avoid impacts to riparian and aquatic habitats, and their immediately adjacent upland habitats, to the maximum extent practicable. Except for the Phase 1 and Phase 2 access road which will traverse Sargent Creek in one location in the southern portion of the site, the project as currently designed avoids direct impacts to riparian resources of the site; and the project avoids indirect impacts to such habitat via a minimum of a 150 foot setback from Sargent and Tar Creeks.

Minimization. The project should be designed, built, and operated in ways that minimize both direct and indirect impacts to the CRLF. Implementation of the following measures, partially summarized below and described more fully in Appendix C, should be taken during any construction of quarry facilities and roads occurring within 100 feet of any riparian or aquatic resource.

- Prior to the start of construction, a qualified biologist approved should train all construction personnel regarding habitat sensitivity, identification of special status species, and required practices.
- Pre-construction surveys should be conducted to ensure that CRLF are absent from the construction area. If CRLF are present, they should be relocated by a qualified biologist.
- The construction zone should be cleared, and silt fencing should be erected and maintained around construction zones to prevent CRLF from moving into these areas.
- A biological monitor should be present onsite during particular times of construction to ensure no CRLF are harmed, injured, or killed during project buildout.
- To minimize harm or mortality to individual CRLF during migration movements, a maximum speed limit of 10 mph for vehicle traffic on quarry access roads should be enforced during project operation, and to the extent possible, quarry activities should be confined to daylight hours.

Compensation. Although the preservation of 392 acres of habitat would compensate for the loss of CRLF upland habitats as a result of the quarry project, the land being set aside would not fully compensate for the loss of breeding habitat, should such habitat be lost due to the geotechnical setbacks. In such event, the following additional mitigation will be implemented:

The applicant shall identify and preserve in perpetuity a known CRLF breeding pond on-site with preserved connectivity to the project's mitigation area.

If no such existing breeding pond can be identified on the site, the applicant shall identify a suitable location for creation of a pond on preserved conservation lands that will be maintained and managed as breeding habitat for CRLF.

Alternatively, if no on site opportunities exist for either preservation or creation of breeding habitat, CRLF credits at a mitigation bank may be purchased at a minimum 1:1 ratio.

Regulatory issues. In addition to mitigation for potential project impacts to CRLF under CEQA, the applicant would need to comply with provisions of the federal Endangered Species Act and would need to seek take authorization from the USFWS for project-related losses as required by law. To obtain a take permit, consultation with the U.S. Fish and Wildlife Service would need to be initiated either through a federal nexus (i.e., Section 7 consultation, usually through the USACE or the Bureau of Land Management) or through the HCP process (i.e., Section 10 consultation).

3.3.5 Potential Impacts to Western Pond Turtles

Potential Impact. Western pond turtles (WPT) have been documented in the pond approximately 1500 feet southeast of Phase 4 of the project. Although there are no known occurrences of WPT within Sargent or Tar Creeks, in wet years, both of these creeks may provide foraging and movement habitat for this species. Although the project has been designed to be set back 150 feet from these aquatic resources, the access road for Phase 1 will require construction of a crossing over both Sargent and Tar Creeks. Should this work commence during the dry season then it would not be expected that turtles would be in or near Sargent or Tar Creeks; however, any activities within 150 feet of the creek during the wet season when the

creeks are inundated could result in harm or mortality to individual western pond turtles should they be present, and this may be considered a significant impact under CEQA.

Mitigation Measure 3.3.5. Implementation of the following measures would reduce impacts to WPT to a less-than-significant level.

Avoidance, minimization and compensation measures included in Mitigation Measures 3.3.2 and 3.3.3 for CTS and CRLF, respectively, would also reduce impacts to individual WPT to a less-than-significant level. These measures would also be consistent with the goals and objectives of the SCVHP.

3.3.6 Potential Impacts to Burrowing Owls

Impact. Burrowing owls have been observed foraging on the greater Sargent Ranch property; however, and burrowing owls have also recently, in 2016, been observed nesting on the northern portion of the greater ranch property. The project site provides potential foraging, roosting, and nesting habitat for this species. Project activities could result in a loss of habitat for this species and in impacts to individual owls should they nest or roost on the site and this would be considered a potentially significant impact. Construction activities that adversely affect the nesting success of BUOW or result in mortality of individual owls that are nesting or roosting on the site would constitute a violation of state and federal laws and would be considered a significant impact under CEQA.

Mitigation Measure 3.3.6. Implementation of the following measures would reduce impacts to BUOW habitat and to individual BUOW to a less-than-significant level. These measures would also be consistent with the goals and objectives of the SCVHCP.

- Compensation measures included in Mitigation Measures 3.3.2 and 3.3.3 for CTS and CRLF would also compensate for the loss of BUOW foraging, roosting and nesting habitat.

- The following additional measures have been taken from SCVHP Condition 15 to ensure that individual BUOW are not harmed or killed as a result of project activities, and to ensure that the project is consistent with the goals and objectives of the SCVHP, which considers the burrowing owl a “no take” species:

SCVHP Condition 15. *Prior to any ground disturbance related to covered activities, a qualified biologist will conduct preconstruction surveys in all suitable habitat areas as identified during habitat surveys. The purpose of the preconstruction surveys is to document the presence or absence of burrowing owls on the project site, particularly in areas within 250 feet of construction activity. To maximize the likelihood of detecting owls, the preconstruction survey will last a minimum of three hours. The survey will begin 1 hour before sunrise and continue until 2 hours after sunrise (3 hours total) or begin 2 hours before sunset and continue until 1 hour after sunset. Additional time may be required for large project sites. A minimum of two surveys will be conducted (if owls are detected on the first survey, a second survey is not needed). All owls observed will be counted and their location will be mapped. Surveys will conclude no more than 2 calendar days prior to construction. Therefore, the project proponent must begin surveys no more than 4 days prior to construction (2 days of surveying plus up to 2 days between surveys and construction). To avoid last minute changes in schedule or contracting that may occur if burrowing owls are found, the project proponent may also conduct a preliminary survey up to 14 days before construction. This preliminary survey may count as the first of the two required surveys as long as the second survey concludes no more than 2 calendar days in advance of construction.*

Should the pre-construction survey determine the presence of burrowing owls on the site during the pre-construction surveys, then the following avoidance measures will be implemented as per Condition 15 of the SCVHP:

Avoidance During the Breeding Season. *If evidence of western burrowing owls is found during the breeding season (February 1–August 31), the project proponent will avoid all nest sites that could be disturbed by project construction during the remainder of the breeding season or while the nest is occupied by adults or young (occupation includes individuals or family groups foraging on or near the site following fledging). Avoidance will include establishment of a 250-foot non-disturbance buffer zone around nests. Construction may occur outside of the 250-foot non-disturbance buffer zone. Construction may occur inside of the 250-foot non-disturbance buffer during the breeding season if the nest is not disturbed, and the project proponent develops an avoidance, minimization, and monitoring plan that will be reviewed by the Implementing Entity and the Wildlife Agencies prior to project construction based on the following criteria.*

- *The Implementing Entity and the Wildlife Agencies approves of the avoidance and minimization plan provided by the project applicant.*
- *A qualified biologist monitors the owls for at least 3 days prior to construction to determine baseline nesting and foraging behavior (i.e., behavior without construction).*
- *The same qualified biologist monitors the owls during construction and finds no change in owl nesting and foraging behavior in response to construction activities.*
- *If there is any change in owl nesting and foraging behavior as a result of construction activities, these activities will cease within the 250-foot buffer. Construction cannot*

resume within the 250-foot buffer until the adults and juveniles from the occupied burrows have moved out of the project site.

- *If there is any change in owl nesting and foraging behavior as a result of construction activities, these activities will cease within the 250-foot buffer. Construction cannot resume within the 250-foot buffer until the adults and juveniles from the occupied burrows have moved out of the project site.*

Avoidance During the Non-Breeding Season. *During the non-breeding season (September 1–January 31), the project proponent will establish a 250-foot non-disturbance buffer around occupied burrows as determined by a qualified biologist. Construction activities outside of this 250-foot buffer are allowed. Construction activities within the non-disturbance buffer are allowed if the following criteria are met in order to prevent owls from abandoning important overwintering sites.*

- *A qualified biologist monitors the owls for at least 3 days prior to construction to determine baseline foraging behavior (i.e., behavior without construction).*
- *The same qualified biologist monitors the owls during construction and finds no change in owl foraging behavior in response to construction activities.*
- *If there is any change in owl nesting and foraging behavior as a result of construction activities, these activities will cease within the 250-foot buffer.*
- *If the owls are gone for at least one week, the project proponent may request approval from the Implementing Entity that a qualified biologist excavate usable burrows to prevent owls from re-occupying the site. After all usable burrows are excavated, the buffer zone will be removed and construction may continue. Monitoring must continue as described above for the non-breeding season as long as the burrow remains active.*

Construction Monitoring. *Based on the avoidance, minimization, and monitoring plan developed (as required in the above section), during construction, the non-disturbance buffer zones will be established and maintained if applicable. A qualified biologist will monitor the site consistent with the requirements described above to ensure that buffers are enforced and owls are not disturbed. The biological monitor will also conduct training of construction personnel on the avoidance procedures, buffer zones, and protocols in the event that a burrowing owl flies into an active construction zone.*

Passive Relocation*. Passive relocation would not be allowed under the Plan until the positive growth trend described in Section 5.4.6 is achieved. Once this occurs, passive owl relocation may be allowed, with the approval of the Wildlife Agencies, on project sites in the non-breeding season (September 1–January 31) if the other measures described in this condition do not allow work to continue. Passive relocation would only be proposed if the burrow needed to be removed, or had the potential of collapsing (e.g., from construction activities), as a result of the covered activity.*

If passive relocation is eventually allowed, a qualified biologist can passively exclude birds from their burrows during non-breeding season only by installing one-way doors in burrow entrances. These doors will be in place for 48 hours to ensure owls have left the burrow, and then the biologist will excavate the burrow to prevent reoccupation. Burrows will be

excavated using hand tools. During excavation an escape route will be maintained at all times. This may include inserting an artificial structure into the burrow to avoid having the overburden collapse into the burrow and trapping owls inside. Other methods of passive relocation, based on best available science, may be approved by the Wildlife Agencies during Plan implementation.

***Exceptions to Passive Relocation Prohibition**. Due to the relatively low numbers of burrowing owls in the study area, it is not expected that the prohibition of passive relocation will result in project delays. However, it is possible that a covered activity could not proceed due to avoidance measures for burrowing owl in this condition if owls continually persist on a site where avoidance is not feasible. In such cases, a project proponent may apply for an exception based on the following process. For this condition, the term exception means an allowance to conduct passive relocation of burrowing owls during the non-breeding season only when this activity is not otherwise allowed. This exception process is necessary to allow reasonable use and development of a property based on the variety of constraints and factors that may affect the property. In situations where exceptions are granted, other portions of this condition may still apply. Exceptions will be used in a minority of cases with special circumstances that limit or restrict the ability of a landowner to fully apply the condition.*

The measures above designed to ensure no harm or mortality occur to individual BUOW would be applicable to each new phase of the project. Full implementation of the measures identified above would mitigate impacts to the burrowing owl to a less-than-significant level.

3.3.7 Disturbance to Nesting Raptors and Nesting Migratory Birds

Potential Impact. Habitats within the footprints of the proposed quarry project provide nesting and/or foraging habitat for a number of special status and migratory birds, including raptors. Additionally, there are known occurrences of special status birds such as tri-colored blackbird in very close proximity to the site, although the site itself lacks suitable nesting habitat for this species. Project activities including noise, ground disturbance and vegetation removal that commence during the nesting season (February 1 through August 31) could result in adult birds within the project site and its immediate vicinity abandoning their nests and result in mortality to their unfledged young. This would constitute a violation of state and federal law and would be considered a significant impact under CEQA.

Mitigation Measure 3.3.7. Implementation of the following mitigation measures would reduce impacts to nesting birds to a less-than-significant level.

To the maximum extent practicable, trees and other vegetation planned for removal should be removed during the non-breeding season (September 1 through January 31). If it is not possible to avoid tree or vegetation removal or other disturbances during the breeding season (February 1 through August 31), then a qualified biologist will conduct a pre-construction survey for tree- and ground-nesting raptors and migratory birds in all potential nesting habitat within the construction footprint and within 250 ft. of the footprint. This survey should be conducted no more than 14 days prior to the initiation of demolition/construction activities during the early part of the breeding season (February through April) and no more than 30 days prior to the initiation of these activities during the later part of the breeding season (May through August). If nesting raptors or migratory birds are detected on the site during the survey, a suitable construction-free buffer will be established around all active nests. The precise dimension of the buffer (up to 250 ft.) would be determined by the qualified biologist at that time and may vary depending on location and species. Buffers will remain in place for the duration of the breeding season or until it has been confirmed by the qualified biologist that all chicks have fledged and are independent of their parents. Pre-construction surveys during the non-breeding season are not necessary (with the exception of burrowing owls, see *Impact 3.3.5*, above), as adult birds would be expected to abandon their roosts during project implementation activities and therefore, would not be expected to be harmed or killed.

Implementation of the above measures would be applicable to all four phases of the project and would mitigate impacts to nesting raptors and other birds to a less-than-significant level.

3.3.8 Potential Impacts to American Badgers

Impact. Badgers have been documented on the greater Sargent Ranch property by both PNWB and by the resident rancher. Although badgers and their dens have not been documented on the quarry project site, grasslands of the project site provide potential foraging, denning and breeding habitat for this species, and the loss of such habitat for this species may be considered a significant impact under CEQA. Additionally, should badgers occur on the site during project implementation, this may result in harm or mortality to individual badgers, and this would also be considered a significant adverse impact under CEQA.

Mitigation Measure 3.3.8. Implementation of the following mitigation measures would reduce impacts to the American badger to a less-than-significant level.

Avoidance. Pre-construction surveys that will be conducted for burrowing owls will also be used to determine the presence or absence of badgers in the development footprint, as well as within 300 feet of development.

If an active badger den is identified during pre-construction surveys within or immediately adjacent to the construction envelope, a construction-free buffer of up to 300 ft. (or distance specified by the resource agencies, i.e., CDFW) will be established around the den. Because badgers are known to use multiple burrows in a breeding burrow complex, a biological monitor should be present on the site during project development activities to ensure the buffer is adequate to avoid direct impact to individuals or den abandonment. The monitor would be necessary on the site until it is determined that young are of an independent age and project development activities would not harm individual badgers.

Once it has been determined that badgers have vacated the site, the burrows can be collapsed or excavated, and ground disturbance can proceed.

Pre-construction surveys and avoidance measures to ensure that badgers are not harmed or killed would be applicable to all project phases.

Compensation. Compensation measures included in Mitigation Measures 3.3.2 and 3.3.3 for CTS and CRLF would also compensate for the loss of American badger foraging and denning habitat on the project site.

The above mitigation measures will lessen potential impacts to badgers to a less-than-significant level.

3.3.9 Potential Impact to Special Status Plant Species

Potential Impact. Of the special status plant species potentially occurring in the region (Table 3, Figure 5), most are considered absent from the site due to a lack of suitable habitat such as serpentine grasslands, wetlands, or vernal pools. It should be noted that there is a documented occurrence in the CNDDB of one of these species, i.e. saline clover (CRPR 1B) occurring in

wetlands of the greater ranch property; however, habitat for this species is absent on the project site due to a lack of wetland or vernal pool habitats within the project boundary. Six other special status plant species are considered unlikely to occur on the project site because habitat is marginal on the site for these species and/or because the species has not been observed in the region for many decades. The latter species include showy Rancheria clover (FE, CRPR 1B), alkali milk-vetch (CRPR 1B), fragrant fritillary (CRPR 1B), Loma Prieta hoita (CRPR 1B), big-scale balsamroot (CRPR 1B), and pink creamsacs (CRPR 1B). As with saline clover, it should be noted that there is a CNDDB-documented occurrence of pink creamsacs on the greater Sargent Ranch property outside of the project site; however, the project site provides marginal habitat for these species due to the absence of serpentine soils on which this species typically occurs. The grasslands of the site provide suitable potential habitat for two special status plant species, both annual species, and these species include round-leaved filaree (CRPR 1B) (annual species; blooms March-May) and Congdon's tarplant (CRPR 1B) (annual species; blooms May-November); and appropriately timed botanical surveys in grassland habitats that will be impacted by the project would need to be conducted to rule out their presence on the site. Three botanical surveys (March, May and late September-early October) conducted within the grassland habitats of the site would be sufficient to confirm the absence of these species on the site. A full suite of rare plant surveys will be conducted within five years prior to each phase of construction and mining. Should these species occur on the project site, impacts to populations as a result of the project would need to be evaluated by a qualified botanist or plant ecologist to determine whether impacts would be considered significant. If the project would result in the loss of a significant portion of the regional population of these species, impacts may be considered significant under CEQA.

Mitigation Measure 3.3.9. Should the botanical surveys confirm that special status plants are absent from the site, then no mitigation would be required. If populations of these species are present, and if it is determined by a qualified botanist or plant ecologist that project impacts to these species are significant under CEQA, then the following mitigations will be implemented which will reduce impacts to a less-than-significant level.

Avoidance. In consultation with a botanist or plant ecologist, and to the maximum extent feasible, the project will be designed to avoid substantial direct and indirect impacts (e.g. the establishment of an appropriate sized buffer) to these species.

***Compensation*.** If the project cannot be designed to avoid significant impacts to special status plant populations, then the following compensatory measures will be implemented.

Onsite Preservation. The onsite conservation easement area should be surveyed during the appropriate blooming season to determine whether populations of the species being significantly impacted by the project are also present within areas that will be preserved. If populations of the species are present on the conservation easement, it should be determined by a qualified botanist or plant ecologist whether these populations to be preserved would adequately compensate, or partially compensate, for lost populations on the project site. If this is the case, then a Management Plan for populations occurring on the conservation easement shall be developed as part of the greater long-term management plan for the conservation easement as required under Mitigation Measure 3.3.2, above.

*Development of a Site Restoration Plan***.** If the project cannot be designed to avoid significant impacts to special status plants (as discussed above) and the easement area does not support adequate populations of the impacted species to compensate for project impacts, then a Site Restoration Plan must be developed for the significantly impacted species by a qualified botanist or plant ecologist and approved by the County prior to the start of project development. The objective of this mitigation measure would be to replace the special status plants and habitat lost during project implementation. The proposed restoration program should be monitored for a period of five years from the date of site grading. The restoration plan should contain at a minimum the following:

- Identification of appropriate locations on the conservation easement area as determined by the botanist or plant ecologist (i.e., areas with suitable soils, aspect, hydrology, etc.) to restore lost plant populations.
- A description of the propagation and planting techniques to be employed in the restoration effort. Perennial plants to be impacted by site grading should be salvaged and

raised in a greenhouse for eventual transplanting within the restoration areas. Annual plants can best be established by collecting seeds of onsite plants prior to project implementation and then directly seeding into suitable habitat on the conservation easement.

- A timetable for implementation of the restoration plan.
- A monitoring plan and performance criteria.
- A description of remedial measures to be performed in the event that initial restoration measures are unsuccessful in meeting the performance criteria.
- A description of site maintenance activities to follow restoration activities. These may include weed control, irrigation, and control of herbivory by livestock and wildlife.

*Off-site Mitigation***.** If an onsite restoration plan is not feasible, mitigation for impacted special status plant species could be accommodated through restoration or preservation at an off-site location. Any off-site restoration plan would be subject to the same minimum requirements as indicated above for an onsite restoration plan.

If off-site preservation is the mitigation alternative chosen, then the mitigation site must be confirmed to support populations of the impacted species and must be established as a conservation easement to be preserved in perpetuity. A qualified botanist or plant ecologist should prepare a Preservation Plan for the site containing, at a minimum, the following elements:

- A monitoring plan and performance criteria for the preserved plant population.
- A description of remedial measures to be performed in the event that performance criteria are not met.
- A description of maintenance activities to be conducted on the site including weed control, trash removal, irrigation, and control of herbivory by livestock and wildlife.

The project proponent will be responsible for funding the development and implementation of any onsite or off-site Preservation Plan.

3.3.10 Potential Impacts to Riparian Habitat and Other Sensitive Natural Communities, Including Federally Protected Wetlands

Potential Impact. A wetland delineation was conducted on the proposed quarry site in fall 2016 and a verification site visit was conducted with USACE in spring 2017. During the verification site visit, USACE claimed Intermittent Drainage Channels 1 through 4 and both Sargent and Tar Creeks within the footprint of proposed project crossings as jurisdictional waters of the U.S. to the extent of the Ordinary High Water (OHW) mark on opposing banks, and a small seasonal wetland within Intermittent Drainage 3. The USACE disclaimed several ephemeral and erosional channels that did not support an OHW mark on opposing banks. Both Figure 4, which depicts habitats of the site, and the Table 3a habitat acreages depict all hydrologic features on the quarry site claimed by USACE during the verification site visit. Project impacts to jurisdictional waters have been calculated at 6,570 linear feet of channels.

Based on the 2016 wetland delineation, 2017 USACE verification site visit and the final waters of the U.S. map prepared for the Jurisdictional Determination, total impacts to USACE jurisdiction within intermittent channels of the site, including Sargent Creek, as a result of the quarry project were calculated at 6,545 linear feet and 0.55 acres. Impacts to Tar Creek as a result of the access road crossing were calculated at 0.01 acre (that was assuming that the bridge impacts the OHW channel of the creek, and as the bridge is planned as an arch culvert with footing outside OHW, this is likely overstated). Additionally, the quarry will impact a small wetland which occurs within Intermittent Channel #3, calculated at 0.03 acre. Therefore, total impacts to USACE jurisdiction as a result of the project were calculated at 0.59 acres and 6,570 linear feet.

Potentially necessary geotechnical setbacks have been recently identified for all four mining phases of the project. An additional formal wetland delineation survey was conducted on these areas in summer 2017 but has not yet been verified by USACE. The Phase 3 and 4 setback areas support hydrologic features that may also be considered jurisdictional by the USACE including a wetland seep spring south of Phase 3; and a short reach of intermittent channel, a stock pond and a small seasonal wetland north of Phase 4. Should geotechnical setback areas be required, Phase 3 and Phase 4 setbacks will result in impacts to 115 linear feet of intermittent channel, 0.34 acres

of ponds, 0.05 acres of seasonal wetland and 0.03 acres of wetland seeps which also will likely be considered jurisdictional waters of the U.S. and state.

At the same time the delineation for waters of the U.S. was conducted, LOA surveyed for waters of the state jurisdiction (CDFW and RWQCB) on the quarry project site, including the top of bank of channels or the dripline of riparian vegetation, whichever was greater. Impacts to waters of the state were calculated at 4.31 acres. In addition to the channels of the site, the RWQCB would also likely assert jurisdiction over the seasonal wetland on Phase 3 and the seasonal wetland, stock pond, and seep within the geotechnical setback occurring above the Phase 4 mining site.

The loss of Waters of the U.S. and State would be considered a significant impact under CEQA. The following mitigations are designed to reduce these impacts to a less-than-significant level.

Mitigation Measure 3.3.10. The project proponent should implement avoidance, minimization, and/or compensation measures to reduce impacts to jurisdictional waters and riparian habitats to a less-than-significant level.

***Avoidance*.** The preferred method of mitigation would be avoidance of all waters of the U.S. and State by designing the project so that it avoids the placement of fill within potentially-jurisdictional waters.

Based on the 2016 delineation and 2017 USACE verification site visit, the project has been designed to avoid direct and indirect impacts to the most sensitive aquatic features on the Sargent Ranch property by ensuring that they have avoided jurisdictional wetlands and other aquatic features that support important habitat for special status species as well as avoiding Sargent Creek and Tar Creek with a minimum 150 foot setback with the exception of the necessary road and conveyor belt crossings. However, the project cannot avoid impacts to all intermittent drainage channels and still meet project objectives. Additionally, if the geotechnical setbacks are found necessary, the project will result in impacts to a stock pond that provides breeding habitat for CRLF and California newts, a seep and a small seasonal wetland.

Minimization. Because full avoidance is not possible, actions should be taken to minimize impacts to aquatic and riparian habitats. Measures taken during construction activities should include placing construction fencing around any aquatic features or riparian areas to be preserved that occur within 100 feet of project construction activities to ensure that these activities do not inadvertently impact sensitive habitats. Sargent Creek and Tar Creek conveyor belt and access road crossings should preferably be designed to minimize impacts to the most sensitive aquatic habitats, such as through the use of clear-span structures, and in such a way to ensure that they do not result in barriers to wildlife that use these corridors.

As part of project build-out, all proposed lighting should be designed to avoid light and glare impacts to the riparian corridor. Light sources should not be visible from riparian areas and should not illuminate riparian areas or cause glare on the opposite side of the creek. Additionally, proposed development activities should be designed and situated to avoid the loss of trees within the riparian area of Sargent Creek to the maximum extent practicable.

Preservation. The project includes the preservation of more than an estimated 11,000 linear feet of intermittent drainages (including approximately 0.50 acres of OHW channel under the jurisdiction of the USACE, and approximately 1.5 acres of channel under the jurisdiction of RWQCB and CDFW); and 1.0 acres of seasonal wetlands, within a conservation easement. The wetlands preserved would also be likely to be considered jurisdictional by USACE and RWQCB.

Compensation. In addition to the preservation of channel habitat and other aquatic habitat as discussed above, the project will compensate for a loss of channel habitat and a small amount of riparian habitat along Sargent and Tar Creek through onsite creation of similar or higher quality habitat within the conservation easement area or via the purchase of mitigation credits, or some combination of these two approaches, at a minimum of a 1:1 replacement-to-loss ratio for “in kind” habitat or minimum 1:1 replacement-to-loss ratio for different but higher quality habitat (such as the onsite creation of wetland habitat or the purchase of wetland habitat credits).

Should habitat be created onsite, an onsite habitat mitigation and monitoring plan (HMMP) would need to be developed. At a minimum, the HMMP will:

- Define the location of all restoration/creation activities;
- Provide evidence of a suitable water budget to support any created aquatic and riparian

habitats;

- Identify the species, amount, and location of plants to be installed in the created habitats;
- Identify the time of year for planting and method for supplemental watering during the establishment period;
- Identify the monitoring period. This should be not less than 5 years.
- Define success criteria that will be required for restoration efforts to be deemed a success;
- Identify adaptive management procedures that accommodate the uncertainty that comes with restoration projects. These include, but are not limited to, measures to address colonization by invasive species, unexpected lack of water, and excessive foraging of installed plants by native wildlife;
- Define management and maintenance activities (weeding of invasive plants, providing for supplemental water, repair of water delivery systems, etc.); and
- Provide for surety in funding the monitoring and ensuring that the created aquatic and riparian habitats fall within lands to be preserved and managed into perpetuity.

Regulatory issues. The applicant will also need to comply with all state and federal regulations related to construction work that will impact aquatic habitats occurring on the site. The applicant will be required to obtain a Section 404 Clean Water Act permit from the USACE (because of the extent of the impact, i.e. more than 300 linear feet of jurisdictional channel, an Individual Section 404 permit will be required), Section 401 Water Quality Certification from the RWQCB, and Section 1600 Streambed Alteration Agreement from the CDFW prior to initiating any impacts within these habitats.

These minimization and compensation measures will reduce impacts to waters of the U.S. and state and to sensitive riparian habitats to a less-than-significant level.

3.3.11 Potential Impacts to Western Red Bat, Pallid Bat, and Other Special Status and Non-special Status Roosting Bats

Potential Impact. A number of special status and non-special status bat species my roost and/or forage on the project site. Oak trees of the site provide potential roosting habitat for foliage- and cavity-roosting bats including special status bats such as the western red bat and pallid bat, and several other non-special status bat species. The project site provides suitable foraging habitat,

but no suitable roosting habitat for other special status bats such as Townsend's big-eared bat and California mastiff bats. While the loss of foraging and roosting habitat for bat species would be considered a less than significant impact of the project due to the onsite preservation of over 45 acres of woodlands providing similar potential bat roosting and breeding habitat and the availability of such habitat regionally, tree removal could result in the loss of individual special status bats or the loss of maternal colonies of either special status or non-special status bat species, and this would be considered a significant impact of the project.

Mitigation Measure 3.3.11. A qualified biologist shall conduct a habitat assessment in the woodland habitat of the site for bats prior to any activities that will result in the removal of trees from the project site. Should the habitat assessment conclude that any trees proposed for removal provide potential roosting, hibernation and/ or maternity habitat for special status bats, tree removal shall only be conducted during seasonal periods of bat activity, i.e. September through mid-October and March through mid-April, under the supervision of a qualified biologist. Tree removals shall occur via a two-phased removal conducted over two consecutive days. In the afternoon of the first day, limbs and branches will be removed by a tree cutter using chainsaws only. Limbs with cavities, crevices or deep bark fissures shall be avoided, and only branches or limbs without those features shall be removed. On the second day, the entire tree shall be removed.

The above habitat assessment and tree removal measures, along with the preservation of approximately 47 acres of woodlands on site providing similar potential roosting and breeding habitat for special status and non-special status bats, will mitigate any impacts to bats to a less-than-significant level.

3.3.12 Potential Impacts to Special Status Animal Species

Impact. In addition to steelhead, CTS, CRLF, WPT, BUOW, American badger and the special status bat species already discussed above, the project site provides potential habitat for several other special status animals that occur, or once occurred, in the project region (Table 3, Figure 5).

The site provides potential foraging and nesting habitat for ten special status bird species, including four raptor species: grasshopper sparrow, yellow warbler, bank swallow, loggerhead shrike, black swift, Vaux's swift, white-tailed kite, northern harrier, short-eared owl and long-eared owl. Additionally, although nesting habitat is absent or extremely marginal on the site for these species, the site provides potential foraging habitat for another three special status raptor species: bald eagle, peregrine falcon, and golden eagle. All of these latter species have been observed in the past to be present on the greater Sargent Ranch property. Bald eagles have apparently been observed roosting on the Sargent Ranch property near Tar Creek during winter months by PNWB biologists; however, this species has not been observed on the ranch since LOA began surveys in 2004. Peregrine falcons were observed foraging on the site by PNWB biologists and while potential nesting habitat is absent from the quarry project area, suitable potential nesting habitat does occur on the greater Sargent Ranch property for this species. Golden eagles were observed on numerous occasions to forage over the grasslands of the ranch by both PNWB and LOA biologists and are assumed to be regular foragers on the quarry project site; however, no nesting activity has ever been observed on the ranch despite numerous various biological surveys of the site, many of which occurred during the nesting season.

While breeding habitat for the tri-colored blackbird is absent from within the quarry footprints, as previously discussed, there are two documented occurrences in the CNDDB of tri-colored blackbirds within ponds on the west side of Sargent Creek. These latter occurrences date back to 1980 and 1989. This species was never observed during surveys conducted by PNWB and LOA, and it seems unlikely the species still occurs there, although the ponds were observed to still support potential nesting habitat for this species in the form of emergent vegetation such as cattails. If the species does still occur on the ranch property, the project site would provide marginal foraging habitat for this species, and it would be unlikely to forage there. While a small seep supporting cattails and other emergent vegetation occurs within an area that potentially will be impacted by geotechnical setbacks, due to the small size, it is unlikely that this species would nest within this feature and this species was not detected during the June 2017 wetland delineation conducted within the breeding season. However, in the unlikely event that it did nest there in the future, pre-construction nesting bird surveys would detect this species.

During a wetland delineation survey, woodrat nests were observed within the Tar Creek riparian corridor near the current at-grade crossing where the quarry access road bridge is proposed. Should bridge construction activities impact riparian vegetation upstream or downstream of the current at-grade crossing, potentially these activities could destroy nests and harm or kill individual San Francisco dusky-footed woodrats, and this may be considered a significant impact.

All other special status species known to occur in the project region are considered absent from or unlikely to occur on the project site or its immediate vicinity due to the lack of suitable habitat.

Mitigation Measure 3.3.12. The loss of breeding, roosting and foraging habitat for special status animals would be a less-than-significant impact of the project as this habitat would remain regionally abundant. Approximately 400 acres of similar habitat would also be preserved within the conservation easement area on the site. However, bridge construction activities could result in destruction of woodrat nests and in harm or mortality to individual San Francisco dusky-footed woodrats and therefore the following measures will be implemented.

- A qualified biologist shall conduct a pre-construction survey for the San Francisco dusky-footed woodrat within the riparian habitats prior to the construction of the access bridge. Identified nests will be avoided whenever possible. If avoidance is not possible, the nest(s) will be manually deconstructed by a person qualified to handle wild rodents within 30 days prior to the initiation of the constructions activity.

- Every nest that is deconstructed would be compensated for by replacing with the creation of suitable nest woodpiles in the nearest possible location within riparian habitat on site. The nesting material (i.e. sticks and twigs) would be piled two to four feet high, with a minimum width of four feet.

3.3.13 Loss of Habitat for Non-special Status Native Wildlife

Potential Impact. The habitats of the proposed quarry site are likely to comprise only a portion of most native wildlife's entire home range or territory. As such, some species may disperse through the site, but most wildlife presently using the site do so as part of their normal movements for foraging, mating, and caring for young. Wildlife species presently occupying the site would be displaced or lost from the proposed development areas.

Mining of the site will occur in four phases, with the last two phases probably not occurring until 25 or more years into the future, and continuing to provide habitat for native wildlife in the interim. As new quarry phases are mined, past phases will be reclaimed and revegetated to be returned to a state as closely as possible reflecting their pre-project state. The greatest impacts to habitat will occur as a result of Phase 4. This phase of the project will result in impacts to a total of approximately 90 acres, including annual grasslands, oak woodlands, and hay fields, and also directly impact approximately 1700 linear feet of ephemeral drainages that primarily support herbaceous upland vegetation undifferentiated from surrounding upland habitats. Phase 4 of the project will not impact, either directly or indirectly, any sensitive riparian habitats or wetland habitats, as no such habitats occur within 150 of the Phase 4 project. Incrementally, over the span of many decades, the quarry project will impact a total of approximately 300 acres of grasslands, woodlands, and agricultural land. Additionally, a small amount of riparian habitat associated with Sargent Creek as a result of the Phase 1 access road crossing will be impacted.

Annual grasslands and oak woodlands do provide important habitat for many native species; however, these habitats are still abundant regionally and a total of approximately 400 acres will be preserved in-perpetuity on the conservation easement. As habitat for native wildlife, this preserved open space is of higher quality than the area proposed for development because it is composed of a mosaic of different habitats including grasslands, woodlands, chaparral/scrub habitats, and seasonal wetlands, and more than 11,000 linear feet of ephemeral drainages. Additionally, the conservation easement will preserve linkages between undeveloped lands occurring to the east and west of the easement, and the eastern boundary, more than a mile in length, is adjacent to Sargent Creek, a riparian corridor which connects open space areas occurring to the north and south as well.

Impacts to native wildlife due to the loss of habitat resulting from the proposed project are considered less than significant under CEQA.

Mitigation. Mitigation measures are not warranted.

3.3.14 Interference with the Movement of Native Wildlife

Potential Impacts. The quarry project is unlikely to result in a significant impact to the movements of native wildlife. Although some native wildlife would be expected to move through habitats within the quarry footprints, the project will be set back by 100 - 150 feet or more from the most important movement corridors within the project vicinity, i.e. Tar Creek and Sargent Creek, with the exception of crossings of Sargent Creek and Tar Creek required for quarry access roads and conveyor belt alignments. The conveyor belt feature will be constructed between that processing plant in the northern portion of the site to the Phase 1 and Phase 2 mining sites. This feature is proposed to be elevated by four to five in height and it is not anticipated that this feature will therefore present a barrier to wildlife passing underneath to access habitats to the east and west. Wildlife currently moving through the habitats of the quarry site to access open space lands to the east and west will be able to use the conservation easement area to continue to do so, or the Tar Creek corridor to the north of the quarry site. Open space lands and the Sargent Creek corridor remain available to the west of the quarry area that will continue to provide linkage between open space areas to the south and north of the project.

Therefore, impacts to wildlife movements are considered less-than-significant under CEQA.

Mitigation. Mitigation measures are not warranted.

3.3.15 Conflict with Local Policies or Ordinances

Potential Impact. There are two County policies or ordinances that the project will need to abide by are the Santa Clara County Tree Ordinance and Heritage Trees in Santa Clara County Ordinance. The applicant will be responsible for conforming to these two ordinance requirements and applying for any necessary permits for removal of ordinance or heritage trees.

Mitigation. None warranted.

3.3.16 Degradation of Water Quality in Seasonal Creeks, Reservoirs and Downstream Waters

Potential Impact. The development of quarry facilities and on-going quarry operations will require grading, excavation, and vegetation removal, thereby resulting in the project site

becoming vulnerable to sheet, rill or gully erosion. Eroded soil is generally carried as sediment in surface runoff to be deposited in natural creek/river beds, canals, and adjacent wetlands.

To avoid or minimize sedimentation to offsite waters the quarry will be set back a minimum of 100 feet from any aquatic features. During the development of quarry facilities, including roads, the applicant will be required to develop an erosion control plan. The applicant must also comply with standard erosion control measures that employ best management practices (BMPs), develop a SWPPP per State Water Quality Control Board Stormwater Permit, and conform with Santa Clara County's stormwater and grading requirements. If the applicant abides by the above requirements and obtains the required permits prior to starting the project, impacts to downstream waters from erosion and polluted stormwater runoff will be reduced to a less than significant level.

During project operation phase, runoff from quarry work areas would drain by sheet flow into drainage swales along the perimeter of the work area. Storm drainage from the site would be conveyed to settling ponds. Storm water in the settling pond would ultimately percolate on-site or be reused for plant operations. Swales will buffer the overburden stockpiles and the plant area from Tar Creek to the west, and contain storm water from entering the creek

Mitigation 3.3.16. The incorporation of SCVHCP avoidance and minimization measures as indicated in Mitigation Measure 3.3.2 for steelhead, above, and provided in Appendix D, along with practices incorporated into the project description, and minimum setback requirements, will ensure that runoff from the quarry does not enter into creeks in the vicinity of the project. During the development of quarry facilities, the applicant must comply with the provisions of a County grading permit, including standard erosion control measures that employ best management practices (BMPs). Projects involving the grading of large tracts of land must also be in compliance with provisions of a General Construction permit (a type of NPDES permit) available from the California Regional Water Quality Control Board. Compliance with the above permits should result in no impact to water quality in seasonal creeks, reservoirs, and downstream waters from the proposed project.

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APPENDIX A: VASCULAR PLANTS OF THE STUDY AREA

The plant species listed below have been observed on the approximately 6300-acre Sargent Ranch study area during the surveys conducted by Live Oak Associates on July 30, August 3 and 4, 2004; June 9 and 10, July 13, 20, 21, and 27, and October 6, 2005; March 28 and 29, 2007; May 29-31, 2007; August 1, 2007; September 24, 2007; October 4 and 11, 2016; and June 9 and 29, 2017. All plants have been named according to *The Jepson Manual* (Hickman 1993). The U.S. Fish and Wildlife Service indicator status of each plant has been shown following its common name. Many, although not all, of these species may also be reasonably expected to occur on the Sargent Ranch Quarry project site.

OBL - Obligate
FACW - Facultative Wetland
FAC - Facultative
FACU - Facultative Upland
UPL - Upland
+/- - Higher/lower end of category
NR - No review
NA - No agreement
NI - No investigation

ACERACEAE – MAPLE FAMILY		
Acer macrophyllum	Big-leaf Maple	FAC
Acer negundo	Boxelder	FACW
ANACARDIACEAE – SUMAC FAMILY		
Schinus molle	Peruvian Pepper Tree	UPL
Toxicodendron diversilobum	Poison Oak	UPL
APIACEAE – CARROT FAMILY		
Anthriscus caucalis	Bur-chervil	UPL
Berula erecta	Cut-leaved Water Parsnip	OBL
Conium maculatum	Poison Hemlock	FACW
Daucus pusillus	Rattlesnakeweed	UPL
Eryngium vaseyi	Coyote Thistle	OBL
Foeniculum vulgare	Fennel	FACU
Heracleum lanatum	Cow Parnsip	FACU
Hydrocotyle ranunculoides	Marsh Pennywort	OBL
Lomatium sp.	Lomatium	-
Oenanthe sarmentosa	Water Parsley	OBL
Osmorhiza chilensis	Sweet-cicely	UPL
Perideridia kelloggii	Kellogg's Yampah	UPL
Sanicula bipinnata	Poison Sanicle	UPL
Sanicula bipinnatifida	Purple Sanicle	UPL
Sanicula crassicaulis	Snakeroot	UPL
Sanicula laciniata	Coast Sanicle	UPL
Torilis arvensis	Field Hedge Parsley	UPL

Torilis nodosa	Knotted Hedge Parsley	UPL
APOCYNACEAE – DOGBANE FAMILY		
Vinca major	Periwinkle	UPL
ASCLEPIADACEAE – MILKWEED FAMILY		
Asclepias fascicularis	Narrow-leaved Milkweed	FAC
ASTERACEAE - SUNFLOWER FAMILY		
Achillea millefolium	Common Yarrow	FACU
Achyrachaena mollis	Blow Wives	UPL
Agoseris grandiflora	California Dandelion	UPL
Agoseris heterophylla	Annual Mountain Dandelion	UPL
Ambrosia psilostachya	Western Ragweed	
Anaphalis margaritacea	Pearly Everlasting	
Anthemis cotula	Mayweed	FACU
Artemisia californica	California Sagebrush	UPL
Artemisia douglasiana	Mugwort	FACW
Baccharis pilularis	Coyote Brush	UPL
Baccharis salicifolia	Mule's Fat	FACW-
Carduus pycnocephalus	Italian Thistle	UPL
Centaurea calcitrapa	Purple Star-thistle	UPL
Centaurea solstitialis	Yellow Star-thistle	UPL
Chamomilla suaveolens	Pineapple Weed	FACU
Cichorium intybus	Chicory	UPL
Cirsium vulgare	Bull Thistle	FACU
Conyza canadensis	Canadian Horseweed	FAC
Cotula coronopifolia	Brass Buttons	FACW+
Erechtites glomerata	Cut-leaved Fireweed	UPL
Erigeron philadelphicus	Philadelphia Daisy	
Eriophyllum confertiflorum	Golden Yarrow	UPL
Filago gallica	Narrow-leaved Filago	UPL
Gnaphalium californicum	California Everlasting	UPL
Gnaphalium luteo-album	Cudweed	FACW-
Gnaphalium purpureum	Purple Cudweed	UPL
Grindelia camporum	Great Valley Gumplant	FACU
Helenium puberulum	Rosilla	FACW
Hemizonia congesta ssp. congesta	Hayfield Tarweed	UPL
Hemizonia congesta ssp. luzulifolia	Hayfield Tarweed	UPL
Hemizonia pungens ssp. pungens	Common Spikeweed	FAC
Hesperevax sparsiflora	Erect Hesperevax	UPL
Hypochaeris glabra	Smooth Cat's Ear	UPL
Hypochaeris radicata	Rough Cat's Ear	UPL
Iva axillaris ssp. robustior	Poverty weed	FAC
Lactuca saligna	Willow Lettuce	NI
Lactuca serriola	Prickly Lettuce	FAC
Lagophylla ramosissima ssp. ramosissima	Common Hareleaf	UPL

Lasthenia californica	Goldfields	UPL
Layia platyglossa	Tidy Tips	UPL
Lessingia filaginifolia	Common Lessingia	UPL
Madia gracilis	Slender Tarweed	UPL
Microseris douglasii	Douglas Microseris	UPL
Picris echioides	Bristly Ox Tongue	FAC*
Senecio vulgaris	Common Groundsel	NI
Silybum marianum	Milk Thistle	UPL
Solidago californica	California Goldenrod	UPL
Sonchus asper	Prickly Sow-thistle	FAC
Sonchus oleraceus	Common Sow-thistle	NI
Taraxacum officinale	Common Dandelion	FACU
Tragopogon porrifolius	Tragopogon	UPL
Uropappus lindleyi	Silverpuffs	UPL
Wyethia glabra	Mules-ears	UPL
Wyethia helenioides	Gray Mules Ears	UPL
Xanthium spinosum	Spiny Cocklebur	FAC+
Xanthium strumarium	Common Cocklebur	FAC+

AZOLLACEAE - MOSQUITO FERN FAMILY

Azolla filiculoides	Fern-Like Azolla	OBL

BETULACEAE – BIRCH FAMILY

Alnus rhombifolia	White Alder	FACW
Alnus rubra	Red Alder	FACW
Corylus cornuta var. californica	Hazelnut	NI

BLECHNACEAE - DEER FERN FAMILY

Woodwardia fimbriata	Chain Fern	FACW+

BORAGINACEAE – BORAGE FAMILY

Amsinckia menziesii var. intermedia	Fiddleneck	UPL
Cynoglossum grande	Hound's Tounge	UPL
Heliotropium curassivicum	Alkali Heliotrope	OBL
Plagiobothrys canescens	Valley Popcorn Flower	UPL
Plagiobothrys nothofluvus	Rusty Popcorn Flower	FACU

BRASSICACEAE – MUSTARD FAMILY

Brassica nigra	Black Mustard	UPL
Capsella bursa-pastoris	Cardamine californica	
Milkmaids		UPL
Cardamine oligosperma	Bitter Cress	FACW
Cardaria draba	Hoary Cress	UPL
Hirschfeldia incana	Summer Mustard	UPL
Lepidium campestre	Lepidium latifolium	
Broad-leaved Peppergrass		FACW
Lepidium nitidum	Common Peppergrass	FACW

Lepidium oxycarpum	Sharp-podded Peppergrass	OBL
Lepidium strictum	Wayside Peppergrass	UPL
Raphanus sativus	Wild Radish	UPL
Rorippa curvisiliqua	Western Yellow Cress	OBL
Rorippa nasturtium-aquaticum	Watercress	OBL
Sisymbrium officinale	Hedge Mustard	UPL

CAPRIFOLIACEAE – HONEYSUCKLE FAMILY

Lonicera hispidula	Hairy Honeysuckle	UPL
Sambucus mexicana	Blue Elderberry	FAC
Symphoricarpos albus var. laevigatus	Snowberry	FACU

CARYOPHYLLACEAE – PINK FAMILY

Cerastium glomeratum	Mouse-eared Chickweed	UPL
Silene gallica	Windmill Pink	
Spergularia marina	Salt-marsh Sand Spurry	OBL
Spergularia rubra	Red Sand-spurrey	FAC-
Stellaria media	Common Chickweed	FACU

CHENOPODIACEAE – GOOSEFOOT FAMILY

Atriplex triangularis	Spear Scale	FACW
Chenopodium californicum	California Goosefoot	UPL
Salsola tragus	Russian-thistle	FACU

CONVOLVULACEAE – MORNING GLORY FAMILY

Calystegia occidentalis	Western Morning-glory	UPL
Calystegia subacaulis	Hill Morning-glory	UPL
Convolvulus arvensis	Field Bindweed	UPL
Cressa truxillensis	Alkali Weed	FACW

CORNACEAE – DOGWOOD FAMILY

Cornus glabrata	Brown Dogwood	FACW

CRASSULACEAE – STONECROP FAMILY

Crassula connata	Pygmyweed	FAC

CUCURBITACEAE – GOURD FAMILY

Marah fabaceus	California Man-Root	UPL

CYPERACEAE – SEDGE FAMILY

Carex dudleyi	Dudley's Sedge	FACW
Carex obnupta	Slough Sedge	OBL
Carex serratodens	Bifid Sedge	FACW
Cyperus eragrostis	Umbrella Sedge	FACW
Eleocharis macrostachya	Spikerush	OBL
Scirpus acutus	Common Tule	OBL
Scirpus americanus	Three Square	OBL

Scirpus cernuus	Low Club Rush	OBL

DENNSTAEDTIACEAE – BRACKEN FAMILY

Pteridium aquilinum	Western Bracken Fern	FACU

DIPSACEAE – TEASEL FAMILY

Dipsacus fullonum	Wild Teasel	NI

DRYOPTERIDACEAE – WOOD FERN FAMILY

Athyrium felix-femina	Western Lady Fern	FAC
Dryopteris arguta	Wood Fern	UPL
Polystichum munitum	Western Sword Fern	UPL

EQUISETACEAE – HORSETAIL FAMILY

Equisetum arvense	Common Horsetail	FAC
Equisetum laevigatum	Smooth Scouring Rush	FACW
Equisetum telmateia ssp. braunii	Giant Horsetail	OBL

ERICACEAE – HEATH FAMILY

Arbutus menziesii	Madrone	UPL
Arctostaphylos tomentosa	Woolly-leaf Manzanita	UPL

EUPHORBIACEAE – SPURGE FAMILY

Eremocarpus setigerus	Doveweed	UPL
Euphorbia crenulata	Chinese Caps	UPL

FABACEAE – LEGUME FAMILY

Astragalus gambelianus	Gamble's Milk-vetch	UPL
Lotus corniculatus	Bird's Foot Trefoil	FAC
Lotus purshianus	Spanish Lotus	UPL
Lotus scoparius	California Broom, Deer Weed	UPL
Lotus wrangelianus	California Lotus	UPL
Lupinus adsurgens	Silky Lupine	UPL
Lupinus albifrons	Silver Bush Lupine	UPL
Lupinus bicolor	Miniature Lupine	UPL
Lupinus nanus	Sky Lupine	UPL
Lupinus succulentus	Arroyo Lupine	UPL
Medicago polymorpha	Bur Clover	FACU-
Melilotus alba	White Sweetclover	FACU+
Melilotus indica	Yellow Sweetclover	FAC
Rupertia physodes	California-tea	UPL
Trifolium angustifolium	Narrow-leaved clover	UPL
Trifolium albopurpureum	Indian Clover	UPL
Trifolium bifidum	Notch-leaved Clover	UPL
Trifolium ciliolatum	Tree Clover	UPL
Trifolium dubium	Little Hop Clover	FACU
Trifolium fucatum	Bull Clover	FAC

Trifolium gracilentum var. gracilentum	Pinpoint Clover	UPL
Trifolium hirtum	Rose Clover	UPL
Trifolium incarnatum	Crimson Clover	UPL
Trifolium microcephalum	Small-head Clover	FACU
Trifolium microdon	Valpariaso Clover	UPL
Trifolium subterraneum	Subterraneum Clover	UPL
Trifolium wildenovii	Tomcat Clover	UPL
Trifolium wormskioldii	Cow Clover	FACW
Vicia sativa	Spring Vetch	FACU
Vicia villosa	Hairy Vetch	UPL

FAGACEAE – OAK FAMILY

Quercus agrifolia	Coast Live Oak	UPL
Quercus douglassii	Blue Oak	UPL
Quercus lobata	Valley Oak	UPL

GERANIACEAE – GERANIUM FAMILY

Erodium botrys	Long-beaked Filaree	UPL
Erodium cicutarium	Redstem Filaree	UPL
Geranium dissectum	Cut-Leaved Geranium	UPL
Geranium molle	Dove's Foot Geranium	UPL

GROSSULARIACEAE – GOOSEBERRY FAMILY

Ribes californicum var. californicum	Hillside Gooseberry	UPL
Ribes sanguineum var. glutinosum	Pinkflower Currant	UPL

HIPPOCASTANACEAE – BUCKEYE FAMILY

Aesculus californica	California Buckeye	UPL

HYROPHYLLACEAE – WATERLEAF FAMILY

Nemophila menziesii ssp. menziesii	Baby Blue-eyes	UPL
Pholistima auritum var. auritum	Fiesta Flower	UPL

IRIDACEAE – IRIS FAMILY

Iris douglasiana	Douglas Iris	UPL
Sisyrinchium bellum	Blue-eyed Grass	FAC

JUGLANDACEAE – WALNUT FAMILY

Juglans hindsii	California Black Walnut	FAC

JUNCACEAE – RUSH FAMILY

Juncus balticus	Baltic Rush	OBL
Juncus bufonius	Toad Rush	FACW-
Juncus effuses var. pacificus	Pacific Bog Rush	OBL
Juncus mexicanus	Mexican Rush	FACW
Juncus occidentalis	Western Rush	FACW
Juncus patens	Common Rush	FAC

Juncus xiphioides	Iris-leaf Juncus	FACW+
Luzula comosa	Wood Rush	NI

LAMIACEAE – MINT FAMILY

Lepichinia calycina	Pitcher Sage	UPL
Marrubium vulgare	Horehound	FAC
Mentha pulegium	Pennyroyal	OBL
Pogogyne serpylloides	Thyme-leaved Pogogyne	FACW
Salvia mellifera	Black Sage	UPL
Stachys ajugoides var. rigida	Rigid Hedge Nettle	OBL
Stachys bullata	Wood Mint	UPL
Stachys pycnantha	Short-spiked Hedge Nettle	FACW
Trichostemma lanceolatum	Vinegar Weed	UPL

LAURACEAE – LAUREL FAMILY

Umbellularia californica	California Bay	FAC

LEMNACEAE – DUCKWEED FAMILY

Lemna gibba	Inflated Duckweed	OBL
Lemna minor	Duckweed	OBL

LILIACEAE – LILY FAMILY

Brodiaea elegans	Harvest Brodiaea	UPL
Calochortus luteus	Yellow Mariposa Lily	UPL
Calochortus venustus	Mariposa Lily	UPL
Chlorogalum pomeridianum	Soap Plant	UPL
Dichelostemma capitatum ssp. capitatum	Blue Dicks	UPL
Muilla maritima	Common Muilla	UPL
Trillium chloropetalum	Giant Trillium	UPL
Triteleia laxa		

LINACEAE – FLAX FAMILY

Linum bienne	Narrowleaf Flax	UPL

LYTHRACEAE – LOOSESTRIFE FAMILY

Lythrum hyssopifolia	Hyssop Loosestrife	FACW

MALVACEAE – MALLOW FAMILY

Malva neglecta	Common Mallow, Cheeses	UPL
Malvella leprosa	Alkali Mallow	FAC
Sidalcea diploscypha	Fringed Sidalcea	
Sidalcea malvaeflora ssp. laciniata	Checker Bloom, Wild Hollyhock	UPL

MYRTACEAE – MYRTLE FAMILY

Eucalyptus globulus	Blue Gum	UPL

OLEACEAE – OLIVE FAMILY

Fraxinus dipetala	California Ash	UPL

ONAGRACEAE – EVENING PRIMROSE FAMILY

Camissonia ovata	Sun Cup	UPL
Clarkia rubicunda	Farewell-To-Spring	UPL
Clarkia sp.	Clarkia	
Clarkia unguiculata	Elegant Fairyfan	UPL
Epilobium brachycarpum	Willow Herb	UPL
Epilobium canum	California Fuschia	UPL
Epilobium ciliatum ssp. ciliatum	California Willowherb	FACW
Epilobium minutum	Minute Willowherb	UPL
Epilobium ciliatum	Willow Herb	FACW
Ludwigia peploides	Yellow Water Weed	OBL
Oenethera elata ssp. hookeri	Hooker's Evening Primrose	

OXALIDACEAE – OXALIS FAMILY

Oxalis corniculata	Creeping Wood-sorrel	FACU
Oxalis pes-caprae	Bermuda Buttercup	UPL

PAPAVERACEAE – POPPY FAMILY

Eschscholzia californica	California Poppy	UPL
Platystemon californicus	Cream Cups	UPL

PLANTAGINACEAE – PLANTAGO FAMILY

Plantago lanceolata	English Plantain	FAC
Plantago major	Common Plantain	FACW-

PLATANACEAE – SYCAMORE FAMILY

Platanus racemosa	Western Sycamore	FACW

POACEAE - GRASS FAMILY

Agrostis viridis	Water Bent Grass	OBL
Arundo donax	Giant Reed	FACW
Avena barbata	Slender Wild Oats	UPL
Avena sativa	Cultivated Oat	UPL
Briza minor	Little Quaking Grass	FACW-
Bromus carinatus	California Brome	UPL
Bromus diandrus	Ripgut	UPL
Bromus hordeaceus	Soft Chess	FACU
Bromus madritensis	Red Brome	NI
Crypsis schoenoides	Swamp Grass	OBL
Crypsis vaginiflora	Prickle-grass	
Cynosurus echinatus	Hedgehog Dogtail	UPL
Danthonia californica	California Oatgrass	FACW
Distichlis spicata	Saltgrass	FACW
Echinochloa crus-galli	Barnyard Grass	FACW

Elymus elymoides	Squirrel tail	FACU-
Elymus glaucus	Blue Wildrye	FACU
Gastridium ventricosum	Nit Grass	FACU
Hordeum brachyanthurumCalifornia Barley		FACW
Hordeum marinum ssp. gussoneanum	Mediterranean Barley	FAC
Hordeum murinum ssp. leporinum	Barnyard Barley	NI
Lamarkia aurea	Goldentop	UPL
Leymus triticoides	Creeping Wildrye	FAC+
Lolium multiflorum	Ryegrass	FAC
Lolium perenne	Perennial Rye	FAC
Melica torreyana	Melic Grass	UPL
Nassella cernua	Nodding Needle Grass	
Nassella pulchra	Purple Needle Grass	UPL
Paspalum distichum	Knotgrass	OBL
Phalaris aquatica	Harding Grass	FAC+
Poa annua	Annual Bluegrass	FACW-
Poa secunda	Oneside Blue Grass	UPL
Polypogon monspeliensis	Annual Beardgrass	FACW
Vulpia bromoides	Six-week Fescue	FACW
Vulpia microstachys	Pacific Fescue	UPL

POLEMONIACEAE – PHLOX FAMILY

Navarretia sp.	Navarretia	

POLYGONACEAE - BUCKWHEAT FAMILY

Eriogonum nudum var.nudum	Naked-stemmed Buckwheat	UPL
Polygonum amphibium var. emersum	Swamp Knotweed	OBL
Polygonum arenastrum	Common Knotweed	FAC
Polygonum hydropiperoides	Water-pepper	OBL
Polygonum persicaria	Lady's Thumb	FACW
Pterostegia drymarioides	Pterostigia	UPL
Rumex acetosella	Sheep Sorrel	FAC_
Rumex crispus	Curly Dock	FACW
Rumex pulcher	Fiddle Dock	FAC+
Rumex salicifolius	Willow Dock	OBL

POLYPODIACEAE – POLYPLODY FAMILY

Polypodium californicum	California Polypody	UPL

PORTULACACEAE – PURSLANE FAMILY

Calandrinia ciliata	Red Maids	FACU
Claytonia gypsophiloides	Coast Claytonia	UPL
Claytonia parviflora ssp. parviflora	Small-leaved Claytonia	UPL
Claytonia perfoliata ssp. perfoliata	Miner's Lettuce	FAC
Portulaca oleracea	Common Purslane	FAC

POTAMOGETONACEAE - PONDWEED FAMILY

Potamogeton nodosus	Long-leaved Pondweed	OBL

PRIMULACEAE – PRIMROSE FAMILY

Anagallis arvensis	Scarlet Pimpernel	FAC
Dodecatheon hendersonii	Mosquito Bills	UPL
Trientalis latifolia	Star Flower	UPL

PTERIDACEAE – BRAKE FAMILY

Adiantum jordanii	Maidenhair Fern	UPL
Pellaea andromedaefolia	Coffee Fern	UPL
Pentagramma triangularis	Gold-back Fern	UPL

RANUNCULACEAE – BUTTERCUP FAMILY

Clematis ligusticifolia	Virgin's Bower	FAC
Myosurus minimus	Common Mousetail	OBL
Ranunculus californicus	California Buttercup	FAC

RHAMNACEAE – BUCKTHORN FAMILY

Rhamnus californica	California Coffeeberry	UPL
Rhamnus crocea	Redberry	UPL

ROSACEAE – ROSE FAMILY

Acaena pinnatifida var. californica	California Acaena	UPL
Adenostema fasciculatum	Chamise	FAC
Aphanes occidentalis	Lady's Mantle	UPL
Fragaria vesca	Wood Strawberry	UPL
Heteromeles arbutifolia	Toyon	UPL
Holodiscus discolor	Creambush	UPL
Horkelia californica ssp. frondosa	Leafy Horkelia	UPL
Oemlaria cerasiformis	Oso Berry	UPL
Prunus cerasifera	Cherry Plum	UPL
Rosa californica	California Rose	FAC+
Rubus discolor	Himalayan Blackberry	FACW
Rubus ursinus	California Blackberry	FACW

RUBIACEAE – MADDER FAMILY

Galium aparine	Goosegrass	FACU
Galium parisiense	Wall Bedstraw	FACU
Galium porrigens	Climbing Bedstraw	UPL
Sherardia arvensis	Field Madder	UPL

SALICACEAE – WILLOW FAMILY

Populus balsamifera ssp. tricocarpa	Black Cottonwood	FACW
Populus fremontii	Fremont's Cottonwood	FACW
Salix exigua	Narrowleaf Willow	OBL
Salix laevigata	Red Willow	FACW
Salix lasiolepis	Arroyo Willow	FACW

Salix lucida ssp. lasiandra	Yellow Willow	OBL

SAXIFRAGACEAE – SAXIFRAGE FAMILY

Lithophragma affine	Woodland Star	UPL
Saxifraga californica	California Saxifrage	UPL

SCROPHULARIACEAE – SNAPDRAGON FAMILY

Castilleja affinis ssp. affinis	Indian Paintbrush	UPL
Castilleja exserta	Pink Owl's Clover	UPL
Castilleja foliolosa	Woolly Indian Paint-brush	UPL
Mimulus aurantiacus	Sticky Monkeyflower	UPL
Mimulus guttatus	Common Monkeyflower	OBL
Scrophularia californica	Beeplant	FAC
Tryphysaria pusilla	Little Owl's Clover	UPL
Veronica anagallis-aquatica	Water speedwell	OBL

SOLANACEAE – NIGHTSHADE FAMILY

Solanum nigrum	Black Nightshade	FACU
Solanum umbelliferum	Blue Witch	UPL

TAXODIACEAE – BALD CYPRESS FAMILY

Sequoia sempervirens	Coast Redwood	UPL

TYPHACEAE – CATTAIL FAMILY

Typha angustifolia	Narrow-leaved Cattail	OBL
Typha latifolia	Broad-leaved Cattail	OBL

URTICACEAE – NETTLE FAMILY

Urtica dioica ssp. *holosericea*	Stinging Nettle	FACW
Urtica urens	Dwarf Nettle	UPL

VERBANACEAE – VERBANE FAMILY

Phyla nodiflora	Garden Lippia	FACW
Verbena lasiostachy var. scabrida	Robust Verbena	FAC-

VIOLACEAE – VIOLET FAMILY

Viola pedunculata	Johnny Jump-up	UPL

VISCACEAE – MISTLETOE FAMILY

Phoradendron villosum	Oak Mistletoe	UPL

APPENDIX B
TERRESTRIAL VERTEBRATE SPECIES THAT OCCUR, OR POTENTIALLY OCCUR, ON THE STUDY AREA

The species listed below are those that have been observed on the greater 6300 acre Sargent Ranch property during surveys conducted by LOA and PNWB (denoted by an asterisk), or would be reasonably expected to occur on Sargent Ranch although not directly observed. Many, although not all, of these species may reasonably be expected to use the habitats of the quarry project site. The list was not intended to include birds that are vagrants or occasional transients. Its purpose was rather to include those species that may be expected to routinely and predictably use the site during some or all of the year.

CLASS: ACTINOPTERYGII

ORDER: SALMONIFORMES (Salmonids)

FAMILY: SOLMONIDAE
Steelhead (*Onchorynchis mykiss irideus*)*

CLASS: AMPHIBIA

ORDER: CAUDATA (SALAMANDERS)

FAMILY: AMBYSTOMATIDAE (MOLE SALAMANDERS AND RELATIVES)

California Tiger Salamander (*Ambystoma californiense*)*

FAMILY: SALAMANDRIDAE (NEWTS)
California Newt (*Taricha torosa*)*

FAMILY: PLETHODONTIDAE (LUNGLESS SALAMANDERS)
Ensatina (*Ensatina eschscholtzii*)
Black-bellied Salamander *(Batrachoseps nigriventris)*
Pacific Slender Salamander *(Batrachoseps pacificus)*
Arboreal Salamander *(Aneides lugubris)**

ORDER: ANURA (FROGS AND TOADS)

FAMILY: BUFONIDAE (TRUE TOADS)
Western Toad (*Bufo boreas*)*

FAMILY: HYLIDAE (TREEFROGS AND RELATIVES)
Pacific Chorus Frog (*Pseudacris regilla*)*

FAMILY: RANIDAE (TRUE FROGS)
Bullfrog (Rana catesbeiana)*
California Red-legged Frog (*Rana draytonii*)*

CLASS: REPTILIA
ORDER: TESTUDINES (TURTLES)
FAMILY: EMYDIDAE (BOX AND WATER TURTLES)
Western Pond Turtle (*Emys marmorata*)*

ORDER: SQUAMATA (LIZARDS AND SNAKES)

SUBORDER: SAURIA (LIZARDS)

FAMILY: PHRYNOSOMATIDAE
Western Fence Lizard (*Sceloporus occidentalis*)*

FAMILY: SCINCIDAE (SKINKS)
Gilbert Skink (*Eumeces gilberti*)

FAMILY: ANGUIDAE (ALLIGATOR LIZARDS AND RELATIVES)
Southern Alligator Lizard (*Elgaria multicarinata*)*

SUBORDER: SERPENTES (SNAKES)

FAMILY: BOIDAE (BOAS)
Rubber Boa (*Charina bottae*)

FAMILY: COLUBRIDAE (COLUBRIDS)
Racer (*Coluber constrictor*)*
Gopher Snake (*Pituophis melanoleucus*)*
Common Kingsnake (*Lampropeltis getulus*)
Common Garter Snake *(Thamnophis sirtalis)*
Western Aquatic Garter Snake (*Thamnophis couchi*)*

FAMILY: VIPERIDAE
Western Rattlesnake (*Crotalus viridis*)*

CLASS: AVES

ORDER: CICONIIFORMES (HERONS, STORKS, IBISES, AND RELATIVES)
FAMILY: PODICIPEDIDAE
Pied-billed Grebe (*Podilymbus podiceps*)*

FAMILY: ARDEIDAE (HERONS AND BITTERNS)
GREAT BLUE HERON (*ARDEA HERODIAS*)*
BLACK-CROWNED NIGHT HERON (*NYCTICORAX NYCTICORAX*)
GREAT EGRET (*ARDEA ALBA*)*
SNOWY EGRET (*EGRETTA THULA*)*

FAMILY: CATHARTIDAE (AMERICAN VULTURES)
Turkey Vulture (*Cathartes aura*)*
California Condor (Gymnogyps californianus)

ORDER: ANSERIFORMES (SCREAMERS, DUCKS AND RELATIVES)

FAMILY: ANATIDAE (SWANS, GEESE AND DUCKS)
MALLARD (*ANAS PLATYRHYNCHOS*)*
CANADA GOOSE (*BRANTA CANADENSIS*)*
WOOD DUCK (*AIX SPONSA*)*

ORDER: FALCONIFORMES (VULTURES, HAWKS, AND FALCONS)

FAMILY: ACCIPITRIDAE (HAWKS, OLD WORLD VULTURES, AND HARRIERS)

White-tailed Kite (*Elanus caeruleus*)*
Bald Eagle (Haliaeetus leucocephalus)*
Northern Harrier (*Circus cyaneus*)*
Sharp-shinned Hawk (*Accipiter striatus*)*
Cooper's Hawk (*Accipiter cooperi*)*

Red-shouldered Hawk (*Buteo lineatus*)*
Red-tailed Hawk (*Buteo jamaicensis*)*
Ferruginous Hawk (*Buteo regalis*)*
Rough-legged Hawk (*Buteo lagopus*)
Golden Eagle (*Aquila chrysaetos*)*

FAMILY: FALCONIDAE (CARACARAS AND FALCONS)
American Kestrel (*Falco sparverius*)*
Merlin (Falco columbarius)*
Peregrine Falcon (*Falco peregrinus*)*
Prairie Falcon (*Falco mexicanus*)*

ORDER: GALLIFORMES (Megapodes, Currassows, Pheasants, and Relatives)

FAMILY: PHASIANIDAE (QUAILS, PHEASANTS AND RELATIVES)

Wild Turkey (*Meleagris gallopavo*)*

FAMILY: ODONTOPHORIDAE (NEW WORLD QUAIL)
California Quail (Callipepla californica)*

FAMILY: LARIDAE (*GULLS AND TERNS*)
California Gull (*Larus californicus*)

ORDER: CHARADRIIDAE (SHOREBIRDS, GULLS AND RELATIVES)

FAMILY: CHARADRIIDAE (PLOVERS AND RELATIVES)

KILLDEER (*CHARADRIUS VOCIFEROUS*)*

ORDER: COLUMBIFORMES (PIGEONS AND DOVES)

FAMILY: COLUMBIDAE (PIGEONS AND DOVES)
Rock Dove (*Columba livia*)*
Band-tailed Pigeon (*Columba fasciata*)*
Mourning Dove (*Zenaida macroura*)*
Eurasian Collared-dove (*Streptopelia decaocto*)*

ORDER: STRIGIFORMES (OWLS)

FAMILY: TYTONIDAE (BARN OWLS)
Common Barn Owl (*Tyto alba*)*

FAMILY: STRIGIDAE (TYPICAL OWLS)
Short-eared Owl (*Asio flammeus*)
Great Horned Owl (*Bubo virginianus*)*
Northern Saw-whet Owl (*Aegolius acadicus*)*
Burrowing Owl (*Athene cunicularia*)*

Long-eared Owl (*Asio otus*)
Western Screech Owl (*Megascops kennicottii*)*

ORDER: CAPRIMULGIFORMES (GOATSUCKERS AND RELATIVES)

FAMILY: CAPRIMULGIDAE (GOATSUCKERS)
Common Nighthawk (*Chordeiles minor*)

ORDER: APODIFORMES (SWIFTS AND HUMMINGBIRDS)

FAMILY: TROCHILIDAE (HUMMINGBIRDS)
Anna's Hummingbird (*Calypte anna*)*
Rufous Hummingbird (*Selasphorus rufus*)*
Allen's Hummingbird (*Selasphorus sasin*)*

ORDER: CORACIIFORMES (KINGFISHERS AND RELATIVES)

FAMILY: ALCEDINIDAE (KINGFISHERS)

BELTED KINGFISHER (*CERYLE ALCYON*)*

ORDER: PICIFORMES (WOODPECKERS AND RELATIVES)

FAMILY: PICIDAE (WOODPECKERS AND WRYNECKS)
Acorn Woodpecker (Melanerpes formicivorous)*
Red-breasted Sapsucker *(Sphyrapicus rubber)**
Northern Flicker (*Colaptes auratus*)*
Hairy Woodpecker (*Picoides villosus*)*
Nuttall's Woodpecker (*Picoides nuttallii*)*
Downy Woodpecker (*Picoides pubescens*)*

ORDER: PASSERIFORMES (PERCHING BIRDS)

FAMILY: TYRANNIDAE (TYRANT FLYCATCHERS)
Olive-sided Flycatcher (*Contopus borealis*)*
Western Wood-Pewee (*Contopus sordidulus*)
Dusky Flycatcher (Empidonax oberholseri)
Pacific Slope Flycatcher (*Empidonax difficilis*)*
Black Phoebe (Sayornis nigricans)*
Say's Phoebe (*Sayornis saya*)*
Ash-throated Flycatcher (*Myiarchus cinerascens*)*
Western Kingbird (*Tyrannus verticalis*)*

FAMILY: LANIIDAE (SHRIKES)
Loggerhead Shrike (*Lanius ludovicianus*)*

FAMILY: VIREONIDAE (TYPICAL VIREOS)
Cassin's Vireo (*Vireo cassinii*)
Hutton's Vireo (*Vireo huttoni*)*

FAMILY: CORVIDAE (JAYS, MAGPIES, AND CROWS)
Scrub Jay (Aphelocoma coerulescens)*
Yellow-billed magpie *(Pica nuttalli)**
American Crow (Corvus brachyrhynchos)*

Common Raven (*Corvus corax*)*

FAMILY: ALAUDIDAE (LARKS)
Horned Lark (*Eremophila alpestris*)*

FAMILY: HIRUNDINIDAE (SWALLOWS)
Tree Swallow (*Tachycineta bicolor*)*
Violet-green Swallow (*Tachycineta thalassina*)*
Cliff Swallow (*Hirundo pyrrhonota*)
Barn Swallow (*Hirundo rustica*)
Bank Swallow (*Riparia riparia*)*

FAMILY: PARIDAE (TITMICE)
Oak Titmouse (*Parus inornatus*)*
Chestnut-backed chickadee (*Parus rufescens*)*

FAMILY: AEGITHALIDAE (BUSHTIT)
Bushtit (*Psaltriparus minimus*)*

FAMILY: SITTIDAE (NUTHATCHES)
White-breasted Nuthatch (*Sitta carolinensis*)*

FAMILY: TROGLODYTIDAE (WRENS)
Bewick's Wren (Thryomanes bewickii)*
House Wren (*Troglodytes aedon*)

FAMILY: REGULIDAE (KINGLETS)
Golden-crowned Kinglet (*Regulus regulus*)*
Ruby-crowned Kinglet (*Regulus calendula*)*

FAMILY: TURDIDAE (THRUSHES)
Western Bluebird (*Sialia currucoides*)*
Hermit Thrush (*Catharus guttatus*)*
American Robin (*Turdus migratorius*)*
Varied Thrush (*Ixoreus naevius*)

FAMILY: TIMALIIDAE (BABBLERS)
Wrentit (*Chamaea fasciata*)*

FAMILY: MIMIDAE (MOCKINGBIRDS AND THRASHERS)
Northern Mockingbird (*Mimus polyglottos*)*
California Thrasher (*Toxostoma redivivum*)*

FAMILY: STURNIDAE (STARLINGS)
European Starling (*Sturnus vulgaris*)*

FAMILY: MOTACILLIDAE (WAGTAILS AND PIPITS)
American Pipit (*Anthus rubescens*)*

FAMILY: BOMBYCILLIDAE (WAXWINGS)
Cedar Waxwing (*Bombycilla cedrorum*)

FAMILY: PTILOGONATIDAE (SILKY FLYCATCHERS)
Phainopepla (*Phainopepla nitens*)

FAMILY: PARULIDAE (WOOD WARBLERS AND RELATIVES)
California Yellow Warbler (*Dendroica petechia brewsteri*)
Yellow-rumped Warbler (*Dendroica coronata*)*
Townsend's Warbler (*Dendroica townsendi*)*
Wilson's Warbler (*Wilsonia pusilla*)*
Orange-crowned Warbler (*Vermivora celata*)*
Common Yellowthroat (*Geothlypis trichas*)*

FAMILY: EMBERIZIDAE (EMBERIZINES)
Spotted towhee (*Pipilo maculates*)*
California towhee *(Pipilo crissalis)**
Rufous-crowned Sparrow (*Aimophila ruficeps*)
Chipping Sparrow (*Spizella passerina*)*
Black-chinned Sparrow (*Spizella atrogularis*)
Savannah Sparrow (*Passerculus sandwichensis*)
Song Sparrow (*Melospiza melodia*)*
Lincoln's Sparrow (*Melospiza lincolnii*)*
Golden-crowned Sparrow (*Zonotrichia atricapilla*)*
Dark-eyed Junco (*Junco hyemalis*)*
Lark Sparrow (*Chondestes grammacus*)*
Sage Sparrow (*Amphispiza belli*)*
Grasshopper Sparrow (*Ammodramus savannarum*)*

FAMILY: CARDINALIDAE (CARDINALS, GROSBEAKS AND ALLIES)
Black-headed Grosbeak (*Pheucticus melanocephalus*)*
Lazuli Bunting (*Passerina amoena*)*

FAMILY: ICTERIDAE (BLACKBIRDS, ORIOLES AND ALLIES)
Red-winged Blackbird (*Agelaius phoeniceus*)*
Western Meadowlark (*Sturnella neglecta*)*
Brewer's Blackbird (*Euphagus cyanocephalus*)*
Brown-headed Cowbird (*Molothrus ater*)*
Bullocks oriole (*Icterus bullockii*)*

FAMILY: FRINGILLIDAE (FINCHES)
Purple Finch (*Carpodacus purpureus*)*
House Finch (*Carpodacus mexicanus*)*
Lesser Goldfinch (*Carduelis psaltria*)*
American Goldfinch (*Carduelis tristis*)*

FAMILY: PASSERIDAE (OLD WORLD SPARROWS)
House Sparrow (*Passer domesticus*)*

CLASS: MAMMALIA

ORDER: DIDELPHIMORPHIA (MARSUPIALS)

FAMILY: DIDELPHIDAE (OPOSSUMS)
Virginia Opossum (*Didelphis virginiana*)*

ORDER: INSECTIVORA (SHREWS AND MOLES)

FAMILY: SORICIDAE (SHREWS)
Ornate Shrew (*Sorex ornatus*)
Trowbridge's Shrew (*Sorex trowbridgii*)

FAMILY: TALPIDAE (MOLES)
Broad-footed Mole (*Scapanus latimanus*)

ORDER: CHIROPTERA (BATS)

FAMILY: VESPERTILIONIDAE (VESPERTILIONID BATS)
Little Brown Myotis (*Myotis lucifugus*)
California Myotis (*Myotis californicus*)
Western Pipistrelle (*Pipistrellus hesperus*)
Big Brown Bat (*Eptesicus fuscus*)
Townsend's Big-eared Bat (*Plecotus townsendii*)
Pallid Bat (*Antrozous pallidus*)

FAMILY: MOLOSSIDAE (FREE-TAILED BAT)
Brazilian Free-tailed Bat (*Tadarida brasiliensis*)
Western Mastiff Bay (*Eumops perotis*)

ORDER: LAGOMORPHA (RABBITS, HARES, AND PIKAS)

FAMILY: LEPORIDAE (RABBITS AND HARES)
Desert Cottontail (*Sylvilagus audubonii*)
Black-tailed Hare (*Lepus californicus*)*
Brush Rabbit (*Sylvilagus bachmani*)*

ORDER: RODENTIA (SQUIRRELS, RATS, MICE, AND RELATIVES)

FAMILY: SCIURIDAE (SQUIRRELS, CHIPMUNKS, AND MARMOTS)
California Ground Squirrel (*Spermophilus beecheyi*)*
Western Gray Squirrel (*Sciurus griseus*)

FAMILY: GEOMYIDAE (POCKET GOPHERS)
Botta's Pocket Gopher (*Thomomys bottae*)*

FAMILY: HETEROMYIDAE (POCKET MICE AND KANGAROO RATS)
California Pocket Mouse (*Perognathus californicus*)*

FAMILY: MURIDAE (MICE, RATS AND VOLES)
Western Harvest Mouse (*Reithrodontomys megalotis*)*
California Mouse (*Peromyscus californicus*)*
Deer Mouse (*Peromyscus maniculatus*)*
California Vole (*Microtus californicus*)*

ORDER: CARNIVORA (CARNIVORES)

FAMILY: CANIDAE (FOXES, WOLVES, AND RELATIVES)
Coyote (*Canis latrans*)*
Red Fox (*Vulpes vulpes*)
Gray Fox (*Urocyon cinereoargenteus*)*
Domestic Dog (*Canis familiaris*)*

FAMILY: PROCYONIDAE (RACCOONS AND RELATIVES)
Raccoon (*Procyon lotor*)*
Ringtail (*Bassariscus astutus*)

FAMILY: MUSTELIDAE (WEASELS, BADGERS, AND RELATIVES)
American Badger (*Taxidea taxus*)*

FAMILY: MEPHITIDAE (SKUNKS)
Striped Skunk (*Mephitis mephitis*)*

FAMILY: FELIDAE (CATS)
Feral Cat (*Felis cattus*)
Cougar (*Puma concolor*)*
Bobcat (*Lynx rufus*)*

ORDER: PERISSODACTYLA (HORSES, TAPIRS, AND RELATIVES)

FAMILY: EQUIDAE (HORSES)
Domestic Horse (*Equus caballus*)*

ORDER: ARTIODACTYLA (EVEN-TOED UNGULATES)

FAMILY: SUIDAE (PIGS)
Wild Pig (*Sus Scrofa*)*

FAMILY: CERVIDAE (DEER, ELK, AND RELATIVES)
Black-tailed Deer (*Odocoileus hemionus columbiana*)*

FAMILY: BOVIDAE (SHEEP, GOATS AND RELATIVES)
Domestic Cattle (*Bos Taurus)*

APPENDIX C: MINIMIZATION MEASURES FOR CALIFORNIA RED-LEGGED FROG AND CALIFORNIA TIGER SALAMANDER

The following measures will minimize direct and indirect impacts to California red-legged frogs and California tiger salamanders.

- Prior to the start of construction, a qualified biologist will train all project staff regarding habitat sensitivity, identification of special status species, and required practices. The training shall include the general measures that are being implemented to conserve these species as they relate to the project, the penalties for non-compliance, and the boundaries of the project area. A fact sheet or other supporting materials containing this information should be prepared and distributed. Upon completion of training, employees will sign a form stating that they attended the training and understand all the conservation and protection measures.

- A qualified biologist will survey the project site prior to, and be present to monitor, construction activities during any initial ground disturbance or vegetation clearing or other periods during construction, as necessary. The biologist will capture and relocate any California red-legged frogs and California tiger salamanders that are discovered during the surveys or construction monitoring. Any individuals that are captured should be held for the minimum amount of time necessary to release them to suitable habitat outside of the work area.

- A qualified biologist will stake and flag exclusion zones around all known locations of CRLF and CTS breeding and upland refugia areas in the construction zone. These areas will be avoided during construction activities to the maximum extent practicable. All construction areas will be flagged, and all activity will be confined to these areas.

- If a CRLF or CTS is encountered during construction work, activities will cease until the animal is removed and relocated by a qualified biologist.

- Construction activities should be limited to the period from May 1 through October 31.

- Permanent and temporary construction disturbances and other types of project-related disturbances to CRLF or CTS habitat shall be minimized to the maximum extent practicable and confined to the project site. To minimize temporary disturbances, all project-related vehicle traffic shall be restricted to established roads, construction areas, designated cross-country routes, and other designated areas. These areas also should be included in preconstruction surveys and, to the maximum extent possible, should be established in locations disturbed by previous activities to prevent further adverse effects. Sensitive habitat areas shall be delineated with high visibility flagging or fencing to prevent encroachment of construction personnel and equipment into any sensitive areas during project work activities. At no time shall equipment or personnel be allowed to adversely affect areas outside the project site without authorization from the Service.

- Because dusk and dawn are often the times when CRLF and CTS are most actively foraging and dispersing, all construction activities should cease one half hour before sunset and should not begin prior to one half hour before sunrise.

- No canine or feline pets or firearms (except for federal, state, or local law enforcement officers and security personnel) shall be permitted at the project site to avoid harassment, killing, or injuring of CRLF or CTS.

- A representative shall be appointed by the applicant who will be the contact source for any employee or contractor who might inadvertently kill or injure a CRLF or CTS or who finds a dead, injured or entrapped individual. The representative shall be identified during the tailgate/training session. The representative's name and telephone number shall be provided to the Service prior to the initiation of ground disturbance activities.

- Tightly woven fiber netting or similar material shall be used for erosion control or other purposes at the project site to ensure that CRLF and CTS do not get trapped.

- A litter control program shall be instituted at the entire project site. All construction personnel should ensure that food scraps, paper wrappers, food containers, cans, bottles, and other trash from the project area are deposited in covered or closed trash containers. The trash containers should be removed from the project area at the end of each working day.

APPENDIX D: HCP AVOIDANCE AND MINIMIZATION MEASURES

Table 6-2. Aquatic Avoidance and Minimization Measures

ID	Avoidance and Minimization Measure
	General
1	Minimize the potential impacts on covered species most likely to be affected by changes in hydrology and water quality.
2	Reduce stream pollution by removing pollutants from surface runoff before the polluted surface runoff reaches local streams.
3	Maintain the current hydrograph and, to the extent possible, restore the hydrograph to more closely resemble predevelopment conditions.
4	Reduce the potential for scour at stormwater outlets to streams by controlling the rate of flow into the streams.
5	Invasive plant species removed during maintenance will be handled and disposed of in such a manner as to prevent further spread of the invasive species.
6	Activities in the active (i.e., flowing) channel will be avoided. If activities must be conducted in the active channel, avoidance and minimization measures identified in this table will be applied.
7	Personnel shall prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water into channels.
8	Spill prevention kits shall always be in close proximity when using hazardous materials (e.g., crew trucks and other logical locations).
9	Personnel shall implement measures to ensure that hazardous materials are properly handled and the quality of water resources is protected by all reasonable means when removing sediments from the streams.
10	If ground disturbing activities are planned for a stream channel that is known or suspected to contain elevated levels of mercury, the following steps should be taken. 1. Avoid disturbing soils in streams known or suspected to contain high levels of mercury. 2. Soils that are likely to be disturbed or excavated shall be tested for mercury. Soils shall be remediated if: a. disturbed or excavated soils exposed to flood flows below the 2.33-year channel flow level exceed 1 ppm Hg, or b. disturbed or excavated soils above the 2.33-year flow level exceed 20 ppm Hg.
11	Vehicles shall be washed only at approved areas. No washing of vehicles shall occur at job sites.
12	No equipment servicing shall be done in the stream channel or immediate flood plain, unless equipment stationed in these locations cannot be readily relocated (i.e., pumps, generators).
13	Personnel shall use the appropriate equipment for the job that minimizes disturbance to the stream bottom. Appropriately-tired vehicles, either tracked or wheeled, shall be used depending on the situation
14	If high levels of groundwater in a work area are encountered, the water is pumped out of the work site. If necessary to protect water quality, the water shall be directed into specifically constructed infiltration basins, into holding ponds, or onto areas with vegetation to remove sediment prior to the water re-entering a creek.

ID	Avoidance and Minimization Measure
15	If native fish or non-covered, native aquatic vertebrates are present when cofferdams, water bypass structures, and silt barriers are to be installed, a native fish and aquatic vertebrate relocation plan shall be implemented when ecologically appropriate as determined by a qualified biologist to ensure that significant numbers of native fish and aquatic vertebrates are not stranded. Prior to the start of work or during the installation of water diversion structures, native aquatic vertebrates shall be captured in the work area and transferred to another reach as determined by a qualified biologist. Timing of work in streams that supports a significant number of amphibians will be delayed until metamorphosis occurs to minimize impacts to the resource. Capture and relocation of aquatic native vertebrates is not required at individual project sites when site conditions preclude reasonably effective operation of capture gear and equipment, or when the safety of biologist conducting the capture may be compromised. Relocation of native fish or aquatic vertebrates may not always be ecologically appropriate. Prior to capturing native fish and/or vertebrates, the qualified biologist will use a number of factors, including site conditions, system carrying capacity for potential relocated fish, and flow regimes (e.g., if flows are managed) to determine whether a relocation effort is ecologically appropriate. If so, the following factors will be considered when selecting release site(s): 1. similar water temperature as capture location; 2. ample habitat availability prior to release of captured individuals; 3. presence of other same species so that relocation of new individuals will not upset the existing prey/predation function; 4. carrying capacity of the relocation location; 5. potential for relocated individual to transport disease; and 6. low likelihood of fish reentering work site or becoming impinged on exclusion net or screen. Proposals to translocate any covered species will be reviewed and approved by the Wildlife Agencies.
16	When work in a flowing stream is unavoidable, the entire streamflow shall be diverted around the work area by a barrier, except where it has been determined by a qualified biologist that the least environmentally disruptive approach is to work in a flowing stream. Where feasible, water diversion techniques shall allow stream flows to gravity flow around or through the work site.
17	Coffer dams shall be installed both upstream and downstream not more than 100 feet from the extent of the work areas. Coffer dam construction shall be adequate to prevent seepage into or from the work area. Stream flow will be pumped around the work site using pumps and screened intake hoses. 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.).
18	Small in-channel berms that deflect water to one side of the channel during project implementation may be constructed of channel material in channels with low flows.
19	Sumps or basins may also be used to collect water, where appropriate (e.g., in channels with low flows).
20	Diversions shall maintain ambient stream flows below the diversion, and waters discharged below the project site shall not be diminished or degraded by the diversion. All materials placed in the channel to dewater the channel shall be removed when the work is completed. Normal flows shall be restored to the affected stream as soon as is feasible and safe after completion of work at that location.
21	To the extent that stream bed design changes are not part of the project, the stream bed will be returned to as close to pre-project condition as appropriate.
22	To the extent feasible, all temporary diversion structures and the supportive material shall be removed no more than 48 hours after work is completed.
23	Temporary fills, such as for access ramps, diversion structures, or cofferdams, shall be completely removed upon finishing the work.
24	To prevent increases in temperature and decreases in dissolved oxygen (DO), if bypass pipes are used, they shall be properly sized (i.e., larger diameter pipes to better pass the flows). Use of bypass pipes may be avoided by creating a low-flow channel or using other methods to isolate the work area.

Table 6-2. Continued

ID	Avoidance and Minimization Measure
25	Diversions shall maintain fish passage when the project meets the following conditions: 1) the length of the area dewatered exceeds 500 feet, and/or 2) the length of time the stream is dewatered exceeds two weeks in length. Conditions for fish passage shall be met as long as the diversion 1) maintains contiguous flows through a low flow channel in the channel bed or an artificial open channel, 2) presents no vertical drops exceeding six (6) inches and follows the natural grade of the site, 3) maintains water velocities that shall not exceed eight feet per second (8 ft/sec), and 4) maintains adequate water depths consistent with normal conditions in the project reach. An artificial channel used for fish passage shall be lined with cobble/gravel. A closed conduit pipe shall not be used for fish passage. The inlets of diversions shall be checked daily to prevent accumulation of debris.
26	Any sediment removed from a project site shall be stored and transported in a manner that minimizes water quality impacts.
27	Sediment from the San Francisco Bay Watershed, including that for reuse, will not be removed to areas any farther south than Metcalf Road in south San Jose.
28	Where practical, the removed sediments and gravels will be re-used.
29	Existing native vegetation shall be retained by removing only as much vegetation as necessary to accommodate the trail clearing width. Maintenance roads should be used to avoid effects on riparian corridors.
30	Vegetation control and removal in channels, on stream banks, and along levees and maintenance roads shall be limited to removal necessary for facility inspection purposes, or to meet regulatory requirements or guidelines.
31	When conducting vegetation management, retain as much understory brush and as many trees as feasible, emphasizing shade producing and bank stabilizing vegetation. If riparian vegetation is to be removed with chainsaws, consider using saws currently available that operate with vegetable-based bar oil.
32	In-channel vegetation removal may result in increased local erosion due to increased flow velocity. To minimize the effect, the top of the bank shall be protected by leaving vegetation in place to the maximum extent possible.
33	Regional Board objectives for temperature change in receiving waters (measured 100 feet downstream of discharge point) shall not be exceeded. Receiving water and discharge water may be monitored for temperature changes after a comparison of ambient temperature to pipeline water temperature suggests the potential for change.
	Project Design
34	Use the minimum amount of impermeable surface (building footprint, paved driveway, etc.) as practicable.
35	Use pervious materials, such as gravel or turf pavers, in place of asphalt or concrete to the extent practicable.
36	Use flow control structures such as swales, retention/detention areas, and/or cisterns to maintain the existing (pre-project) peak runoff.
37	Direct downspouts to swales or gardens instead of storm drain inlets.
38	Use flow dissipaters at runoff inlets (e.g., culvert drop-inlets) to reduce the possibility of channel scour at the point of flow entry.
39	Minimize alterations to existing contours and slopes, including grading the minimum area necessary.
40	Maintain native shrubs, trees and groundcover whenever possible and revegetate disturbed areas with local native or non-invasive plants.
41	Combine flow-control with flood control and/or treatment facilities in the form of detention/retention basins, ponds, and/or constructed wetlands.
42	Use flow control structures, permeable pavement, cisterns, and other runoff management methods to ensure no change in post-construction peak runoff volume from pre-project conditions for all covered activities with more than 5,000 square feet of impervious surface.
43	Site characteristics will be evaluated in advance of project design to determine if non-traditional designs, such as bioengineered bank treatments that incorporate live vegetation, can be successfully utilized while meeting the requirements of the project.
44	Maintenance of natural stream characteristics, such as riffle-pool sequences, riparian canopy, sinuosity, floodplain, and a natural channel bed, will be incorporated into the project design.

Table 6-2. Continued

ID	Avoidance and Minimization Measure
45	Stream crossings shall incorporate a free-span bridge unless infeasible due to engineering or cost constraints or unsuitable based on minimal size of stream (swale without bed and banks or a very small channel). If a bridge design cannot free-span a stream, bridge piers and footings will be designed to have minimum impact on the stream. A hydraulics analysis must be prepared and reviewed by the jurisdictional partner, including SCVWD as appropriate, demonstrating that piers or footings will not cause significant scour or channel erosion. Whenever possible, the span of bridges will also allow for upland habitat beneath the bridge to provide undercrossing areas for wildlife species that will not enter the creek. Native plantings, natural debris, or scattered rocks will be installed under bridges to provide wildlife cover and encourage the use of crossings.
46	Whenever possible, the span of bridges will also allow for upland habitat beneath the bridge to provide undercrossing areas for wildlife species that will not enter the creek.
47	If a culvert is used, up- and downstream ends of the culvert must be appropriately designed so that the stream cannot flow beneath the culvert or create a plunge pool at the downstream end. Preference will be given to designs that allow a natural bottom (arch culvert) and/or which do not alter natural grade.
48	Trails will be sited and designed with the smallest footprint necessary to cross through the in-stream area. Trails will be aligned perpendicular to the channel and be designed to avoid any potential for future erosion. New trails that follow stream courses will be sited outside the riparian corridor.
49	The project or activity must be designed to avoid the removal of riparian vegetation, if feasible. If the removal of riparian vegetation is necessary, the amount shall be minimized to the amount necessary to accomplish the required activity and comply with public health and safety directives.
50	If levee reconstruction requires the removal of vegetation that provides habitat value to the adjacent stream (e.g., shading, bank stabilization, food sources, etc.), then the project will include replacement of the vegetation/habitat that was removed during reconstruction unless it is determined to be inappropriate to do so by the relevant resource agencies (e.g., CDFG and USFWS).
51	All projects will be conducted in conformance with applicable County and/or city drainage policies.
52	Adhere to the siting criteria described for the borrow site covered activity (see Chapter 2 for details).
53	When possible, maintain a vegetated buffer strip between staging/excavation areas and receiving waters.
54	When not within the construction footprint, deep pools within stream reaches shall be maintained as refuge for fish and wildlife by constructing temporary fencing and/or barrier so as to avoid pool destruction and prevent access from the project site.
55	For stream maintenance projects that result in alteration of the stream bed during project implementation, its low flow channel shall be returned to its approximate prior location with appropriate depth for fish passage without creating a potential future bank erosion problem.
56	Increased water velocity at bank protection sites may increase erosion downstream. Therefore, bank stabilization site design shall consider hydraulic effects immediately upstream and downstream of the work area. Bank stabilization projects will be designed and implemented to provide similar roughness and characteristics that may affect flows as the surrounding areas just upstream and downstream of the project site.
57	When parallel to a stream or riparian zone and not located on top of a levee, new trails shall be located behind the top of bank or at the outside edge of the riparian zone except where topographic, resource management, or other constraints or management objectives make this not feasible or undesirable.
58	Existing access routes and levee roads shall be used if available to minimize impacts of new construction in special status species habitats and riparian zones.
59	Trails in areas of moderate or difficult terrain and adjacent to a riparian zone shall be composed of natural materials or shall be designed (e.g., a bridge or boardwalk) to minimize disturbance and need for drainage structures, and to protect water quality.
60	Trail crossings of freshwater stream zones and drainages shall be designed to minimize disturbance, through the use of bridges or culverts, whichever is least environmentally damaging. Structures over water courses shall be carefully placed to minimize disturbance. Erosion control measures shall be taken to prevent erosion at the outfalls of drainage structures.

ID	Avoidance and Minimization Measure
	Construction
61	Minimize ground disturbance to the smallest area feasible.
62	Use existing roads for access and disturbed area for staging as site constraints allow. Off-road travel will avoid sensitive communities such as wetlands and known occurrences of covered plants.
63	Prepare and implement sediment erosion control plans.
64	No winter grading unless approved by City Engineer and specific erosion control measures are incorporated.
65	Control exposed soil by stabilizing slopes (e.g., with erosion control blankets) and protecting channels (e.g., using silt fences or straw wattles).
66	Control sediment runoff using sandbag barriers or straw wattles.
67	No stockpiling or placement of erodible materials in waterways or along areas of natural stormwater flow where materials could be washed into waterways.
68	Stabilize stockpiled soil with geotextile or plastic covers.
69	Maintain construction activities within a defined project area to reduce the amount of disturbed area.
70	Only clear/prepare land which will be actively under construction in the near term.
71	Preserve existing vegetation to the extent possible.
72	Equipment storage, fueling and staging areas will be sited on disturbed areas or non-sensitive habitat outside of a stream channel.
73	Avoid wet season construction.
74	Stabilize site ingress/egress locations.
75	Dispose of all construction waste in designated areas and prevent stormwater from flowing onto or off of these areas.
76	Prevent spills and clean up spilled materials.
77	Sweep nearby streets at least once a day.
78	In-stream projects occurring while the stream is flowing must use appropriate measures to protect water quality, native fish and covered wildlife species at the project site and downstream of the project site.
79	If mercury contamination may be present, the channel must be dewatered prior to commencement of the activity.
80	All personnel working within or adjacent to the stream setback (i.e., those people operating ground-disturbing equipment) will be trained by a qualified biologist in these avoidance and minimization measures and the permit obligations of project proponents working under this Plan.
81	Temporary disturbance or removal of aquatic and riparian vegetation will not exceed the minimum necessary to complete the work.
82	Channel bed temporarily disturbed during construction activities will be returned to pre-project or ecologically improved conditions at the end of construction.
83	Sediments will be stored and transported in a manner that minimizes water quality impacts. If soil is stockpiled, no runoff will be allowed to flow back to the channel.
84	Appropriate erosion control measures (e.g., fiber rolls, filter fences, vegetative buffer strips) will be used on site to reduce siltation and runoff of contaminants into wetlands, ponds, streams, or riparian vegetation. Fiber rolls used for erosion control will be certified as free of noxious weed seed. Filter fences and mesh will be of material that will not entrap reptiles and amphibians. Erosion control measures will be placed between the outer edge of the buffer and the project site.
85	Seed mixtures applied for erosion control will not contain invasive nonnative species and will be composed of native species or sterile nonnative species. If sterile nonnative species are used for temporary erosion control, native seed mixtures must be used in subsequent treatments to provide long-term erosion control and slow colonization by invasive nonnatives.
86	Topsoil removed during soil excavation will be preserved and used as topsoil during revegetation when it is necessary to conserve the natural seed bank and aid in revegetation of the site.
87	Vehicles operated within and adjacent to streams will be checked and maintained daily to prevent leaks of materials that, if introduced to the water, could be deleterious to aquatic life.

ID	Avoidance and Minimization Measure
88	Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas.
89	The potential for traffic impacts on terrestrial animal species will be minimized by adopting traffic speed limits.
90	All trash will be removed from the site daily to avoid attracting potential predators to the site. Personnel will clean the work site before leaving each day by removing all litter and construction-related materials.
91	To prevent the spread of exotic species and reduce the loss of native species, aquatic species will be netted at the drain outlet when draining reservoirs or ponds to surface waters. Captured native fish, native amphibians, and western pond turtles will be relocated if ecologically appropriate. Exotic species will be dispatched.
92	To minimize the spread of pathogens all staff working in aquatic systems (i.e., streams, ponds, and wetlands)—including site monitors, construction crews, and surveyors—will adhere to the most current guidance for equipment decontamination provided by the Wildlife Agencies at the time of activity implementation. Guidance may require that all materials that come in contact with water or potentially contaminated sediments, including boot and tire treads, be cleaned of all organic matter and scrubbed with an appropriate cleansing solution, and that disposable gloves be worn and changed between handling equipment or animals. Care should be taken so that all traces of the disinfectant are removed before entering the next aquatic habitat.
93	When accessing upland areas adjacent to riparian areas or streams, access routes on slopes of greater than 20% should generally be avoided. Subsequent to access, any sloped area should be examined for evidence of instability and either revegetated or filled as necessary to prevent future landslide or erosion.
94	Personnel shall use existing access ramps and roads if available. If temporary access points are necessary, they shall be constructed in a manner that minimizes impacts to streams.
95	To prevent inadvertent entrapment of animals during excavation, all excavated, steep-walled holes or trenches more than 2-feet deep will be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks.
96	Isolate the construction area from flowing water until project materials are installed and erosion protection is in place.
97	Erosion control measures shall be in place at all times during construction. Do not start construction until all temporary control devices (straw bales, silt fences, etc.) are in place downstream of project site.
98	When needed, utilize in-stream grade control structures to control channel scour, sediment routing, and headwall cutting.
	Post-Construction
99	Conduct street cleaning on a regular basis
100	Potential contaminating materials must be stored in covered storage areas or secondary containment that is impervious to leaks and spills
101	Runoff pathways shall be free of trash containers or trash storage areas. Trash storage areas shall be screened or walled
102	Immediately after project completion and before close of seasonal work window, stabilize all exposed soil with mulch, seeding, and/or placement of erosion control blankets .
103	All disturbed soils will be revegetated with native plants and/or grasses or sterile nonnative species suitable for the altered soil conditions upon completion of construction. Local watershed native plants will be used if available. If sterile nonnative species are used for temporary erosion control, native seed mixtures must be used in subsequent treatments to provide long-term erosion control and slow colonization by invasive nonnatives. All disturbed areas that have been compacted shall be de-compacted prior to planting or seeding. Cut-and-fill slopes will be planted with local native or non-invasive plants suitable for the altered soil conditions.
104	Measures will be utilized on site to prevent erosion along streams (e.g., from road cuts or other grading), including in streams that cross or are adjacent to the project proponent's property. Erosion control measures will utilize natural methods such as erosion control mats or fabric, contour wattling, brush mattresses, or brush layers. For more approaches and detail, please see the *Bank Protection/ Erosion Repair Design Guide* in the Santa Clara Valley Water Resources Protection Collaborative's *User Manual: Guidelines & Standards for Land Use Near Streams* (Santa Clara Valley Water Resources Protection Collaborative 2006).

Table 6-2. Continued

ID	Avoidance and Minimization Measure
105	Vegetation and debris must be managed in and near culverts and under and near bridges to ensure that entryways remain open and visible to wildlife and that passage through the culvert or bridge remains clear.
106	Prior to undertaking stream maintenance activities, reach conditions will be assessed to identify tasks that are necessary to maintain the channel for the purpose for which it was designed and/or intended (e.g., flood control, groundwater recharge). Only in-stream work that is necessary to maintain the channel will be conducted.
107	On streams managed for flood control purposes, when stream reaches require extensive vegetation thinning or removal (e.g., when the channel has been fully occluded by willows or other vegetation), removal will be phased so that some riparian land cover remains and provides some habitat value. In addition, vegetation removal will be targeted and focused on removing the least amount of riparian vegetation as possible while still meeting the desired flood control needs. For example, vegetation removal should be focused on shrubby undergrowth at the toe-of-slope that is most likely to increase roughness and create a flooding hazard. Vegetation on the upper banks, particularly mature tree canopy, should be maintained to the extent possible to provide habitat for birds and small mammals and shading for the active channel.
108	When reaches require sediment removal, approaches will be considered that may reduce the impacts of the activity. Examples of potential approaches include phasing of removal activities or only removing sediment along one half of the channel bed, allowing the other half to remain relatively undisturbed.
109	In streams not managed for flood control purposes, woody material (including live leaning trees, dead trees, tree trunks, large limbs, and stumps) will be retained unless it is threatening a structure, impedes reasonable access, or is causing bank failure and sediment loading to the stream.
110	If debris blockages threaten bank stability and may increase sedimentation of downstream reaches, debris will be removed. When clearing natural debris blockages (e.g., branches, fallen trees, soil from landslides) from the channel, only remove the minimum amount of debris necessary to maintain flow conveyance (i.e., prevent significant backwatering or pooling). Non-natural debris (e.g., trash, shopping carts, etc.) will be fully removed from the channel.
111	If bank failure occurs due to debris blockages, bank repairs will only use compacted soil, and will be re-seeded with native grasses or sterile nonnative hybrids and stabilized with natural erosion control fabric. If sterile nonnative species are used for temporary erosion control, native seed mixtures must be used in subsequent treatments to provide long-term erosion control and slow colonization by invasive nonnatives. If compacted soil is not sufficient to stabilize the slope, bioengineering techniques must be used. No hardscape (e.g., concrete or any sort of bare riprap) or rock gabions may be utilized in streams not managed for flood control except in cases where infrastructure or human safety is threatened (e.g., undercutting of existing roads). Rock riprap may only be used to stabilize channels experiencing extreme erosion, and boulders must be backfilled with soil and planted with willows or other native riparian species suitable for planning in such a manner. If available, local native species will be utilized as appropriate.
112	Pumps and generators shall be maintained and operated in a manner that minimizes impacts to water quality and aquatic species.
113	The channel bottom shall be re-graded at the end of the work project to as close to original conditions as possible.
114	Erosion control methods shall be used as appropriate during all phases of routine maintenance projects to control sediment and minimize water quality impacts.
115	All construction pipes, culverts, or similar structures with a diameter of 4 inches or greater that are stored at a construction site for one or more overnight periods will be thoroughly inspected for wildlife by properly trained construction personnel before the pipe is subsequently buried, capped, or otherwise used or moved in anyway.